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PUBLIC WORKS FOR WATER AND POWER DEVELOPMENT AND ENERGY RESEARCH APPROPRIATION BILL, 1979

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HEARINGS

BEFORE A

SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES

NINETY-FIFTH CONGRESS

SECOND SESSION

SUBCOMMITTEE ON PUBLIC WORKS

TOM BEVILL, Alabama, *Chairman*

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HUNTER L. SPILLAN, GEORGE A. URIAN, M. C. GREER, and DAVID OLSON, *Staff Assistants*

PART 3

DEPARTMENT OF THE INTERIOR:
Bureau of Reclamation 184
Testimony of the Secretary of the Interior 1
WATER RESOURCES COUNCIL 43

Printed for the use of the Committee on Appropriations

AUTHENTICATED U.S. GOVERNMENT INFORMATION GPO

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PUBLIC WORKS FOR WATER AND POWER DEVELOPMENT AND ENERGY RESEARCH APPROPRIATION BILL, 1979

WEDNESDAY, FEBRUARY 22, 1978.

DEPARTMENT OF THE INTERIOR

TESTIMONY OF THE SECRETARY OF THE INTERIOR

WITNESSES

CECIL D. ANDRUS, SECRETARY OF THE INTERIOR
GUY R. MARTIN, ASSISTANT SECRETARY, LAND AND WATER RESOURCES
R. KEITH HIGGINSON, COMMISSIONER, BUREAU OF RECLAMATION
LEO M. EISEL, DIRECTOR, WATER RESOURCES COUNCIL

OPENING REMARKS

Mr. BEVILL. The committee will come to order.

We are glad to have you, Mr. Secretary, and also Secretary Martin, and Commissioner Higginson, and Mr. Eisel, the Director of Water Resources Council. I am going to suggest that we first hear your testimony, Mr. Secretary, as you are wearing two hats here this morning. We will hear from you as the Secretary of the Interior first, and then we will take questions, and then we will come back to you again as the chairman of the Water Resources Council, if that meets with your approval. We will proceed that way.

We have at least one member on the Appropriations Committee that is going to want to come in and ask you questions about Utah projects, in your capacity as Secretary of the Interior. You may proceed if you wish, Mr. Secretary, with your opening statement.

Secretary ANDRUS. Thank you, Mr. Chairman, and whatever pleasure the chairman desires, with reference to the Bureau of Reclamation area, we will handle first.

I have a comprehensive statement I want to submit for the record, Mr. Chairman, I think it is already in the record, and summarize my opening remarks, if it meets with your pleasure, so that we can get on with the questions.

[The following was received for the record:]

STATEMENT OF CECIL D. ANDRUS, SECRETARY OF THE DEPARTMENT OF THE INTERIOR, BEFORE THE HOUSE APPROPRIATIONS COMMITTEE'S SUBCOMMITTEE ON PUBLIC WORKS, FEBRUARY 22, 1978

Mr. Chairman and members of the Committee, thank you for this opportunity to present an overview of the fiscal year 1979 budget request for the Public Works portion of the Department of the Interior's program.

As you well know, on October 1, 1977, the newly created Department of Energy was established and various activities formerly within the Department of the Interior were transferred to this new agency; namely, the Bonneville, Southeastern, Southwestern and Alaska Power Administrations, as well as the power marketing functions of the Bureau of Reclamation, and certain elements of the Bureau of Mines. Consequently my budget request to you this morning has somewhat fewer organizational entities than in previous years. Before proceeding with the Budget Highlights of our fiscal year 1979 request I would like to comment on a couple of items which are of interest to the Committee.

WATER POLICY REVIEW

The National water resources policy review requested by the President in the Environmental Message last May is nearing completion. Option papers were published last summer and public hearings were held in nine cities throughout the Nation. The period for public comment was held open until November 20. Numerous discussions have been held with official governmental organizations including the National Governors Association, the Western States Water Council, the Interstate Conference on Water Problems, and the National Association of State Legislatures. Also, discussions have been held with staff representatives of the Governors of the northeastern states.

Several sessions have been held with Governor Scott Matheson of Utah in his capacity as chairman of the special water resources committee of the National Governors Association. The members of that committee met with me in my office on February 3, and I met with them again in Denver, Colorado, February 17th.

I expect the final decision document to be submitted to the President within the next few weeks and a decision will be announced after his decision.

WATER PROJECTS REVIEW

At the request of the President, 45 projects funded in the fiscal year 1978 budget were subjected to a screening process to determine whether they should undergo a full-scale review. The screening process applied three basic criteria - economic justification, environmental impact, and safety concerns - to determine if a further review was necessary. As a result of the screening process, eleven Bureau of Reclamation projects were selected for comprehensive review.

As a result of this review, the President recommended:

(1) that funding be continued for three projects: the Dallas Creek project, Colorado; Dolores project, Colorado; and the Lyman project, Wyoming;

(2) that funding be continued for three projects - with modification: the Central Arizona project; the Garrison project, North Dakota; and the Bonneville unit, Central Utah project, Utah;

(3) that funding be withheld on three projects - pending further study: the Auburn project, California; Narrows unit, Colorado; and the Oahe unit, South Dakota; and finally

(4) that funding be deleted on two projects: Savery-Pot Hook, Colorado, and Fruitland Mesa project, Colorado.

Congress reviewed those recommendations and as you are aware, approved funding deletions for the Savery-Pot Hook, Fruitland Mesa, Narrows and Oahe projects.

AUBURN DAM

At this time last year the President recommended that funds be deleted from the fiscal year 1978 budget for construction of the Auburn Dam pending resolution of the safety issues involved.

Although the Congress restored funding, it was stipulated that none of the funds were to be used to award a contract to initiate construction of Auburn Dam until a final determination is made on the safety questions.

Seismic studies have now been completed and an independent Board of Consultants is currently reviewing the findings.

Upon completion of their reviews, as well as ours and the State of California's, a decision will be made as to whether construction of the project should proceed. If the decision is favorable, funds will be requested to continue construction.

GARRISON DIVERSION UNIT

On May 11, 1977, I entered into a court-approved agreement in the case which required completion of a supplemental environmental statement. The agreement also required the Department to propose legislation requesting authorization of an option for project development, reauthorization, or deauthorization of the project.

The Department has thus far fully complied with the Stipulation and Order. On February 1 a draft environmental statement was forwarded to the Environmental Protection Agency and hearings on the statement will be held in late March in North Dakota.

In addition, a draft report discussing a proposed modification of the authorized project and fish and wildlife mitigation plan was released with the environmental statement. The report outlines a 96,300-acre plan for proposed modification of the Garrison Unit. The report and draft proposed legislation have been submitted to the Office of Management and Budget to determine whether they are in conformance with the President's program.

As you know, the September 1977 Report of the International Joint Commission recommended a delay in construction of those portions of the Garrison Diversion Unit that lie within the Hudson Bay Drainage Basin. The U. S. Government is committed to undertake no construction of works in the Garrison Diversion Unit affecting waters flowing into Canada until it is clear that its obligations under the Boundary Waters Treaty of 1909 will be met.

The State Department and the Canadian Government are presently reviewing the 96,300-acre plan to determine the extent to which the new plan would affect waters entering Canada.

Because of unresolved legal and international questions, we have not requested funding for fiscal year 1979. I should point out, however, that additional funds will be requested at a later time when these problems are favorably resolved.

BUREAU OF RECLAMATION - BUDGET REQUEST

In the portion of the Interior Department's budget which comes before your Committee, we are requesting new FY 1979 appropriations for the Bureau of Reclamation in the amount of $618 million, which includes $480 million for construction activities and $88 million for operation and maintenance. This compares with total fiscal year 1978 appropriations of $681 million. The total program for water resource development activities of the Bureau, which includes applied revenues, non-Federal advances, and carryover funds from prior years, totals $663.9 million in FY 1979.

I would like to briefly highlight some of the programs included in this request.

Construction Program

The construction program will continue 74 projects located throughout the 17 Western States and requests for new appropriations, including the small loan program, total $480 million in fiscal year 1979, a decrease of about $71 million from the $551 million provided in 1978. The reduced

appropriation request for the construction program reflects two principal factors:

(1) A number of projects (such as Brantley, San Felipe Division of the Central Valley Project, and the Yuma Desalting Plant) have had contract awards delayed during the past year due to siting problems or contracting difficulties not related to funding levels, therefore reducing the opportunities for new contract awards.

(2) As previously mentioned, the 1979 budget does not include new contract funding for Auburn Dam or the Garrison Diversion Unit. For both of these projects the amount of funding that would be required for new contracts in fiscal year 1979, if the problems are satisfactorily resolved and construction can proceed, will depend on the time and manner of their resolution and, therefore, cannot be estimated at this time. However, if the resolution of problems at these projects indicates the need for additional 1979 funding, appropriations will be sought through a later request to Congress.

No new major project starts or new loan starts are proposed for fiscal year 1979; however, $18 million will be utilized for award of new construction contracts. Requested appropriation levels for Reclamation construction projects such as the Columbia Basin project, Fryingpan-Arkansas project, Southern Nevada Water project, Central Arizona project, the Bonneville and Jensen units of the Central Utah project, both Titles of the Colorado River Basin Salinity Control Project, and several units of the Central Valley project in California, provide for funding all continuing contracts and for all new contract awards necessary to keep the projects on schedule with the completion dates proposed in last year's budget or as accelerated by fiscal year 1978 appropriations action except in those instances where delays have been caused by nonbudgetary reasons.

Included within the construction total is approximately $3 million for initiating work on dam safety projects at Deerfield Dam, South Dakota; Lahontan Dam, Nevada; Hyrum Dam, Utah; Stony Gorge Dam, California; and Gibson Dam, Montana. Coupled with the funding, we are developing proposed legislation to authorize modifications of dams when necessary for safety purposes.

Operation and Maintenance

The appropriation request for the operation and maintenance activity will total $87.9 million. This request excludes requirements for the purchase power and wheeling function, which has been transferred to the new Department of Energy. This request compares with $78.4 million in 1978, an increase of $9.5 million.

In 1979 a total of 31 projects, project areas or division of projects will be maintained for power, municipal and industrial water supplies, irrigation, flood control, soil and moisture conservation, and administration of water marketing contracts.

General Investigations Program

Reclamation's planning and research program under the title of General Investigations totals $22.2 million. This will allow for continued planning on 61 projects and initiation of activity on 18 new investigations with emphasis on increasing hydroelectric generation capacity, a clean source of electrical energy.

Other Activities

Other activities of the Bureau include $25.3 million for general administrative expenses, $2.7 million in permanent appropriations, and $4.5 million in trust funds.

Miscellaneous Statistics

I would like to point out that in the area of returns from the Reclamation program about $4.3 billion of agricultural products were produced on Reclamation projects in 1976. Food, fiber, and forage production totaled a record 59.1 million tons. Population served reached a record high 18.1 million, and included 16.1 million who received municipal and industrial water service.

Electricity marketed by Reclamation from its 50 hydroelectric plants and from plants owned by other agencies in fiscal year 1976 amounted to 60.9 billion kilowatt-hours (KWH). Electrical energy revenues set a new record at $283 million, a 26-percent increase over fiscal year 1975. There are many other benefits from the Reclamation program, including recreation which totaled 62.4 million visitor days in 1976.

WATER RESOURCES COUNCIL

The fiscal year 1979 budget request of $11.6 million for the Water Resources Council (WRC) provides for a continuing, but redirected, program to better fulfill the mandates of the Water Resources Planning Act of 1965 (P.L. 89-80).

In my letter transmitting proposed authorizing legislation for the Council, I stated that it is the Administration's position that the WRC program should be funded to continue through fiscal year 1979. This continuation will allow us time to review the findings and recommendations of both the Water Resources Policy Study and the President's Reorganization Project and determine, in consultation with Congress, the best institutional arrangements at the Federal level for coordination and management of our water resources programs.

However, until those decisions can be made, the valuable work of the Council must be continued. There is increasing interest in this program from those concerned with water and related land. Council programs to assess the water problems of this Nation, to assist state planning programs, to evolve a Water Assessment and Apprisal Program, as well as continuing policy and planning analysis and coordination efforts, have assisted and will continue to assist greatly the water resource management efforts of both Federal and State government. I urge your favorable consideration of this request.

CONCLUSION

Mr. Chairman, that concludes my remarks on the highlights of the overall Bureau of Reclamation and Water Resources Council requests. Other officials from these agencies will be presenting their requests to you in greater detail.

May I say, Mr. Chairman and members of the Committee, that it is again a distinct pleasure and privilege to be here, and I want to thank you for the opportunity of appearing before you today. My staff and I welcome any questions you might have.

I would like to express my appreciation to you and the members of the committee for once again to be able to come to you with our request for fiscal 1979.

COMPLETION OF NATIONAL WATER POLICY REVIEW

As you are aware, the National Water Resources Policy Review is nearing completion, the one started by the administration a year ago. Option papers were published last summer, there were extensive field hearings held in nine cities, and public comments have been received.

My staff and myself have had numerous meetings with representatives in the National Governors' Conference, their subcommittee on water user staff and others, and we expect a decision document to be submitted to the President within the next few weeks, around March 15, and then a decision will be announced after the President has seen the decision document and made his cut on that.

I have indicated to you, Mr. Chairman, and I think publicly on several occasions, in answer to some of the questions of your members, that there is no intent on the part of the administration to reevaluate those projects that we reviewed last year.

FISCAL YEAR 1979 RECLAMATION BUDGET

Our 1979 budget was designed to be consistent with last year's appropriations action, and to not attempt to go back over issues settled last year.

The reclamation construction budget of $480 million is down $71 million from the 1978 level. This reduction, however, does not reflect a budgetary slowdown. Appropriations for most projects continue on schedule with last year's appropriation action. All continuing contracts are fully funded, and about $18 million is budgeted for new contract awards to keep ongoing projects on schedule. Several projects are accelerated consistent with last year's appropriations action.

The decrease that I referred to of $71 million, results from two factors. One, that some projects have had contract awards delayed due to siting problems, and contracting difficulties unrelated to funding levels.

DELAY IN CONSTRUCTION

Construction has been delayed on the Auburn Dam and Garrison diversion projects.

On Auburn Dam, last year the President recommended that funds be deleted from the 1978 budget pending resolution of the safety issues involved in that project.

The Congress restored the funding, but the Members of Congress stipulated in that act that none of the funds were to be used in initiate construction until the safety issues had been resolved. Now, seismic studies have been completed, and an independent board of consultants is currently reviewing the finding. Upon completion of their reviews, as well as ours, and the State of California, a decision will be made as to whether construction should proceed.

I might point out, Mr. Chairman, that we gave our word a year ago to the State of California that although their decision would not be binding upon the decision of the Federal Government, but that we

would wait and receive their input before proceeding, and I understand that that is scheduled for about June of this year. And if a decision is favorable at that point in time, funds will be requested to continue construction. Under the earliest time frame the additional funding requirement would be $26 million.

This has been discussed with the Office of Management and Budget. It is my understanding that it has been footnoted in the budget as presented.

GARRISON DIVERSION UNIT

Now, on the Garrison diversion unit, the Department is still complying with the stipulation and order stemming from last year's Audubon suit in the Federal court. A draft EIS was forwarded to the Environmental Protection Agency on February 1, and hearings on the statement will be held in North Dakota in late March.

In addition, a draft report discussing a proposed modification of the project was released with the statement. The report outlines a 96,300-acre plan for the Garrison unit. The report and draft proposed legislation have been submitted to OMB for Executive Office review. It is still there at this time.

Now, the September 1977 report of the International Joint Commission recommended a delay in construction of those portions of the Garrison unit that lie in the Hudson Bay drainage basin. The U.S. Government is committed to hold off construction of any features which could affect waters flowing into Canada until it is clear that the obligations of the 1909 Boundary Waters Treaty can be met.

The State Department and the Canadian Government are currently reviewing the 96,300-acre plan, to determine the extent to which it would affect waters entering Canada.

Because of these legal and international questions, we have not requested funding for fiscal year 1979.

I should point out, however, that additional funds will be requested at a later time if these problems are favorably resolved.

Once again, this has been cleared with the Office of Management and Budget, and is so footnoted in the request.

DAM SAFETY

The other area under "Reclamation" that I would just like to briefly mention, Mr. Chairman, is to the area of dam safety, and we have included $3 million to initiate dam safety projects at five sites. These projects require authorization, and a legislative recommendation is being prepared for that purpose.

You will recall that there were 13 sites that came forward as to where we anticipated future problems. Five of these 13 are included in our budget this year for a total amount of $3 million.

That would conclude my brief statement, Mr. Chairman, and again I have with me the Assistant Secretary for Land and Water, under whose purview the Bureau of Reclamation, WRC, resides, the Commissioner of the Bureau of Reclamation and the Director of WRC with us to answer any questions that you or any of your committee members may have.

Mr. BEVILL. Thank you Mr. Secretary.

I am certain this committee appreciates your work last year involving the water projects. We certainly commend you for your efforts in getting this resolved, and in looking to the future, rather than trying to go back and stop projects that have been half built. That creates all kinds of problems that you and I agreed that we do not want to see any more.

Secretary ANDRUS. Yes, sir.

FUTURE OF WATER PROJECTS

Mr. BEVILL. I understand the water policy review is scheduled to be submitted, I believe, to the President, March 15?

Secretary ANDRUS. On or about.

Mr. BEVILL. Yes.

Now, can you tell the committee how these recommendations as contained in this report differ from the policies that have been followed in past years?

Secrtary ANDRUS. Mr. Chairman, first of all, I would say it is a water policy review, not water policy per se. But the review of the policy, we are looking at the problems of water throughout the United States, including domestic water supplies, where they have problems in some of the larger eastern cities, in the area of the backlog of the projects where we have between, I believe the Army Corps and Bureau of Reclamation, about 2,800 projects authorized for a total cost of $34 billion.

Looking at a means of analyzing those, as to where the money that is available in here can best be spent, those areas where we have not had adequate studies and provisions to determine what the alternative source of water would be, the areas of—basically our recommendations, should we or should we not deal in the area of water conservation when we are utilizing Federal dollars in funding and financing housing units, the conservation possibilities, and the studying of different means of application of the water to the soil.

But I cannot report to you today, Mr. Chairman, as to what the final documents will be. We have completed, as recently as last Friday, a meeting with the chairman of the National Governors' Conference Subcommittee on Water. We have some further discussions to be held with Members of Congress before that report is finalized.

So there is no way today I can say this would be the findings, but in the general areas that I have mentioned, we are investigating.

Mr. BEVILL. I understand Mrs. Smith has to go to another committee meeting. I understand she has about three questions that she wants to ask, and if there is no objection, I will interrupt my questions here, and yield to Mrs. Smith.

Is there any objection to that?

Mr. MYERS. No.

Mrs. SMITH. That is very generous of you, Mr. Chairman, and thank you, Congressman Myers.

Mr. Secretary, I appreciate very much having you here, and having the opportunity to talk to you about some of these issues, because you know my district is very much involved.

DECREASED WATER RESOURCE DEVELOPMENT IN THIRD DISTRICT, NEBRASKA

As I look over the Department's budget request for 1979 for our third district, I note that the total amount of money is down by $2 million from the fiscal 1978 request. That means a great reduction in Bureau activities.

You know, we depend a lot on the work of the Bureau to conserve our water and maximize our efficiency and its use. We are all very disturbed about this cut, and I am afraid it is typical of the attitude toward the water resource development programs.

Would you explain for us the reasons for this cut, and if it is your intention to continue to decrease water resource development in my district?

Secretary ANDRUS. Mr. Chairman, Mrs. Smith, let me speak to the philosophical concept first, if I might, because it is not the intent of the Bureau of Reclamation, or the Department of Interior to do away with reclamation projects. As a matter of fact, in your district and others, the development schedules have been maintained for the coming year, but there are areas of priority in our study this year, where we have the 18 new areas of concern in the development of hydroelectric power.

You asked about the future, at the $480 million construction level of fiscal year 1979, without any other projects, our fiscal 1980 schedule would take us to about $580 million, an increase of $100 million in 1 year, and the next year it just keeps proceeding out into the future.

So, in answer to the latter part of the question, no, there is no design or intention on the part of the Bureau of Reclamation to diminish the effort of the Reclamation Act.

I am going to ask Mr. Higginson, with reference to the $2 million in your district, but our schedule of construction would continue. I will ask Mr. Higginson to give you the breakdown on that $2 million.

Mr. HIGGINSON. Thank you, Mr. Secretary.

NORTH LOUP AND O'NEILL UNITS

The two projects in your area are the North Loup and the O'Neill units in Nebraska, and the amount of money shown in the fiscal year 1979 budget for those two projects is based upon some concerns and problems that we currently have with both of those projects. We are in litigation with those projects.

The question concerning the adequacy of the environmental impact statement has been raised with regard to both of them. We have to go back to the court on a supplemental environmental statement on the O'Neill unit, and get that issue resolved before we proceed to construct. We have also decided to supplement the environmental statement on the North Loup unit. It is our determination that the amount of money shown in the budget is all that we could expend during 1979. This assumes that the court will adequately resolve the question on both of those projects.

There is no intent there on any kind of a slowdown. It is trying to be realistic as to what we think could be reasonably expended on the

construction of those two projects, taking into consideration the current status of litigation.

Secretary ANDRUS. Many times, and not just on water projects, but in Outer Continental Shelf and other activities, we find ourselves waiting for a decision from a Federal court, and that we have to inject into our planning schedule also.

Mrs. SMITH. I understand that.

Now, that leads to my second question.

I did want to ask one question about the O'Neill project. I have a news clipping here that says President Carter is in full retreat in his war on the West. I assume you are in retreat with him, and the article also says that you are quoted as saying that you really screwed up the handling of those projects last year.

But now one of those projects—I am just quoting the newspaper. This came out of the newspaper.

Now, one of these projects, as we have just said, is the O'Neill project in my district, and we note that according to our Governor, you are scheduled to come out and investigate the project on April 25. The Governor said he now has some questions about the project. But yet last year when the project was up for consideration the Governor announced to all of us in Nebraska that he flew back here and talked with you, and convinced you that this is a good project, and as a result the project was taken off the hit list, and I noted that you did ask for the $3 million, and I appreciate that very much.

But I think that the subcommittee is confused over the status of the project, and would you clarify your position on the O'Neill project?

STATUS OF O'NEILL UNIT

Secretary ANDRUS. Surely. Let me speak first, Mrs. Smith, to the press clipping that you quoted from.

That is another area that I cannot control, nor in my tenure as Governor of the State of Idaho, or Secretary of the Interior, have I ever attempted to, because I know it is a lost cause. The terminology, "War on the West," is a catchy phrase that works out.

I think if I were properly quoted, I would have said that the administration ineptly handled the politics of the initial water review. That is an accurate quote.

Now, how a newspaper reporter would twist that around to another phraseology, to be construed as the same thing, is their business. But with reference to the O'Neill project, yes, that was reviewed last year, and yes, the Governor of your State did come to my office at least once, and I think upon two occasions, with information. But it is not accurate for that newspaper to say that I have raised questions about the O'Neill project to the Governor.

Mrs. SMITH. It did not say that you had. It only said that you were coming to visit the project, and that has made people wonder, and so this is why I am asking you if you will clarify your position.

You said you did not intend to be evaluating the project.

Secretary ANDRUS. No, ma'am; this is not our intent. That exercise was completed last year, and as far as retreat, I think it has brought to the focus of the American people the cost of the projects, the need for some safety, environmental and cost-benefit determina-

tions, but your Governor has invited me, that is why I am coming, and asked to review it. It is not because I have any unanswered questions in my own mind.

Mrs. SMITH. You are coming only because you were invited, and you are not coming with any idea to change?

Secretary ANDRUS. With an axe in my hand, no.

Mrs. SMITH. Good; then I have one more that is of concern to us.

Secretary ANDRUS. Mrs. Smith, may I point out that we have this, we have a question before us on the—I guess it is a draft, a supplemental EIS, and that is involved in litigation, and also a question of the result to be brought before us. But I have no prejudgment of that, whatsoever. But that is another issue that is out there on the table.

Mrs. SMITH. We are aware of that.

MISSOURI RIVER BASIN COMMISSION

Now, the next one involves the Water Resources Council, and the River Basin Commission. You know that John Neuberger, who we felt was a very good Chairman of the Missouri River Basin Commission is no longer Chairman. I believe all of the Governors of the States in the area wanted him to stay on, and by the way, all of the Governors are Democrats, and yet he was fired, somewhat like Mr. Marston in Pennsylvania. Now we do not have a Chairman. At least we do not have one, to my knowledge.

I have another news article here that says the members of the Commission are anxious about this, and they need a Chairman.

Could you bring me up to date on this? Has no Chairman been named? I think it is a critical position, and also, if you could give us any information as to why Mr. Neuberger was let go, we would be very much interested in our area.

Secretary ANDRUS. All right.

Let me refer first to the clarification of the point that those are White House appointments.

No, you are correct, an appointment has not been made. There have been several individuals that have expressed interest in it.

Mr. MARTIN. Mrs. Smith, I might say that we did have a nomination that was satisfactory to all the Governors, but due to personal problems the candidate could not continue as an active candidate. We did have a nomination that was dropped out because of an ill parent.

But I do not think we are prepared, in the next week or so, to——

Secretary ANDRUS. We will make that announcement to the White House, and if you will permit me one minor correction, and again a press response. The former individual, the Chairman of the Commission, did not receive the endorsement of all of the Governors of that basin area. But other than that, that is the process within our power.

Mrs. SMITH. Thank you very much, and thank you, Mr. Chairman, for yielding that time.

I do have additional questions if I may submit them for the record.

Secretary ANDRUS. We will be very happy, Mr. Chairman, and Mrs. Smith, to respond to those for the record.

[The following was received for the record:]

Question. The Vice President recently made a speech in Utah in which he said: "We never, nor will we ever—at the Federal level—preempt or inter-

fere with the State or local or private water rights in this country." Do you say the same thing?

If so, can you tell this subcommittee what input the State and local levels of government are having in the formulation of the administration's new water resource policy? There is much apprehension and confusion about what is going on. We hear that maybe the Bureau and the Corps of Engineers will be merged. We hear that the States will no longer have a say in how their own water is used. What can you tell us about this mysterious study at this time?

Answer. Yes—the administration does not now, nor never did intend to propose a basic change in State water law, as the primacy of States in this area. The focus of the administration's work is national in scope, but directed to Federal policy.

The President's reorganization project is working actively on the issues you raised. No final decisions have been made.

Regarding State or local input on the water policy, you may be interested in the partial list of meetings either I or my staff participated in during past months for specifically the purpose you mention—public participation. [Attachment.]

	Group	*Date*
1.	Interstate Conference on Water Problems	September 6, 1977.
2.	National Association of Conservation Districts	September 8, 1977.
3.	Citizens Committee on Natural Resources	September 21, 1977.
4.	Western States Water Council	October 13, 1977.
5.	National Governors' Association Water Committee Staff—Atlanta	October 14, 1977.
6.	Northwest Florida Management District	October 24, 1977.
7.	Arizona Congressional Delegation	October 26, 1977.
8.	Natural Resources Defense Council	October 26, 1977.
9.	National Wildlife Federation	October 28, 1977.
10.	National Conference of State Legislatures	October 28, 1977.
11.	Governors' Representatives, Northeastern States—D.C.	October 31, 1977.
12.	ICWP Executive Board	November 9, 1977.
13.	Second Session with NE States' Representatives—Boston	November 14, 1977.
14.	Western States Water Council—Denver	November 16, 1977.
15.	American Society of Civil Engineers	November 16, 1977.
16.	Meeting with Congressional Staff Persons	November 16, 1977.
17.	National Conference of State Legislatures	November 30, 1977.
18.	Coalition for Water Projects Review	December 7, 1977.
19.	American Farm Bureau Federation	December 7, 1977.
20.	Conservation Foundation	December 7, 1977.
21.	Wyoming Water Resources Development Association	December 12, 1977.
22.	Pacific Southwest Inter-Agency Committee	December 13, 1977.
23.	Third session with New England States' Representatives—Boston, jointly with New England Basins Commission	December 14, 1977.
24.	Conservation Law Foundation	December 21, 1977.
25.	American Water Works Association	January 10, 1978.
26.	State Agricultural Commissioners	January 19, 1978.
27.	National Council of States Legislatures—Denver	January 27, 1978.
28.	Great Lakes Commission	February 3, 1978.
29.	National Association of Counties	February 8, 1978.
30.	Arizona Water Commission	February 8, 1978.
31.	National Governors Association Staff—D.C.	February 10, 1978.
32.	Water Resources Congress	February 16, 1978.
33.	Southern California Water Users Association	February 17, 1978.
34.	American Water Ways Operators	December 23, 1977.

Question. Now, I have something of a personal problem that I hope you can help me with. The Administration doesn't answer my letters. On May 19, 1977, and on August 18, 1977, I wrote to the President about your proposed new water resource policy. I sent a copy of the August 18 letter to you. As yet, I have not received an answer. Is this the way a Member of the Appropriations Committee and of Congress is normally treated? I would give you copies of the letters right now, but the answers would do no good since the critical time has passed. I am

very disappointed in this treatment. It might be one of the reasons Mr. Carter isn't getting along with us too well.

Answer. It is certainly not the way any Member of Congress should be treated. I did not assume I should answer for the President when I received your letter, but I assure you I will act rapidly to see you receive responses in the future.

PROJECT SLOWDOWNS

Mr. BEVILL. Mr. Secretary, I understand you stated to Mrs. Smith that the Department of Interior is not advocating any project slowdowns?

Secretary ANDRUS. No, sir.

Mr. Chairman, may I, so that there is no misunderstanding on the schedule that was established previously, we continue in that regard. There are some areas where we have litigation, some areas where we have proposed modifications that were placed before you a year ago that we hope to follow, but we are not attempting to slow down those projects from the appropriation.

NEW PROJECT STARTS

Mr. BEVILL. Now, in looking at your budget request, I notice that there are no new project starts.

Secretary ANDRUS. No, sir, that is correct. Of the projects.

Mr. BEVILL. No construction, or planning projects?

Secretary ANDRUS. We have ongoing planning that is involved, and we have new investigations. We have new construction contracts.

Mr. BEVILL. You have no new starts at all; is that not right?

Secretary ANDRUS. No, sir, not for a new project. That is correct.

Mr. BEVILL. Of course, the Bureau of Reclamation budget request compares very favorably with the Corps of Engineers request. Not only do they have no new starts, many ongoing studies and projects have been delayed and deleted.

Just yesterday the Pacific Ocean division engineer for the corps testified in response to my question, if you followed the budget submitted to us by the White House, his Division would start going out of business in 2 years, and the corps overall would be out of business in 7 years.

So we are getting concerned about the recommendations that are coming to us. If we follow those, we are going to be in trouble.

Now, your Department has done better. But you have no new project starts, only 18 new studies. Of course, those studies could go on for years. It seems to me that the Department of the Interior is advocating slowdowns, although not on any specific projects.

LONG-RANGE FUND REQUIREMENT

Secretary ANDRUS. Mr. Chairman, I would respectfully point out, as I think I answered Mrs. Smith's question a moment ago, about what the ongoing project would cause in the way of a budgetary increase down the road, an increase of $100 million next year if everything stopped, which it will not, but if it did, then I would have to say to you that we are looking at at least another decade to complete the projects that are starting, but that is not our intent.

We have 60-some under study, plus the 18 that we have added this year, and I simply do not anticipate, Mr. Chairman, that we would be anywhere near the dire straits that you relate you heard of yesterday. I cannot speak to that.

Mr. BEVILL. I can appreciate the Secretary's knowledge of these water projects, having served as one of the outstanding Governors in the country. I know you are very familiar with these water projects, but let me ask you this, Mr. Secretary, could you give the committee any idea of the number and type of projects that may be recommended as new starts, as a result of this review that is going to be submitted to the President by March 15?

Secretary ANDRUS. Mr. Chairman, I am going to ask Assistant Secretary Martin to comment on that, also, but, no, I cannot point to the studies that have been started, but I think we have authorization for—well, the total between the corps and the Bureau of Reclamation, I think about 28 or 29. I cannot identify for you those that will come through the screen, but maybe Mr. Martin can.

WATER POLICY REVIEW ON NEW STARTS

Mr. MARTIN. Mr. Chairman, the Secretary is right, that one of the objectives of the water policy review is to move toward a policy and a position where we can advocate new starts.

As you know, this administration is not unique in that regard. We faced no new starts for a number of years now. Our goal is to get the position where we can get new starts to recommend affirmatively to you. Our difficulty is in trying to deal with that backlog in an intelligent, systematic, and credible way.

So now one of our primary goals is to try to design a system from which we can choose from that backlog ourselves, and try to decide which of those projects are most meritorious for new starts. That is something, of course, that you will have a second look at as a legislator, but we want to come forward with our priorities well in hand, which we have not been able to do, and do not feel capable of doing, particularly in an austere budget year.

The second thing is we are looking at a wide range of things that will help us determine the priorities that we should assign to new starts, and some of those have been public. We have investigated the idea with the States, in having the States take the role.

If the States have to invest some of their own money, and this is hard States' money, rather than matching funds, they will assist us in choosing those projects, which are really in their interest, rather than those largely for the Federal Government. So we are looking at a wide range of strategies to get there, but one of our goals is to recommend a position to you.

Mr. BEVILL. Then you do anticipate recommending new starts, when these proposals go to the President March 15. Of course, our hearings with the water resource agencies will have been completed by then. How do you plan to get those new starts into this appropriation bill this year?

Mr. MARTIN. I have genuine questions, depending on the time of the White House budget, whether or not we will be able to make those during this budget cycle. I have real reservations just because of the time of decision process whether or not that will occur.

But I do know that a relatively short range objective is to get this.

Mr. BEVILL. So what you are saying is we may have zero new starts this year?

Mr. MARTIN. That may be possible; yes, sir.

Mr. DICKS. Will the chairman yield?

Mr. BEVILL. Yes.

Mr. DICKS. I do not think that is going to be the policy of this committee. This committee is going to exercise its judgment.

We were told that we were going to have a policy statement up here by February of this year on water policy questions, on new starts, on this whole issue. And I am very disturbed because it looks to me as if there is an effort here to delay on this water policy review so that this committee cannot reach any kind of a decision on these projects. I am afraid we are going to have to act independently on this issue.

Mr. BEVILL. We do have—it seems many efforts, whether it is the intention or not, it seems that we have many things occurring all of a sudden that we have not had before.

SNAIL DARTER CASE

On another subject, Mr. Secretary, what is the status of the *Snail Darter* case?

Secretary ANDRUS. Presently before the Supreme Court. The status is—the only thing I can say is that is where it resides, the question, at the present time.

Mr. BEVILL. I realize this is not one of your projects, but your Department is directly involved in it. TVA has invested about $104 million in the Tellico Dam which would supply electricity for 20,000 homes. And, of course, it is just sitting there, based on a Federal court order, resulting from the Endangered Species Act. We have a large investment in each one of those snail darters now, counting the fact that we have a $104 million dam sitting there that is not producing anything.

In addition this committee provided $2 million last year for TVA to move the snail darters from one part of the Tennessee River to another. That represents another sizable investment per snail darter. That is a little ridiculous, but this is not your case. But your Department is actively concerned.

FISH AND WILDLIFE SERVICE ACTIONS ON SNAIL DARTER

Secretary ANDRUS. Fish and Wildlife Service has been active in attempting to move, locate in other areas a resolution to this problem, yes, sir.

Mr. BEVILL. And they killed 98 of them, I understand, and that cost us several million dollars?

Secretary ANDRUS. It cut the numbers down, Mr. Chairman.

Mr. BEVILL. You mean the 98 cut the number down?

Secretary ANDRUS. The 98 cut the number down.

Mr. BEVILL. That is encouraging because we were shocked by thinking how much we have invested in those snail darters.

Mr. MYERS. Would you yield right there?

Mr. BEVILL. Yes.

Mr. MYERS. It amazes me that with all the expertise that you have in the Department of the Interior, that you would bungle the job of moving little fish like that. Your Department was discredited when you cannot even move a bunch of fish without poisoning them.

I wonder how many other mistakes have been made, other judgments or decisions that you have made, which may have been wrong also?

If you cannot move a bunch of fish without poisoning them, I just cannot imagine then——

Secretary ANDRUS. Mr. Myers, some of the frustrations that you are exhibiting now, that was shared by many of us in the Department of the Interior. Human error is an area where it is difficult to control, and the net that was used—no defense or explanation for you other than what we both already know.

But again I understand your feelings, but there is no way that I can defend myself against human error. It has been done.

Mr. BEVILL. These things are causing us in this committee a great deal of frustration. We heard a great deal of people last year and we will hear some more this year, from northern California, telling us they will not have enough water; that there was not enough snow; that they had to ration water; and they had to put limits on their water, and so forth.

We have the greatest water system in the world, but we are still having floods and droughts, and people are suffering from this.

So when we sit up here and see all these different things happening, it disturbs us.

Secretary ANDRUS. Mr. Chairman, I cannot disagree with many of your observations, but I would have to point out that the water projects are not going to alter a drought or a flood in a given area. A water project can relieve a flood situation but, in my own home State, for example, one of the major benefits of the Teton Dam was for flood control, and we all know the history of that.

We are not slowing down the construction on the projects that we have underway but, as Secretary Martin said a moment ago, what we are trying to do is come to you with recommendations for the new starts that will assess all these problems in advance and alleviate some of the problems that we face right now.

EXTENSION AND MODIFICATION OF THE ENDANGERED SPECIES ACT

Mr. BEVILL. Mr. Secretary, the authorization for the Endangered Species Act is going to expire this year. What is your position regarding the extension of the act, and do you believe that the act should be modified in any way?

Secretary ANDRUS. Mr. Chairman, I think, No. 1, it should be extended, and I would point out that discussions before this committee and others about the Endangered Species Act, I would call to your attention that we now have had in excess of 5,000 consultations for where a highway or dam project or a building project of some type has been recommended, and all of those have been resolved, all of the 5,000 consultations have been resolved with one exception, the snail darter, and possibly a second.

I think that speaks very well for working out the problems that when we get to the point where one has not been resolved, then I think

either through the court, as the snail darter case is moving, and it is not our case, as I am sure you are aware, and for legislative action to make a determination as to the value of that case.

But I think when you have more than 5,000 consultations, some smaller than others granted, but varying degrees, and you only have one that has not been resolved, that is a pretty good record. And I would hate to see us, because of one situation, do away with an act that can work forever.

Now, our workload, as we follow into the implementation of the act, as proposed, and other species such as insects and plants, then, yes, sir, I foresee other problems down the road that frankly the workload would be so horrendous that I do not think that we could handle it. We certainly could not handle it under current appropriation levels. And in this area, there might be a need for some amendment to the act. But I would not sit here before you and advocate a repeal of the act or say to you that I do not think it has worked. To the contrary, I think it has worked.

But our publicity has been on the one that has not resolved.

Mr. BEVILL. In your judgment, Mr. Secretary, did the Congress intend this act to be used to preserve animals like the snail darter?

Secretary ANDRUS. Well, it——

Mr. BEVILL. Or was it intended more for the Bald Eagle and some of these other endangered species?

Secretary ANDRUS. Mr. Chairman, I cannot speak for what was in the minds of the Congress in the past, but if I can give you my own personal view, if you will accept that, no, sir, I do not believe that is what the Congress envisioned, and the Congress did not envision, in my opinion, that a project of whatever type it might be, whether it be water or dry, that the Endangered Species Act would be used as a tool or an appliance by going out after the fact and finding something that they could hang their hat on. And I think we all know that there are cases of attempts of this.

That is not how I envisioned the act. But the act is an important act to America, some of which you named a moment ago.

Mr. BEVILL. The Chair recognizes Mrs. Boggs.

WATER RESOURCE POLICY

Mrs. BOGGS. Thank you, Mr. Chairman.

Mr. Secretary, gentlemen, I apologize for being late. I was in another subcommittee hearing. I was very interested in the water policy review recommendations and the Water Resources Council extension into fiscal year 1979. I feel that these are two of the most important areas of responsibility that your Department and the Congress has.

I was noting in the current issue of Wildlife Magazine that 80 percent of the world diseases, communicable diseases, are carried by water, contaminated water, and the question was—considering we have the know-how and the expertise to do something significant about it and, hopefully, after the water policy review and the Water Resources Council have made their recommendations and completed their studies, we will have guide posts of what the political intent can be, not only to accomplish the goal of having purer water, but of having water distributed where it should be distributed and controlled where it should be controlled.

I appreciate the fact that you are also interested in both of those aids, Mr. Secretary.

ENDANGERED SPECIES ACT

Mr. Whitten is still at the other committee meeting, and I promised him that I would ask this question for him. He wants to know if the Department has taken into account the suggestion that the congressional intent of the original Endangered Species Act seems to indicate that certain types of species were really intended to be covered by the act and that there should be some inclination by the Department to list those species that are truly endangered, that are truly important. And he wondered if you would answer his question of what the Department has done to make such a list or to confine their species list to the really important species?

Secretary ANDRUS. Mr. Chairman, Mrs. Boggs, in answer to the question, it is a continuing situation whereby species are added to the list, but the Congress, when they passed the act, we as administrators cannot function on intent. We get into a court of law and we function on what the act says, and they did not differentiate between large and small species in there, but in those species that were deemed to be endangered because they are not found in any other location; that their numbers are below a certain level and so forth.

But again I would have to say, as I did a moment ago, that sometimes it would appear that certain species are recommended for inclusion upon the list in an attempt to thwart a given project of some type. That, I do not agree with. But, by the same token, are mandated by a law when a request for a study of an alleged endangered species, to make the study and the determination.

Mr. Whitten and I have discussed this at length. He is quite familiar as a prosecuting attorney, and the youngest one in America, as a matter of fact, at one time in Mississippi, that the—that we do not have the flexibility in the law to make those determinations. But if it is the wish of Congress, of course, they can propose some changes or clarify intent.

But I do not have that flexibility. I just simply do not have it.

Mrs. BOGGS. Thank you, Mr. Chairman.

Secretary ANDRUS. On the list—I am sorry, I did not answer your question.

You asked what are we doing in Interior to compile the list. It is a continuation of processes, as I indicated, and the list grows as species are identified for study, as the study is completed, they are found to be endangered, and then we submit it to the Congress.

Mrs. BOGGS. Thank you, Mr. Secretary.

Mr. BEVILL. The chair recognizes Mr. Myers.

CLARIFICATION ON NATIONAL WATER RESOURCES REVIEW POLICY

Mr. MYERS. Secretary Andrus, I am a little alarmed this morning by your comment on the water policy review as to what exactly it is going to be. I realize that you cannot at this time tell us what the recommendation contains, but the direction of the review is what concerns me.

I was under the impression last year that this would be a policy recommendation.

Now, what you are saying this morning is, as I interpret it, it is only going to be a status report for future development.

Could you clarify that for us, please?

Secretary ANDRUS. I am sorry if I was not clear in the beginning. It is a review of Federal policy as it impacts upon water utilization throughout America. But out of that review will come recommendations to the President.

Mr. MYERS. Will it take another 2 years for recommendations after you make the review?

Secretary ANDRUS. No, sir.

Mr. MYERS. Pardon me for interrupting you. But will this report contain the recommendations or are they going to come after the review is made?

Secretary ANDRUS. No. After the President receives the information and makes a determination, those recommendations will come.

Mr. MYERS. In the 1980 campaign, probably.

Secretary ANDRUS. Mr. Myers, let me respond to your question.

The question is, Will it contain the recommendations? Yes, it will. Principles and standards, cost-benefit ratios, these type of things, will be recommended. But there are certain things in water policy that you cannot complete in the 12-month period of time. It would probably not be intelligent to attempt to do it. Quantification of Federal reserve rights, for example, inventorying of Indian water claims versus Indian water rights. There is no way that we can speak to those in finality when you are looking at a 1-year study. But we can make recommendations as to how we will proceed, and we will.

EXPENDITURES ON CONSTRUCTION

Mr. MYERS. Last year the Bureau of Reclamation's budget contained $551 million in round figures for construction.

How much of that have you spent?

Secretary ANDRUS. I will let the Commissioners answer that. Do we have the budget people with us?

Mr. HIGGINSON. I do not have the answer in my head. We could come reasonably close to that number.

Mr. ANDERSON. About 15 percent in the 4 months of this year.

Mr. MYERS. And how much in the previous year? How much of that did you spend?

Mr. HIGGINSON. It was less than 80 percent as I recall.

Mr. MYERS. It was not 69 percent?

Mr. ANDERSON. It would be about 70 percent, Mr. Myers.

Mr. MYERS. That is a round ball park figure everybody has used, 70 percent.

Is it not strange how that just happened to work out this way? Only 70 percent of the construction funds have been obligated?

Every Corps of Engineers division runs 69, 70, 71 percent. All in that ball park figure. It is amazing how it has worked out to that. No slowdown?

Mr. HIGGINSON. There have been no constraints.

Mr. MYERS. Those figures have worked out that way.

Mr. HIGGINSON. Essentially they may have worked out that way and there may be reasons why it was not expended. We have problems this year. We have problems with the award of the contract for

the Yuma desalting plant equipment because of appeals about our process of solicitation of those bids. We have problems with the Auburn, money was appropriated, and we cannot proceed. There are good reasons why we cannot expend the full 100 percent of the money.

Mr. MYERS. Figures can be worked out. I used to be a banker——

Mr. HIGGINSON. I just want to make sure——

Mr. MYERS. I can read financial statements, too.

Mr. HIGGINSON. I want to make sure that you understand the administration has placed no constraints on our ability to expend the full amount appropriated to arrive at a certain percentage number.

Mr. MYERS. That is all the questions I have. Thank you.

Mr. BEVILL. The Chair recognizes Mr. Burgener.

Mr. BURGENER. Thank you, Mr. Secretary, Mr. Chairman.

EXCESS LAND REGULATIONS

Mr. Secretary, if you were to hazard a guess, what do you think I would like to talk about?

Secretary ANDRUS. I would suspect that it would deal with the application of water from Federal reclamation projects upon the lands in the area which you represent.

Mr. BURGENER. Excellent, and I do not want to disappoint you.

First of all, Mr. Secretary, I want to commend you and your people for your response to the court orders. We were not widely enthused about your response. I have a hunch that your evaluations were designed for shock value, and they were. We were shocked.

But following that, you did indeed send your people all over the West, and there was no law to compel you to do that. We appreciate it. We are glad that you did.

In Imperial County, one of the areas that I am privileged to represent, and I hope your people gained from all those hearings; and learned perhaps a different view than you might have been hearing from the courts and some others. We appreciate that very much, and going out into the field, we feel that there is no substitute for that.

Now, some of the questions about the limitation I will save for tomorrow. I understand that the Bureau of Reclamation is here tomorrow, is that correct?

Secretary ANDRUS. Yes, sir.

Mr. BURGENER. And you will be here?

Mr. HIGGINSON. Yes, sir.

Mr. BURGENER. Forgive my chamber of commerce hat for a minute. We have a lot of fruits and nuts in California, some holding public office. But we do produce 42 percent of all the Nation's fruits and vegetables. That is a fact. And 25 percent of all the foods in the Nation, if my figures are right.

The irrigation district legislation was adopted initially in California, forming districts, and making efforts to make water, 30 years before, 1902, 30 years before the Reclamation Act of 1902. So water pioneering in the West is well known to you. You are not a midwestern Governor, but a Rocky Mountain Governor.

Secretary ANDRUS. Thank you for that clarification.

Mr. BURGENER. It is well known.

NEW MELONES DAM

Now, you have problems with the State of California, you have problems with the government of the State of California. For exemple, correct me if I am wrong, but in New Melones Dam, which involves the Bureau and the corps both, the corps is building it, is that correct, and the Bureau is operating it. There is some argument on not how to build it, but how to fill it. We are currently enjoying water in California, as you well know, and it has gone beyond enjoyment. But we are just delighted to get it.

We have had 2 years of very, very serious drought. Now we have rain and snow, and that is great. But without these large impoundment facilities, millions of acres of floodwaters are going to run off in the Pacific Ocean. We need desperately for a canal around the delta.

PERIPHERAL CANAL

Will your Department be involved, and if so, what part of it, in the ultimate decisions about the peripheral canal?

Secretary ANDRUS. Mr. Chairman, Congressman, yes, we will be involved. I think the Federal Government has certainly a moral responsibility, if not a fiscal responsibility, to participate in the planning that will alleviate the problems in and around the delta.

I cannot say to you that we will be involved in what level, particularly the funding level, until the plans for that proposed project are issued further. But, yes, sir, I am confident that I can report to you that we will be involved.

Mr. BURGENER. We do not think that our water problem statewide will really be solved, or be close to being solved, without the resolution of the peripheral canal, which is a local issue between northern California and southern. Most of the disputes between northern and southern California relate about water. They have the water, we have the votes. The water is up north, and the votes are in southern California, which is the only thing that prevented the State from being split in two since 1850.

ENVIRONMENTAL IMPACT STUDIES ON EXCESS LAND REGULATION

Now, back to your agency. The Federal judge in Fresno recently ordered that environmental impact studies are necessary before you implement, correct me if I am wrong, and make a mistake, before you implement any regulations concerning the various litigation, and court orders about enforcing the 160-acre limitation.

You elected, wisely, I think, and I am pleased that you did, not to appeal that.

The Bureau of Reclamation, as I understand it, involves 17 Western States?

Secretary ANDRUS. That is correct.

Mr. BURGENER. Not the eastern part, but Nebraska west, and you have a whole lot of river basins, and varied climate, different contractual agreements, and all kinds of history.

Now, therefore, how much time—my question is going to be—how much time are these studies going to take, what do you think they are

going to cost, how are you going to pay for them, and will they be released piecemeal, or in one giant package?

These kinds of questions, and if you choose to go into detail tomorrow, that is fine, but if you give me a kind of immediate response now, it would be appreciated.

Secretary ANDRUS. Let me respond first, if I might, and then ask Secretary Martin to speak to the timetable, but in your opening comments you referred to the Imperial Valley area, the problems there, and I think I have said to you personally, and publicly, that there is a different situation involved there. Whether we agree with it or not, whether we like it or not, it is a different situation, because in 1932, in March of that year, there was a letter from the Federal Government pointing out that they were not subject to the 1902 act. It was signed by one of my predecessors.

Now, Congressman, I really think that if we can turn the clock back, that letter should not have been written, but that is a personal opinion. But the point in fact is that it was written, and the people in that area relied on that document for 40-plus years, so I have to say to you that that makes it a unique situation.

Now, you are correct that I did not choose to appeal the judge's decision that an environmental impact statement would have to be conducted. We were weighing that delicate question at that time, and with the judge's decision we decided not to appeal it.

There were proposals from the Members of Congress, including yourself, I think, for a moratorium for a year, and so we arrived at that same point in time, and we will have better information on which to make our determination, and also, for the record, because you pointed out our willingness to hold the hearings in the West, and to hope that they were of value.

Congressman, they were very, very valuable, and we did not have a hearing officer at those hearings. We had myself in some instances. The men that are seated at this table with me in other instances; the policy type people from the Department, were at all of those hearings. I held two myself, the Solicitor had three. I do not know what the nose count is, but that is a type of hearing that we had. They were very beneficial to us.

Now, the environmental impact statements, we have been given a year, our people say that we can meet that timetable, but as to when they will be released, let me defer, if I might, to Secretary Martin.

STATUS ON ENVIRONMENTAL IMPACT STATEMENT

Mr. MARTIN. Not to add any specificity, but I think there is a decision on when those will be released. I think we could meet a deadline of about a year from now to prepare the statements——

Mr. BURGENER. You say statements, plural?

Mr. MARTIN. Yes. I think we can meet that schedule. I do not have a cost figure for that. I think we could do that tomorrow.

[The information follows:]

ESTIMATED COST OF PREPARING ENVIRONMENT IMPACT STATEMENT ON REVISED PROPOSED RULES—ACREAGE LIMITATION

The preparation of the environmental impact statement will require the accumulation of a great deal of data not presently available to the Bureau. The rules will be applicable to over 11 million acres of land in over 500,000 ownerships

in the 150 reclamation projects in the West. Preparation of the environmental impact statement will require obtaining data on individual land ownerships and operations, the accumulation of that data in a Bureauwide ADP program, the preparation of a number of special studies, analysis of the data, application of the studies, and the preparation of the environmental impact statement. The estimated environmental impact statement cost is based on the following assumptions that the revised regulations will do the following:

1. Limit ownership to one nonexcess entitlement Bureauwide.
2. Rules will apply to disposition of excess lands only.
3. Purchaser must be a resident within 50 miles of land.
4. Multiple ownership for excess land purchasers limited to two nonrelated persons or eligible family related purchasers to first cousins.
5. Purchasers must be 18 years old or over.
6. Lottery used for sale of land to persons who are not (1) family related, (2) neighbors or employees.
7. Appraised value of excess land based on projected water supply at time of sale.
8. There will be some restriction on leasing.

The EIS will require:

	Man-Years
1. Accumulation of data on land ownership and leasing 1.5 man-years per region	10.5
2. Establishing of ADP program 3 man-years Bureauwide	3.0
3. Data analysis and preparation of environmental impact statement	6.0
Total	19.5

Special Studies (including but not limited to): (1) financing reqiurements (2) farm size (3) crops and crop production (4) water use (5) community services, and (6) appraisal impacts.

Cost estimate

19.5 man-years at $20,000	$390,000
Special studies at $50,000 each	300,000
Contingencies (10 percent)	69,000
Total	759,000

Mr. BURGENER. Will you do it in-house?

Mr. MARTIN. That is a question that we have not answered at the present time. But I think it is a possibility to contract. It is the type of thing that—type of question, that of whether we ought to burden them down.

Mr. BURGENER. Is it too early to say whether you would give it piecemeal?

Secretary ANDRUS. Let me point out that this will be one package, we will treat each of the individual projects in that. It will be an environmental impact statement.

Mr. BURGENER. A report?

Secretary ANDRUS. A report on the program.

Mr. MARTIN. I might add also, Congressman, I joined up for that day in El Centro, and heard that testimony. I think in terms of treating these separately, that would be true of the Imperial Valley.

We recognize, from learning of the unique nature of that problem, it would not be locked in. I cannot guarantee a decision, but we regard it as separate.

RECLAMATION ACT OF 1902

Mr. BURGENER. I have some fears that Congress might rest comfortably, as it has since 1902, on the issue of the 1902 Reclamation Act, which has been largely—not entirely, but largely ignored, put aside because of the lack of public pressure. So the environmental impact

statements can be a blessing, or something less than that, if the Congress takes that to mean that they do not have to do anything it wants.

Mr. Secretary, I have heard rumors, or read something, that you have made some statement about 1,280 acres, for example, and without going into detail, have you made statements about families or 1,280 acres?

Secretary ANDRUS. No, sir, I have not, but I guess every branch of Federal Government is noted for leaking like a sieve.

Mr. BURGENER. Including Congress.

Secretary ANDRUS. But the final decisions have not been reached.

Let me recap some of the things as to what has taken place. Many Members of Congress have pointed out that there is not anything magic about the 160 acres, and certainly when you look at different areas of the country, productivity, soil classification, and so forth. Then a family of four could in fact, under the 1902 act, own a full section, 160 for the father and mother and for each of the two children. This would be increased to include eight members. Also, they could lease a like amount in some areas. Our arbitration said that at least the leasing should equal the ownership.

In our discussions we are looking at a figure that would be based on a family figure, and not determined on how many children happen to be in the family. That is probably, I think, the figure, referring to a recommendation that has been made in other quarters, that we are looking at.

Under existing law, though, that figure could easily be met, and is in some instances exceeded.

Mr. BURGENER. Well, thank you for that.

I hope that we get away, we in the Congress, and you, the Department, get away from family sizes and number of kids, which I think is irrelevant, unrelated to equity to the farmers and taxpayers. How many kids you have ought not to relate to how many acres of cotton you grow.

Maybe some of the formulas have been wrong, and maybe some interest ought to be paid. I am not speaking of Imperial County, but I am speaking of the 17 Western States.

SOCIAL AND ECONOMIC CONDITIONS TOWARD ACREAGE LIMITATION

I do not know how to write into the law a number of acres, when one growing season is 2 months and another one is 12 months, and soil conditions and water are different, as you very wisely pointed out. All of these factors make it extremely difficult for us to write into the law a number of acres.

If we could somehow move toward equivalency, or let farms be of any size, as long as the taxpayer got treated fairly. Otherwise we are going to create—we are going to reduce production and raise prices, and create, in my opinion, agricultural slums to the detriment of the public and the world.

Now, finally, this business about residences. The territory that I represent is extremely varied. It goes from La Jolla to Yuma, Ariz., and from the Mexican border almost up to Los Angeles. It is 90,000 square miles. It is extremely varied.

Now, I have some retired farmers that farmed in Imperial County for 40 years. They farmed all these years, and they wanted to move out of this area, which is 120 degrees in the shade, no shade, and they moved on to the beach, to La Jolla, and they leased the land. It sounds quite sensible to me.

Why in the world should we be forcing them to live within 15 miles of the land? It seems to me that some of Governor Brown's people, and I do not expect you to comment on this, because I know you are still a politician, and gentleman, and that is not a contrast of terms, but I think the Governor's people have served you badly. Very badly in this whole thing. They flip-flopped all over the place. They have been stimulating some of your people for a number of years to move in a direction that the country does not want them to move, and I think the Governor is wrong, too, even though he now is seeing the light, and is becoming much more reasonable as November approaches, and I think they have done the Bureau very badly, and put you in a bad light.

You do not need to comment on this unless you feel absolutely compelled.

Secretary ANDRUS. I do.

Mr. BURGENER. Good, why do you not do that.

STATE OF CALIFORNIA POSITION

Secretary ANDRUS. Mr. Chairman, Congressman, I would just point out that the position of the State of California was listened to in our hearings as were thousands of others.

Mr. BURGENER. You mean their recent position?

Secretary ANDRUS. Well——

Mr. BURGENER. Not to be identified with the last 3 years position?

POSSIBLE LEGISLATIVE PROPOSALS

Secretary ANDRUS. There are several positions, yes, sir. It was welcomed as the thousands of other people that testified before us, but the administration's proposal as to the solution of this, a legislative solution, will speak to hardships, people who retire and move away, to make some room for flexibility when a person who retires after breaking the ground out and working their lifetime there, and perhaps for a health reason, or for whatever the reason might be, chooses to live somewhere else.

But I do feel there has to be a residency requirement of some type to get away from the speculative owner, absentee owner. But it cannot be so tightfisted that a person who retires for some reason cannot live in some other area. So we will have provisions and recommendations to recognize this, and this is one thing that came up time and time again within the hearings as did the leasing provision for a young new farmer who would like to get started, who cannot afford—does not have the capital to go out and buy land.

We had case after case where they said to us, "I started by leasing and then I made enough money from leasing to where I could buy some ground." So those things will be looked at.

Mr. BURGENER. Thank you, Mr. Secretary.

I have three other proposals to talk about that will lead us to a bureaucratic nightmare, and I think what we have to be thinking about is equity, equity to the taxpayer.

Who pays for these things? And, by the way, our friends east of the 17 Western States who are provided flood control projects by the Corps of Engineers ought to be thinking very carefully about this because if this outrage is perpetrated on the West, I respectfully submit they are next. We ought to have a lot of sympathetic allies in the East.

So if we get equity, and I intend to lobby for it, if we get equity for the taxpayers so that a lot of anonymous persons did not get a free ride, that is one thing. I would suggest that we move in directions of economics, money compensation to the taxpayer, and forget size. This could cause productivity. This is the breadbasket of the world, and that is what I do not want to destroy.

I have talked much too long, Mr. Chairman, and I thank you for your time.

Mr. BEVILL. Thank you, Mr. Burgener, and thank you for correcting me when I made the statement that the very distinguished Secretary of the Interior was one of the most outstanding Governors in the country from the Midwest. I should have said from the Rocky Mountain area.

Secretary ANDRUS. I hope he was not correcting your entire statement.

Mr. BEVILL. I am sure he was only correcting that last statement.

Now, we have another very outstanding gentleman from the Rocky Mountain area here. He is Chairman Gunn McKay of the Subcommittee on Military Construction. He has some questions, from one Rocky Mountain man to another. Chairman McKay.

Mr. MCKAY. I wonder if we can set up a dialogue, the old-fashioned type.

Mr. Secretary, I appreciate the indulgence of the committee chairman to consider these problems that you are well aware of. Perhaps we can put some things on the record about where we are going and how we are going to get them. I think you intend to follow through as far as you can, given fiscal constraints.

First, there are some things that I am going to ask you to put in the record.

CENTRAL UTAH PROJECT CAPABILITY

First, could you provide a complete description of the maximum feasibility capabilities of the Bureau of Reclamation for the central Utah projects?

Secretary ANDRUS. Yes, sir: I will submit that for the record. As a matter of fact, Chairman McKay, I appeared before you for almost 6 hours yesterday, knowing that you would ask for it at some point in

time. You did not, and I did not realize that you would be asking for it today.

Mr. McKay. This is the point in time.

Secretary Andrus. I will supply it for the record, and the capabilities in that area run—if you include land acquisition, it runs about $15 million additional capability.

[The following was received for the record:]

CENTRAL UTAH PROJECT MAXIMUM FEASIBLE CONSTRUCTION CAPABILITY

Mr. McKay. Would you please provide a complete description of the maximum feasible construction capability of the Bureau of Reclamation for the central Utah project in fiscal year 1979?

Mr. Andrus. Yes; the construction capability for the central Utah project is $52,534,000, which is $15,050,000 in addition to the budget request of $37,434,000.

For the Bonneville unit, we could use $40,086,000 for continuation of work on Jordan aqueduct and the strawberry collection system and a new contract award for the Rhodes Hades Tunnel complex. The additional capability would provide for a late fiscal year 1979 award for upper Stillwater Dam foundation contract, purchase of land and rights for Jordanelle Dam and Reservoir, a contract to relocate U.S. Highway 40 out of the Jordanelle Reservoir and award of contract for section 3 of the Jordan acqueduct. Recreational, fish and wildlife facilities work would provide for continuation of work at Strawberry Reservoir and Currant Creek Reservoir. Work would be started on the Soldier Creek site, and land would also be purchased for big game mitigation.

On the Jensen unit, we could use $8,298,000 for the continuation of work on Red Fleet Dam and the project distribution system and an award of a contract for Tyzack pumping plant and aqueduct. Recreational, fish and wildlife work will be accomplished at Red Fleet Reservoir. The fiscal year 1979 capability for the Uintah unit is $2,300,000. It would provide for preconstruction work, purchase of land and initiation of a road relocation for Uintah Dam, and construction of a temporary camp and laboratory.

For the Upalco unit, we could use $1,800,000 for preconstruction activities, purchase of lands and rights for Taskeech Dam and Reservoir, and for initial construction of a laboratory.

Mr. McKay. Please provide those figures for the major features in the project that we are concerned about.

Secretary Andrus. May I ask for clarification? The major features, you mean without land acquisition?

Mr. McKay. I would like them both, because I think they relate to total cost. In some cases we can move ahead with roadway acquisition where the engineering and design are not completed.

MANPOWER CEILINGS

Also could you provide, in connection with that, the impact of a manpower ceiling on these particular figures? That is, if you had reassignment of some of your manpower, will you have assets that could have some impact on the design and construction items?

Secretary Andrus. Yes, sir, I would comment on that, just pointing out that raw numbers is not a direct multiplier. It is experience level, capabilities that they have. And, yes, in the general terms I can say if we had a larger engineering department that we could increase our output. That would be a true statement but it would not be a direct benefit. And I think we have to recognize that all of us work with taxpayers' money and that we work within those constraints.

CENTRAL UTAH PROJECT CAPABILITY DATA

Mr. McKAY. Please provide figures for each unit and major features of the project.

Mr. ANDRUS. Yes, we will be happy to supply the budgeted figures and the additional capabilities for each unit and for the major features.

[The information follows:]

CENTRAL UTAH PROJECT

[In thousands of dollars]

Unit/major features	Fiscal year 1979 budget	Additional capability	Total capability
Bonneville unit	28,536	11,550	40,086
Upper Stillwater Dam and Reservoir	400	100	500
Soldier Creek Dam, Strawberry Reservoir enlargement and collection works	21,491		21,491
Jordanelle Dam and Reservoir	100	6,100	6,200
Jordan acqueduct system	4,163	500	4,663
Preconstruction activities on other features	1,105		1,105
Recreational and fish and wildlife facilities	1,277	4,850	6,127
Jensen unit	8,298		8,298
Red Fleet Dam	4,759		4,759
Project distribution system	2,948		2,948
Recreation and fish and wildlife facilities	591		591
Uintah Unit	300	2,000	2,300
Advance planning	300		300
Uintah Dam and Reservoir		1,400	1,400
Temporary camp, laboratory and equipment		600	600
Upalco unit	300	1,500	1,800
Advanced planning	300		300
Taskeech Dam Reservoir and collection works		1,300	1,300
Laboratory and equipment		200	200
Total, central Utah project	37,434	15,050	52,484

EFFECT OF MANPOWER CEILINGS ON CAPABILITY

Mr. McKAY. We discussed this earlier, but what is the impact of manpower ceilings on these capability figures?

Mr. ANDRUS. An additional 59 positions would need to be assigned to this project in fiscal year 1979 to accomplish the additional program of $15,050,000.

Mr. McKAY. If money and manpower were readily available within the Bureau of Reclamation, what would the capability figures be?

Mr. ANDRUS. Our capability in fiscal year 1979 would be $52,484,000.

Mr. McKAY. Now, will you have any adjustments, for example, if you have a project that is now completed and another one that is not going to go ahead and you have manpower assigned, will you this year be able to assign more to this project?

Secretary ANDRUS. Yes, sir, prioritizing changes and by not being able to expand through no fault of our own, through the Garrison situation, does free up some people that we could use. And that is part of the reason behind our 18 new studies that we are entering into.

But we do have flexibility; yes.

INDIAN WATER RIGHTS ON CENTRAL UTAH PROJECT

Mr. McKAY. Does the Department of the Interior agree with the Ute Indian Tribal Business Council, that the central Utah project is the best method for developing the Indian water rights for the Utes?

Secretary ANDRUS. Mr. Chairman, Congressman, it certainly is a method and I do not know whether I could, if you will permit me to counsel here, when I use the word best or not, that you inserted in there, it is a method certainly to meet that obligation.

Mr. McKAY. The council themselves voted that that is the way they want to go in development of water resources.

Secretary ANDRUS. Mr. Chairman, Congressman, I believe I would have to say to you today that it certainly is a method, but I do not believe we can make a determination that it is the best method. I will be happy to write you a letter on that subject if I look at the legal implications and answer for you.

Mr. McKAY. You are aware that the Ute Council has gone on record, has approved the fact and entered into agreement that this is the way they want the water developed?

Secretary ANDRUS. I might also point out, Mr. Chairman, Congressman, that was one of the major areas of testimony that was given to us in review of the central Utah project a year ago. It was meeting the obligations to the Indians and their position was well known to us after those hearings, and since then have weighed very heavily in the decision we have made.

Mr. McKAY. In line with that, would you agree that we need to move ahead with that unit which will have a major impact on them?

Secretary ANDRUS. Yes, sir, I do agree that we have to complete that as a part of the total project, and that is the part that supplies some of the water, frees up some of the water and supplies water in the area of the Indian tribes.

UINTAH AND UPALCO UNITS

Mr. McKAY. What is the present capability to begin construction on those two projects?

Secretary ANDRUS. We have capability for expenditure of funds in that area; yes, sir. Again the document that you asked for, the record will be supplied. For the Upalco unit we are scheduled for $300,000 this year, and our capability runs to about $1.5 million. Let me ask Commissioner Higginson to respond to this.

CONSTRUCTION CAPABILITY

Mr. HIGGINSON. We do have the additional capability in both of those units to start construction. It is a matter of policy determination as to whether we should be authorized to start construction.

Mr. McKAY. If this committee should provide the funds to begin construction on the projects for which you have a capability, would the Department immediately proceed, or is there a policy that says no?

Secretary ANDRUS. Mr. Chairman, Congressman, of course, that decision would be made by the Congress. It would be reviewed, the final appropriation bill as it is in the Office of Management and

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Budget, to make recommendations to the President. The only thing I can say to you, sir, we have that capability. There is also a possibility that it would not take an increased appropriation in that, from time to time, there are moneys that you have authorized that we can ask you to reprogram.

So it may not take all new money, but we do have that capability. I do not believe that I can speak for the administration that if the proposed budget is raised, that I would immediately go on radio and television supporting that position.

Mr. McKAY. That is the point that I am trying to get at.

Secretary ANDRUS. I recognize the point that you are trying to get at, Congressman.

Mr. McKAY. And the point is, of course, if the Congress provides the money and the President does not veto the whole bill, at that point you are under a mandate to either spend the funds or defer or rescind rather than impound those funds.

Secretary ANDRUS. This administration is on record that we do not deal in the impoundment of money. We go through the democratic process.

If I may answer your question this way, if the money is appropriated and the President signs it, then we move forward. But I am not here before this committee advocating any deviation from the President's budget.

COMMITMENT TO UTE INDIAN TRIBE

Mr. McKAY. We feel some urgency here in light of the Ute Council's position that we proceed with construction of the new unit so that we can immediately begin to honor the commitment which they made in 1965 in the deferral agreement.

Now, it is true that that deferral agreement goes to a longer period of time. But, like most people, we get a little edgy on that time, and we do not think that we can live out that time. They are beginning to be concerned that maybe their part of the commitment is not going to be met. If this committee and the Department could proceed to construction at whatever level, their concern would be eased. That is why I asked you the question about capability. The Indians have concern about whether we really intend to keep our commitment. That is why I referred to it.

Mr. Chairman, if the Secretary will provide the further details relative to this as far as the capability is concerned, I would ask to submit the rest of the questions that I have in detail for the record.

Mr. BEVILL. Permission is granted.

[The following was received for the record:]

OBLIGATION OF CENTRAL UTAH PROJECT CONSTRUCTION FUNDS UNDER FULL CAPABILITY

Mr. McKAY. If the Congress were to make funds available to finance the full construction capability of the Bureau of Reclamation for the central Utah project, is there any reason why the administration would not obligate those funds in fiscal year 1979?

Mr. ANDRUS. No.

UTE INDIAN WATER RIGHTS

Mr. McKAY. Does the Department of the Interior agree with the Ute Indian Tribal Business Council that the central Utah project is the best method for developing Indian water rights for the Utes?

Mr. ANDRUS. Yes; the Department has long recognized its trust responsibility to assist in the development of Indian resources. Under Bureau of Reclamation water rights the central Utah project will cooperatively develop water for both Indian and non-Indian users thus avoiding inevitable conflict on water rights. During the early planning stages of the central Utah project the Ute Indian Tribe sought and achieved inclusion of its interests in the project.

Mr. MCKAY. Does the Department agree with the tribal council that the Uintah and Upalco units must proceed to construction immediately to honor the commitment that the Federal Government made in the 1965 deferral agreement?

Mr. ANDRUS. Yes; the deferral agreement states: "All phases of the central Utah project will in good faith be diligently pursued to satisfy all Indian rights at the earliest possible date." In 1973 in response to the Ute Indian delegation, then Secretary of the Interior Rogers C. B. Morton reaffirmed that the Department is committed to finding a practical way to deliver the water to which the tribe is entitled. The Ute Tribe has continually supported the central Utah project but in recent years have become dissatisfied with construction progress. In 1975 the tribe requested that the Department pursue funding and necessary studies and programs to accomplish commencement of construction of the Uintah and Upalco units in fiscal year 1978.

UINTAH AND UPALCO UNITS CONSTRUCTION STARTS

Mr. MCKAY. Is there any reason, aside from fiscal constraints, why the Uintah and Upalco units could not begin constructon in fiscal year 1979?

Mr. ANDRUS. No; we expect to complete the construction prerequsities. Assuming that no major problem develops, construction could be initiated in fiscal year 1979.

UPPER STILLWATER RESERVOIR

Mr. MCKAY. Last year Congress earmarked $1 million to complete preconstruction work on the Upper Stillwater Reservoir. Will that money be obligated in fiscal year 1978 as Congress directed?

Mr. ANDRUS. No; we cannot complete all of the preconstruction on Upper Stillwater Dam in fiscal year 1978 as we earlier planned. It has taken more time to collect the field data than we anticipated and we now expect to complete it in March.

It will require about 15 months to complete the designs and specifications. This is a complicated design problem so it will take more time to do the work. We hope to have this work finished by July 1979.

UPPER STILLWATER RESERVOIR PRECONSTRUCTION

Mr. MCKAY. Why are no construction funds requested for Upper Stillwater Reservior in fiscal year 1979?

Mr. ANDRUS. Construction funds for the Upper Stillwater Dam were not included in the fiscal year 1979 budget due to budgetary considerations.

Mr. BEVILL. The Chair now recognizes Mr. Dicks.

WATER RESOURCE POLICY RECOMMENDATIONS

Mr. DICKS. Mr. Secretary, I want to go back just a moment so that I completely understand. I know the chairman questioned you on this.

First of all, I want to say that we in the State of Washington appreciate the fine job that you are doing. I do not think we have any great complaints. But I am concerned about where we are going, the course of direction here, and this is the reason why we raised the point earlier. I read here in the budget where it says, "Although no new water resource construction projects are proposed in this budget, the administration may recommend some new project starts in conjunction with the water resources policy recommendations."

Are those recommendations going to be up here in March?

We were told when we met down at the White House that we were going to have this in February. But now, as it gets later and later,

and I know there are all kinds of problems, and I am sure you can tell us about them, are there going to be any new starts recommended to the Congress when this water policy review study is submitted to the Congress?

Secretary ANDRUS. Mr. Chairman, Mr. Dicks, as we indicated earlier, I think it is very doubtful that new starts will be recommended for this year. But your comments earlier, during this hearing, that I did not get a chance to respond to, I would like to now, if I may.

Mr. DICKS. Go right ahead.

Secretary ANDRUS. To the delay of March 15, at the request of the chairman of the National Governors Subcommittee, that it be delayed so that we have the opportunity for further study and discussions on some of the points, the request was made from them. We honored it. I think it was a wise move, because the quality of the documents in its stack of finalization is very, very important. But it was not used arbitrarily, or trying to work past your chairman in a timeframe.

It was a request that we responded to, but one that we agreed with.

Mr. DICKS. So what you are saying then is that you delayed this submission for the Governors, and that the administration is not going to recommend any new starts in the budget as submitted this year, at this point in time?

Secretary ANDRUS. At this point in time, that is true.

SUPPLEMENTAL APPROPRIATION REQUEST

Mr. DICKS. Now, is it going to be—you do not anticipate a supplemental appropriation request?

Secretary ANDRUS. Let me speak to that, and ask Secretary Martin to also speak to it, because that is possible. Yes; we do anticipate a supplemental budget request.

Mr. DICKS. That will include new starts?

Secretary ANDRUS. I cannot say it will include new starts yet, because we really do not know, but we made the provision for the Garrison, the Auburn, and some of the others. where we have been tied up. They are not in the budget now, but with the knowledge and consent of the Office of Managament and Budget, and others, yes, I am sure that we will undoubtedly have a supplemental appropriation.

Let me ask Assistant Secretary Martin to respond to your—to the latter part of your question.

Mr. MARTIN. Mr. Dicks, I know it is not the answer that you want, but I think the fairest answer to you now is that we do not want to rule out the possibility of coming to you with new starts, but we cannot commit to doing it at this time. The problem is that, as you correctly stated it, the traditional situation over the past few years has been that Republican administration, Republican and Democratic, has come up with no starts policy, and Congress has exercised its judgment to put new starts in.

EVALUATION SYSTEM ON NEW STARTS

We do not think that that is any better than you do. We would like to get to a situation where we have a credible system for choosing

the project that ought to be started from a very substantial backlog where we know we cannot do them all.

Right now we believe we are in a situation where, as obvious as it may be to you and your process here, we do not really have the capability to nail down those first priorities for new starts. We expect that it will enable us to get there, and if it does, we may be able to come to you this year.

I want to express pessimism about that, not because we are seeking new starts, but because I have some questions as to whether we will both be able to arrive at the policy and do the necessary work to determine which are the meritorious new starts.

Mr. DICKS. So what you are saying is we are going to do business as usual for this year, for the second year we are not going to have the benefit of the Carter administration's position on water projects—that is basically what you are saying to me?

Mr. MARTIN. No; I am specifically not saying that. I cannot commit to the fact that we will have new starts in the supplemental, but I am not ruling it out, either.

I am giving you my honest judgment that I am somewhat pessimistic about it, but I am not ruling it out, and I do not think the Secretary is.

WATER POLICY REVIEW LEGISLATION

Mr. DICKS. Will the water policy review that you are talking about, will that include legislation that will go to the Public Works Committee, that will clearly delineate what the Carter administration's position is on water projects, so that we will know?

See, the problem we had last year in this debate was that everybody said we are judging the projects the way we judged them in the past, but we did not have anything from the administration on how they wanted the projects judged.

Mr. MARTIN. This is a specific objective.

Mr. DICKS. I really think that is so fundamental here, that the administration has responsibility, if it is going to challenge the system which has developed over the years, and which I think has so many safeguards built in, it is almost unbelievable, to come up with specific legislative recommendations that go to committees of Congress, and can be judged by Congress on the merits. I do not think that has been done yet, and I urge you to do that, because I think your whole approach in this matter lacks credibility until legislation is received before the authorizing committees delineating how you want these projects to be judged in the future.

How are we supposed to do an effective job here if we are told that you do not like what we are doing, but you have not yet told us what you want us to do?

Secretary ANDRUS. Mr. Chairman, Mr. Dicks, if I may respond to that, the answer to your question is "Yes," the President's policy paper will be presented to the Congress, but not all of it, Mr. Dicks, will require legislative authorization.

I am sure there are some components. If I may give you an example. If, in fact, the policy paper determines that the discount rate should be changed, that would have to come to the Congress for a change. If the discount rate is not to be changed, that element would not.

There are other situations. I think it would be a combination, frankly, but the policy paper will be delivered so that your chairman and the members of this committee, and other Members of Congress will know how we, the Carter administration, as you term it, will evaluate this backlog.

AUTHORIZED PROJECTS

Our big problem is, there is, between the corps and the Bureau, about $34 billion worth of projects authorized and not started.

Now, all right, we are spending between the two of us, about $1.6 billion a year. Frankly, at that rate, we will never catch up. We will be going behind.

We have to determine a methodology whereby we can bring you recommendations on the best, on what I am sure——

Mr. DICKS. Of all the authorized projects?

Secretary ANDRUS. Yes, sir.

Mr. DICKS. Let me ask you this. Obviously the Congress is going to exercise its judgment.

Secretary ANDRUS. Of course.

Mr. DICKS. But I think we all would like to have your position on this, so that when we are judging this matter on the merits we can know where the administration stands.

Are you working with the Public Works Committee, the authorizing committee, to go back and look at any of the existing authorizations?

Secretary ANDRUS. The authorizations, I do not know that we are, but let me check with the people.

Mr. MARTIN. Not at this time, Mr. Dicks, although we intend to do that, and that would be exactly the process that we want to follow. I think in many cases the Bureau has a feeling of what those prior authorizations are, but as we go through any analysis, pursuant to a system that we come up with, in making analysis, we will be happy to work with them on that.

Secretary ANDRUS. Your point is valid, that we come and work with you, that we can place before you a piece of paper, and say this is how we evaluate this, the discount rates, whatever it might be, that we will in our analysis, and then of course we have to confer with the chairman and members of the committee to see whether they agree. It does not mandate, we are not so naive as to whether you agree with this. But you are entitled to know how we are setting up our procedure to come up with that factor.

1977 "HIT LIST"

Mr. DICKS. That is the basic complaint that I heard from the Members last year, when the administration came up with the so-called "hit list." They had not come to the Congress and said here is a way that we think you ought to look at in terms of judging these projects. I think that is an inconsistency, and I am glad you are going to rectify it.

I hope you have specific legislation, because I am afraid you are going to come up with a recommendation, and then another 6 months will pass before we get legislation. I think you have to come up with legislation at the same time, as to how you want to change existing law, so that the Congress can determine this immediately so that we do not have to go through this again next year.

Secretary ANDRUS. I think you would agree with me that hasty legislative recommendations can sometimes cause as much problem, consternation and frustration, as if you take sometime——

Mr. DICKS. Except that you have had a year to look at this, since last May. We were told last May that this was all being reviewed.

We assume that the process included coming up with some recommendations, and it appeared to me that you had all the answers last year when you made the hit list recommendations. Somebody had to have some basis for analyzing it and making some decisions on what criteria you are going to use.

What I cannot understand, the existing committees have spent a lot of time analyzing these projects, they have been studied, not every project that seeks authorization gets authorized. This is a complex process that you have to go through to get one of these projects authorized and funded.

I am not so sure that that process is totally bad. In fact, I think it is totally good, in weeding out some of these projects.

BALANCED BUDGET

I just hope that we can get about the business here, because to some of us it may look like the delay is for the purpose of not addressing the issues, and not funding the programs that should be funded, because you want to hold down spending so that you can balance the budget by 1981. Maybe that is naive on my part, but that may be what some of us are starting to think, because we ought to be able to resolve this issue, so we can all proceed together.

I just hope that this is not being used as a delaying process.

Secretary ANDRUS. Mr. Chairman, Mr. Dicks, it is not. The justifiable goal of balancing the budget by 1981 is laudable, but as the testimony was given prior to your arrival, there has been no constraints to hold back the constraints authorized to budget.

Mr. DICKS. Thank you, Mr. Chairman. I have some additional questions which I would appreciate being answered for the record.

Secretary ANDRUS. I will be very happy to answer those for the record.

[The following was received for the record:]

Mr. DICKS. We know you want to conserve and so do we, but you must be well aware that the Nation's growing and diversifying economy is placing many new demands on water. How will a strong conservation policy take this into account?

Secretary ANDRUS. Any conservation policy will have to recognize increasing demands and the change in conflicting demands. Energy development, for example, will certainly demand an increasing share of available water supplies. The increases overall, and the changes in specific sector demands will require a combination of strategies, including new water resource development changes in use patterns—that is, low productivity agricultural application to higher productivity or energy uses, or operation and maintenance. Conservation will also be a tool, providing a damper on the rate of increase of demand. Conservation itself should be implemented through a combination of methods, which can include pricing, better technology, municipal and industrial of old systems, or education and research.

Mr. DICKS. As the top Administrator for the Heritage Conservation and Recreation Service, what is your policy on wild and scenic rivers?

Secretary ANDRUS. Support of the basic wild and scenic river program under law, with case-by-case decisions made on a balance-of-needs basis.

Mr. DICKS. How will the current wild and scenic rivers study affect water projects already underway?

Secretary ANDRUS. Although not specifically provided for in the Wild and Scenic Rivers Act as amended through Public Law 94–486, Interior has taken the position that water resource projects already under construction would be recognized as if they were in place, and the act would not apply to these projects.

Mr. DICKS. Will it affect projects in the planning stages?

Secretary ANDRUS. Projects in the planning stage and others that have been authorized and for which appropriations are being requested to initiate construction must comply with section 7(b) of the Wild Scenic Rivers Act which precludes financial assistance in the construction of a water resource project that would have a direct and adverse effect on the river, and section 5(d) which states:

"(d) In all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild, scenic and recreational river areas, and all river basin and project plan reports submitted to the Congress shall consider and discuss any such potentials. The Secretary of the Interior and the Secretary of Agriculture shall make specific studies and investigations to determine which additional wild, scenic and recreational river areas within the United States shall be evaluated in planning reports by all Federal agencies as potential alternative uses of water and related land resources involved."

Mr. BEVILL. Congressman Mark Andrews has asked that the following questions be answered for the record.

[The information follows:]

GARRISON DIVERSION UNIT

Question. Mr. Secretary, in early January you indicated that there would be an appropriation request in the budget for the Garrison Diversion project. However, no funds were requested. What caused the administration to change its mind?

Answer. As you know, the administration has under review a draft legislative report containing a proposed plan of 96,300 acres. After the review and clearances are completed and the related legal and international problems are resolved, a timely request for funds will be made.

Question. As I understand it, Interior believes that Reclamation cannot continue with construction due to the court stipulation. This reason has been given for the construction halt for nearly 1 year. The result is a serious delay in North Dakota's farmers, towns, and cities receiving deserved project benefits and there is further escalation in costs. It is my understanding that a trial on merit would immediately end the stipulation and put Reclamation back to work. Is this correct? Would you comment on why Interior has not taken the matter to court to uphold the governments position?

Answer. The May 11, 1977, court-approved stipulation and order will terminate under its own terms 60-days after Congress takes action on the proposed legislation which has been sent to the Office of Management and Budget for clearance and submittal to the Congress. A tiral on the merits would neither immediately terminate the stipulation nor immediately permit the Bureau of Reclamation to resume construction on items now prohibited by the stipulation. We could not unilaterally cause such a trial to take place. We could request it, but it would require the consent of the other parties and the court. And even if such a trial were able to be scheduled prior to the time the stipulation terminates by its own terms, the likelihood of success in avoiding a full-scale injunction against the entire project is no less uncertain than it was in May of 1977. We could, of course, terminate the stipulation by simply breaking it, but that would raise even more legal problems and would be inappropriate in any event because it would waste all the time and effort we've spent in complying with the stipulation up until now.

Question. It is my understanding that there are project features common to the authorized plan and your recommended plan on which work could be proceeding. This would put Bureau of Reclamation resources to work and expedite much needed project benefits. Assuming the stipulation and order is resolved, would you favor such approach?

Answer. I think continued construction on the features that are common to both plans would depend upon several things in addition to resolution of the stipulation and order. For example, the IJC recommendations are still pending before the United States and Canadian Governments and neither has accepted these recommendations. The U.S. Government is committed not to undertake construc-

tion of project features potentially affecting waters flowing into Canada until it is clear that U.S. obligations under the 1909 Boundary Waters Treaty will be met.

Question. What is your capability during fiscal year 1979 to continue work on common features?

Answer. Our construction capability for the Garrison diversion unit is $7 million in fiscal year 1979.

Question. What additional funding would be needed?

Answer. None, because there will be sufficient fiscal year 1978 funds to carry into fiscal year 1979 to satisfy this need. The construction work that could continue on features common to both plans include: Minor construction on McClusky Canal; land acquisition for La Moure irrigation facilities; certain fish and wildlife and recreation facilities, and construction of recreation facilities for Lake Brekken-Holmes recreation area.

Question. How much money from the roughly $25 million available will be spent during fiscal year 1978?

Answer. We estimate that some $7.5 million will be spent in fiscal year 1978.

Question. Do you intend to make unexpended appropriations from fiscal year 1977 and fiscal year 1978 available for furtherance of Garrison diversion unit in fiscal year 1979?

Answer. Yes, at this time we would propose to use available funds for furtherance of the Garrison diversion unit as soon as the legal and international problems are satisfactorily resolved.

Question. Completion of the Lonetree Reservoir is the vital link in making water available to project elements subsequently completed. In view of this, why not have early consultations with Canada on this issue?

Answer. Consultations with Canada are a matter for the Department of State to decide. We cannot even speculate whether or not the Government of Canada would be willing to separate out the Lonetree Reservoir for early consideration.

Question. Please answer the following questions regarding Interior's recommended plan. Does the plan make efficient use of Snake Creek pumping plant and the McClusky Canal? If these facilities are overdesigned, who will pay excess O. & M. and construction costs?

Answer. Construction of the Snake Creek pumping plant and McClusky Canal are nearly complete thereby precluding design modifications for a lesser capacity. The operation and maintenance costs to be repaid by the contracting entity (presumably the Garrison Diversion Conservancy District) would be based on the total project including excess capacity in these features. However, present contract terms require that the conservancy district repay only a small share of the total project costs with the remainder to be repaid by Missouri River basin program power revenues. Hence, the subsidy would continue to be inordinately high under the proposed 96,300-acre plan. Therefore, any increase in operation and maintenance costs should not place an unreasonable repayment burden on the district.

Question. Why were the Warwick, McVille, Oakes areas and the Taayer Reservoir excluded?

Answer. After many months of study and analysis using the data and information available at the time, it was determined that, on balance, the advantages and disadvantages associated with these areas and features could not be combined as well as those associated with other areas and features to form the best possible plan in terms of engineering, environmental protection, and economic benefits. With particular reference to the Oakes area, considerable effort was made to reduce the relatively high costs associated with irrigation development in that area so that it might be included in the plan. However, in the final analysis the necessary construction costs would simply be prohibitive for the 40,000 acres of irrigation benefits that would ultimately result.

Question. Does his plan fulfill the master contract between the Garrison Conservancy District and the Bureau of Reclamation? Does it fulfill repayment contracts with the four irrigation districts currently authorized?

Answer. It appears to us that these contracts may require adjustments in the event the plan is recommended by the administration and appropriately reauthorized by Congress.

Question. How much time and money is needed to study and plan new areas to a level comparable with currently authorized areas?

Answer. First, I should point out that all of these new areas included in the 96,300-acre plan were a part of the original 1-million-acre Garrison plan that has never been reauthorized by the Congress. So these areas have been studied in the

past by the Bureau of Reclamation as possible additions to the project in its ultimate phase. The new areas, amounting to about 55,000 acres, were identified. Some additional reconstruction work for drainage investigations, topographic mapping, and soil classification will be necessary to bring these areas up to the required detailed standards. The exact cost of this work is not known but should fall within the contingency factor included in the cost estimates for the recommended plan.

Question. Did Interior consult and work with the North Dakota Conservancy District while formulating this new plan?

Answer. Both the State and the conservancy district were asked, from the very beginning of the effort begun to comply with the May 11, 1977, stipulation and order, if they wished to assist. They declined to do so. In fact, public consultation meetings were held on an approximately monthly schedule in Bismarck, N. Dak., during the formulation of the recommended plan. Officials of the Garrison Diversion Conservancy District attended several of those and consistently declined to speak when asked if they had any comments.

Question. The authorized project had a very positive benefit-to-cost ratio. Your recommended plan has a negative ratio. Bureau of Reclamation, Harza Engineering, and the IJC study board results all show that the authorized project can provide reasonable environmental safeguards with relatively minor modifications. North Dakota needs, wants, and supports the authorized project. In view of these factors, how do you justify the recommended plan?

Answer. When examined on the same basis as the currently authorized project—namely, at a 3⅛-percent interest rate—the recommended plan also has a very positive benefit-cost ratio (1.42:1) while the authorized project benefit cost ratio falls below unity (0.97:1) when examined at the current interest rate of 6⅝ percent, even without considering the considerable deficiency in the wildlife mitigation plan. At 6⅝ percent, the recommended plan has a benefit-cost ratio of 0.80:1. In regard to the environmental safeguards, the findings of the IJC study board are not before the two governments for consideration but rather the report of the IJC itself. The two governments will be consulting on the recommendations made in the IJC's report of September 1977. Whether or not proposed environmental safeguards are relatively minor for the authorized project is conjecture until the Government of Canada has been consulted. In addition, the recommended plan utilizes many of the presently constructed facilities, reduces the total cost by slightly over 40 percent to a more manageable level, minimizes environmental impacts, provides a more adequate wildlife mitigation plan, while providing for nearly 100,000 acres of irrigation.

Mr. BEVILL. Mrs. Smith has asked, on behalf of Congressman Abdnor that the following questions be answered for the record.

[The questions follows:]

STATUS OF OAHE UNIT, SOUTH DAKOTA

Question. Mr. Secretary, there is no money in the administration's budget for construction of the Oahe irrigation project. Water development is accorded the highest priority by the people of South Dakota, and their legislature recently voted to seek alternative projects or to try to obtain a cash settlement if agreement cannot be reached with the Federal Government to construct other projects.

What is your present position relative to the Oahe unit?

Answer: Our position with respect to the Oahe unit remains unchanged; that is, pending a change in local support for the project, no funds should be requested or expended in furtherance of the unit. The Oahe conservancy subdistrict board of directors opposes continued construction and study of the authorized Oahe unit plan. Therefore, we have not requested any funds for continued work on the Oahe unit.

Question. What are your plans for the personnel who have been assigned to the Bureau of Reclamation's Oahe project office in Huron, S. Dak.?

Answer. Personnel directly assigned to the Oahe unit will be offered positions at other Bureau of Reclamation projects where employees are needed to meet the work assignments. They will then be transferred to the new assignments. Some personnel will be retained in the Huron offices involved in operation

and maintenance and safety of the partially completed facilities. Advance planning activities on the Pollock-Herreid unit, as well as general investigations studies for Grassrope unit, Sioux Falls unit, Belle Fourche project, and for municipal and industrial water studies.

Question. Will you support feasibility studies of proposed alternative irrigation projects, such as the so-called lower James proposal, and other water developments in South Dakota?

Answer. Although the issue of local support for the Oahe unit has not been resolved, a great deal of interest has been expressed in other possible water resource developments, including the lower James proposal. We support and encourage such study and are available to assist entities in South Dakota in seeking the necessary congressional authorization and funding.

Question. If it proves impossible to achieve a consensus with regard to alternative projects, what would be your view of a cash settlement, as suggested by the South Dakota Legislature?

Answer. We believe that discussion of a cash settlement is premature insofar as the investigations of alternatives to the Oahe unit have not determined whether deauthorization is appropriate. Should deauthorization appear viable, representatives of all affected interests would need to be consulted to determine the appropriate course of action.

POLLOCK-HERREID UNIT

Question. You have requested $250,000 for advanced planning on the Pollock-Herreid unit in South Dakota. In view of stoppage of the Oahe unit, would it be possible to expedite this project?

Answer. We would not be able to expedite the project.

Question. What are your maximum capabilities for the Pollock-Herreid project in the coming fiscal year?

Answer. Our maximum capability for fiscal year 1979 is $250,000, the amount included in the budget justifications for completing advance planning activities.

ZERO-BASED BUDGET

Mr. MYERS. How many hours were required to develop your zero based budget? If you will put that information in the record, please.

Secretary ANDRUS. We will attempt to.

[The following was received for the record:]

STATEMENT ON ADDITIONAL COSTS OF ZERO BASE BUDGETING

In implementing the new concepts and procedures involved in the zero-base budgeting (ZBB) process, we as a Department did not experience any new or incremental costs over and above the basic costs involved in the formulation, review, and presentation of our budget requests to the Office of Management and Budget. We did not require any new employees to accomplish the tasks.

Mr. BEVILL. The committee will take a short recess.

WATER RESOURCES COUNCIL

Mr. BEVILL. The committee will come to order. We will now hear testimony from the Water Resources Council. Thank you Mr. Secretary, Assistant Secretary Martin and Mr. Eisel for returning. I see you have been joined by Charles R. Ford, Acting Assistant Secretary, Army, and Mr. James W. Curlin, Deputy Assistant Secretary of Commerce. Your prepared statements, testimony and justification document will be entered into the record.

[The material follows:]

Water Resources Council
Opening Statement
before
Appropriations Subcommittee on Public Works
U.S. House of Representatives
February 22, 1978
by
Guy R. Martin
Alternate to the Chairman

Mr. Chairman, it is a pleasure for me to appear before your committee in support of the President's budget proposals for the continued operations of the Water Resources Council. With me today are two members of the Water Resources Council -- Mr. Michael Blumenfeld, Deputy Under Secretary of the Army, and Dr. James W. Curlin, Deputy Assistant Secretary for Policy of the Department of Commerce. With your permission, Mr. Chairman, I would like to enter my written text into the record and briefly summarize the budget request of the Council.

The FY 1979 request is $11,560,000, a decrease of $2,136,000 (16%) below the funds appropriated for FY 1978. This request is composed of $1,320,000 for administration and coordination, basically representing Council staff activities and expenses, other than the Water for Energy and Water Assessment and Appraisal Program. The request includes $2,886,000 for the six Federal-state river basin commissions for the Federal share of administrative costs for development of basinwide water resource management (with priorities on implementation) and for salaries and expenses for the Chairmen of the six River Basin Commissions; $4,354,000 is for

comprehensive planning, which includes $2,346,000 for six ongoing Level B studies and two special studies; $660,000 for continued development of water resource management plans in non-Title II areas; $1,348,000 for the Water Assessment and Appraisal Program; and $3,000,000 for financial assistance to states to support their water resources planning programs. Also included in the Council's program is $1,000,000 transferred from the Department of Energy for water assessments.

The Water Resources Council is charged with several important responsibilities, including preparing water policy recommendations to the President, appraising the coordination of Federal water and land related programs, and preparing assessments of the Nation's water resources. Additionally, the Council provides financial assistance to states to prepare regional and river basin plans, and conducts assessments of the availability of water for various energy projects and programs.

With a budget request of a little over $11,500,000, the Council is not in itself a major water resource action agency. Rather, its purpose is to ensure that the billions of dollars in projects and services provided to the Nation by its member agencies adequately serve the needs of the states and regions and are sufficiently coordinated.

In attempting to carry out these congressionally mandated responsibilities, the Council has received its share of criticism, particularly for not developing water policy recommendations. Some of this criticism has been justified.

Currently, the President's Water Policy Study and the Reorganization Project, both of which have involved WRC participation, are reviewing the water resource area to determine not only the best guiding policies, but also the administrative mechanisms best suited to managing the Nation's water resources at the Federal level.

The President has requested Congress to fund the Water Resources Council for one more year. This year will allow the Administration time to develop, in consultation with the Congress, the best institutional arrangements without interrupting the important ongoing programs of the Council. I would like to note in the past year the Council has made significant accomplishments such as completing the Second National Assessment, assuming a major role in the President's Water Policy Study, completing floodplain management guidelines, and proposing a new policy requiring member agencies to insure that their proposed projects and programs are consistent with approved regional and river basin plans. Additionally, it has streamlined its operations to insure more active participation by its members' representatives on high level policy issues.

This program underscores the Administration's effort to develop the proper administrative framework for insuring effective water resource management. Providing the funds for the one year to finish the examination of the problem and to develop the necessary programs will help insure that these efforts will be both administratively and politically successful.

With your permission, Mr. Chairman, I would like to turn to two of my fellow representatives to the Water Resources Council to allow them an opportunity to further elaborate on the Administration's request.

WATER RESOURCES COUNCIL
STATEMENT BEFORE
APPROPRIATIONS SUBCOMMITTEE ON PUBLIC WORKS
U.S. HOUSE OF REPRESENTATIVES
FEBRUARY 22, 1978
BY
CHARLES R. FORD
ACTING ASSISTANT SECRETARY OF THE ARMY
(CIVIL WORKS)

Mr. Chairman, I am Charles R. Ford, the Acting Assistant Secretary of the Army for Civil Works. In this capacity, I serve as the Army's representative to the Water Resources Council.

As Mr. Martin indicated in his opening statement, the entire area of water resource policy and management at the Federal level is undergoing a thorough and thoughtful review. Within the next few months we can anticipate that the President will be making major policy recommendations in these areas.

These, in turn, will be followed by reorganization proposals later in the year.

Although these proposals may very well contain alternatives to the Water Resources Council, we support the concept of having an interagency overview entity such as the Council. It is important that we continue our present program in this area, including those of the Water Resources Council, for one more year for two reasons. First, this will maximize the options available to the President and the Congress. Second, vital water programs such as the assessment of water for energy development, State grants for water resources planning, and support of river basin planning can be continued without interruption. Any savings from discontinuing their Council support in FY 1979 would be lost to costs incurred in starting these or similar programs anew.

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The Department fully supports the proposed budget of the Council and the one year extension. During this time, the Department is and will continue to not only improve existing functions of the Council but will diligently assist the Administration to find and implement the best institutional arrangement at the Federal level for management of th Nation's water resources. Army's significant investment in water resource development and management will pay greater dividends given the continued and revitalized efforts of the Water Resources Council.

DEPARTMENT OF COMMERCE
STATEMENT OF JAMES W. CURLIN
DEPUTY ASSISTANT SECRETARY FOR POLICY
BEFORE THE HOUSE APPROPRIATIONS
SUBCOMMITTEE ON PUBLIC WORKS

Mr. Chairman and members of this committee,

It is my pleasure to appear before you as the Secretary of Commerce's Alternate Member to the U.S. Water Resources Council. Two years ago, Congress made us a full member of this Council, after about nine years as an associate member. We look to the Council as a forum where interagency disagreements and policy issues can be discussed, where agreements can be negotiated for related agency programs, and where common problems can be addressed to find acceptable solutions. It is the only mechanism available in the Executive Branch for coordinating interdepartmental programs at the Cabinet-level. This is in accordance with the policies of the Administration to place the responsibility for problem resolution with the Cabinet. Recent streamlining of operations in the Council insures more active participation on policy issues by representatives with policy level responsibilities. The Council provides an opportunity to resolve issues and conflicts, which might otherwise require attention by the Executive Office of the President. All in all, Commerce finds the Council a useful forum, although the Department is not a major agency with respect to water resources construction projects.

Water related programs in Commerce are the inland waterways, ports, and intermodal transportation programs of the Maritime Administration; river forecasting services of the National Weather Service, fisheries activities of the National Marine Fisheries Service, coastal management planning under the Office of Coastal Zone Management, all of which are in the National Oceanic and Atmospheric Administration; economic projections by the Bureau of Economic Analysis; industrial water use projections by the Industry and Trade Administration; and public works programs of the Economic Development Administration.

Commerce is not a major recipient of the funds that will be discussed here today ($114,000 out of a total budget of $11,560,000). However, our programs are affected by the plans that are implemented or by the policies that are formulated to address the issues associated with the planning process. Nearly $1 billion worth of Commerce's programs are affected by these planning processes. The Department of Commerce considers it imperative that there be a balance between the objectives of water resources planning and the missions of the economic, transportation, and environmental programs we manage. Therefore, our Department considers its participation in the Water Resources Council as an important input to the Nation's water resources policy.

Mr. Chairman, this completes my prepared statement. I would be happy to answer any questions you may have.

APPROPRIATIONS TESTIMONY

FISCAL YEAR 1979

WATER RESOURCES COUNCIL

FEBRUARY 1978

INTRODUCTION

General

The Water Resources Planning Act of 1965 (P.L. 89-80) encourages the conservation, development and utilization of water and related land resources of the United States on a comprehensive and coordinated basis by all levels of Government and non-Government entities and individuals.

The Council's objectives are to encourage effective planning for efficient and timely use of natural resources; pay careful attention to alternatives and competing uses of them; encourage the involvement in planning of all interests - Federal, state, local and private - from the beginning; evaluate realistic estimates of the capability of plan implementation at the Federal, state, or local level; and demonstrate the interrelationship between the comprehensive plan for a region and the separate projects or programs that comprise the overall plan. These objectives underlie our budget presentation.

The President's budget request for the Council for Fiscal Year 1979 is $11,560,000, a decrease of $2,136,000 from the Fiscal Year 1978 appropriation. The requested funding for Fiscal Year 1979 provides $3,000,000 for planning grants to the states; $2,886,000 for the operations of six

river basin commissions; $4,354,000 for comprehensive planning; and $1,320,000 for administration and coordination. Also programmed is $1,000,000 transferred from the Department of Energy to conduct water for energy assessments.

Legislation to Change Appropriation Ceiling Authorization

The Water Resources Council budget for Fiscal Year 1979 will require changes in Sections 301 and 401 of the Water Resources Planning Act (P.L. 89-80, 79 Stat. 244, 42 USC 1962d). Chairman Cecil D. Andrus has submitted draft legislation for that purpose. His transmittal reads, in part, as follows:

> "It is the Administration's position that the WRC program should be authorized to continue through Fiscal Year 1979. The valuable work of the Council is continuing with increased interest from all concerned with water and related land. Its programs to assess the water problems of the Nation, to assist state planning programs, to evolve a Water Assessment and Appraisal Program, as well as its continuing policy and planning analysis and coordination efforts, have assisted and will continue to assist greatly the water resource management programs of both Federal and state governments.
>
> This proposed continuation will allow the Administration time to review the findings and recommendations of both the Water Resource Policy Study and the President's Reorganization Project and determine, in consultation with Congress, the best institutional arrangement at the Federal level for overseeing the management of this Nation's water resources. I urge your favorable consideration."

Overview Statement

Over the past few years, the effectiveness of the Water Resources Council has been questioned. The Council is now taking steps in response to this criticism to discharge more effectively its responsibilities. A brief description of some of these follow.

So that important interagency water resources policy matters will be considered in a more timely and efficient manner, the Council has eliminated several layers of representation. This reorganization has eliminated the former Council of Representatives and multiple committees with the result that all Council business is conducted at the Assistant Secretary level or above by the Council of Members (Alternates). This reorganization will enable important water resource policy matters to be efficiently considered by the Council, in a timely fashion, and at an appropriate policy level.

Additionally, the Council has taken steps to improve its existing programs in response to water resources management and development needs. For example, the Council for several years has supported a grant program to the states and contributions to river basin commissions for purposes of developing effective water resources management plans. Unfortunately, the resulting plans have not been extensively used by the states, the Federal agencies, the river basin commissions, the Administration or the Congress for purposes of implementation, budgeting or management. To insure that the plans become more effective as management tools, the Council is developing procedures which will provide for consistency of Federal agency implementation programs and projects with these regional water resources management plans. Completion of this effort will insure that Federal water resources management activities will be done in an effective and efficient manner and be consistent with the plans of the states.

Another example of efforts by the Council to improve its existing programs is the use of the Second National Assessment of the Nation's Water Resources and Problems as a meaningful basis for program and policy decisions. The data base of the Assessment was used to document the extent of the Western drought and, along with other information, provided the basis for the President's decision to allocate $850 million to drought damage reduction. This study has also contributed substantially to Water for Energy Assessments in support of Department of Energy activities.

The Council is also implementing new programs to meet the present demands of water resources development and management. The Council in implementation of E.O. 11988 has recently completed a set of guidelines on which more than 200 Federal programs will base rules and regulations for insuring that agency activities will be in accordance with sound floodplain management. Development of these guidelines is one component of the Council's floodplain management program which is designed to reduce human suffering resulting from unwise development of floodplains and the consequent need for future Federal expenditures for construction of flood control structures.

There is also increased concern by the Council with the need to integrate water quality planning and management into the traditional water resources development planning and management. Without this integration of water quality and water quantity planning, the goals of water pollution control programs cannot be met. In the coming year increased emphasis will be given to this area through the procedures for consistency mentioned above as well as the other comprehensive planning programs of the Council.

The Water Policy Study has indicated the appropriate desire and need of the states to play a major role in the planning, management, development and preservation of the Nation's water resources. Because Federal water resources management programs are scattered among more than 25 agencies, the Water Resources Council has an important responsibility to serve as the central focus and provide a vehicle for state input in Federal water resources decisionmaking and planning. The Council is aware of this need for state input and is taking steps through cooperation with various state water resources organizations and the states themselves to insure a close working relationship between the states and Federal water resources agencies.

The Council's present and proposed efforts to fulfill more adequately its responsibilities under the 1965 Water Resources Planning Act are described below.

NATIONAL PROGRAMS

General

The 1976-77 drought, water needs for energy production, water quality problems, ground water overdraft, once again tell us the obvious; water resources management is an extremely important national concern. Better water management, including conservation, is a must if we are to meet our water needs when faced with critically limited water supplies in certain areas.

The Water Resources Planning Act of 1965 (P.L. 89-80) addresses this need for coordination at the national level the activities of the

more than 25 Federal agencies which have major water resources programs. At the regional level, the River Basin Commissions, Inter-Agency Committees and other regional entities serve to coordinate activities of the many Federal and state agencies, and provide a common ground where those who want and need water meet with those who plan, fund and provide.

Water Policy Study

The Water Resources Council, the Office of Management and Budget, and the Council on Environmental Quality were assigned the Water Resource Policy Review in the President's Environmental Message of May 23, 1977. The study purpose is to review issues facing Federal water resource policy-makers and present options which will set the agenda for water resources management by this Administration.

Major issues included in the Water Resource Policy Review deal with planning and evaluation criteria, cost sharing, institutional arrangements, Federal reserve water rights, research, water quality and water conservation. Viable options on each topic will be considered by the President. Emphasis of the options selected for each issue will no doubt have a strong conservation thrust. Water conservation in terms of reducing demand and eliminating waste is a must in several of our water resource regions if essential water use needs are to be met. In the Second National Water Assessment, the Council has identified potential supply problems in the West, Southwest and Midwest. Within these areas, ground water levels are declining and alternative sources of water are limited. Implementation of conservation measures is urgently needed to lessen the pressures on available water supplies.

Potential follow-up for the Council includes revision of the Principles and Standards to incorporate the suggestions for improvement, additional work on the water conservation proposals, initiatives to strengthen State and Regional planning, and assistance in implementing other recommendations by drafting legislative proposals and executive orders as appropriate.

The Second National Water Assessment

The recently completed report of the Second National Water Assessment evaluates the current and future conditions and requirements for water supplies of the 21 water resources regions. After draft review by the study participants and interested public, final printing and distribution will be made.

One important product of the Second National Water Assessment is a nationally consistent data base on population, income, employment, flood damage, energy, recreation, land use, environmental and water quality parameters for 1975, 1985 and 2000. Water supply and use data establish a basis for a water balance from a physical standpoint for each of the Nation's 21 water resources regions and 106 subregions. Offstream and instream uses, ground water mining and impacts of water conservation drought management and energy resource development can be further analyzed using the data base. Those regions gaining or losing can be identified some precision.

The Second National Water Assessment Report identifies water management problem areas in terms of: inadequate surface and ground water supplies; poor water quality; wetlands loss; dredge and fill conflicts;

flood damages and bay and estuary degradation. The location of subregions which are now or will be experiencing water shortages by the year 2000 are presented in Figure 1. These findings indicate locations where management efforts should be targeted to achieve better balance between use and supply. An immediate and severe water quantity problem for example is in Central Arizona (subregion 1503). Here water use averages 3.5 billion gallons per day, of which only 1.5 billion gallons are provided from surface water supplies. As a consequence, ground water is being mined at the rate of 2.0 billion gallons per day to supply the remaining requirement. Due to the excessive ground water withdrawals, streams in the subregion are drying up.

Figures 2 and 3 show past water use and future trends for the United States for 1975 to 2000. This information is now available for further analysis within each of the 21 regions and 106 subregions. Trends in Figure 2 show withdrawals of water declining in the future due to more recycling, more efficient use, and improved water management. However, as shown in Figure 3 net water consumption will be increasing in the future due to greater evaporation from recycling and expanded use for some functions.

The final Assessment Report will be published by mid-summer. We believe it will be informative to the Congress and the Administration, and we hope it will be used in setting priorities and formulating policy on water resources management.

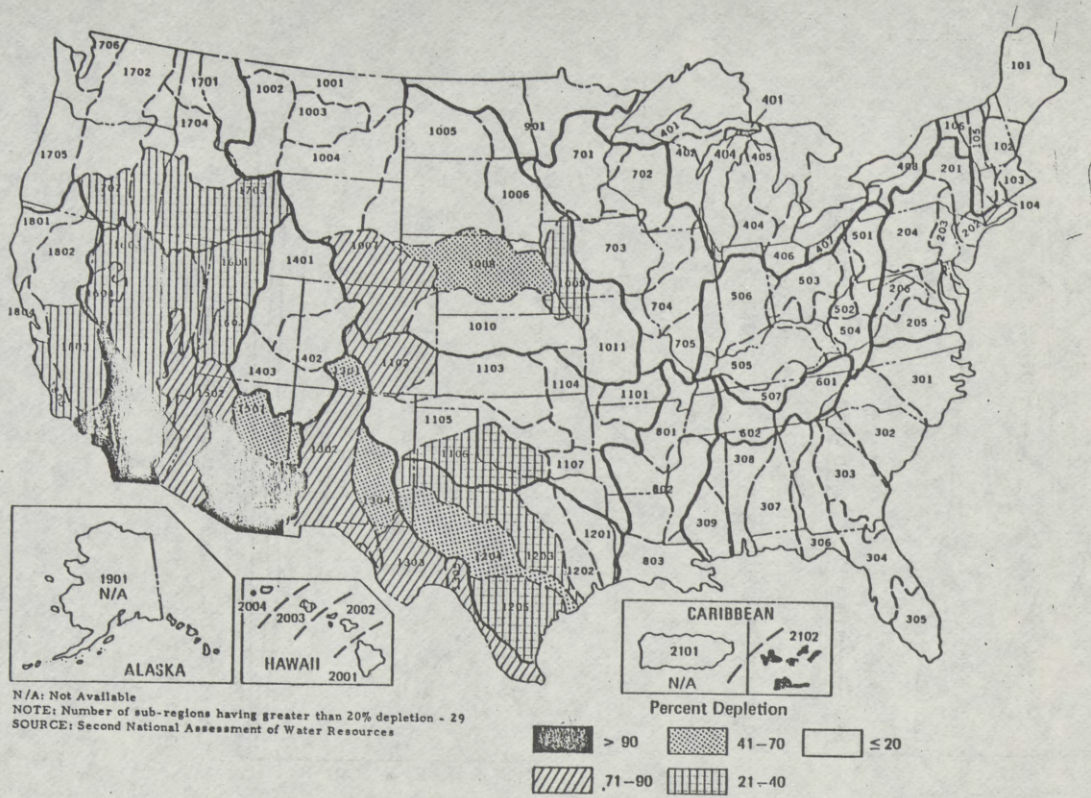
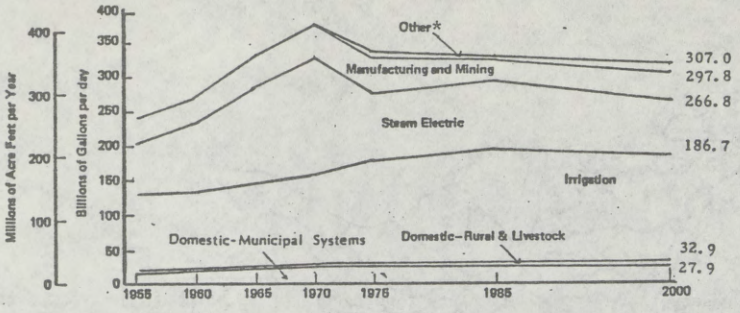
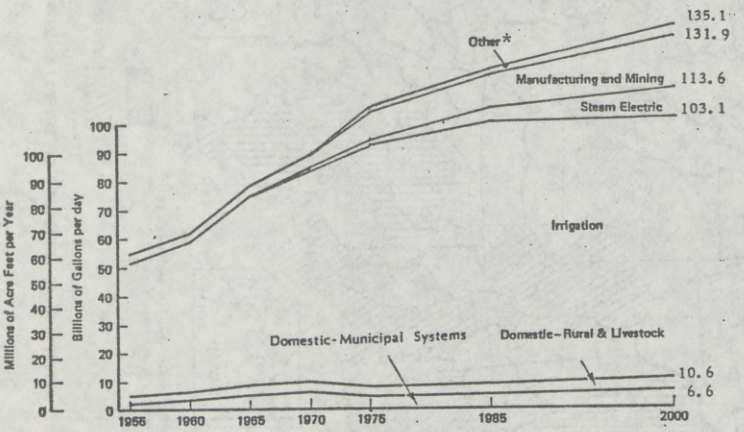


FIGURE 1 SURFACE WATER CONSUMPTION AS A PERCENT OF POTENTIAL SUPPLY - AVERAGE YEAR 1975



*Other: Includes commercial water withdrawals

Figure 2. FRESHWATER WITHDRAWALS FOR THE UNITED STATES, 1955-2000



*Other: Includes commercial water consumption.

Figure 3. FRESHWATER CONSUMPTION FOR THE UNITED STATES, 1955-2000

The Assessment data have already proven useful in a special White House drought study to document the impact of the 1976-77 drought. This data, along with other information, led to the allocation of $850 million to drought damage assistance. Additionally, assessment data have been drawn upon for energy studies conducted by the Department of the Interior and the Department of Energy and for the water conservation and water quality reports which are part of the President's water policy review.

Assessment and Appraisal System

With the Second National Water Assessment and it's data base now complete, the Council can accelerate design and implementation of the Assessment and Appraisal System. The objectives of this system are to maintain: (1) a continuing assessment capability to respond to special studies, e.g., drought studies, conservation program priorities and regional water for energy needs and (2) the analytical capability to appraise the adequacy of proposed water resource policies and programs in meeting regional and national needs. The appraisal system will provide a range of recommendations on allocation of financial resources to meet the problems of water quantity, water quality, flood damage reduction, environmental protection and related resource problems. The system draws heavily on information from the Second National Water Assessment in evaluating the urgency and severity of the resource problems and from the Presidential Section 80(c) Study for data on Federal water resource program expenditures.

This budget submittal includes funding for the appraisal system and during the balance of FY 1978 and FY 1979 the following priority tasks will be pursued:

- Development by April 30, 1978 of a detailed design and plan for implementation of the system to achieve full potential by 1979
- Modification of the Second National Water Assessment data base to meet specific needs of the appraisal system
- Development of information (summaries and reports) for use by the Administration and the Congress to evaluate the adequacies of projects and programs in selected regions. By 1980, all 21 water resource regions will be included in the system.
- Application of the appraisal system in concert with regional and State plans in making recommendations to the President respect to Federal policies and programs.

Water Resources and Energy

The Council's program in FY 1979 for consideration of interrelated aspects of water resources management and energy development will focus on Section 13 of the Federal Nonnuclear Energy Research and Development Act of 1974, as amended. We will request transfer of $1,000,000 from the Department of Energy for the program.

The Council did receive $1,000,000 from the Energy Research and Development Administration for FY 1976 and the transition quarter, and for FY 1977; a like amount has been requested from the Department of Energy for FY 1978. Additional program support has been appropriated in the Council's budget for staff salaries and expenses.

Water will play a larger future role in meeting our Nation's energy needs than it has in the past. Large quantities of water are required for activities such as coal gasification, coal slurry pipelines, oil from shale, cooling of electric generation plants using fossil, nuclear and geothermal energy sources, and hydroelectric power generation. Energy development also poses important questions regarding water quality degradation of surface and ground water supplies which must be considered in concert with water quantity management.

The Council, since its creation has maintained a continuing interest in energy and associated water uses; this interest has recently increased, but within the context of achieving balance among all uses of water. Energy is also a vital requirement for operation of water supply systems and water pollution control facilities; the water manager also has responsibility as an energy consumer.

The Council's energy program has provided information to other agencies and programs, including the Congressional Research Service and Office of Technology Assessment. We have performed work for the Nuclear Regulatory Commission in its activities regarding site surveys and integration of water needs into siting permits for nuclear facilities.

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The Federal Nonnuclear Research and Development Act of 1974 indicates a deep concern over potential implications of development of energy technologies which may require significant consumptive use of water. Section 13 of the Act provides for water assessments of nonnuclear energy technologies, demonstration projects and commercial applications, and for consideration of water resource availability for energy development within the Council's continuing assessment responsibilities. Amendments to Section 13 adopted in 1977 increased the Council's responsibility for assessments of energy technologies, and provided for assessments of demonstration projects by the Council at the request of ERDA.

WRC's program under Section 13, initiated through a Memorandum of Understanding with ERDA in 1976, provided funding for (1) consideration of emerging energy technologies in the Second National Water Assessment; (2) methodology for determining instream flow conditions for fishery management; (3) hydrologic data base; (4) data system to describe water quality; and (5) program development.

In 1977, ERDA requested the Council to assess coal and oil shale technologies in the Upper Colorado River Basin and coal technologies in the Ohio and Missouri River Basins. Assessments in the Upper Colorado River Basin are being performed regionally and are managed by the State of Colorado, under contract to WRC, with professional support by the Bureau of Reclamation and Fish and Wildlife Service. Assessments of coal technologies in the Missouri and Ohio River Basins are being performed by the respective Title II River Basin Commissions.

Current scheduled completion dates for these regional assessments are early in FY 1979. We will publish the assessments ninety days later in the Federal Register.

Section 13 activities which are to begin with FY 1978 funds include an assessment of geothermal energy development for electric generation and several assessments of demonstration projects for coal conversion technologies. Completion is scheduled for FY 1979. Also we will examine impacts of air emissions from energy conversion processes on water quality.

In FY 1979, we will begin additional assessments of other energy technologies. Low head hydroelectric generation and advanced recovery techniques for oil and gas are receiving our immediate interest. Also we expect the Department of Energy will request a number of assessments of demonstration projects involving coal and other technologies. Further pending are programs to develop commercial scale facilities with Federal assistance authorized under the Nonnuclear Act. Our FY 1979 program contains flexibility to initiate assessments of these facilities as needed by further advancement of the Federal program.

The ongoing and projected water assessment program is making valuable contributions to energy and water resource planning, management, and development. Our data confirm that national efforts to achieve energy self-sufficiency and to control thermal discharges will entail large volumes of fresh water supplies. The emergence of new energy technologies and stimulation of their development through

Federal initiatives mandates consideration of their water resource implications. Specifically, our energy assessment program indicates that an increment of 1,000,000 acre-feet annually will be required to support the levels of geothermal energy development projected for the year 2000 in ERDA's "National Energy Plan for Energy Research, Development and Demonstration." Most of the development would occur in California, Nevada and Idaho. Projected levels of oil shale development, largely in the Upper Colorado River Basin, may involve several hundred thousand acre-feet annually.

Our Section 13 assessment program is structured to determine the specific implications of these technologies but more importantly it will point the direction of steps which must be taken to assure the availability of sufficient water supplies to accommodate these technologies. Without delineation of these steps, and ensuing action, we foresee serious delays in implementing new technologies in concert with national energy goals.

The structure of our assessment program, with a leadership role for the states, provides for a strong Federal/state interface on both energy and water concerns. This interface is very important given the states' role in allocation of water to energy development under state water rights laws. Energy development also involves other state responsibilities including land use control, air and water quality management and transportation. Our assessment program strengthens linkages between these responsibilities, water management and Federal energy programs.

The FY 1979 program will continue maintenance and updating of our water and energy information base. This will enhance our support of energy assessment activities of many Federal agency programs including the Department of Energy's NEPA responsibilities and efforts of the Office of Technology Assessment. This information base also enables us to make available up-to-date national energy projections involving new technologies for consideration in regional and state water resource planning efforts. This particular data base and analytical skill exists only in the Council.

Floodplain Management

Wise use of floodplain lands is a necessity if the Nation is to avoid a continuing spiral of increased flood losses and consequent demands for more Federal disaster assistance, subsidized flood insurance and flood control structures. Key Federal activities to arrest flood losses include encouragement of states to exercise floodplain management programs and greater reliance upon nonstructural measures.

During the past year, the major effort in this program has been to develop and publish two basic documents to guide Federal agencies in the development of procedures for evaluating proposed actions affecting floodplains as required under the Floodplain Management Executive Order (E.O. 11988). Evaluating agency floodplain management procedures will begin mid-1978 and recommendations for achieving consistency among similar programs and coordinating interagency activities will be finalized. Now that guideline documents are published, greater effort will be

directed to encouraging flood loss reduction measures for Federal lands and facilities. The Council will also be working closely with the New England River Basins Commission to assure successful completion of studies evaluating feasibility of implementing nonstructural flood loss reduction measures in the Connecticut River Valley.

Federal Consistency

Current water resource regional and basin plans have been considered rather ineffective in facilitating resource management decisions. The Council has directed procedures be developed to improve the planning process, and that a policy be prepared which provides that Federal projects and programs will be consistent with approved regional plans. The adoption of the policy for Federal consistency should lead to greater utility of the plans in reaching decisions on funding of projects and programs.

Other Policy Issues

The Principles and Standards for Planning of Water and Related Land Resources are being used and implemented by those Member agencies with direct water resources programs. However, the current Water Resource Policy Study has generated several suggested changes to the Principles and Standards which can result in considerable improvement. Notwithstanding the Policy review, the FY 1979 budget includes funding to rewrite the Principles and Standards so they can be better understood, and used.

Further, the Council is determining needed modifications for updating the OBERS projections of population, employment, earnings, agricultural production and other economic activity to aid planners and managers in meeting water needs. OBERS are uniform standard projections provided by the former Office of Business Economics (now Bureau of Economic Analysis) Department of Commerce, and the Economic Research Service, Department of Agriculture. The first OBERS projections have not been completely effective in comprehensive water planning. Funding is provided in this budget request to update and improve the projections.

National Coordination Efforts

To coordinate the activities of the more than 25 Federal agencies, most of which are represented at the Council, a coordination directory is maintained and widely used by citizens seeking water information or assistance. A list of publications of the Water Resources Council is made available to the interested public and helps us place water facts in the hands of students at all levels. Public participation is encouraged by the Council and every effort is made to involve the public. On the Water Resource Policy Study, the Council received and reviewed over 1,400 public comments while finalizing the task force reports.

The Council sponsored Second National Conference on Water, held in St. Louis, Missouri, May 23-25, 1977, involved more than 600 participants. Our purpose was to encourage non-Federal interests to express their concerns about national water resource management programs and policies.

REGIONAL PROGRAMS

General

Regional programs of the Council are directed towards establishment and maintenance of a comprehensive and coordinated planning process. The process enables and assists in the implementation of effective, timely, economically efficient and environmentally responsible recommendations to resolve complex regional water and related land resource issues. River basin commissions created under the provisions of Title II of the Water Resources Planning Act, have served as a major point of focus for these efforts; the Council is currently developing a program to extend regional programs into areas not represented by Title II Commissions. Regional level studies are designed and initiated to achieve strong coordination links among Federal agencies, state and local governments and private entities. The study issues involve conservation, development and utilization of water and related land resources. Management of the program in FY 1979 will reflect the results of the Water Resources Policy Study, The Second National Water Assessment and current efforts in developing criteria to assure consistency of Federal agency projects and programs with adopted regional plans.

River Basin Commissions

River Basin Commission areas encompass all or part of 32 states and cover the northern part of the United States. These commissions, formed in accordance with Title II of the Water Resources Planning Act, have as members representatives of all states in the region as well as Federal agencies and other entities. The river basin commissions: (1) serve as

the principal agencies for the coordination of Federal, State, interstate, local and nongovernmental plans for the development and management of water and related land resources within their areas of jurisdication; (2) prepare and maintain a comprehensive, coordinated, joint plan for such development; (3) recommend long-range schedules of priorities for investigation, planning, and implementation of projects and programs; and, (4) foster and undertake such studies as are necessary for comprehensive river basin planning.

For FY 1979 the river basin commission's requested funding is $2,886 million, which is approximately the same level as FY 1978. The level of funding will allow the commissions to develop additional portions of their comprehensive, coordinated joint plans. All will have produced their first cut plan by the end of FY 1978. In addition, each commission will be able to provide some expansion of their coordination efforts.

Each region, because of its diversity, has different problems, resources and opportunities and must, therefore, scope its programs and work efforts accordingly. A summary of each commission's major activities for FY 1979 are provided below. The Level B and special studies activities of each commission are described in a later section.

Great Lakes Basin Commission (GLBC): The Commission will continue coordination in all areas related to water resources planning, including data collection and analysis, research, and planning. The Commission's major activity, the Great Lakes Basin Plan (CCJP), will continue to

focus on selected major problem/issue areas of regionwide concern in the Great Lakes Basin and will continue to include a public participation component. The GLBC Priorities Report process will be modified to be made more useful and acceptable to Commission members and to decision-makers as feedback is received on previous years' efforts.

Missouri River Basin Commission (MRBC): The MRBC will publish an up-dated report on the "Missouri River Basin Water Resources Plan." In addition, the Commission will develop and transmit to the Water Resources Council the sixth annual MRBC Priorities Report of water and related land resources Programs in the Basin and an annual State and Federal water and related land resources five-year program review. MRBC will continue sponsorship of selected information and coordination meetings on critical water resources issues in the Basin.

New England River Basins Commission (NERBC): The NERBC's water and related land resource planning program for FY 1979 has two main focuses as prescribed by the region's governors and by the members of the Commission:

-- To concentrate on programs that contribute to the region's economy and energy independence.
-- To concentrate on programs that contribute to solving river basin problems.

During FY 1979 NERBC will complete a series of case studies to determine the feasibility of Federal cost-sharing of nonstructural flood management alternatives. Economic and energy objectives will be considered in the preparation of the annual report on recommended priorities

for Federal investment in water and related land resource programs and projects for New England for FY 1980-84. NERBC will identify water resource problems and opportunities in the following river basins:

Housatonic River

Central and Western Connecticut Coastal

Piscataqua River and New Hampshire Coastal

Androscoggin River

Maine Central Coastal

Maine Eastern Coastal

Ohio River Basin Commission (ORBC): ORBC will continue it's CCJP Standing Committees' work in updating and evaluating its plan for all subregions with concentrated efforts in the Kentucky/Licking, Scioto, Wabash and Kanawha; revise the annual regionwide Priorities Report; provide the regional perspective to WRC for its use in developing national policies and programs; and prepare Vol. 15 of the CCJP and an Executive Summary consolidating the information found in the 14 subregional elements.

Pacific Northwest River Basins Commission (PNRBC): The Commission is expected to continue with its efforts to prepare a final CCJP report and to establish priorities of the elements in that plan. Special efforts initiated in FY 1978 and which will continue into FY 1979 are refinement and expansion of the regional recreation data program and management of a coordinated Columbia River estuary data development program.

Upper Mississippi River Basin Commission (UMRBC): Continued efforts will accelerate the completion of the CCJP and to compile a fourth formalized annual priorities report. Other CCJP efforts will include comprehensive planning and coordination activities with ongoing statewide plans, regional studies and special studies. Analysis, coordination and review activities will continue with the GREAT River Study, including recommendations for the 1979 Navigation Season and River Management Plan.

A focus of commission activity is the preparation of comprehensive plans and the accomplishment of special studies within these regions. The major result of such efforts is the actions taken by member agencies and other to implement, on a consistent and coordinated basis, the actions recommended as a result of each study effort. The commissions have made important progress in this regard. Following are examples of actitities of each commission which have led to specific actions. The examples are indicative of both the breadth and depth of the issues with which the commissions are involved.

Major Recent Accomplishments

New England River Basins Commission

Seabrook Nuclear Power Plant - At the request of the State of New Hampshire, the environmental impacts of the proposed Seabrook Nuclear Power Plant were evaluated by the Commission. As a result, the cooling system was re-designed to move the intake and outfall from the estuary to the open ocean.

Beach Erosion - A Commission study in Rhode Island was concerned with a contention that the National Flood Insurance Program was encouraging new development in areas subject to damage from coastal flooding and threatening the integrity of barrier beaches. As a result of the study, the Department of Housing and Urban Development has changed its regulations to increase the minimum elevation of new development to avoid damage from wave action, to require anchoring of all structures, and to prohibit any alteration of sand dunes.

Safety of Dams - A Commission report on small dam safety provided the basis for new legislation in Massachusetts to assure periodic inspection and maintenance of hundreds of private dams throughout the State.

Long Island Sound - As a result of the Commission's Long Island Sound Study the States of New York and Connecticut, the Corps of Engineers and the Environmental Protection Agency have agreed on a dredged spoil disposal policy. In addition, several New York and Connecticut Congressmen are supporting legislation to demonstrate the feasibility of using dredged spoils for the creation of artificial islands.

Boston Metropolitan Water Supply - Examination of interbasin conflicts over proposed diversions to supply water for metropolitan Boston has led to agreement that local water supply sources must be fully utilized first and water consumption controlled. The Commonwealth of Massachusetts is now developing a water conservation plan.

Missouri River Basin Commission

Missouri Main Stem Reservoirs - Upon the recommendation of a Commission ad hoc committee on water marketing, the Secretaries of Interior and Army were able to sign a Memorandum of Understanding (MOU) concerning the long disputed issue of marketing water to industrial users from the six Missouri River Main stem reservoirs. Through Commission effort, the original MOU, signed February 24, 1975, has been extended twice to continue through December 1978.

Platte Level B Study - Implementation of the Platte Level B Study recommendations resulted in (1) the State of Nebraska updating its water law; (2) the establishment of a state task force to develop policy and quantify instream flow requirements; (3) the initiation of state and local studies focusing on surface and ground water relationships and development of new legislation to address the issue of future ground water management; (4) development of river recreation access sites; (5) potential establishment of a National Recreational Area Study; and (6) the implementation planning for several local flood protection projects.

Comprehensive Coordinated Joint Plan - Adoption of a comprehensive, coordinated joint plan for the Missouri River Basin in 1977 has enabled an annual state/Federal program review which identified state and Federal water resources implementation activities in each basin state. The plan supports the setting of regional priorities for Federally funded water and related land resource planning, research, data collection,

and implementation of projects and programs. The CCJP has (1) significantly reduced the duplication and overlap of Federal agency programs in the Missouri River Basin; (2) increased state, Federal, and congressional awareness of the basinwide direction of water resources conservation, development and management opportunities; and (3) increased state willingness to participate jointly with the Federal Government in addressing water resources problems and opportunities.

Annual Electric Power Survey - An annual report on the status of electric power in the Missouri River Basin provides state, Federal, and local decisionmakers with essential coordinated information on present and future electric power generation supply and demand with emphasis on the use of water in the Missouri River Basin.

Ohio River Basin Commission

Acid Mine Drainage - The Commission adopted in July 1975, as a component of its Monongahela Level B Study Report, a recommendation that the Federal Government take legislative action to assist states in combating acid mine drainage from abandoned coal mines. The state members transmitted to Congress a resolution expanding upon and supporting the recommendations. Between July 1976 and July 1977, the states, individually and collectively, worked with the Congress in refining the Abandoned Mine Reclamation Title of the Surface Mining Control and Reclamation Act of 1977 to better meet the needs identified in the Monongahela Study. That effort, when joined with the work of the Interstate Mining Compact Commission, came to fruition when the Act,

P.L. 95-87, was passed by the Congress and signed into law by the President on August 3, 1977.

Wetlands - During the Ohio Main Stem Study, an intense, continuous conflict arose between environmental and development interests concerning the future of the Ohio River flood plain. Development interests, fearing constraints on development, opposed efforts to perserve portions of the flood plain for the benefit of the environment. Commission members charged with protecting the environment, initially took the position that future development should not be allowed anywhere in the flood plain as a means of preventing environmental losses. Since a major reason for this conflict was lack of information on the current state of the flood plain (wet lands vs. development), the Commission contracted for a special study of the problem. With this information, the Commission recommended numerous areas in the flood plain for preservation, to the satisfaction of both development and environmental interests, and determined that there is adequate land available for development without having to encroach on valuable wet lands. Several of the states are now implementing the protection of these wet lands through their permitting processes.

Case Studies of Nonstructural Alternatives - In the Ohio Main Stem Study, five case studies were undertaken to define typical flood problems which lend themselves to nonstructural solutions. Emphasis was placed on evaluating the effectiveness of applying nonstructural solutions to reduce flood damages. The results of these studies indicated that these

flood damages could not be addressed effectively by nonstructural solutions alone. Rather, it was determined that a combination of structural and nonstructural approaches provided the most effective means for reducing a significant portion of damages.

ORBC Flood Plain Management Activities - Over the last five years, ORBC has resolved many interstate issues on flood plain management on the Ohio River, through a permanent Flood Plain Management Committee. In the past, widely different criteria were being used to determine floodway delineations. The Commission has developed consistent criteria including a 100 year flood profile for the entire Ohio River which provides a consistent data base for the six states and Federal agencies. Other concerns involved the effect of development in the flood plains outside the zoned floodway upon valley flood storage and resulting increases in flood heights downstream. A special study analyzed this problem and determined that loss of valley flood storage would not increase flood heights downstream. The Commission's efforts have led to an effective mechanism for interstate coordination of permitting and zoning activities.

Pacific Northwest River Basins Commission

Hell's Canyon Controlled Flow Study - The Controlled Flow Study was a major and nationally unique field effort, involving more than 30 state and Federal agencies and private entities. The objectives of the study were: (1) to determine instream flow requirements for fish and wildlife, water quality, navigation, and recreation purposes in the Hell's Canyon

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reach of the Snake River; and (2) to develop and test methodologies for determining such instream flow requirements. The interdisciplinary effort monitored the effects of controlled flows on the biological resources and man's non-consumptive uses of the nationally significant reach of the Snake River. Successful completion of the study helped to overcome one of the major constraints to effective water planning for that river specifically and for other rivers generally. The study was a factor in the decision to create the Hell Conyon's National Recreation Area.

Columbia River Estuary Plan - Commission involvement in developing a management plan for the valuable Columbia River estuary resulted from the request of the Governors of Oregon and Washington. The Commission coordinated Federal agency participation in the bi-state program and provided other vital support toward achieving the program's objective of developing a guide for wise use and conservation of the estuary's water and water related land resources. The plan will be completed this year and already is helping to resolve conflicts involving environmental protection and economic development in the estuary.

"Stewards of the River" Program - The Steward's program envisions an integrated system of facilities and activities reflecting wise stewardship of the Columbia River and its major tributaries. The program extends to scientific, historic, educational and cultural facilities and activities; recreational developments; conservation measures; and transportation modes - all expressing the stewardship theme. Beyond the

scope and authority of any single state or Federal agency, efforts to date have resulted in a greatly increased interest in the history and future, as well as the public values, of the Columbia River system.

Level B Plans - Typical of the Commission's comprehensive planning for specific areas are the 7 Level B studies which were completed by State Study Teams operating under Commission management and state leadership. The studies and resultant plans are key contributions to the states' efforts to manage their water resources and for resolution of conflicting demands on the resources (such as anadromous fish vs. electric power). Illustrative of the Level B studies is the Flathead River Basin Study. The resultant plan was adopted by Montana as part of its state water plan, and the study has since served as a major catalyst in focusing more detailed and effective efforts toward resolution of the critical water-related problems of the Basin.

Upper Mississippi River Basin

Great River Environmental Action Teams (GREAT) - This Commission program established unprecedented inter-agency cooperation and coordination among state and Federal agencies in the Upper Mississippi River main stem area. This effort, born from negative environmental impacts of Upper Mississippi River navigation channel dredging operations, has resulted in suspension of legal actions brought against the U.S. Army Corps of Engineers. Significant improvements were made in the quality of fish and wildlife habitat areas in the waters, marshes, and sloughs associated with side channels of the Upper Mississippi River. Beneficial uses for Upper Mississippi River nagivation channel dredging materials have been found through pilot studies.

Minnespolis/St. Paul Level B Study - This study led the way since early 1976 in focusing public attention on Minnesota's surface water supply problems during severe drought conditions. In April 1977, Minneapolis financed a feasibility study of ground water sources thereby implementing a major study recommendation. The study contributed to various civic and governmental efforts leading to the Governor's designation in October 1976 of the Twin Cities Mississippi River Corridor as a State Critical Area - now subject to special planning provisions and land use regulations. The study developed an overall approach to waste water treatment requirements for Pool No. 2 of the Mississippi River; this approach has contributed significantly to the Minnesota Pollution Control Agency's current review and future revision of water quality standards. The study developed policy guidance and background information on non-point source pollution which are now being used by the Twin Cities Metropolitan Council in its Section 208 Water Quality Management Plan.

Red River Flood Problems - A study of agricultural diking along the Red River, coordinated by the Commission's Souris-Red-Rainy Regional Committee, led to the resolution of interstate conflicts. As a result, Minnesota and North Dakota have entered into a joint agreement concerning dike authorization on the Red and Bois de Sioux Rivers. The Commission is assisting the states in formalizing joint dike authorization criteria.

Great Lakes Basin Commission

Drilling for Oil and Wet Gas Under the Great Lakes - The environmental impacts of drilling under the lakes is of great concern. Since 1968, when the GLBC raised questions of environmental security, no drilling has taken place. In 1975, the U.S. Department of State asked the Commission to further study drilling for oil and wet gas. Ensuing Commission recommendations that the regulations proposed by the Canadian Government not be undertaken at that time were accepted by the Department of State.

Indian Tribal Governments Participation in Coastal Zone Management - The Coastal Zone Management Act of 1972 excludes Indian tribal government land (and therefore significant state shoreland) from coastal management programs. The Commission negotiated with the tribal governments, state governments, and U.S. agencies, an acceptable policy for funding by the Office of Coastal Zone Management for development of management plans by Indian tribes. The plans will be consistent with the states' programs. The solution has set precedent for other coastal situations.

Implementation of the Flood Disaster Protection Act of 1973 - Problems encountered in the Great Lakes with the language, interpretation, and administration of the Act delayed development of an effective erosion insurance program for the Great Lakes. The Commission has organized a combined interagency group with state membership to develop regional recommendations and to suggest necessary changes in working of the Act and pertinent regulations.

Areas Without River Basin Commissions

Only seven of the 21 water resources regions are covered by river basin commissions, yet the need for coordination and planning on a regional basis has not lessened since the enactment of the Water Resources Planning Act in 1965.

In response to this need the Council has initiated a program for creating coordination and planning entities in the areas without river basin commissions. These entities are to provide procedures for producing regional plans and priorities that, when combined with those from the river basin commissions, will provide nationwide coverage for analysis by the Council's Assessment and Appraisal system. As a part of these activities the regional entities are to resolve resource management problems between states, problems between states and Federal agencies and problems of National interest.

The development of this program has been delayed twice since its initiation. It was delayed first as a result of the Administration's decision in November of 1976 to recommend no funds for the Council's FY 1978 budget and a second time in response to the President's initiation of a water resource policy study in May of 1977.

Despite these delays a great deal of interest has been expressed in this program. Entities in nine of the fourteen regions are interested in and willing to participate on at least a preliminary basis. The regional entities include states, Federal agencies and other organizations

such as the Federal-Interstate compact commissions for the Delaware and Susquenhanna rivers. In each case, state plans, will serve as a focal point for the planning process.

The program is being developed in three phases. The first phase is the preparation by potential regional entities, in cooperation with the Council staff, of procedures and schedules for producing the regional plans and priorities. The procedures are to be developed to be sure that they are realistic and responsive to the regional needs for coordination and management of water resources as well as the needs of the Council's Appraisal Program. A preliminary outline for regional plans has been prepared and will be developed further by the Council with the help of the regions and the states.

Arrangements will be made with the interested regional entities by the end of Fiscal Year 1978 to develop their procedures and schedules. Costs for this phase will be approximately $250,000 and will be borne entirely by the Council to provide the necessary impetus to obtain participation. The nine potential regional entities should have their procedures completed by the middle of FY 1979.

The second phase of this program will be the production of regional plans and priorities by the regional entities. Four of the interested regional entities will begin this phase in the first quarter of FY 1979. The five additional interested entities should begin preparing their plans and priorities by the end of FY 1979.

It is imperative that each regional entity include, as participants in the process, all of the states in the region and all of the Federal agencies with water programs in the region. The Council will require that in each case the recommended regional plan has the agreement of Federal and state participants. In addition, the regional plans will have to be consistent with state plans. The costs of this phase will be shared by the state participants on the basis of 7525 Federalstate. The Federal share of these costs will be approximately $1.2 million dollars through FY 1979.

The third phase will be the establishment and carrying out of procedures by the regional entities to update the regional plans and priorities as necessary.

Level B and Special Studies:

This segment of the comprehensive planning program is designed to provide solutions to complex longrange problems previously identified in framework studies (Level A) and/or the Specific Problem Analysis portion of the National Assessment. These studies help place water and land resource opportunities, needs, and problems into proper perspective, and provide a basis for the orderly development of coordinated implementation plans for resource conservation, preservation, management, and development. It is the goal of such studies to integrate problems associated with water quality, water supply, flood damage reduction, energy development etc., as well as institutional coordination in order to develop alternative implementation strategies.

The planning process for Level B and Special studies identifies the various contributions to national economic development and environmental quality objectives as prescribed by the Principles and Standards. It also provides decision makers with alternative plans supported by information on tradeoffs and choices in areas where significant conflicts in use and management of natural resources exist. The intended result of this process is the selection of management strategies which best reflect the overall priorities and preferences of the public for a given study area and for the nation as a whole. Findings of these studies provide major contributions to the overall comprehensive, coordinated, joint plans for river basin commissions and to the regional plans of areas without river basin commissions.

There are no new studies proposed for initiation in FY 1979. Rather, emphasis will be placed on the six Level B and two Special studies which are currently ongoing. Four of the six ongoing Level B studies and both special studies are scheduled for regional completion in FY 1979. Major study efforts will generally center around development of alternative implementation strategies, preparation of study reports, and environmental impact statements. The two remaining Level B studies are in earlier stages of development and will be completed regionally in FY 1980. The following table provides information regarding the Federal cost of the eight studies. The amounts shown represent 75% of the total study cost; the remaining 25% is provided by the State and local entities involved. A map (Figure 4) follows to illustrate approximate study area boundaries.

Level B Studies	Cost ($1,000) FY '77	FY '78	FY '79	Balance	Total
Southcentral Alaska	350	475	425	-	1,250
Allegheny	110	350	190	-	650
Upper Missouri	-	350	645	-	995
Snohomish	-	169	177	-	346
Yadkin - Pee Dee	-	408	292	-	700
Cumberland	-	120	375	145	640
Total	460	1,872	2,104	146	4,581
Special Studies					
New England Hydro-power	-	325	425	-	750
Great Lakes Env. Planning Study	-	321	449	-	770
Total	-	646	874	-	1,520

A brief description and current status of each of these studies

begins on page 40.

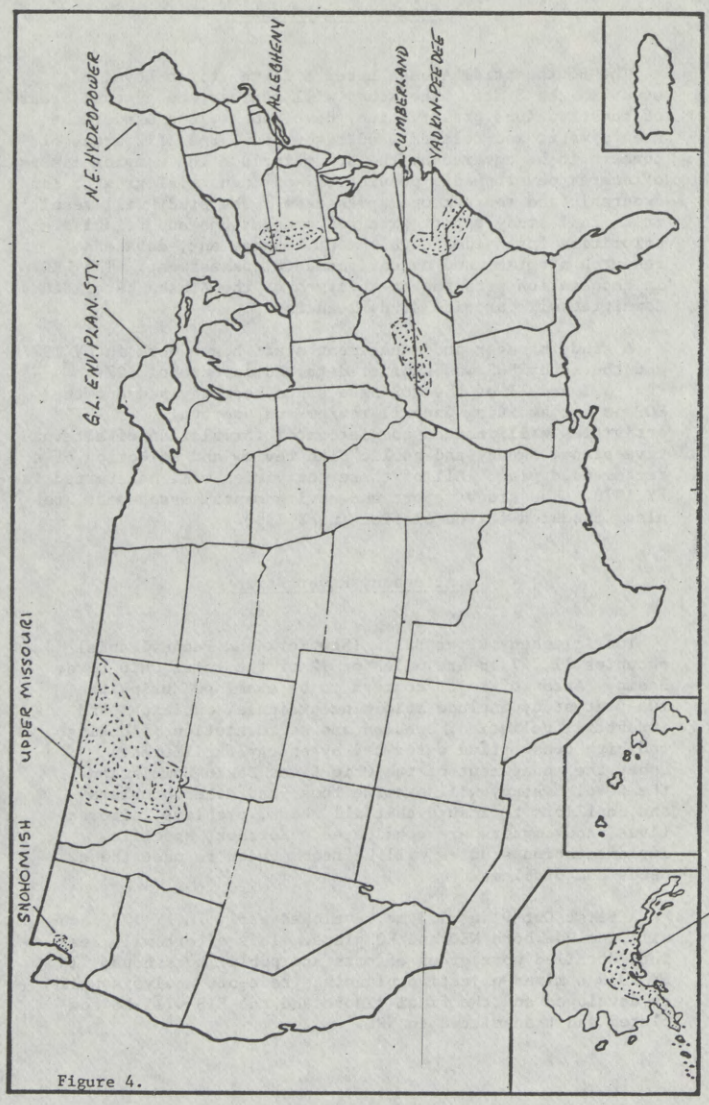
N.E. HYDROPOWER
ALLEGHENY
CUMBERLAND
YADKIN-PEE DEE
G.L. ENV. PLAN. STY.
SNOHOMISH
UPPER MISSOURI
SOUTHCENTRAL ALASKA

Figure 4.

Southcentral Alaska

The Southcentral Alaska Level B is the first Level B study in the State. The study will address the general areas of conservation, preservation, development, and use of the area's water and related land resources. Specific areas of concern to be covered by the study include the complex issues of energy development, population and industrial growth, land ownership and recreational pressures. The study will result in a final study report with recommendations and relative priorities for needed development, management, data and research programs and an environmental assessment. The WRC in cooperation with the co-chairmen of the Alaska Water Study Committee will provide study leadership.

A study manager and management staff began work in FY 1977 and the study POS was submitted to WRC in October 1977. Phases I and II of the POS have since been revised and the POS is now awaiting Council review and approval. FY 1979 activities will include completion of formulation of alternative plans, agency and public plan review and selection of a recommended plan. All of these activities will be started in FY 1978. The study report and environmental assessment are also scheduled for completion in FY 1980.

Allegheny River Basin

The Allegheny River Basin (New York and Pennsylvania) occupies 11,747 square miles or 7% of the total Ohio River Basin. Areas of major concern to be examined during the two-year study include acid mine drainage, municipal and industrial pollution, erosion and sedimentation, flooding, and high consumptive water use by energy facilities. Under the management of the Ohio River Basin Commission, the Level B study will examine these and other problems and conflicts to insure that all needs, problems, alternatives, and impacts are considered. Further, specific implementation studies will be recommended to meet these needs and problems.

A First Cut Plan will be developed early in FY 1978 and will include both NED and EQ plans. This effort will lead into detailed work group efforts and public workshops. In FY 1979 a mixed-objective planning trade-off analysis will be developed and the final report and the EIS will be completed and transmitted to WRC.

Upper Missouri River Basin

The Upper Missouri River Basin in Montana drains 82,750 square miles in the U. S. Although sparsely populated, numerous water resources issues have surfaced and others are likely to emerge as the basin undergoes development. Basin coal deposits offer substantial opportunity for future development although not as extensive or as highly publicized as those of adjacent basins. Water quality and quantity are of major concern to the State of Montana. Also, North Dakota is concerned about water quality of Missouri River water entering the State from Montana. Other issues to be addressed by the Level B study include Indian water rights, wild and scenic river classifications, and preservation of "blue ribbon" trout streams.

A Plan of Study will be developed in FY 1978 and an inventory of existing data will be developed. The study is scheduled for completion in FY 1979 and will include alternative and recommended plans, and a final study report.

Snohomish River Basin

The Snohomish Basin extends from Puget Sound on the west, to the crest of the Cascade mountains on the east. Rapid urbanization is placing numerous pressures on the basin's resources. The most pressing problem is that of jurisdiction. Rapid growth has resulted in a layering of administrative responsibility providing a difficult setting for effective resource management. In response to this problem, the Level B study will focus on developing a comprehensive, coordinated, joint plan for the basin and will identify necessary institutional/jurisdicitional arrangements and elements for consideration by appropriate political bodies.

In addition the plan will respond to problems of water quality, estuaries, water supply, fish and wildlife, and energy. It is felt that such a plan is essential to avoid undesirable development patterns, to foreclose actions that may degrade the high quality environment, and to provide positive policies and clear direction to what is to happen.

A Plan of Study will be developed in FY 1978. In addition, a preliminary set of alternative plans and an interim report will be drafted and reviewed. FY 1979 activities will include a refinement of the analyses of problems and issues and the development of a study report.

Yadkin-Pee Dee Basin

The Yadkin-Pee Dee basins drain more than 18,000 square miles in North and South Carolina. The study area includes both undeveloped and heavily industrialized regions with the topography varying from mountains, to the Piedmont, to large coastal estuarine areas. The study will address numerous water related problems including transfer of water from the Yadkin basin to adjacent areas, developmental encroachment on fragile ecosystems, especially along the I-85 Interstate corridor, recreational and commercial navigation problems, expansion of port facilities, dredge spoil disposal, and wetland preservation. A resource management strategy will be developed to insure continued developmental and environmental integrity.

Initial activities of the study will include the development of a Plan of Study and analysis of the public participation requirements. In FY 1979 the study team will complete the plan preparation and reports including an environmental impact statement.

Cumberland River Basin

The Cumberland River Basin contains 17,920 square miles in Kentucky and Tennessee and includes the Nashville metropolitan area. The basin has large coal reserves which, because of their location close to water and existing pipelines, may provide strong incentive for development of alternative energy sources such as coal gasification and liquefaction. Development of these sources may involve a large water consumptive demand. In addition, TVA's proposed Hartsville nuclear plant, which will be the world's largest, will have an estimated 112 cfs consumptive use.

The Level B study will examine the basin's conflicts and problems to ensure that all needs, problems, alternatives and impacts are considered, and will recommend specific implementation studies to provide for the future. Some of the specific problems to be addressed include overbank flooding, inadequate drainage and soil erosion damage reduction, water supply, water quality, water-based recreation, transportation, environmental preservation and enhancement, and power development.

Activities scheduled for FY 1978 include development of a Plan of Study and a First Cut Plan and identifying projects and programs which do not require further detailed consideration and which will be part of the final study recommendations. All public workshops and special work group efforts are scheduled for FY 1979.

New England Hydropower Expansion Study

This special study, to investigate the feasibility and implications of hydropower expansion in New England, will include a two phase program spanning two years. The first phase includes the development of a handbook of water resource management criteria pertaining to restoration of existing hydropower facilities and a regional economic assessment to determine hydropower value, both to be used as aids in project selection and review. The second phase involves a reconnaissance of those large undeveloped sites which the economic assessment indicates worthy of further evaluation.

This study is designed to provide answers needed to make short-term energy decisions affecting both the water resources and regional power system in New England. In addition, the study will help demonstrate the practicality of such an innovative approach to the solution of the current energy situation.

Activities planned for FY 1978 include development of a Plan of Study; an inventory of existing facilities; an economic assessment; and preparation of a handbook for evaluating hydropower potential. A large site reconnaissance, small site evaluation and preparation of a final report are scheduled for completion in FY 1979.

Great Lakes Environmental Planning Study

The Great Lakes Environmental Planning Study (GLEPS) will furnish a basic assessment of the effects of alternative resource management strategies on the Great Lakes. The major objectives of the study are: to integrate currently available environmental analysis methodologies and use this integrated framework to model physical, chemical and biological processes of the Great Lakes; to evaluate the consequences of alternative planning and resource development strategies; and to select optimum programs for the GLBC CCJP.

Activities scheduled for FY 1978/1979 include development of a Plan of Study; initiation of work on all study elements; development of baseline information from past studies; and initiation of integration of analytical methodologies. The study is scheduled for completion in FY 1979.

STATE PROGRAMS

General

Since the Council's establishment it has endeavored to reflect the importance of providing a vehicle for state input on water resource policy, problems and issues. The general policy statement and specific provisions of the Water Resources Planning Act indicate that water and related land resources planning should include non-Federal parties. This position has been reinforced by the Water Resource Policy Study which reflects the major role and responsibility of the states in the conservation, development and management of our Nation's water resources. The National Governors' Association, Subcommittee on Water Management, recently stated that the states' primary role in water management must be recognized. The Council will continue to recognize the states' role to exercise central responsibility for management of water resources and will also continue to work with the states as policies and programs emerge which affect them.

The Council provides an opportunity for states to participate in discussion and refinement of water resource policies, problems and programs. States actively participate as full members of river basin commissions and the State Vice Chairmen of the commissions serve as

official observers to the Council. The Council participates in annual meetings of many state organizations, sponsors joint Federal/state conferences, and, of course, directly encourages and supports state planning through funding by the Title III State Grant Program. Finally, the Council has sought and continues to seek more formal ways to obtain state views and input to program considerations. Currently, consideration is being given to establishing a continuing arrangement with the National Governors' Association for that purpose.

State Grant Program

The program request of $3,000,000 for FY 1979 maintains the level of funds received in FY 1978 for planning grants to states. Our program thrust in FY 1979 will emphasize:

- Continued support for the development of state water and related land management programs and plans; recognizing the states central responsibility in water management
- Continued support for interstate and intergovernmental planning and coordination efforts in the development of comprehensive water and related land resources plans; including consideration of non-structural alternatives, floodplain management, integration of water quality and water quantity, etc.
- Emphasizing states' efforts in initiating or furthering water conservation programs.

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- o Implementing the interest of P.L. 95-134 "An Act to Authorize Certain Appropriations for the Territories of the United States, to Amend Certain Acts Relating thereto, and for Other Purposes," by elimination of cost sharing requirements for Northern Marianas, Guam and the Virgin Islands.
- o Administrative improvements in the granting system including application and annual report simplification.

The Council, in the administration of the Title III Planning Grant Program, has stressed development of a comprehensive and coordinated planning approach. This is entirely in keeping with the general Council program philosophy that water and related resource planning can only be effective if all interested parties, including the public, are part of that process from the very beginning of planning and that multi-interests in water are considered. We urge, when a state plan is being developed, that the planning process provide for full public participation and include, as needed, inventory of resources, determination of needs and problems, definitions of objectives, consideration of both ground and surface water resources, integration of water quantity and water quality relationships, consideration of all functional uses of water, development of a recommended plan including priorities for implementation, and preparation of alternative proposals which will enable decisionmakers to cope with present and anticipated future water problems.

The Council requires that a grantee coordinate the comprehensive planning activities of his agency with the planning programs of other

water planning agencies in the state. Further, he must specifically coordinate activities funded under the program with other related Federal grant programs. This coordination has (1) helped reduce overlapping and often conflicting planning efforts, (2) made state agencies other than the program recipient more aware of other water planning efforts, (3) increased state comprehensive water planning efforts and reduced single purpose planning, (4) made more efficient use of the limited number of water planning specialists available for state planning activities, and (5) improved analytical capabilities through use of common data and techniques. It is well to note that state contributions to interstate and intergovernmental problem resolutions has increased to the point where 32 states are in 6 river basin commissions, 14 additional states are in 3 interagency committees, and 3 states cooperate in informal organizations through coordinating committees for Council programs.

In late 1976 the Council, in an effort to further improve upon the usefulness and effectiveness of its programs, wrote to the Governors of all states requesting their views on Council activities including the grant program.

The states' responses were all favorable, many strongly so, of the goals, directions and funding support provided by the State Grant Program. The main criticism was directed at the low funding level of the program and in the annual fluctuation of that funding. In FY 1978 the average grantee will receive about $56,000 for this program. In relative terms,

however, based on Bureau of Economic Analysis, Department of Commerce, factors the $3 million program in 1972 was equal to approximately $2 million in 1976, and even less today. For a matching grant program the junior partner for practically all the states was the Federal entity. Most states have spent significantly more than their matching requirement. Nevertheless, the program is valued by the states because of the inherent flexibility provided. This is evidenced by state comments such as that from Maryland, "fortunately the Title III program has been implemented in a very flexible manner which has enabled states to apply funds to specific critical need areas. ...Without the continued funding of state water resource planning, you might well find that the nationwide system of regional plans would have little to build upon." The State of Nevada noted that "The funds and the program have been beneficial, not only to the state's efforts, but in the development and furnishing information toward the various Federal efforts. One result has been coordination and cooperation between the State of Nevada, the Council and the various agencies of the Federal Government including the Departments of Agriculture and Interior."

Availability of a state planning process and state plans has measurable positive effects on Federal and state investments. The coordinated planning efforts help reduce duplicative, conflicting, and disjointed planning inputs. A plan adopted or approved for a state or portion thereof provides a framework for the best mix of preservation, conservation, and development measures most appropriate for the area.

The State of Idaho speaks directly to this point in a recent letter...

> "The 15-month period has been one of great significance in Idaho. Two major disasters occurred that caused some fluctuation and readjustment of our planning programs. The June 5, 1976, failure of Teton Dam caused a shift of staff in the remainder of the 1976 calendar year. In 1977, Idaho experienced the lowest level of precipitation in recorded history. In order to respond to that severe natural disaster, many of our staff were given new duties and assignments directed toward stretching the existing water supply throughout the year. Our ability to respond to these severe situations is a direct reflection of the comprehensive water planning program underway in Idaho. Without the state program, additional stress and injury would have been encountered by the citizens of Idaho. The Title III monies received during this period played an instrumental part in our ability to respond to these two disasters."

Federal and state investments are reduced if uncoordinated, ill conceived, and nondesired projects are implemented. Also, projects and programs are more likely to be implemented in a rapid manner if they are included in a plan approved by all affected entities.

The State of Ohio's observation reinforces this conclusion: "At the same time we have spent about $800,000 a year in state funds for water planning the past few years. ...Without this information there would be no sound basis for state or Federal planning in Ohio."

Other states commented on the need for an increased use of program funds for coordinating the multiplicity of efforts that have accelerated rapidly as a result of (1) the many new Federal direct and grant programs (2) the increased activities of other state agencies which are caused in part by the new Federal programs, and (3) the creation of river basin commissions and other entities to which states are members.

As for the future, most of the states favor the continuation of the current thrust of the Title III program. The State of Illinois noted that "Congress clearly intended that Title III funds be used for development of state plans." The states' main recommendations were for acceleration of the current program, noting that rapid completion of coordinated detailed plans is viewed as a primary mechanism for helping resolve the pressing problems pertaining to the Nation's water and related land resources. With the Nation's water problems becoming more widespread and acute, increased attention should be directed to this problem by all levels of government. This program is a logical vehicle to focus on these matters. Without immediate attention many practical and currently reasonable solutions may not be possible if the opportunities for implementation are destroyed by nonaction.

In summary the Title III grant program has:

1. Assisted states in their comprehensive planning program in direct response to the purposes of P.L. 89-80, for a total of about $38 million in the 12 years through 1978.
2. Encouraged and enabled states, through funding, to participate more fully in coordinated interstate and Federal/state planning.
3. Benefited the Federal Government by having the states participate in the planning and decision processes relating to Federal and federally assisted programs.

4. Helped conserve, through comprehensive coordinated planning efforts, the Nation's finite water and related land resources.

These planning efforts must be strengthened and supported to meet the requirements associated with the rapidly accelerating uses of our water and related land resources.

WATER RESOURCES COUNCIL

Introduction

Under present authorizing legislation funding authority for all programs under P.L. 89-80 for the Water Resources Council (WRC) terminates at the end of Fiscal Year 1978. It is the Administration's position that the WRC program should be authorized and funded to continue through Fiscal Year 1979. The valuable work of the Council is continuing with increased interest from all concerned with water and related land. Its programs to assess the water problems of this Nation, to assist state planning programs, to evolve a Water Assessment and Appraisal Program, as well as its continuing policy and planning analysis and coordination efforts, have assisted and will continue to assist greatly the water resource management programs of both Federal and state governments. The Council has played a significant role in the evolution of the President's Water Resources Policy Study as well.

This proposed continuation will allow the Administration time to review the findings and recommendations of both the Water Resource Policy Study and the President's Reorganization Project and determine, in consultation with Congress, the best institutional arrangement at the Federal level for overseeing the management of this Nation's water resources. Until that time, however, the Congressional mandate of P.L. 89-80, Water Resources Planning Act, must continue to be fulfilled.

Authority

The Water Resources Planning Act of 1965 (P.L. 89-80, approved July 22, 1965), declared that it is the policy of the Congress to encourage the conservation, development, and utilization of water and related land resources of the United States on a comprehensive and coordinated basis by the Federal Government, States, localities, and private enterprise with the cooperation of all affected Federal agencies, States, local governments, individuals, corporations, business enterprises, and others concerned. Title I of the Act established the Water Resources Council. Title II authorized the

establishment of River Basin Commissions, and Title III authorized financial assistance to States for water related planning by means of matching grants.

Membership

The eight Members of the Council are the Secretaries of Agriculture, Army, Commerce, Energy, Housing and Urban Development, Interior, Transportation, and the Administrator, Environmental Protection Agency. The Members have invited as Observers, the Attorney General, Director, Office of Management and Budget, Chairman, Council on Environmental Quality, the Chairmen and Vice-Chairmen of the six Title II River Basin Commissions, the U.S. Commissioners of the two Federal-State Compact River Basin Commissions, the Chairmen, three Inter-Agency Committees and the Chairman, Tennessee Valley Authority.

Functions

The Water Resources Council was established for the purposes of:

1. preparing periodic national assessments of the Nation's water situation;

2. continuing study of the relation of regional or river basin plans and programs to the requirements of larger regions of the Nation;

3. coordinating such planning activities;

4. continuing study of the adequacy and statutory means for coordination;

5. appraising the adequacy of existing and proposed policies and programs;

6. recommending to the President needed changes in Federal policies and programs;

7. establishing, with the approval of the President, principles, standards, and procedures for Federal participants in the preparation of comprehensive regional or river basin plans and for the formulation and evaluation of Federal water and related land resources projects;

8. performing responsibilities with regard to the creation, operation, and termination of Title II Federal-State river basin commissions; and

9. providing financial assistance to the States so as to increase their participation in water and related land resource planning.

Appendix A gives a more detailed review of these responsibilities.

BUDGET REQUEST

SUMMARY

The Public Works for Water and Power Development and Energy Research Appropriation Act, 1978, made available to the Council $13,696,000; $1,158,000 for administration and coordination; $2,901,000 for river basin commissions; $6,637,000 for comprehensive planning; and $3,000,000 for planning grants to the States.

The proposed appropriation of $11,560,000 for FY 1979 will provide $1,320,000 for administration and coordination; $2,886,000 for operation of river basin commissions; $4,354,000 for comprehensive planning; and $3,000,000 for planning grants to the States.

Authorization legislation supporting the amounts requested for Fiscal Year 1979 is needed and has been submitted.

SUMMARY TABLE
(In thousands of dollars)

Proposed Appropriation, 1979	11,560
Actual Appropriation, 1978	13,696
Difference FY 1979/1978	-2,136

ANALYSES BY ACTIVITIES
(In thousands of dollars)

	PROGRAM AMOUNTS			
	FY 1977 Actual	FY 1978 Estimate	FY 1979 Estimate	Comparison 1979/1978
Program:				
I. Administration and Coordination	1,206	1,564	1,320	-244
II. River Basin Commissions (Title II)	2,340	3,073	2,886	-187
Federal Contribution				
(1) Pacific Northwest	(134)	(373)	(355)	(-18)
(2) Great Lakes	(432)	(552)	(481)	(-71)
(3) New England	(277)	(454)	(347)	(-107)
(4) Ohio	(468)	(526)	(540)	(+14)
(5) Missouri	(364)	(426)	(437)	(+11)
(6) Upper Mississippi	(365)	(384)	(366)	(-18)
Salaries and Expenses of Chairmen	(300)	(358)	(360)	(+2)
III. Planning Grants to States	3,031	3,014	3,000	-14
IV. Comprehensive Planning	6,215	9,014	5,986	-3,028
(1) National Assessment	(1,572)	(---)	(---)	(---)
(2) Level B and Special Studies	(3,809)	(4,777)	(2,978)	(-1,799)
(3) Non-Title II RBC Entities	(59)	(981)	(660)	(-321)
(4) Water Assessment and Appraisal Program	(361)	(1,456)	(1,348)	(-108)
(5) Water for Energy	(414)	(1,800)	(1,000)	(-800)
Total Obligations	12,792	16,665	13,192	-3,473
Financing:				
Receipts and Reimbursements	-1,010	-1,000	-1,000	---
Recoveries from Prior Year Obligations	-184	-200	---	+200
Unobligated Balance Available, Start of Year	-1,335	-2,401	-632	+1,769
Unobligated Balance Available, End of Year	+2,401	+632	---	-632
APPROPRIATION	12,665	13,696	11,560	-2,136

Summary Table

(Program/Appropriation)

The Appropriation and Program "increases/decreases" are summarized as follows:

Activity	Appropriation Amounts (upper number) Program Amounts (lower number in parens) (in thousands of dollars)		
	FY 1978	FY 1979	+/- FY 1979/1978
Administration and Coordination:	1,158 (1,564)	1,320 (1,320)	+162 (-244)
River Basin Commissions:	2,901 (3,073)	2,886 (2,886)	-15 (-187)
Planning Grants to States:	3,000 (3,014)	3,000 (3,000)	—— (-14)
Comprehensive Planning:			
Level B and Special Studies	4,977 (4,777)	2,346 (2,978)	-2,631 (-1,799)
Non-Title II RBC Entities	660 (981)	660 (660)	—— (-321)
Water Assessment and Appraisal Program	1,000 (1,456)	1,348 (1,348)	+348 (-108)
Water for Energy	—— (1,800)	—— (1,000)	—— (-800)
TOTALS	13,696 (16,665)	11,560 (13,192)	-2,136 (-3,473)

Program Activities

OVERVIEW

The Water Resources Council was created by the Congress in 1965. Since that time the Council has been instrumental in developing state water planning capability through its grant program, as well as serving as a vehicle for direct state input into Federal planning and policy considerations. Six river basin commissions, including all or part of 32 states, have been established to foster comprehensive, coordinated regional planning. The significant authority provided the Council to coordinate programs and policy of Federal water resources agencies, and to insure that adequate and timely Federal water resources planning occurs, has been implemented with differing intensity and accomplishment. An overview of some of the significant accomplishments and new directions of the Council, supported by the individual program measures, follows.

Water resources planning is employed to insure that the many results and impacts of water resources development and management programs are adequately considered before project and program implementation. The Council is now taking steps toward implementing a more effective and efficient water resources planning system by producing procedures for Federal participants in the preparation of comprehensive regional or river basin plans. The goal of these procedures for Federal participants is to produce comprehensive regional or river basin plans which will be of sufficient quality so that Federal agencies, in implementation actions, can be consistent with the plans as well as having the plans serve as a guide for resource allocation decisions at both the executive and legislative levels.

In keeping with the theme that better and more effective project and program implementation results from consideration, in the planning stage, of all use of water, major consideration in Council planning procedures is being given to integrating water quality and quantity management. Unless planning for water resources development is integrated with water quality planning, established water quality goals and standards will not be achieved. Additionally, our planning processes must give increasing attention to nonstructural measures as solutions to water resources management problems. For example,

floodplain management is used more and more in combination with structural measures for purposes of reducing flood damage. In October 1977 the Council issued guidance to Federal agencies for determining if a proposed action is in accordance with the Floodplain Management Executive Order (E.O. 11988) issued in May 1977. As a result of the Executive Order, draft revised guidelines were completed in December and approved by the Council of Members in January 1978.

The Council recently completed the Second National Assessment, which will be printed soon. This major effort by the Council has compiled a significant data set on the Nation's water resources and problems. The 1965 Planning Act requires the Council to use this data to make recommendations to the President for purposes of solving the Nation's most pressing water supply problems. While the Assessment will be invaluable as a continuing basis for analysis and policy recommendations, particularly in displaying the nation's severe water problems and problem areas needing planning or program implementation, it has already found some interesting uses:

- The data base was used to document the extent of the Western drought. This material along with other information provided the basis for the President's decision to allocate $850 million to drought damage reduction.

- The data base was also used to provide input to the participants at the Second National Conference on Water held in St. Louis, Missouri, on May 23-25, 1977. Specifically, 17 water management problem statements on present and projected water management concerns were developed by the Council for guidance of the participants.

- To support the Conservation Task Force effort of the President's Water Resources Policy Study the assessment data were again used to pinpoint where water conservation (saving) is needed to reduce water use and lower development costs. The assessment shows that 29 of the 106 subregions of the United States require conservation to correct water supply deficiencies.

- Throughout the year the data of the National Water Assessment was used in studies of water needs for

energy resource development, particularly in the Missouri Region where coal is important and the Upper Colorado River for oil shale development. Water for energy studies will be continued to provide information on the implications of continued energy developments.

The Water Resources Council has the responsibility of providing access to Federal water resources decision-making for the states. The Council must improve its capabilities for working with the states and making them a full partner with the Federal Government in the development, management and preservation of the Nation's water resources. In the past, the states were able to only work one-on-one with specific Federal agencies. If the many interactions of water resources development are to be adequately considered, the states must play a major role. The Council must serve to assist the states in playing a major role in Federal/state water resources decision-making. We are pursuing that goal through more state involvement in regional planning and decision-making, more of a voice at the Council's planning meetings, through provision for a continuing state liaison entity, as well as simply providing ample time for review and interaction before reaching final positions.

Finally, the work of the Council is continuing with increased interest from all concerned with water and related land. The Administration is moving to make WRC an important coordinating mechanism for national water resources management. The Council was heavily involved in the President's Water Resources Policy Study in late 1977. The Council organized the nine public hearings held around the Nation and has received, reviewed and summarized public comment on the study from over 1,500 persons or organizations. Further, the Council, in order to make its internal processes more efficient and responsive to changing policy and program considerations, recently eliminated many committee and decision review layers. This is already reflecting itself in more rapid and effective consideration and resolution of policy matters by the Members.

In summary, the Council is actively organizing and reorienting itself to more comprehensively and completely implement the mandates of the Water Resources Planning Act through the program activities described below.

I. ADMINISTRATION & COORDINATION

This activity provides for the salaries and operating expenses of the Council staff, other than those included under Comprehensive Planning, to perform many of the coordinative functions described above. Other activities funded by this item include review and comment on agency planning procedures, development and continuing refinement of policies and procedures for reimbursement, cost sharing, floodplain management, project evaluation, integration of agency processes, development of handbooks and guidelines, and training. Also included are executive direction, management support, and legal services for the entire staff.

This activity is proposed at an appropriation level of $1,320,000.

II. RIVER BASIN COMMISSIONS

This program item includes the costs of six river basin commissions (see Appendix D for details).

Administrative costs ($327,000) include Federal support costs, matched in cash by member states on 50% state, 50% Federal basis for administrative staff, rent and other support costs.

Comprehensive coordinated joint planning (CCJP) costs ($2,199,000) include Federal costs, matched in cash by member states on 25% state, 75% Federal basis, for (a) regional planning activities (inventories, analyses, program formulation and single function studies), (b) coordination and program review, and (c) priorities reports.

The RBC Chairmen costs ($360,000), which are entirely Federal, include salaries, travel expenses and benefits.

Specific program activities of each commission follows:

Great Lakes Basin Commission (GLBC)

The Commission will continue coordination in all areas related to water resources planning, including data collection and analysis, research, and planning, through meetings, distribution of information to members of the Commission and the public, and through committee activities of the Commission. Coordination efforts of the Commission will continue to be aided by the Commission's

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Public Information Office and Depository Library. Commission committees include the Research and Development Committee, the Coastal Zone Management Committee, the Transportation Committee, the Great Lakes Basin Plan (CCJP) Committee, and the Priorities Subcommittee. The Commission's major activity, the Great Lakes Basin Plan (CCJP for the Great Lakes Basin region), will continue to focus on selected major problem/issue areas of region-wide concern in the Great Lakes Basin and will continue to include a public participation component. The Great Lakes Environmental Planning Study will continue, providing a mechanism to evaluate the future impacts that various planning strategies will have on the Great Lakes, especially in determining cumulative effects of many individual efforts that will affect water quality which currently are being carried on throughout the Basin. The GLBC Priorities Report process will be further modified to be made more useful and acceptable to Commission members and to decision-makers as more feedback is received on previous years' priorities efforts. The Commission staff will also be engaged in a number of supporting activities and studies to fulfill its obligations under Title II of Public Law 89-90.

Missouri River Basin Commission (MRBC)

The MRBC will continue its major comprehensive planning and coordination efforts in FY 1979 by publishing an updated report on the "Missouri River Basin Water Resources Plan." The Commission's first comprehensive coordinated joint plan was published in 1977. In addition, the Commission will develop and transmit to the Water Resources Council the sixth annual MRBC Priorities Report of water and related land resources Programs in the Basin and an annual State and Federal water and related land resources five-year program review; and continue sponsorship of selected information and coordination meetings on critical water resources issues in the Basin. In the area of CCJP special subregional studies, the Commission will complete its study of the James River Basin in South Dakota and North Dakota. The Commission-sponsored Level B Study of the Upper Missouri Subbasin in Montana will be in its second year.

New England River Basins Commission (NERBC)

The New England River Basins Commission's water and related land resource planning program for FY 1979 has two

main focuses as prescribed by the region's governors and by the members of the Commission:

-- To concentrate on programs that contribute to the region's economy and energy independence.

-- To concentrate on programs that contribute to solving river basin problems.

During FY 1979 NERBC will complete a study of hydropower potential in New England, and will put the finishing touches on a series of case studies to determine the feasibility of federal cost-sharing of nonstructural flood management alternatives. Economic and energy objectives will also be considered in the preparation of the annual report on recommended priorities for Federal investment in water and related land resource programs and projects for New England for FY 1980-84. NERBC will also complete work on a management plan for Lake Champlain, with a main focus on improving the Lake's water quality, and will identify water resource problems and opportunities in the following river basins:

Housatonic River
Central and Western Connecticut Coastal
Piscataqua River and New Hampshire Coastal
Androscoggin River
Maine Central Coastal
Maine Eastern Coastal

Finally NERBC will take a look at Safe Drinking Water Act implications for new water supply options and use of watersheds with a view to assessing the need for further study in FY 1980; and will reassess water conservation measures in the region.

Ohio River Basin Commission (ORBC)

The FY 1979 budget request adopted by the Ohio River Basin Commission was formulated to continue, complete, or initiate the following in accordance with the responsibilities detailed in the Water Resources Planning Act of 1965: complete the Allegheny Level B Study, including 90-day review and transmittal to the President and the Congress; continue the Cumberland Level B Study, including completion of the first draft report; continue CCJP Standing Committees' work in updating and evaluating CCJP's for all subregions with concentrated efforts in the Kentucky/Licking, Scioto, Wabash and Kanawha; revise

annual regionwide Priorities Report element of the CCJP; provide the regional perspective to WRC for their use in developing national policies and programs; and prepare Vol. 15 of the CCJP and an Executive Summary consolidating the information found in the 14 subregional CCJP's.

Pacific Northwest River Basins Commission (PNRBC)

The Commission placed major emphasis in FY 1978 on preparation of a comprehensive, coordinated joint plan (CCJP) for the water and related resources of the Pacific Northwest. Although delayed by drought-related activities and other uncertainties in a very dynamic regional water resources planning and management situation, a preliminary (staff) draft of the CCJP was prepared and distributed to seek the reactions of Commission members and the general public; based on comments received, the Commission is expected to continue into FY 1979 with its efforts to prepare a final CCJP report and to establish priorities of the elements in that plan. Special efforts initiated in FY 1978 and which will continue into FY 1979 are: (1) a two-year Level B study of the Snohomish River Basin (Washington); (2) refinement and expansion of the regional recreation data program; and (3) management of a coordinated Columbia River estuary data development program.

Upper Mississippi River Basin Commission

The CCJP program is composed of four major components: regional and subregional comprehensive analysis, coordination and program review, priorities report, and special studies. Continued efforts will accelerate the completion of the CCJP and to compile a fourth formalized annual priorities report. Other CCJP efforts will include comprehensive planning and coordination activities with ongoing statewide plans, regional studies and special studies. The Upper Mississippi River Main Stem Level B study will be completed. Analysis, coordination and review activities will continue with the GREAT River Study including recommendations for the 1979 Navigation Season and River Management Plan.

III. PLANNING GRANTS TO STATES

The program for $3,000,000 maintains the level of funds received in FY 1978 for planning grants to States. See Appendix C for a table summarizing specific grants to States for the years 1967 through 1978. The stated policy

of P.L. 89-80 is the encouragement of conservation, development, and utilization of water and related land resources on a comprehensive and coordinated basis by the Federal Government, States, localities and private enterprise.

A major accomplishment of the Title III grant program has been the coordination effected by the States in the implementation of the many programs concerned with water and related land resources. The guidelines of the Council require that each annual application include assurances that the applicant will coordinate the comprehensive planning activities of his agency with the planning programs of other water planning agencies in the state. Further as part of the coordination effort he is to state the relationship of the Title III program to other related Federal grant programs.

The coordination developed in the water and related land resources planning program has (1) helped reduced overlapping and often conflicting planning efforts, (2) made state agencies other than the Title III recipient more aware of other water planning efforts, (3) increased state comprehensive water planning efforts and reduced single purpose planning often conducted in a vacuum, and (4) made more efficient use of the limited number of water planning specialists available for state planning activities.

The direct use of Title III grant funds for coordinating efforts has increased rapidly as a result of (1) the many new Federal direct and grant programs (2) the creation of river basin commissions and other entities to which states are members, and (3) the increased activities of other state agencies which are caused in part by the new Federal programs.

The planning efforts conducted under the Title III grant program are often directed at major problems and/or issues in a state. A number of states have accelerated their floodplain mapping and management activities. Other states have concentrated on groundwater studies and analyzing the relationship of groundwater and surface water supplies. Still others are studying the water quality-water quantity relationships in the state. All states are developing water and related land resources plans either on a statewide or regional basis.

IV. COMPREHENSIVE PLANNING

The comprehensive planning program of the Council includes the National Assessment, Level B, Special Studies, and regional plans for non-Title II RBC areas and the Water for Energy Program. Planning efforts to date have clarified water problems and improved intergovernmental coordination but planning products have not been adequately utilized by Federal or State authorities to establish water management practices or strategies, or for establishment of priorities for budgeting resource allocations. As touched on briefly in the Overview, significant steps are being taken to strengthen and improve the effectiveness of the planning process so that the products will be useful to, and hence used by the Congress and others in acting upon authorization and budget requests.

Specific actions underway to strengthen planning and its utility to decision-makers includes improving the Council's ability to resolve in a timely manner policy issues, detailed procedures for Regional Water Resources Management Plans, and the establishment of a policy on Federal consistency with approved management plans.

Following approval by the Council, the policy on consistency will provide that requests by Federal agencies for authorization or appropriation of funds for any activity - program or projects - in a river basin which is covered by an approved Regional Water Resources Management Plan be explicitly related to the Plan, and thus will enable the Congress and others to better determine the relationship of the proposed action to the overall and priority needs of the basin.

Broad national and regional views of water requirements and availability, including identification of severe water and related land resource problems and State-regional viewpoints, are provided by the National Assessment which is in final review and will be published after final review. Significant use has already been made of the data and information developed in preparation of the Second Assessment, especially in connection with drought studies completed last year and for background and analytic purposes in support of the current Presidential Water Policy Study.

Level B studies, designed to resolve complex problems requiring interdisciplinary approaches and interagency

State-Federal inputs, and Special Studies to analyze specific issues rather than multiple functions, will be continued. No new starts have been proposed. Rather, emphasis is being placed on existing studies to comply with the Council's new directions to strengthen and improve the effectiveness of such studies.

A summary of the ongoing studies is given below; Appendix E contains brief descriptions and tables showing planned funds distribution for each study.

Ongoing Studies

Summary of Federal Costs

($1,000)

Level B Studies	Sponsor	FY-78	FY-79	Bal. to Comp.	Total
Southcentral Alaska	WRC/Alaska	475	425	---	1,250
Allegheny*	ORBC	350	190	---	650
Upper Missouri*	MRBC	350	645	---	995
Snohomish*	PNRBC	169	177	---	346
Yadkin-Pee Dee*	WRC/NC/SC	408	292	---	700
Cumberland*	ORBC	120	375	145	640
		1,872	2,104	145	4,581
Special Studies					
N.E. Hydropower	NERBC	325	425	---	750
G.L. Env. Planning	GLBC	321	449	---	770
		646	874	---	1,520

*Under authority of Section 209, P.L. 92-500; others P.L. 89-80.

The Water Assessment and Appraisal Program, which reflects responsible analysis of requirements of all major water resource regions of the Nation in order to guide Federal decision, will be continued. With publication of the Second National Assessment, increased emphasis will be placed on the Appraisal Program. The development of regional plans and priorities from non-Title II RBC entities will be continued and integrated into the Appraisal Program.

The cost for the Water for Energy Programs is $1,000,000, which passes to WRC through the Department of Energy under the provisions of Section 16 of the Federal Nonnuclear Energy Research and Development Act of 1979 (as amended).

WRC initiated in FY 1977 water assessments of coal and oil shale technologies in the Upper Colorado River Region, Missouri River Region and Ohio River Region under provisions of paragraph (a) of Section 13 of the Nonnuclear Act. These assessments will continue through FY 1978 with publication of the ensuing reports in the Federal Register in FY 1979. Initiation of a water assessment of geothermal energy technologies is scheduled for FY 1978 which will continue through FY 1979. Assessments of technologies involving low head hydroelectric generation and advanced recovery of oil and gas are planned for initiation in FY 1979.

A program element for water assessments of energy technology demonstration projects under the provisions of paragraph (b) is being initiated in FY 1978 and will continue during FY 1979. The Department of Energy has several large demonstration projects for coal technologies in formulation phases; water assessments of each may be required. These assessments will continue and additional ones undertaken in FY 1979. Also being formulated by the Department of Energy are a large number of small demonstration projects for production of industrial gas from coal. It is likely that water assessments of many of these projects will be requested. Demonstration projects involving other technologies (geothermal, oil shale, advanced recovery of oil and gas, and others) may be requested in FY 1979.

A program element for water assessments of commercial development of energy technologies involving Federal participation has not yet been initiated. Initiation of this element is anticipated in FY 1979 pending further development by the Department of Energy of Commercialization programs such as authorized by Geothermal Energy Development Act of 1972 and the ERDA Authorization Act of 1977.

Additional Section 13 activities in FY 1979 include:

(1) Maintenance and updating, as required, of the information base which includes data on water supply, water

requirements, water quality and information on socioeconomic and environmental impacts for use in regional site specific water assessments;

(2) Special studies with respect to the interrelationship of air emissions to water quality; and

(3) Effective communication and coordination activities to enable participation of State/regional entities in WRC's Section 13 program.

Appendix A

Functional Statements

Administration and Coordination

Title I, II, & III

Functions of the Council are:

(a) To maintain a continuing study and prepare a national assessment periodically, of the adequacy of supplies of water necessary to meet the water requirements in each water resource region in the United States and of the national interest therein;

(b) To appraise the adequacy of administrative and statutory means for coordination and implementation of the water and related land resources policies and programs of the several Federal agencies and to make recommendations to the President with respect to Federal policies and programs;

(c) To establish, after consultation with appropriate interested Federal and non-Federal entities, and with the approval of the President, principles, standards; and procedures for Federal participation in the preparation of comprehensive regional or river basin plans and for the formulation and evaluation of Federal water and related land resources projects;

(d) To coordinate schedules, budgets, and programs of Federal agencies in comprehensive interagency regional or river basin planning;

(e) To carry out its responsibilities with regard to the creation, operation, and termination of Federal-State river basin commissions;

(f) To receive plans or revisions thereof submitted by river basin commissions and to review and transmit them, together with its recommendations, to the President for transmittal to the Congress;

(g) To develop and maintain program evaluation criteria and procedural systems required to administer the grants-in-aid programs, including guides and procedures for use by the States in applying for participation in the grant program. Provide information on program plans, requirements, and developments for system required to administer the program;

(h) To provide guidance to the States in applying for grants based on the principles and practices of planning as well as legislative and regulatory requirements and substance of such programs;

(i) To review State planning programs to assure that the intent of the Water Resources Planning Act is implemented and, recommend to the Council such action as is necessary to assure that the policies of the Council are carried out. Develop and recommend modifications of policies and procedural requirements as appropriate;

(j) To analyze and review the State planning programs and proposals to determine the recommended level of assistance to be provided based on such analyses. This includes the content and substance of the State programs as well as the procedural guides; and

(k) To consult with other Federal agencies administering grants-in-aid programs to develop and carry out inter-agency agreements and procedures to assure the coordination of water and related land resources planning programs in the States with other related Federal planning assistance programs.

River Basin Commissions

Title II

The duties of the Commissions are:

(a) To serve as the principal agencies for the coordination of Federal, State, interstate, local and nongovernmental plans for the development of water and related land resources within its area of jurisdiction;

(b) To prepare and keep up to date, to the extent practicable, a comprehensive, coordinated, joint plan for Federal, State, interstate, local and nongovernmental development of water and related land resources...including an evaluation of all reasonable alternative means of achieving optimum development;

(c) To recommend long-range schedules of priorities for the collection and analysis of basic data and for investigation, planning, and construction of projects; and

(d) To foster and undertake such studies of water and related land resources problems...as are necessary for comprehensive river basin planning.

Planning Grants to States

Title III

The Act authorizes financial assistance to the States to assist them in developing and participating in the development of comprehensive water and related land resources plans. Grants are made on the basis of (I) the population, (2) the land area, (3) the need for comprehensive water and related land resources planning programs, and (4) the financial need of the respective States. The grant, however, cannot exceed 50 per centum of the cost of carrying out the approved State program.

Appendix B

ESTIMATE

BY

OBJECT CLASSIFICATION

(In thousands of dollars)

Object Classification		Actual FY 1977	Estimate FY 1978	Estimate FY 1979
11.	Personnel compensation	1,354	1,622	1,630
12.	Personnel benefits	108	144	151
21.	Travel and transportation	126	128	100
23.	Rent, communications, and utilities	219	442	459
24.	Printing and reproduction	32	595	95
25.	Other services	5,845	7,970	5,196
26.	Supplies and materials	33	31	31
31.	Equipment	3	4	4
41.	Grants, subsidies, and contributions	5,072	5,729	5,526
	Total obligations	12,792	16,665	13,192

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GRANTS TO STATES UNDER TITLE III OF THE WATER RESOURCES PLANNING ACT (P.L. 89-80)

	FY 67	FY 68	FY 69	FY 70	FY 71	FY 72	FY 73	FY 74	FY 75	FY 76	FY 77	FY 78	Total
Alabama	-- 1/	45,000	45,000	45,197 2/	68,700	55,700 3/	40,082 2/	-- 1/	-- 1/	-- 1/	-- 1/	48,840	349,219
Alaska	25,000	44,624 2/	61,272 2/	71,600	86,000	124,600	86,400	86,400	34,600	140,430	90,000	82,720	935,796
Arizona	-- 1/	43,570	46,000	46,000	83,860	80,700	75,700	75,700	95,650	106,710	63,900	56,260	772,890
Arkansas	44,800	46,180	47,600	47,600	57,638	66,650	50,000	50,000	88,050	103,540	51,000	55,420	708,028
California	68,110	68,870	72,000	72,900	123,600	171,150	101,900	101,900	125,150	149,880	73,200	79,820	1,156,530
Colorado	44,160	43,750	45,900	45,900	70,180	73,150	61,500	61,500	103,200	116,560	64,000	58,320	780,270
Connecticut	-- 1/	33,260	36,100	36,100	55,000	66,100	40,000	40,000	78,250	85,980	48,500	51,650	548,928
Delaware	36,370	32,180	32,300	32,500	47,000	17,960	53,900	31,900 2/	77,550	91,110	53,700	45,960	567,530
D.C.	7,380	10,200	13,024 2/	12,094 2/	13,400	14,760	25,000	25,000	50,694 2/	73,242 2/	41,200	40,700	327,364
Florida	26,250	43,000	46,600	46,600	60,000	60,000	52,200	52,200	88,744 2/	33,700 1/	55,600	54,200	620,581
Georgia	-- 1/	26,937 2/	-- 2/	12,000	16,671	33,100	45,700	45,700	80,403 2/	87,340	45,300	51,070	468,625
Hawaii	38,290	39,370	41,400	45,700	75,000	63,760	52,600	52,600	80,650	107,040	41,700	50,020	689,570
Idaho	47,800	49,640	50,400	52,300	95,000	87,400	71,300	71,300	98,150	111,790	64,800	64,710	864,530
Illinois	26,300	24,200	22,843 2/	37,500	55,000	71,000	58,100	58,100	108,350	110,000	53,300	59,850	686,483
Indiana	-- 1/	-- 1/	-- 1/	34,600	62,200	61,300	50,100	50,100	99,250	94,830	60,000	51,970	803,350
Iowa	41,280	43,050	43,800	43,800	68,100	58,700	47,900	47,900	78,850	102,490	55,500	56,290	669,160
Kansas	42,960	41,258	46,400	46,400	75,000	67,300	55,200	55,200	89,000	106,740	53,600	63,110	742,968
Kentucky	49,200	49,760	50,600	50,600	80,000	66,400	55,200	73,700	83,524 2/	88,003 2/	60,900	59,150	767,037
Louisiana	33,000	46,980	48,000	48,000	75,000	62,500	50,900	50,900	85,181 2/	105,333 1/2/	52,900	52,770	709,364
Maine	19,000	27,000	30,100	30,100	61,600	72,400	57,400	57,400	74,850	91,060	54,700	43,210	618,820
Maryland	37,280	40,550	41,200	41,200	72,000	60,300	49,600	49,600	74,750	100,420	49,300	50,990	667,290
Massachusetts	39,960	38,276	42,100	42,100	66,547	60,300	50,100	50,100	98,100	96,810	53,100	58,250	696,443
Michigan	49,660	35,800	36,000	36,000	92,000	89,000	73,800	73,800	113,050	99,080	56,700	50,110	847,880
Minnesota	26,000	40,000	42,200	42,200	85,000	73,100	60,300	60,300	106,550	113,360	67,000	63,280	788,490
Mississippi	-- 1/	49,230	50,200	50,200	80,000	66,600	55,800	55,800	93,550	110,140	49,800	59,050	720,390
Missouri	41,720	47,300	47,500	47,200	67,200	65,600	57,700	57,700	92,400	113,360	59,900	54,230	752,110
Montana	40,350	33,020	31,200	31,200	81,100	75,200	62,200	62,200	100,700	127,490	64,500	65,380	813,110
Nebraska	41,660	42,010	42,200	42,200	80,000	76,300	63,600	63,600	87,400	108,550	58,300	55,720	738,360
Nevada	40,080	41,250	41,600	45,000	81,000	68,400	57,900	57,900	83,250	123,800	62,500	60,680	763,160
New Hampshire	27,000	28,210	28,200	29,700	42,300	46,300	38,600	38,600	81,250	80,900	52,300	48,090	515,670
New Jersey	41,660	43,190	44,200	44,200	76,000	66,400	50,000	50,000	89,850	114,550	63,000	57,450	742,500
New Mexico	22,152 3/	40,100	40,600	40,600	71,200	69,160	57,800	57,800	65,572 2/	98,810	59,100	54,170	677,084
New York	57,980	59,120	60,300	60,300	103,900	100,160	68,300	86,300	127,350	146,300	81,700	79,330	1,030,980
North Carolina	43,900	34,200	35,000	35,000	80,000	74,100	61,900	61,900	93,500	126,990	65,100	56,190	827,980
North Dakota	16,650	37,400	38,300	39,300	65,000	74,100	61,300	61,300	89,150	118,090	60,500	57,210	719,300
Ohio	51,220	56,130	56,500	61,600	98,000	91,800	75,100	75,100	97,550	125,010	53,900	65,650	907,050
Oklahoma	24,230	38,875	45,700	45,700	75,000	64,400	54,000	54,000	78,500	99,570	56,500	56,220	692,595
Oregon	48,950	43,703	43,703	43,703	45,703	73,421	61,900	61,900	94,650	111,460	56,800	54,490	744,183
Pennsylvania	47,000	32,930	53,600	53,600	98,000	87,900	72,500	72,500	109,950	128,830	67,000	65,450	909,260
Puerto Rico	30,000	35,350	63,600	63,600	95,000	90,500	76,400	73,295 2/	104,100	104,330	58,300	54,730	868,205
Rhode Island	26,920	31,410	32,100	32,100	55,700	48,100	37,600	37,600	81,850	82,410	49,100	45,990	558,880
South Carolina	49,800	49,760	50,400	50,400	80,000	72,500	60,500	58,500	72,000	100,000	50,100	58,250	772,010
South Dakota	21,300	35,000	38,500	38,500	61,500	61,500	45,600	45,600	88,300	102,290	51,600	51,020	607,510
Tennessee	41,210 2/	21,210 2/	45,400	32,400	60,000	56,300	46,700	46,700	51,394 2/	78,530	46,700	49,740	576,824
Texas	74,130	79,000	75,300	75,300	123,300	119,000	99,100	99,100	140,550	145,250	81,900	83,720	1,196,190
Utah	42,330	45,250	48,500	48,500	71,500	70,400	58,100	76,561	92,050	95,220	52,200	57,190	760,301
Vermont	23,150	27,730	30,200	30,200	50,000	65,700	53,800	53,800	82,950	85,930	52,600	44,200	617,080
Virginia	49,490	49,830	50,500	50,500	92,000	76,500	65,200	65,200	101,600	107,640	52,000	63,810	824,270
Washington	25,000	38,750	38,750	42,350	82,000	71,000	60,000	60,000	97,250	103,000	51,700	56,220	725,020
West Virginia	30,600	39,740	40,300	40,700	50,448	51,000	40,000	40,000	89,150	92,026 2/	54,300	50,990	619,454
Wisconsin	43,630	47,180	48,000	48,000	80,000	70,800	58,200	58,200	102,600	97,240	51,700	52,110	757,660
Wyoming	26,680	42,740	42,900	42,900	75,000	64,700	53,700	71,700	89,350	118,610	57,500	55,020	710,810
Virgin Islands	-- 1/	-- 1/	-- 1/	-- 1/	-- 1/	-- 1/	-- 1/	-- 1/	-- 1/	-- 1/	33,919	46,600	80,519
Guam	-- 1/	-- 1/	-- 1/	-- 1/	-- 1/	-- 1/	-- 1/	-- 1/	-- 1/	-- 1/	-- 1/	39,500	39,500
	$1,733,982	$2,196,823	$2,288,172	$2,364,844	$3,732,891	$3,607,621	$2,018,382	$3,043,656	$4,589,812	$5,404,413	$3,031,000	3,013,895	38,025,491

1/ Did not apply for grant.
2/ Original grant reduced; State could not match.
3/ Not a participant.

Appendix D

Summary of
River Basin Commission Programs
($ in thousands)

	FY 1977 Actual	FY 1978 Estimate	FY 1979 Estimate
Administrative Budgets	385	459	327
CCJP Budgets	1,655	2,255	2,199
Chairmen Salaries and Expenses	300	359	360
Total Obligations	2,340	3,073	2,886
Financing Changes:			
Prior Year Recoveries	---	---	---
Unobligated Balance Available, Start of Year	-13	-172	---
Unobligated Balance Available, End of Year	+172	---	---
Appropriation	2,500	2,901	2,886

Administrative Budget
By Commission
($ in thousands)

	FY 1977 Actual	FY 1978 Estimate	FY 1979 Estimate
Great Lakes	27	130	45
Missouri	52	60	60
New England	54	82	64
Ohio	63	64	65
Pacific Northwest	134	65	35
Upper Mississippi	55	58	58
TOTAL	385	459	327

CCJP Budget
By Commission
($ in thousands)

	FY 1977 Actual	FY 1978 Estimate	FY 1979 Estimate
Great Lakes	405	422	436
Missouri	312	365	377
New England	223	372	283
Ohio	405	462	475
Pacific Northwest	---	308	320
Upper Mississippi	310	326	308
TOTAL	1,655	2,255	2,199

Appendix E

ONGOING LEVEL B STUDIES

Southcentral Alaska
Allegheny River Basin
Upper Missouri River Basin
Snohomish River Basin
Yadkin-Pee Dee
Cumberland River Basin

Southcentral Alaska

The Southcentral Alaska Level B is the first Level B study in the State. The study will address the general areas of conservation, preservation, development, and use of the area's water and related land resources. Specific areas of concern to be covered by the study include the complex issues of energy development, population and industrial growth, land ownership and recreational pressures. Under the leadership of the Alaska Water Study Committee the study will result in a final study report with recommendations and relative priorities for needed development, management, data and research programs and an environmental assessment.

A study manager and management staff began work in FY 1977 and the study POS was submitted to WRC in October 1977. Phases I and II of the POS have since been revised and the POS is now awaiting Council review and approval. FY 1979 activities will include completion of formulation of alternative plans, agency and public plan review and selection of a recommended plan. All of these activities will be started in FY 1978. The study report and environmental assessment are also scheduled for completion in FY 1979.

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SOUTHCENTRAL ALASKA WATER STUDY, LEVEL B

FUNCTIONAL DISTRIBUTION OF TOTAL STUDY FUNDS
(in thousands of dollars)
Federal and Non-Federal

Revised 12/5/77

Study Program	Estimated Total Cost	Thru Sept. 30, 1977	FY 1978	FY 1979	FY 1980
1. Management and Coordination	213	0	69	109	35
a. General management and coordination (Meetings, travel, etc.)	145	0	55	65	25
b. Scheduling and budgeting	10	0	5	5	0
c. Public involvement	58	0	9	39	10
2. Plan of Study	137	102	35	0	0
a. Identify and determine relevant component needs of the two national planning objectives	55	45	10	0	0
b. Develop plan of study, including costs, personnel sequence, etc.	82	57	25	0	0
3. Field Work	573.5	0	573.5	0	0
a. Further evaluation and delineation of NED and EQ component needs	353.5	0	353.5	0	0
b. Evaluate resource capabilities (without conditions)	220	0	220	0	0
4. Plan Formulation	303	0	103	200.0	0
a. Develop alternative plans and projects for specified component needs	138	0	78.5	59.5	0
b. Analyze alternative plan relationships (evaluations, accounts, EIS)	115	0	10	105	0
c. Review and reconsider the specified components and formulate additional alternative plans leading to the selection of a recommended plan. (Maybe necessary to revise POS and repeat 3 and 4 above.)	50	0	14.5	35.5	0
5. Report Preparation	196	0	0	103	93.0
a. Writing, illustrating, editing	176	0	0	98	78
b. Printing	20	0	0	5	15
c. Review					
6. Contingencies	0	0	0	0	0
Total Obligation	1,422.5	102	780.5	412.0	128
Unobligated balance, start of year		1,422.5	1,320.5	540.0	128
Unobligated balance, end of year (subtract)		1,320.5	540.0	128.0	0
TOTAL STUDY COSTS (Federal and Non-Federal)	1,422.5	102	780.5	412.0	128

Southcentral Alaska Level B Study
Distribution of Total Study Funds

($ in thousands) Revised 12/5/77

ORGANIZATION	TOTAL	FY 77	FY 78	FY 79	FY 80
MANAGEMENT TEAM					
General Management, Formulation, Coordination, Travel	294.50	-0-	120.60	148.90	25.00
Report Writing, Illust. Editing	122.00			44.00	78.00
Report and EIS Printing	20.00			5.00	15.00
Contingencies	-0-				-0-
Public Participation	58.00		9.00	39.00	10.00
Plan of Study	124.00	89.00	35.00		
WORK PLAN COMMITTEES					
Federal:					
Agriculture	45.75	5.00	24.25	16.50	
ERS			(2.00)		
FS			(5.25)		
SCS			(17.00)		
Army					
COE	16.00	3.00	4.75	8.25	
Commerce					
NOAA	9.95		3.50	6.45	
EPA	5.50		1.75	3.75	
DOE	27.50		17.50	10.00	
FEA			(4.50)	(4.50)	
APA			(13.00)	(5.50)	
HEW					
HUD	5.00		1.25	3.75	
Interior		5.00	138.00	67.80	
BM	210.80		(4.50)		
BOR			(11.50)	(5.25)	
F&WS		(3.00)	(33.00)	(42.30)	
NPS			(4.00)	(2.50)	
BLM		(2.00)	(5.25)	(5.00)	
USGS			(79.75)	(2.75)	
State:					
DEC	119.38		105.38	14.00	
DC&ED	9.50		6.5	4.50	
DC&RA	10.00		6.25	3.75	
DF&G	73.75		61.00	12.75	
DNR	155.87		137.12	18.75	
U of A	115.00		110.00	5.00	
Total Allocations	1,422.50	102.00	780.50	412.00	123.00
Source of Funding					
OBC	1,250.00	90.00	661.27	382.75	116.00
Federal Agencies	18.00	-0-	6.75	11.25	-0-
State of Alaska	154.50	12.00	112.50	18.00	12.00

Allegheny River Basin

The Allegheny River Basin (New York and Pennsylvania) occupies 11,747 square miles or 7% of the total Ohio River Basin. Areas of major concern to be examined during the two year study include acid mine drainage, municipal and industrial pollution, erosion and sedimentation, flooding, and high consumptive water use by energy facilities. Under the management of the Ohio River Basin Commission, the Level B study will examine these and other problems and conflicts to insure that all needs, problems, alternatives, and impacts are considered. Further, specific implementation studies will be recommended to meet these needs and problems.

A First Cut Plan will be developed early in FY 1978 and will include both NED and EQ plans. This effort will lead into detailed work group efforts and public workshops. In FY 1979 a mixed-objective planning trade-off analysis will be developed and the final report and the EIS will be completed and transmitted to WRC.

ALLEGHENY COMPREHENSIVE STUDY

FUNCTIONAL DISTRIBUTION OF TOTAL STUDY FUNDS
(in thousands of dollars)

Study	Estimated Total Cost	FY 1977	FY 1978	FY 1979
1. Management and Coordination ------	280	40	180	60
a. General management & coordination (Meetings, travel, etc.)				
b. Scheduling and budgeting				
c. Public involvement				
2. Plan of Study ----------	120	120	-0-	-0-
a. Identify and assess problems and needs				
b. Determine study objectives				
c. Develop plan of study, including costs, personnel, sequence, etc.				
3. Field Work ----------	-0-	-0-	-0-	-0-
a. Further evaluation and delineation of problems, needs, and goals				
b. Evaluate resource capabilities				
4. Plan Formulation ----------	680	40	400	240
a. Develop alternative plans and projects for specified objectives				
b. Analyze alternative plan relationships				
c. Review and reconsider the specified components and formulate additional alternaplans leading to the selection of a recommended plan.				
5. Report Preparation ----------	70	10	20	40
a. Writing, illustrating, editing				
b. Printing				
c. Review				
6. Contingencies ----------	-0-	-0-	-0-	-0-
TOTAL APPROPRIATIONS ----------	1,150	210	600	340
Sources of Funding:				
Total Federal	650	110	350	190
Total - State and Other	500	100	250	150

ALLEGHENY
DISTRIBUTION OF TOTAL STUDY FUNDS BY AGENCY
(in thousands of dollars)

Agency	Estimated Total Cost	FY 1977	FY 1978	FY 1979
Agriculture	100	20	50	30
ERS				
FS				
SCS				
Army: COE	100	20	50	30
* ERDA				
* Commerce:				
BDC				
BEA				
Marad				
NOAA				
* DOT				
EPA	5	1	3	1
* FPC				
* HUD				
Interior	100	20	50	30
NPS				
BM				
BOR				
BSFW				
GS				
* ORSANCO				
WRC: (ORBC)	345	49	197	99
** State	500	100	250	150
TOTAL APPROPRIATION	1,150	210	600	340
Sources of Funding:				
Total-Federal	650	110	350	190
Total-State	500	100	250	150

* Study funds for these agencies, as necessary, are provided in the ORBC level of funding.
** Majority of water quality and water supply input will be State funded.

Upper Missouri River Basin

The Upper Missouri River Basin in Montana drains 82,750 square miles in the U.S. Although sparsely populated, numerous water resources issues have surfaced and others are likely to emerge as the basin undergoes development. Basin coal deposits offer substantial opportunity for future development although not as extensive or as highly publicized as those of adjacent basins. Water quality and quantity are of major concern to the State of Montana. Also, North Dakota is concerned about water quality of Missouri River water entering the State from Montana. Other issues to be addressed by the Level B study include Indian water rights, wild and scenic river classifications, and preservation of "blue ribbon" trout streams.

A Plan of Study will be developed in FY 1978 and an inventory of existing data will be developed. The study is scheduled for completion in FY 1979 and will include alternative and recommended plans, and a final study report.

Upper Missouri River Subbasin in Montana
Level B Study (Ongoing)

Date May 21, 1977

FUNCTIONAL DISTRIBUTION OF FEDERAL STUDY FUNDS 1/
(in thousands of dollars)

Study Program	Estimated Total Cost	Thru Sept. 30, 1977	FY 1978	FY 1979	Balance to Complete
1. Management and Coordination	220	NA	70	150	NA
a. General management and coordination (Meetings, travel, etc.)	180	NA	60	120	
b. Scheduling and budgeting	10		5	5	
c. Public involvement	30		5	25	
2. Plan of Study	40		40		
a. Identify and determine relevant component needs of the two national planning objectives	30		30		
b. Develop plan of study, including costs, personnel sequence, etc.	10		10		
3. Field Work	150		100	50	
a. Further evaluation and delineation of NED and EQ component needs	50		30	20	
b. Evaluate resource capabilities (without conditions)	100		70	30	
4. Plan Formulation	315		70	245	
a. Develop alternative plans and projects for specified component needs	215		40	175	
b. Analyze alternative plan relationships (evaluations, accounts, EIS)	50		20	30	
c. Review and reconsider the specified components and formulate additional alternative plans leading to the selection of a recommended plan. (Maybe necessary to revise POS and repeat 3 and 4 above.)	50		10	40	
5. Report Preparation	100			100	
a. Writing, illustrating, editing	50			50	
b. Printing	30			30	
c. Review	20			20	
6. Contingencies	170		70	100	
Total Obligation	995	-0-	350	645	
Unobligated balance, start of year					
Unobligated balance, end of year (subtract)					
TOTAL STUDY COSTS					

1/ Distribution of state funds in the amount of $860,000 to be determined during development of POS

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Upper Missouri River Subbasin in Montana Date May 21, 1977
Level B Study (Ongoing)

DISTRIBUTION OF TOTAL STUDY FUNDS BY AGENCY
(in thousands of dollars)

(1) Agency	(2) Estimated Total Cost	(3) Thru Sept. 30, 1977	(4) FY 1978	(5) FY 1979	(6) Balance to Complete
Agriculture:	175	—	60	115	NA
ERS	—	— NA	—	—	—
FS	—	—	—	—	—
SCS	—	—	—	—	—
Army: COE	25	—	10	15	—
AEC	—	—	—	—	—
Commerce:	—	—	—	—	—
BDC	—	—	—	—	—
BEA	—	—	—	—	—
MarAd	—	—	—	—	—
NOAA	—	—	—	—	—
DOT	—	—	—	—	—
EPA	165	—	60	105	—
FPC	20	—	5	15	—
HEW	—	—	—	—	—
HUD	—	—	—	—	—
Interior:	350	—	120	230	—
BM	—	—	—	—	—
BOR	—	—	—	—	—
BR	—	—	—	—	—
F&WS	—	—	—	—	—
GS	—	—	—	—	—
NPS	—	—	—	—	—
—	—	—	—	—	—
—	—	—	—	—	—
WRC:	260	—	95	165	—
RBC	260	—	95	165	—
Other: Montana/	860	—	302	558	—
State North Dakota	860	—	302	558	—
—	—	—	—	—	—
TOTAL STUDY COST	1,855		652	1,203	
Source of Funding					
Total Federal	995	NA	350	645	NA
Total Non-Fed.	860		302	558	

Distribution as shown in current PTS. POS to be developed in early FY 1978

Snohomish River Basin

The Snohomish Basin extends from Puget Sound on the west, to the crest of the Cascade mountains on the east. Rapid urbanization is placing numerous pressures on the basin's resources. The most pressing problem is that of jurisdication. Rapid growth has resulted in a layering of administrative responsibility providing a difficult setting for effective resource management.

The Level B study will provide a plan which responds to this problem and those of water quality, estuaries, water supply, fish and wildlife, and energy. It is felt that such a plan is essential to avoid undesirable development patterns, to foreclose actions that may degrade the high quality environment, and to provide positive policies and clear direction to what is to happen.

A Plan of Study will be developed in FY 1978. In addition, a preliminary set of alternative plans and an interim report will be drafted and reviewed. FY 1979 activities will include a refinement of the analyses of problems and issues and the development of a study report.

SNOHOMISH RIVER BASIN LEVEL B STUDY (ONGOING)

Functional Distribution of Total Study Funds
(in thousands of dollars)

Study Program	Estimated Total Cost		FY 1978		FY 1979		Balance to Complete
1. Management and Coordination		82.5		38.9		43.6	-----
a. General management and coordination (Meetings, travel, etc.)	34.1		16.9		17.2		-----
b. Scheduling and budgeting	14.3		6.0		8.3		-----
c. Public involvement	34.1		16.0		18.1		-----
2. Plan of Study		32.0		32.0	-----		-----
a. Identify and determine relevant component needs of the two national planning objectives	15.0		15.0		-----		-----
b. Develop plan of study, including costs, personnel sequence, etc.	17.0		17.0		-----		-----
3. Field Work		127.6		66.9		60.7	-----
a. Further evaluation and delineation of NED and EQ component needs	63.8		33.0		30.8		-----
b. Evaluate resource capabilities (without conditions)	63.8		33.9		29.9		-----
4. Plan Formulation		282.6		133.9		148.7	-----
a. Develop alternative plans and projects for specified component needs	115.5		59.9		55.6		-----
b. Analyze alternative plan relationships (evaluations, accounts, EIS)	115.5		60.0		55.5		-----
c. Review and reconsider the specified components and formulate additional alternative plans leading to the selection of a recommended plan. (Maybe necessary to revise POS and repeat 3 and 4 above.)	51.6		14.0		37.6		-----
5. Report Preparation		53.9		14.9		39.0	-----
a. Writing, illustrating, editing	35.2		14.0		21.2		-----
b. Printing	6.6		-----		6.6		-----
c. Review	12.1		.9		11.2		-----
6. Contingencies		19.7	-----		19.7		-----
Total Obligation		598.3		286.6		311.7	-----
Unobligated balance, start of year		0		0		0	-----
Unobligated balance, end of year (subtract)		0		0		0	-----
TOTAL STUDY COSTS		598.3		286.6		311.7	-----

SNOHOMISH RIVER BASIN LEVEL B STUDY (ONGOING)

Distribution of Total Study Funds by Agency
(in thousands of dollars)

	Estimated Total Cost	FY 1978	FY 1979	Balance to Complete
Agriculture:	83.1	36.6	46.5	-----
ERS	7.1	4.2	2.9	-----
FS	34.1	15.4	18.7	-----
SCS	41.9	17.0	24.9	-----
Army: COE	52.5	23.3	29.2	-----
AEC	-----	-----	-----	-----
Commerce:	42.0	19.1	22.9	-----
BDC	-----	-----	-----	-----
BEA	-----	-----	-----	-----
MarAd	-----	-----	-----	-----
NOAA	42.0	19.1	22.9	
DOT	-----	-----	-----	-----
EPA	-----	-----	-----	-----
FPC	4.6	2.1	2.5	-----
HEW	-----	-----	-----	-----
HUD	-----	-----	-----	-----
Interior:	46.3	20.9	25.4	-----
BLM	-----	-----	-----	-----
BOR	41.1	18.6	22.5	-----
BR	-----	-----	-----	-----
F&WS	5.2	2.3	2.9	-----
GS	-----	-----	-----	-----
NPS	-----	-----	-----	-----
PA	-----	-----	-----	-----
BM	-----	-----	-----	-----
WRC:	152.0	66.7	85.3	-----
PNWRBC Services	53.0	21.7	31.3	-----
Matching 1/	99.0	45.0	54.0	-----
Other:	217.8	117.9	99.9	-----
State	72.6	39.3	33.3	-----
King Co.	72.6	39.3	33.3	-----
Snohomish Co.	72.6	39.3	33.3	-----
TOTAL STUDY COST	598.3	286.6	311.7	-----
Source of Funding				
Total Federal	380.5	168.7	211.8	-----
Total State & Other				
Cash	90.0	45.0	45.0	-----
Value of Serv.	127.8	72.9	54.9	-----

1/ Federal matching funds for State/local contributions.

Yadkin-Pee Dee Basins

The Yadkin-Pee Dee basins drain more than 18,000 square miles in North and South Carolina. The study area includes both undeveloped and heavily industrialized regions with the topography varying from mountains, to the Piedmont, to large coastal estuarine areas. The study will address numerous water related problems including transfer of water from the Yadkin basin to adjacent areas, developmental encroachment on fragile ecosystems, especially along the I-85 Interstate corridor, recreational and commercial navigation problems, expansion of port facilities, dredge spoil disposal, and wetland preservation. A resource management strategy will be developed to insure continued developmental and environmental integrity.

Initial activities of the study will include the development of a Plan of Study and analysis of the public participation requirements. In FY 1979 the study team will complete the plan preparation and reports including an environmental impact statement.

Yadkin-Pee Dee Level B (Ongoing)

Date 4/20/77

FUNCTIONAL DISTRIBUTION OF TOTAL STUDY FUNDS
(in thousands of dollars)

Study Program	Estimated Total Cost	Thru Sept. 30, 1977	FY 1978	FY 1979	Balance to Complet
1. Management and Coordination	345	0	188	157	0
a. General management and coordination (Meetings, travel, etc.)					
b. Scheduling and budgeting					
c. Public involvement					
2. Plan of Study	60	0	60	0	0
a. Identify and determine relevant component needs of the two national planning objectives					
b. Develop plan of study, including costs, personnel sequence, etc.					
3. Field Work	45	0	35	10	0
a. Further evaluation and delineation of NED and EQ component needs					
b. Evaluate resource capabilities (without conditions)					
4. Plan Formulation	475	0	285	190	0
a. Develop alternative plans and projects for specified component needs					
b. Analyze alternative plan relationships (evaluations, accounts, EIS)					
c. Review and reconsider the specified components and formulate additional alternative plans leading to the selection of a recommended plan. (Maybe necessary to revise POS and repeat 3 and 4 above.)					
5. Report Preparation	75	0	20	55	0
a. Writing, illustrating, editing					
b. Printing					
c. Review					
6. Contingencies					
Total Obligation	1,000	0	588	412	0
Unobligated balance, start of year	1,000	0	588	412	0
Unobligated balance, end of year (subtr ct)					
TOTAL STUDY COSTS					

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Yadkin-Pee Dee Level B (Ongoing)

DISTRIBUTION OF TOTAL STUDY FUNDS BY AGENCY*

(in thousands of dollars)

(1)	(2)	(3)	(4)	(5)	(6)
Agency	Estimated Total Cost	Thru Sept. 30, 1977	FY 1978	FY 1979	Balance to Complete
Agriculture:	40	0	20	20	0
ERS	—	—	—	—	—
FS	—	—	—	—	—
SCS	—	—	—	—	—
Army: COE	60	0	30	30	0
DEC	—	—	—	—	—
Commerce:	20	0	15	5	0
BDC	—	—	—	—	—
BEA	—	—	—	—	—
MarAd	—	—	—	—	—
NOAA	—	—	—	—	—
DOT	—	—	—	—	—
EPA	60	0	20	40	0
FPC	—	—	—	—	—
HEW	—	—	—	—	—
HUD	10	0	6	4	0
Interior:	50	0	20	30	0
BLM	—	—	—	—	—
BOR	—	—	—	—	—
BR	—	—	—	—	—
F&WS	—	—	—	—	—
GS	—	—	—	—	—
NPS	—	—	—	—	—
PA	—	—	—	—	—
—	—	—	—	—	—
NRC:	110	0	55	55	0
RBC	—	—	—	—	—
Other:	640	0	422	218	0
State	—	—	—	—	—
Local	—	—	—	—	—
TOTAL STUDY COST	1000	0	588	412	0
Source of Funding					
Total Federal	700	-	408	292	-
Total Non-Fed.	300	-	180	120	-

*Distribution as shown in current POS.

Cumberland River Basin

The Cumberland River Basin contains 17,920 square miles in Kentucky and Tennessee and includes the Nashville metropolitan area. The basin has large coal reserves which, because of their location close to water and existing pipelines, may provide strong incentive for development of alternative energy sources such as coal gasification and liquefaction. Development of these sources may involve a large water consumptive demand. In addition, TVA's proposed Hartsville nuclear plant, which will be the world's largest, will have an estimated 112 cfs consumptive use.

The Level B study will examine the basin's conflicts and problems to ensure that all needs, problems, alternatives and impacts are considered, and will recommend specific implementation studies to provide for the future. Some of the specific problems to be addressed include overbank flooding, inadequate drainage and soil erosion damage reduction, water supply, water quality, water-based recreation, transportation, environmental preservation and enhancement, and power development.

Activities scheduled for FY 1978 include development of a Plan of Study and a First Cut Plan and identifying projects and programs which do not require further detailed consideration and which will be part of the final study recommendations. All public workshops and special work group efforts are scheduled for FY 1979.

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CUMBERLAND COMPREHENSIVE STUDY

FUNCTIONAL DISTRIBUTION OF TOTAL STUDY FUNDS
(in thousands of dollars)

STUDY	Estimated Total Cost	FY 1978	FY 1979	FY 1980
1. Management and Coordination a. General management & coordination (Meetings, travel, etc.) b. Scheduling and budgeting c. Public involvement	270	40	180	50
2. Plan of Study a. Identify and assess problems and needs b. Determine study objectives c. Develop plan of study, including costs, personnel, sequence, etc.	120	120	0	0
3. Field Work a. Further evaluation and delineation of problems, needs and goals b. Evaluate resource capabilities	0	0	0	0
4. Plan Formulation a. Develop alternative plans and projects for specified objectives b. Analyze alternative plan relationships c. Review and reconsider the specified components and formulate additional alternative plans leading to the selection of a recommended plan	665	40	405	220
5. Report Preparation a. Writing, illustrating, editing b. Printing c. Review	70	10	20	40
6. Contingencies	0	0	0	0
TOTAL APPROPRIATIONS	1,125	210	605	310
Sources of Funding:				
Total Federal	640	110	350	180
Total State	445	90	230	125
Total TVA	40	10	25	5

CUMBERLAND

DISTRIBUTION OF TOTAL STUDY FUNDS BY AGENCY
(In thousands of dollars)

Agency	Estimated Total Cost	FY 1978	FY 1979	FY 1980
Agriculture	100	20	50	30
ERS				
FS				
SCS				
Army: COE	100	20	50	30
*ERDA				
*Commerce				
BOC				
BEA				
MarAd				
NOAA				
*DOT				
EPA	10	2	5	3
*FPC				
*HUD				
Interior	100	20	50	30
NPS				
BM				
BOR				
FWS				
GS				
*ORSANCO				
WRC (ORBC)	340	40	195	87
Other:				
**State	445	90	220	125
TVA	40	10	25	5
TOTAL APPROPRIATION	1,125	210	605	310
Sources of funding:				
Total Federal	640	110	350	180
Total State	445	90	230	125
TVA	40	10	25	5

*Study funds for these agencies, as necessary, are provided in the ORBC level of funding.

ONGOING SPECIAL STUDIES

Great Lakes Environmental Planning Study

New England Hydropower Expansion Study

Great Lakes Environmental Planning Study

The Great Lakes Environmental Planning Study (GLEPS) will furnish a basic assessment of the effects of alternative resource management strategies on the Great Lakes. The major objectives of the study are: to integrate currently available environmental analysis methodologies and use this integrated framework to model physical, chemical and biological processes of the Great Lakes; to evaluate the consequences of alternative planning and resource development strategies; and to select optimum programs for the GLBC CCJP.

Activities scheduled for FY 1978/1979 include development of a Plan of Study; initiation of work on all study elements; development of baseline information from past studies; and initiation of integration of analytical methodologies. The study is scheduled for completion in FY 1979.

Date May 9, 1977

GREAT LAKES ENVIRONMENTAL PLANNING STUDY (Ongoing)

FUNCTIONAL DISTRIBUTION OF TOTAL STUDY FUNDS
(in thousands of dollars)

Study Program	Estimated Total Cost	Thru Sept. 30, 1977	FY 1978	FY 1979	Balance to Complete
1. Management and Coordination					
a. General management and coordination (Meetings, travel, etc.)					
b. Scheduling and budgeting					
c. Public involvement					
2. Plan of Study					
a. Identify and determine relevant component needs of the two national planning objectives					
b. Develop plan of study, including costs, personnel sequence, etc.					
3. Field Work					
a. Further evaluation and delineation of NED and EQ component needs					
b. Evaluate resource capabilities (without conditions)					
4. Plan Formulation					
a. Develop alternative plans and projects for specified component needs					
b. Analyze alternative plan relationships (evaluations, accounts, EIS)					
c. Review and reconsider the specified components and formulate additional alternative plans leading to the selection of a recommended plan. (Maybe necessary to revise POS and repeat 3 and 4 above.)					
5. Report Preparation					
a. Writing, illustrating, editing					
b. Printing					
c. Review					
6. Contingencies					
Total Obligation	770.0	----	321.0	449.0	
Unobligated balance, start of year			831.0	449.0	
Unobligated balance, end of year (subtract)			449.0	0	
TOTAL STUDY COSTS	770.0	----	321.0	449.0	

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GREAT LAKES ENVIRONMENTAL PLANNING STUDY (Ongoing)

DISTRIBUTION OF TOTAL STUDY FUNDS BY AGENCY*

(in thousands of dollars)

(1) Agency	(2) Estimated Total Cost	(3) Thru Sept. 30, 1977	(4) FY 1978	(5) FY 1979	(6) Balance to Complete
Agriculture:					
ERS					
FS					
SCS					
Army: COE					
AEC					
Commerce:					
BDC					
BEA					
MarAd					
NOAA					
DOT					
EPA					
FPC					
HEW					
HUD					
Interior:					
BM					
BOR					
BR					
F&WS					
GS					
NPS					
PA					
WRC:					
RBC					
Other:					
State					
Local					
TOTAL STUDY COST	770.0		321.0	449.0	
Source of Funding					
Total Federal	770.0		321.0	449.0	
Total Non-Fed.	257.0		107.0	150.0	

*Distribution as shown in current POS.

New England Hydropower Expansion Study

This special study, to investigate the feasibility and implications of hydropower expansion in New England, will include a two phase program spanning two years. The first phase includes the development of a handbook of water resource management criteria pertaining to restoration of existing hydropower facilities and a regional economic assessment to determine hydropower value, both to be used as aids in project selection and review. The second phase involves a reconnaissance of those large undeveloped sites which the economic assessment indicates worthy of further evaluation.

This study is designed to provide answers needed to make short-term energy decisions affecting both the water resources and regional power system in New England. In addition, the study will help demonstrate the practicality of such an innovative approach to the solution of the current energy situation.

Activities planned for FY 1978 include development of a Plan of Study; an inventory of existing facilitites; an economic assessment; and preparation of a handbook for evaluating hydropower potential. A large site reconnaissance, small site evaluation and preparation of a final report are scheduled for completion in FY 1979.

Date June 1977

HYDROPOWER SPECIAL STUDY (Ongoing)

FUNCTIONAL DISTRIBUTION OF TOTAL STUDY FUNDS
(in thousands of dollars)

Study Program	Estimated Total Cost	Thru Sept. 30, 1977	FY 1978	FY 1979	Balance to Complete
1. Management and Coordination	115	--	58	57	--
a. General management and coordination (Meetings, travel, etc.)	50		25	25	
b. Scheduling and budgeting	15		8	7	
c. Public involvement	50		25	25	
2. Plan of Study	20	--	20	--	--
a. Identify and determine relevant component needs of the two national planning objectives	5		5		
b. Develop plan of study, including costs, personnel sequence, etc.	15		15		
3. Field Work	645		257	388	
a. Further evaluation and delineation of NED and EQ component needs	345		107	238	
b. Evaluate resource capabilities (without conditions)	300		150	150	
4. Plan Formulation	N.A.		N.A.	N.A.	
a. Develop alternative plans and projects for specified component needs					
b. Analyze alternative plan relationships (evaluations, accounts, RIS)					
c. Review and reconsider the specified components and formulate additional alternative plans leading to the selection of a recommended plan. (Maybe necessary to revise POS and repeat 3 and 4 above.)					
5. Report Preparation	120	--	50	70	
a. Writing, illustrating, editing	80		30	50	
b. Printing	30		15	15	
c. Review	10		5	5	
6. Contingencies	100		50	50	
Total Obligation	1,000		435	565	
Unobligated balance, start of year					
Unobligated balance, end of year (subtract)					
TOTAL STUDY COSTS	1,000		435	565	

Date June 1977

Hydropower Special Study (Ongoing)

DISTRIBUTION OF TOTAL STUDY FUNDS BY AGENCY*

(in thousands of dollars)

(1) Agency	(2) Estimated Total Cost	(3) Thru Sept. 30, 1977	(4) FY 1978	(5) FY 1979	(6) Balance to Complete
Agriculture:					
ERS					
FS					
SCS					
Army: COE	260		67	193	
ERDA	35		17	18	
Commerce:					
BDC					
BEA					
MarAd					
NOAA					
DOT					
EPA	51		17	34	
FPC	115		80	35	
FEA	35		17	18	
HUD					
Interior:	52		17	35	
BM					
BOR					
BR					
F&WS					
GS					
NPS					
OPA					
WRC:	202		110	92	
NE RBC	202		110	92	
Other:	250		110	140	
State	250		110	140	
Local					
TOTAL STUDY COST	1,000		435	565	
Source of Funding					
Total Federal	750		325	425	
Total Non-Fed.	250		110	140	

*Distribution as shown in current PTS

DAM SAFETY

Mr. BEVILL. Mr. Secretary, the committee wants to commend you for budgeting funds for dam safety. This subcommittee added $15 million to the budget last year for the corps for this purpose. I know you have been very interested in the dam safety program.

Secretary ANDRUS. May I say yes, maybe I have had a little more experience in disasters of this type than some of my predecessors. But it was the leadership of this committee last year that came forth with the $15 million that caused us to look at ours more intently. The Bureau of Reclamation has a continuing safety program going on. We have many examples where we identify these, but we located 13 additional areas, and we have asked for the $3.1 million this year to handle the 5 that have been discussed, and we have taken a harder look at it. We appreciate it.

Mr. DICKS. Would the Chairman yield for one brief question?

Mr. BEVILL. Yes.

NON-FEDERAL DAM INSPECTION

Mr. DICKS. I understand that the corps is helping the States look at non-Federal dams, too, is that correct?

Secretary ANDRUS. That is correct, Mr. Chairman. I might identify and introduce to you the two members who have joined us at the table here, Mr. James Curlin, Deputy Assistant Secretary of Commerce, and Mr. Jack Ford, who I am sure you are familiar with, Acting Assistant Secretary of the Army for Civil Works. Mr. Ford can probably respond more directly to your question.

The answer to your question is yes, they are supporting, but at what level he could answer better than myself, I believe.

Mr. FORD. Yes. The corps is going to assist the States in the inspection of non-Federal dams and they are proceeding with that as rapidly as they can with the $15 million that the committee has appropriated.

Mr. DICKS. So it is the money that we provided that is funding the non-Federal dam inspection?

Mr. FORD. That is correct.

Mr. DICKS. I know that Colonel Poteat of the corps in our State has gone through almost—I mean I do not know all the details, but has gone through all of those dams out there that are non-Federal and found some serious problems. What happens if we find that one of these dams has a problem, then what do we do?

Mr. FORD. I think we have found that 10 or 12 of the dams are really unsafe.

Mr. BEVILL. Twenty-two as of last week.

Mr. DICKS. Is this nationwide, Mr. Chairman?

Mr. BEVILL. Yes: found by the corps.

Mr. DICKS. Is this committee going to be asked to fund improvements at non-Federal projects or will the owners of those projects bear the cost?

Mr. FORD. The owners of the projects have the responsibility, and corps, when they find such a dam, notifies them of the condition.

Mr. DICKS. Is this program going on in all 50 States right now?

Mr. FORD. Yes, sir.

Mr. DICKS. Thank you, Mr. Chairman.

Secretary ANDRUS. This has been going on for years, but when one has a risk factor, then storage is reduced. I will give you an example.

The American Falls Dam where the storage was reduced substantially, and rehabilitation has taken place. And, yes, we came back to this committee for the authorization.

Mr. BEVILL. I might make it clear that what we are talking about, although the Federal Government is doing this, these are not Federal dams that we are talking about, the 22 that have been found to be unsafe are not Federal dams.

NATURAL DISASTERS

Mr. Secretary, you made a statement awhile ago that I would like to come back to just a moment. You said that the dams cannot solve this problem, and that the flood control projects and the irrigation projects do not solve the drought problem. We are all for preserving the environment, the safety of these dams, all these things. And each member sitting here and you, of course, know that we can overdo it. We can build too many dams or we can overdo it the other direction. We can block too many and perhaps construct too many.

Is that what you said, that building the dams is not going to solve the flood problem, and the irrigation systems are not going to solve the drought problem?

Secretary ANDRUS. First, let me agree with your statement that we can build too many or we can block too many. I agree with your statement in its entirety.

But when we speak of the drought, you know, as we experienced it this year throughout many parts of the United States, the water projects that were proposed, had they all been completed, would not have supplied the irrigation of water that was necessary in some areas to forestall the effect of a drought.

But in a given area project it will store water, it will move it around, it will make it available at a later calendar month then. And for those areas that are serviced by a project, that, yes, it does alleviate the effect of the drought. Again if I may use my own home State as an example, because I am probably more intimately familiar there, along the Snake River plain where there is storage reservoirs and have been bumper crops prevailed because there was enough water available from those areas, even though there was a time of high temperatures and lack of precipitation from rainfall. So I do not quarrel with that.

What I am saying is that the project will not solve the drought problem nationwide or in all areas, but in proximity to an area, yes, sir, it has beneficial impact.

Mr. BEVILL. Congressman Burgener pointed out the other day that in San Deigo, in his district, there are 2 million people which enjoy the many benefits of a project which, if that project had to be built today, could not meet the criteria that we follow today.

In my district there is a city which cannot expand and grow; it cannot accept new industry, because no additional water is available. But in a year we are going to have the supply because there is going to be a dam built there to take care of it. Do you agree with that?

Secretary ANDRUS. Yes, sir. May I give you another example of things that we have to look at now to alleviate that same type of problem in the future?

In the western part of the State of Kansas there is a drawdown there of about 37 inches a year with a recharge of 2½ inches per year. Well, that, simple mathematics will tell you that we are facing a problem there.

In the river in Colorado, again I am relying on press reports, but the State has said after 8 years of the drought, there is no alternative source of water for the farmers for irrigation when that day arrives. You have about 2½-million-acre drawdown surplus or above recharge in Tucson-Phoenix area. Those are things, if we do not start planning for them now with an alternative resource, 8 to 10 years, we are going to be in trouble.

Mr. BEVILL. Yes, sir.

WATER RESOURCE POLICY REVIEW

Well, again we appreciate what you have done in getting these problems that we incurred last year cleared up. You deserve a great deal of credit because you have done a lot on it. And now, of course, we have been talking about the water policy review for a long time, and we are looking forward to getting into that subject further.

We do hope, though, that it is not going to be one of those recommendations that is going to block construction of our water resource projects. I hope that it is going to be constructive, and I want to be positive about it. Certainly we know that 3½-percent interest rate is unreasonable for a project that is starting now, or that has not been authorized.

You know, there are many things that need updating, and Congress has been looking forward to this for many years.

I notice that the authorization for the Water Resources Council for all the programs are under Public Law 89–80, and this law expires at the end of fiscal year 1978. It would be September 30, would it not?

Secretary ANDRUS. Yes.

Mr. BEVILL. Now, are all of your programs authorized under this act, as amended?

Mr. MARTIN. The basic authority for the Council's programs is Public Law 89–80. We do have funding authority for level B comprehensive plans under section 209, Public Law 92–500. We also have authorities connected with water for energy studies under Public Law 93–577, as amended: there is no direct funding there, however. Funds are made available by transfer from the Department of Energy.

Mr. BEVILL. Is it planned to ask for the extension of this law?

WRC OVERVIEW

Secretary ANDRUS. Mr. Chairman, if I might respond, we have a request for fiscal 1979 for about $11.6 million, I believe. Yes, 11.6 for extension. We think that during this time, planned or possibly planned reorganization, the work of the Council which has been done on the water policy review, that now is a poor time for us to discuss doing away with it.

So we are asking for appropriation of $11.6 million for fiscal year 1979, and also I would remind you that in that, the river basin commissions are funded via WRC. And within the water policy review study that is going on, one of the recommendations that we are looking at and visiting with the regions and the Governors is a request for increased appropriations for the States, for the continuation of their State water plans and other opportunities.

If that is a recommendation chosen by the President, we have to have the vehicle for doing this. My alternate, Secretary Martin, can give you more the nuts and bolts, everyday aspects of it. And I would defer if he has any illuminating comments to make.

Mr. MARTIN. We are aware of the common criticisms of the Water Resources Council. These are something that we have lived with as a group since we have taken office, where we find ourselves in the process of doing several things.

First, as the Secretary mentioned, we have the water resource policy review. By March 15 we hope the decisions will be forthcoming. We are working very closely with the reorganization team.

To answer your question whether we will continue the WRC, we do not know yet. But it is crucial that we have some entity devoted to the work of the States and devoted to have some authority to deal with these many water resource agencies at the national level and the States. So there is no question that we are going to recommend something in that regard.

The third thing that we have done, and I would really like to stress this, relates to criticism of the Water Resources Council. I think the attitude of the chairman, and the fact that we have two other members here today indicates we do have a higher commitment to this group. The point I want to make is that we really have decided that, given the period we are in, we want to try to make a commitment to the Water Resources Council and use it, the best we can, until we make these policy decisions. To shortcut that now, in the absence of somebody having a truly better idea, would not serve at all well.

I might indicate very briefly, if I may, some of the things that we have done that you may not be aware of.

One of the most common criticisms of the Water Resources Council has been that it essentially delegated all of the policy-level responsibilities. First, from the Secretary to the Assistant Secretary, and finally to a midstaff level so that most decisions were made, in common parlance, at the lowest common denominator.

One of the things that we did, and the decision was made at the Assistant Secretary level, we did away with the Council of Representatives level. It was an agency staff-level working group that had taken on a number of the responsibilities and had given, at my level, the ability to walk away from decisions and not follow through on them. We abolished that. It was a painful exercise, but we did that.

What it forced us to do was pay more attention. We then turned our attention to a series of decisions that we think are important. One is flood plain management for which WRC is under a charter to develop a uniform approach to handling flood plain problems. Everyone did not want to face up to that one and come in with common and uniform procedures. We are not finished, but we have published new guidelines and we are moving forward to come up with consistent

agencies' regulation and procedures. It is not easy. We have had some good discussions and the important thing is that the discussions took place among policy people and not staff people.

The second thing we have done is to undertake, and I think with some commitment, a program by which we want to make river basin plans that are put together with the cooperation and in many cases the leadership of State government, binding on Federal policy and program decisions. That is very difficult and very controversial, but it is something that has been advocated in policy reviews for the past 10 or 15 years.

We initially set a time frame for council decision which is too short. I think my colleagues can speak to the difficulties not only in the decision itself, but also in trying to coordinate the things that we would have to do to be consistent with those regional or State plans.

I want to assure you that we are fairly serious about trying to make that work. There are some other examples, I think, as well, with a number of the things that the Council does. It has been very active in the water policy study as well.

I do not know if you focused on it, but the President set up the water policy review as a sort of a committee approach, and the committee was basically the OMB, the Council on Environmental Quality, and the Secretary of the Interior's part in that has been as Chairman of the Water Resources Council. And we have tried to work closely with the Council agencies to try to get that done.

I guess what I want to leave with you is a feeling that, given some of the problems which we recognize, we think we are making a fairly significant commitment to use the Council the way in which the Congress agreed 2 years ago. In the meantime, we think we have it moving fairly constructively.

SECTION 80 STUDY

Mr. BEVILL. Thank you, Mr. Secretary.

You know, on March 7, 1974, Congress passed the act which made provision for the section 80 study which stated:

> The President shall report the results of such investigation and study, together with his recommendations, to Congress not later than 1 year after funds are first appropriated to carry out this subsection.

So this committee has been wondering every year whether we are going to get this report. Of course, when we look at the budget and see no new starts at all, we may wish we had not gotten it when we get it. But we are still trying to get it so that we may consider it.

The act creating the Council is expiring September 30, and I do not want to be prejudging, because, of course, extension of the law would be a matter that the authorization committee would have to decide, and not our committee. We would, however, have funding responsibility. It concerns me, and we have to ask ourselves this with every agency of the Government, that these agencies are building their own little castles here in the Government.

I am not saying that in this case, but we have to look at it that way, because we pass these various acts, and then they come in requesting an extension. The next thing we know it has grown, and the agency needs more personnel, more typewriters, more secretaries. You create another bureaucracy and then it keeps going.

Two days ago I was speaking with the President about another matter, and he said, by the way, I hope you support the consumer bill.

I said, Mr. President, I cannot vote for any new consumer agency. I am using this as an example, because it is creating another bureaucracy. This is a way that a majority of us in the House looked at it, as you know.

I think, frankly, the House expressed the voice of the people. I do not think the people want any more bureaucracies created, and I think we are going to be looking pretty close at this, to see whether or not funding for the Council should be continued. The President is making some headway in trying to cut down on paperwork, and other things he is doing. We are very appreciative of his accomplishments, but we are concerned about creating another bureaucracy here.

We see these things happening and we just hope that we are not going to be creating another bureaucracy.

We need some guidelines to follow, which we may or may not follow.

COUNCIL DIRECTIONS

Mr. MARTIN. I would like to respond to that.

I would not want to disagree with you about another bureaucracy. Let me say a few additional things about WRC which I believe support our recommendation that your decision concerning the future of the Council will be better made in the next budget cycle than this one. I will tell you now that you can hold me to that.

When I recruited Mr. Eisel from his prior position, which was a good position, he asked what kinds of commitment can you make to me. I said not a very good one, because we are going to reserve judgment on the WRC ourselves, and we are not going to be unwilling to dismantle it, if that is the right way to go. But I did tell him that he ought to work with us for a year.

In terms of bureaucracy, the WRC is not a particularly labor-intensive exercise. It is really quite a small agency, and most of the funds that are appropriated to the WRC really go to specific purposes, to studies done by river basin commissions, and the States, rather than to a grandiose bureaucracy. The overall budget for WRC is down $2 million, rather than a growth that you are talking about. That reflects a cautious approach to putting more things on our plate before we have dealt with the things that you mentioned.

The section 80 study that you mentioned is a good example. The first draft has been out for 2 years, and it is not finished. On the other hand, the national water assessment, which is an important piece of work, is completed. It is now being printed for draft review purposes and will be finalized and distributed by midsummer. It will be a very valuable document.

Mr. BEVILL. I notice that your requests for the river basin commissions, title II, and the planning grants to the States are both reduced from the current year. You are not moving forward in those areas, are you?

Mr. MARTIN. I think that if it is the committee's judgment that more money should be passed in that regard, that is a clear judgment. We regard this as very much a year of trial and decision, rather than one which we should begin a number of new things without a clear

view of what the future should be for this council. So we expect not really to be condemned for that, but at least given a period of time to make those decisions.

Mr. BEVILL. I notice your justification states "the council has displayed a significant role in the evaluation of the President's water resources policy study, and we appreciate that you are advising the President, and that the President is going to make his recommendations to Congress.

But I hope you will include congressional views in your recommendations. We would like to have our views also included in whatever you recommend to the President.

The Chair now recognizes Mr. Dicks.

WATER RESOURCES POLICY REVIEW

Mr. DICKS. Let me ask you this. Could you elaborate just a little bit on what the Water Resources Council staff role was in developing the President's water policy review?

Mr. MARTIN. Yes, sir, I will be glad to, and I will probably let Mr. Eisel elaborate a little bit more.

From the beginning this was a committee exercise. OMB was involved, the CEQ was involved, and the WRC was involved. The way in which we did that was to form a series of working groups at the staff level, senior staff level, to put together preliminary documents. You may have seen those. They are widely distributed, and those committees included a great number of people from the WRC staff.

In fact, Mr. Eisel headed one of those working groups, along with other members of his staff, as well as all the member agencies, some of which are represented here today. Then as we moved beyond that phase and began to do sort of a policy analysis of those staff papers. Mr. Eisel and some of the individuals from his staff, as well as others, were involved in the policy analysis of those working papers to develop the options that were finally considered. Even now as we are finalizing the policy document, and beginning to have agencies make recommendations on it, the coordination is being done through the WRC, using Mr. Eisel as a focal point for those consultations.

Mr. DICKS. When we finally get an administration water resource policy, what role do you see in the future for the council in implementing a policy? Do you expect a major role?

Mr. MARTIN. I cannot say at this time, Mr. Dicks, whether or not it will be the WRC per se which has the assignment, but I would reiterate what I said before, and that is that there is no question that we will be recommending that there be a body at the Federal level which has the capabilities, as I see it, and I will ask my colleagues to comment on it, to achieve coordination between all the various mission-oriented agencies which have the capability to go off in a number of directions in the same geographic area. The second capability that that group must have is to work very closely with the State and local governments, to make sure that the planning that is done at the basin level, the regional level, the subregional level, makes sense between the Federal, State, and local governments.

Whether or not that is WRC or not remains to be seen, but right now we believe that WRC must be continued pending that decision.

Mr. DICKS. The Chairman hit on this. I think it is important that you work with the Congress to help develop the annual water project reviews, and judgment on the appropriations request. I just think that only positive things could be gained out of that kind of working relationship. I would encourage you to do that.

Mr. MARTIN. I might ask the Secretary to comment on that.

Secretary ANDRUS. We have indicated, as we did earlier today in our testimony, that we have the responsibility, first, to present to you what documents and guidelines we will work from, and that is our problem, and then working with you on project review, once we have that concurrence in what you are saying.

Also the water policy review that the President charged us with is being narrowed down right now. We have a meeting this weekend with some State representatives, and then we also have lined up some meetings with Members of Congress, who have indicated a concern and a willingness to meet and discuss the condensed version before it is put into form to be presented to the President.

So, in both areas we anticipate involvement of Members of the Congress.

STATE PROGRAMS

Mr. DICKS. Now, you talked about the States. How are you helping to equip the States to do a better job of water resource management? What are you trying to do there?

Mr. MARTIN. We are doing a number of things. First of all, we think that the river basin commission approach is a good approach even though not all States, and not all regions have been receptive. We have left it very much to their own choice, although we have tried to encourage and help them.

But I think in working with the river basins we have been very helpful, and it has worked very well. Also, through a whole series of funding mechanisms, which include the comprehensive planning grants, the level B studies, which are conducted on a regional basis, we provided not only money but technical assistance to help them work through their problems. There are a number of good successes to point to in that regard although the effort is new enough that we are still dealing with basinwide plans rather than specifics.

STATE GRANT PROGRAM

Mr. DICKS. Please insert in the record how much money you could use to adequately administer a State grant program to help States develop better planning capabilities.

Mr. MARTIN. We would be glad to.

[The following was received for the record:]

The administration's proposed funding for this program in fiscal year 1979 is $3 million. This is the same level of funding as provided in fiscal year 1978. In response to "How much money could you use * * *," a review of the fiscal year 1978 State grant applications reflects that the States requested approximately $5.7 million for use in that year.

STATE PLANNING PROGRAM

Mr. DICKS. I do not have any further questions.

Mr. BEVILL. The Chair recognizes Mr. Myers.

Mr. MYERS. Thank you. On page 6 of your justification for the current fiscal year you show appropriations of $13,696,000, but a program of $16,665,000. How do you account for the difference there?

Mr. MARTIN. Let me ask the staff to answer the question.

Mr. VANNOY. The major difference, Mr. Congressman, is $1 million transferred from the Department of Energy for water for energy assessments that the Council performs for the Department. The balance is money carried forward from the prior year primarily for three main items. One is $553,000, which is available for the comprehensive planning program. The second is $746,000 to be used in the water for energy assessments. The third is $360,000 carried forward to provide for the printing of the national assessment.

Mr. BEVILL. Would you state your name for the record?

Mr. VANNOY. Richard Vannoy, staff member, Water Resources Council.

SOURCES OF FUNDING

Mr. MYERS. You had funds from last year that were not obligated and were carried forward?

Mr. VANNOY. Yes, sir.

Mr. MYERS. How much will you carry over from this year that you will not be obligating?

Mr. VANNOY. Your question, sir, was this from 1978 to 1979?

Mr. MYERS. Yes.

Mr. VANNOY. $632,000.

Mr. MYERS. But now you are coming today with a request for 1979 budget.

Mr. MARTIN. 1979 to 1980 we are planning no——

Mr. MYERS. You will not carry it forward?

Mr. MARTIN. No, sir.

Mr. MYERS. What will be the total amount of money this next fiscal year from all sources?

Mr. VANNOY. $13,192,000.

Mr. MYERS. You will not receive funds from some other agency of the Federal Government or State?

Mr. VANNOY. That $13,192,000 includes the appropriated amount of $11.6 million, plus $632,000 carried forward for the comprehensive planning program and the anticipated $1 million transfer from DOE.

Mr. MYERS. That is all you will have to spend from any source?

Mr. VANNOY. Yes, sir.

Mr. MYERS. Now, how many recommendations has the council made to the President in the last year?

Mr. MARTIN. I am not sure that I can give you a number. I cannot really say, Congressman, that there have been specific recommendations to the President. What I can say that is important is that we have reached a resolution on a number of interagency issues that we can supply for the record or discuss with you—more regional, more agency level type issues in terms of making specific recommendations to the President, which I think the policy study would be.

Mr. MYERS. I was interested in your response to Mr. Dicks' question about your participation in the ongoing study which will soon hopefully be given to the President for his consideration.

I wonder how much of your efforts this year was actually devoted to that study?

Mr. MARTIN. My personal efforts or the efforts of the Water Resources Council?

Mr. MYERS. The Council, yes.

Mr. MARTIN. I should better ask Mr. Eisel. I should think it would be a substantial amount.

Mr. EISEL. We have spent considerable time over the past months as Mr. Martin described earlier. I could work up an estimate of that.

Mr. MYERS. Could you give an estimate of what it will cost?

Mr. EISEL. I could, yes. Mr. Martin described the different staff work from all eight agencies in the Council.

Mr. MYERS. Could the Secretary provide what your estimate is?

Secretary ANDRUS. Yes, Mr. Myers. But pointing out within that report there have been substantial amounts of other agencies also within the Departments outside of WRC, of which I serve as Chairman.

Land and Water has spent considerable staff time upon it, members of my immediate staff, myself in the hearing process, so WRC would be a portion of it.

[The material follows:]

WATER RESOURCES POLICY REVIEW COUNCIL STAFF COSTS

Since inception of the Water Resources Policy Review in May 1977, the Council staff has participated in the various task forces, conducted public hearings, processed the public comments, and reviewed the variety of documents generated. It is estimated that since May 1977, approximately 3 man-years of staff time has been devoted to the Review, as well as approximately $150,000 for contracts, public hearings, travel, printing, et cetera.

REGIONAL DEVELOPMENT BENEFITS

Mr. MYERS. You are talking about recommending changes regarding regional development benefits. Those benefits have been dropped for a great many new projects. I believe changing the discount rate is also being considered.

What justification can you give for making that——

Secretary ANDRUS. Mr. Chairman, Mr. Myers, when I was discussing, I was using discount rates as an example. It was changed in 1969. Prior to 1969 it was a different situation. We went to 6¼ where it is 6⅝, Mr. Chairman.

So I used that as an example. I do not want you to think that is one of the recommendations that we will make because the other side is leave it alone.

Mr. MYERS. I think everybody recognizes that there have been some changes.

Secretary ANDRUS. Yes, sir.

Mr. MYERS. So what the recommendation is, we do not know. But we do know things have happened in that the regional benefits—how a project will benefit that region will no longer be included.

Could you explain why regional benefits are not always included when you are figuring the cost-benefit ratio as well as water quality?

Secretary ANDRUS. I will ask the others to speak to the water quality, but the regional benefits are not dropped out. Some of that water is used and reused downstream for electric generation.

When you talk about the regional commissions under title III, it is a suggestion that we are considering that to ask for funding to be given to those regional commissions or river basin commissions for continu-

ing the studies in the individual States, in areas of groundwater impact, charge and recharge, those types of items. One of our recommendations may well be to use this vehicle to try to come back to fund those so that the States can speak to their own problems without the so-called feedback involved and make their recommendations to us.

Now, with reference to the water quality, Mr. Martin, you are familiar with that.

Mr. MARTIN. It is very difficult, Congressman, for me to speak to the accumulative judgment of the Council. I think in the case of regional benefits, the decision was not quite as broad as you say because I think the Corps of Engineers, and will let Mr. Ford speak to this himself, still consider regional benefits.

Mr. MYERS. Yes, but they never say why they do or do not. You have not given the directives to the corps.

Mr. MARTIN. There were standards worked up by the Water Resources Council as a whole. As I understand it, there is a consensus of the Council in working up those principles and standards that those programs should be nationally oriented as opposed to regionally oriented.

I will let Mr. Ford comment as to why that standard is used differentially in some cases.

Mr. FORD. Well, the Army has never used—has never added—regional development benefits to national economic benefits, as a purely technical matter. The principles and standards published by the Water Resources Council several years ago called for a display of the regional account, along with social well-being and the two objectives, national economic development and environmental quality. The fact is that you cannot add national economic development benefits to regional economic benefits because they are not the same kinds of dollars.

The regional benefits are practically all benefits that occur within a region representing transfers of economic activities from some other region.

Mr. MYERS. You do not believe that there is such a thing as new growth?

Mr. MARTIN. Yes, sir, I do believe there is such a thing as new growth.

Mr. MYERS. Well, you are not saying that.

Mr. MARTIN. The new growth has to take place in the United States. You can influence that with a water project or some other Federal activity.

Mr. BEVILL. Will the gentleman yield at that point?

Mr. Ford, are you saying that although the Congress passed, and the President subsequently signed the bill, containing this section 140, authorizing the Secretary of the Army, to consider regional benefits in determining the economic feasibility of a project, that you are not considering those benefits? This is your interpretation because you are saying if it is a regional benefit, it does not amount to anything because it is coming from somewhere else?

Mr. FORD. No, sir, I am not saying that. I am saying that if it is regional, it is very important to the residents of that region. But it does not add to the national income so we cannot technically add it to the economic benefits.

Mr. BEVILL. You cannot add it to the benefit-cost ratio when the Congress specifically says you can?

Mr. FORD. We cannot technically. Technically we cannot do that.

Mr. BEVILL. Technically you cannot do that even though Congress says you can?

Mr. FORD. That is right.

Mr. MYERS. Explain technically why you cannot do that? Technically means mechanically, does it not?

Mr. FORD. It would be technically incorrect to do that.

Mr. MYERS. Whose decision was that? That is a judgment factor.

Mr. FORD. No, sir. I think that can be documented in technical terms in the science of economics.

Mr. MYERS. I have never seen two economists agree on anything, have you?

Mr. FORD. It is rare.

Mr. MYERS. What the chairman is saying, that you are not following the directive of Congress and applying regional benefits because it is your judgment that they should not be. I think that is exactly what you are saying, is it not? You can call it technical or whatever you want to. The corps has made the decision that you are not going to include those benefits and it is in direct violation of the intent of Congress.

Mr. FORD. Perhaps so, sir. But the statute was permissive, it was not directive.

Mr. MYERS. Would you rather have "shall" instead of "may"?

Mr. FORD. We would not like to have a statute that would direct us to do something that does not make good technical sense.

Mr. MYERS. That is the judgment of Congress and not for you to make that judgment.

Mr. FORD. If Congress so judges, we will abide by it.

Mr. MYERS. What you are saying today is you have not carried out the intent of the law. You have violated the law, really.

Mr. FORD. No, sir, I do not think we have violated the law.

Mr. MYERS. You have not done what Congress told you to do.

Mr. FORD. We have not done what Congress permitted us to do.

Mr. MYERS. You think it is permissive then?

Mr. FORD. Yes, sir, that is the way the statute is worded.

Mr. MYERS. We ought to take a hard look at the WRC. There is nothing in the Constitution that says we have to have a Water Resources Council.

If you are just going to disregard the actions of the Congress I think it is pretty serious.

RIVER BASIN COMMISSIONS

Mr. Martin, on the bottom of the first page of your testimony, you are requesting money for the chairmen of the river basin commissions.

Mr. MARTIN. Yes, sir.

Mr. MYERS. They are paid from your budget?

Mr. MARTIN. They have a Federal Chairman and a State vice chairman.

Mr. MYERS. The Federal representative, who is your appointment, I believe——

Secretary ANDRUS. It is a White House appointment.

Mr. MARTIN. The concept from the beginning was to have an individual who could be a representative of Federal policy and Federal water resources activities working with the counterpart from the State and regional level. The Commission Chairman is the Federal side of that partnership.

WATER QUALITY BENEFITS

Mr. MYERS. Would you provide for the record why water quality benefits are not included as project benefits?

Mr. MARTIN. My belief is that Public Law 92–500 may not allow the use of water quality as justification for water storage.

Mr. MYERS. They are included in the benefits for some projects and not included for others. So I would like to know what justification—you can provide it for the record.

Mr. MARTIN. I would be glad to.

[The following was received for the record.]

WATER QUALITY BENEFITS

The question was "Why are water quality benefits left out of project benefits?" Water quality benefits are considered in project planning but in the overall context of the water quality legislation, have generally not been found to be warranted.

The Federal Water Pollution Control Act Amendments of 1972 provided that planning for federally assisted reservoirs should consider "inclusion of storage for regulation of streamflow for the purpose of water quality control, except that any such storage and water releases shall not be provided as a substitute for adequate treatment or other methods of controlling waste at the source." Public Law 92–500 gave EPA the authority to determine "the need for, the value of, and the impact of, storage for water quality control." In a 1973 policy statement, EPA states its conclusion "that storage for water quality control is generally a poor substitute for at-source pollution control measures." Based on this conclusion, EPA does not recognize a need for storage for water quality control unless the discharger had instituted "the best available pollution control technology economically achievable including advanced waste treatment techniques, land disposal, land management practices, process and procedure innovations, changes in operating methods and other alternatives." EPA further states that its consideration would include "all the environmental consequences" and would "take into account State laws and policies with respect to such storage."

REGIONAL PROGRAMS

Mr. MYERS. My last question is, How are the regional programs selected that you fund?

Mr. MARTIN. They are selected first by application from the regions and States that appear to be ready to take them. Some are more advanced in determining what they want to do. Once that is done, they are analyzed and worked over by the WRC staff, and by the member agencies, and then a final vote is taken by the council as to which ones to fund and move forward.

I might say that meetings of WRC are open and attended not only by the member agencies but also by all other water resource agencies that have interest as well as the chairman and vice chairman of the river basin commissions. So it is a fairly open forum for discussion

of these issues, and they are decided pretty much as you decide issues here.

Mr. MYERS. Do you have outside witnesses come in and testify?

Mr. MARTIN. We have not held hearings, but there is a wide solicitation of views prior to that decision being made.

Mr. MYERS. What percentage, roughly, do you fund of the applications that you receive?

Mr. MARTIN. I would say, generally speaking, approximately 25 to 30 percent of the applications received for level B and special studies actually get recommended to Congress and funded.

Mr. MYERS. I notice on the map here you have several commissions spread all over the United States. I just wonder how they were selected. It looks like the Rocky Mountain, and Midwest areas have been missed.

Secretary ANDRUS. If I might point out, basically from past experience, that being Governor of one of those States, and there are other people here in this room that can be more specific, that basically the commissions know the source of funds available, and they can work it out, and with your representatives in the States as to what studies are involved.

If you look at the map, where my State is located, and the Columbia River basin, you have a tendency to think of Oregon and Washington. So it is regional in scope, and our people do have their say so.

YADKIN-PEE DEE LEVEL B STUDY

Mr. MYERS. I do not want to belabor this any further, but let us take the one in South Carolina. Is that a commission established by the State, or a group of local people getting together and establishing this river basin commission that you funded?

Mr. MARTIN. This is also work that can be done without a commission——

Mr. MYERS. Can you provide this for the record, exactly how this study was put together, and how you fund it? What they are doing with it?

Mr. EISEL. Those are two States that have come together for the purpose of——

Mr. MYERS. Do they put money in it?

Mr. EISEL. Yes.

[The following was received for the record:]

YADKIN-PEE-DEE

The Yadkin-Pee-Dee level B study proposal was submitted to the Water Resources Council through the Southeast Basins Inter-Agency Committee for funding in fiscal year 1978. The study was not included in the program recommended by the administration; however, it was authorized as a write-in by this committee.

The study is funded under the authority of section 209 of Public Law 92–500. A total of $700,000 in Federal funds will be needed for the study, with $408,000 available in fiscal year 1978 and $292,000 requested in fiscal year 1979. The North Carolina Department of Natural Resources and Community Development and the South Carolina Water Resources Commission combined will match, on a 75-percent Federal/25 percent State basis, funds provided by WRC. Such match is to be in cash or in-kind services.

Executive direction for the conduct of the study will be provided by a study control board, consisting of one member from North Carolina, one member from South Carolina, and one member from the council.

The study will address numerous water related problems including transfer of water from the Yadkin basin to adjacent areas, recreational and commercial navigation problems, expansion of port facilities, dredge spoil disposal and wetland preservation.

An agreement has recently been prepared setting forth the responsibilities of the various parties involved in the study and it is now in the process of being reviewed and signed by the two States. Funds will be available to begin the study immediately following execution of the agreement.

Mr. BEVILL. Mr. Burgener?

COUNCIL STAFF FUNDING

Mr. BURGENER. On page 1 of your justifications, you outline the budget in broad terms, you have $1,630,000 for personnel out of a total of $13 million, is that correct?

Mr. MARTIN. That is right.

Mr. BURGENER. About how many people do you have?

Mr. MARTIN. Fifty-four.

Mr. BURGENER. Now, there are three big items in this $13 million. Other services which is $5 million, and grants, which is $5 million. I think we understand what grants are. What are other services?

Mr. MARTIN. That includes the River Basin Commissions.

RIVER BASIN COMMISSIONS

Mr. BURGENER. Now, we have six River Basin Commissions involving some 32 States?

Mr. MARTIN. Yes.

Mr. BURGENER. Now, does each of these basins have an organization?

Mr. MARTIN. They all have an organization. They vary in terms of staff size.

Mr. BURGENER. And do they have permanent personnel?

Mr. MARTIN. Yes.

Mr. BURGENER. Ranging from?

Mr. MARTIN. Ranging from 2 to 15 or 18.

Mr. BURGENER. Now, the salary of these people, do they come in here separately, or is that what that $5 million is for?

Mr. MARTIN. The salaries are included.

Mr. EISEL. This line item also covers travel and rent, and this kind of thing.

Mr. BURGENER. Is that their budget from the Congress in its entirety?

Mr. MARTIN. Yes, sir.

Mr. EISEL. There also are State funds in that. There is State contributions. In fact, these entities really cannot function without a State contribution and State participation. We feel that is one of the strong points. They do not stand alone.

COUNCIL FUNCTIONS

Mr. BURGENER. Your statement says the President has requested that the Council be funded for 1 more year. It has been in existence 12 years. What does that statement mean? Is this the end?

Mr. MARTIN. No, sir; I think I tried to explain that. It basically means that we feel that this is a year in which, between the work of the reorganization and the work of the water policy review, we are going to reach the recommendations.

I cannot tell you today whether we are going to recommend that WRC be continued as is, or whether a follow-on agency could be proposed.

Mr. BURGENER. It is not a flat statement, that we figure this is the last year?

Mr. MARTIN. No, sir. I was going to say earlier, Congressman, that even if it were abolished for savings and budgetary money, or other reasons, it would be essential for us to work cooperatively with these other agencies, to work voluntarily, to work with the States. I think we need something like it in a short term, regardless of WRC.

Mr. BURGENER. I wonder what happened to this function prior to 1965?

Mr. MARTIN. I have not read exhaustively on this, but I have read enough to know that the testimony given at that time indicated that there was a serious lack of coordination between Federal water missions they were just not working well enough with one another and there was a need to form, at the regional level, entities that could cooperate with the Federal Government, and work with the States. It was formed for that purpose, as well as to do some uniform comprehensive planning in the water resources area, that could not be done by one mission-oriented agency.

Mr. BURGENER. On page 2 you list your functions. The Water Resources Council was established for the purposes of, and it lists nine things. Let us just take out two quickly.

NATIONAL ASSESSMENT

No. 1, preparing periodic national assessments of the Nation's water situation. When was the last periodic national assessment done?

Mr. MARTIN. There have been two; the second will be printed and distributed this summer.

Mr. BURGENER. What about earlier ones?

Mr. MARTIN. The first one was published in 1968.

Mr. BEVILL. Excuse me.

Secretary ANDRUS. Thank you, Mr. Chairman. If I may be excused to go to the other committee.

Mr. BEVILL. Thank you, Mr. Secretary, we appreciate your testimony.

Mr. BURGENER. It might be well for the record to coordinate your list of functions on pages 2 and 3, which total 9, with your list of functions on page A–1 in the appendix, which total 11. You do not need to go into this now. Which two are missing in the first list, and which two you have in the second?

So now we have a national periodic assessment.

Mr. MARTIN. It is reviewed by agencies.

Mr. BURGENER. Now, does national mean 50 States?

Mr. MARTIN. It does.

Mr. BURGENER. Including Alaska and the Hawaiian Islands?

Mr. MARTIN. I would insist on Alaska.

Mr. BURGENER. Good.

Now, prior to that, the last so-called periodic national assessment was when?

Mr. MARTIN. 1968. It was published in 1968.

Mr. BURGENER. Some of us have not seen that. On No. 6, recommending to the President change in Federal policies and programs, I take it most of your work is with the regional river basin commissions, most of it?

Mr. MARTIN. The great bulk of the Water Resources Council is divided between working with those regional bodies, with the States and working between the various agencies. But the Presidential considerations are probably the strongest.

Mr. BURGENER. Is there such a list of recommendations in the past by the President, about needed change in policies?

Mr. MARTIN. I do not think that that list has been accumulated, but I think there is probably some kind of record.

Mr. BURGENER. I think that would be of interest. That would probably be a good list.

Let us take a look at whether there is such a list.

Mr. MARTIN. All right.

[The following was received for the record:]

PRESIDENTIAL RECOMMENDATIONS

The Council has produced several forms of recommendations to the President. First, the Council, as one of the three members on the water resources policy study, will forward national water policy recommendations to the President on March 15, 1978. Second, the Council transmitted to the President on November 5, 1975, the recommendations from the section 80(c) study dealing with water policy matters. Third, the Council in 1973 recommended a set of principles and standards for planning to the President who approved them in September 1973. Fourth, the rules and regulations of the Council for the title III planning grant programs were recommended to and approved by President Johnson. Fifth, the Council has participated on Presidential task groups in such efforts as suggesting remedies for drought relief and recommendations for draft flood plain policy Executive order. Finally, the Council reviews, at the request of the Executive Office, bills and recommended legislation dealing with water and related land resources.

Mr. BURGENER. Mr. Ford, the witness list states "acting." Does your position need to be confirmed by the Senate?

Mr. FORD. Yes, but the position is still vacant, sir.

Mr. BURGENER. So you are——

Mr. FORD. The previous Deputy Assistant Secretary, and during the vacancy of the position, I am acting.

Mr. BURGENER. It is the one that was formerly held by Mr. Veysey?

Mr. FORD. That is correct.

Mr. BURGENER. And that is vacant?

Mr. FORD. Yes.

Mr. BURGENER. You are doing the job temporarily?

Mr. FORD. Yes.

Mr. BURGENER. Prior to that, what were you doing?

Mr. FORD. I was the Deputy.

Mr. BURGENER. When was it formed?

Mr. FORD. It was first formed in 1975, I think, the spring of 1975. Mr. Veysey was the first incumbent. Prior to that time, I filled the role

over there as Chief of the Office of Civil Functions for the Secretary of the Army.

Mr. BURGENER. You have some of the same duties?

Mr. FORD. Yes.

Mr. BURGENER. Do you think the Army plans to fill that job?

Mr. FORD. Yes, sir. Hopefully within the near future.

Mr. BURGENER. Thank you very much.

I think that is all, Mr. Chairman.

Mr. BEVILL. Thank you.

Mr. Ford, the witness list indicates those who are supposed to appear before the committee. The list includes Deputy Under Secretary Michael Blumenfeld; where is he?

Mr. FORD. Well, he could not make it today. He and I serve jointly as alternates to the Council members.

REGIONAL BENEFITS

Mr. BEVILL. Does he have the same interpretation regarding section 40 that you do?

Mr. FORD. I think he agrees with the position taken by the Secretary of the Army.

Mr. BEVILL. When did you all reach that conclusion?

Mr. FORD. Sir, that conclusion was reached, I think, by consensus of the agencies of the Water Resources Council when the current principles and standards were published, limiting the objectives to two; namely, national economic development and environmental quality.

Mr. BEVILL. Do you mean this Water Resources Council was in on this interpretation? They went along with that, that regional benefits as provided by Congress and provided for in law do not mean regional benefits?

Mr. FORD. Not the same members, of course, because the members have changed over the years, but the principles and standards are still in effect, of course.

Mr. BEVILL. You know, the corps, and others were consulted before section 140 was inserted in the bill and approved by the House Public Works Committee. There was no objection, and actually the aim was to make it possible to consider those regional benefits that were obviously already available, that had already been determined, to try to eliminate having more studies, and to count those regional benefits.

Nobody ever questioned that. Then the corps, with the consent and counsel, I am sure, of the Secretary of the Army, published reports based on those regional benefits in determining the benefit-cost ratio. I can show you letters where they have counted those benefits, and then all of a sudden you come up here and say regional benefits do not mean regional benefits.

That is what you have done, is it not?

Mr. FORD. We fully recognize the concept of regional benefits.

Mr. BEVILL. You just said they do not count.

Mr. FORD. No, sir, they count very much to the citizens that get the benefits.

Mr. BEVILL. But you do not count them in the benefit-cost ratio?

Mr. FORD. No, sir, we do not add them directly to national development benefits.

Mr. MYERS. Will you yield?

Give us some examples.

Mr. FORD. For example, an industry that was going to locate in the State of Indiana but was attracted by a water project to change its location to the State of Alabama, represents a gain to the State of Alabama, but it also represents a loss to the State of Indiana, and those two trade off.

Mr. MYERS. But it would not fall in that category. We have 50 States that we might go to. How about unemployment? How could we justify unemployment?

Mr. FORD. To the extent that such a project would provide greater relief of unemployment in the State of Alabama than in Indiana, those benefits would be national benefits to the extent that there was more employment created in Alabama than there would have been in the State of Indiana.

Mr. MYERS. Pardon me?

But is that also in the recommendation of standards here of what the Water Resources——

Mr. FORD. That is.

Mr. MARTIN. That dealt with the Corps of Engineers and made that permissive computation. The principles and standards.

Mr. MYERS. It is just permissive; you do not have to do it.

Mr. MARTIN. That is right.

Let me give you another example of how it might work. The corps made the decision not to apply it even permissively. If there is a benefit to reduce unemployment, that benefit is calculated as a part of the cost-benefit ratio.

Mr. MYERS. That is just local unemployment problems and it does not affect the whole country, because if those people would move up to the other State, they would be employed there.

So how can you say it is national instead of regional?

Mr. MARTIN. They are calculated as national, as Mr. Ford pointed out, and then to count them as a regional you would be double counting the same benefits. If they are a benefit, then they are calculated as a national benefit. But they are counted only one time.

Mr. BEVILL. In order to determine whether it is a national benefit, then you have to go to the board of directors of that company up there in Indiana in your example, Mr. Ford, and meet with them.

Would you have built in Indiana if you had not built in Alabama?

Mr. FORD. You are quite right, and that makes the whole arena of regional benefits speculative.

Mr. BEVILL. Well, then, it makes your formula speculative. Not the benefits, but it makes your formula very speculative. In other words, you have 49 out of the 50 States that could have benefited from this new industry, so you are going to have to check out all the States, are you not?

Mr. FORD. We are going to have to identify the most likely alternative location.

Mr. BEVILL. Suppose in Indiana there is a steel mill, for example, that is going to expand, but the cost of transportation makes a difference. And if they can open a waterway there, and there is a plan already in effect, hanging in the balance. Now, you are going to say that those regional benefits cannot be counted?

Mr. FORD. In that case both national and regional benefits could occur. We claim those benefits that result from transportation savings.

Mr. BEVILL. You are saying now that you cannot count the same ones twice. We go along with that. But what you have been saying is that regional benefits cannot be counted because they are not national.

Mr. MYERS. It has got to be one or the other.

Mr. FORD. All net national economic benefits occur in some region or another. In addition to that, there are economic transfers of activity that occur in some regions but are offset by economic losses in other regions. We do not try to claim those as net national benefits, recognizing that the net national benefits that we do claim occur in specific regions.

Mr. MYERS. I might agree with you if it was location or relocation of an existing industry. But when an industry is going to build one place or the other, then there must be benefits because if they do not, they may go to Taiwan, and then you have lost them entirely. If you count them entirely. If it is not regional, it has to be national.

Mr. FORD. If the decision of the industry was to locate in Taiwan, but was persuaded not to because of a water project then that would be a national benefit. But if the decision is to locate in Alabama rather than Indiana, then we have problems.

Mr. BEVILL. Having complied with the intent of Congress and then suddenly to come here and say that the regional benefits do not count is pretty speculative to say the least.

There are about 30 projects to which section 140 applies and, of course, the intent of Congress is involved, and it is amazing to me that you have come up with this new interpretation that regional benefits do not mean regional benefits.

Mr. FORD. That is not the interpretation, sir.

Mr. BEVILL. That is what you said, sir. You said regional benefits have to be national. So you are saying, in effect, regional benefits do not count although the Congress said regional benefits do count.

Mr. MYERS. Even the regional benefits are subject to some discretion here and discussion.

Mr. FORD. What I said is that there is another way of saying it; that is, that national benefits always occur in regions, but that all regional benefits do not result in net national benefits.

Mr. BEVILL. Does the Council have any other interpretation on the present law that we are not aware of?

Mr. MARTIN. Not that I know of, Mr. Chairman.

COUNCIL MARCH MEETING

Mr. MYERS. What changes are planned during the March 1 meeting of the Council?

Mr. MARTIN. I do not think there are any changes planned. I really do not have the agenda——

Mr. MYERS. Would you like to read it?

Mr. MARTIN. Sure, I would be pleased to.

I think it is fairly obvious, Mr. Chairman; I have already described the first agenda item which is a plan to move forward with a commitment to get to a point where regional water resource management plans, designed primarily by the States working with the Federal

agencies in the field, are designed in such a way that Federal agency action are consistent. That is not a final decision but——

Mr. MYERS. Then everything would have to be cleared by you. You would be a clearinghouse and have a review on each one. It would have to have your approval.

Mr. MARTIN. Except what we would want to do is—instead of having each item approved, have a set of standards by which those plans could be designed so as to serve the States, and then have those plans ultimately approved. Remember you are asking some eight Federal agencies to make their actions consistent with plans made at the local level. We do not think that is a bad idea. All we have to do is set a balance between the local and national planning.

Mr. EISEL. Could I just expand?

I think that the important thing here is that the plans are made at the local level. These are not made by the Water Resources Council. These are made by the States and the Federal agencies working together. So it is not the Council that is putting together the plan.

Mr. MARTIN. The second agenda item is basically just a general discussion item.

Mr. MYERS. Get down to the one there that we have in question, about the fourth one down.

Mr. EISEL. M–77–18. That is what we have been discussing.

Mr. MYERS. The recommendation you are going to consider?

Mr. MARTIN. I guess, according to Mr. Eisel, it is a statement of what the law now provides for water resources review.

Mr. MYERS. Is that not more than just policy? According to what Mr. Burgener read to you awhile ago, you make policy and now you want to have a budget review, and that is what you are really trying to get authority to do.

Mr. MARTIN. That is what I described to you earlier. You asked me a question about how these plan projects are selected, and I tried to describe that.

Mr. MYERS. But you are going way beyond basic planning. You are going to project planning now. Individual projects within the basin. You are going to recommend that you have the authority to decide on that.

Mr. MARTIN. First of all, this is not a final decision. Second of all——

Mr. MYERS. It will become one if it is published in the Federal Register.

Mr. MARTIN. I am sorry. I did not follow your question.

Mr. MYERS. Are you not going to recommend that it be published in the Federal Register?

Mr. MARTIN. Subject to public comment.

Mr. MYERS. Thank you.

Mr. BEVILL. Mr. Secretary, I have some additional questions and I want to get specific answers to these questions. If we do not, we are going to have another hearing. Since the Council has done little to carry out the congressional intent of Public Law 89–80 (see functions on pages 2 and 3), why should we continue to provide funds for the Council?

CONGRESSIONAL INTENT

Mr. MARTIN. Frankly, Mr. Chairman, so long as the Council remains quietly in the background no one seems to give it much notice except to point out that "it isn't doing anything." When it starts to make moves in any really substantive areas it gets a lot of attention—and the attention is seldom, if ever, in the context of the Council as a body composed of eight Secretaries and Administrators who head Departments which operate most of the Nation's Federal water resources programs. The popular but erroneous perception seems to be that the Council is the Director and his staff. Nevertheless, your question is about the Council.

The Council is taking actions to insure that it acts as a Council of eight fully participating members to fulfill the intent of the act. I believe my written testimony as well as our discussions here this morning explain some of these actions and I hope to obtain this committee's support on the merits of the request for appropriations for fiscal year 1979.

WATER RESOURCES POLICY REVIEW

Mr. BEVILL. On page 1 of the justification you have an interesting sentence. "The Council has played a significant role in the evolution of the President's Water Resources Policy study . . ." You know that there is some opposition in Congress to the President's policy, and many feel that you have not given adequate consideration to congressional views on this topic. What consideration have you given congressional views on the policy study?

Mr. MARTIN. We have been very concerned to have congressional input. Starting back in October 1977, we met with the Subcommittee on Public Lands and Resources, Senate Committee on Energy and Natural Resources. Later that month we met with the Arizona delegation. In November we held a well-attended, primarily congressional staff, briefing. Individual briefings were held by the WRC Director and staff with Representatives Panetta and Meeds and Senators Gravel, Domenici, Church and Randolph, as well as the staff of Senator Eagleton. Additionally, sir, all Members of Congress were notified of the study and public hearing dates, locations, and so forth in June of last year, as well as provided with the original option papers in July. Further, copies of the final task force reports were supplied to the six congressional committees having direct interest in the Council, including this subcommittee, as well as all other expressing interest.

Finally, Mr. Chairman, the Policy Committee for the Study will begin meeting with Members of Congress prior to final recommendations being made.

GAO REPORT

Mr. BEVILL. A report by GAO on October 11, 1977, was fairly critical of the Council. What was their main GAO concern and what has the Council done in response to the report?

Mr. MARTIN. Their main concern and their basic recommendation was with guidelines for the preparation and review of comprehensive plans and the relationships between the Council, the commissions

and the States. By letter of January 11, 1978, the Council advised the chairman of the full committee of the actions taken or underway as of that date. With respect to the recommendation, we have placed before the Council for decision on March 1, a recommendation that the Members formally adopt a policy that their water-related program activities be consistent with the regional plans. Preliminary work has been done with regard to development of format and other guidance the GAO recommend. This work will proceed under guidance from the Council's decisions on March 1, 1978.

APPROPRIATION AMOUNTS

Mr. BEVILL. Turn to page 5 of your justification document. If the Council's work is so important, why is there a decrease of $2,136,000 in the appropriation request for 1979 below the 1978 appropriation?

Mr. MARTIN. The work of the Council truly is important. As I've mentioned earlier, the administration strongly supports continuation of the Council for at least 1 more year. This will permit time to analyze the results of the water resource policy review and reorganization study and determine the most desirable institutional arrangement. The reduction of appropriation request is primarily in comprehensive planning where no new starts are requested and there is a slight reduction in second-year funding for ongoing studies.

Mr. BEVILL. You show an unobligated balance of $632,000 at the end of 1978 to be applied to the 1979 program. How do you know at this time you will have this amount left over?

Mr. MARTIN. The $632,000 was originally appropriated in fiscal years 1977 and 1978 for comprehensive planning. This funding was for the conduct of a level B study, under the auspices of the Great Lakes Basin Commission, on the Fox-Wolf River Basin. The study was to be managed by the Commission in conjunction with the State of Wisconsin. After initial start-up and development of the plan of study the State of Wisconsin requested and the Commission recommended that the study be canceled. Having these comprehensive study funds available for use in fiscal year 1979 permits us to request less new appropriation for that line item. The funds will be carried into fiscal year 1979, requiring less appropriation to cover the cost of the ongoing comprehensive study program.

Mr. BEVILL. On page 6 you show that $1,158,000 was appropriated for administration and coordination in 1978, but that you have programed $1,564,000 for this item. Where did the additional $406,000 come from?

Mr. MARTIN. Mr. Chairman, $375,000 was appropriated in prior years and approximately $31,000 is from miscellaneous deobligations and recoveries of administrative costs. We had originally planned to use $300,000 to do close out or final audits of title III grant recipients, however, when the program was reauthorized for fiscal year 1978 this was not necessary. The $75,000 was appropriated to conduct the so-called "section 73" study in New England. The plan of study was just

recently approved and those funds are being made available to the New England River Basins Commission to commence the study.

Mr. BEVILL. Why did you cut the level B and special studies from $4,977,000 to $4,777,000 in 1978?

Mr. MARTIN. As I mentioned previously, the Fox-Wolf level B study has been cancelled at the request of the Great Lakes Basin Commission and the State of Wisconsin. This, then, created a situation which we have a fiscal year 1978 appropriation of $432,000 but that much less program due to cancellation of the study. Coupled with this is the carry forward into fiscal year 1978 of $232,000 for the continuation of the Delaware level B study, which results in a net program decrease of $200,000.

Mr. BEVILL. On page 10 you give a little paragraph on administration and coordination for which you are requesting $1,320,000, but we can't find a summary of personnel. What are the number of positions and grades of the personnel requested for 1979?

Also, if we turn to page B–1 we see the estimate by object classification where $1,630,000 is for personnel compensation, how do we tie this back to the various activities? In other words, what is the object class break of the $1,320,000?

The same is true for the river basin commissions program. We can see the total costs, if we add up all of the numbers, but we can't see how the money will be spent in any detail nor how many personnel are involved in this program. Provide for the record an object class breakdown and personnel breakdown for the four programs.

Mr. MARTIN. You ask a very complicated set of questions which, with your permission, I would like to submit detailed answers for the record. However, I would like to make several clarifying remarks.

First, the Council staff is not very large. As I mentioned before there are only 54 authorized positions, and 6 of these are for river basin commission chairmen. The remaining 48 are divided by 37 permanent and 11 temporary positions. Staff availability is supplemented by a few intergovernmental assignments and details from time to time. Staff personnel and support are funded under both the administration and coordination line item 24 and comprehensive planning, also 24. The remaining six are the RBC chairmen, funded under that line item. I will provide for the record a listing of the 54 authorized personnel by grade.

Another part of your question deals with river basin commission funding. The funds we have requested cover the costs of the federally appointed chairpersons'—six—salaries, benefits and travel and the Federal contribution to the operations of the commissions. To this is added the States' contribution which is then used for the operations of the commissions; that is, salaries, contracts, and so forth.

Finally, Mr. Chairman, I will submit a table for the record reflecting an object classification and personnel breakout for the council's four major programs for fiscal year 1979.

[The material follows:]

Personnel listing by grade (permanent and temporary), fiscal year 1979
river basin commission

River basin commission chairman (GS–18 equivalent)	6
GS–18	1
GS–17	2
GS–16	2
GS–15	4
GS–14	6
GS–13	2
GS–12	4
GS–11	5
GS–9	4
GS–8	3
GS–7	6
GS–6	3
GS–5	5
GS–3	1
Total	54

WRC TOTAL PROGRAM—BY FUNCTION, OBJECT CLASSIFICATION, AND PERSONNEL, FISCAL YEAR 1979

[Dollar amounts in thousands]

	Administration and coordination	Comprepensive Planning	River Basin Commission [1]	Grant [1]	Tota
Program personnel	24	24	6		54
Object class:					
Personnel compensation	$704	$641	$285		$1,630
Benefits	64	60	27		151
Travel and transportation	24	28	48		100
Rent, communications, and utilities	250	109			459
Printing and reproduction	80	15			95
Other services (contracts and agency transfers)	165	5,031			5,196
Supplies and materials	30	1			31
Equipment	3	1			4
Grants and contributions			2,526	$3,000	5,526
Total	1,320	5,986	2,886	3,000	13,192

[1] Staff personnel for management and/or review of these programs is funded under comprehensive planning.

Mr. BEVILL. At the top of page 7 you indicate that the significant authority provided to the Council—has been implemented with differing intensity and accomplishments. Would you explain the "significant authority" and the "accomplishments"?

Mr. MARTIN. The significant authority refers to those authorities provided the Council in sections 102, 103, and 104 of Public Law 89–80.

The accomplishments are outlined on pages 5–19 in the formal testimony of the Water Resources Council. Additionally, it should be noted that the Council completed the section 80(c) study and forwarded its recommendations to the President in 1975.

Mr. BEVILL. What has the Council contributed to the development of a national water resources program?

Mr. MARTIN. Again, Mr. Chairman, I believe the Council has contributed significantly to the development of a national water resources program. My formal written testimony for the record attempts to lay that out. May I refer you specifically to pages 5–19.

Mr. BEVILL. On page 9 you refer to the administration moving to make the Council an important coordination mechanism for national

water resources management. What specifically do you anticipate doing in this area?

Mr. MARTIN. We were referring to the items noted in the balance of that paragraph. I might add though that the policy on consistency which I mentioned earlier is a good example.

RIVER BASIN COMMISSIONS

Mr. BEVILL. Also on pages 10 through 12 you explain what the river basin commissions will continue to do, but you provide nothing to indicate concrete examples of what they have accomplished. Explain to the committee what was actually accomplished in 1977 and 1978.

Mr. MARTIN. I appreciate the opportunity, Mr. Chairman, to discuss examples of commission accomplishments. As you know, along with intergovernmental and interagency coordination, the major focus of commission activity is the preparation of comprehensive plans and conducting special studies. The major results or accomplishments of such efforts is usually the activities taken by member agencies and others to implement, on a consistent and coordinated basis, the actions recommended in such plans or studies or as a result of effective coordination. I believe the six river basin commissions have had significant achievements. In my formal written testimony, which I have submitted for the record, some of the major recent accomplisments of the commissions are discussed. Please see pages 2 through 33. Briefly, however, I'll run through a few examples which stand out in my mind. The earlier discussion regarding dam safety reminds me that a recent New England Commission report on small-dam safety provided the basis for new legislation in Massachusetts which assures periodic inspection and maintenance of hundreds of private dams throughout the State.

Additionally, one of the results attributable to the Long Island Sound study was the States of New York and Connecticut, the Corps of Engineers and the Environmental Protection Agency reaching agreement on a dredged spoil disposal policy for the area. In the Missouri Commission the Platte level B study led, among other things, to Nebraska updating its water laws, setting a policy on instream flow, as well as deciding to conduct several studies and developing new State legislation on surface and groundwater relationships and management. The Ohio main stem study had a significant offshot. The Commission led an effort to gain agreement—which is working—between environmental and developmental interests on development and preservation in wetland areas of the Ohio. Prior to the agreements there had been very sharp disagreements and costly delays. Something similar has happened in the Pacific Northwest—environmental and developmental conflicts have been resolved by the Commission's efforts as a part of the Columbia River estuary plan.

The Upper Missisippi Commission's program called GREAT, Great River Environmental Action Teams, has brought about interagency cooperation and coordination among State and Federal agencies unprecedented in this area. This effort, growing out of expressed negative environmental impacts of navigation channel dredging operations has resulted in suspension of legal actions brought against the

Corps of Engineers. Finally, in the Great Lakes region, the Commission negotiated successfully with tribal governments, State agencies, and Federal agencies, an acceptable policy for funding by the Office of Coastal Zone Management for the development of management plans by Indian tribes. This brings significant State shoreland under coastal management plans.

Mr. BEVILL. On page 12 you explain that the New England River Basins Commission will complete a study of hydropower potential in New England. How do you coordinate this study with the Corps of Engineers and the Department of Energy?

Mr. MARTIN. This study has been closely coordinated with the Corps of Engineers and those agencies now comprising the Department of Energy sinces it was originally proposed. The primary impetus for the study came from conclusions of a previously completed corps study of its projects in New England. Those conclusions emphasized the need for a more intensive and comprehensive survey of opportunities for hydropower expansion in New England, including examination of large new hydropower sites and the renovation of old sites. Both the Corps of Engineers and the Department of Energy are currently taking an active part in the development of the plan of study and both agencies have representatives on the study team. In addition, both agencies may serve on study work groups, as setforth in the plan of study.

Mr. BEVILL. What input did the river basin commissions have in the President's water resource policy study?

Mr. MARTIN. The river basin commissions organized and convened the field hearings in Boston, Cincinnati, Minneapolis, Denver, and Seattle. The executive director of the Great Lakes Basin Commission was a member of the water conservation task force. In addition, four river basin commissions developed and submitted detailed comments for the record, which were used by the task force in preparing their reports.

STATE GRANT PROGRAM

Mr. BEVILL. On page 13 you request $3 million for title III planning grants to States. The committee has had a lot of support from Members of Congress and others for an increase in this program. Should we consider increasing this program?

Mr. MARTIN. The planning grant program has a great deal of support from the States. It has been successful in helping the States develop water planning and management capability, evolve State water plans and participate actively in State-Federal planning and coordination efforts. In my written testimony submitted for the record beginning on page 45, I elaborate somewhat more, using comments received from a number of States, on the considered effectiveness of the program. All States are supportive of the program, many however feel that the funding level is insufficient. This is borne out by applications for funding in the current year exceeding $5 million. The administration's position, however, is for $3 million, the same level as provided for fiscal year 1978.

Mr. BEVILL. Mr. Martin, on page 15 you explain what you hope to accomplish in comprehensive planning. Here again you have a lot of narrative, but little of it explains what you have accomplished to date.

What has been accomplished with the funds we appropriated for this program?

Mr. MARTIN. Mr. Chairman, the accomplishments of the comprehensive planning program do need to be described more thoroughly. We have tried to do that in the written testimony which I have just submitted for the record. The accomplishments of the second national water assessment are described on pages 7 to 11 of that testimony, the water for energy program on pages 12 to 17, the regional plans for non-title II RBC areas on pages 34 to 36 and the level B and special studies on pages 36 to 44.

Mr. BEVILL. Mr. Martin, at the top of page 17 you explain that you have $1 million in DOE funds to look at water for energy programs. What have you found out in this program and how critical is the water problem to the energy program? What will happen to the data you develop in this effort?

Mr. MARTIN. Mr. Chairman, our data is pointing out that national efforts to achieve energy self-sufficiency and to control thermal discharges will entail large volumes of fresh water supplies. The energy assessment program indicates that an increment of 1 million acre-feet of water annually will be required to support the amount of geothermal energy development projected for the year 2000 by ERDA. Most of this development would occur in California, Nevada, and Idaho. Projected levels of oil shale development, largely in the upper Colorado River basin, may involve several hundred thousand acre-feet of water annually. The data we develop in the water for energy program will point out the steps necessary to assure the availability of sufficient water supplies to accommodate these technologies. Some of the uses of this data are described further in our written testimony on pages 16 and 17.

COUNCIL FUNCTIONS

Mr. BEVILL. On page 2, you list the Council's functions, 9 of them, but on page A–1 you list 11 functions and these 2 lists differ somewhat. Which of these functional statements should we concentrate on?

Mr. MARTIN. Mr. Chairman, the functions listed on page 2 of our justification document are our attempt to very concisely summarize the functional responsibilities given to the Council by Public Law 89–80, in all three titles. We mention on page 3 that appendix A gives a more detailed review of these summarized responsibilities. Appendix A then elaborates on pages A–1 through A–3 on the definitive responsibilities by each title of Public Law 89–80.

PROGRAM REVIEW

Mr. BEVILL. Provide the committee with a copy of all agency recommendations submitted to the Council as part of the President's water policy review.

Mr. MARTIN. Agency comments have been received on the December 6, 1977, task force reports and a full set of these will be provided.

[The information was provided to the committee.]

Mr. BEVILL. As we discussed earlier, the committee understands that the members of the Water Resources Council will meet March 1, 1978. One of the items to be discussed is to have the Water Resources Coun-

cil review all water resource agency programs during the annual budget process and comment on them to OMB. The Water Resources Council is supposed to develop and recommend policy issues, not review detailed budget programs. Why should the Water Resources Council be involved in annual agency budget requests?

Mr. MARTIN. On March 1, 1978, the Council will consider a proposed policy requiring the field elements of Federal agencies to be consistent with approved regional water resource management plans—approved plans—which the agencies have helped develop.

Because of the complex interrelationships and usage conflicts inherent in decisions affecting limited resources, the States, the Council, and the Congress have often recognized that comprehensive water resource planning is both necessary and desirable. However, comprehensive plans have tended to be a "wish list"—too general, too optimistic as to future funding, too idealized, and, therefore, not realistic. Occasionally, the "gut" issues have not been adequately addressed. As a consequence, the plans are not as effective as they can be and are not utilized as fully as they might be by the States, Federal agencies, and the Congress. The major factor that results in the production of "wish list" plans is the lack of a commitment to the plans by the participants. Such plans are currently not binding on or enforced by anyone. As a result, what is in or out doesn't necessarily affect anyone or anything including the resource the plan is supposed to address.

The Council has addressed this problem in response to its mandate from the Congress contained in section 102 of the Water Resources Planning Act of 1965, Public Law 89–80 as amended. This section requires the Council to "* * * appraise the adequacy of existing policies and programs * * *." In response to this requirement and the ineffectiveness of present comprehensive planning, the Council will be considering a proposed policy at its March 1 meeting.

The policy would require that activities proposed by field elements of Federal agencies—participants in developing, updating, and approving the plan—be consistent with the approved plan. In other words, you—the Federal agency—should be willing to support and implement the plan you develop and approve. Anything short of this kind of commitment results in less effective planning and frustrates the efforts of all participants. The policy also recognizes and provides for the programatic constraint of budgetary limitations, and the necessity for a national overview. It is important to point out that the Council would not review Federal department/agency budgets—they would simply be checked to identify whether or not the consistency of field submissions had been lost during the department-level budget process.

Mr. BEVILL. The President has not submitted his resource policy recommendations to Congress, yet I understand the Water Resources Council may be thinking of recommending that the President issue an Executive order or propose a policy change to be published in the Federal Register. What specifically are you thinking of?

Mr. MARTIN. Since the policy on consistency has not been finalized and adopted by the Council, no decision has been made as to proper mechanisms for publication.

Mr. BEVILL. Why the rush to adopt a major policy such as this prior to the President's consideration of forthcoming recommendations stemming from the national water policy study?

Mr. MARTIN. This policy in no way conflicts with the President's water policy review. The Council recognized this policy was needed and intends to take decisive action to create more effective regional plans and River Basin Commission mechanisms. Further, the immediate adoption of this policy was recommended in the October 11, 1977, GAO report you mentioned earlier. The Council recognizes the importance of the proposed policy on consistency and is proceeding in a very thoughtful yet timely manner.

Mr. BEVILL. The statement submitted by you states that the Water Resources Council is not a major water resources action agency and it also states that the President wants funding for WRC for 1 more year, so time will be available to develop the best institutional arrangements. That statement doesn't seem to indicate that the Water Resources Council should be a permanent agency with permanent responsibilities, does it?

Mr. MARTIN. The Water Resources Council is not a major water resources action agency in that the role of the Council is one of coordination, planning, and policy analysis, not development or funding of specific water projects or programs. However, because of the number and magnitude of Federal water resource development programs located in several executive branch departments, there is a clearly recognized coordination role which must be performed. My statement reinforces the point that this function is not in question and is indeed essential; but recognizes that both the President's water policy review and reorganization study are evaluating alternative options for managing national water resources at the Federal level. As a result, some changes may be recommended regarding the mechanism for performance of this function.

Mr. BEVILL. Will the procedures create additional bureaucracy in the agencies and WRC? Will they create yet another layer of bureaucracy and redtape between agencies, OMB, and the Congress?

Mr. MARTIN. This administration is committed to reducing both redtape and self-serving bureaucracy. The draft procedures are in response to the need for full and effective participation of Federal agencies and a degree of nationwide uniformity. Such procedures are called for in section 103 of the Planning Act and also will contribute to the fulfillment of missions of the individual agencies. No new levels of bureaucracy will be created. Furthermore, the decisionmaking of the States, Federal agencies—including the Council and OMB—and the Congress should be facilitated by having more accurate, complete, and uniform information. Most important would be the further integration of quality and quantity activities so actively sought.

Mr. BEVILL. How many additional jobs will be needed to do this work?

Mr. MARTIN. The estimate of manpower required to carry out the policy on consistency is very small—about 1 to 2 man-weeks per agency per year. Estimates of manpower required to carry out the procedures will be made during their refinement.

Mr. BEVILL. Doesn't Washington-level review of a regional plan on an annual basis "in consultation with affected States" duplicate the roles and purposes of title II chairmen and the U.S. Commissioner of DRBC and SRBC, or undermine their effectiveness?

Mr. MARTIN. The Council is required by section 104 of the act to review every regional plan prepared and approved by a river basin

commission formed under title II of the act. No duplication of role, purpose or undermining of effectiveness would result. Rather, the contrary is expected.

The Council does envision "consultation with the affected States" on regional plans where no regional entity such as a river basin commission exists.

Mr. BEVILL. Are the procedures yet another hurdle for funding water projects or programs?

Mr. MARTIN. Absolutely not. It is our belief that such procedures will make the planning process more rigorous and complete and thereby reduce the overall time and effort now required between concept and delivery for controversial projects as well as reduce the potential for unwise Federal investment. The draft material does not address project or program justification criteria.

Mr. BEVILL. How can congressionally authorized local projects—even major ones—ever be certified for high priority by a regional entity when regional entities, by their very nature, must place overriding concentration on regional problems? If WRC undertakes the certification and prioritization process, how will it give high priority to such projects?

Mr. MARTIN. RBC's are required by the act and are developing comprehensive regional water resource management plans and recommending long-range priorities on data collection, studies, and projects. Problems investigated and project solutions identified are local, State, or regional in geographic scope. However, project evaluation and justification are based on national benefits and costs. Consequently, priorities can be established among projects, and purely local projects are not omitted or given low priority simply because of their local—geographical—nature. That attention to local concerns is present in the commissions now and the proposals the Council has under consideration would not change that.

The policy under consideration in the Council would assure that projects recommended by the agencies are based on the plan and that field level budget recommendations were consistent with the priorities and objectives of the plan. The WRC would not certify or prioritize projects. However, it would assure that the implementation of the plan did not get out of phase with the development of departmental budgets based on those field requests.

Mr. BEVILL. Was this truly the type of thing Congress intended in granting WRC authority (1) to develop principles and standards in Public Law 89–80, and (2) to fund comprehensive river basin plans in Public Law 92–500?

Mr. MARTIN. Yes, Mr. Chairman, we believe that it is fully within the intent of the Congress. It would take me some time to fully develop that for you, however, and I would like, with your permission, to furnish a statement for the record.

[The statement follows:]

FEDERAL CONSISTENCY AUTHORITY

Part of the material of the March 1 agenda item is directly taken from specific language in the act and part is based on the statement of policy in section 2 as well as the Senate Select Committee recommendations of 1961 which provides additional congressional background and intent. Section 103 clearly provides for

procedures for Federal participants in the preparation of comprehensive regional or river basin plans. The draft procedures are intended to fulfill this requirement.

The portion of the March 1, 1978, agenda dealing with consistency of Federal actions with approved regional plans is not required by a specific provision of the act. It derives from the entire act taken as a whole—the policy statement, emphasis on regional or river basin plans, improving State planning, a nationwide assessment, refinement of Federal policies and programs, and from the conviction that the region is closer to the problems than the departments in Washington are. Regional plans, developed with full participation of Federal members following standard procedural guidance (and the principles and standards for project formulation and evaluation) become the instrument for decision. Recommendations on appropriations would be based on these plans. Recommendations for project and program authorization would also be based on these plans. The Senate select committee report of January 31, 1961, recommended that future reports on specific projects submitted to Congress for authorization should specify how the project fitted into the comprehensive plan.

We believe that the Congress in its passage of Public Law 89–80 intended to bring both comprehensive coverage and coherence into the management of water and related land resources. The establishment of the river basin commissions was a new approach that is proving to be successful. The States grant program is not unique but was and remains a vital part of the overall scheme.

Subsequent to the passage of Public Law 89–80, the Congress has enacted many far-reaching pieces of legislation. Among these, for example, are NEPA and the Water Pollution Control Act Amendments of 1972, Public Law 92–500. These are powerful expressions by the Congress of policy and direction based on its interpretation of the Nation's needs. These and other policies and programs need the integrating mechanisms provided through the Water Resources Planning Act.

The matter toward which we are directing our efforts on March 1 is part of an overall thrust toward: streamlining the Council operation; improving the effectiveness of comprehensive planning through adoption of an explicit Council policy statement that these plans will be decision instruments; developing guidance to bring uniformity into the broad planning processes, and to assure appropriate consideration at the regional level of national concerns; and, ultimately, recommending initiatives as well as appropriate legislative corrections that are well founded and precisely formulated.

Mr. BEVILL. Any other questions?

The committee will stand adjourned then until 10 o'clock in the morning.

THURSDAY, FEBRUARY 23, 1978.

DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

WITNESSES

GUY R. MARTIN, ASSISTANT SECRETARY, LAND AND WATER RESOURCES
R. KEITH HIGGINSON, COMMISSIONER
D. D. ANDERSON, ASSISTANT COMMISSIONER, ADMINISTRATION
C. I. BARRETT, ASSISTANT COMMISSIONER, PLANNING AND OPERATIONS
R. B. JANSEN, ASSISTANT COMMISSIONER, ENGINEERING AND RESEARCH
D. A. GIAMPAOLI, DIRECTOR, OFFICE OF DAM SAFETY, ENGINEERING AND SCIENCE
E. LONDON, ASSISTANT SOLICITOR
W. D. BETTENBERG, DEPUTY DIRECTOR OF BUDGET, OFFICE OF THE SECRETARY

Mr. BEVILL. The committee will come to order.

GENERAL STATEMENT

Mr. Secretary, we are glad to have you here with us this morning, and Commissioner Higginson, you and your staff. You may proceed as you wish.

Mr. MARTIN. Mr. Chairman, I have no further statements, other than those made yesterday, and to try to help you out as I can, and I would just let the Commissioner proceed.

Mr. HIGGINSON. Mr. Chairman, I would like to introduce the other personnel from the Bureau of Reclamation at the witness table.

On my far right is Mr. Cliff Barrett, Assistant Commissioner, Planning and Operations; on my immediate left is Mr. Don Anderson, Assistant Commissioner for Administration: and to his left is Mr. Bob Jansen, Assistant Commissioner for Engineering and Research: and on the end is Mr. Don Giampaoli, Director, Office of Dam Safety, Engineering and Science.

We also have other Bureau personnel available in case there is a technical question that we need some further enlightment on.

Mr. Chairman, with the use of slides we will highlight the administration's fiscal year 1979 budget request for the Bureau of Reclamation.

The budget requests totals $618 million. Of that total construction activities will require $480 million, a decrease of $70.7 million from 1978. Operation and maintenance requirements total $87.9 million, an increase of $9.5 million, and general investigations will utilize $22.2 million, a decrease of $2.9 million. Other activities, including administration and permanent appropriations, will require $27.9 million, an increase of $1.6 million.

CONSTRUCTION PROGRAM

The construction request includes $419 million for regular project construction, $28 million for drainage and minor construction, $5 million for rehabilitation and betterment of existing projects, $5 million for advance planning work, and $23 million for construction of projects under the loan program. This request does not contain any new construction starts. These funds are generally sufficient to keep projects on schedule with the completion dates proposed in last year's budget, or as accelerated by fiscal year 1978 appropriations actions.

CENTRAL VALLEY PROJECT

The Central Valley project, California, has the largest construction fund request of any single project, $105.1 million.

This shows a partially completed section of reinforcement cage for Stone Corral Creek siphon on reach 6 of the Tehama-Colusa Canal.

WESTLANDS IRRIGATION DISTRIBUTION SYSTEM

Work also will continue on the Westlands irrigation distribution system. Here, 48-inch pipes are ready to be placed in the adjacent trench during construction activity for a few miles west of Firebaugh, Calif.

AUBURN-FOLSOM SOUTH UNIT

On the Auburn-Folsom south unit, we are requesting $13.4 million, which will provide for continued studies on Auburn Dam and the continued construction of Sugar Pine Dam which we expect to start this fiscal year.

CENTRAL ARIZONA PROJECT

The second largest construction request is $73.8 million for the central Arizona project.

This is a view looking downstream inside the partially completed Buckskin Mountain Tunnel. Electric transformers, and air, water, and discharge lines are seen at the left, and a laser which is used for alinement purposes is at the right center of the slide.

SALT RIVER SIPHON

Here, Ameron's Pipemobile is shown placing a concrete section on the southern end of the Salt River siphon. Each pipe section has a 24½-foot outside diameter and weighs up to 225 tons.

COLORADO RIVER BASIN SALINITY CONTROL PROJECTS

A total of $42.3 million is requested for construction on the Colorado River Basin salinity control projects to enhance and protect the quality of water in the Colorado River for use in the United States and Mexico.

This is an aerial view of the Yuma desalting test facility located 14 miles east of Yuma, Ariz.

COACHELLA CANAL

Here is a section of the existing unlined Coachella Canal. Approximately 49 miles of this canal will be replaced with a new concrete lined canal. This replacement will decrease the water surface exposed to evaporation and eliminate seepage into the groundwater basin.

TITLE II, CONSTRUCTION

Under title II, construction will continue on the Grand Valley unit, the Las Vegas Wash unit, and the Paradox Valley unit. These are salt deposits near the Government Highline Canal on the Grand Valley unit. Construction on this unit would prevent drainage water from these deposits from entering the Colorado River.

COLUMBIA BASIN PROJECT

Funds totaling $42.5 million are requested for the Columbia Basin project. These funds will provide for additional construction on Bacon siphon and tunnel No. 2 and completion of modifications on the 115-kilovolt and 500-kilovolt switchyards for the third powerplant. This is the inlet portal of the second unit of the Bacon Tunnel.

SOUTHERN NEVADA WATER PROJECT

A total of $38.3 million are requested to continue work on the second stage of the southern Nevada water project. This stage will have a capacity of delivering 166,800 acre-feet annually from Lake Mead to the service area of Las Vegas and vicinity.

FRYINGPAN-ARKANSAS PROJECT

On the Fryingpan-Arkansas project, a total of $26.2 million will be used for contracts awarded on the Fountain Valley municipal water system, control equipment, and testing at the Mount Elbert pumped storage powerplant. This shows construction on the 90-inch diameter Mount Elbert conduit which will transport water about 10 miles from Turquoise Lake to the Mount Elbert pumped storage powerplant forebay.

CENTRAL UTAH PROJECT

We are requesting $37.4 million for continuation of work on the Bonneville and Jensen units of the central Utah project and advance planning on the Uintah and Upalco units. This is an artist's concept of Red Fleet Dam and Tyzack pumping plant on the Jensen unit.

DRAINAGE AND MINOR CONSTRUCTION

In the drainage and minor construction activity, we are requesting $3.1 million to initiate modification of a number of older structures on the safety of dams programs.

This is Lahontan Dam in Nevada which was completed in 1915. Note the exposed reinforcing bars. This damage will be repaired under this program. In other cases, the height of dams will be raised or the spillways will be enlarged.

Studies completed to date have identified 13 dams, including the 5 we are seeking funds for, which require additional construction for safety purposes.

REHABILITATION AND BETTERMENT

We are requesting $5 million for rehabilitation and betterment work on 11 projects which have been in operation for many years. It has become excessively expensive to maintain these particular projects in sound operating condition. This shows a lateral in serious need of rehabilitation.

This shows a typical example of a lateral after rehabilitation has taken place.

OPERATION AND MAINTENANCE

The operation and maintenance request includes $87.9 million for regular operation and maintenance activities. Increased requirements over 1978 are due largely to high labor, material and equipment costs, and new facilities coming into service.

One of our major requirements is for replacements and additions to facilities to insure their continued efficient operation. This is a closeup view of a deteriorated turbine runner in the Arizona powerhouse at Hoover Dam. These carbon steel runners are being inspected and replaced as necessary.

This is erosion occurring on Willow Creek on the Sun River project in Montana. Erosion control work is planned here for fiscal years 1978–83 under the soil and moisture conservation program.

We will take over operation and maintenance of recreation facilities at several areas, although as a general policy, recreation facilities are managed by others. This is an example of inadequate restroom facilities at Ocean Lake in Wyoming which the Bureau inherited when the recreation management of the reservoir was relinquished by the State of Wyoming. This is a typical problem at all reservoirs returned to the Bureau for recreation management.

GENERAL INVESTIGATIONS

The general investigations request includes $14.3 million for plan formulation studies and $7.9 million for research and geothermal investigations.

Appraisal, feasibility and special investigations will continue to emphasize energy, total water management potentials, and municipal and industrial water supplies.

Funds are requested to initiate 18 new investigations which will consist of investigation for hydropower expansion at a number of sites. Many of these sites were identified in the western energy expansion study which was completed last year. Among these studies are an appraisal study for a powerplant at Yellowtail Afterbay Dam, shown here, and a feasibility study for generation at the outlet of Blue Mesa

Dam in Colorado, shown here. Initiation of these 18 studies will necessitate a stretchout of completion dates on a number of other studies already underway.

RESEARCH

Research in the Bureau of Reclamation is conducted to support our activities in the water resource development area. This hydraulic laboratory model shows a hydraulic jump and the increased water elevation which results when water velocities are suddenly reduced. Such studies will determine the canal depths required to contain the flow.

Here, polymer concrete, a relatively new material, which shows great promise as a repair material for concrete structures, is being applied at the Bureau's Shadow Mountain Dam spillway in Colorado as a research demonstration project.

The 1979 atmospheric water resources management research program will include comprehensive research at all three high plains sites with cloud seeding experiments at Miles City, Mont., and evaluation of downwind seeding effects in the North Dakota, South Dakota, and Montana areas.

This is a typical manually operated silver iodide generator, which is easily accessible for ignition and maintenance.

DEPARTMENT OF ENERGY TRANSFER

It would be appropriate to note at this point that some portions of our program have been transferred to the new Department of Energy as a result of Public Law 95–91, the authorization for the new Department.

In this connection, a total of 991 permanent personnel were transferred. Transfers of funds for fiscal year 1978 include $96.9 million for construction, operation and maintenance and associated work.

WATER PROJECT REVIEW

It would also be appropriate to summarize for you the treatment in the 1979 budget of those projects whose funding was cut out last year as a result of the water project review. There is no money in the budget for the Fruitland Mesa and Savery-Pot Hook projects and the Narrows and Oahe units of the Pick-Sloan Missouri basin program. These are the four reclamation projects where Congress accepted the President's recommendations to delete fiscal year 1978 funding. Minor programs are underway in fiscal year 1978 on Savery Pot-Hook and Fruitland Mesa which will lead to a closeout of these projects.

AUBURN-FOLSOM SOUTH UNIT

On the Auburn-Folsom south unit, funds provide for the continuation of studies on the Auburn Dam safety problem, but no funds are required for the prime construction contract on the dam.

If the questions can be satisfactorily resolved, start of construction will be proposed.

GARRISON DIVERSION UNIT

On the Garrison diversion unit, a draft report has been sent to the Congress in compliance with the May 11, 1977, stipulation and order. At the same time, draft legislation to effect authorization of the modified plan described in the report has been sent to the Office of Management and Budget for clearance and submission to the Congress.

STUDIES ON NARROWS AND OAHE PROJECTS

Now, the prepared statement does not mention, but we are continuing to resolve the questions raised in the water project review on the Narrows and Oahe projects with carryover money. No new funds are requested on these projects.

SAFETY OF DAMS PROGRAM

Other problem areas that should be brought to your attention include the need to obtain increased appropriations ceilings for two projects and new authorization for safety of existing dams. Last year the Congress granted an increase in the ceiling for the San Luis distribution and drainage system sufficient to cover work commitments in fiscal year 1978 with the provision that a task force review the project and report back to the Congress. The task force report was submitted on December 31, as scheduled.

A further increase in the appropriation ceiling will be necessary this year if construction is to continue on new work. We will also be seeking an increase in the appropriation ceiling for title I of the Colorado River Basin salinity control project. In addition, new authorization will be required for the safety of dam program which will affect five projects in fiscal year 1979.

REORGANIZATION PLAN

Not necessarily a budget matter, but one of general interest, is a reorganization plan now being implemented within the reclamation. Several significant actions have been or will be undertaken. A position of Deputy Commissioner has been established to assist the Commissioner in administering the program. The roles and locations of the Assistant Commissioners has been changed.

The position of Assistant Commissioner for Engineering and Research was established in Denver, and has responsibility for design, construction, and geology and research. The position of Assistant Commissioner for Planning and Operations was established here in Washington with the responsibilities for planning functions; foreign activities; youth and young adult conservation programs, and water, land, and power operations.

The position of Assistant Commissioner for Administration and his responsibilities will remain the same. In implementing this plan, we envision that few personnel moves will be required. Personnel presently located here in Washington will remain for the most part but will address themselves more fully to policy issues facing the Bureau instead of technical matters.

Arising out of the organizational reviews of the past year and the Teton Dam failure was the demonstrated need for an independent Office of Dam Safety. We have now established such an office, and in the coming months will be clarifying and defining its role.

We have also offered assistance to the States in the development and improvement of their dam safety programs. Our intention is to have all future designs for major storage dams evaluated by independent groups of engineers and/or geologists.

There are two other areas I would like to mention before I conclude. These are the drought throughout the West in 1977, and a followup on the Teton Dam disaster.

DROUGHT RELIEF

The Congress appropriated $130 million for drought relief grants and loans to States, Federal and non-Federal Reclamation projects, and individual farm operators and requests for $84.2 million were approved.

An example of the use of these funds is the pumping of drainage waters back into conveyance systems as shown here. This allows utilization of the available water supply in the most efficient manner. These funds were provided to the recipients through the cooperation of other Federal agencies as well as many State and local governments.

TETON DAM

With regard to the Teton Dam disaster, the Teton Dam Damages Compensation Act authorized compensation of death, injuries and property loss resulting from the failure of the dam. This shows home reconstruction within the flooded area. As of February 10, 1978, claims for slightly over $363 million had been received. As of the same date, claims had been processed for awarding a total of $230 million. This assistance has been coordinated with several State and Federal agencies.

BENEFITS FROM RECLAMATION PROGRAMS

Throughout our 75-year history, approximately $11 billion has been appropriated for Bureau of Reclamation to develop and manage the water resources of the West for the benefit of millions of people. In 1976, the population directly served by Bureau of Reclamation projects reached a record high of 18.1 million.

Food, fiber and forage production also reached a new record of 59.1 million tons.

Recreation use reached 62.4 million visitor-days, and flood control benefits totaled $52.8 million.

Electricity generated for sale by Bureau of Reclamation in fiscal year 1976 added up to 60.9 billion kilowatt-hours.

It is estimated that net economic or business activity attributable to Bureau of Reclamation totaled $12.1 billion in 1976. Personal income and corporate profits derived from this activity totaled $7.4 billion and $1.6 billion respectively.

In addition, this economic activity generated $1.9 billion in internal revenues accruing to the Federal Government, and nearly $1 billion in State and local tax revenues, as well as 700,000 man-years in additional employment.

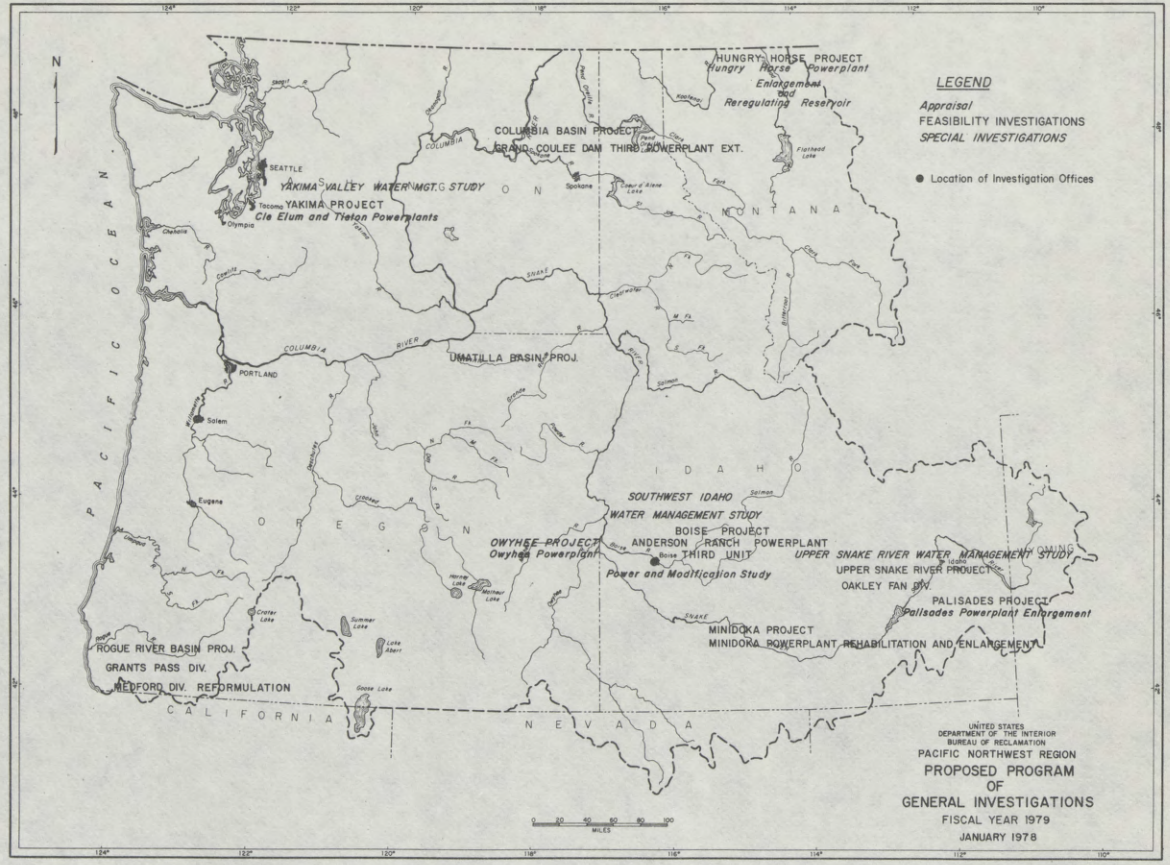
CONCLUSION OF OPENING REMARKS

In conclusion, we fully support the administration's appropriation request of $618 million for the Bureau of Reclamation in fiscal year 1979.

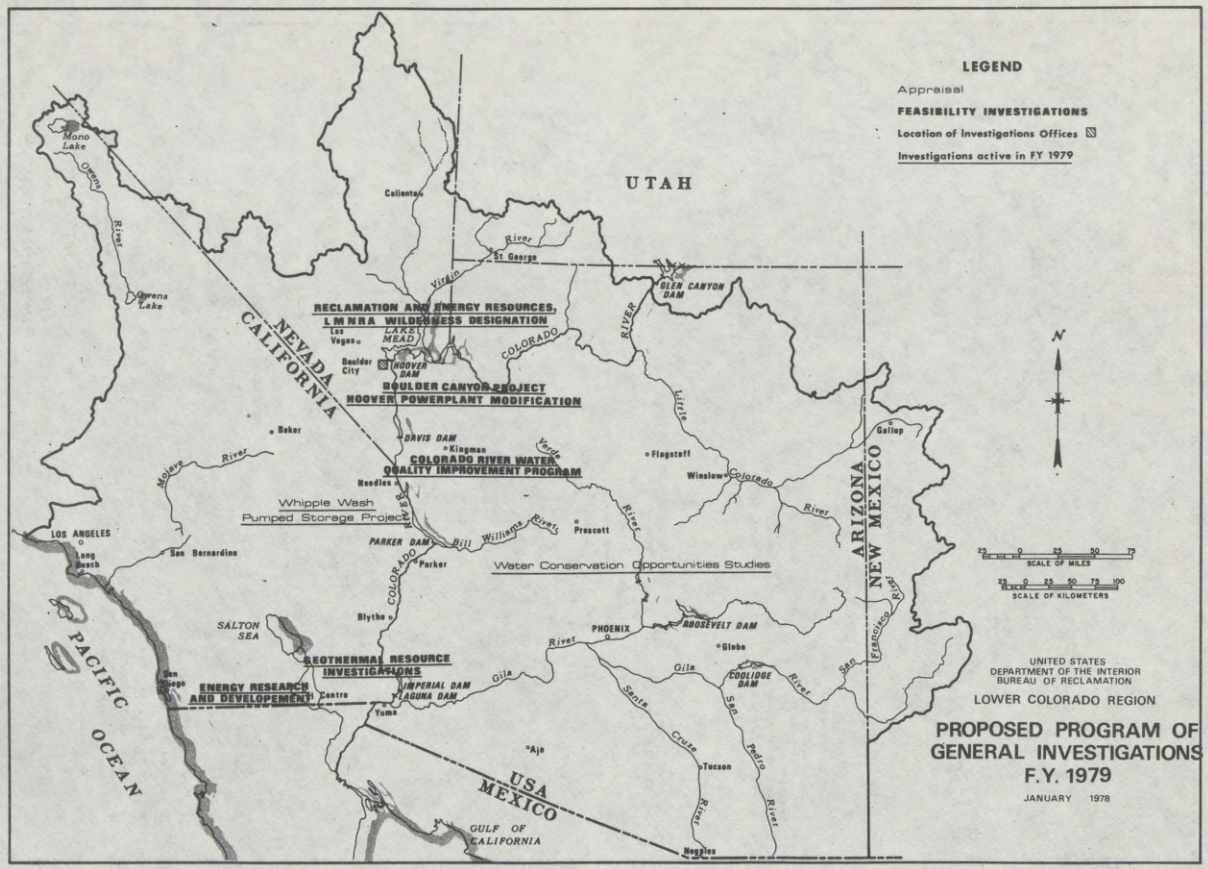
This concludes my opening remarks, and we will now be pleased to answer any questions you may have.

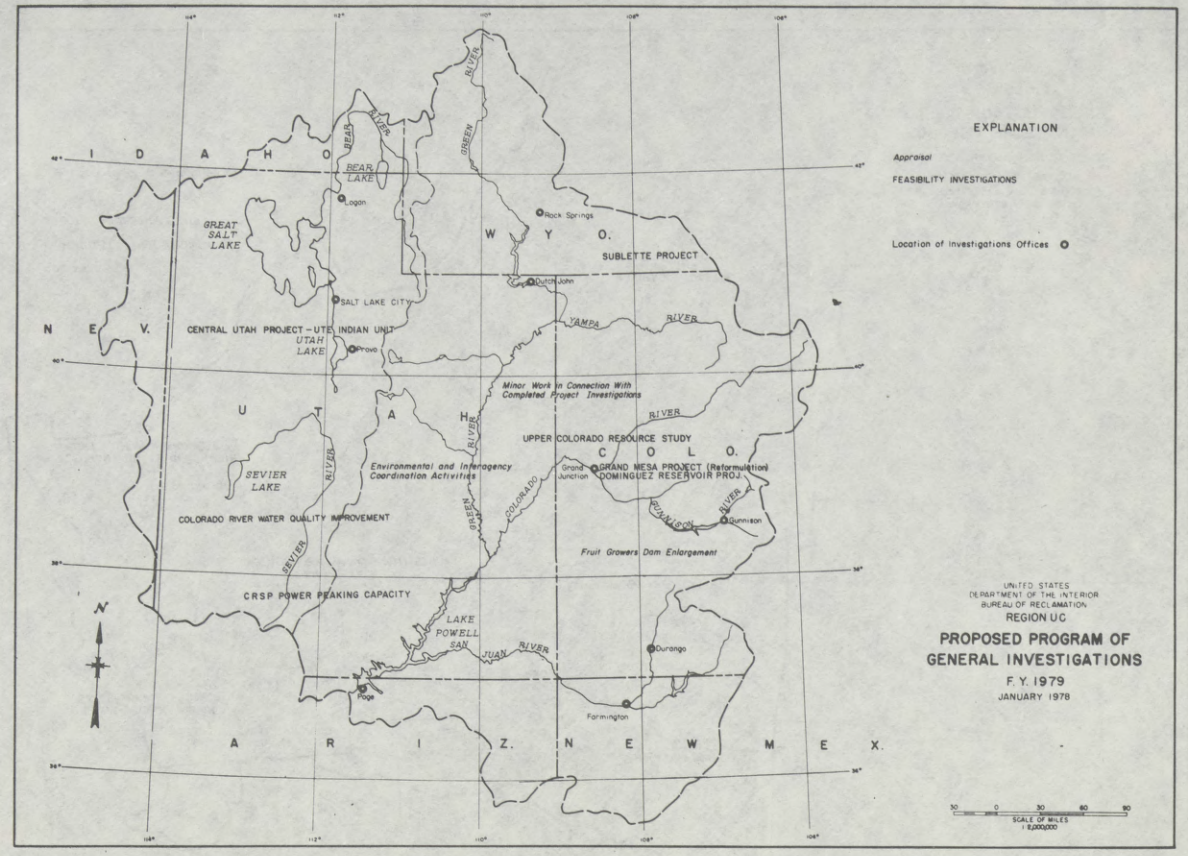
Mr. BEVILL. Thank you, Commissioner, that is a very fine presentation. We will place the justifications in the record.

[The material follows:]


LEGEND
Appraisal
FEASIBILITY INVESTIGATIONS
SPECIAL INVESTIGATIONS
Location of Investigation Offices
HUNGRY HORSE PROJECT
Hungry Horse Powerplant
Enlargement and Reregulating Reservoir
COLUMBIA BASIN PROJECT
GRAND COULEE DAM THIRD POWERPLANT EXT.
YAKIMA VALLEY WATER MGT. STUDY
YAKIMA PROJECT
Cle Elum and Tieton Powerplants
UMATILLA BASIN PROJ.
SOUTHWEST IDAHO
WATER MANAGEMENT STUDY
BOISE PROJECT
ANDERSON RANCH POWERPLANT
THIRD UNIT
OWYHEE PROJECT
Owyhee Powerplant
Power and Modification Study
UPPER SNAKE RIVER WATER MANAGEMENT STUDY
UPPER SNAKE RIVER PROJECT
OAKLEY FAN DIV.
PALISADES PROJECT
Palisades Powerplant Enlargement
MINIDOKA PROJECT
MINIDOKA POWERPLANT REHABILITATION AND ENLARGEMENT
ROGUE RIVER BASIN PROJ.
GRANTS PASS DIV.
MEDFORD DIV. REFORMULATION
PACIFIC OCEAN
SEATTLE
Tacoma
Olympia
PORTLAND
Salem
Eugene
Spokane
Boise
Idaho
Crater Lake
Summer Lake
Lake Abert
Goose Lake
Harney Lake
Malheur Lake
Flathead Lake
COLUMBIA RIVER
SNAKE RIVER
MONTANA
IDAHO
OREGON
CALIFORNIA
NEVADA
WYOMING
MILES
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
PACIFIC NORTHWEST REGION
PROPOSED PROGRAM
OF
GENERAL INVESTIGATIONS
FISCAL YEAR 1979
JANUARY 1978


Klamath Falls
KLAMATH PROJECT
BUTTE VALLEY DIVISON
Eureka
CLAIR ENGLE LAKE
SHASTA LAKE
Redding
WHISKEYTOWN LAKE
Whiskeytown Powerplant Study
Keswick Powerplant Enlargement
Red Bluff
Red Bluff Diversion Dam Powerplant
WEST SACRAMENTO CANAL UNIT REFORMULATION
Stony Gorge-East Park Powerplants
Sacramento River-Drainage & Seepage Utilization Investigation
SACRAMENTO RIVER
GEOTHERMAL INVESTIGATIONS
SUSANVILLE GEOTHERMAL INVESTIGATION
HUMBOLDT RIVER
PITT-TAYLOR
Lovelock
Reno
STAMPEDE
BOCA
PROSSER CR.
NEWLANDS PROJECT (R & B)
LAHONTAN
LAKE TAHOE
Boca-Prosser Powerplants
CARSON CITY
LAHONTAN BASIN TOTAL WATER MANAGEMENT STUDY
AUBURN
FOLSOM LAKE
LAKE BERRYESSA
SACRAMENTO
COSUMNES RIVER DIVISION REFORMULATION
Calaveras County Division
SOLANO COUNTY WATER PROJECT
CONTRA COSTA CANAL
DELTA SUPPORT STUDIES
KELLOGG UNIT REFORMULATION
SAN FRANCISCO
CENTRAL VALLEY BASIN TOTAL WATER MANAGEMENT STUDY
DELTA-MENDOTA CANAL
SAN LUIS CANAL
SAN JOAQUIN RIVER
San Joaquin Valley Drainage Investigation
TULARE LAKE
Fresno
Friant Powerplants Study
MID-VALLEY CANAL
FRIANT-KERN CANAL
Bakersfield
TWITCHELL
LAKE CACHUMA
Santa Barbara
LAKE CASITAS
VENTURA COUNTY WATER PROJECT
N
MILES
KILOMETERS
Appraisal
FEASIBILITY INVESTIGATIONS
SPECIAL INVESTIGATIONS
GEOTHERMAL INVESTIGATIONS
SUSANVILLE GEOTHERMAL INVESTIGATIONS
Location of investigation offices
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
PROPOSED PROGRAM
OF
INVESTIGATIONS - F Y 1979
MID—PACIFIC REGION
JANUARY 1978


LEGEND
Appraisal
FEASIBILITY INVESTIGATIONS
Location of Investigations Offices
Investigations active in FY 1979
UTAH
NEVADA
CALIFORNIA
ARIZONA
NEW MEXICO
RECLAMATION AND ENERGY RESOURCES, LMNRA WILDERNESS DESIGNATION
BOULDER CANYON PROJECT
HOOVER POWERPLANT MODIFICATION
COLORADO RIVER WATER QUALITY IMPROVEMENT PROGRAM
Whipple Wash Pumped Storage Project
Water Conservation Opportunities Studies
GEOTHERMAL RESOURCE INVESTIGATIONS
ENERGY RESEARCH AND DEVELOPMENT
PACIFIC OCEAN
SALTON SEA
GULF OF CALIFORNIA
USA
MEXICO
Mono Lake
Owens River
Owens Lake
Las Vegas
Boulder City
LAKE MEAD
HOOVER DAM
GLEN CANYON DAM
Colorado River
St George
Virgin River
Kingman
DAVIS DAM
Baker
Mojave River
Needles
Flagstaff
Winslow
Gallup
Little Colorado River
Verde River
Prescott
Bill Williams River
PARKER DAM
Parker
LOS ANGELES
Long Beach
San Bernardino
Blythe
San Diego
El Centro
Yuma
IMPERIAL DAM
LAGUNA DAM
Gila River
PHOENIX
ROOSEVELT DAM
Globe
COOLIDGE DAM
San Francisco River
Santa Cruz River
San Pedro River
Tucson
Nogales
Ajo
SCALE OF MILES
SCALE OF KILOMETERS
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
LOWER COLORADO REGION
PROPOSED PROGRAM OF GENERAL INVESTIGATIONS
F.Y. 1979
JANUARY 1978



UNITED STATES
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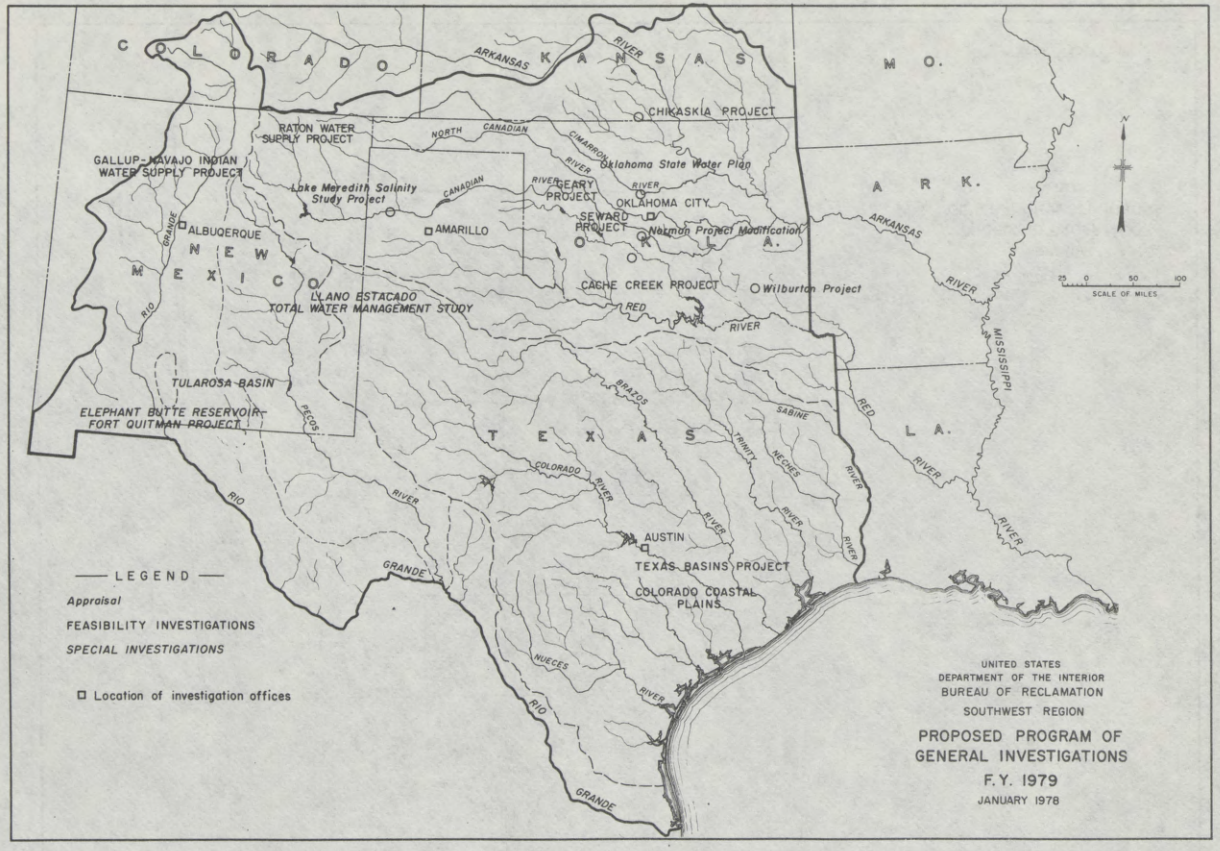
BUREAU OF RECLAMATION
REGION UC

PROPOSED PROGRAM OF GENERAL INVESTIGATIONS

F.Y. 1979

JANUARY 1978


COLORADO
KANSAS
MO.
ARK.
OKLA.
NEW MEXICO
TEXAS
LA.
ARKANSAS RIVER
CHIKASKIA PROJECT
RATON WATER SUPPLY PROJECT
NORTH CANADIAN RIVER
CIMARRON RIVER
Oklahoma State Water Plan
GALLUP-NAVAJO INDIAN WATER SUPPLY PROJECT
Lake Meredith Salinity Study Project
CANADIAN RIVER
GEARY PROJECT
OKLAHOMA CITY
SEWARD PROJECT
Norman Project Modification
ALBUQUERQUE
AMARILLO
RIO GRANDE
LLANO ESTACADO TOTAL WATER MANAGEMENT STUDY
CACHE CREEK PROJECT
Wilburton Project
RED RIVER
ARKANSAS RIVER
MISSISSIPPI RIVER
TULAROSA BASIN
ELEPHANT BUTTE RESERVOIR-FORT QUITMAN PROJECT
PECOS RIVER
BRAZOS RIVER
SABINE RIVER
TRINITY RIVER
NECHES RIVER
COLORADO RIVER
AUSTIN
TEXAS BASINS PROJECT
COLORADO COASTAL PLAINS
HUECES RIVER
RIO GRANDE
SCALE OF MILES
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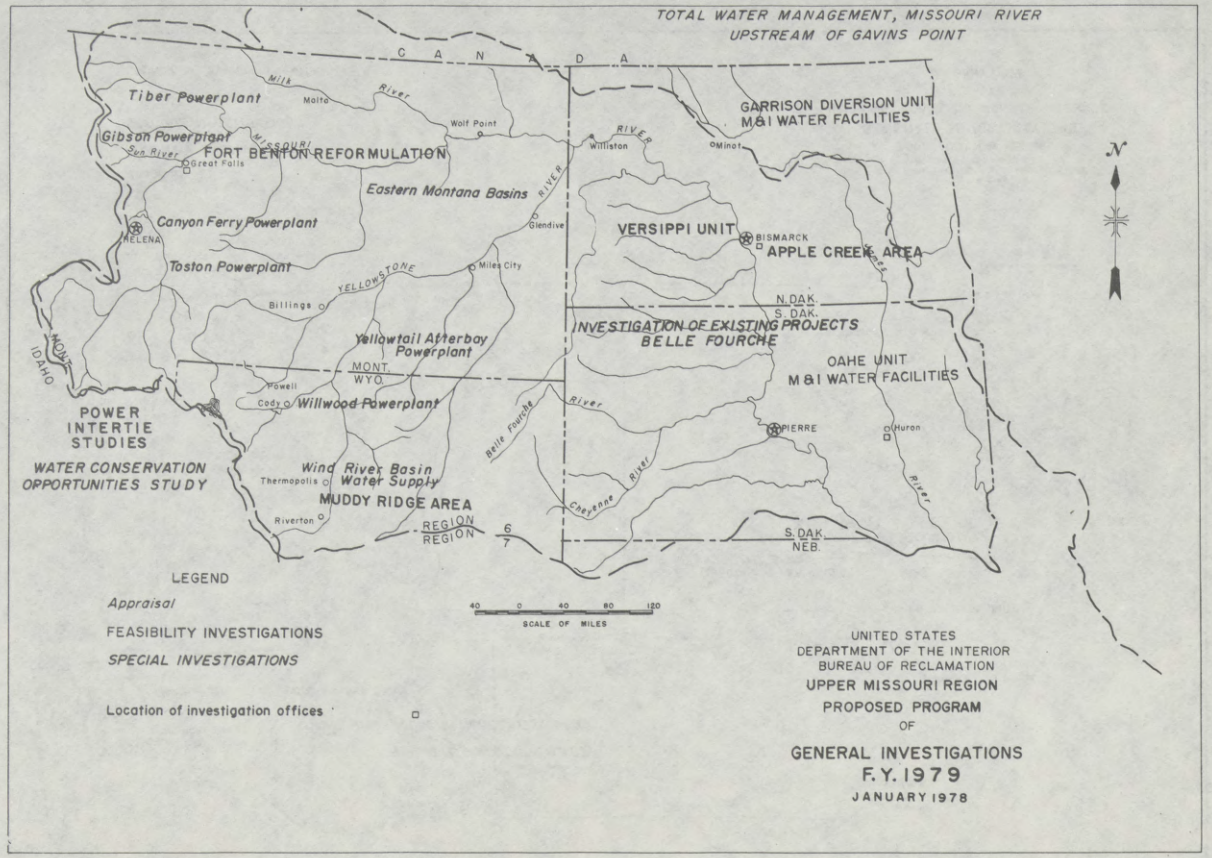
LEGEND
Appraisal
FEASIBILITY INVESTIGATIONS
SPECIAL INVESTIGATIONS
Location of investigation offices
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
SOUTHWEST REGION
PROPOSED PROGRAM OF GENERAL INVESTIGATIONS
F.Y. 1979
JANUARY 1978


TOTAL WATER MANAGEMENT, MISSOURI RIVER
UPSTREAM OF GAVINS POINT
C A N A D A
Milk River
Tiber Powerplant
Malta
Wolf Point
Gibson Powerplant
MISSOURI
Sun River
Great Falls
FORT BENTON REFORMULATION
Eastern Montana Basins
Canyon Ferry Powerplant
HELENA
Toston Powerplant
YELLOWSTONE
Billings
Miles City
Glendive
Yellowtail Afterbay Powerplant
MONT.
WYO.
Powell
Cody
Willwood Powerplant
MONT.
IDAHO
POWER INTERTIE STUDIES
WATER CONSERVATION OPPORTUNITIES STUDY
Wind River Basin Water Supply
Thermopolis
MUDDY RIDGE AREA
Riverton
REGION 6
REGION 7
Williston
Minot
GARRISON DIVERSION UNIT M&I WATER FACILITIES
VERSIPPI UNIT
BISMARCK
APPLE CREEK AREA
N. DAK.
S. DAK.
INVESTIGATION OF EXISTING PROJECTS
BELLE FOURCHE
OAHE UNIT M&I WATER FACILITIES
PIERRE
Huron
Belle Fourche River
Cheyenne River
S. DAK.
NEB.
N
LEGEND
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FEASIBILITY INVESTIGATIONS
SPECIAL INVESTIGATIONS
Location of investigation offices
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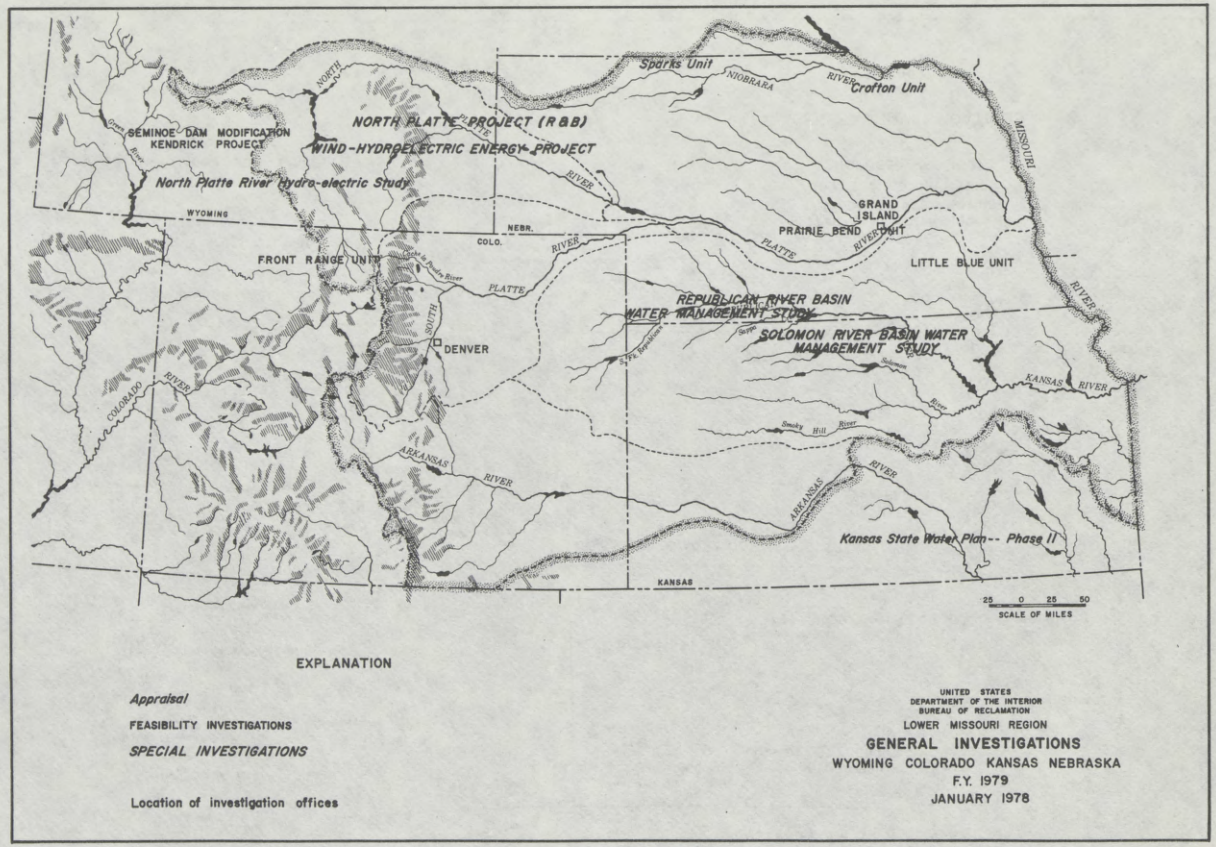
SCALE OF MILES
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
UPPER MISSOURI REGION
PROPOSED PROGRAM
OF
GENERAL INVESTIGATIONS
F.Y. 1979
JANUARY 1978


Sparks Unit
NIOBRARA RIVER
Crofton Unit
MISSOURI RIVER
SEMINOE DAM MODIFICATION
KENDRICK PROJECT
NORTH PLATTE PROJECT (R&B)
WIND-HYDROELECTRIC ENERGY PROJECT
North Platte River Hydro-electric Study
WYOMING
NEBR.
COLO.
NORTH PLATTE RIVER
GRAND ISLAND UNIT
PRAIRIE BEND UNIT
PLATTE RIVER
LITTLE BLUE UNIT
FRONT RANGE UNIT
REPUBLICAN RIVER BASIN
WATER MANAGEMENT STUDY
SOLOMON RIVER BASIN WATER
MANAGEMENT STUDY
DENVER
SOUTH PLATTE RIVER
KANSAS RIVER
COLORADO RIVER
ARKANSAS RIVER
Smoky Hill River
Kansas State Water Plan -- Phase II
KANSAS
25 0 25 50
SCALE OF MILES
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Location of investigation offices
UNITED STATES
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BUREAU OF RECLAMATION
LOWER MISSOURI REGION
GENERAL INVESTIGATIONS
WYOMING COLORADO KANSAS NEBRASKA
F.Y. 1979
JANUARY 1978

GENERAL INVESTIGATIONS

General Statement

Summarized Financial Data:

Fiscal Year 1978		
Appropriation	$25,106,000	
Application of prior year funds	2,620,855	
Total obligations, FY 1978		$27,726,855 1/
Fiscal Year 1979		
Estimate of appropriation	$22,200,000	
Total obligations, FY 1979		$22,200,000 2/

1/ Excludes underfinancing of $1,400,000
2/ Excludes underfinancing of $ 175,000

General Investigations--2

The appropriation for the General Investigations activity provides for the planning by the Bureau of Reclamation of potential developments for the conservation and utilization of the water and related land resources throughout the 17 Western States. This includes:

1. Plan formulation investigations to develop comprehensive plans for the resource development of various river basins or subbasins and to evaluate the engineering and economic feasibility of specific projects as a basis for recommendations to the Congress for authorization of construction including studies of the need for rehabilitation and betterment of existing Reclamation projects.

2. Geothermal investigations directed toward determination of the feasibility of full development of the geothermal resources for all purposes with emphasis on the production of a usable fresh water source.

3. General engineering and research studies to develop improved methods and procedures for planning, construction, and implementation of Reclamation projects through a comprehensive applied research and development program. The efficiency of the planning, construction, operation and maintenance programs and technical fields such as weather modification for augmenting water supplies and energy expansion using pumped storage techniques and geothermal resources are improved significantly through this research program.

The fiscal year 1979 appropriation request is $22,200,000. Public Law 92-149 (85 Stat. 416) makes the activities under the appropriation nonreimbursable.

The activity breakdown of work proposed in fiscal year 1979 compares with the program for fiscal year 1978 as shown in the "Summary by Activities" on the following page. Details of the proposed program are presented in the pages entitled "Schedule of General Investigations Program" which follow the "Summary by Activities."

SUMMARY BY ACTIVITIES

General Investigations—3

Activity	Estimated Total	Total to Sept. 30, 1977	Program FY 1978	Estimate FY 1979	Balance to Complete
PLAN FORMULATION INVESTIGATIONS					
Appraisal Investigations	$ 9,418,364	$ 2,704,543	$ 1,550,821	$ 2,485,000	$ 2,678,000
Feasibility Investigations	61,751,689	32,263,635	9,055,105	5,613,200	14,819,749
Special Investigations	34,807,000	11,291,733	6,151,267	5,787,000	11,577,000
Subtotal - Plan Formulation Investigations	105,977,053	$46,259,911	$16,757,193	$13,885,200	$29,074,749
GEOTHERMAL INVESTIGATIONS					
Geothermal Investigations	18,697,881	7,675,064	3,409,817	555,000	7,058,000
GENERAL ENGINEERING AND RESEARCH					
Water Resources Planning and Engineering Research	65,203,000	32,615,435	3,040,774	2,011,000	27,535,791
Atmospheric Water Resource Management	148,550,000	62,026,116	8,081,080	4,554,185	73,888,619
General Planning Studies	1,898,645	--	338,645	160,000	1,400,000
Energy Research and Development	4,964,000	1,067,835	526,165	441,000	2,929,000
Subtotal - General Engineering and Research	$220,615,645	$95,709,386	$11,986,664	$7,166,185	$105,753,410
Classified Pay Raise (Executive Order 12010)				900,000	
Subtotal - Bureau of Reclamation			$32,153,674	$22,506,385	
Fish and Wildlife Service Carryover			95,495	--	
Distributive charges for service facilities, unliquidated obligations, etc			-3,122,314	-131,385	
Undistributed reduction based on anticipated delays			-1,400,000	-175,000	
Total - Program			$27,726,855	$22,200,000	
Application of prior year funds			-2,620,855	--	
Appropriation or estimate			$25,106,000	$22,200,000	

General Investigations--4

The Bureau's General Investigations appropriation request of $22,200,000 for fiscal year 1979 represents a reduction of $2,906,000 below the fiscal year 1978 total appropriation of $25,106,000. On a program basis the 1979 total of $22,200,000 compares to a 1978 total of $27,726,855; the 1978 amount includes $2,620,855 of prior year funds.

The request for plan formulation activities includes funds for initiation of 18 investigations which emphasize the growing importance of critically needed clean energy supplies. They will examine potential hydroelectric development at existing facilities, expansion of existing hydroelectric powerplants, and integration of potential solar and wind resources into the existing hydroelectric based systems. The addition of powerplants at certain existing Reclamation facilities and enlargement of existing powerplants are very attractive means of developing additional energy.

The 18 investigations are:

Boise Project, Power and Modification Study, Idaho-Oregon (A) 1/
Central Valley Project, Sacramento River Division
  Keswick Powerplant Enlargements, California (A)
  Red Bluff Diversion Dam Powerplant, California (A)
Colorado River Storage Project Power Peaking Capacity
  Generation at Outlet - Blue Mesa, Colorado (F)
  Generation at Outlet - Glen Canyon, Arizona (F)
  Utah Lake Unit, Utah (F)
Gibson Powerplant Study, Montana (A)
Low-Head Hydroelectric Evaluation and Inventory, Western States (S)
Orland Project, Stony Gorge - East Park Powerplants, California (A)
Owhyee Project, Owhyee Powerplant, Idaho-Oregon (A)
Palisades Project, Idaho-Wyoming
  Palisades Powerplant Enlargement (A)
Reclamation and Energy Resources, Lake Mead National
  Recreation Area Wilderness Designation, Arizona-Nevada (S)
Tiber Powerplant Study, Montana (A)
Truckee River Basin Study, Boca-Prosser Powerplants, California (A)
Whipple Wash Pumped-Storage Project, California (A)
Willwood Powerplant Study, Wyoming (A)
Yakima Project, Cle Elum and Tieton Powerplants, Washington (A)
Yellowtail Afterbay Powerplant Study, Montana (A)

The Colorado River Water Quality Improvement Program is continuing. The program is concerned with the development of plans and activities aimed at controlling increases in the salinity of the Colorado River system while optimizing water use. Emphasis has been placed on controlling salinity from point, diffuse, and irrigation sources and in improving water management practices. Feasibility reports on certain component units of the study are scheduled for completion in FY 1980.

The Water Resource Planning and Engineering Research program is directed toward solving problems involved in developing water-related resources. The research results in reduced costs, increased efficiency and reliability, and safety enhancement for planning and construction of water resource projects. Research includes improved planning techniques for water resource projects to help assure that the latest, most applicable techniques are used in Reclamation planning. Engineering research is conducted to provide new knowledge, new techniques, new materials, and to obtain practical answers to problems encountered in designing, constructing, and operating water resources related engineering works.

The Atmospheric Water Resources Management program will continue with funding below the fiscal year 1978 appropriation level. Through pilot project research, the program will demonstrate the feasibility of cloud seeding for precipitation management techniques to provide a significant alternative or accompanying technology for helping to meet critical national resource needs. Goals include increased water supplies and hydroelectric generation resulting from streamflow augmentation, and High Plains summer precipitation augmentation.

The Energy Research and Development program includes studies and research directed toward pumped-storage technology applications and the energy development potential of geothermal resources.

Evaluation of the feasibility of desalting geothermal brines to furnish auxiliary fresh water sources in water deficient areas will continue. The Energy Research and Development Program will include funds for examining the feasibility of concurrent production of electric power and fresh water from geothermal brines and will be fully coordinated with the ongoing geothermal resource investigations.

The details of the Bureau of Reclamation's General Investigations program are on the following pages:

1/ (A) - Appraisal, (F) - Feasibility, (S) - Special

PF-44 (3-76)
Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 19 78 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE
PLAN FORMULATION INVESTIGATIONS						
APPRAISAL INVESTIGATIONS						
Pacific Northwest Region						
Boise Project						
Power and Modification Study	Idaho-Oregon	$650,000	--	--	$150,000	$500,000

The Boise Project is located in southwestern Idaho (Ada, Boise, Canyon, Elmore, Gem, Payette, and Valley Counties) and in eastern Oregon (Malheur County). Principal Bureau of Reclamation facilities include five storage dams, two diversion dams, three powerplants with a combined installed capacity of 36,500 kilowatts, more than 500 miles of irrigation canals and 1,100 miles of irrigation laterals, seven pumping plants, and about 400 miles of drains. These facilities provide irrigation water to about 400,000 acres, as well as providing flood control, recreation, fish and wildlife, and other benefits.

The initial phases of the study would evaluate the potential for (1) adding a hydroelectric powerplant at the existing Arrowrock Dam, as well as the potential for increasing the generating capacity at the existing Boise River Diversion Dam downstream; (2) enlarging the powerplant at the existing Black Canyon Dam; (3) adding a powerplant at the existing Cascade Dam; and (4) meeting instream and other water needs related to the above sites. Various powerplant sizes would be evaluated to arrive at the best plan of development. Alternative river and reservoir operations would be evaluated, including the existing operation, operations to move stored water from Arrowrock Reservoir to Lucky Peak Reservoir in the winter to improve power production at Arrowrock, peaking operations at the potential Arrowrock Powerplant to take advantage of the excellent reregulating potential at Lucky Peak Reservoir immediately downstream, and operations to provide improved streamflows downstream in the Boise River and Payette River systems. If some alterations in reservoir or river operations were found to be desirable, cooperative environmental studies would be carried out with the Idaho Department of Fish and Game, the Fish and Wildlife Service, and other interested entities.

Other phases of the study would evaluate the potential for restoring irrigation service to suburban areas which have water rights but which were developed without irrigation facilities, and for improving existing irrigation systems through provision of pipe systems with sprinkler pressure or other improvements. The potentials for developing additional hydropower generating capacity at other existing Reclamation dams and at other promising sites in the Boise and Payette River basins and for meeting other needs related to the Boise Project and its storage system could also be evaluated.

The addition of a powerplant at Arrowrock Dam was evaluated under the Western Energy Expansion Study, and additional preliminary hydrologic and other studies were made under the current Southwest Idaho Water Management Study. Both studies indicated good potential at the site. The power potential at the Boise River Diversion Dam was briefly analyzed under the Southwest Idaho Water Management Study and needs to be studied in detail in conjunction with the Corps' Lucky Peak hydro proposal and the Arrowrock hydro potential. The potential enlargement of Black Canyon Powerplant and the addition of a hydroplant at Cascade Dam were also briefly analyzed in the Western Energy Expansion Study and found to be desirable.

This appraisal study is a proposed new start in FY 1979 and would be completed in FY 1981.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Pacific Northwest Region - Appraisal Investigations (Continued)						
Chief Joseph Dam Project Colville Indian Reservation and Adjacent Areas	Washington	$178,711	$172,711	$6,000	--	--

The Colville Indian Reservation is in northeastern Washington in the vicinity of the Columbia and Okanogan Rivers. The study is identifying potential solutions to water-related needs of the Colville Indian Tribe in the vicinity of Grand Coulee and Chief Joseph Dams and the tribe and neighboring non-Indian residents in the lower Okanogan River area. Requirements for domestic, municipal and industrial, and irrigation uses will be analyzed and potential action plans will be formulated with emphasis on solving critical reservation needs. In the lower Okanogan River area, Indian water requirements for irrigation are in competition with present and potential non-Indian uses. A purpose of the study is to identify plans mutually acceptable to Indian and non-Indian uses. The tribe is anxious to improve their standard of living throughout the reservation and to achieve greater self-determination through development and management of the natural resources available to them. The Indians are assisting directly in the study. In FY 1975 and FY 1976 contracts were entered into with the Colville Tribe wherein they provided specified services and data needed to accomplish the study.

The appraisal study, which started in FY 1975, was scheduled for completion in FY 1977 but has been rescheduled for completion in FY 1978. The study has identified 17 potential development projects in the area. More time than originally planned has been required to adequately evaluate this many potentials. The total estimated cost has been increased $334 due to a minor adjustment.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Pacific Northwest Region - Appraisal Investigations (Continued)						
Hungry Horse Project Hungry Horse Powerplant Enlargement and Reregulating Reservoir	Montana	$300,000	--	$90,000	$210,000	--

The existing Hungry Horse Dam and Powerplant is on the South Fork of the Flathead River 5 miles upstream from its confluence with the main stem and 20 miles northeast of Kalispell, Montana. The Hungry Horse Project includes a reservoir, dam, powerplant, and switchyard; the dam (concrete thick arch, structural height 564 feet) impounds a reservoir with an active capacity of nearly 3 million acre-feet. Hungry Horse is one of the major projects in the long-range plan for control and use of the waters in the Columbia River basin.

This study would evaluate the provision of additional generating capacity at the existing Hungry Horse Powerplant, including a new downstream regulation dam. The existing powerplant capacity of 285 megawatts (MW) could be increased to about 485 MW. The need for new recreation facilities and areas would be studied. Fish and wildlife, recreation, flood control, and water quality aspects would also be considered, particularly with regard to the operation of the reregulating reservoir to improve the streamflow regime of the Flathead River downstream. The potential for enlarging Hungry Horse Powerplant was evaluated in the Western Energy Expansion Study. Based on that preliminary analysis, the benefits from additional hydropower generating capacity at Hungry Horse would exceed its costs. A study of possible environmental impacts of a new reregulating pool would be made.

Local and State support for the potential Hungry Horse Powerplant Enlargement and Reregulating Reservoir appears to be good. Montana citizens generally support careful resource development, and Flathead basin residents have become extremely interested in protecting and improving their high quality environment. These potential improvements in the Hungry Horse Project are in line with the current preliminary recommendations of the Montana Department of Natural Resources and Conservation and the other members of the Montana State Study Team; since these recommendations and the draft level B plans sponsored by the Water Resources Council for the Flathead River basin were developed only after a planned basinwide public involvement program, the new hydropower installation, and the potential reregulating pool should enjoy broad public support.

This appraisal study began in FY 1978 and has been rescheduled to complete in FY 1979 rather than in FY 1980. The total estimated cost has been increased $50,000 to provide for local level transfers for Fish and Wildlife Coordination Act studies and to cover the October 1976 pay raises (Executive Order 11941).

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 19 78 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE
Pacific Northwest Region - Appraisal Investigations (Continued)						
Owyhee Project Owyhee Powerplant	Idaho-Oregon	$300,000	--	--	$100,000	$200,000

The potential Owyhee Powerplant would be located at existing Owyhee Dam, on the Owyhee River about 30 miles south of Ontario, Oregon. The dam is in Malheur County 28 river miles upstream from the point where the Owyhee River joins the Snake River. Existing Owyhee Project lands are located in eastern Oregon and southwest Idaho. Owyhee Dam and the reservoir it forms (Lake Owyhee) are the key features of the Owyhee Project. Water stored in Lake Owyhee is used to irrigate 110,000 acres, nearly 100,000 acres of which receive full irrigation service. About 70 percent of these lands are in Oregon, and 30 percent are in Idaho. Although originally developed for irrigation, Lake Owyhee also provides important recreation, fish and wildlife, and flood control benefits.

The study will evaluate the potential for adding a 7,000-kW powerplant at the existing Owyhee Dam. The potential Owyhee Powerplant would be located on the left bank of the Owyhee River downstream from the dam. When Owyhee Dam was built, two conduits were installed to permit the future addition of a powerplant. In order to construct a powerplant at the dam, some additional penstock and tunnel construction would be required downstream from the dam. Needs for fish and wildlife, recreation, and supplemental irrigation water may also be analyzed in the appraisal study.

The addition of a powerplant at Owyhee Dam was briefly analyzed under the Western Energy Expansion Study. The analysis was based on rough studies; more thorough hydrologic studies and powerplant sizing would be priority work items in the early phase of the appraisal study. Measures to enhance fish and wildlife habitat in the Lake Owyhee vicinity have been suggested in the past and means of meeting these needs would be analyzed in cooperation with the State and Federal agencies. Because of the increasing public use of Lake Owyhee, present recreational facilities need to be expanded and improved to provide for public health and safety. Reclamation's studies in the 1960's documented potential water shortages on project lands in a series of dry years. These studies identified additional pumping from the Snake River as a potentially favorable alternative.

Public support has been strong for increased hydropower generation in the general project vicinity, particularly in comparison to alternatives such as coal-fired powerplants. Since public opinion in favor of new hydro plants has been particularly favorable where new dams are not required and a free-flowing stream does not have to be sacrificed, support for the potential Owyhee Powerplant should be good.

This appraisal study is a proposed new start in FY 1979 and would be completed in FY 1981.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Pacific Northwest Region - Appraisal Investigations (Continued)						
Palisades Project Palisades Powerplant Enlargement	Idaho-Wyoming	$250,000	--	--	$175,000	$75,000

The existing Palisades Dam and Powerplant are on the Snake River in eastern Idaho about 16 miles downstream from the Idaho-Wyoming State boundary. The project is a multiple-purpose development involving irrigation, power, flood control, recreation, and fish and wildlife conservation. Construction of the project was completed in 1958. The 270 foot-high Palisades Dam impounds a reservoir with a total capacity of 1,402,000 acre-feet, of which 1,202,000 acre-feet is active storage. The 119-MW hydroelectric powerplant at the dam furnishes energy needed in the upper Snake River basin to serve irrigation pumping loads, municipalities, rural cooperatives, and other power users.

The proposed study would evaluate the potential of additional generating capacity at the site. The present powerplant capacity can be increased from 119 MW to 209 MW by adding a new 90-MW powerplant downstream from the existing plant. Based on current hydrology studies, 90 MW is the maximum size powerplant that can be added without more extreme flow fluctuations downstream unless a reregulating reservoir is included in the system. The study would therefore evaluate construction of a reregulation dam downstream from Palisades Dam. With a reregulating pool of adequate capacity, the total generating capacity at the Palisades site could be increased to as much as 300 MW by utilizing the full hydraulic capacity of the existing outlet and power tunnels. There could also be some power potential at the reregulating dam.

Fish and wildlife, recreation, and other possible improvements associated with the potential developments outlined above would be evaluated in response to local problems and needs. The study should also evaluate, at least on a preliminary basis, the potential for enlarging Palisades Reservoir. Because of the reservoir's large surface area (16,100 acres), even a moderate increase in reservoir water surface elevation would create a large amount of new active storage. The entire study would be closely coordinated with the U.S. Fish and Wildlife Service, the Idaho Department of Fish and Game, and other State, Federal, and local agencies with the goal of developing plans which would produce power and other benefits without adversely affecting the fish and wildlife and other resources in this area.

This appraisal study is a proposed new start in FY 1979 and would be completed in FY 1980.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Pacific Northwest Region - Appraisal Investigations (Continued)						
Yakima Project Cle Elum and Tieton Powerplants	Washington	$400,000	--	--	$125,000	$275,000

Existing Cle Elum and Tieton dams are facilities of the Yakima Project in south-central Washington. Cle Elum Dam is on Cle Elum River 60 miles northwest of Yakima, Washington. Tieton Dam is on the Tieton River 40 miles northwest of Yakima. Cle Elum Lake has a storage capacity of 437,000 acre-feet. Tieton Dam forms Rimrock Lake, which has a capacity of 198,000 acre-feet. The two storage facilities are operated to meet irrigation needs. Flood control is also provided on an informal basis. There are no power generation facilities at the sites.

The study will evaluate the potential for installation of powerplants at both dams. A powerplant of about 20 megawatts (MW) at Cle Elum and 30 MW at Tieton will be studied. Potential for pump storage development at the Cle Elum site will be considered.

The potential for powerplants at the two dams was evaluated in the Western Energy Expansion Study. Based on that preliminary analysis, the benefits would exceed costs.

The operating plan considered in the Western Energy Expansion Study involved no change in the present seasonal regulation of the two reservoirs. It is expected that power would be generated as a by-product of the operation that now meets existing storage utilization commitments. Under these conditions, the Cle Elum and Tieton powerplants could generate an average 79 GWH (9 MW of average annual energy) and 88 GWH (10 MW of average annual energy), respectively. Most of the energy would be produced during the irrigation season. Plant sizing and power marketing constraints will be major study items.

The study is expected to have support of the State and public, generally. Some concern will be voiced in regard to at-site environmental impacts since both installations are in scenic areas.

The appraisal study is a proposed new start in FY 1979 and would be completed in FY 1981.

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PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Mid-Pacific Region - Appraisal Investigations						
Central Valley Project						
Calaveras County Division	California	$ 179,073	$ 25,073	$ 104,000	$ 50,000	--

Calaveras County lies on the west side of the Sierra-Nevada Mountains in central California. The county encompasses an area of approximately 660,000 acres that varies in elevation from 200 feet in the west to about 8,000 feet in the east and includes a part of the Stanislaus National Forest. Major portions of the Mokelumne, Calaveras, and Stanislaus Basins are within the study area. The county is in need of a comprehensive plan to meet the water requirements and provide for fishery, water quality, power, and recreation needs. There is a shortage of both agricultural and municipal and industrial water supplies due to inadequate storage and conveyance facilities. There also is considerable opportunity to provide fishery and recreation enhancement as well as hydroelectric power potentials. The county lacks a widely based economy; therefore, few people live there, even though the area has an esthetically pleasing environment. Water resource development would enhance industrial and agricultural industries, as well as municipalities in the area, by providing the water supplies needed, thus alleviating this economic deficiency. This, in turn, also could improve the socioenvironment of a wide area by relieving the pressures of the State's urban cities by attracting people to the foothill area.

The investigation will involve an appraisal of water requirements for the entire county, available water supplies from all sources, including the three major stream systems, New Hogan and New Melones Reservoirs and a rapidly rising recreation-home water requirement, and increasing agricultural demand. Close coordination will be maintained with the county concerning their proposed plans for development of potential hydroelectric power development on the North Fork Stanislaus River.

Calaveras County interests and the Calaveras County Water District have expressed strong interest during the past few years in this investigation being completed at the earliest possible date, as the first important step in the overall development of the county. The appraisal report is scheduled for completion in fiscal year 1979.

Friant Division						
Friant Powerplants Study	California	$ 133,000	--	$ 63,000	$ 70,000	--

Friant Dam is located on the San Joaquin River, 25 miles northeast of Fresno, California, in the foothills of the Sierra-Nevada. The dam (completed in 1942) controls the San Joaquin River Basin's drainage area to meet irrigation requirements of the Friant-Kern and Madera Canals. It operates effectively for flood control and provides downstream releases for fishery and recreation.

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PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE

Mid-Pacific Region - Appraisal Investigations (Continued)

Central Valley Project (Continued)

Friant Division (Continued)

Friant Powerplants Study (Continued)

The purpose of the investigation is to conduct planning studies to determine the feasibility of developing additional electrical energy to meet future growth and existing CVP contractual commitments in northern California by constructing hydroelectric powerplants at the existing Friant Dam. An estimate of hydropower development at the dam indicates that releases to the canals and downstream could produce average annual generation of 130,800,000 kilowatt-hours by construction of three powerplants having a total capacity of 35,700 kilowatts. The study would be conducted in cooperation with other Federal, State, and local agencies.

The Western Energy Expansion Study evaluation team, after a preliminary screening in July 1976 of various potential power projects in the 17 western states, recommended that a high-priority energy study be made of Friant Powerplants in fiscal year 1978. The February 1977 report on the Western Energy Expansion Study listed the Friant Powerplants as second among 27 proposals for feasibility study. The study is justified by the national goal for energy self-sufficiency, increasingly higher costs for alternative sources of energy, renewable and nonpolluting nature of hydroelectric power, and the potential to generate power utilizing water released for other purposes.

At a recent public meeting conducted by the California Energy Resource, Conservation, and Development Commission, the Commission staff members present encouraged adding powerplants at existing dams. The estimated cost has been increased $3,000 to reflect the 1976 pay raise (Executive Order 11941). The 2-year study initiated in FY 1978 is scheduled for completion in fiscal year 1979.

Sacramento River Division

Red Bluff Diversion Dam Powerplant	California	$180,000	--	--	$40,000	$140,000

Red Bluff Diversion Dam is located on the Sacramento River, 2 miles southeast of Red Bluff, California.

The purpose of the investigation is to conduct planning studies to determine the feasibility of developing additional electrical energy by constructing a hydroelectric powerplant at the existing Red Bluff Diversion Dam.

As part of the Central Valley Total Water Management Study, an inventory is underway of dams with possibilities for hydroelectric power development; as a result of the inventory the Red Bluff Diversion Dam is a proposed new start in FY79. House Document No. 73, 83rd Congress, 1st Session, for the Sacramento Canals Unit in 1953, which was the basis for construction of Red Bluff Diversion Dam, included a small power development which could not be recommended for construction at the time because of economic conditions. Under present conditions, development may be favorable.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE

Mid-Pacific Region - Appraisal Investigations (Continued)
Central Valley Project (Continued)
Sacramento River Division (Continued)
Red Bluff Diversion Dam Powerplant (Continued)

The national goal for energy conservation and self-sufficiency justifies the undertaking of the study. In addition, there are the increasingly higher costs for alternative sources of energy, the hydroelectric power is renewable, and there is potential to generate power utilizing water released for other purposes. There is also a need for power development to meet future growth and existing CVP contractual commitments in northern California.

Californians' awareness of the need for hydroelectric power development has been heightened by the effects of the current drought conditions. The study is supported by local interests, and by city, county, and State officials. The 3-year study is scheduled for initiation in FY 1979 and completion in FY 1981.

Shasta Division

Keswick Powerplant Enlargement	California	$ 140,000	--	--	$ 70,000	$ 70,000

Keswick Powerplant is situated 9 miles downstream from Shasta Dam and 3 miles northwest of Redding, California.

The purpose of the investigation is to conduct studies to determine the feasibility of developing additional electric energy by enlarging the existing Keswick Powerplant. The study program will be conducted in cooperation with other Federal, State, and local agencies.

The national goal for energy conservation and self-sufficiency, as well as the increasingly higher costs for alternative sources of energy, the renewable and nonpolluting nature of hydroelectric power, and the potential to generate power utilizing water now released for other purposes all justify undertaking the study. There is also a need for power development to meet future growth and existing CVP contractual commitments in northern California.

City, county, and State officials support the study. Drought conditions have increased citizen awareness of the importance of maximizing hydroelectric power production. The 3-year study is scheduled for initiation in FY 1979 and completion in FY 1981.

Trinity River Division

Whiskeytown Powerplant Study	California	$ 92,000	--	$62,000	$ 30,000	--

Whiskeytown Dam and Lake are located on Clear Creek, a tributary of the Sacramento River, approximately 10 miles west

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE

Mid-Pacific Region - Appraisal Investigations (Continued)
Central Valley Project (Continued)
Trinity River Division (Continued)
Whiskeytown Powerplant Study (Continued)

of the city of Redding. Whiskeytown Dam and Lake were designed as part of a network--completed in 1964--to store and regulate imported waters of the Trinity River Division of Reclamation's Central Valley Project. In addition to regulating and storing water, the lake provides many recreation facilities which are administered by the National Park Service.

The purpose of the investigation is to determine the feasibility of developing additional electrical energy to meet future growth and existing CVP contractual commitments in northern California by constructing a hydroelectric powerplant at the existing Whiskeytown Dam. An estimate of hydropower development at the dam indicates that available downstream releases could produce average annual generation of about 19,500,000 kilowatt-hours through a 4,000 kW plant located at the toe of Whiskeytown Dam. The study is being conducted in cooperation with other Federal, State, and local agencies.

The Western Energy Expansion Study evaluation team, after a preliminary screening in July 1976 of various potential power projects in the 17 western states, recommended that a high-priority energy study be made of Whiskeytown Powerplant in fiscal year 1978. The February 1977 report on the Western Energy Expansion Study listed Whiskeytown Powerplant as third among 27 proposals for feasibility study. The study is justified by the national goal for energy self-sufficiency, increasingly higher costs for alternative sources of energy, renewable and nonpolluting nature of hydroelectric power, and the potential to generate power utilizing water released for other purposes.

At a recent public meeting conducted by the California Energy Resource, Conservation, and Development Commission, the Commission staff members present encouraged adding powerplants at existing dams. The Northern California Power Agency, made up of 11 cities and one electrical cooperative, is actively pursuing new sources of power to meet the growing needs of their members. The estimated cost has been increased $2,000 to reflect the 1976 pay raise (Executive Order 11941). The 2-year study is scheduled for initiation in FY 1978 and completion in FY 1979.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Mid-Pacific Region - Appraisal Investigations (Continued)						
Lake-Yolo Counties Study	California	$116,071	$108,571	$7,500	--	--

The study area is located in Lake and Yolo Counties in northern California. The Lake County area is composed of small mountain ranges with valleys devoted primarily to orchards and grazing. Lake County needs comprehensive water development plans to help meet the water requirements and provide for fishery, water quality, and recreation. Developed water resources in Napa and Lake Counties are primarily used in Solano and Yolo Counties. With this interrelationship, a coordinated regional study approach, including public involvement, is being utilized to plan for future water needs that will maximize use of all available water supplies in the four-county area.

The Yolo County agricultural lands vary from low foothill areas used for dry land pasture and grazing lands, to the flat Sacramento Valley farmlands, now predominantly under irrigation. Yolo County owns Clear Lake water rights located in Lake County and the water is used to irrigate lands in Yolo County. There is a potential for Yolo County to receive their irrigation supplies from the proposed West Sacramento Canal project in lieu of the Clear Lake water. The exchange would provide for more water supply development and higher lake levels at Clear Lake, thus meeting the increasing water needs of Lake County and helping to control eutrophication in the lake.

The Yolo County Flood Control and Water Conservation District and the Yolo County Board of Supervisors have adopted resolutions in support of this study. The Napa County Board of Supervisors has gone on record as supporting the study. There is great interest in the four-county area for resolving mutual water problems which cannot be resolved unilaterally. The study was initiated in FY 1975 and was scheduled for completion in FY 1977 but has been rescheduled for completion in FY 1978 due to the need to emphasize higher priority hydroelectric energy initiatives.

Orland Project Stony Gorge-East Park Powerplants	California	$ 165,000	--	--	$ 30,000	$ 135,000

Stony Gorge Dam on Stony Creek in Glenn County and East Park Dam on Little Stony Creek in Colusa County are located in the Sacramento Valley in the north-central portion of California.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE

Mid-Pacific Region - Appraisal Investigations (Continued)

Orland Project (Continued)

Stony Gorge-East Park Powerplants (Continued)

The purpose of the investigation is to determine the feasibility of developing additional electrical energy by constructing hydroelectric powerplants at the existing Stony Gorge and East Park Dams. The study would be conducted in cooperation with the Orland Unit Water Users' Association and other local, State, and Federal agencies.

Stony Gorge and East Park Dams are included with the dams being inventoried for hydroelectric power development in the Mid-Pacific Region. Stony Gorge Dam was completed in 1928; a powerplant for station use was in operation then, but has since been abandoned.

The Nation's goal of energy conservation and self-sufficiency justifies the need for the study. It is further justified by the increasingly higher costs for alternative sources of energy, the renewable and nonpolluting nature of hydroelectric power, and the potential to generate power utilizing water released for other purposes.

The current drought has intensified the citizens' awareness of the need for water conservation, including hydroelectric power development. The study is supported by local interests, and by county and State officials. The 3-year study is scheduled for initiation in FY 1979 and completion in FY 1981.

Sacramento River Drainage and Seepage Utilization Investigation	California	$ 150,836	$ 114,836	$ 36,000	--	--

The study area encompasses the Sacramento River and adjacent lands between Hamilton City and the Sacramento-San Joaquin River Delta. The area includes portions of Glenn, Colusa, Yolo, Solano, Butte, Sutter, and Sacramento Counties.

A comprehensive solution to the drainage and seepage problems affecting riparian lands of the Sacramento River is needed. The magnitude of seepage problems has led to damage claims against the United States Government in Federal Court in excess of $20 million. A solution to these problems could be formulated so that other benefits could be derived such as improvement of water quality in the Sacramento River; a supplemental water supply for Yolo, Sacramento, and Solano Counties; fish and wildlife water supply along the drainage conveyance system perhaps as far as the Suisun Marsh; and a source of water for industrial uses including water for powerplant cooling which could bring about benefits from reduction in energy consumption (barrels of oil saved) over present drainage disposal methods.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Mid-Pacific Region - Appraisal Investigations (Continued)						
Sacramento River Drainage and Seepage Utilization Investigation (Continued)						
The study is being coordinated with various Federal, State, and local agencies. Public preferences and comments have been obtained through a Citizens Advisory Committee. The study was initiated in FY 1976 and is scheduled for completion in FY 1978.						
San Joaquin Valley Drainage Investigation	California	$ 403,982	$ 187,661	$ 136,321	$ 80,000	--
This study area includes the major portion of the Tulare Basin, San Joaquin River Basin, and the Sacramento, San Joaquin Delta-Suisun Bay area. There is a need to develop a definitive comprehensive plan and appropriate facilities to protect agricultural lands from severe drainage and high salinity.						
The objectives of the San Joaquin Valley Interagency Drainage Program include: (1) Coordination of the ongoing drainage water management activities of the cooperating agencies in the San Joaquin Valley; (2) identification of various alternatives for management of agricultural waste water including reuse for powerplant cooling, aquaculture, marsh management, and Sacramento-San Joaquin Delta outflow; (3) identification of the most urgent drainage problems; (4) evaluation of the possibility of staging construction of master drainage facilities; (5) consideration of reauthorization of the San Luis Unit to include the San Luis Drain as the first phase of a valley master drain facility serving a portion of the Tulare Basin and lower San Joaquin water; (6) consideration of the steps necessary to safely dispose of the waste water; and (7) development of a pilot plant program of discharging drain water into the western Delta and evaluating results.						
There has been a growing concern by the public over the lack of prompt response by governmental organizations in solving the growing problems associated with the agricultural drainage water in the San Joaquin Valley. The State of California Department of Water Resources and the California Water Resources Control Board are participating with the Bureau in a joint-interagency drainage program. Public interest groups and other State and local agencies are interested in the results of the study.						
The total estimated cost was increased by $73,923 in order to predict the impact of drainage discharge during a reoccurrence of the 1928-29 dry year. Minor adjustments - $923. Also, $4,000 has been added to cover the cost of the 1976 pay raise (Executive Order 11941). The report, originally scheduled for completion in FY 1978, has been rescheduled for completion in FY 1979 due to the need to predict the impact of drainage discharge during a reoccurrence of the 1928-29 dry year and due to a delay in completing the initial environmental assessment.						

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PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Mid-Pacific Region - Appraisal Investigations (Continued)						
Truckee River Basin Study						
Boca-Prosser Powerplants	California	$ 180,000	--	--	$ 40,000	$ 140,000

Boca Dam is located on the Little Truckee River. Prosser Creek Dam is located about 1.5 miles upstream from the creek's confluence with the Truckee River. Both dams are located in Nevada County, California, about 27 miles southwest of Reno, Nevada.

The purpose of this investigation is to determine the feasibility of developing additional electrical energy by constructing hydroelectric powerplants at the existing Boca Dam, completed in 1939, and Prosser Creek Dam, completed in 1962. The study would be conducted in cooperation with other Federal, State, and local agencies.

Possibilities for power development at Boca and Prosser Creek Dams were assessed for the Western Energy Expansion Study. The dams are included in an inventory of undeveloped hydropower potential at existing dams in the Mid-Pacific Region now being compiled, and on the list furnished the California Department of Water Resources for an updating of Bulletin 194, Hydroelectric Energy Potential in California, now being prepared.

The study is justified by the national goal for energy self-sufficiency, increasing higher costs for alternative sources of energy, the renewable and nonpolluting nature of hydroelectric power, and the potential for generating power utilizing water released for other purposes.

The Truckee-Donner Public Utility District and other local, county, and State officials support this investigation. The water shortage, because of the drought, has highlighted the need for water conservation and hydroelectric power development. The 3-year study is scheduled for initiation in FY 1979 and completion in FY 1981.

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Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Lower Colorado Region - Appraisal Investigations						
Whipple Wash Pumped-Storage Project	California	$750,000	--	--	$200,000	$550,000

The project is located on Whipple Wash in San Bernardino County, California, about 8 miles upstream from Parker Dam. The purpose of this investigation is to determine the possibilities for the construction of a pumped-storage hydroelectric power project on the Wash. The potential project as envisioned would consist of 4 reservoirs connected by tunnels to a single pumping-generating plant located on the shore of Lake Havasu. The installed capacity would be about 4,600 megawatts, which would provide a weekly generating cycle of 66 hours. The project would require 3 new 500-kV transmission lines, one each to the load centers of Phoenix, Arizona, Los Angeles, California, and Las Vegas, Nevada. Whipple Wash is well suited to a pumped-storage project due to the geologic, topographic, and hydrographic features of the Wash. These features are: (1) the damsites are located in a narrow, steep walled canyon which is suitable to the construction of concrete dams; (2) because the drainage area is small the reservoirs could be designed to control all flooding conditions; (3) because of its proximity to Parker and Davis Dams, Whipple Wash Pumped-Storage peaking power system could be integrated into the Parker and Davis Dams power generating complex; and (4) exposed pre-Cambrian rock would serve as a stable foundation for the construction of each of the potential dams, and therefore, deep alluvial excavations would not be needed. Detailed geologic maps of the area have been prepared by the Geological Survey. These maps will be used as a basis in the geological and foundation explorations of the project features. The investigations will be initiated in fiscal year 1979 with the undertaking of environmental, biological, and socioeconomic studies, and with the initiation of topographic surveys and public involvement programs. A report is scheduled in fiscal year 1981.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Southwest Region - Appraisal Investigations						
Lake Meredith Salinity Study Project	Texas	$369,156	$225,156	$144,000	--	--

The study area is the Canadian River drainage area from Ute Lake, New Mexico, to Lake Meredith, Texas. The concentration of total dissolved solids, sulphates, and chlorides in Lake Meredith has exceeded the levels considered acceptable by the Public Health Service. Lake Meredith is the storage facility for the Canadian River Project which supplies municipal and industrial water to 11 cities. Action needs to be taken to keep the concentration of salty contaminants within limits. Current sampling of water in Lake Meredith indicates high concentrations (300 milligrams per liter) of sulphates and chlorides while the concentration of these salts is relatively low in Ute Lake. The objective of the investigation is to identify sources of the contaminants and explore methods of alleviating the contamination of Lake Meredith.

Studies were started in FY 1972. Fieldwork and resulting analysis of Canadian River water, riverbed alluvium, and subsurface formational data (drillholes; geophysical surveys) has identified an aquifer with salty water under artesian pressure. This aquifer contains water with salt concentrations similar to the sea, and is located at a depth of about 300 feet in an area downstream from Ute Lake. The salty water from the aquifer is suspected to migrate upwards along bedrock fractures into the bed of the Canadian River, and is considered a major source of contamination. An aquifer drawdown test program, involving pumping of the salty water, has been started. Data from the drawdown test are intended to provide estimates of aquifer characteristics and alternative methods of controlling salty aquifer waters. The appraisal report is scheduled for completion in FY 1978. The total cost has been increased $17,873 to provide for additional field data required to define limits of source of contamination and transfers to Fish and Wildlife Service.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Southwest Region - Appraisal Investigations (continued)						
Norman Project Modifications	Oklahoma	$316,000	--	$78,000	$230,000	$8,000

The Norman Project, which consists of Norman Dam and Reservoir (Lake Thunderbird), located on the Little River in Cleveland County was completed in 1966 and is currently providing municipal and industrial water to Norman, Midwest City, and Del City. During this appraisal investigation, the Bureau of Reclamation will determine if detailed investigations are warranted to increase storage at the existing Thunderbird Reservoir. Various operational modes of Thunderbird Reservoir will be analyzed. Depending on the source, availability, and anticipated demands, accomodating additional water supplies in Thunderbird Reservoir could or could not require physical modifications. Several import sources are being considered, including Parker Reservoir, an authorized Corps of Engineers project. Consideration will be given to conjunctive use of present ground water supply sources with existing or additional surface supplies and to reallocation of storage capacity. The investigation began in FY 1978 and will be completed in FY 1980. The total estimated cost was increased $16,000 to provide for employee pay raises.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Southwest Region - Appraisal Investigations (continued)						
Oklahoma State Water Plan	Oklahoma	$1,419,978	$1,317,978	$102,000	--	--

The Oklahoma Water Resources Board is engaged in developing a State water plan, and the Bureau of Reclamation is cooperating in that endeavor by providing information on the land and water resources and the development opportunities. The principal emphasis of this appraisal is to study the opportunities for transfer of water from water surplus areas in eastern Oklahoma to water deficient areas to the west and other provisions for optimum development of the basins resources. This involves statewide surveys to gather, coordinate, and evaluate information relative to problems and needs associated with water resources, evaluate alternative plans, and formulate an overall plan to serve as a basis for identifying individual elements for more detailed study. An information report was made available in FY 1967 for use by the State of Oklahoma in developing rules and guidelines for the maximum and efficient use of the State's water resources. Existing works and future plans of the Corps of Engineers are being given full consideration. The appraisal study, Oklahoma State Water Plan Phase I-Southwest 20 Counties, on the Red River Basin was completed in FY 1975. A similar study for the Northern 44 Counties was initiated in FY 1975 which will appraise the Arkansas River Basin for the northern part of the State. A report is scheduled to be completed in FY 1978. The total estimated cost has been increased $15,025 to provide for employee pay raises and transfers to Fish and Wildlife Service.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Southwest Region - Appraisal Investigations (continued)						
Wilburton Project	Oklahoma	$301,693	$78,693	$78,000	$145,000	--

The Wilburton Project area includes Latimer and Pittsburg Counties in southeastern Oklahoma. This investigation will reevaluate the water resource needs of the project area and will assess the capability of available resources to meet the areas long term municipal and industrial water supply needs. These studies will utilize the multiobjective approach contained in the WRC principles and standards to determine, both economically and environmentally, those plans that would best meet the area's water supply needs. If further water requirements of the project area are to be met, it appears that it must be accomplished by the development of surface water resources. Preliminary investigations indicate that the possibilities for developing ground water resources are very limited. At present all the municipalities and rural water districts obtain their water supplies from surface supplies. Potential sources include: (1) the upper part of Gaines Creek, a right bank tributary of the Canadian River; and (2) Eufaula Lake, an existing reservoir located on the Canadian River and part of the lower Gaines Creek. As part of any further studies, an indepth water quality study of Eufaula Lake will be made. Consideration will also be extended to other project purposes such as flood control, recreation, and fish and wildlife needs. Investigations began in FY 1978 and will be completed in FY 1979. The total estimated cost was increased $23,000 to provide for employee pay raises and transfers to Fish and Wildlife Service.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Missouri Region - Appraisal Investigations						
Canyon Ferry Powerplant	Montana	$200,000	--	$50,000	$55,000	$95,000

This investigation will evaluate the conversion of existing power facilities at Canyon Ferry Dam, Montana, to a peaking operation. Canyon Ferry Dam is located 17 miles northeast of Helena, Montana, on the Missouri River. The existing 50-mw powerplant is operated almost continously throughout the year with spills occurring during high flow months. By constructing an additional powerplant, energy could be generated from the spills, and the total powerplant capacity at the dam will be available for peaking operations. The new 90-mw powerplant would be located downstream from the dam on the east side of the river. New penstocks would be installed through the dam to convey water to the powerplant. The addition would require 85 miles of single-circuit, 230-kV line to the Bureau's existing Rainbow Substation. Additional switchyard facilities would be necessary at Canyon Ferry and Rainbow Substations.

This investigation was initiated in FY 1978 and is scheduled for completion in FY 1980.

Gibson Powerplant (Sun River)	Montana	$200,000	--	--	$100,000	$100,000

This investigation will evaluate the Gibson Powerplant, a proposed 7.5-megawatt powerplant that could be constructed at the existing Gibson Dam located on the Sun River approximately 5 miles downstream of the confluence with the North Fork of the Sun. At the time of the initial construction of Gibson Dam, a powerplant was contemplated and two 72-inch outlets through the dam were provided for future power development. The proposed powerplant would be just downstream of the face of the dam and would utilize approximately 150 feet of head developed behind the dam. Estimated average annual generation would be 35 million kilowatt-hours. In addition to the powerplant and additional penstocks, a switchyard and transmission lines would be required.

No detailed studies have been previously made of this proposal. A report on the proposed powerplant is scheduled for fiscal year 1980.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 19 78 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Missouri Region - Appraisal Investigations (Continued)						
Tiber Powerplant (Marias River)	Montana	$150,000	--	--	$75,000	$75,000

This investigation will evaluate the Tiber Dam Powerplant, a proposed 5.0-megawatt powerplant that could be constructed at the existing Tiber Dam located approximately 19 miles southwest of Chester, Montana. At the time of initial construction of Tiber Dam, a powerplant was contemplated and a 72-inch-diameter steel outlet pipe was provided to meet all downstream discharge requirements and to serve as a penstock for future power development. The proposed powerplant would be just downstream of the 72-inch outlet pipe and utilize the discharges for power generation. Estimated average annual generation would be 39 million kilowatt-hours. In addition to the powerplant, a surge tower, new switchyard, and some transmission lines in the vicinity of the powerplant would be required. An existing Bureau of Reclamation 115-kv line leading from Tiber Dam to a tab west of Chester could be utilized for transmission of power from the proposed powerplant. Preliminary economic analysis shows a benefit-cost ratio of 1.6 to 1.

No detailed studies have been made, although this proposal was briefly analyzed under the Western Energy Expansion Study. A report on the proposed powerplant is scheduled for fiscal year 1980.

Willwood Powerplant (Shoshone River)	Wyoming	$75,000	--	--	$75,000	--

This investigation will evaluate the Willwood Powerplant, a proposed 1.0-megawatt powerplant that could be constructed at the existing Willwood Dam located on the Shoshone River approximately 10 miles upstream of Willwood, Wyoming. At the time of the initial construction of Willwood Dam, a powerplant was contemplated and an 84-inch-diameter outlet through the dam was provided for future power development. The proposed powerplant would be just downstream from the 84-inch outlet and would utilize approximately 42 feet of head developed behind the dam. Estimated average annual generation would be 4 million kilowatt-hours. In addition to the powerplant, a switchyard and transmission lines in the vicinity of the powerplant would be required.

No detailed studies have been previously made of this proposal. A report on the proposed powerplant is scheduled for fiscal year 1979.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Missouri Region - Appraisal Investigations (Continued)						
Yellowtail Afterbay Powerplant (Bighorn River)	Montana	$150,000	--	--	$75,000	$75,000

This investigation will evaluate the Yellowtail Afterbay Powerplant, a potential 11.4-megawatt powerplant that could be constructed at the existing Afterbay Dam located about 2¼ miles below Yellowtail Powerplant. The powerplant would be operated in conjunction with the existing 250-megawatt Yellowtail Powerplant. The powerplant would utilize a head of about 30 feet between the Afterbay Reservoir and the Bighorn River for generation of power. The plant would be operated to maintain the existing downstream regime of the Bighorn River in a manner equivalent to the present-day afterbay operation. The Yellowtail Afterbay Powerplant would require about 1 mile of 115-kv transmission line with terminal facilities at the powerplant and the existing 115-kv Yellowtail Switchyard. The power output would be integrated into the Pick-Sloan Missouri Basin Program. Estimated average annual generation would be 56 million kilowatt-hours. Preliminary economic analysis shows a benefit-cost ratio of 1.4 to 1.

No detailed studies have been made although this proposal was briefly analyzed under the Western Energy Expansion Study. A report on the potential powerplant is scheduled for fiscal year 1980.

Wind River Basin Water Supply Study	Wyoming	$100,000	--	$50,000	$10,000	$40,000

This investigation will inventory the existing water supply of the Wind River Basin and evaluate additional water needs of the City of Riverton, irrigation districts, and others. The need and potential for new storage will be studied and recommendations made for further studies if needed to verify potential solutions to problems identified.

The investigation was scheduled for completion in fiscal year 1979, however, because of high priority power enhancement studies, the report is rescheduled to be completed in fiscal year 1980.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 1978 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE
Lower Missouri Region - Appraisal Investigations						
Crofton Unit (Santee Division P-SMBP)	Nebr.	$161,495	$47,495	$114,000	--	--

The project is located in northeastern Nebraska within the Missouri River Tributaries Area and will serve the function of irrigation. Water would be pumped from Lewis and Clark Lake (Gavins Point Dam) on the Missouri River and delivered to irrigable lands in Knox and Cedar Counties. Determination will be made of the need to provide irrigation service to a marginal dryland crop production area. Initial work would include a reconnaissance land classification survey to determine the extent of arable land in the area and the possible need for other related development. In recognition of the purpose of appraisal investigations, this study was limited to 24 months and accordingly, all hydrology, engineering, economics, recreation, and fish and wildlife assignments will be performed largely by Reclamation personnel with consultation from sister agencies. The results of this study will determine if a recommendation for feasibility study will be made which would then involve the cooperating agencies. The necessary public contacts and meetings have been initiated to assure the required public participation in the planning process. Officials of the Lewis and Clark Natural Resources District and Nebraska Congressional representatives actively support the study. This study was initiated in FY 1977 and is scheduled for completion in FY 1978. The estimated cost increase of $11,495 is due to the classified pay raise and to accommodate the change from Departmental to field level transfer funding of fish and wildlife studies.

Kansas State Water Plan-Phase II	Kansas	$770,106	$375,106	$220,000	$175,000	--

The Phase I and Phase II studies together will comprise a comprehensive appraisal investigation of the water and related land resources in the State of Kansas. The Phase II studies will array alternates to assess the impacts of developing the State's potential water resources to meet needs defined in the Phase I studies. This involves correlation of relevant land and water resources data, needs, and the opportunities for integration of surface and ground water sources and systematically grouping and evaluating the alternates. All phases of the investigation are being coordinated with the Kansas Water Resources Board, Bureau of Reclamation, SW Region, and other interested Federal, State, and local agencies. The national economic development and environmental quality objectives of the plans will be investigated along with their regional and social aspects. The Phase II study will provide a basis for a statewide plan to guide development of the water and related land resources of Kansas. The Kansas Water Resources Board strongly supports the continuing cooperation of the Bureau of Reclamation in the development of the studies. The Phase II investigations were initiated in FY 1975 and will be completed in FY 1979. The cost increase of $81,974 is due to classified pay raise and an estimated fund transfer to accommodate the change from Departmental to field level transfer funding of fish and wildlife studies.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 19 78 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE
Lower Missouri Region - Appraisal Investigations (Continued)						
North Platte River Hydroelectric Study Wyoming (Oregon Trail Div., P-SMBP)	Wyo.	$336,263	$51,263	$135,000	$150,000	--

The study objectives are to develop preliminary data to determine if feasibility studies are warranted on large scale development of pumped storage units at existing Reclamation storage reservoirs on the North Platte River system located approximately 35 miles southwest of Casper, Wyoming, in Natrona and Carbon Counties. Also, the installation of an additional conventional unit at existing powerplants is being investigated. Adding hydroelectric capacity to existing projects should have high priority based on considerations of cost effectiveness and environmental factors. Consideration will be given to power market studies to firm-up peaking power requirements for the Western Division of the P-SMBP. The need for additional sources of power to meet demands across the nation now and in the future is evident. In addition to the support evidenced by the public electricity suppliers, the local support is believed to be very substantial from such entities as the Wyoming municipal power agency, the North Platte Citizens Committee and the Tri-State Generation and Transmission Association. In recognition of the purpose of appraisal investigations, it is recommended that this study be limited to 24 months, and accordingly, all hydrology, engineering, economics, recreation, and fish and wildlife assessments will be performed largely by Reclamation personnel with consultation from sister agencies. This study will identify recommendations for future feasibility and was initiated in FY 1977 with completion scheduled for FY 1979. The cost increase of $128,263 is due to pay raise, the field level transfer funding of fish and wildlife studies, and the decision to investigate the potential for a lowhead dam and powerplant at Bessemer Bend and other sites along the river. Normally, because of the increase in the scope of the work, the study would be rescheduled for completion of a later date. However, because of its high priority, increased funds will also be used to accelerate work with the report completion still scheduled for FY 1979.

Sparks Unit, Nebraska (P-SMBP)	Nebr.	$300,000	--	$75,000	$25,000	$200,000

The project is located in the area north of the Niobrara River and South of the Nebraska-South Dakota line in eastern Cherry and western Keya Paha Counties in Nebraska. The study will determine the available water supply potential for development of facilities to irrigate from 30,000 to 50,000 acres and impacts of the development on the Niobrara River system. Water from the Niobrara River would be lifted approximately 340 feet into a system of canals, transported to the irrigation sites and applied primarily via center-pivot systems. Secondary lift

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 19 78 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Lower Missouri Region - Appraisal Investigations (Continued)						
Sparks Unit, Nebraska (Continued)						
stations may be required at Norden and Shadley Creek. There appears to be a lack of adequate aquifers for ground-water irrigation development in this area. Resolutions supporting the study of the Sparks area were passed in January 1977 at the joint conference of the Nebraska Association of Resources Districts. The Nebraska State Irrigation Association, and the Nebraska Water Resources Association. This study was initiated in FY 1978; completion is scheduled in FY 1981.						
Subtotal - Appraisal Investigations		$9,418,364	$2,704,543	$1,550,821	$2,485,000	$2,678,000

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
FEASIBILITY INVESTIGATIONS						
Pacific Northwest Region						
Boise Project Anderson Ranch Powerplant Third Unit	Idaho-Oregon	$275,520	$68,520	$137,000	$60,000	$10,000

The existing Anderson Ranch Dam and Powerplant is located on the South Fork of the Boise River 40 miles southeast of Boise, Idaho. The powerplant, which was completed in 1951, has two 13.5-megawatt (MW) generating units for a total installed capacity of 27 MW. When the powerplant was built, space was left for the installation of a third generating unit. A third unit of about 13.5-MW capacity could therefore be added economically to the existing powerplant. Preliminary studies indicate that the potential new 13.5-MW generating unit would produce a favorable benefit-cost ratio. The increased power generation which could be obtained from the enlarged powerplant is needed in southern Idaho; Federal generation in this area can meet only about half of peak demands. Bonneville Power Administration markets the power from Reclamation's powerplants in this area. The increasing power loads in southern Idaho coincide with the required irrigation water releases from Anderson Ranch Reservoir.

The reach of the South Fork of the Boise River downstream from Anderson Ranch is a high-quality fishing and recreation stream. Since summer releases now exceed the hydraulic capacity of the existing generating units, the potential Third Unit would produce increased hydroelectric power when southern Idaho power demands are highest. Intensive studies are being carried out by the Fish and Wildlife Service, the Idaho Department of Fish and Game, the Idaho Cooperative Fishery Research Unit, and others to define acceptable winter river operations. Recreation, fisherman access, and public use facilities are needed in the Anderson Ranch Powerplant vicinity, particularly along the heavily used, high-quality river reach extending 10 miles downstream from the powerplant. Existing facilities are minimal or nonexistent, resulting in environmental degradation. The possibility of additional facilities will be studied.

This feasibility study began in FY 1977 and was scheduled to complete in FY 1978. Completion is now scheduled in FY 1980. The study has been delayed to complete extensive studies related to fishery environment, reregulation sites, and the environmental quality analysis. The total estimated cost has been increased $75,520 to cover the above studies, the October 1976 pay raise (Executive Order 11941), and to provide for local level transfers for Fish & Wildlife Coordination Act studies.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Pacific Northwest Region - Feasibility Investigations (Continued)						
Columbia Basin Project Grand Coulee Dam Third Powerplant Extension	Washington	$437,212	$362,212	$55,000	$20,000	--

The existing Grand Coulee Dam Third Powerplant is located on the Columbia River in central Washington. This investigation will determine the feasibility of providing additional units at Third Powerplant as an integral part of Grand Coulee Dam and the Columbia Basin Project. The Third Powerplant was authorized for construction under P.L. 89-448 dated June 14, 1966. The Congressional authorization specifically recognized that the Third Powerplant should be designed to optimum size and developed in stages. This investigation involves delineation of a plan and the schedule for the addition of units in the Third Powerplant in coordination with the Corps of Engineers and Grant County Public Utility District who are also sizing hydro unit additions at Mid Columbia River dams, Chief Joseph, Wanapum, and Priest Rapids. Since the responsibility for development and management of the Columbia River waters is divided among many Federal, State, local and private interests, and utilization of water is for different purposes involving competing interests and priorities; the need was recognized early in this investigation for participation of Fish and Wildlife agencies and other nonpower interests to jointly determine a suitable and comprehensive development plan for the Mid Columbia system.

The feasibility study which was started in FY 1975 was scheduled for completion late in FY 1977. Completion of the study has been delayed to early FY 1979, mostly because of the slow and methodical progress of the broad base of interests and parties participating in the study. The total estimated cost has been increased $33,414 to cover the October 1976 pay raise (Executive Order 11941), to provide for local level transfers for Fish and Wildlife Coordination Act studies, and increased costs associated with developing a fish and wildlife mitigation plan.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 19 78 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE
Pacific Northwest Region - Feasibility Investigations (Continued)						
Minidoka Project Minidoka Powerplant Rehabilitation and Enlargement	Idaho-Wyoming	$440,123	$82,123	$155,000	$170,000	$33,000

The existing Minidoka Dam, Powerplant, and reservoir (Lake Walcott) are located on the Snake River in Minidoka, Cassia, and Blaine Counties, south-central Idaho, near the town of Rupert. The primary purpose of this feasibility investigation is to evaluate the feasibility of rehabilitating or replacing the old power units and providing additional generating capacity at Minidoka Powerplant. The existing installed capacity of 13,400 kW could be increased to about 30,000 kW. The need for new recreation facilities at Lake Walcott are being studied. Wildlife enhancement, water quality, and fishery aspects would also be considered. It appears that Minidoka Powerplant can be enlarged with a minimum of adverse environmental impacts.

Minidoka Dam and Powerplant were the key features of the initial development of the Minidoka Project, one of the earliest Bureau of Reclamation projects. Construction of the dam was completed in 1906. The original concrete powerhouse was completed in 1909; it contains six generating units, the newest of which is about 50 years old. A separate powerplant addition with one generating unit was completed in 1942.

Alternative powerplant enlargements in the range of 10-25,000 kW are being evaluated. The feasibility of replacing some or all of the older units at the time of enlargement is being studied. The alternative of constructing a new powerhouse in order to permit continued generation by the existing units during the construction period is being considered. A substantial amount of water now passes Minidoka Dam in excess of the generation capacity of the existing powerplant. Much of this excess water represents releases for downstream water users during the summer months, the period of peak electric power demands in southern Idaho. The Idaho peak summer demand which is not typical in the Pacific Northwest is caused largely by irrigation pumping power loads. Enlargement of Minidoka Powerplant would result in more efficient water use. Preliminary estimates indicate that Minidoka Powerplant dependable capacity and annual generation could be increased more than 100 percent without interfering with existing water uses or operations. Adequacy of the dam to accommodate present and increased generation will be considered.

Minidoka Dam and Powerplant were recently placed on the National Register of Historic Places, and informal public tours of the facilities are popular. Since existing public use facilities are limited, provision of additional facilities will be considered. Improvements will also be considered for the recreation area near the dam, which is now managed by Reclamation. Some existing facilities are inadequate for present use.

This study was started in FY 1977 and is scheduled for completion in FY 1980. The total estimated cost has been increased $20,123 to provide for local level transfers for Fish and Wildlife Coordination Act studies and to cover the October 1976 pay raise (Executive Order 11941).

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Pacific Northwest Region - Feasibility Investigations (Continued)						
Rogue River Basin Project Grants Pass Division	Oregon	$805,623	$352,623	$187,000	$80,000	$186,000

The Grants Pass Division is located in southwest Oregon near the town of Grants Pass. This project was authorized by P.L. 92-199, December 15, 1971. In accordance with the Senate Committee report on this project, the feasibility investigation involves two parts: (1) a study of the fishery problems at the Savage Rapids Dam of the Grants Pass Irrigation District and (2) a study of the need for replacement of the district's existing distribution system, the feasibility of irrigating additional district lands, and water supplies for other uses including power. A joint BR-FWS special report on the first phase of the study was completed in March 1974, and the proposal was authorized for construction by P.L. 93-493, Title XII, October 27, 1974. Construction work on the fish passage improvements is expected to be completed in 1978. The thrust of the second part of the study is toward the need for replacement of the Grants Pass Irrigation District's distribution system, other water needs of the area, and further improvement of fish passage at Savage Rapids Dam. The district has been plagued with operational problems which have become increasingly difficult because of decreasing acreage due to urban encroachment, obsolete and worn-out facilities and equipment, and increasing cost. In addition, such problems as the downstream silting conditions which occur when the stoplogs at the dam are removed at the end of the irrigation season, improvement of water recreation, and development of domestic water supplies, will be studied. One alternative to be studied involves the elimination of Savage Rapids Dam. This action would enhance the river fishery, but would essentially eliminate the Savage Rapids pool recreation activities. Another alternative to be examined is the power potential at Savage Rapids Dam, which was recommended by the Bureau's Western Energy Expansion Study evaluation team.

The various Federal and State fishery resource entities have indicated that the collection of data on fish passage at Savage Rapids Dam is a prerequisite to the completion of the F&WL Coordination Act report. A three-year study, commencing early in FY 1979 following the completion of the present construction work on the fishways at Savage Rapids Dam, has been recommended. There is also a definite need for the expedited improvement of the distribution system. Those conditions warrant a two-stage study proposal. The first stage would relate to the distribution system and consist of a detailed identification of problems and needs and an initial formulation of alternative plans to meet these needs. Preliminary formulation would be completed in FY 1978 for assisting the district in determining its future course of action. Detailed plan formulation on a distribution system plan would follow. The second stage would pertain to the dam, and the recommendation for removal or rehabilitation of the structure would not be made until culmination of the fishery studies in FY 1981. Studies beyond that time would be dependent upon the results of the fishery studies.

The total estimated cost has been increased $176,077 to provide for local level transfers for Fish and Wildlife Coordination Act studies, to cover the October 1976 pay raise (Executive Order 11941), and for the collection of baseline biological data on fish passage concerns at Savage Rapids Dam. The study, scheduled for completion in FY 1979, has been rescheduled to complete in 1981 to allow for time for necessary fishery studies.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 19 78 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE
Pacific Northwest Region - Feasibility Investigations (Continued)						
Rogue River Basin Project Medford Division (Reformulation)	Oregon	$1,181,891	$780,891	$133,000	$145,000	$123,000

Medford Division is located along the Rogue River in Jackson County near the city of Medford in southwestern Oregon. Feasibility studies were started in 1962 to develop an irrigation plan in association with the authorized Corps of Engineers Lost Creek and Elk Creek storage projects. The feasibility report completed in 1966 provided for irrigation, fish enhancement, recreation and water quality improvement in Bear Creek. The report was not processed further because of changes in cost-sharing requirements and an estimated low payout by the irrigation water users. Through strong public interest and support for irrigation and streamflow improvement in Bear Creek, a feasibility reanalysis of the Medford Division was started in 1970. A shift in planning procedures came about in 1973 with implementation of Principles and Standards which required another approach to reevaluation on the Medford Division plans. The reanalysis showed that the project could not be economically justified under criteria prevailing at that time, and the study was placed on inactive status.

The subject of the current study, which began in FY 1977, will be reformulation of the Medford Division. Reduced interest in new irrigation has changed the potential irrigable area from about 25,000 to about 16,000 acres. One of the principal concerns in reformulation will be ways and means of providing water to small units (rural-residential) at a reasonable cost. The possibilities of providing additional municipal and industrial water supplies for the communities in the area, and water quality improvement in Bear Creek will also be considered in the study.

Reformulation studies are scheduled for completion in FY 1980. The total estimated cost has been increased $54,574 to provide for local level transfers for Fish and Wildlife Coordination Act studies, and to cover the October 1976 pay raise (Executive Order 11941).

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 19 78 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Pacific Northwest Region - Feasibility Investigations (Continued)						
Umatilla Basin Project	Oregon	$1,613,606	$1,304,606	$12,000	$10,000	$287,000

The Umatilla River basin is located in Umatilla and Morrow Counties, Oregon, and centers near the town of Pendleton. This study is a reevaluation of a multipurpose development plan reported in 1970. The primary purpose of the reevaluation is to incorporate multiobjective planning criteria and to be responsive to review comments received from the public and other agencies on the 1970 plan. The basinwide plan contained in the 1970 report included fish and wildlife enhancement, recreation, municipal and industrial water supply, irrigation and flood control functions. Six reservoirs, an extensive water distribution system, pumping from Columbia River, recreation, and fish and wildlife facilities were included in the plan. A series of public meetings were held in 1970 to discuss the basinwide plan. Several environmental issues were raised in conjunction with the potential storage features, and the Umatilla Indian Tribe expressed their desire for more extensive development of reservation resources than had been provided for in the 1970 plan. A reanalysis, under new multiobjective planning guidelines, was begun in FY 1973.

A primary objective of the study has been to coordinate the desires and priorities of Indian and non-Indian residents in the basin. Development needs on the Umatilla Indian Reservation have not yet been identified by the Indians and their support for the multipurpose development and active participation in the study is presently limited. A water resource inventory of the reservation by the Geological Survey and a Bureau of Indian Affairs study of impacts of water resource development have not yet been completed and are essential to the Bureau's planning activities in the basin.

Due to the emphasis by the Bureau of Reclamation on increasing domestic power capability, the work on this study will be curtailed until FY 1980. At that time, it is anticipated the studies by other agencies will have been completed and the Indians will have a "plan of development" in mind so that a major effort on the study can be resumed. The feasibility study was scheduled for completion in FY 1981 but has been rescheduled to complete in FY 1982.

The total estimated cost of the study has been increased $74,490 to provide for local transfers for Fish and Wildlife Coordination Act studies and to cover the October 1976 pay raise (Executive Order 11941).

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Pacific Northwest Region - Feasibility Investigations (Continued)						
Upper Snake River Project Oakley Fan Division (Reformulation)	Idaho-Wyoming	$1,100,877	$584,877	$151,000	$10,000	$355,000

The potential Oakley Fan Division is located south of the Snake River in Cassia County, south-central Idaho, near the town of Burley. The Oakley Fan Division would supplement existing inadequate water supplies on as much as 82,000 acres of irrigated land by pumping water to the area from the Snake River. Improved wildlife habitat for upland game and waterfowl would be developed throughout the irrigated area. The possibility of providing flood control, improving water quality and streamflows, irrigating as much as 62,000 acres of intermingled dry lands, and serving other needs will also be evaluated. The project's water supply would be developed by (1) pumping water from the Snake River, (2) ground water pumping within the Oakley Fan area, (3) pumping from the regional ground water aquifer beneath the Snake River Plain, or (4) other alternative sources. Snake River water pumped to the Oakley Fan lands for irrigation would recharge the depleted local ground water aquifers. This would permit continued and possibly increased ground water pumping within the area. Snake River water pumped to the area in dry years when all flows are appropriated would be replaced by pumping from the Snake Plain aquifer or from other sources. The possibility of recharging the aquifer may also need to be evaluated.

Irrigators in the Oakley Fan area now face a serious water supply situation. The Idaho Department of Water Resources has declared much of this area a "critical ground water area," thus prohibiting the drilling of new wells and restricted pumping from existing wells in some cases. Importing Snake River water into the Oakley Fan Division would recharge the depleted local aquifers and insure the continued productivity of the private irrigation enterprises upon which the economy of the area is based. Idaho's current studies leading to the Idaho State Water Plan and several other comprehensive studies have recognized the need for new Oakley Fan water supplies as one of the most critical water needs in southern Idaho. New wildlife habitat is needed in the area to replace habitat being lost to cleaner farming practices and to meet increasing hunting pressure. The Idaho Water Resource Board and others have urged studies on the possible use of new Snake Plain aquifer well fields to augment streamflows and meet other needs in addition to irrigation.

Congress authorized the Oakley Fan Division feasibility study in 1966, and the study was begun in FY 1970. The study was temporarily suspended in 1973. Because of strong local and state support, the Oakley Fan study was resumed in FY 1976, with completion scheduled in FY 1980. Due to emphasis being placed on initiating power studies, the work on this study will be minimal in FY 1979 and completion has been extended to FY 1982. The total study is being reanalyzed using the Water Resource Council principles and standards for planning.

Total estimated cost has been increased $80,666 to provide for local level transfer for Fish and Wildlife Coordination Act studies and to cover the October 1976 pay raise (Executive Order 11941).

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 19 78 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE
Pacific Northwest Region- Feasibility Investigations (Continued)						
Yakima Indian Nation Project	Washington	$109,079	$108,079 1/	$1,000	--	--

The Yakima Indian Nation Project is located in south-central Washington in the vicinity of the Yakima River. In the past, the Bureau of Indian Affairs has investigated the potential of developing storage on Satus and Simcoe Creeks to serve multiple purposes and the Bureau of Reclamation has explored the possibility of utilizing surface and groundwater resources to meet water-related needs in the Ahtanum Valley involving both Indian and non-Indian ownerships. An appraisal study was undertaken in FY 1975 to reevaluate these three previous proposals, as well as to determine what alternative sites might have better availability and groundwater potential as a source of new water supplies. In the feasibility study, the Bureau, with direction from the Yakima Indian Tribe had planned to take the most promising development potentials from the appraisal study and do a detailed engineering, economic, and environmental evaluation with the objective of selecting proposals that would best meet the Indians' water and social needs.

The feasibility study began in FY 1977 and was scheduled for completion in FY 1980. However, only liaison-type work was conducted in FY 1977 awaiting a decision by the Tribal Council as to whether or not other courses of action would be taken by the Indians to accomplish water resource development on the reservation. The Indians have now decided to consider alternative courses of action and have withdrawn their support of a feasibility study by Reclamation. The study is therefore being suspended early in FY 1978.

1/ Includes previous investigation costs of $81,897.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Mid-Pacific Region - Feasibility Investigations						
Central Valley Project						
Cosumnes River Division Reformulation	California	$1,372,533	$1,148,533 1/	$ 104,000	$ 90,000	$ 30,000

The division is located in the central portion of California in the foothills and lower slopes of the Sierra-Nevada. The area lies between the Mokelumne River on the south and the American River and Placerville Ridge on the north. Water problems of the Cosumnes River Division can be classified into three broad categories: (1) Inadequate storage facilities to control the available seasonal and cyclic streamflows; (2) inadequate conveyance and distribution facilities; and (3) inadequate financial resources. These problems are magnified and made more critical by droughts which occasionally occur in the area. Hydrologically, local water resources are adequate to meet the water demands of the division; however, these demands cannot be met without storage reservoirs to regulate the winter runoff into firm supplies. This need would be met by formulation of a plan to develop the Cosumnes River.

In view of strong local interest and support for feasibility-level studies, a potential increase in M&I benefits, and promulgation by the Water Resources Council of new guidelines for agricultural price standards for water and related land use resources planning (which is expected to increase net irrigation benefits), these studies have been initiated with a preliminary reappraisal now underway. If the appraisal provides favorable results, work will continue on more detailed feasibility studies leading to a report describing the reformulated plan. The reformulation would focus on ways to meet the area's water needs for irrigation and municipal and industrial uses, along with flood control, power development, recreation, fishery and wildlife, and related environmental quality aspects. The study is being pursued in close cooperation with other Federal, State, and local interests.

Sacramento County, El Dorado, and Amador Counties strongly support the study. The total estimated cost was increased $49,155 due to the need for additional studies to assess the effects of the current drought situation. Minor adjustment - $155. The increase also includes $4,000 to cover the cost of the 1976 pay raise (Executive Order 11941). The study initiated in FY 1976, was scheduled for completion in FY 1979 but has been rescheduled for completion in FY 1980 due to the need to assess the effects of the current drought situation in the service area.

1/ Includes $1,050,734 cost of Cosumnes River Division Initial Phase Investigation.

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PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Mid-Pacific Region - Feasibility Investigations (Continued)						
Central Valley Project (Continued)						
East Side Division						
Mid-Valley Canal	California	$ 521,025	$ 429,025	$ 52,000	$ 40,000	--

The proposed project is located on the east side of the San Joaquin Valley, principally in Madera, Fresno, Kings, Tulare, Kern, and Merced Counties. The Mid-Valley Canal plan envisions that approximately 650,000 acre-feet of water might be delivered to the east side area through use of existing Federal and State conveyance facilities on the west side of the valley, construction of a Mid-Valley Canal to the east side of the valley, possible delivery exchanges with the Friant-Kern Canal and Madera Canal, possible construction of additional storage facilities on the east side and provision of drainage facilities. Staging of construction will be considered. Supplemental needs of both municipal and industrial and agriculture would be served. The study is being conducted jointly with the State of California, Department of Water Resources in accordance with the principles and standards for water and related land resource planning, and also involves the public in the planning process.

In the area along the east side of the San Joaquin Valley, municipalities and agriculture with its associated processing industries have advanced far beyond the point which can be maintained by further development of local water supplies and by the present Central Valley Project facilities which serve the area. The need for even a partial supplemental supply to alleviate the present ground-water overdraft is imminent and crucial. Present ground-water overdraft in this area is 1,000,000 acre-feet or more annually. Without construction of additional facilities, the needs of the area can only be met for a limited period by continued and expanded overdraft of ground-water resources. The only other alternative would be curtailment or reduction in use of water in the area for all purposes including agriculture. For this particular area, such an alternative would result in a socioeconomic decline, since the area is oriented primarily to an agri-business base.

The proposal has been supported by several water service organizations in Madera, Fresno, Kings, Kern, and Tulare Counties, by the counties of Fresno, Tulare, Kings, and Madera, and by the State of California, Central Valley East Side Project Association and the Friant-Kern Water Users Association. The report was scheduled for completion in FY 1978 but has been rescheduled for completion in FY 1979 due to additional work required to revise the allocation of the project water supply for specific service areas.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Mid-Pacific Region - Feasibility Investigations (Continued)						
Central Valley Project (Continued)						
West Sacramento Canal Unit Reformulation	California	$ 774,992	$ 324,992 2/	$ 150,000	$ 200,000	$ 100,000

The West Sacramento Canal service area is generally located in Yolo and Solano Counties, California. The largest nearby community is Sacramento which lies across the Sacramento River to the east of Yolo County. These counties border the Sacramento River in the Sacramento Valley. Some water service would be available by exchange agreement to the two mountain counties, Lake and Napa, to the west and adjacent to Yolo and Solano Counties. The Middletown service area is located in southern Lake County, about 75 miles north of San Francisco and 60 miles west of Sacramento.

The economy of the West Sacramento Canal Unit service area is based primarily on production and marketing of agricultural products. Because of the favorable climate and the close proximity of major market centers, a highly successful irrigated farming operation has developed in the area. The local water supplies, both surface and underground, have been largely developed, however, and further agricultural expansion is dependent upon importations. These needs would be met by construction of the West Sacramento Canal Unit.

Project features, studied and reported upon in the December 1964 West Sacramento Canal Unit report include: The 1,215,700 acre-foot Sites Reservoir, Sites Pumping-Generating Plant, a 37-mile-long West Sacramento Valley Canal, a 12.5-mile Yolo-Zamora Canal, 3,200 acre-foot Noonan Reservoir, the 6,500 acre-foot Middletown Storage Reservoir, and miscellaneous smaller control, pumping, and conveyance features. The West Sacramento Valley Canal headworks would be at Oat Reservoir, the terminus of the Tehama-Colusa Canal, now under construction. Sites Reservoir would release its water supply through the Sites Pumping-Generating Plant to Funks Reservoir, a constructed feature of the Tehama-Colusa Canal, thence through 48 miles of the canal to Oat Reservoir. The previous plan was developed almost 15 years ago. Reformulation of the project plan is required to assure that the plan finally adopted will meet the needs of the area as they are foreseen today with due consideration to environmental impacts and opportunities and to the views of the public. Approximately 226,000 acres of productive land will receive a water supply through project facilities. A full and supplemental water supply of 291,000 acre-feet annually will be supplied to the service area. The features would also provide 47,400 acre-feet to Putah Creek for fishery purposes and for a Yolo National Wildlife Refuge. Irrigation, fisheries, and recreation are important functions of the overall plan.

2/ Cost of West Sacramento Canal Unit Feasibility Investigation.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Mid-Pacific Region - Feasibility Investigations (Continued)						
Central Valley Project (Continued)						
West Sacramento Canal Unit Reformualtion (Continued)						
There is strong local interest in and support for this investigation and the construction of the necessary facilities to provide new agricultural water supplies in the area. Yolo, Solano, Napa, and Lake Counties, and the water districts within those counties have gone on record in support of the plan for the West Sacramento Canal Unit. The Westside Canal Association is strongly supporting this project. The study and environmental statement are scheduled for completion in fiscal year 1981.						
Klamath Project Butte Valley Division	California-Oregon	$1,057,336	$ 612,760 3/	$ 314,576	$ 100,000	$ 30,000
The Butte Valley Division study area is located in Siskiyou County in north-central California and Klamath County, Oregon. In 1960, only about one-fourth of the productive land in Butte Valley was irrigated. Subsequently, new wells have been added in order to increase the supply of water for irrigation purposes. The area suffers from lowering ground-water tables early in the irrigation season with a loss of pumping capacity. A firm and dependable water supply, whether it be a surface and/or ground water or conjunctive use, would permit farm operators to utilize their full irrigable acreage, increase yields, and obtain increased income. Because of the current energy crisis, potential development in Butte Valley and the Round and Long-Lake pump storage complex should be studied.						
The objectives of the investigation are (1) to formulate a comprehensive regional plan of development for the upper Klamath River Basin; and (2) to conduct whatever additional studies are required to prepare a plan for a water supply project for Butte Valley that would be in harmony with the comprehensive regional plan. Klamath River flows could be lifted through a series of pumps during the irrigation season to areas of need or to a reshaped twin-cell Meiss Lake						

3/ Includes $316,056 cost of Butte Division Feasibility Investigation.

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PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE

Mid-Pacific Region - Feasibility Investigations (Continued)
Klamath Project (Continued)
Butte Valley Division (Continued)

during the winter and irrigation season. From Meiss Lake, canals and pumps could convey and lift water to areas of use during the period of peak irrigation demands. Return irrigation flows could, depending on quality, be mixed or stored in the small Meiss Lake cell for disposal after the irrigation season. The Pacific Gas and Electric Company has interest in investigating the possibility of developing a coal-fired powerplant in Butte Valley. Reclamation officials have been contacted regarding the availability of Klamath River water for powerplant cooling purposes. The possible development of the Round-Long Lake pump-storage complex on the west side of upper Klamath Lake would be studied. The studies are being conducted in accordance with the guidelines for water and related land resources planning. The Butte Valley Irrigation District, the Butte Valley Soil Conservation District, and the local Congressman are interested in updating previous studies. The State of California opposes study of plans involving diversion of water from the Klamath River, an element of the State's wild and scenic river system, but supports studies involving development of ground water. The total estimated cost was increased by $335,199 to cover the cost of intensive ground-water use and a minor adjustment - $199. The increase includes $3,000 for the 1976 pay raise (Executive Order 11941). The report was scheduled for completion in FY 1979 but has been rescheduled for completion in FY 1980 to enable completion of more intensive ground-water studies.

Solano County Water Project	California	$ 435,449	$ 266,226	$ 94,223	$ 75,000	--

The study area is located in Solano County, California, about 40 miles northeast of San Francisco. Solano County will probably experience significant economic expansion during the latter part of this decade. Inherent in this expansion is an urgent need for a comprehensive long-term plan for water resource development and management to guide the county in its decision-making with respect to environmental protection and enhancement, master plan modification, zoning, agricultural land reservation, highway and road construction, flood control and floodplain zoning, ground-water basin protection and utilization, waste-water reclamation, distribution and disposal, development of recreational resources, and energy conservation measures. Decisions on these matters, and in fact the extent and direction of the county's growth and development will, to a large extent, be dictated by the location, magnitude, and timing of availability of water resources.

The Solano County Water Project is a multiagency and multidisciplinary study which considers and coordinates the many studies and plans into a comprehensive, long-term sequential plan of water resources management for Solano County. The first phase of the study, utilizing a regional approach, was conducted as a part of a 4-county appraisal study (Lake, Yolo, Napa, and Solano Counties). This project will address several existing and important problems facing the county and to some degree the entire bay area region. These problems relate to the (1) means of providing a water supply and

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 19 78 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE
Mid-Pacific Region - Feasibility Investigations (Continued)						
Solano County Water Project (Continued)						

management facilities necessary to protect the Suisun Marsh (containing 10 percent of the wetlands of the State) from prolonged periods of high channel salinity; (2) timely development of a water supply and means of conveyance to a 2,000 to 4,000-megawatt powerplant site by 1982; (3) reassessment of Reclamation's existing Solano project yield and resolution of water rights questions and potential conflicts prior to requesting the conversion of water rights permits to licenses (3 to 4 years); (4) solution to water shortages in the Putah Creek watershed municipalities and agricultural areas within the county including the Montezuma Hills area; (5) provide an option of waste-water reuse as opposed to higher levels of treatment and an expensive means of disposal of sewage; and (6) solve existing and anticipated drainage problems and take advantage of potential of ground-water conjunctive use opportunities.

Representatives of Solano County, the Water Resources Control Board, and the local Resource Conservation District all support the study. Several cities and the two irrigation districts also fully support the study, and are participating on a study advisory committee. The total estimated cost has been increased $42,683 due to a need to collect and incorporate pertinent data regarding the Suisun Marsh into the feasibility study. Minor ajustment - $860. The increase include includes $4,000 for the 1976 pay raise (Executive Order 11941). The feasibility report was scheduled for completion in FY 1978 but has been rescheduled for completion in FY 1979 due to the need to collect and incorporate Suisun Marsh data into the study.

Susanville Geothermal Investigation	California	$1,234,642	$ 286,507	$ 565,135	$ 58,000	$ 325,000

The investigation area is located on the eastern slopes of the Sierra-Nevada in Lassen County near the city of Susanville and North Honey Lake Valley. Susanville is a rural community and serves as a center for agriculture and a lumber industry. Unemployment exceeds 20 percent (23 percent in May 1975) and family income is low ($9,200). The area is in need of an economic development project to strengthen the economy.

The objective of the investigation is to determine the feasibility of developing a geothermal energy source for the explicit benefit of the community, as well as to assist in contributing to the Nation's energy supplies. Besides assessing the resource, an exploratory well will be developed for the purposes of monitoring the results and evaluating the benefits attributed to selected users. Extensive geophysical investigations began during the latter part of fiscal year 1977, including the drilling of two slim 1,500-foot plus test wells. A vibroseis refraction survey in the North Honey Lake area and drilling on one or two deep testholes (1,000 to 3,000) are scheduled to begin in FY 1978.

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PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Mid-Pacific Region - Feasibility Investigations (Continued)						
Susanville Geothermal Investigation (Continued)						
Much interest has been generated in the Susanville area regarding geothermal resources. The appraisal level study was coordinated with the city's study. The total estimated cost has been increased by $124,003 in order to expand the scope of the drilling program and to cover the cost of the 1976 pay raise (Executive Order 11941). The report scheduled for completion in FY 1979 has been rescheduled for completion in FY 1980 due to increased emphasis and priority on hydroelectric energy studies.						
Ventura County Water Management Project	California	$1,309,100	$ 543,422	$ 35,678	$ 100,000	$ 630,000
The study area is located in Ventura County, California, about 50 miles northwest of Los Angeles. The Ventura County Water Management Project feasibility investigation is developing alternative plans for total water management in the county. Emphasis of the project is on the reclamation and reuse of municipal waste water to serve the increasing demands for water for multiple uses by the county's expanding population. Other local and imported water supplies, conjunctive water use, water conservation, watershed management, and weather modification are also being considered. Multiple uses being considered include: Irrigation, municipal and industrial supplies, ground-water recharges, flood control, water-oriented recreation, and fish and wildlife maintenance and enhancement.						
The investigation also includes Phase II special studies to determine how to further augment local water supplies in Ventura County. The study areas include: (1) Watershed vegetation management to increase water yield; (2) ground-water modeling of the Ventura River Basin; (3) hydrologic modeling of Sespe Creek; and (4) participation in waste-water reuse field demonstration program. Consideration of weather modification potential, utilizing data from other studies, and water conservation (efficient use) will also be included.						
Ventura County is currently utilizing more water than is available on a long-term basis, with the deficit being met by overdrafting the ground-water basins. Present overdrafts, estimated to range from 45,000 to 60,000 acre-feet per year, are resulting in increased pumping lifts and in seawater intrusion into the aquifers. The county is also importing over 50,000 acre-feet of water per year. Recently, concerns have been raised over the availability, cost, and energy requirements of imported water, especially since needs for additional water may be as high as 100,000 acre-feet per year by year 2000. Costs for importing water to the areas not presently being served, currently estimated at $250 per acre-foot, could escalate to over $400 per acre-foot in the near future. Over 3,000 kilowatt-hours of electricity are required to pump each acre-foot of water into the county. Local agencies are interested in ways to increase county water supplies by local development and thus reduce the need for important water.						

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PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE

Mid-Pacific Region - Feasibility Investigations (Continued)

Ventura County Water Management Project (Continued)

The study has received the enthusiastic support of several State and local agencies. Those actively involved in the study include the California Water Resources Control Board, the State of California Departments of Water Resources and Public Health, Ventura Regional County Sanitation District, Ventura County Flood Control District, Ventura County Environmental Resources Agency, United Water Conservation District, and Casitas Municipal Water District. The total estimated cost was increased $749,001 in order to accommodate phase II studies which will considerably expand the scope of the investigation beyond waste water reclamation to other alternatives. Also included is a $2,000 employees pay raise (Executive Order 11941). The phase I report has been rescheduled for completion in FY 1979 rather than FY FY 1978 to enable completion of numerous additional alternative studies.

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PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Lower Colorado Region - Feasibility Investigations						
Boulder Canyon Project, Hoover Powerplant Modification	Ariz-Nev	$1,310,000	$65,015	$469,985	$580,000	$195,000

This project is located on the Arizona-Nevada boundary approximately seven miles northeast of Boulder City, Nevada. The objective of these investigations is to develop alternative plans under the Principles and Standards for Multiobjective Planning and determine the feasibility of modifying Hoover Powerplant to increase its peaking capacity. Items which are being considered during the investigations are: addition of hydroelectric generating units; modernization of existing hydroelectric generating units; addition of pumped-storage facilities; effects of construction and operation on the fisheries of Lake Mead and Colorado River and the Lake Mead National Recreation Area; the amount of river excavation required; possible revisions to Lake Mohave operating criteria to allow capacity for water regulation; value of the additional generating capacity; the environmental impacts of the modification with its associated transmission lines; and the integration of the additional capacity into the existing system. A planning team was formed and feasibility studies were initiated in fiscal year 1977. The problems and needs of the area are currently being defined. Studies of river channel excavation and its environmental impacts and of the value of the proposed additional generating capacity are underway. Studies of the impacts upon the Lake Mead National Recreation Area will be initiated in fiscal year 1978 and completed in fiscal year 1979. The formulation of alternative plans is scheduled for completion in fiscal year 1979 with the Feasibility Report scheduled in fiscal year 1980. The total estimated cost has been increased $60,000 to cover the 1976 classified pay raise and acceleration of work because of the investigation's high priority.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Lower Colorado Region - Feasibility Investigations (Continued)						
Mojave-Coachella Project (Reformulation)	California	$105,000	$4,569	$100,431	--	--

This project is located in Riverside and San Bernardino Counties, California. Feasibility Investigations were completed under the traditional guidelines for determining the feasibility of a project in fiscal year 1975. The purpose of the proposed project is to convey California State Water Project water to Apple, Lucerne, Johnson, Yucca, and Upper Coachella Valleys. This program is scoped to reformulate the project plan under the Principles and Standards of Multiobjective Planning utilizing all information obtained in the previous investigations. Reformulation of the project under the Principles and Standards with emphasis on the major objectives was initiated in fiscal year 1977 and is scheduled for completion in fiscal year 1978. Studies on the project have been temporarily suspended awaiting the California Department of Water Resources' feasibility study on extending the California Aqueduct. Upon conclusion of the State feasibility study, the water user agencies will presumably make their desires known. If it is feasible for the State to construct the project, a Bureau concluding report will be prepared on this project. If the water users desire a different route studied than the one in the original Feasibility Investigations, additional time and funds will be required and a Status Report will be prepared in fiscal year 1978. If the original route studied by the Bureau of Reclamation is selected, the program will be carried on as originally scheduled. The total estimated cost has been increased $5,000 to cover the 1976 classified pay raise.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Colorado Region--Feasibility Investigations						
Central Utah Project--Ute Indian Unit	Utah	$5,319,332	$4,490,332	$567,000	$112,000	$150,000

The Ute Indian Unit is a potential development that could cover Utah's remaining share of Upper Colorado River water. It could be integrated with development in the Bonneville Basin, Utah, including developments on the Bear, Weber, Jordan, and Sevier River Basins. The Unit will make a major contribution toward strengthening the economy of the Ute Indian Tribe by supplying both full and supplemental irrigation water supplies for Indian population throughout a major part of Utah. The Unit would also provide benefits from power, recreation, fish and wildlife conservation, flood control, and water quality control. The Unit has the support of the local water users, including the Ute Indian Tribe, the Central Utah Water Conservancy District, and the State of Utah.

In FY 1970 the Central Utah Water Conservancy District contributed $100,000 to the Bureau for use on the investigations. As a provision of the Colorado River Basin Act of September 30, 1968 (P.L. 90-537), the Ute Indian Unit was made one of the projects given priority in planning under the Upper Colorado River Storage Project Act.

Completion of the feasibility report has been delayed from FY 1979 to FY 1980 because of the emphasis being placed on high priority energy related studies.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Colorado Region--Feasibility Investigations (Continued)						
Colorado River Storage Project Power Peaking Capacity	Utah Colorado Wyoming Arizona	$2,390,000	$253,913	$68,000*	$595,000	$1,473,087
Power Peaking Capacity Studies		($790,000)	($253,913)	($68,000)	($50,000)	($418,087)

This investigation will encompass the Upper Colorado River Basin and the eastern part of the Bonneville Basin along the Wasatch Front in Utah. The purpose of this investigation is to evaluate the potentialities for providing part of the additional future peaking capacity requirements of the southwestern area of the United States at large hydroelectric power developments in the Upper Colorado River Basin and eastern portion of the Bonneville Basin in Utah. The possibility of increasing the conventional hydroelectric peaking capacity sites will be evaluated. From studies conducted to date, three potential units have been selected for more detailed studies as follows:

Generation at Outlet--Blue Mesa	Colorado	($400,000)	--	--	($145,000)	($255,000)

The purpose of this investigation will be to determine feasibility of potential peaking power installations to generate up to 50 MW of hydroelectric power peaking capacity that will be needed by the year 1985 in the Colorado, New Mexico, and Wyoming portions of the Colorado River Storage Project market, as determined by the Power Peaking Studies conducted to date. The potential means to help meet this demand is by generation from the outlet works at Blue Mesa Dam, Curecanti Unit, Colorado River Storage Project. The studies are scheduled to be initiated in FY 1979 and extended through FY 1980.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Colorado Region--Feasibility Investigations (Continued)						
Colorado River Storage Project Power Peaking Capacity (Continued)						
Generation at Outlet-Glen Canyon	Arizona	($400,000)	--	--	($200,000)	($200,000)
The purpose of this investigation will be to determine feasibility of potential peaking power installations to generate up to 250 MW of hydroelectric power peaking capacity that will be needed by the year 1985 in the Arizona, New Mexico, southern Nevada, and southern Utah portions of the Colorado River Storage Project market, as determined by the Power Peaking Capacity Studies conducted to date. The potential means to help meet the demand is by generation from the outlet works at Glen Canyon Dam, Colorado River Storage Project. The studies are scheduled to be initiated in FY 1979 and extend through FY 1980.						
Utah Lake Unit	Utah	($800,000)	--	--	($200,000)	($600,000)
The purpose of this investigation will be to determine feasibility of potential peaking power installations to generate up to 1,440 MW of hydroelectric power peaking capacity that will be needed by the year 2000 in the Utah, Wyoming, and southern Nevada portions of the Colorado River Storage Project market area, as determined by the CRSP Power Peaking Studies conducted to date. The studies are scheduled to be initiated in FY 1979 and extend over a 4-year period.						

The estimated total cost has been increased $2,047,549 which consists of $4,000 to cover the cost of the 1976 pay raise (Executive Order 11941); reduction of $19,000 in the FY 1977 program which are excess to the year's needs; increase in future year programs to meet the continuing increased use of peaking power needs ($462,549), and initiation of feasibility investigations on the following studies: Generation at Outlet--Blue Mesa ($400,000); Generation at Outlet--Glen Canyon ($400,000); and Utah Lake Unit ($800,000).

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Colorado Region--Feasibility Investigations (Continued)						
Dominguez Reservoir Project	Colorado	$601,695	$429,695	$72,000	$100,000	--

The project is located in the Gunnison River Basin in Montrose and Delta Counties in western Colorado. The investigation will determine the feasibility of providing many types of benefits to the area, including 76,000 acre-feet of water annually for M&I uses, power production, reduction of sediment and debris carried by Gunnison River thereby lowering maintenance costs. The reduction of saline and sediment concentrations in project reservoirs will provide for outstanding recreation, fishing, and waterfowl habitat. Power and M&I water produced or supplied by the project is needed to accelerate the development of oil and coal industries that are actively being considered to help alleviate the energy crisis. Feasibility report completion has been rescheduled from FY 1978 to FY 1979 to allow for collection of additional needed environmental data which was not originally anticipated.

The estimated total cost has been increased $115,602 of which $2,000 is to cover the cost of the 1976 pay raise (Executive Order 11941), and $113,602 additional funds will cover contract costs for environmental data not provided for adequately in the original estimated total cost of the investigation.

Grand Mesa Project (Reformulation)	Colorado	$1,272,975	$798,975	$232,000	$217,000	$25,000

This project is located in west-central Colorado near the town of Cedaredge in the Gunnison River Basin. This study will resume feasibility investigations which were initiated in FY 1977 and extend into FY 1980, and will be conducted in accordance with principles and standards for planning procedures. The studies concluded in FY 1974 were made according to traditional methods of evaluation. The North Fork and Grand Mesa Water Conservancy Districts, by joint resolution, have requested the Bureau of Reclamation to resume the studies. The project will develop water of streams tributary to the Gunnison River and its North Fork for irrigation, municipal, and domestic use, recreation development, and fish and wildlife enhancement. The project will also aid area redevelopment.

The estimated total cost has been increased $165,306 of which $5,000 is to cover the cost of the 1976 pay raise (Executive Order 11941); and $160,306 is to cover cost of contracts for aerial topography and environmental data not provided for adequately in the original total cost of the investigation, and rounding in the current year.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Colorado Region--Feasibility Investigations (Continued)						
Sublette Project	Wyoming	$614,807	$582,807	$32,000	--	--

The project is located in Sublette and Sweetwater Counties in southwestern Wyoming. Studies include alternative plans to provide water for irrigation, municipal and industrial needs, including the export of approximately 100,000 acre-feet of water annually from the Green River to the North Platte River Basin for municipal and coal related uses such as powerplant or coal gasification plants. The plans would provide for ultimately developing the State's share of the Colorado River Compact water for consumptive in-state use and regulating the excess water to satisfy instream flow needs.

The Green River Basin contains vast amounts of natural resources in the form of trona, coal, oil shale, oil, and natural gas. Development of some of these resources is presently proceeding at a moderate rate. However, in light of our national need for energy, this development could expand enormously in future years, particularly if economically and environmentally sound technology is developed for coal gasification and extraction of oil from shale. This type of development with its accompanying municipal growth could greatly increase the need for water in the Basin. At this point in time, however, it is impossible to predict when this growth would occur and in which direction it would proceed.

The State of Wyoming has indicated that judging from the current rate of requests from industries for purchase of water from the State contracted water supplies at Fontenelle Reservoir, the State's water supply will apparently meet the foreseeable water needs from the Green River. Accordingly, the State has recommended that the completion of our feasibility investigations be delayed until the future long-term water needs of the Green River Basin are more exactly known. In response to the State's recommendations, a Status Report is scheduled to be completed early in FY 1978.

Investigation of the Sublette Project was authorized by P.L. 84-485 April 11, 1956, and amended by P.L. 90-537 September 30, 1968.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Colorado Region--Feasibility Investigations (Continued)						
Upper Colorado Resource Study	Colorado Utah	$1,005,000	$341,817	$242,000	$100,000	$321,183

The project is located in eastern Utah and western Colorado. The purpose of the study will be to identify reasonable alternatives to meet water requirements for the most likely and projected levels of production of the oil shale tracts, C-a and C-b in Colorado and U-a and U-b in Utah, provide municipal water to meet the needs of support population in both states, provide water for Ute Tribe Indian lands and non-Indian lands and enhance stream fisheries and recreation values. The project area is receiving increased attention for resource development, particularly the oil and oil shale reserves, mainly due to the energy situation. Project irrigation facilities are needed to provide development and help the Tribe expand its economic opportunities. The project would also provide other multiple uses such as flood control and water quality. The study will incorporate the results of investigation efforts of the Western Energy Expansion Study (appraisal) and the Colorado River Storage Project Peaking Capacity (feasibility) Study as they affect the study area. These are separate studies. The investigation will also include the Yellow Jacket study as a Unit and incorporate the Lower Yampa Project study and studies in the White River drainage. Completion of the feasibility report has been rescheduled from FY 1979 to FY 1981 to allow for completion of studies described in the cost increase.

The estimated total cost has been increased $243,000 to cover the cost of contracting for a wildlife resource inventory, aerial mapping of the project area, archeological surveys, water quality investigations, and foundation drilling not covered sufficiently in the original estimated total cost of the investigation ($237,000); and increase ($6,000) to cover the cost of the 1976 pay raise (Executive Order 11941).

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PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Southwest Region - Feasibility Investigations						
Cache Creek Project	Oklahoma	$428,147	$413,147	$15,000	--	--

The Cache Creek Project includes a study of the Cache Creek drainage basin and its tributaries lying primarily in Comanche, Cotton, and Tillman Counties in southwestern Oklahoma. The water resources of the area and potentialities for development for municipal and industrial water supplies, pollution abatement, recreation, fish and wildlife, and flood control purposes are under investigation.

Southwestern Oklahoma is the most critical area in the State from the standpoint of needing development of adequate quantities of suitable quality water to meet requirements. The Cache Creek Basin is located in this area and is one of the few remaining undeveloped water resources. The latest municipal and industrial demand projections within the Cache Creek Basin indicate that the present supply is sufficient to meet local needs beyond 2030. In recognition of this situation, the Oklahoma Water Resources Board requested that a special report be prepared that would evaluate the potentialities of making water deliveries to points of need outside the Cache Creek Basin, as well as meeting inbasin needs when they occur. This investigation, which was initiated in FY 1974, will be completed in FY 1978. The total estimated cost was increased $5,611 to provide for additional drilling exploration.

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PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Southwest Region - Feasibility Investigations (continued)						
Chikaskia Project	Kansas	$557,540	$534,540	$23,000	--	--

The Chikaskia Project would consist of a dam and reservoir on the Chikaskia River in Sumner County, Kansas. These facilities are expected to provide water principally for municipal and industrial development in Wichita and Wellington, flood control, recreation, and fish and wildlife. Feasibility studies suspended in FY 1967, found the project, as planned at that time, marginal. During FY 1971, projections of future municipal and industrial water requirements in the project area prompted the Kansas Water Resources Board and the city of Wichita to become interested in the development of a municipal and industrial water supply on the Chikaskia River. According to water use projections, the city of Wichita will need additional water supplies by the mid-1980's.

Feasibility investigations which were resumed in FY 1974, have been conducted in accordance with the principles and standards. Three damsites--Corbin, Caldwell, and Hunnewell--have been investigated. The Corbin site best meets the combined flood control needs in the Chikaskia Basin and municipal and industrial needs for the cities of Wellington and Wichita, Kansas. The Equus Beds, an underground aquifer, has also been investigated as a municipal supply; however, future overdraft and water quality problems may preclude the use of the aquifer as an alterantive. The project report is scheduled for completion in FY 1978. The total estimated cost has been increased $18,283 to provide for employee pay raises and for a more detailed analysis of the Equus Beds underground aquifer.

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PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Southwest Region - Feasibility Investigations (continued)						
Gallup-Navajo Indian Water Supply Project (Formerly the Gallup Project-New Mexico)	New Mexico-Arizona	$1,014,177	$757,177	$237,000	$20,000	--

The project is located in McKinley, Valencia, and San Juan Counties in northwest and west-central New Mexico. The purpose of the project is to provide an additional supply of water for the city of Gallup and the Navajo Indian Tribe. Gallup is located in a basin with limited water resources of poor quality. The existing and planned development of the Yah-Ta-Hey well field will meet the projected needs for the city for only about 10 to 20 years. At that time an additional supply will be required to meet the future needs. A supply of water of excellent quality is available from the Navajo Reservoir on the San Juan River, and 7,500 acre-feet of New Mexico's entitlement under the Upper Colorado River Compact has been reserved for Gallup. The water reservation is tentative at this time, and assurance of its availability in perpetuity is necessary before a plan for delivery of the surface supply can be recommended. Plans to convey the surface water supply from the San Juan River to Gallup have been studied. The Navajo Tribal Utility Authority has furnished the Bureau a report on future water requirements totaling 38,500 acre-feet by year 2020 at selected communities on the Navajo Indian Reservation in an effort to coordinate a plan for delivery of municipal and industrial water from the San Juan River to Gallup and the Navajo Reservation. Development of well fields in several areas has also been considered; however, results of investigations to date indicate that area ground water resources are inadequate to meet projected municipal and industrial water supply needs. An extensive project social and economic study contract is scheduled for completion in January 1979. Since Gallup and the Navajo Reservation must have Federal Government assistance to make a major improvement in the water supply, the project is the only feasible means of providing for additional population growth. The total estimated study cost has been increased $39,900 to provide for drilling and a social and economic assessment, transfers to Fish and Wildlife Service, and to provide for employee pay raises. The feasibility investigation, started in FY 1974, was scheduled for completion in FY 1978 but has been rescheduled for completion in FY 1979 to provide complete hydrologic evaluation, incorporate social and economic data, and to include a San Juan River fisheries evaluation.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Southwest Region - Feasibility Investigations (Continued)						
Geary Project	Oklahoma	$369,000	—	$77,000	$170,000	$122,000

The Geary Project investigation will evaluate the Canadian River in Oklahoma to meet expanding industrial water supply needs in the midterm future. The Canadian River is the largest unused surface water resource within the project area. Its quality is not desirable for municipal use because of the dissolved solids; however, it can be used without treatment for irrigation and many industrial purposes, such as cooling water for thermal-power production. A potential use of this water for cooling water in combination with warm water irrigation exists. The use of this source for industrial purposes could alleviate the competition for other water sources that are more suitable for municipal purposes. Consideration will be given to other beneficial uses during the investigation. Appraisal-level comparative studies, completed in 1973, involving six alternative damsites indicate that a surface water impoundment on the Canadian River (Hydro Site), about 97 kilometers (60 miles) west of Oklahoma City and 19 kilometers (12 miles) west of Geary, Oklahoma, is a favorable site for meeting future needs. Feasibility studies, began in FY 1978, will provide the necessary data to support a request for construction authorization when the need is manifested. The project report is scheduled for completion in FY 1981. The total estimated cost has been increased $19,000 to provide for employee pay raises and field level fund transfers to Fish and Wildlife Service.

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PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Southwest Region - Feasibility Investigations (continued)						
Raton Water Supply Project	New Mexico	$669,253	$101,253	$216,000	$260,000	$92,000

The project investigations will provide a feasibility level study of the water resources of the northeastern corner of New Mexico. This will include parts of Colfax, Union, and Harding Counties. At present, the city of Raton has an inadequate water supply to meet its municipal and industrial needs. Detailed ground water and surface water investigations are needed to identify the quality and quantity of the supplies available to develop plans to permit the optimum use of the area's water resources. Potential sources being investigated are the Upper Canadian River and its tributaries and ground water resources in the vicinity of Capulin, New Mexico, located about 30 miles east of Raton. Other water resource needs and viable alternatives for meeting them will also be identified. Appraisal investigations were completed in early FY 1977 and feasibility studies were immediately initiated. The feasibility studies are scheduled to be completed in FY 1981. The estimated total cost has been increased $16,253 to provide for transfers to Fish and Wildlife Service and also to provide for employee pay raises.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Southwest Region - Feasibility Investigations (continued)						
Seward Project	Oklahoma	$654,144	$346,144	$175,000	$120,000	$13,000

This investigation will provide a feasibility level study of the water resources of parts of Logan and Oklahoma Counties located in central Oklahoma. The primary objective of the investigation will be to develop detailed plans for meeting the municipal and industrial water supply needs for Guthrie, Edmond, and other nearby cities. The Oklahoma Gas and Electric Company has also expressed interest in the project. Studies will identify these needs and present viable alternatives for meeting them. All reasonable sources of ground and surface water supplies will be studied and their quality and quantity investigated. Consideration will be given to flood control, recreation, and fish and wildlife as project purposes.

The appraisal investigation of the Seward Project shows that the potential Seward dam and reservoir on Cottonwood Creek, a tributary of the Cimarron River, about 1 mile west of Seward, Oklahoma, is a practical surface water development that would satisfy the water problems of the area. This surface water development along with ground water could meet the short and long term water needs of the area. The area in and around the project is one of the fastest growing metropolitan areas in the State of Oklahoma. Projections indicate the area's population will double or possibly triple by the year 2020. The population growth and industrial expansion are expected to continue to place unparalleled burdens on domestic water supply sources. Although many of the cities and communities presently rely on ground water to meet their needs, the lifetime of the aquifer and effects of pumping are unknown. The total estimated cost has been increased $45,874 to provide for additional data gathering, transfers to Fish and Wildlife Service, and employee pay raises. The feasibility investigations which were initiated in FY 1977 are scheduled to be completed in FY 1980.

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PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Southwest Region - Feasibility Investigations (continued)						
Texas Basins Project	Texas	$4,741,411	$3,503,986	$186,000	$20,000	$1,031,425

The Regional Director's proposed report on the Texas Basins Project has been completed. The Bureau's report proposed an interbasin canal from east Texas to the Rio Grande Valley, which would supply M&I water to the valley, and irrigation service to areas along the canal route. Interchange of water from the various river basins intersected was also proposed. Simultaneously, the State of Texas was in the process of developing rules and guidelines for the maximum efficient utilization of the water resources of the State. In December 1968, the Texas Water Development Board published its "Texas Water Plan." The State continues to study, revise, and update the plan. In order to coordinate the Bureau's proposal with State desires and needs, it was necessary to modify Bureau studies and to upgrade several portions of the Bureau's plan to feasibility-grade level, particularly the irrigation service areas which were of reconnaissance grade. Three of these units have been completed and interim reports prepared. The actual cost of the completed San Antonio-Guadalupe Division investigation increased the total cost by $986. Several other features of the Texas Basins Report have been singled out as separate units in themselves. Further studies on these units will be prepared as separate reports which presently includes the Colorado Coastal Plains Project.

Colorado Coastal Plains Project is located generally in the Lower Colorado River Basin in Bastrop, Fayette, Colorado, Wharton, and Matagorda Counties, Texas, comprising about 90 miles of the Colorado River inland from the Gulf of Mexico. The principal objectives of this investigation are to (1) identify alternative plans for satisfying an imminent need for municipal, industrial, and irrigation water in the area; (2) evaluate potential sources to provide cooling water for thermal power generating plants; and (3) assess and evaluate the near and midterm needs of the area for enhancing water quality, fish and wildlife, and recreation. This study will be particularly concerned with providing adequate storage in a number of smaller reservoirs at various sites as opposed to the single-large reservoir (Columbus Bend) in the original plan for the area. Principles and standards will be used in formulating a plan. The investigation, initiated in FY 1975, has been rescheduled for completion in FY 1979 for inclusion of complete hydrologic investigation in the environmental assessment of bays and estuaries. Increase of $25,425 in total estimated cost is to provide for hydrologic investigations of the Lower Colorado River and also to provide for employee pay raises.

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PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Missouri Region - Feasibility Investigations						
Apple Creek Unit, Pick-Sloan Missouri Basin Program (P-S MBP)	North Dakota	$552,772	$358,772	$194,000	--	--

This investigation, authorized by P.L. 93-493, will develop detailed plans for delivery of water from the Missouri River for irrigation, municipal and industrial use, rural water supplies, recreational development, and development of fish and wildlife facilities. The study includes portions of Burleigh, Kidder, and Emmons Counties--nearly 3 million acres. The area contains about 60,000 people, of which about two-thirds live in the State Capital, Bismarck. Reconnaissance studies indicate there are about 60,000 irrigable acres in Burleigh County and as many as 100,000 irrigable acres in Kidder and Emmons Counties. Future development must be carefully planned and managed to optimize positive values and minimize adverse environmental and social impacts. Of equal importance is the need for orderly planning or resource development so that economic impacts related to urban development, irrigation, and recreation and fish and wildlife developments will be stable and long lasting.

Landowners and business groups have conveyed strong interest in multiple purpose resource development of the area. The North Dakota State Water Commission has received funding ($186,000) from the State Legislature to participate in a joint Federal-State study of the area.

A feasibility report is scheduled for completion in fiscal year 1978.

The total estimated cost has been increased by $32,909 to cover employee pay raise and unanticipated environmental questions encountered in the investigations.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Missouri Region - Feasibility Investigations (Continued)						
Garrison Diversion Unit, M&I Facilities (Garrison Division, P-S MBP)	North Dakota	$818,286	$307,286	$71,000	$101,000	$339,000

The study area includes towns and cities in central North Dakota east of the Missouri River in the general area of the Garrison Diversion Unit.

This investigation, authorized by P.L. 92-577 (approved October 27, 1972), will develop detailed plans for delivery of municipal and industrial water from features of the Garrison Diversion Unit (under construction) to municipalities and industrial areas that need immediate and assured long-term water supplies.

The first phase of the study initially was to consider water service to the cities of Lansford (population 296), Glenburn (population 381), Harvey (population 2,361), and Fessenden (population 815) and was expanded to cover the city of Garrison (population 1,614). Well water utilized by these communities is not of sufficient quantity or desirable quality. Typical of many small agricultural towns, Lansford and Fessenden experienced population losses of about 15 percent during the last decade, while Glenburn and Harvey showed relatively no growth. The population of Garrison has decreased by about 10 percent in the last decade. Water service from Garrison Diversion Unit could be a key to future growth of these communities, with population projected to increase from present 5,467 people to 8,250 by year 2020 as a result of impacts from irrigation. The five communities have indicated interest in early solutions to their water problems, with studies to be done in time to complete planning and construction when water is first available from the Garrison Diversion Unit in the late 1970's or 1980's. However, Glenburn and Lansford have been deferred to later studies until an agreement is reached with Canada concerning return flows from irrigation into Canada via the Souris River. A second phase of the investigation would cover similar needs for additional water of better quality for as many as five other cities and potential industrial areas when these needs become apparent. The five cities and their 1970 populations are: Turtle Lake (712), Mercer (132), McClusky (664), New Rockford (1,969), and Sheyenne (362).

Single-purpose water service would involve pipelines to storage reservoirs near the towns; some of these reservoirs will have possibilities for development for recreation and fish and wildlife.

The total estimated cost has been increased by $340,286 due to the increase in the number of North Dakota communities requesting to be included in the investigation. A report on the first phase is rescheduled for completion from FY 1978 to FY 1979 and second phase studies will be started after FY 1979. The first phase completion date was rescheduled because of higher priority litigation problems and environmental work.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Missouri Region - Feasibility Investigations (Continued)						
Muddy Ridge Area - P-S MBP	Wyoming	$294,770	$ 44,770	$140,000	$110,000	--

Muddy Ridge Area is located north of Riverton, Wyoming, between Fivemile and Muddy Creeks and is an underdeveloped area in the Third Division of the existing Riverton Unit in Wyoming. Public Law 94-156, dated December 16, 1975, authorized feasibility investigations for Muddy Ridge Area. Previous investigations have shown that about 9,000 acres in this area are irrigable under gravity irrigation standards. This figure may be increased by changing the land classification specifications to current economic levels and including sprinkler irrigation. The Midvale Irrigation District has requested the sale of federally owned lands in the Muddy Ridge area in order that they may be developed for irrigation purposes.

Investigations are needed to evaluate the irrigable lands of the 18,000-acre area prior to disposal. The study will also examine the economic justification of serving the additional land as an extension to the Riverton Unit. Possibilities for development are: Joint Federal-State development, Small Reclamation Projects Loan, or future project extension under General Investigations procedures. For joint Federal-State development or Small Projects, consideration would need to be given to sale of lands under P.L. 91-409, September 25, 1970, an Act to reauthorize the Riverton Unit. Under General Investigations procedures, a final feasibility report could lead to construction authorization and subsequent funding.

The total estimated cost has been increased by $44,770 to cover employee pay raise and regional Fish and Wildlife Coordination Act transfers.

A feasibility report is scheduled for completion at the end of fiscal year 1979.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Missouri Region - Feasibility Investigations (Continued)						
Oahe Unit, M&I Water Facilities (James Division)	South Dakota	$948,552	$273,552	$185,000	$150,000	$340,000

This investigation, authorized by P.L. 92-577 (approved October 27, 1972), will develop detailed plans for delivery of municipal water from features of the Oahe Unit (construction initiated in fiscal year 1973) to municipalities that need immediate or long-term water supplies.

The first phase of the study is considering water service to the cities of Redfield, Cresbard, Miller, and Aberdeen. The city of Redfield (1970 population 2,943) is located at the western end of Oahe Unit lands and near the first area to be irrigated. Water is now being obtained from deep wells high in mineral content and sometimes does not meet drinking water standards. Under preliminary plans, Missouri River water of good quality would be supplied from a canal of the Unit and stored in a carry-over reservoir, which might also be developed for other uses, such as fishing and recreation. An assured supply could be furnished for a projected year 2030 population of 10,000. Water may also be needed for rural water systems in the vicinity.

The municipality of Cresbard (1970 population of 224) is located adjacent to and on the east side of the proposed Cresbard Reservoir, a major water regulating and storage facility of the Oahe Unit supply system, in northeastern Faulk County, South Dakota. Cresbard presently obtains a water supply of inferior quality from deep wells similar to that previously described for Redfield. It is anticipated that nearby Cresbard Reservoir would be the most likely source of better quality Missouri River water that will be available with the construction of the initial stage of Oahe Unit. An assured water supply could be furnished for a projected year 2030 population of 400.

The city of Miller (1970 population of 2,148) is located in Hand County, about midway between the Missouri River and the Lake Plain area of the James River Valley, and could receive water service from the Highmore Canal that will be constructed early in the initial stage development of Oahe Unit. Water for Miller is presently obtained from three wells, each exceeding 1,000 feet in depth, and the average TDS concentration exceeds 2,300 parts per million (p.p.m.). This water is very high in sodium, sulfates, chlorides, fluorides, and iron; the quality often fails to meet recommended drinking water standards. Good quality Missouri River water (only 550 p.p.m. estimated TDS) could be supplied from the Highmore Canal. An assured water supply could be furnished for a projected year 2030 population of 3,800.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE

Upper Missouri Region - Feasibility Investigations (Continued)

Oahe Unit, M&I Water Facilities (Continued)
(James Division)

The city of Aberdeen (1970 population of 26,476) is the second largest municipality in eastern South Dakota, located in Brown County near the northern extremity of the irrigable West Lake Plain area of the Oahe Unit. Aberdeen could receive water service from the West Main Canal that will be constructed later during the initial stage development of the Oahe Unit, for a projected population of 60,000 by year 2030. The city presently obtains their water supply from surface sources (Willow Creek and Elm River) which were severely effected by the 1974 and 1976 droughts that occurred in north-central South Dakota. Aberdeen is also a member of the WEB (Walworth-Edmunds-Brown Counties) Water Development Association which is exploring a more costly alternative of conveying treated water easterly by pipeline from Lake Oahe to meet their future long-term needs. Another alternative source of water supply that could be considered is the James River, which is located within 7 miles of the existing Aberdeen water treatment plant.

A second phase of similar studies will be reinitiated after FY 1979 for considering water service to Onida, Harrold, Highmore, Orient, and Faulkton, with subsequent phases for other cities and towns in or near the Oahe Unit area as they submit their study requests.

Water service is expected to be a key to future development of many of the municipalities in the Oahe Unit area and is expected to help in stabilizing population.

The total estimated cost has been increased by $259,552 due to increased number of South Dakota communities requesting to be included in the investigation.

A report on the first phase is rescheduled for completion from FY 1978 to FY 1979 because alternatives to the Oahe Unit need to be examined.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Missouri Region - Feasibility Investigations (Continued)						
Power Intertie Studies		$100,000	--	$85,000	$15,000	--

Public Law 94-156, dated December 16, 1975, authorized feasibility investigations for Power Intertie Studies.

P-S MBP's operating power system, physically in eight states, interconnects hydropowerplants of multipurpose developments with load centers throughout the Missouri Basin and is subdivided into an Eastern and a Western Division for operating purposes. Facilities include 23 hydropowerplants with 2.7 million kW of installed generating capacity and 10,000 miles of transmission lines. This transmission network is extensively interconnected with other power supplies both within and outside the P-S MBP area. The Eastern Division interconnects with Southwest Power Administration and the Western Division with Colorado River Storage Project. The Bureau is a member and active participant in both Mid-Continent Area Power Planners and Western Systems Coordinating Council.

Power complexes in the Eastern United States and those in the West could be operated interconnectedly continuously with addition of adequate transmission capacity between those areas. The feasibility study will identify intertie and facility requirements considering load-resource balances, optimum conservation and use of energy, and economic justification.

A report on findings of the study is scheduled for completion in FY 1979.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Missouri Region - Feasibility Investigations (Continued)						
Versippi Unit - P-SMBP	North Dakota	$130,015	$ 20,015	$100,000	--	--

Public Law 94-156, dated December 16, 1975, authorized feasibility investigations for Versippi Unit.

Versippi Unit is located on the Green River, near the city of Dickinson in western North Dakota.

A feasibility study was recently completed at the field level which evaluated a near-term and long-term solution to the water supply needs of Dickinson, North Dakota. The principal long-term alternative is to secure a water supply from a potential damsite on the Green River. A study of the unit is needed to determine the feasibility of constructing a multi-purpose dam and reservoir that would provide a firm water yield of 6,000 acre-feet, an adequate supply through the year 2025. The city of Dickinson strongly supports the near-term solution that has been authorized by Congress (Public Law 94-228) for construction but also desires a study of Versippi Unit as a possibility to meet long-range water requirements.

The total estimated cost has been increased $30,015 to cover pay raise and additional geologic exploration of coal deposits in the Versippi Reservoir site.

A feasibility report is scheduled for completion by the end of FY 1978.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 19 78 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE
Lower Missouri Region - Feasibility Investigations						
Front Range Unit (Longs Peak Division, P-SMBP)	Colorado	$1,215,033	$899,033	$85,000	$140,000	$91,000

The primary objective of the unit is to evaluate the water resource potential of the Cache la Poudre River and St. Vrain Creek Basins and adjacent areas to provide municipal and industrial water for the cities of Boulder,Estes Park, Fort Collins,Longmont,Loveland, and other communities located along the Front Range of the east slope of the Rocky Mountains. The feasibility study was initiated in FY 1970 and a status report was released December 1977.

In response to state and local support, additional studies will focus on the Coal Creek area of the unit. A detailed assessment of alternative means for developing municipal and industrial water supply for the communities of Erie, Lafayette,Louisville, and Superior will be made. The communities are currently experiencing serious water shortages. The present population of about 12,000 is projected to expand to about 50,000 by the year 1990.This aspect of the study will be completed in FY 1980. The cost increase of $22,745 is due to the classified pay raise and to accommodate the change from Departmental to field level transfer funding of fish and wildlife studies.

Little Blue Unit (Blue Division, P-SMBP)	Nebraska	$1,141,793	$472,793	$70,000	$50,000	$549,000

The project is located in south-central Nebraska on the Little Blue River in Clay,Nuckolls,Thayer,and Jefferson Counties. The project features a dam to be constructed on the Little Blue River to serve the components of flood control,recreation,fish and wildlife conservation,stabilize the ground water in areas of declining water table or provide a water supply for irrigation of 20,000 acres of irrigable lands. An irrigation system consisting of diversion dams,pumping plants, and canal and lateral systems would also be required.The feasibility investigations of the Little Blue Unit was authorized by P.L. 89-561,dated September 1966,however,completion of the feasibility report was suspended when it was determined that the study would have to be reformulated in accordance with the "Principles and Standards for Planning Water and Related Land Resources" developed by the Water Resources Council. A study recognizing the Water Resources Council's Principles and Standards has started in FY 1978 with completion scheduled in FY 1982.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Lower Missouri Region - Feasibility Investigations (Continued)						
Seminoe Dam Modifications (Kendrick Project)	Wyoming	$699,379	$586,379	$113,000	--	--

The existing Seminoe Dam is located on the North Platte River about 72 miles southwest of Casper, Wyoming. The feasibility investigations will examine the engineering,economic,and environmental effects of the structural enlargement of Seminoe Dam for additional hydroelectric power, provide additional space in Seminoe Reservoir for flood control and storage of water generated by weather modification or importations from other basins.The new Principles and Standards will be utilized in the investigation. The Wyoming water plan of May 1973 identifies the basin's total consumptive use needs. They are expected to increase by 345,000 acre-feet or a 50 percent increase,by the year 2000. Consumptive use projected for irrigation is expected to increase by 267,000 acre-feet or 41 percent, while municipal and industrial water is projected to increase by 78,000 acre-feet or 211 percent by the year 2000.The report of the State Study Team for Wyoming (Western United States Water Plan) of September 1973 projects a consumptive use of 45,000 acre-feet of water for the basin's coal industry by the year 2000.This represents nearly 58 percent of the projected total municipal and industrial consumptive use in the North Platte River Basin.The study would determine what portion of these uses could be met through dam enlargement and related measures.

Recent drouth years followed by serious flooding in the lower portions of the North Platte River Basin has accelerated the demand for additional storage. A study of the potential of integrating existing facilities will be made in connection with this investigation to provide for enhancement of fish and wildlife and recreation aspects. The feasiblity investigation was initiated in FY 1973 and is scheduled for completion in FY 1978.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Lower Colorado, Upper Colorado Regions, and Engineering and Research Center - Feasibility Investigations						
Colorado River Water Quality Improvement Program	Arizona, California Colorado, Nevada, New Mexico, Utah, Wyoming	$22,129,600	$9,422,269	$3,143,077	$1,595,200	$7,969,054

The purpose of this investigation is to develop the best comprehensive plan of water management for the Colorado River Basin which will optimize water use while maintaining the salinity levels of the river. Additional development of the basin's water resources will generate rises in the salinity levels unless salinity control measures are implemented. Natural sources contribute the largest share of the salt load; however, return flows from irrigation, municipal, and industrial uses also make significant contributions. The salt load is concentrated into smaller volumes of water by out-of-basin exports, evapo-transpiration by irrigated crops, and evaporation from free water surfaces causing significant increases in salinity concentrations.

The Colorado River Water Quality Improvement Program is identifying individual problem areas, developing alternative control plans, and recommending remedial action. In addition to the physical control units, several water management measures such as revised systems operations, vegetation management, collection and use of irrigation return flows, and improvement of irrigation efficiencies are being studied for practicality of application. Support studies including economic evaluation of water quality impacts, development of river simulation models and a legal and institutional review are underway and will provide a basis for evaluating the water management plans and salinity control measures. Research activities include studies of the relationship between irrigation efficiency and salt loading, land and channel processes contributing to the salt load from diffuse sources, and evaporation pond cost reduction.

The irrigation management services program will continue on all irrigation source control units except the Palo Verde Irrigation District in fiscal year 1978. Feasibility reports on the system improvement studies for the Uinta Basin and Lower Gunnison Units are scheduled in fiscal year 1979. A status report on the Colorado River Indian Reservation and Palo Verde Irrigation District is scheduled in fiscal year 1978. On-going program evaluation will require substantial operation and further development of existing mathematical models. Research contracts to investigate the potential of evaporation pond cost reductions and desalting pretreatment studies are scheduled in fiscal year 1978.

Subtotal - Feasibility Investigations	$61,751,689	$32,263,635	$9,055,105	$5,613,200	$14,819,749

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
SPECIAL INVESTIGATIONS						
Pacific Northwest Region						
Southwest Idaho Water Management Study	Idaho	$4,007,229	$3,483,229	$300,000	$125,000	$99,000

The Southwest Idaho Water Management Study is a comprehensive investigation to identify problems and needs and to develop alternate solutions related to the management and use of the water, land, and related resources of southwest Idaho. The study area extends from Bliss, Idaho, on the Snake River west to the Idaho-Oregon State line, including the Boise and Payette River basins. Two major divisions were recently under study: Garden Valley and Mountain Home. These studies have been reoriented with emphasis on water management concepts. The water management study is an integrated analysis of the river systems. Information collected during the previous studies provides important input to the water management study.

Principle objectives of the study include: (1) analyze the use and availability of water, land, and other environmental resources and near-term and long-term needs for both preservation and development; (2) study modifications in reservoir and river operations and evaluate alternative uses of uncommitted storage in existing reservoirs; (3) study existing irrigation systems, both Federal and private, to determine ways to more efficiently use the available water resources; (4) identify irrigation return flows and other supplies which could meet new demands; (5) evaluate the potentials for new hydropower development by enlarging existing plants, by developing pumpback units in connection with existing storage, and by developing conventional or pumpback plants in connection with new storage; (6) develop plans to solve critical water-related problems and needs; and (7) develop alternative plans for needed conservation and enhancement measures and for balanced regional development and economic growth which are compatible with the quality environment of the area. Solutions to problems will be implemented wherever possible.

Progress to date includes development of computer model capability for the Boise River system, cooperative studies of instream flow needs, water quality studies in the Boise and Payette River basins, and mapping of a large part of the Boise Valley's irrigation distribution system as a basis for system improvements. In addition, preliminary studies have been made of some hydropower potentials; as a result, a feasibility study is now in progress on the enlargement of Anderson Ranch Powerplant, and a full appraisal study of adding a powerplant at existing Arrowrock Dam is being considered.

The study is being coordinated with Idaho State Study Team and Pacific Northwest River Basins Commissions activities and other ongoing studies in parts of the area. The study will provide valuable information for the Idaho State Water Plan and its implementation.

To enable completion of the study, hydrologic computer models of the Boise and Payette Rivers are required. Their extreme complexity was not originally anticipated. Also, the level B study for Southwest Idaho has been delayed and data from this study is needed. The study therefore has been extended 21 months and is now scheduled to complete the end of FY 1980. The total estimated cost has been increased $125,173 to provide for local level transfers for Fish and Wildlife Coordination Act studies, to cover the October 1976 pay raise (Executive Order 11941) and to conduct the referred to computer model studies.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Pacific Northwest Region - Special Investigations (Continued)						
Upper Snake River Water Management Study	Idaho-Wyoming	$2,510,296	$1,652,296	$300,000	$150,000	$408,000

Due to the magnitude and the complexity of water resource developments in the upper Snake River basin, the area is being studied under water management concepts. The study area includes the basin upstream from Bliss, Idaho.

The scarcity of surface water and competition for its use require that plans for the basin be closely related to the management of Snake River. The river provides the major source of surface water and is, in combination with ground water, an essential element in resolving conflicts and assuring the best use of available resources to meet needs. Demands for water include instream flows for fish and wildlife, recreation, water quality control, industrial purposes, irrigation, and other uses. The basin also has major environmental resources and values which need to be protected.

The major purposes of the study are to develop procedures and programs to measure and analyze present and potential water uses; to promote more efficient use of available water supplies by integrating the operation of the existing reservoir storage system with use of recycled return and waste flows, ground water, ground water recharge, improved irrigation distribution system and application efficiencies, and water exchanges; and to identify and evaluate alternatives uses of the available water supplies and other environmental resources to meet critical needs.

Progress to date includes a preliminary appraisal of increasing capacity of the existing Minidoka Powerplant on the Snake River. Based on these findings, feasibility authorization was obtained and the study is underway. A preliminary study of the potential enlargement of the Palisades Powerplant also showed good potentials for a major increase in generating capacity. Other items in progress include cooperative instream flow studies, improvements in computer models of the river systems, and studies of alternatives for increasing irrigation system efficiencies.

Support for water management studies in the basin has been strong. The State of Idaho needs the type of information which will be developed by the study for use and consideration by the Idaho Water Resource Board and other agencies in preparing the Idaho State Water Plan and in conducting the future studies required to implement the plan. The Idaho Department of Water Resources supports studies in the area to determine if water is being efficiently used and if there are possibilities for developing new water supplies to meet future needs by improving existing systems and operations.

The study previously scheduled for completion in FY 1980 has been rescheduled to complete in FY 1981. Work on this study is being curtailed because of the emphasis placed on power studies. The total estimated cost has been increased $39,925 to cover the October 1976 pay raise (Executive Order 11941) and provide for local level transfers for Fish and Wildlife Coordination Act studies.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 19 78 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE
Pacific Northwest Region - Special Investigations (Continued)						
Yakima Valley Water Management Study	Washington	$1,072,673	$499,673	$223,000	$125,000	$225,000

The Yakima Valley, in south-central Washington, extends along the Yakima River from central Washington south to the Columbia River. The Bureau of Reclamation's Yakima Project with its reservoirs, stream operation criteria, and water service contracts is the major water controller in the valley. This study will identify, and where authority exists, recommend implementation of measures needed to solve critical water-related problems in the Yakima valley. Major streams have immediate water quality problems which curtail human use and contribute to a decline in anadromous fish runs. Flood damages average $1.8 million annually. Aging and inefficient irrigation water delivery systems serve over one-half million acres, and 100,000 acres of irrigated farm lands face water shortages of up to 50 percent. The water supply available is inadequate to meet all of the demands being placed on it. Conflict between uses is increasing in intensity. The study specifically will: (1) determine and recommend for implementation the most acceptable means of improving the utilization of existing water supplies; (2) determine and recommend for implementation the most acceptable ways to augment the water supply to satisfy any water shortage problems; and (3) identify and recommend for implementation actions to improve water-related activities such as recreation at operating reservoirs. Periodic reports recommending viable action items will be prepared over the course of the study. The study will complement the State's water quality management plan, the Corps of Engineers flood control evaluation, and activities of the Pacific Northwest River Basins Commission.

The study began in FY 1975 and was scheduled for completion in FY 1980. However, due to emphasis on initiating power studies work on this study will be somewhat curtailed, and the study has been extended 18 months with completion now scheduled at the end of FY 1981. The total estimated cost has been increased $89,762 to provide for local level transfers for Fish and Wildlife Coordination Act studies and to cover the October 1976 pay raise (Executive Order 11941).

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Mid-Pacific Region - Special Investigations						
Central Valley Total Water Management Study	California	$1,431,316	$ 897,316	$ 249,000	$ 285,000	-

The study area encompasses 19 counties and portions of 18 others, all in the Central Valley Basin except Trinity and Santa Clara Counties. The two major river systems in the basin, the Sacramento and San Joaquin, are augmented by Trinity River diversions.

The last few years have produced changes in water and related land resources values, with much emphasis shifting to environmental and social objectives. The study is examining and evaluating water and related resource developments in the Central Valley Basin, either existing, currently authorized, or under study to determine if changes would be desirable, either operational in nature or by the addition, deletion, or modification of features to more fully meet imminent needs and objectives. All work will be coordinated with ongoing studies or related activities. Consideration will be given to legal, institutional, political, environmental, social, economic, land use, and other factors as well as physical modifications. Initially, the study will concentrate on the operations and facilities of the Central Valley Project.

An overall report is scheduled for completion in FY 1979, but working documents presenting the results of various study phases are being issued as each phase is completed. To date, documents have been completed on 11 study items and others are underway. Public exposure of the study during public involvement meetings and other similar activities indicates considerable support for this type of study. Support is not only evident from traditional water development interests, but also from environmentally oriented groups and concerned private citizens.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Mid-Pacific Region - Special Investigation (Continued)						
Delta Support Studies	California	$4,252,431	$2,664,629	$ 737,802	$ 435,000	$ 415,000

The study area encompasses portions of Alameda, Contra Costa, Solano, Yolo, Sacramento, San Joaquin, Stanislaus, and Merced Counties. Geographically, the area includes the Sacramento-San Joaquin Delta, the Suisun and San Pablo Bays, the Suisun Marsh, the confluence of the Sacramento and San Joaquin Rivers and adjoining lands. Of great importance is the recreational use of about 700 miles of waterway and some 40,000 acres of water surface, along with its significant use by warmwater and anadromous fish and waterfowl. All of the salmon in the Central Valley fishery must pass through the Delta to spawn. The annual commercial salmon catch value is in excess of $5 million.

Also, the area includes about 780,000 acres of land used primarily for agricultural production. The Suisun Marsh contains almost 10 percent of California's remaining natural wetlands and hosts up to 20 percent of the State's winter population of waterfowl. The Federal Central Valley Project and the State Water Project utilize the Delta channels as a conveyance system to move water from northern storage reservoirs to the southern service area. This, along with water needs for local use and diversion from the Delta and for preservation of recreation, fishery, and marsh areas, requires better control of waterflows. The Peripheral Canal (proposed by the Bureau of Reclamation and authorized by the State) would meet these needs by transporting water around the eastern Delta periphery to the export pumping plants and by providing operational releases enroute to meet Delta environmental and consumptive needs. To explore operational requirements of this proposed project and methods to maintain and enhance the environmental qualities of the study area, the Bureau of Reclamation, Fish and Wildlife Service, California State Departments of Water Resources and Fish and Game entered into an agreement dated July 13, 1970, providing for studies necessary to evaluate ecological effects of water management on the Sacramento-San Joaquin Estuary.

These studies will define operation and maintenance procedures and fish preservation measures that will provide for preservation and enhancement of fish and wildlife resources of the estuary as a significant role in future water management. Study programs are well underway to support a 1984 operational date for the Peripheral Canal. Other work includes continuing water quality monitoring, negotiations with Delta water user organizations, and ways of meeting special water needs of the western Delta and the Suisun Marsh in Solano County. This includes the study of potential use of treated waste water for Suisun Marsh management to meet the needs of this important waterfowl and wildlife area

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Mid-Pacific Region - Special Investigations (Continued)						
Delta Support Studies (Continued)						

In FY 1979, due to the emphasis on hydroelectric investigations, some of these studies will be curtailed or else they will be deferred until FY 1980.

The Solano County Flood Control and Water Conservation District, the Suisun Resource Conservation District, Ducks Unlimited, and various wildlife conservation and sportsmen's organizations in the San Francisco Bay area strongly support the study effort. The $425,626 increase in total estimated cost is due to the 1976 pay raise--$17,000 (Executive Order 11941), and for additional studies pertaining to the effects of the current drought situation on the fish and wildlife and the ecological conditions in the Sacramento-San Joaquin Delta. Agency status reports are being scheduled annually with a summary report scheduled for fiscal year 1980. Four-agency funding for the studies is in the $1.5 million range annually. All State conservation and water resource agencies are in general support of Federal participation in this study.

Lahontan Basin Total Water Management Study	Nevada-California	$ 366,406	$ 128,406	$ 73,000	$ 90,000	$ 75,000

The study area is located in the Lahontan Basin portion of the Mid-Pacific Region. It includes principally the central and western two-thirds of Nevada and the northeast edge of California within the drainage areas of streams flowing off the Sierra east slope into Nevada. The Lahontan Basin area proposed for study is one of the most water-poor regions in the country. Yet, the pressure of new settlement and growth is heavier in some parts, notably the west-central sector, than in most areas of the Nation. Nonresident visitation and use also is especially great, and brings an extra burden to many areas. Inland areas in the central and eastern portion of the basin are underdeveloped and are struggling to rise to reasonable levels of economic and social self-sufficiency. The great problem facing planners throughout the Lahontan Basin is to provide now for imminent growth which, in some areas, is strongly needed, and at the same time to provide for maximum protection of the environment. The total water management planning concept offers a thorough and balanced approach to solving the water-related problems of the subbasins.

Under this study, the present disposition of water and related land use in the various subbasins of the Lahontan Basin will be examined to determine how water management can be redirected and improved to enable existing supplies to meet near-term and future needs. Present operations and use of facilities will be studied. Water resources in all forms will be explored, including water lost to nonbeneficial consumption, waste water from present use, ground water, brackish water, and geothermal and atmospheric sources. Purposes that can be served beneficially by these resources

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE

Mid-Pacific Region - Special Investigations (Continued)
Lahontan Basin Total Water Management Study (Continued)

will be studied in full scope, embracing environmental, social, and economic needs. Legal, institutional, political, administrative and procedural impacts on water and land use will be considered in planning for total water management, as well as the effects of physical modifications. Studies will be focused on subbasins according to immediacy of need. The study will be concerned largely with Nevada water problems and is being pursued in close cooperation with the Nevada Division of Water Resources, coordinating with the State Water Plan and also with the State's land use planning program. State, Federal, and local resource interests will be sought.

The Nevada Division of Water Resources has expressed definite interest in the study and feels it would complement State water planning. Interest in gaining planning assistance has been demonstrated by other local entities, especially in the Carson River Basin and other areas where water and related land resource problems are becoming acute. The increase of $109,113 in total estimated cost is due to the need to evaluate the current drought situation as it relates to water management possibilities. New water management constraints and data must be considered in evaluating water management options. Included is $3,000 for the 1976 pay raise (Executive Order 11941). The report was scheduled for completion in FY 1979, but rescheduled for completion in FY 1980 to allow for evaluation of the drought situation.

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Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Lower Colorado Region - Special Investigations						
Reclamation and Energy Resources, LMNRA Wilderness Designation	Ariz-Nev	$1,500,000	--	--	$250,000	$1,250,000

This investigation is located within the Lake Mead National Recreation Area between Davis Dam and Grand Canyon National Park. The National Park Service has completed the preplanning conference on the Lake Mead National Recreation Area Wilderness Designation, held a series of public meetings, and has formulated a planning team. The planning team has made its preliminary recommendations and is presently reviewing and revising these recommendations. The purpose of these investigations is to firm up the potential energy resources and other Bureau of Reclamation requirements which may be located within the National Park Services' proposed Lake Mead National Recreation Area Wilderness Designation. Basically these requirements fall into three categories: (1) those areas which contain potential hydroelectric pumped-storage sites. These include Pinto Valley on Lake Mead; and Mohave, Indian Rapids, Fenlon Bend, Fire Mountain, and Newberry Mountain on Lake Mohave; (2) corridors through the wilderness areas for transmission lines, alternative highway river crossings and approach roads; (3) access, telemetry systems, and associated utility lines to existing projects or projects that are under construction; and (4) areas required for the operation of Lake Mead and Lake Mohave. Studies are scheduled to be initiated in fiscal year 1979 with a report scheduled in fiscal year 1981.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Southwest Region - Special Investigations (continued)						
Elephant Butte Reservoir-Fort Quitman Project	New Mexico-Texas	$1,392,415	$1,301,415	$91,000	--	--

The project is located in the Rio Grande Valley between the upper end of Elephant Butte Reservoir in New Mexico and Fort Quitman in Texas and the surrounding region of southern New Mexico and far west Texas. All of the surface water resources of the area are fully committed, and ground water for municipal and industrial use is being withdrawn faster than it is being replaced. Sometime in the future, current water use patterns must be altered or additional water must be made available for the area to meet expected demands. The investigation is being done to determine means to better utilize existing surface and ground water supplies in the valley. The investigation is focused on a series of alternative future scenarios relating long term development of available material and human resources achieving varying degrees of regional economic potential within environmental and ecological constraints. The total estimated cost was increased $16,292 to provide for employee pay raises and transfers to Fish and Wildlife Service. Studies started in FY 1973, and a report will be completed in FY 1978.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Southwest Region - Special Investigations (Continued)						
Llano Estacado Total Water Management Study	New Mexico, Texas Colorado, Kansas, & Oklahoma	$1,049,877	$149,877	$263,000	$395,000	$242,000

The purpose of this study is to investigate the water resource problems of the southern high plains region of eastern New Mexico and northwest Texas, plus those high plains of Colorado, Kansas, and Oklahoma lying south of the Arkansas River. The major portion of the area lies within the States of Texas and New Mexico. The principal source of water supply for agricultural, municipal, and industrial uses throughout the high plains region is ground water pumped from the Ogallala aquifer. This ground water supply is rapidly being depleted. A comprehensive study is needed to evaluate the water supply conditions, resources, availability, and consequential regional and national implications due to limited or uneconomical water supplies available for meeting demands.

Initial efforts are being directed towards evaluating water supply capability of the playa lakes through utilization of remote sensing techniques and correlations with ground surveys and monitoring systems. Socioeconomic and environmental baseline data obtained in conjunction with the playa lake capabilities will be used to evaluate alternative plans. Similar studies or related activities and concepts by other agencies or organizations will be coordinated with this investigation. This investigation began in FY 1977 and is scheduled to be completed in FY 1981. A status report covering activities in FY 1977 is being published. The increase in total estimated cost of $49,877 is to provide for employee pay raises and transfers to Fish and Wildlife Service.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Upper Missouri Region - Special Investigations (Continued)						
Total Water Management Study, Missouri River Upstream of Gavins Point	Montana, Wyoming, North Dakota, South Dakota	$867,304	$419,304	$269,000	$9,000	$170,000

This two-phase investigation will (1) describe and demonstrate the existing and authorized river and tributary operations and related legally instituted constraints within the study area; (2) define existing water uses; (3) evaluate the efficiencies of present water uses; (4) review and update earlier studies related to identifying mineral-energy water needs, water availability for that purpose, and alternative means of supplying the required water; (5) identify and quantify local area water supplies in potential coalfield development areas, identify potential water supply deficits, and provide alternative plans for satisfying identified needs; (6) help to evaluate the Federal role in coordinating multiple-group plans of mineral-energy development to assure that efficient and environmentally acceptable plans are derived inasmuch as a large number of energy companies are interested in meeting specific current energy needs; (7) address and place in perspective currently known and potential water rights problems in the study area; and (8) array and put into perspective other ongoing local, State, and Federal planning efforts in the study area, especially as they relate to mineral-energy development efforts.

Special emphasis will be placed upon coordination of all levels of study action with the public including effected private citizens, water and related land management entities, environmental interests, municipalities, counties, other local governmental entities, State, and other Federal agencies. Material collected by other agencies, private companies, and groups will be utilized to the fullest extent possible in the investigations. Where additional information is required and expertise is not available within the Bureau, studies will be contracted with State agencies, universities, and consultants. Special efforts will be made to involve State and local agencies and interested groups and individuals throughout the entire study period. Special considerations will be given to study plan coordination with efforts of the Water Resources Council in its planning proposals in the study area.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 19 78 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE

Upper Missouri Region - Special Investigations (Continued)

Total Water Management Study,
Missouri River Upstream
of Gavins Point (Continued)

Insofar as mineral-energy water considerations are concerned, it is expected that this special study will complement Federal efforts in coordinating detailed plans for resource utilization in the coal-rich area and will evaluate the environmental and socio-economic impacts of those plans. Investigations identifying the needs for and possible constraints upon possible diversions from Lake Sakakawea in North Dakota would be emphasized in preliminary phases of the study because those needs require identification sooner than in the Yellowstone Basin. Potential diversion points and initial points of use of industrial water are better defined in that area at the present time than other areas. In the Yellowstone Basin potential diversion points from river system are known, but water supplies which reflect all hydrologic and institutional constraints will be investigated further.

In the first phase, the above purposes will be addressed within the framework of currently available water management technology and study criteria. Nonstructural solutions to water operation and potential supply problems will be explored. Current study cost estimates assume but do not assure continuation beyond non-structural considerations. Structural alternatives for development of identifiable water supplies would be arrayed on a common evaluation basis for comparative analysis and relative priorities for development would be evaluated for all purposes served. A report on the second phase was scheduled for completion in FY 1979, however, because of high priority power enhancement studies, the report is rescheduled to be completed in FY 1981. The total estimated cost has increased $15,304 to cover employee pay raise and regional Fish and Wildlife Coordination Act transfers.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Lower Missouri Region - Special Investigations						
Republican River Basin Water Management Study (P-SMBP)	Colo. Kans., & Nebr.	$1,181,000	--	$50,000	$200,000	$931,000

This water management study will encompass the Republican River drainage basin in Colorado, Nebraska, and Kansas. The determination of a dependable water supply in the Republican River Basin requires evaluation of several factors, including past and future depletions of surface water flows by ground-water use, possible changes in rainfall and associated runoff patterns, and the fulfillment of Republican River Compact conditions. The questions related to water supply will be considered first: the interrelationship between ground water and surface water supplies will be determined and an assessment of how ground-water development has affected surface water supplies will be made. Examination of alternatives to best use the future water supply will then be made. This 5-year study was initiated in FY 1978 and scheduled to be completed in FY 1983.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Lower Missouri Region - Special Investigations (Continued)						
Solomon River Basin Water Management Study (P-SMBP)	Kansas	$1,360,758	$56,758	$126,000	$250,000	$928,000

This water management study includes the Glen Elder, Kirwin, and Webster Units in the Solomon River Division in north-central Kansas. During the last decade, runoff patterns have changed significantly in this part of Kansas.There is an urgent need to reexamine the precipitation patterns, the runoff characteristics, and the resultant water supply for the existing projects to determine what changes in operation, if any, could promote more efficient use of the available water supply. Other water related problems in the basin include the mining of ground water and subsequent ground water and surface water shortages.Surface water shortages negatively affect the fishery potential both in streams and reservoirs and reduce the wildlife habitat value of streambank areas. The water management study will attempt to relate all of the existing and projected water supply and demand factors and analyze methods to improve the overall efficiency of water use in the basin.

The problem area in the upper part of the basin above Webster Reservoir will be studied first. However, the irrigation water supplies for both the Kirwin and Webster Reservoirs have been depleted.The effect of these depletions on Waconda Lake and the proposed Glen Elder Irrigation District would be determined as a part of this study. The study was initiated in FY 1977 and is scheduled to be completed in FY 1982.The increase of $572,758 in the total estimated cost is due to the classified pay raise, to accommodate the change from Departmental to field level funding of fish and wildlife studies, and as a result of increasing the scope of the study, particularly with respect to ground water hydrology, which will extend the study completion for 2 years.

Wind-Hydroelectric Energy Integrated Study	Colorado, Wyo.& Utah	$1,000,000	--	$250,000	$284,000	$466,000

This investigation will study the feasibility of large scale development of wind turbine generators in an isolated area in southern Wyoming. This would consider the construction of a wind turbine generator farm with up to 50 units. The study will involve the integration of wind power with the Colorado River Storage Project (CRSP) hydroelectric system to produce marketable peaking capacity with energy to conserve oil and relieve critical power shortages in the mid-1980's. In addition, this integration will help to optimize the utilization of the existing capacity in the hydro system.. Environmental and socioeconomic conditions and impacts associated with large numbers of wind turbine generators will be investigated.Power market analysis would be coordinated with local electric utilities.The effect of the integration on the hydroelectric system would be evaluated.An instrumentation tower and low level towers for measuring wind conditions will be constructed in FY 1978. A system verification complex is considered a part of the Wind Energy Project.The study was initiated in FY 1978 and scheduled for completion in FY1981.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
SPECIAL INVESTIGATIONS						
Interregional						
Low-Head Hydroelectric Evaluation and Inventory		$900,000	--	--	$400,000	$500,000

The primary objective is to determine the economic viability of specific low-head hydropower sites in Western United States and to provide a full evaluation and estimate of the magnitude of developable western low-head hydroenergy potentials. Emphasis will be placed on low-head energy potentials at existing water resources facilities such as existing dams, canals, and waterways. Other sites would be studied as well to determine the magnitude of total low-head hydro potential in western United States. These sites would include sites that would operate in conjunction with existing upstream reservoir storage facilities thereby increasing and enhancing total hydroenergy output within certain river basins. Power production and benefits would be enhanced through use of interconnecting Federal power transmission and water conveyance facilities.

Initial stages of the study would address evaluation criteria and standards including economic evaluation criteria of low-head potentials such as costs, benefits, and marketing values of power produced by potential low-head hydro facilities. While knowledge concerning economics, environmental and engineering viability aspects of low-head hydro development are rapidly becoming better defined through pioneering developments in western Europe and rapidly expanding efforts of Federal and private interests in the United States, available information needs to be analyzed and tailored to values wholly applicable for use in the United States.

Evaluation of site specific low-head potentials promises to provide a significant and early source of energy to help meet future National energy needs.

Considerable support for this type of study has been evidenced, from deliberation and statements of other governmental agencies and private interests. This support is not only evident from traditional water development interests, but also from environmentally oriented groups and other concerned citizens.

This investigation was first described in the Western Energy Expansion Study report dated February 1977 on page B-74 as proposal WE02. An overall report is scheduled to begin in FY 1979 and be completed in FY 1981.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Interregional - Special Investigations (Continued)						
Environmental and Interagency Coordination Activities	Various	$3,632,910 1/	--	$1,942,910	$1,690,000	--

The advent of the National Environmental Policy Act of 1969 and various Administration initiatives concerning water resource planning standards has emphasized increased coordination and technical studies by agencies that have primary responsibility for environmental and other matters. Work in this category, underway or anticipated, is composed of the following items: irrigation benefit studies for the Corps of Engineers; review and comment on other agency reports and studies including environmental statements; development of data for participation in other agency negotiations and public hearings; participation and preparation of information for the various public groups; participation on State and Federal study teams; short term unanticipated technical studies required by a wide range of administrative and congressional entities; preliminary examination of local problems and needs upon request of others; advance work on proposed investigations; correspondence and direct public inquiries; accomplishments of cooperative programs with the Geological Survey for collecting, analyzing, and publishing streamflow data; participation on energy coordination activities; the review of Public Law 566 projects for the Department of Agriculture; review of wild and scenic river proposals; assuring peridic in-house review of procedures for evaluating and formulating natural resource projects; and, unifying in-house planning and development instruction.

1/ Total estimated cost for this activity is related to the current program only.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Interregional - Special Investigations (Continued)						
Minor Work in Connection with Completed Project Investigations		$6,622,495 1/	$ --	$1,000,495	$888,000	$4,734,000

After studies have been completed at field level, resulting reports must be reviewed and approved at the Washington level and submitted to the State and other Federal agencies for review prior to their submissions to the Congress for authorization. During this review process and during congressional consideration of the projects, experience has shown that it will be necessary to perform additional work on some of those investigations. Reformulation or reevaluation of plans are required for some proposals to reflect changes in planning criteria. It is impossible, however, to predict which of the reports will be so involved or the amount of additional work required. It occasionally is necessary to submit the reports or special drafts of reports to the local beneficiaries for an expression of their desires and opinions prior to formal processing of the report to the Congress. This review sometimes necessitates additional work which cannot be foreseen and budgeted separately. In addition, there are a number of investigations essentially completed on which work will be accomplished so that respective reports will provide plans consistent with changing priorities as well as new development and evaluation criteria. The funds programed for this item will provide for this work as it arises, and the costs incurred will be charged to the applicable investigation.

1/ Cost estimate related to the current and projected program only.

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Interregional - Special Investigations (Continued)						
Investigations of Existing Projects		$1,200,830	$38,830	$102,000	$166,000	$894,000

There are a large number of local water users organizations, operating irrigation and drainage facilities on projects constructed by the Bureau. Many of these developments have been in operation since early in the history of Reclamation, and conditions often develop which cannot be foreseen far in advance but need prompt remedial action. The above funds will be utilized for studies of this nature on existing Reclamation projects.

The amount programed for fiscal year 1978 includes $62,000 to continue the Belle Fourche Project.

The amount programed for fiscal year 1979 includes: $41,000 for initiation of a study to repair the spillway and enlarge Fruitgrowers Dam; $10,000 to complete the Belle Fourche Project; $75,000 for initiation of North Platte Project R&B.

The balance of the program for fiscal year 1978 and fiscal year 1979 will be used for studies of other existing Reclamation projects as the need develops.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Interregional - Special Investigations (Continued)						
Print Reports		$210,000	--	$35,000	$35,000	$140,000
Funds are required for printing of reports. Printing costs are chargeable to the specific projects or study items but are not scheduled with those projects because it is impossible to predict just when and what reports will be cleared in the review by States, Federal agencies, and the Congress and ordered to be printed.						
Projects Not Yet Identified		$249,060	--	$139,060	$10,000	$100,000
Throughout the fiscal year, the Bureau receives many inquiries from Members of Congress and State and local agencies regarding potential projects and their relationship to the Bureau's planning and construction programs. In a considerable number of instances, those inquiries concern potential developments for which there is little or no current information available for an evaluation of the Bureau's interest or role and for which the need for an evaluation could not be foreseen and budgeted as separate items when the budgets were finalized. The funds scheduled for this item are used for preliminary appraisals of these proposals to permit more prompt and informative responses to those inquiries as well as to avoid delays of from one to two years in the initiation of detailed feasibility studies of worthy Reclamation projects.						
Subtotal - Special Investigations		$34,807,000	$11,291,733	$6,151,267	$5,787,000	$11,577,000

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 19 78 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE
GEOTHERMAL INVESTIGATIONS						
Mid-Pacific and Lower Colorado						
Geothermal Resource Investigations	Arizona, California, Nevada, Utah, New Mexico, Oregon	$18,697,881	$7,675,064	$3,409,817	$555,000	$7,058,000

The technology development portion of these investigations are limited to the Mesa Anomaly on the East Mesa of the Imperial Valley, Imperial County, California. Feasibility level plan formulation studies are being made in the Salton Trough of California. Appraisal level plan formulation studies are being made throughout the Pacific Southwest. The purposes of these investigations are to: (1) develop all technology required; (2) locate and develop appraisal level plans for the anomalies which, if developed, could possibly meet water needs of the area; and (3) prepare feasibility level plans for the most promising anomalies within the Salton Trough, California and determine the economic justification for those plans. These studies would also consider utilization of water from the Salton Sea to repressurize the geothermal reservoirs. Studies were initiated in fiscal year 1972. Tests to date have demonstrated that the production of fresh water from geothermal fluids is technically feasible. The methodology for the location and evaluation of geothermal anomalies has been developed and studies are underway to locate and define the anomalies on Federal lands in the Pacific Southwest. The development of production and injection technology and Mesa Anomaly reservoir engineering are underway. Appraisal level plan formulation studies are scheduled to be initiated in fiscal year 1978 on all anomalies which could meet water needs of the area. The appraisal report is scheduled in fiscal year 1980. Feasibility level plan formulation studies for the development of the Mesa Anomaly are scheduled to be initiated in fiscal year 1978 with a feasibility report scheduled in fiscal year 1981. Feasibility level plan formulation studies are scheduled to be initiated on other selected anomalies during fiscal year 1980 with the feasibility report scheduled in fiscal year 1983.

In addition, studies will be conducted which will monitor the status of geothermal resources within California, Nevada, and a portion of Oregon. Liaison will be maintained with various State and Federal agencies as well as with utilities and other geothermal resource developers, in order to assess this resource's applicability to water resources development, including desalting of brackish and ocean waters.

The total estimated cost has been increased $527,707 to reflect the cost of the 1976 pay raise (Executive Order 11941) and take into consideration cost indexing increases of contract work.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
GENERAL ENGINEERING AND RESEARCH						
Water Resources Planning and Engineering Research		$65,203,000	$32,615,435	$3,040,774	$2,011,000	$27,535,791

Water Resources Planning and Engineering Research (WRPER), budgeted at $2,011,000, is a comprehensive scientific and engineering research program directed toward solving planning, design, construction, and operational problems involved in developing water-related resources in the western United States. The research provides better answers on how to carry out Bureau functions and breakthroughs that reduce costs, increase efficiency and reliability, and enhance safety. Typical savings include $600,000 through development of a control valve for use on the Frederick Acqueduct, Oklahoma; $13,000,000 through the use of smaller penstock entrances for the Coulee Third Powerplant; and several hundred thousand dollars through development of power system stabilizers. Other advances include obtaining acceptance and approval for use of selected herbicides for controlling weed and algae infestations in lakes, reservoirs, and canals (saving at least $4,000,000 annually); more efficient and productive irrigation practices and use of available waters; and introduction of reinforced plastic mortar pipe, a completely new type pipe with significant economies for a wide range of applications. Continuing studies in the broad research program emphasize improved planning techniques for water resources development; better evaluation methods for social, economic, and ecological impacts of Reclamation projects; and better engineering concepts, materials, and techniques for water resources structures and related electrical power generation.

The program consists of five major research and development activities as outlined below.

(1) Water Supply Augmentation and Conservation ($ 337,000) ($ 249,000)

The decrease results from lower levels of research funding for the irrigation management services program.

Water Supply Augmentation and Conservation research is directed toward identifying and developing practical techniques for managing our available water supplies and conserving existing supplies. Conservation in Agriculture studies promise large returns by developing improved methods for determining irrigation water needs, better management techniques for the water and land, and lower investment costs. Data will be collected and analyzed on present methods of irrigating and farming; optimum practical irrigation efficiencies will be determined; advice and assistance in evaluating ongoing irrigation practices will be furnished to farmers in typical areas to acquaint them with the advantages of and methods for achieving the highest efficiencies; and project planning and design criteria will be advanced so lower unit costs and better use of resources will be obtained.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE

Water Resources Planning and
Engineering Research (continued)

(2) Water Quantity Management and Control ($ 173,000) ($ 152,000)

The decrease results from reductions in research on aquatic pest control, hydrology, and sediment transport.

Water Quantity Management and Control research is conducted to improve the Bureau's management of water on and beneath the land surface in order to better utilize the water and control its damaging effects. Control of Water on the Surface studies investigate improved procedures for predicting and handling flood flows, statistical and computer-oriented techniques for managing reservoir and river basin operations, and effective, safe methods of controlling aquatic weeds which restrict flows through channels and create operational problems. Groundwater Management investigations are aimed at theoretical studies and pilot projects to determine underground water movements and quantity and the feasibility of groundwater recharge.

(3) Water Quality Management and Protection ($ 223,000) ($ 166,000)

The decrease results from reduced efforts in research on herbicide residues, reaeration and prediction of nutrients and salts in irrigation return flows.

Water Quality Management and Protection research is focused on finding new and better ways to protect the quality of Reclamation's water resources so that available supplies are not rendered unfit for use and so that environmental and ecological balances are not adversely upset. Water Quality Control studies encompass research on control of surface and groundwater quality by such methods as reaeration of reservoir and river waters; better management of groundwater impoundments and streams; determination of potential effects of residues of selected herbicides used for weed control; and identification of other sources of pollution.

(4) Water Resources Planning ($ 432,000) ($ 298,000)

The decrease results from reduced level of effort in research on techniques of planning, evaluation processes and land use planning.

Water Resources Planning research will bring improvements in the planning and decisionmaking processes for new projects and activities, in criteria used as the basis for planning, and in a better understanding for and use of economic, legal, social, and ecological aspects of water resources development and management efforts. Techniques of Planning studies will develop systems analysis and operations research techniques for better consideration of economic factors

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 19 78 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE

Water Resources Planning and
Engineering Research (continued)

(4) Water Resources Planning (continued)

and will improve planning procedures through advanced techniques for considering on a multiobjective basis more alternatives to provide for more flexible projects. Evaluation Process research will develop more appropriate and comprehensive methods for evaluating benefits and costs of projects, and the techniques for making economic, social and technological projections. Improved forecasts of economic returns through new methods of correlating crop productivity with soil and water characteristics will be developed. Land Classification research will improve land classification techniques, achieve better predictions of changes in soil chemistry and water quality resulting from irrigation, and develop reliable means for classifying lands in accordance with their best long-term uses. Ecological Impact of Water Development research looks into the effects of water projects and water management operations on the overall environment and ecology of the area, and provides information which can be used to structure the projects in ways to minimize adverse effects and provide maximum enhancement effects.

(5) Engineering Works ($1,875,774) ($1,146,000)

The decrease reflects reduced levels of effort in several research areas, such as concrete, hydraulics, electric power, and completion of several research projects, such as multijet hydraulic valves, and shotcrete tunnel support.

Engineering Works research will improve the design of water storage, control, and transmission facilities; hydropower and pumping facilities; and electrical generation and transmission facilities. It includes research on materials used in these facilities, on foundation and earthquake considerations, and on improved methods of excavation, construction, operation, and maintenance. The goal is to improve the economy, efficiency and safety of engineering structures involved in water resources development. Structures studies improve design and construction criteria for all structures associated with the Bureau's water resources development activities. Included are studies on earthquake effects, more efficient shapes for dams, measuring in situ stresses in structures and foundations, more effective use of materials in structures and pipelines, improved analysis techniques, and computerized analytical procedures. Hydraulics research helps solve the wide variety of design, operational, and maintenance problems associated with water control facilities. Research is conducted on high velocity flows and the protection of facilities from these flows, as well as on problems of energy dissipation, water measurement, pipeline and tunnel hydraulics, ice effects, reservoir stratification, groundwater movement, automatic and remote control of water conveyance systems, and drainage research. Hydraulic Machinery investigations are directed toward improving the design, performance, maintenance, and testing of the Bureau's

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 19 78 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE

Water Resources Planning and
Engineering Research (continued)

(5) Engineering Works (continued)

hydraulic turbines, pumps, gates, and valves. Electric Power research will continue to improve the efficiency and reliability of electrical power generation and control. The studies include high-voltage a.c. circuit breakers, central control facilities, a.c./d.c. converters, and system stability analytical studies. Included are studies on automated computerized system controls, new energy storage systems, variable speed-constant frequency machinery, criteria for regulating effort between major interties, and noise abatement and safety factors for powerplant facilities. Soil Mechanics investigations improve the economy, safety, and performance of foundations, canals, pipelines, earth dams, and other soils structures. Research is conducted on the effects of earthquakes, over-burden and soil pressures on steel, concrete, and plastic pipe; transmission tower footings; sampling and testing techniques, and engineering properties of soils. Research in Rock Mechanics and Geology will increase the safety and economy of Reclamation structures to be built on or in rock by obtaining more accurate data on the behavior of rock masses, and on design techniques. Studies include improvement of rock tests and facilities and grouting evaluation by geophysical methods. Concrete Research seeks new methods of producing better, more economical concrete with predictable long-time performance that will lead to safer, more economical water resource structures. Studies emphasize polymer concretes, shotcrete, improved cements and admixtures, and evaluation of factors that make concrete products more durable. Included are studies of fly ashes from subbituminous coals prevalent in the West. Research in Materials and Instrumentation develops and evaluates the wide variety of materials other than soil, rock, and concrete which are necessary to safety, economy, and long life in Bureau structures. Studies of bituminous materials, chemical materials, metals, paints, corrosion, and plastics are included, together with remote sensing. Studies are also made to select, improve, and develop instrumentation and instrumentation systems used for Bureau projects and research. Rapid Excavation research involves studies on rock properties related to rapid excavation techniques, and tunnel lining and support techniques.

In addition to the research programs listed above and on the preceding pages, certain specialized research is carried out within the regions. These activities are supported by other appropriations, and are primarily concerned with weed and phreatophyte control, sedimentation and water salvage, river channelization, vegetation studies, and fisheries research. Expenditures for these activities in fiscal year 1979 are estimated at $500,000.

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Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
GENERAL ENGINEERING AND RESEARCH						
Atmospheric Water Resources Management Program		$148,550,000	$62,026,116	$8,081,080	$4,554,185	$73,888,619

Development and demonstration of practical techniques and assessment of public acceptance and benefits of current cloud seeding technology to meet short and long-term water needs is a priority objective of Project Skywater. Technology transfer through scientific assistance and "learn-by-doing" field research and test programs in the Sierra Nevada Mountains and the High Plains states are being increased due to drought, critical energy development, agricultural production, and water quality problems. Low cost augmentation of water supplies without permanent construction will be an important part of resolving water resource and drought problems.

The planned program will have immediate benefits as a result of the research activities: (1) additional rain in the High Plains aiding farmers and ranchers and providing additional water supplies for coal gasification development and land reclamation; (2) increasing water supplies in northern California to supplement municipality supplies in dry years and improve water quality environment in the San Francisco bay-area estuaries, and (3) cooperation with state programs in Colorado River Basin to augment stream flow.

Drought has increased Federal and State agency and local water user interest in cloud seeding as indicated by a growing number of operational seeding projects and emergency drought assistance by the Bureau. With modifying the weather a growing public concern, cooperation with local and State authorities and involvement of the general public have been well-recognized features of Project Skywater. This cooperation is taking many forms, including formalized agreements for joint cost-sharing of research; local advisory boards; inclusion of special studies to meet locally expressed problems; development of research plans and operating criteria to fulfill public interest and desires; and integration of long-range State water needs into the research program requirements. Planning development considers the falling ground water tables in the High Plains, water quality problems in California, and long range water shortages in the Colorado River. The acceptance of weather modification responsibilities by State government backed by State legislation facilitates this cooperation.

Further research on improved seeding techniques and detailed assessment of effectiveness to increase precipitation and its economic and environmental impacts are essential supporting elements in preparing a usable water augmentation technology. In general, the Bureau of Reclamation's program focuses on developing and demonstrating the applied precipitation management aspects of weather modification development with the National Science Foundation and the National Oceanic and Atmospheric Administration performing the more theoretical and related basic research.

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Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE

Atmospheric Water Resources
Management Program (continued)

Project Skywater, with the complex and often controversial problems of an expanding new technology, will continue to be directed and data analyzed by the Division of Atmospheric Water Resources Management (DAWRM). Although centered in Denver, the program will require DAWRM personnel to be located at field projects for improved public involvement and local cooperation, contract monitoring and coordination, and research management. About 65 percent of the 1979 research effort will be performed through contracts with universities, private firms, and State agencies.

Projects within the Atmospheric Water Resources Management Program are organized into two main subprograms and a separate item for overall program management:

I. Comprehensive Development and Adaptation of Technology

(a) Development of Cloud Seeding Techniques ($ 500,000) ($ 250,000)

Research will continue on development and verification of simplified computer models of winter and summer clouds to rapidly identify seedable opportunities and predict seeding increases.

(b) Planning, Special Studies, and Other Support ($ 350,000) ($ 250,000)

Preliminary planning studies will be prepared for advance discussions of Federal and State water projects. Support includes operating costs of the Environmental Computer Network used for model, forecast, and analyses calculations for all Skywater research projects and for assistance to local and State operational seeding programs. Special engineering, economic, and legal studies on the ownership and water-right questions associated with additional water from cloud seeding in the Colorado River Basin will be continued. Calibration of cloud seeding generators will be continued.

(c) Environmental Effects Projects ($ 200,000) ($ 100,000)

Short studies of possible beneficial and adverse ecological/agricultural and other environmental impacts will be continued to resolve the many complex concerns resulting over local and downwind precipitation increases. Comprehensive environmental assessment studies will be made prior to start of demonstration or pilot project seeding and recommendations developed to guide field studies. Avalanche and flood hazards and ecological and "people" considera-

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Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE

Atmospheric Water Resources
Management Program (continued)

tions will likely be the limiting factors in acceptably demonstrating and applying cloud seeding technology. High Plains states are sharing agricultural research costs on effects of additional rainfall studies supported by these funds.

(d) Sierra Cooperative Pilot Project ($1,300,000)($ 875,000)

The Sierra winter research project is being continued in the Sierra Nevada mountains of northern California to study snowpack augmentation in the American River Basin. Physical structures of coastal winter storms differ enough from the interior storms, and snowpack characteristics are so completely different, that results from the Colorado Rocky Mountain studies cannot be fully transferable. Further research is needed to develop more effective seeding methods as current increases are in the 5 to 10 percent range. Additional water is needed now to meet fresh water demands for fishery and other aquatic regimes and irrigation in the Sacramento River Basin and the San Francisco bay area. Private and municipal utilities presently conducting seeding operations in this area will also be cooperating in the project. The Pacific Southwest Forest and Range Experiment Station, U.S. Forest Service, will perform studies for assessing environmental impact. Closely controlled and monitored project activites with the multiagency River Forecast Center are underway because of the concerns over possible severe flood hazards.

Ecological assessment studies have been completed and local public meetings held. Work in 1979 will continue the ecology field studies by the Forest Service, weather radar and seeding plume diffusion tests, and cooperative project design studies. Preliminary instrumentation to monitor the mountain ecological and precipitation systems will have been installed by 1978. The scheduled start of cloud seeding will be delayed to November or December 1979 in the American River mountain watersheds. Research seeding over five or six winter seasons is planned to provide sufficient data for physical and hydrologic evaluations.

II. Assessment and Demonstration of Technology

(a) High Plains Cooperative Program ($4,226,165) ($2,375,000)

A cooperatively funded Federal-State comprehensive research program called "HIPLEX" to resolve the scientific uncertainties in increasing rain from summer cumulus clouds was initiated in 1973 with start of field research in June 1975.

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 1978 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE

Atmospheric Water Resources
Management Program (continued)

State agencies are contributing about 10 percent of the total costs. An estimated potential of 1 to 2 more inches of growing season rain can result from effectively applying present technology in the plains states. In a typical year, this additional precipitation would increase agricultural production 3 to 6 bushels of wheat per acre and 300 to 600 pounds of cattle feed. Throughout the plains, farmers and ranchers are looking to weather modification to stabilize production and local economies, particularly in drought years, and as an alternative water supply when the ground water aquifers are pumped dry.

This comprehensive project will develop and evaluate improved techniques for seeding more types of summer clouds, particularly groups of clouds. Rain increases in and downwind of the seeding area will be analyzed. The effect on crop production and local economies and beneficial as well as possible adverse environmental impacts will be studied through decisions on possible future operations.

The budget for FY 1979 will permit continued cloud seeding experiments at Miles City, Montana, utilizing jet-type air-craft for "on-top" seeding delivery, and reduced background research studies at Goodland, Kansas and Big Spring, Texas.

(b) Comprehensive Compilation, Evaluation, and Summary Studies ($ 100,000)($ 100,000)

A thorough reanalysis of all winter experiment data and final reports from the completed research projects since 1966 has been made and a report on this analysis published. New modeling and statistical analysis concepts have been tested on computers using these existing data. Field data from long-term operational seeding projects sponsored by local water groups will also be included in further analyses. Further reanalysis of winter data will be made in 1979 and similar reanalysis and evaluation of summer research and operational seeding projects for rain increase will be made in 1980.

(c) Colorado River Augmentation Demonstration Program ($ 600,000)($ --)

This cloud seeding program is being designed to thoroughly demonstrate, by actual production, water augmentation of about 2 million acre-feet annually in the Colorado River. The program will feature cooperation and cost-sharing with State and locally sponsored projects. About 10 years of operations are needed for statistical verification, monitoring of any long-term ecological effects, and to provide a thorough test under a range of different seasonal weather patterns. In 1978 about $2.1 million is being spent by Basin states on weather modification application and research is imbedded and coordinated with these efforts. The actual program can be implemented in 1980 or 1981 upon completion of designs,

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE

Atmospheric Water Resources
Management Program (continued)

cost-sharing agreements, and an EIS. Preliminary planning studies were undertaken in FY 1978.

III. Program Management and State and Local Assistance ($ 804,915) ($ 604,185)

Program management of large and varied field research projects and procurement of expensive equipment and services require a central scientific coordination staff. Scientific personnel are directly assigned to the field projects for closer coordination and contract monitoring. Technical assistance in the form of loan of scientific equipment, planning assistance, or access to Bureau computer programs for control and evaluation of locally sponsored cloud seeding projects will be increased. Radar digitizing equipment and computerized analysis of clouds and rainfall will be provided to local programs. Such cooperation not only helps to ensure that the design and conduct of a project has the benefit of the latest techniques and expertise developed through Project Skywater research, but provides data which can be used for additional evaluation and verification of results from application of developed techniques. Office space costs, legal and audit expenses, and printing of reports are included in this item.

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SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
GENERAL ENGINEERING AND RESEARCH						
Energy Research and Development Program		$4,964,000	$1,067,835	$526,165	$441,000	$2,929,000
Pumped Storage		(2,964,000)	(361,322)	(275,678)	(241,000)	(2,086,000)

The pumped-storage research program is designed to maximize the contribution of pumped-storage energy to the Nation's overall energy needs. Increased use of pumped storage through improved efficiency will reduce the requirement for peak-load power generation of fossil fuel powerplants through increased utilization of hydropower, a renewable resource. The objective of this research is to improve efficiency, capability, reliability, and versatility of pumped-storage installations. This will include an evaluation of present technology and the development and implementation of new technology. Research will focus on the use of variable-speed machinery for fluctuating-head conditions, automated unit and systems control, development of more efficient pump-turbines, reduction of troublesome draft-tube surging, and investigations of technical-economic feasibility through use of natural and manmade underground storage space of water and equipment. The program will consist of two major activities: systems technology of pumped storage and underground pumped storage.

Geothermal	Arizona, California, New Mexico, Utah	($2,000,000)	($706,513)	($250,487)	($200,000)	($843,000)

Geothermal resources appear to be a method of producing electrical energy without the environmental hazards associated with fossil-fueled or nuclear powerplants. The production of electrical energy in connection with the production of fresh water would minimize the cost and environmental impacts of both. These studies are to develop the required technology and determine the feasibility and economic justification for adding the production of electrical energy to the production of fresh water being studied under Geothermal Resource Investigations. Studies were initiated in fiscal year 1976 with the addition of heat transfer studies and conceptual designs for the addition of power production to the ongoing desalting studies. Tests to date have demonstrated the production of electrical energy from geothermal energy in coordination with the production of fresh water or singularly is technically feasible. During fiscal year 1977, production plant sizing studies were initiated leading to feasibility level designs and estimates in fiscal year 1978. East Mesa project plan formulation studies are scheduled to be initiated in fiscal year 1978 culminating in a feasibility report in fiscal year 1981. Geothermal anomaly location and identification studies are underway. During fiscal year 1978 those anomalies which are not suitable for water production but are suitable for power production will be identified under this line item. Plan formulation studies on other selected anomalies are scheduled to be initiated in fiscal year 1980 culminating in a feasibility report in fiscal year 1983. The results obtained from these investigations will be included in the reports prepared under Geothermal Resource Investigations.

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Bureau of Reclamation

SCHEDULE OF GENERAL INVESTIGATIONS PROGRAM

PROGRAM ITEM	STATE	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
GENERAL ENGINEERING AND RESEARCH (Continued)						
General Planning Studies		$1,898,645	--	$338,645	$160,000	$1,400,000

The purposes of these studies are to develop improved technical procedures for evaluating and planning Reclamation projects and to train field personnel in the application of the new procedures to the ongoing program. The programs of study include economic analyses of water development for long-term benefit projections, improvement of land classification techniques, resolving sedimentation and hydrologic problems, and the monitoring of technological proposals and advances in the area of water supply augmentation through desalting processes, weather modification, and interbasin transport as related to overall Reclamation planning activities. These activities do not circumvent or duplicate the provisions of the Colorado River Basin Project Act.

Furthermore, Engineering and Research Center staff may be called upon for: (1) The review and development of planning program policies for the Office of the Commissioner, as its technical staff extension, governing the Bureau's field activities and research program developments; (2) the preparation, revision, and issuance of technical guidelines for conducting the technical phases of resource planning; and (3) the performance of special studies requested by other natural resource agencies which are similar to Reclamation activities.

Subtotal - General Engineering and Research		$220,615,645	$95,709,386	$11,986,664	$7,166,185	$105,753,410

BUREAU OF RECLAMATION

BUDGET JUSTIFICATIONS

Fiscal Year 1978 and Fiscal Year 1979

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PART 2

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COLORADO RIVER BASIN PROJECT

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OPERATION AND MAINTENANCE

LOAN PROGRAM

EMERGENCY FUND

GENERAL ADMINISTRATIVE EXPENSES

PERMANENT AUTHORIZATIONS

ADMINISTRATIVE PROVISIONS

ITEMIZATION OF ESTIMATE

Department of the Interior
Appropriation Title: General Investigations

(In Dollars)

Bureau of Reclamation

	Estimate 1978	Estimate 1979	Increase or Decrease (-)
Program and Financing			
Total direct obligations	$27,726,855	$22,200,000	$-5,526,855
Unobligated balance available, start of year	-2,620,855	.....	2,620,855
Appropriation	25,106,000	22,200,000	-2,906,000
Object Classification			
11.0 Personnel compensation	11,120,000	10,722,000	-398,000
12.1 Personnel benefits: Civilians	1,198,000	1,040,000	-158,000
13.0 Benefits for former personnel	.....	.....	.....
21.0 Travel and transportation of persons	615,000	610,000	-5,000
22.0 Transportation of things	138,000	127,000	-11,000
23.0 Rent, communications, and utilities	1,314,000	1,304,000	-10,000
24.0 Printing and reproduction	181,000	173,000	-8,000
25.0 Other services	11,890,855	7,015,000	-4,875,855
26.0 Supplies and materials	691,000	681,000	-10,000
31.0 Equipment	579,000	528,000	-51,000
99.0 Total direct obligations	$27,726,855	$22,200,000	$-5,526,855

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GENERAL INVESTIGATIONS

Explanation of Difference between obligations in U.S. Budget
(Itemization of Estimate) and Congressional Justification

	Obligations	
	1978	1979
Itemization of Estimate (total direct obligations on budget program and financing)	$27,726,855	$22,200,000
Congressional Justification	27,726,855	22,200,000

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CONSTRUCTION AND REHABILITATION

General Statement

Summarized Financial Data:

Fiscal Year 1978		
Appropriation	$354,825,000	
Application of prior year funds	220,215,533	
Non-Federal advances	10,415,000	
Total obligations, FY 1978		$585,455,533
Fiscal Year 1979		
Estimate of appropriation	$270,562,000	
Non-Federal advances	4,220,000	
Total obligations, FY 1979		$274,782,000 1/

1/ Excludes initial underfinancing of $15,144,000.

The Bureau is requesting $270,562,000 for construction and rehabilitation in FY 1979. This amount, plus the application of $4,220,000 of advances from non-Federal sources will provide for a total program of $274,782,000 The appropriation request is to continue construction of projects underway at the close of the previous year.

The FY 1979 program includes contract earnings and other costs on seven projects and on four units and divisions of the Pick-Sloan Missouri Basin Program. In addition, 21 other projects, 8 additional Pick-Sloan Missouri Basin Program units and divisions, and the program for Miscellaneous Engineering Services are grouped under the drainage and minor construction category because of their relatively limited programs. A total of $4,998,000 is provided during FY 1979 for the rehabilitation and betterment of 11 existing projects whose facilities have become obsolete or badly deteriorated. New funds for continued advance planning on 8 projects in FY 1979 total $3,563,000.

Since construction of Bureau projects extends over a number of years, it is not possible to directly relate 1 year's work to accomplishments in terms of water for new land or killowatts of generating capacity. However, continuation of construction activities during FY 1979 at the rate provided in the estimate, will yield a full water supply for irrigation of 12,700 acres of land and a supplemental supply for 29,200 additional acres of land now receiving an inadequate supply, and facilities to furnish 1,512,600 kilowatts of hydroelectric power, and 75,000 acre-feet of municipal and industrial water. To a large extent, this accomplishment reflects the application of appropriations in previous years while the impact of the FY 1979 appropriations will be felt in the years following.

On October 1, 1977, the Department of Energy was formed, at which time, a number of projects were transferred from the Bureau of Reclamation to the newly created Department. The affected projects were: the Transmission Division of the Pick-Sloan Missouri Basin Program, the Pacific-Northwest-Southwest Intertie, and transmission facilities of Parker-Davis, Washoe, and Auburn-Folsom South Unit.

The fiscal year 1979 request includes no funds for the construction of Auburn Dam. Delays have occurred in the construction of this feature due to the current review of geologic conditions at the damsite. The amount of funding that would be required in fiscal year 1979, if the related problems are satisfactorily resolved and construction can proceed, will depend on the time of their resolution and, therefore, cannot be estimated at this time. If the resolution of the problems indicate the need for additional funding, a timely request will be made to Congress. The fiscal year 1979 request also does not provide any funds for the Garrison Diversion Unit. Delays have occurred in the construction of this Unit due to unresolved legal, environmental, and international questions. The amount of funding required in fiscal year 1979, if the related problems are satisfactorily resolved and construction can proceed, will depend on the time of their resolution and, therefore cannot be estimated at this time. If the resolution of the problems indicate the need for additional funding, a timely request will be furnished to Congress.

The table on the following pages shows the distribution of financing for FY 1978 and the proposed distribution for financing the FY 1979 program.

CONSTRUCTION AND REHABILITATION

METHOD OF FINANCING FY 1978 and FY 1979

(In Thousands of Dollars)

Project and state	Fiscal Year 1978				Fiscal Year 1979		
	Appropriation	Prior year funds applied	Non-Federal Advances	Total obligations	Appropriation	Non-Federal Advances	Total obligations
ADVANCE PLANNING:							
Central Valley Project, Allen Camp Unit, California	$ 225	--	--	$ 225	$ 213	--	$ 213
Chief Joseph Dam Project, Oroville-Tonasket Unit, Washington	390	--	--	390	500	--	500
McGee Creek Project, Oklahoma	500	--	--	500	1,000	--	1,000
Rogue River Basin Project, Merlin Division, Oregon	100	--	--	100	--	--	--
San Luis Valley Project, Closed Basin Division, Colorado	500	$ 74	--	574	500	--	500
Upper Snake River Project Salmon Falls Division, Idaho	100	63	--	163	300	--	300
Walla Walla Project, Touchet Division Oregon-Washington	--	10	--	10	--	--	--
Yakima Project, Kennewick Division Extension, Washington	100	14	--	114	400	--	400
Subtotal - ADVANCE PLANNING	$ 1,915	$ 161	--	$ 2,076	$ 2,913	--	$ 2,913

C&R Method of Financing FY 1978 and FY 1979

Project and state	Fiscal Year 1978				Fiscal Year 1979		
	Appropriation	Prior year funds applied	Non-Federal advances	Total obligations	Appropriation	Non-Federal advances	Total obligations
CONSTRUCTION:							
Brantley Project, New Mexico . . .	$ 5,789	--	--	$ 5,789	$ 2,200	--	$ 2,200
Central Valley Project, California							
Sacramento River Division	29,775	$ 1,529	--	31,304	34,237	--	34,237
San Luis Unit	35,312	3,132	$ 478	38,922	24,873	--	24,873
Auburn Folsom South Unit	39,482	3,669	--	43,151	13,396	--	13,396
Miscellaneous Project Programs .	14,662	2,054	4,000	20,716	13,330	--	13,330
San Felipe Division	17,570	3,523	--	21,093	19,234	--	19,234
Subtotal - Central Valley Project	$136,801	$ 13,907	$ 4,478	$155,186	$105,070	--	$105,070
Columbia Basin Project, Washington							
Irrigation Facilities	$ 31,455	$ 276	--	$ 31,731	$ 31,365	--	$ 31,365
Third Powerplant	24,820	758	--	25,578	11,120	--	11,120
Subtotal, Columbia Basin Project	$ 56,275	$ 1,034	--	$ 57,309	$ 42,485	--	$ 42,485

C&R Method of Financing FY 1978 and FY 1979

Project and state	Fiscal Year 1978				Fiscal Year 1979		
	Appropriation	Prior year funds applied	Non-Federal advances	Total obligations	Appropriation	Non-Federal advances	Total obligations
Fryingpan-Arkansas Project, Colorado	$ 40,530	$ 626	$ 320	$ 41,476	$ 26,227	$ 220	$ 26,447
Nueces River Project, Texas	17,854	248	5,290	23,392	18,600	4,000	22,600
Palmetto Bend Project, Texas	9,800	46	--	9,846	4,992	--	4,992
Southern Nevada Water Project, Nevada	8,600	805	--	9,405	38,285	--	38,285
Teton Basin Project, Lower Teton Division, Idaho	700	1,648	--	2,348	500	--	500
Teton Dam Failure - Payment of Claims, Idaho	--	186,974	--	186,974	--	--	--
Drainage and Minor Construction Program	25,391	1,083	260	26,734	18,421	--	18,421
Rehabilitation and Betterment of Existing Projects	6,794	1,236	67	8,097	4,998	--	4,998
Subtotal (exclusive of Pick-Sloan Missouri Basin Program)	$310,449	$207,768	$10,415	$528,632	$264,691	$ 4,220	$268,911

C&R Method of Financing FY 1978 and FY 1979

Project and state	Fiscal Year 1978				Fiscal Year 1979		
	Appropriation	Prior year funds applied	Non-Federal advances	Total obligations	Appropriation	Non-Federal advances	Total obligations
Pick-Sloan Missouri Basin Program:							
Advance Planning:							
Pollock-Herreid Unit South Dakota	$ 500	$ 22	--	$ 522	$ 250	--	$ 250
Shoshone Extensions Unit, Polecat-Bench Area, Wyoming	300	--	--	300	400	--	400
Subtotal, ADVANCE PLANNING	$ 800	$ 22	--	$ 822	$ 650	--	$ 650
CONSTRUCTION:							
Canyon Ferry Unit, Dust Abatement Program, Montana	$ 1,761	$ 42	--	$ 1,803	--	--	--
Garrison Diversion Unit, North Dakota-South Dakota	18,660	6,629	--	25,289	--	--	--
Lower Marias Unit, Montana	5,400	159	—	5,559	3,568	--	3,568
Narrows Unit, Colorado	--	782	--	782	--	--	--
North Loup Division, Nebraska	5,170	76	—	5,246	4,130	--	4,130
Oahe Unit, South Dakota	--	3,488	—	3,488	--	--	--
O'Neill Unit, Nebraska	4,500	638	--	5,138	3,758	--	3,758

C&R Method of Financing FY 1978 and FY 1979

Project and state	Fiscal Year 1978				Fiscal Year 1979		
	Appropriation	Prior year funds applied	Non-Federal advances	Total obligations	Appropriation	Non-Federal advances	Total obligations
CONSTRUCTION (Continued):							
Riverton Unit, Wyoming	$ 4,300	$ 43	--	$ 4,343	$ 2,889	--	$ 2,889
Drainage and Minor Construction Program	3,785	569	--	4,354	6,020	--	6,020
Subtotal, Pick-Sloan Missouri Basin Program	$ 44,376	$ 12,448	--	$ 56,824	$ 21,015	--	$ 21,015
Subtotal, Construction and Rehabilitation	$354,825	$220,216	$ 10,415	$585,456	$305,706	$ 4,220	$309,926
Undistributed reduction based on anticipated delays	--	--	--	--	$-15,144	--	$-15,144
TOTAL	$354,825	$220,216	$ 10,415	$585,456	$290,562	$ 4,220	$294,782

Appropriation Title: Construction and Rehabilitation

SUMMARY OF ADVANCE PLANNING PROGRAM FY 1978 AND FY 1979

Project	FY 1978 Program	FY 1979 Program
Central Valley Project, Allen Camp Unit, California	$ 225,000	$ 213,000
Chief Joseph Dam Project, Oroville-Tonasket Unit, Washington.	390,000	500,000
McGee Creek Project, Oklahoma	500,000	1,000,000
Rogue River Basin Project, Merlin Division, Oregon.	100,000	-
San Luis Valley Project, Closed Basin Division, Colorado.	574,000	500,000
Upper Snake River Project, Salmon Falls Division, Idaho	163,000	300,000
Walla Walla Prject, Touchet Division, Washington.	10,000	-
Yakima Project, Kennewick Division, Washington.	114,000	400,000
Total.	$2,076,000	$2,193,000
Method of Financing:		
Allotment available or required	$1,915,000	$2,913,000
Application of prior year funds	161,000	-
Total Financing.	$2,076,000	$2,913,000

Purpose of Program: Subsequent to authorization of a Bureau of Reclamation project, additional detailed studies are generally required to refine the findings of the feasibility report and evolve a definite plan of development prior to start of construction. The major portion of this work consists of collecting final design data, preparation of final designs and specifications and completion of the definite plan report. It also includes negotiations with local interests leading to execution of repayment contracts. This advance planning program will finance detailed preconstruction studies on certain authorized projects prior to the availability of construction funds.

Supporting statements for advance planning in fiscal year 1979 for the Central Valley Project, Allen Camp Unit, Chief Joseph Dam Project, Oroville-Tonasket Unit; McGee Creek Project; San Luis Valley Project, Closed Basin Division; Upper Snake River Project, Salmon Falls Division; and Yakima Project, Kennewick Division are on the pages which follow. Supporting statements covering preconstruction activities on the Pick-Sloan Missouri Basin Program projects and participating projects of the Upper Colorado River Storage Project are provided elsewhere in the budget.

REGION Mid-Pacific

PROJECT DATA SHEET

PF-65 (11-76)
Bureau of Reclamation

PROJECT AND STATE	Completion Date 1/	% Complete 1/	Date
CENTRAL VALLEY PROJECT, ALLEN CAMP UNIT, CALIFORNIA			1-1-78

AUTHORIZATION
Public Law 94-423, September 28, 1976

BENEFIT COST RATIOS 2/

LAND CERTIFICATION	DEFINITE PLAN REPORT	Based on Direct Benefits	Based on Total Benefits	Date
Scheduled for July 1979	Scheduled for September 1979	1.0	1.2	1-1-78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 10/	$ 66,383,000	Allotments to September 30, 1977	$ -0-
Total Federal Obligations (Other)		Allotments for F.Y. 1978	225,000
Net Property and Other Transfers	128,000		
Cash Advances--Non-Federal 3/	10,000	Allotments to Date	225,000
Adjustment		Allotments Required for F.Y. 1979	213,000
Total to be Allocated	$ 66,521,000	Balance to Complete after F.Y. 1979	$ 65,945,000

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 37,674,000	Amt. Repaid By Irrigators 7/	$ 11,171,000	Irrig. Invest. per Acre	$ 3,334	Payment Capacity per Acre	$ 25.00
Recreation	1,588,000	Amt. Repaid By Power 8/	26,503,000	Repayment of Investment per Acre:		Annual Charges:	
F & WL 5/	21,760,000			By Irrigators	$ 989	O & M	$ 3.50 per
Flood Control	4,561,000			By Power Revenues	2,345	Construction	acre-foot
Other 6/	938,000						
		Nonreimbursable 9/	28,847,000				
Total	$ 66,521,000	Total	$ 66,521,000			Total	$

STATUS OF REPAYMENT CONTRACT Repayment Contract scheduled for execution March 1980 with validation June 1980.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Projectwide-draft scheduled to Environmental Protection Agency September 1979, final schedule to be determined.

DESCRIPTION: This unit is located in northwestern Lassen County and southwestern Modoc County, about 100 miles northeast of Redding, and 50 miles southwest of Alturas, California. Water will be stored on the Pit River at Allen Camp damsite to serve the functions of irrigation, flood control, fish and wildlife and recreation. Water will be supplied to 11,300 acres of new lands and supplemental water would be furnished to the proposed 10,000-acre National Wildlife Refuge by direct diversions, reuse of irrigation return flows and ground-water pumping. Recreation development would include facilities for boating, fishing, swimming, picnicking, hunting and camping.

BR-117

PROJECT DATA SHEET--2

Central Valley Project, Allen Camp Unit, California

Footnotes:

1/ Advance Planning scheduled to complete in September 1979. Construction is estimated to require 6 years.

2/ Not included in the FY 1978 Budget Justifications.

3/ Non-Federal Advances for investigations include: $5,000 from Big Valley Irrigation District; $2,500 from Modoc County; $2,500 from Lassen County.

4/ Not presented in FY 1978 Budget Justifications.

5/ Includes nonreimbursable fish and wildlife enhancement $5,206,000 and $16,554,000 for wildlife refuge.

6/ Other includes nonreimbursable for cultural resources activities (Public Law 93-291) $638,000 and general investigations $300,000 (Public Law 92-149).

7/ The scheduled amount to be repaid will be covered by execution of contracts prior to start of construction.

8/ Due to operational and financial integration, repayment by the power function, including aid to irrigation, is appropriately determined only in the composite repayment analysis of the total authorized Central Valley Project. To illustrate repayment for this unit part of the net revenues from power available for repayment of the total project is shown. See the Project Data Sheet of the Central Valley Project for the repayment analysis of this function.

9/ Includes nonreimbursable recreation $1,588,000; flood control $4,561,000; fish and wildlife enhancement $5,206,000; wildlife refuge $16,554,000; cultural resources activities $638,000; and general investigations $300,000, as authorized in Public Law 92-149.

10/ Appropriations authorized total $66,383,000 (January 1977). This authorization is adequate to cover the project as currently proposed.

Central Valley Project, Allen Camp Unit, California

Summarized Financial Data

Total estimated advance planning program		$438,000
Obligations as of September 30, 1977	$.....	
FY 1978 program	225,000	
FY 1979 program	213,000	
Balance to complete after September 30, 1979	1/	

Justification: This unit is located in northwestern Lassen County and southwestern Modoc County, about 100 miles northeast of Redding, and 50 miles southwest of Alturas, California. Water will be stored on the Pit River at Allen Camp damsite to serve the functions of irrigation, flood control, fish and wildlife and recreation. Water will be supplied to 11,300 acres of new lands and supplemental water would be furnished to the proposed 10,000-acre National Wildlife Refuge by direct diversions, reuse of irrigation return flows and ground-water pumping. Recreation development would include facilities for boating, fishing, swimming, picnicking, hunting, and camping.

The project features, as presently contemplated, include the 74,000 acre-foot capacity Allen Camp Dam and Reservoir and the Lookout Diversion Dam on the Pit River; about 36 miles of main conveyance canals; seven deep wells; return drain flow pumps; and channelization of 9 miles of the Pit River. Ten thousand acres on Ash Creek would be required for a National Wildlife Refuge. Approximately 11,300 acres of land will be irrigated each year from project facilities. Ultimate water requirement of the Unit will be about 48,000 acre-feet annually, a figure which includes 17,200 acre-feet for the proposed wildlife refuge. Total refuge requirements will be 30,000 acre-feet per year. Balance of 12,800 acre-feet will be from natural streamflow out of Ash Creek. Flood control, fisheries, and recreation are important functions of the overall plan.

FISCAL YEAR 1979

Work Proposed	Program
To continue Definite Plan studies, the preparation of an Environmental Statement and the collection of design data.	$213,000

1/ Advance planning scheduled to be completed in FY 1979.

PROJECT DATA SHEET

REGION Pacific Northwest

PF-85 (11-76) Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
CHIEF JOSEPH DAM PROJECT, OROVILLE-TONASKET UNIT, WASHINGTON	1/	1/	1-1-78

AUTHORIZATION
Public Law 94-423, September 28, 1976

BENEFIT COST RATIOS

LAND CERTIFICATION	DEFINITE PLAN REPORT	Based on Direct Benefits	Based on Total Benefits	Date
Scheduled for February 1979	Scheduled for December 1978	1.9	2/	1-1-78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation)	11/ $ 41,225,000	Allotments to September 30, 1977	$ -
Total Federal Obligations (Other)		Allotments for F.Y. 1978	390,000
Net Property and Other Transfers	700,000		
Cash Advances--Non-Federal		Allotments to Date	390,000
Adjustment	3/ 1,197,000	Allotments Required for F.Y. 1979	500,000
Total to be Allocated	$ 43,122,000	Balance to Complete after F.Y. 1979	$ 40,335,000

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE		
Irrigation	$ 40,178,000	Amount Repaid by Irrigators 7/8/	$12,401,000	Irrig. Invest. per Acre	$ 4,030	Payment Capacity per Acre $ 64.00
Power		Amount Repaid by Power 9/	27,532,000	Repayment of Investment per Acre:		Annual Charges:
M & I Water	5/ 132,000	Amount Repaid by M & I Water 5/ 8/	132,000	By Irrigators	$ 1,251	O & M $ 23.53
Recreation				By Power Revenues	2,779	Construction 28.06
F & WL	1,880,000			By M & I Water Users		
Flood Control						
Other 6/	932,000	Nonreimbursable 10/	3,057,000			
Total	$ 43,122,000	Total	$ 43,122,000			Total $ 51.59

STATUS OF REPAYMENT CONTRACT: Repayment contract scheduled for execution June 1979 with validation July 1979.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide - final filed with Council on Environmental Quality December 14, 1976.

DESCRIPTION: The project is located in north-central Washington between the towns of Oroville and Tonasket. The project is essentially a rescue operation of the 9,320 acres of orchard lands in the Oroville-Tonasket Irrigation District. The project will also provide irrigation service to 650 acres of other irrigation lands and M&I water. Of the total 9,970 acres to be irrigated, 60 acres are Indian Trust lands. Project lands are devoted almost entirely to apple production and will continue after project development.

BR-120

Footnotes

1/ Advance Planning is scheduled to be completed in FY 1979. Construction is estimated to require 6 years.

2/ Under present project formulation guidelines only direct benefits are identified.

3/ Includes irrigation power suballocation of $1,187,000 and reimbursable interest during construction of $10,000 for M&I facilities.

4/ Not included in the FY 1978 Justifications.

5/ Includes $10,000 for reimbursable interest during construction.

6/ Consists of nonreimbursable preauthorization investigation costs of $520,000 (Public Law 92-149) and cultural resources activities (Public Law 93-291), $412,000.

7/ Includes irrigation power suballocation of $1,187,000 which will be included as part of the annual pumping power charges paid by the water users.

8/ The scheduled amount to be repaid will be covered by repayment contracts prior to initiation of facility construction.

9/ Amounts to be repaid are within the limitations established by section 6 of Public Law 89-561, regarding financial assistance to Pacific Northwest reclamation projects from net revenues of Federal Columbia River power systems.

10/ Consists of $520,000 for preauthorization costs (Public Law 92-149), $412,000 for cultural resources activities (Public Law 93-291), $1,880,000 nonreimbursable fish and wildlife costs; and $245,000 for costs allocated to Indian Trust lands on which payment is deferred as long as the lands remain in Indian ownership.

11/ Appropriations authorized are $41,225,000 (January 1977). This authorization is adequate to cover this project as currently proposed.

Advance Planning

CHIEF JOSEPH DAM PROJECT, OROVILLE-TONASKET UNIT

Summarized Financial Data:

Total estimated advance planning program	$890,000
Obligations as of September 30, 1977	-0-
FY 1978 program	390,000
FY 1979 program	500,000
Balance to complete after September 30, 1979	-0- 1/

Justification: The project is located in north-central Washington between the towns of Oroville and Tonasket. The distribution system presently serving the Oroville-Tonasket Irrigation District is in critical need of replacement because of age, location on chronic slide areas, and damaging effects of the 1972 flood. Water losses in the present system are about 40 percent and efficient utilization of the water supply is impossible. The threat exists of a major failure in the system which would leave mature apple orchards without water. Any significant loss of trees or reduction in apple production would have an adverse effect on the economy of the Okanogan River valley.

FISCAL YEAR 1979

Work Proposed	Program
To continue data collection, design work, and repayment contract negotiations.	$500,000

1/ Advance planning scheduled to complete in FY 1979.

REGION	Southwest	**PROJECT DATA SHEET**	PF-65 (11-76) Bureau of Reclamation		
PROJECT AND STATE	MCGEE CREEK PROJECT, OKLAHOMA		Completion Date	% Complete	Date
			1	1/	1-1-78
AUTHORIZATION	Public Law 94-423, September 28, 1976		BENEFIT COST RATIOS		
LAND CERTIFICATION	Not required	DEFINITE PLAN REPORT: Scheduled for January 1979	Based on Direct Benefits	Based on Total Benefits	Date
			1.2 2/	1.2 2/	1-1-78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 7/	$ 87,479,000	Allotments to September 30, 1977	$ --
Total Federal Obligations (Other)		Allotments for F.Y. 1978	500,000
Net Property and Other Transfers	420,000		
Cash Advances--Non-Federal		Allotments to Date	500,000
Adjustment 3/	8,654,000	Allotments Required for F.Y. 1979	1,000,000
Total to be Allocated	$ 96,553,000	Balance to Complete after F.Y. 1979	$ 85,979,000

ALLOCATIONS 2/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$
Power		Amount Repaid by Power		Repayment of Investment per Acre:	
M & I Water	83,024,000	Amount Repaid by M & I Water 5/	83,024,000	By Irrigators	$
Recreation	2,491,000	Amount Repaid by Recreation 5/	879,000	By Power Revenues	
F & WL	957,000	Amount Repaid by Fish and Wildlife 5/	84,000	By M & I Water Users	
Flood Control	1,513,000			Payment Capacity per Acre	$
Natural Scenic & Wildlife Areas	7,376,000			Annual Charges: O & M	$
Other 4/	1,192,000	Nonreimbursable 6/	12,566,000	Construction	
Total	$ 96,553,000	Total	$ 96,553,000	Total	$

STATUS OF REPAYMENT CONTRACT: The repayment contract with the McGee Creek Water Authority covering the reimbursable costs for municipal and industrial water and recreation and fish and wildlife is scheduled for execution May 1979 and validation July 1979.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide draft scheduled to Environmental Protection Agency April 1978; final scheduled for October 1978.

DESCRIPTION: The project is located on McGee Creek in Atoka County, in southeastern Oklahoma. The plan consists of construction of McGee Creek Dam and Reservoir, water conveyance facilities, public recreation facilities, and a scenic recreation area. The project will provide a municipal and industrial water supply of 60,000 acre-feet annually for Oklahoma City and surrounding communities. Flood control, water based recreation, fish and wildlife enhancement and the establishment of a natural scenic area will also be developed as part of the project plan.

BR-123

PROJECT DATA SHEET--2

McGee Creek Project, Oklahoma

OTHER INFORMATION: Funds to initiate advance planning were appropriated in FY 1978.

Footnotes:

1/ Advance Planning is scheduled to be completed in fiscal year 1979. A six year construction period will be required to construct this project.

2/ Not presented in the FY 1978 Budget Justifications.

3/ Includes interest during construction of $8,580,000 for municipal and industrial water: $69,000 on the reimbursable portion of recreation; and $5,000 on the reimbursable portion of fish and wildlife.

4/ Includes $324,000 for nonreimbursable General Investigation costs; and $868,000 for nonreimbursable cultural resources activities (Public Law 93-291).

5/ The scheduled amount to be repaid will be covered by contracts with the project beneficiaries before construction is initiated.

6/ Includes $1,513,000 for flood control; $873,000 for fish and wildlife; $1,612,000 for recreation; $868,000 for cultural resources activities (Public Law 93-291): $324,000 for General Investigations costs; and $7,376,000 for natural scenic and wilderness areas.

7/ Appropriations authorized are $87,479,000 (January 1977). This authorization is adequate to cover the project as currently proposed.

CONSTRUCTION AND REHABILITATION

MCGEE CREEK PROJECT, OKLAHOMA

Summarized Financial Data

Total estimated advance planning program		$1,500,000
Obligations as of September 30, 1977	...	
FY 1978 Program	$ 500,000	
FY 1979 Program	1,000,000	
Balance to complete after September 30, 1979	...1/	

Justification: Central Oklahoma is presently experiencing tremendous growth and expansion. The Oklahoma City metropolitan area is especially in need of additional water supplies. The region has the capability for further population growth and industrial and agricultural expansion provided that adequate supplies of suitable quality water can be distributed at a reasonable cost.

The McGee Creek Project is a water supply source that will satisfy the short-term needs of Oklahoma City and the long term needs of Atoka County. In addition to the municipal and industrial water supply of 60,000 acre-feet annually, the project will provide flood control, water based recreation, fish and wildlife enhancement, and will satisfy the need to preserve and manage the natural scenic areas surrounding the McGee Creek reservoir site.

FISCAL YEAR 1979

Work Proposed	Program
Provides for completion of the definite plan report, the environmental impact statement, repayment contract negotiations, and to initiate collection of design data.	$1,000,000

1/ Advance planning scheduled to be completed in FY 1979.

REGION Southwest

PROJECT DATA SHEET

PF-65 (11-76)
Bureau of Reclamation

PROJECT AND STATE
SAN LUIS VALLEY PROJECT, CLOSED BASIN DIVISION, COLORADO

Completion Date	% Complete	Date
1/	1/	1-1-78

AUTHORIZATION
Public Law 92-514, October 20, 1972

BENEFIT COST RATIOS

Based on Direct Benefits	Based on Total Benefits	Date
1.4 2/	1.4 2/	1-1-78

LAND CERTIFICATION
Not required

DEFINITE PLAN REPORT
Scheduled for October 1978

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 8/	$ 30,640,000	Allotments to September 30, 1977	$ 517,454
Total Federal Obligations (Other)		Allotments for F.Y. 1978	500,000
Net Property and Other Transfers	222,000		
Cash Advances--Non-Federal		Allotments to Date	1,017,454
Adjustment 3/	24,000	Allotments Required for F.Y. 1979	500,000
Total to be Allocated	$ 30,886,000	Balance to Complete after F.Y. 1979	$ 29,122,546

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$
Power		Amount Repaid by Power		Repayment of Investment per Acre:	
M & I Water		Amount Repaid by M & I Water			
Recreation	1,208,000	Reimbursable Recreation 6/	553,000	By Irrigators	$
F & WL	1,748,000	Reimbursable Fish and Wildlife 6/	16,000	By Power Revenues	
Flood Control				By M & I Water Users	
Water Salvage	27,756,000				
Other 5/	174,000	Nonreimbursable 7/	30,317,000	Payment Capacity per Acre	$
Total	$ 30,886,000	Total	$ 30,886,000	Annual Charges: O & M	$
				Construction	
				Total	$

STATUS OF REPAYMENT CONTRACT Repayment contract for reimbursable cost of recreation and fish and wildlife scheduled for execution August 1979. Validation is not required.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide final filed with Council on Environmental Quality on September 21, 1971. An updated and more complete project-wide statement will be prepared in conjunction with the Definite Plan Report. Scheduled to Environmental Protection Agency - Draft September 1978, final June 1979.

DESCRIPTION: The project is located in south-central Colorado in Saguache and Alamosa Counties. The project is designed to facilitate the salvage, regulation and delivery to the Rio Grande River water now being non-beneficially consumed within the closed basin. This will help the United States meet its obligation to Mexico under the May 21, 1906 treaty, and provide additional water for use in Colorado, New Mexico, and Texas. The division will also provide a water supply to the Alamosa National Wildlife Refuge and establish the Mishak Lakes National Wildlife Refuge. The plan provides for installation of a system of wells, laterals, and main canals to salvage ground and surface waters within the adopted salvage areas. This development will salvage an average of 100,800 acre-feet annually.

BR-126

OTHER INFORMATION: Funds to initiate advance planning were appropriated in FY 1976.

Footnotes:

1/ Advance planning has been extended another year and is now scheduled to be completed in FY 1979. The additional year is required to complete the Definite Plan Report and for collection of design data. Construction will require 7 years.

2/ The ratios based on direct and total benefits are 1.4 and compare with 1.5 as presented in the FY 1978 Budget Justifications. The costs have been increased by cost indexing and exceeded the increase in benefits for recreation, fish and wildlife, water salvage, and area development. Recreation and fish and wildlife benefits have been updated to reflect higher day use values and water salvage and area development benefits were updated by use of the current consumers price index.

3/ Reimbursable interest during construction of $23,000 for recreation and $1,000 for fish and wildlife.

4/ Explanation of changes in allocation from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Recreation	$ 1,114,000	$ 1,208,000
Fish and Wildlife	1,612,000	1,748,000
Water Salvage	25,569,000	27,756,000
Other	190,000	174,000
Total	$28,485,000	$30,886,000

The increase of $2,401,000 is due to cost indexing. The allocation to "Other" decreased to reflect actual pre-authorization General Investigation costs in accordance with Public Law 92-149.

5/ Nonreimbursable General Investigations costs.

6/ The scheduled amount to be repaid will be covered by contracts with the project beneficiaries before construction is initiated.

7/ Includes $27,756,000 for water salvage, $655,000 for recreation; $1,732,000 for fish and wildlife; and $174,000 for General Investigation costs.

8/ Appropriations authorized are $30,640,000 (January 1977). This authorization is adequate to cover the project as currently proposed.

CONSTRUCTION AND REHABILITATION

Advance Planning — SAN LUIS VALLEY PROJECT, CLOSED BASIN DIVISION, COLORADO

Summarized Financial Data

Total estimated advance planning program		$1,517,454
Obligations as of September 30, 1977	$443,454	
FY 1978 program	574,000	
FY 1979 program	500,000	
Balance to complete after September 30, 1979	1/	

Justification: This multi-purpose water resource development will salvage shallow ground water non-beneficially consumed in the area and deliver it to the Rio Grande River for beneficial use in accordance with the Rio Grande Compact. Development will salvage an average of about 100,800 acre-feet of water annually, making water available to help meet the United States' obligation to Mexico in accordance with the treaty dated May 21, 1906, and provide additional water for use in Colorado, New Mexico, and Texas.

FISCAL YEAR 1979

Work Proposed	Program
Provides for completion of the definite plan report, the environmental impact statement, repayment contract negotiations, and for collection of design data.	$500,000

1/ Advance planning scheduled to be completed in FY 1979.

PROJECT DATA SHEET

REGION Pacific Northwest

PF-05 (11-76)
Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
UPPER SNAKE RIVER PROJECT, SALMON FALLS DIVISION, IDAHO	1/	1/	1-1-78

AUTHORIZATION
Public Law 92-514, October 20, 1972

BENEFIT COST RATIOS

LAND CERTIFICATION	DEFINITE PLAN REPORT	Based on Direct Benefits	Based on Total Benefits	Date
Scheduled for October 1978	Scheduled for July 1978	2/ 1.2	2/ 1.9	1-1-78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation)	12/ $ 93,313,000	Allotments to September 30, 1977	$ 868,740
Total Federal Obligations (Other)	--	Allotments for F.Y. 1978	100,000
Net Property and Other Transfers	756,000		
Cash Advances--Non-Federal	--	Allotments to Date	968,740
Adjustment	3/ 4,452,000	Allotments Required for F.Y. 1979	300,000
Total to be Allocated	$ 98,521,000	Balance to Complete after F.Y. 1979	$ 92,044,260

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 96,480,000	Amount Repaid by Irrigators 7/ 8/	$40,883,000	Irrig. Invest. per Acre	$ 1,505	Payment Capacity per Acre	$ 32.00
Power	--	Amount Repaid by Power 9/	55,597,000	Repayment of Investment per Acre:		Annual Charges:	
M & I Water	--	Amount Repaid by M & I Water	--	By Irrigators	$ 638	O & M	$ 12.30
Recreation		Wildlife 8/ 10/	94,000	By Power Revenues	867	Construction	11.46
F & WL 5/	361,000			By M & I Water Users			
Flood Control							
Other 6/	1,680,000	Nonreimbursable 11/	1,947,000				
Total	$ 98,521,000	Total	$98,521,000			Total	$ 23.76

STATUS OF REPAYMENT CONTRACT Repayment contract scheduled for execution April 1979, validation May 1979.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide final statement filed with Council on Environmental Quality December 20, 1970. An updated and more complete statement is scheduled to Environmental Protection Agency - draft July 1978, final January 1979.

DESCRIPTION: The project is located in Twin Falls and Cassia Counties, south of the Snake River near the city of Twin Falls, Idaho. Project features include Milner Pumping Plant on the Snake River just upstream from the existing Milner Dam, the 47-mile-long Milner Salmon Falls Canal, Hollister Relift Pumping Plant, ground-water wells, irrigation distribution and drainage systems, and wildlife habitat improvement. Diversions from the Snake River and ground-water pumping will provide supplemental service to 49,380 acres and full service to 14,730 acres. Ground water would be pumped from the Snake Plain aquifer north of the Snake River as replacement and exchange for water pumped from the Snake River to the Salmon Falls Division during dry periods when no Snake River water is available for new uses.

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Upper Snake River Project, Salmon Falls Division, Idaho

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1975.

Footnotes:

1/ Advance planning has been extended one year and is now scheduled to be completed in FY 1979. Delays encountered in formulating the service area due to changes in landowner interests and other problems being encountered in securing a ground water supply resulted in slippage of the Definite Plan Report. Construction will require 8 years.

2/ The direct benefits ratio of 1.2 compares with 0.9 and the total benefits ratio of 1.9 compares with 1.3 as presented in FY 1978 Budget Justifications. The changes reflect increased benefits in the irrigation and fish and wildlife functions as crop prices and day use values established for upland game hunting have increased. These benefit increases have been partially offset by projected cost increases necessary to recognize inflationary effects.

3/ Includes irrigation power suballocation, $4,154,000; upstream storage cost at Ririe and Palisades Reservoirs, $292,000; and reimbursable interest during construction associated with wildlife enhancement, $6,000.

4/ Change in allocation from FY 1978 Budget Justification:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$91,646,000	$96,480,000
Fish and Wildlife	340,000	361,000
Other	1,631,000	1,680,000
Total	$93,617,000	$98,521,000

The change of $4,904,000 is due to cost indexing.

5/ Includes interest during construction of $6,000.

6/ Represents nonreimbursable investigation costs under Public Law 92-149, $756,000; and cultural resources activities (Public Law 93-291), $924,000.

7/ Includes $4,154,000 irrigation power suballocation which will be repaid annually as pumping charges paid by water users.

8/ The scheduled amount to be repaid will be covered by repayment contracts prior to initiation of facility construction.

Upper Snake River Project, Salmon Falls Division, Idaho

Footnotes:

9/ Amounts to be repaid are within the limitations established by section 6 of Public Law 89-561, regarding financial assistance to Pacific Northwest reclamation projects from net revenues of Federal Columbia River power systems.

10/ Includes reimbursable construction costs allocated to wildlife, $88,000; and associated interest during construction, $6,000.

11/ Includes Fish and Wildlife, $267,000; investigation costs (Public Law 92-149), $756,000; and cultural resources activities (Public Law 93-291), $924,000.

12/ Appropriations authorized are $97,759,000 (January 1977). This authorization is adequate to cover this project as currently proposed.

Advance Planning

UPPER SNAKE RIVER PROJECT, SALMON FALLS DIVISION, IDAHO

Summarized Financial Data

Total estimated advance planning program	$1,268,740
Obligations as of September 30, 1977	$805,740
FY 1978 program	$163,000
FY 1979 program	300,000
Balance to complete after FY 1979	1/

Justification: The economy of the Salmon Falls area is based almost entirely on agricultural operations. That economy has been depressed for many years because of an inadequate water supply for irrigation. Much of the Salmon Tract area was developed in the early 1900's. Since that time, the irrigation service area has been greatly reduced from original area because of an inadequate water supply. Ground water levels in the Milner-Cottonwood area are steadily declining to the point many irrigators have had to deepen their wells to get an adequate water supply, and other wells have been abandoned. The Idaho Department of Water Resources has declared much of this area to be a critical ground water area, which prohibits further ground water development. In many years, less than half the presently irrigated area can be adequately irrigated, resulting in hardships, wasted effort, and dissipation of limited financial resources.

Providing irrigation water supplies to these areas and the closely related and intermingled drylands would solve the area's water supply problems, create opportunities for new family farms, and provide an economic stimulus for the entire area.

FISCAL YEAR 1979

Work Proposed	Program
To continue repayment negotiations, preconstruction data collection and design work.	$300,000

1/ Advance planning scheduled to be completed FY 1979.

REGION Pacific Northwest

PROJECT DATA SHEET

PF-66 (11-76)
Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
YAKIMA PROJECT, KENNEWICK DIVISION EXTENSION, WASHINGTON	1/	1/	1-1-78

AUTHORIZATION
Public Law 91-66, August 25, 1969

BENEFIT COST RATIOS

LAND CERTIFICATION	DEFINITE PLAN REPORT	Based on Direct Benefits	Based on Total Benefits	Date
Scheduled for July 1980	Scheduled for April 1980	1.9 2/	2/	1-1-78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 10/	$ 13,598,000	Allotments to September 30, 1977	$ 24,861
Total Federal Obligations (Other)		Allotments for F.Y. 1978	100,000
Net Property and Other Transfers	54,000		
Cash Advances--Non-Federal		Allotments to Date	124,861
Adjustment 3/	790,000	Allotments Required for F.Y. 1979	400,000
Total to be Allocated	$ 14,442,000	Balance to Complete after F.Y. 1979	$ 13,073,139

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 14,055,000	Amount Repaid by Irrigators 6/ 7/	$1,768,000	Irrig. Invest. per Acre	$ 2,231	Payment Capacity per Acre	$ 18.71
Power		Amount Repaid by Power 8/	12,287,000	Repayment of Investment per Acre:		Annual Charges:	
M & I Water		Amount Repaid by M & I Water		By Irrigators	$ 281	O & M	$ 11.49
Recreation				By Power Revenues	1,950	Construction	4.79
F & WL	252,000			By M & I Water Users			
Flood Control							
Other 5/	135,000	Nonreimbursable 9/	387,000				
Total	$ 14,442,000	Total	$ 14,442,000			Total	$ 16.28

STATUS OF REPAYMENT CONTRACT Repayment contract scheduled for execution December 1980 with court validation scheduled for January 1981.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Scheduled to Environmental Protection Agency - draft April 1980, final October 1980.

DESCRIPTION: The Extension is located in south-central Washington in Benton County. The project will provide a full supply of irrigation water to 6,300 acres and fully utilize the extra capacity provided in the existing diversion, storage, and carriage works of the Yakima Project to serve this area. Major features include a third pumping unit at the existing Chandler pumping plant, a siphon near Kiona, six small relift pumping plants, 24 miles of canals and conduits, and distribution and drainage facilities. The Extension will also provide fish and wildlife benefits.

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Yakima Project, Kennewick Division Extension, Washington

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1977.

Footnotes:

1/ Advance Planning is scheduled to be completed in FY 1980. Construction is estimated to require 3 years.

2/ No change in direct benefits from the FY 1978 Budget Justifications. The costs have been increased to recognize inflationary effects on uncompleted work, however these cost increases have been offset by increased benefits in the fish and wildlife function. These benefits reflect higher day use values which have been established for upland game hunting. Under present project formulation guidelines, only direct benefits are identified.

3/ Includes an assigned cost of existing diversion, storage, and carriage facilities of Yakima Project, $531,000, and irrigation power suballocation, $259,000.

4/ Change in allocation from the FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$13,292,000	$14,055,000
Fish and Wildlife	238,000	252,000
Other	127,000	135,000
Total	$13,657,000	$14,442,000

The increase of $785,000 is due to cost indexing.

5/ Nonreimbursable costs associated with cultural resources activities (Public Law 93-291).

6/ Includes $259,000 irrigation power suballocation which will be included as a part of the annual pumping power charges paid by the water users.

7/ The scheduled amount to be repaid will be covered by repayment contracts prior to initiation of facility construction.

8/ Amounts to be repaid are within the limitations established by section 6 of Public Law 89-561, regarding financial assistance to Pacific Northwest reclamation projects from net revenues of Federal Columbia River power systems.

24-040 O - 78 - 22

Footnotes: (Cont'd)

9/ Nonreimbursable fish and wildlife costs of $252,000 and cultural resources activities (Public Law 93-291), $135,000.

10/ Appropriations authorized are $13,598,000 (January 1977). This authorization is adequate to cover this project as currently proposed.

Advance Planning

CONSTRUCTION AND REHABILITATION

YAKIMA PROJECT, KENNEWICK DIVISION EXTENSION, WASHINGTON

Summarized Financial Data:

Total estimated advance planning program	$824,861
Obligations as of September 30, 19[illegible]	10,861
FY 1978 program	114,000
FY 1979 program	400,000
Balance to complete after September 30, 1979	300,000

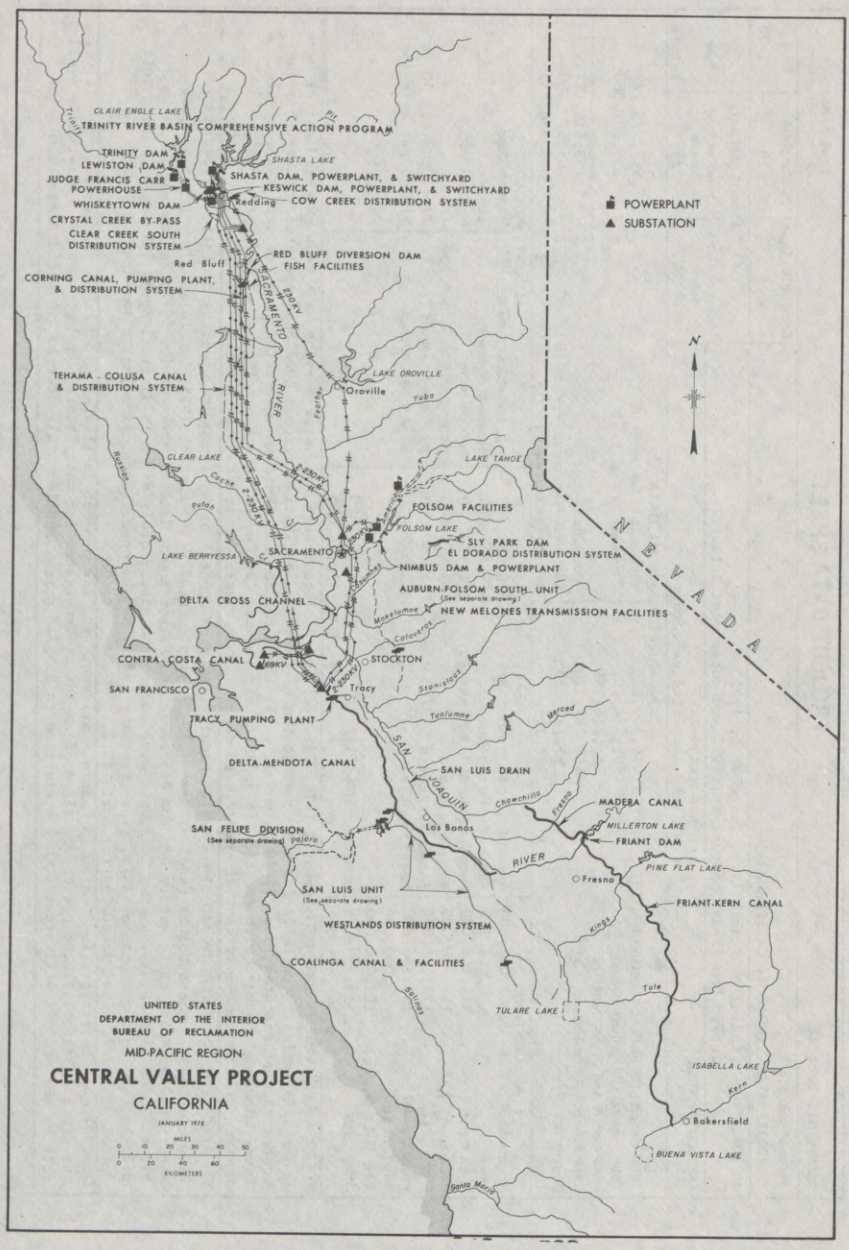
Justification: The project is located in Benton County near the confluence of the Yakima and Columbia Rivers in south-central Washington. The plan for the Kennewick Division Extension provides for the addition of 6,300 irrigable acres to the Kennewick Division of the Yakima Project. This development will fully utilize the extra capacity of existing works and be operated as a part of the existing Kennewick Division. Benefits accruing to the development will be primarily irrigation.

The plan involves use of common diversion facilities on the Yakima River and main canal capacity of the Kennewick Division. Additional facilities include a pumping unit, a siphon, six small relift pumping plants, delivery conduits, a lateral distribution system, and drainage facilities.

The Tri-Cities area (Richland, Pasco, and Kennewick) is a natural transportation hub for rail, water, highway, air, and pipelines, and is centered in the Columbia-Snake River hydroelectric development area. The rapid growth in the past two decades, and the future potential as an industrial and distribution center is further based on irrigated agriculture.

FISCAL YEAR 1979

Work Proposed	Program
Funds will provide for continuation of studies necessary for preparation of a definite plan report. Preliminary work on repayment contract negotiations and an environmental assessment will be continued as well as collection of field data.	$400,000


CLAIR ENGLE LAKE
TRINITY RIVER BASIN COMPREHENSIVE ACTION PROGRAM
TRINITY DAM
LEWISTON DAM
JUDGE FRANCIS CARR POWERHOUSE
WHISKEYTOWN DAM
CRYSTAL CREEK BY-PASS
CLEAR CREEK SOUTH DISTRIBUTION SYSTEM
SHASTA LAKE
SHASTA DAM, POWERPLANT, & SWITCHYARD
KESWICK DAM, POWERPLANT, & SWITCHYARD
COW CREEK DISTRIBUTION SYSTEM
Redding
RED BLUFF DIVERSION DAM
FISH FACILITIES
Red Bluff
CORNING CANAL, PUMPING PLANT, & DISTRIBUTION SYSTEM
TEHAMA - COLUSA CANAL & DISTRIBUTION SYSTEM
SACRAMENTO RIVER
LAKE ORDVILLE
Oroville
Yuba
CLEAR LAKE
LAKE TAHOE
FOLSOM FACILITIES
FOLSOM LAKE
SLY PARK DAM
EL DORADO DISTRIBUTION SYSTEM
NIMBUS DAM & POWERPLANT
LAKE BERRYESSA
SACRAMENTO
AUBURN-FOLSOM SOUTH UNIT
(See separate drawing)
DELTA CROSS CHANNEL
NEW MELONES TRANSMISSION FACILITIES
CONTRA COSTA CANAL
STOCKTON
SAN FRANCISCO
Tracy
TRACY PUMPING PLANT
DELTA-MENDOTA CANAL
SAN LUIS DRAIN
SAN JOAQUIN RIVER
MADERA CANAL
MILLERTON LAKE
FRIANT DAM
SAN FELIPE DIVISION
(See separate drawing)
Los Banos
Fresno
PINE FLAT LAKE
FRIANT-KERN CANAL
SAN LUIS UNIT
(See separate drawing)
WESTLANDS DISTRIBUTION SYSTEM
COALINGA CANAL & FACILITIES
TULARE LAKE
ISABELLA LAKE
Bakersfield
BUENA VISTA LAKE
POWERPLANT
SUBSTATION
N
NEVADA
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
MID-PACIFIC REGION
CENTRAL VALLEY PROJECT
CALIFORNIA
JANUARY 1978
MILES
KILOMETERS

REGION Mid-Pacific

PROJECT DATA SHEET

PF-66 (11-76)
Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
CENTRAL VALLEY PROJECT, CALIFORNIA	1/	50	1-1-78

AUTHORIZATION Finding of Feasibility, December 2, 1935
Public Law 75-392, August 26, 1937 and subsequent Acts

BENEFIT COST RATIOS

LAND CERTIFICATION	DEFINITE PLAN REPORT	Based on Direct Benefits	Based on Total Benefits	Date
3/	Will be completed as required	2/	2/	1-1-78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 18/	$ 3,475,343,880	Allotments to September 30, 19 77	$ 1,617,073,127
Total Federal Obligations (Other) 4/	601,308,197	Allotments for F.Y. 19 78	136,801,000
Net Property and Other Transfers	23,216,365		
Cash Advances--Non-Federal 5/	168,784,120	Allotments to Date	1,753,874,127
Adjustment 6/	93,743,438	Allotments Required for F.Y. 19 79	105,070,000
Total to be Allocated	$ 4,362,396,000	Balance to Complete after F.Y. 19 79	$ 1,616,399,753

ALLOCATIONS 7/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$ 2,607,057,000	Amount Repaid by Irrigators 8/	$ 1,370,688,000	Irrig. Invest. per Acre	$ 1,016
Power	621,817,000	Amount Repaid by Power 9/	1,879,158,000	Repayment of Investment per Acre:	
M & I Water	371,958,000	Amount Repaid by M & I Water 10/	371,958,000	By Irrigators	$ 534
Recreation 11/	142,779,000	San Luis-State	183,414,000	By Power Revenues	482
F & WL 12/	158,125,000	Local Interests 13/	11,540,000	By M & I Water Users	
Flood Control	145,794,000	Deferred Use	63,532,000		
Navigation	5,069,000				
San Luis-State	183,414,000				
Other 14/	126,383,000	Nonreimbursable 15/	482,106,000		
Total	$ 4,362,396,000	Total	$ 4,362,396,000		

Payment Capacity per Acre $ 25 to 125

Annual Charges:
O & M $
Construction $1.50 to $16.50 per acre-foot

Total $

STATUS OF REPAYMENT CONTRACT As of 1-1-78, 237 9(c) and 9(e) contracts for water service have been executed and 31 were under negotiation. Contracts for the construction of 23 9(d) distribution systems have been executed. Power Wheeling contracts were executed June 22, 1965, and July 31, 1967, for San Luis Unit and Central Valley Project, respectively. A Power Wheeling contract with Pacific Gas and Electric Company for New Melones Project is scheduled for execution January 1978 by the Department of Energy. To date, 36 power sales contracts are in force.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Final filed with Council on Environmental Quality as follows: Sacramento River Division, Tehama-Colusa Canal - June 7, 1972, supplemental filed May 16, 1975; San Luis Unit - October 4, 1972; Auburn-Folsom South Unit, Auburn Dam and Reservoir and Folsom South Canal - November 13, 1972; San Felipe Division - Project-wide March 8, 1976. San Luis Unit Supplement scheduled - draft March 1978, final April 1979. Allen Camp Unit draft scheduled for September 1979, final February 1980. New Melones Transmission Facilities draft filed October 3, 1977, final scheduled for April 1978.

DESCRIPTION: The project is located in Central California and has project facilities in 29 counties (see footnote 16) of the State. Basically, the project consists of an integrated system for water storage and conveyance. Water made available by the project will provide full irrigation to 119,748 acres, supplemental water to 2,446,218 acres, 1,040,116

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acre-feet of water annually for municipal and industrial use, and generation of 1,934,080 17/ kilowatts of hydroelectric power. Flood control, recreation, navigation, and fish and wildlife protection are also products of the project. More than 200 different commercial crops are grown on the project, including cereal, field, forage, nursery, seed and truck crops, nuts, vines, deciduous and citrus fruits. Additional information is provided on Project Data Sheets which follow for Auburn-Folsom South Unit, San Luis Unit, and San Felipe Division and on the Advance Planning Project Data Sheet for Allen Camp Unit, which was authorized September 28, 1976, and is included in the Central Valley Project totals.

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1936. On November 11, 1977, the Orland-Artois Water District filed suit in the United States District Court against the Secretary of Interior and others to have Unit 1 of the distribution system bids opened and subsequent construction of the entire delivery system. An attempt is being made to schedule a court hearing during February 1978. See Project Data Sheets for the San Luis Unit, Auburn-Folsum South Unit, and San Felipe Division for other information pertaining specifically to these units of the Central Valley Project. Also see Advance Planning Project Data Sheet for Allen Camp Unit.

Footnotes:

1/ Sacramento River Division - FY 1986; San Luis Unit - FY 1990; Auburn-Folsom South Unit - Dependent upon resolution of problems of the geologic conditions of Auburn damsite; San Felipe Division - FY 1987; Allen Camp Unit- will require 6 years to construct. See individual Project Data Sheets, which follow, for details. Also see Advance Planning Project Data Sheet for Allen Camp Unit.

2/ See Project Data Sheets which follow for the San Luis Unit, Auburn-Folsom South Unit, and San Felipe Division of the Central Valley Project for benefit-cost ratios on these parts of the project. Also see Advance Planning Project Data Sheet for Allen Camp Unit.

3/ Land Certification: Auburn-Folsom South Unit, July 20, 1967; Trinity River Division, May 3, 1956; San Luis Unit, May 11, 1962; Sacramento River Division, May 3, 1956; San Felipe Division, August 20, 1975; and Allen Camp Unit scheduled for July 1979.

4/ Costs of construction administered by the Corps of Engineers for facilities associated with the Central Valley Project include $62,642,815 for Folsom Reservoir; $337,000,000 for New Melones Reservoir; $131,900,000 for reimbursable costs of Marysville Reservoir; $5,230,000 for reimbursable costs of Hidden Reservoir; $9,040,000 for reimbursable costs of Buchanan Reservoir; $14,565,000 for Black Butte Reservoir; and $96,000 for dredging on the Sacramento River. Also includes $40,804,382 for Department of Energy transmission facilities.

5/ Includes $156,613,670 from State of California for San Luis Joint-Use Facilities, $8,120,450 from Westlands Water District for distribution system construction, $50,000 from San Felipe Committee for studies and investigations, $4,000,000 from city of Redding for construction of Keswick Switchyard Additions to provide direct power service to the city.

6/ Includes interest during construction of $92,171,000 and $20,775,561 for the California lines of the Pacific Northwest-Southwest Intertie partially offset by $19,203,002 for power wheeling costs on San Luis Unit and New Melones Project which are to be amortized annually as operation and maintenance costs over the 50-year contract period and are now the responsibility of the Department of Energy. Adjustment of $121 has been made for rounding.

7/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$2,362,919,000	$2,607,057,000
Power	603,447,000	621,817,000
Municipal and Industrial Water	350,275,000	371,958,000
Recreation	120,069,000	142,779,000
Fish and Wildlife	123,151,000	158,125,000
Flood Control	140,990,000	145,794,000
Navigation	5,069,000	5,069,000
San Luis-State	183,414,000	183,414,000
Other	110,784,000	126,383,000
Total	$4,000,118,000	$4,362,396,000

The increase of $362,278,000 in total allocation includes the following: Sacramento River Division, $34,444,000; San Luis Unit, $128,744,000; Auburn-Folsom South Unit, $91,291,000; Miscellaneous Project Programs, $5,804,000; San Felipe Division $4,344,000; the addition of Allen Camp Unit to the Central Valley Project, $66,521,000; and the cost of Corps of Engineers Construction, $31,130,000 for New Melones and Hidden Reservoirs. The increase of $34,444,000 for Sacramento River Division includes $8,000,000 for cost indexing, $25,900,000 for increases to cover additional costs of completing contracts and reanalysis of unit prices for distribution system construction and about $500,000 for automation and remote control of the Tehama-Colusa Canal. The increase in Miscellaneous Project Programs includes $4,000,000 for Keswick Switchyard modifications, City of Redding. The city will finance these modifications under a new contract for electric service which is to be provided at the Keswick Switchyard. See Project Data Sheets for the San Luis Unit, Auburn-Folsom South Unit, and San Felipe Division for explanation of increases.

8/ Of this amount an estimated $444,996,000 is covered by existing water service and repayment contracts. The remaining $925,692,000 is expected to be repaid by future contracts and increases in the water rates of existing water service contracts.

9/ Current commercial power rates are not sufficient to repay the cost allocated to this function. A power rate increase which will cover all annual costs and repay the commercial power allocation is planned for May 1978.

10/ Of this amount, $3,989,000 of the distribution system costs are scheduled to be repaid by existing repayment contracts. The remaining $367,969,000 will be repaid by future water service contracts and increases in the water rates of existing water service contracts.

11/ Includes reimbursable non-Federal recreation, $11,538,000; and nonreimbursable recreation, $131,241,000.

12/ Includes reimbursable waterfowl conservation, $20,972,000; and non-Federal fish and wildlife enhancement, $2,000; and the following nonreimbursable costs: fish and wildlife enhancement, $85,140,000; wildlife refuge, $36,084,000; fish and wildlife mitigation, $11,459,000; and anadromous fishery, $4,468,000.

13/ Reimbursable allocations to recreation, $11,420,000; and fish and wildlife enhancement, $2,000; on Auburn-Folsom South Unit will be repaid by local interest under Section 3 of Public Law 89-161. The reimbursable recreation costs of $118,000 on the San Felipe Division will be repaid by local interest under provisions of Public Law 89-72.

14/ Includes deferred use, $63,532,000; water quality, $5,241,000; highway improvements, $42,225,000; cultural resources activities (Public Law 93-291), $15,085,000; and nonreimbursable preauthorization investigations for Allen Camp Unit, $300,000 (Public Law 92-149).

The increase of $362,278,000 in total allocation includes the following: Sacramento River Division, $34,444,000; San Luis Unit, $128,744,000; Auburn-Folsom South Unit, $91,291,000; Miscellaneous Project Programs, $5,804,000; San Felipe Division $4,344,000; the addition of Allen Camp Unit to the Central Valley Project, $66,521,000; and the cost of Corps of Engineers Construction, $31,130,000 for New Melones and Hidden Reservoirs. The increase of $34,444,000 for Sacramento River Division includes $8,000,000 for cost indexing, $25,900,000 for increases to cover additional costs of completing contracts and reanalysis of unit prices for distribution system construction and about $500,000 for automation and remote control of the Tehama-Colusa Canal. The increase in Miscellaneous Project Programs includes $4,000,000 for Keswick Switchyard modifications, City of Redding. The city will finance these modifications under a new contract for electric service which is to be provided at the Keswick Switchyard. See Project Data Sheets for the San Luis Unit, Auburn-Folsom South Unit, and San Felipe Division for explanation of increases.

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9/ Current commercial power rates are not sufficient to repay the cost allocated to this function. A power rate increase which will cover all annual costs and repay the commercial power allocation is planned for May 1978.

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12/ Includes reimbursable waterfowl conservation, $20,972,000; and non-Federal fish and wildlife enhancement, $2,000; and the following nonreimbursable costs: fish and wildlife enhancement, $85,140,000; wildlife refuge, $36,084,000; fish and wildlife mitigation, $11,459,000; and anadromous fishery, $4,468,000.

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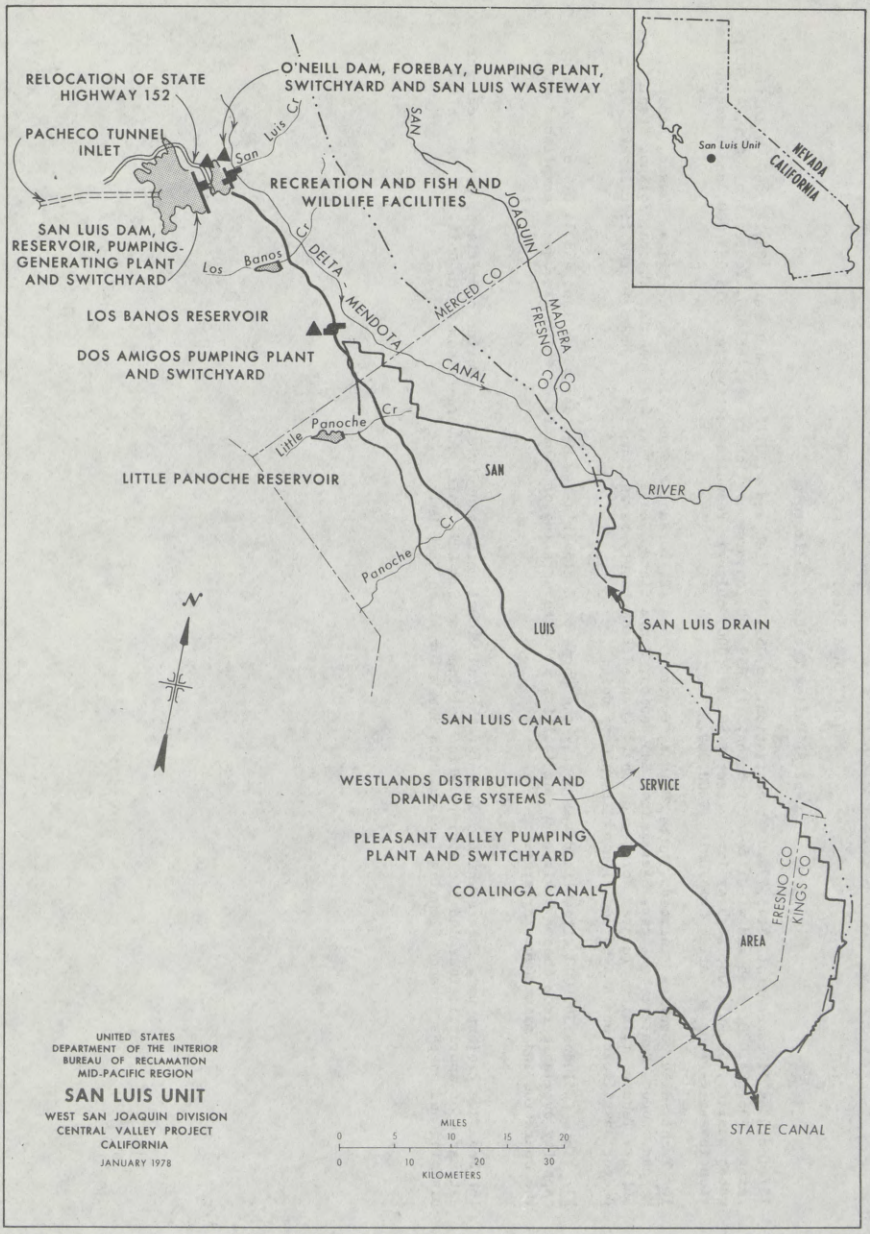
14/ Includes deferred use, $63,532,000; water quality, $5,241,000; highway improvements, $42,225,000; cultural resources activities (Public Law 93-291), $15,085,000; and nonreimbursable preauthorization investigations for Allen Camp Unit, $300,000 (Public Law 92-149).

15/ Includes flood control, $145,794,000; navigation, $5,069,000; fish and wildlife enhancement, $85,140,000; wildlife refuge, $36,084,000; fish and wildlife mitigation, $11,459,000; anadromous fishery, $4,468,000; recreation, $131,241,000; water quality, $5,241,000; highway improvements, $42,225,000; cultural resources activities, $15,085,000; and preauthorization investigations for Allen Camp Unit, $300,000.

16/ Twenty-nine counties - Alameda, Butte, Colusa, Contra Costa, El Dorado, Fresno, Glenn, Kern, Kings, Lassen, Madera, Merced, Modoc, Monterey, Placer, Sacramento, San Benito, Santa Clara, Santa Cruz, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Trinity, Tulare, Yolo, and Yuba. Changed from twenty-seven counties as shown in the fiscal year 1978 Budget Justifications due to addition of Allen Camp Unit.

17/ This includes 300,000 kilowatts developed by the Corps of Engineer's New Melones powerplant and 34,014 of generator capacity available from Shasta Division power facilities due to uprating of capacities which has been accomplished under the operation and maintenance program.

18/ Separate Project Data Sheets which follow for the individual units and divisions provide comparisons between current estimates of appropriations and the appropriation ceilings for San Luis Unit, Auburn-Folsom South Unit, and San Felipe Division and on the Advance Planning Project Data Sheet for Allen Camp Unit.


RELOCATION OF STATE HIGHWAY 152
O'NEILL DAM, FOREBAY, PUMPING PLANT, SWITCHYARD AND SAN LUIS WASTEWAY
PACHECO TUNNEL INLET
San Luis Cr
SAN JOAQUIN
RECREATION AND FISH AND WILDLIFE FACILITIES
SAN LUIS DAM, RESERVOIR, PUMPING-GENERATING PLANT AND SWITCHYARD
Los Banos Cr
DELTA-MENDOTA CANAL
MERCED CO
FRESNO CO
MADERA CO
LOS BANOS RESERVOIR
DOS AMIGOS PUMPING PLANT AND SWITCHYARD
Little Panoche Cr
LITTLE PANOCHE RESERVOIR
SAN LUIS DRAIN
Panoche Cr
SAN LUIS CANAL
WESTLANDS DISTRIBUTION AND DRAINAGE SYSTEMS
SERVICE AREA
PLEASANT VALLEY PUMPING PLANT AND SWITCHYARD
COALINGA CANAL
FRESNO CO
KINGS CO
STATE CANAL
San Luis Unit
NEVADA
CALIFORNIA
N
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
MID-PACIFIC REGION
SAN LUIS UNIT
WEST SAN JOAQUIN DIVISION
CENTRAL VALLEY PROJECT
CALIFORNIA
JANUARY 1978
MILES
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KILOMETERS

REGION Mid-Pacific

PROJECT DATA SHEET

PF-66 (11-76)
Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
CENTRAL VALLEY PROJECT, SAN LUIS UNIT, CALIFORNIA	1/	55	1-1-78

AUTHORIZATION	BENEFIT COST RATIOS		
Public Law 86-488, June 3, 1960	Based on Direct Benefits 2/ 3.8	Based on Total Benefits 2/ 6.4	Date 1-1-78

LAND CERTIFICATION	DEFINITE PLAN REPORT
May 11, 1962	Submitted December 29, 1962

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 13/	$ 883,599,880	Allotments to September 30, 1977	$ 422,156,374
Total Federal Obligations (Other)		Allotments for F.Y. 1978	35,312,000
Net Property and Other Transfers	28,227,501		
Cash Advances--Non-Federal 3/	164,734,120	Allotments to Date	457,468,374
Adjustment 4/	-11,035,501	Allotments Required for F.Y. 1979	24,873,000
Total to be Allocated	$ 1,065,526,000	Balance to Complete after F.Y. 1979	$ 401,258,506

ALLOCATIONS 5/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 859,155,000	Amount Repaid by Irrigators 6/	$ 681,864,000	Irrig. Invest. per Acre	$ 1,474	Payment Capacity per Acre	$ 40 to 100
		By Power 7/	178,568,000	Repayment of Investment per Acre:			
M & I Water	12,297,000	By M & I 8/	12,297,000	By Irrigators	$ 1,170	Annual Charges: O & M	$
Recreation	3,286,000	San Luis-State 9/	183,414,000	By Power Revenues	304	Construction	8.00 per acre-foot
Flood Control	2,556,000						
San Luis-State	183,414,000						
Other 10/	4,818,000	Nonreimbursable 11/	9,383,000				
Total	$ 1,065,526,000	Total	$ 1,065,526,000			Total	$

STATUS OF REPAYMENT CONTRACT: Repayment contracts for water service and construction executed June 5, 1963, and April 1, 1965, respectively, both subject to amendment for service to a larger area. The execution of the amendatory contract may be subject to resolution between the Department of Interior and the State of California on water quality issues in the Sacramento-San Joaquin Delta. 12/Based on the current program, the contract must be scheduled by FY 1980.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide final filed with Council on Environmental Quality October 4, 1972. Supplement to final for San Luis Unit to be filed with the Environmental Protection Agency in April 1979.

DESCRIPTION: This unit is located near Los Banos on the west side of the San Joaquin Valley about 30 miles southwest of Fresno. The unit will provide supplemental water to 583,000 acres and 26,500 acre-feet annually for municipal and industrial use. The unit will also provide recreation and flood control benefits.

BR-143

PROJECT DATA SHEET--2

Central Valley Project, San Luis Unit, California

OTHER INFORMATION: Funds to initiate preconstruction planning and construction were appropriated in FY 1961. An amendatory repayment contract with the Westlands Water District is being negotiated for $370,000,000 to cover increased distribution system costs. Because of the need for additional appropriation cost ceiling, Public Law 95-46 authorized $31,050,000 to be appropriated for FY 1978 for continuation of construction of the Westlands Water District and San Luis Water District distribution systems and the San Luis Drain. The law also directs the Secretary of the Interior to establish a task force to review the management, organization, and operation of the San Luis Unit and report the results to Congress no later than January 1, 1978. In early January the task force report was submitted to the House and Senate Interior Committees on Appropriations, the Senate Committee on Energy and Natural Resource, and the House Committee on Interior and Insular Affairs. A lawsuit was filed on November 26, 1975, by the Contra Costa County Water District requesting that the U.S. be enjoined from executing the proposed amendatory contract with Westlands Water District until the provisions of Public Law 91-190 (NEPA) had been complied with. A stipulation entered into by the U.S. in the lawsuit requires completion of a supplemental Environmental Impact Statement which is scheduled to be filed with the Environmental Protection Agency in April 1979.

Footnotes:

1/ Facilities to serve 447,682 acres are complete and in operation as of January 1978. Remaining construction will require about 6 years.

2/ No change from FY 1978 Budget Justifications. Increases in costs were directly offset by increases in benefits, which were a result of the use of the latest available farm budgets.

3/ Includes $156,613,670 from the State of California for San Luis joint facilities and $8,120,450 from Westlands Water District for distribution system construction.

Footnotes: (Continued)

4/ Adjustment subtracts $8,382,000 representing the cost of the inlet to the Pacheco Tunnel built concurrently with the San Luis Reservoir and included in the San Luis Unit fund allotment. The tunnel is a feature of the San Felipe Division, and the costs have been transferred to that division. Also deducted is $2,653,002 covering purchase of Pacific Gas and Electric Company wheeling for the San Luis Unit, which was transferred to the Department of Energy. An additional amount of $499 is deducted for rounding.

5/ Explanation of changes in allocation from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$730,489,000	$ 859,155,000
Municipal and Industrial Water	12,236,000	12,297,000
Recreation	3,286,000	3,286,000
San Luis-State	183,414,000	183,414,000
Flood Control	2,556,000	2,556,000
Other	4,801,000	4,818,000
Total	$936,782,000	$1,065,526,000

The increase of $128,744,000 includes $3,507,000 for modifications of the O'Neill Pumping Plant to improve the operation and for added San Luis Canal turnouts to meet water delivery requirements and $12,000 for miscellaneous increases. The balance of $125,225,000 represents an increase in distribution and drainage systems and relift pumping plants resulting from an update. This reanalysis and preparation of detailed supporting estimates resulted in the following changes from the FY 1978 Budget Justification amounts: San Luis Drain - ($+53,920,000); Westlands Water District Distribution System - ($-8,115,000); Westlands Water District Drainage Collector System - ($+22,020,000); Westlands Water District Integration of Gravity and Groundwater - ($+43,020,000); and Relift Pumping Plants - ($+14,380,000).

Footnotes: (Continued)

6/ Of this amount an estimated $306,518,000 is covered by existing water service and repayment contracts. The remaining $375,346,000 is anticipated to be repaid by future contracts.

7/ Due to operational and financial integration, repayment by the power function, including aid to irrigation, is appropriately determined only in the composite repayment analysis of the total authorized Central Valley Project. To illustrate repayment for this unit, part of the net revenues from power available for repayment of the total project is shown. See the Project Data Sheet of the Central Valley Project for the repayment analysis of this function.

8/ Due to operational and financial integration repayment by the municipal and industrial function is appropriately determined only in the composite repayment analysis of the total authorized Central Valley Project. To illustrate repayment for this unit, part of the net revenues from the municipal and industrial function available for repayment of the total project is shown. See the Project Data Sheet of the Central Valley Project for the repayment analysis of this function.

9/ The amount shown is the total estimated share of San Luis joint facility costs to be repaid by the State of California.

10/ Includes nonreimbursable costs of $1,411,000 for construction of Highway Improvements (Public Law 87-874); wildlife refuge, $1,130,000; cultural resources activities (Public Law 93-291), $1,000,000; and reimbursable costs of $1,277,000 for waterfowl conservation.

11/ Includes nonreimbursable flood control, $2,556,000; recreation, $3,286,000; construction of highways to higher standards (Public Law 87-874), $1,411,000; wildlife refuge, $1,130,000; and cultural resources activities, $1,000,000.

12/ The existing 1965 repayment contract with the Westlands Water District covers expenditures up to $157,048,000. The District's Board of Directors has also adopted a resolution pledging to repay costs of work authorized and appropriated for FY 1978 under P.L. 95-46. Negotiations have been concluded for an amendatory contract that would increase the repayment contract to $370,000,000. This amended repayment contract execution may be subject to resolution between the Department of Interior and State of California of water quality issues in the Sacramento-San Joaquin Delta. Based on the current program the contract must be scheduled by fiscal year 1980.

Central Valley Project, San Luis Unit, California

Footnotes: (Continued)

13/ The amount authorized to be appropriated for the San Luis Unit as of January 1977 is $438,095,000 exclusive of the amounts required for the distribution and drainage systems. The current estimate of these facilities is $273,304,318. The amount appropriated for the San Luis Unit Distribution and Drainage System is $236,176,311. Additional appropriation ceiling of $387,762,493 is needed to cover work initiated after FY 1978. A solicitor's decision made on November 5, 1976 found that the cost of the San Luis Drain should have been a part of the San Luis Distribution and Drainage System ceiling. This ruling made the appropriations through FY 1977 exceed the appropriation ceiling of $192,650,000 by $16,764,307. The appropriation committees were informed of this overrun by letter of February 25, 1977. Then, on June 15, 1977, Public Law P.L. 95-46 was enacted which provided appropriation ceiling of $31,050,000 to cover the FY 1978 program commitment. The total current estimate for the San Luis Unit Distribution System is $623,938,804, which is derived as follows: estimated cost of Westlands Water District Distribution and Drainage System, $433,020,000; estimated cost of San Luis Unit Drain, $185,320,000; San Luis Unit Water District loan, Public Law 130, $13,643,242; municipal facilities for the city of Huron, $76,012; less $8,120,450 non-Federal contributions.

CENTRAL VALLEY PROJECT
SAN LUIS UNIT

PHYSICAL DATA ON STRUCTURES

STATE-FEDERAL FACILITIES

COMPLETED WORK:

San Luis Dam and Reservoir

Dam:
Type - Earthfill
Structural Height - 382 feet
Crest Length - 18,600 feet
Base Width - 2,420 feet

Spillway:
Type - Concrete morning-glory inlet, concrete conduit, concrete chute, concrete stilling basin, and outlet channel.
Design Discharge - 1,030 cubic feet per second

Reservoir Capacity:
Total Storage - 2,041,000 Acre-Feet

San Luis Pumping-Generating Plant

8-Vertical shaft dual-purpose pump-generator units
Pump rated capacity, each: 1,375 cubic feet per second at 290 feet of head
Generator ratings, each: 53,000 kilovolt-amperes at 150 revolutions per minute, 34,000 kilovolt-amperes at 120 revolutions per minute.

O'Neill Dam, Forebay and Wasteway

Dam:
Type - Earthfill
Structural Height - 87 feet
Crest Length - 14,350 feet
Base Width - 382 feet

Spillway:
Type: Concrete morning-glory inlet, concrete conduit, concrete chute, concrete stilling basin, and outlet channel.

Reservoir Capacity:
Total Storage: 56,000 Acre-Feet

Dos Amigos Pumping Plant

Number of Units: Six vertical shaft pumps
Rated Pump Capacity, each: 2,200 cubic feet per second at a head of 125 feet.
Range of Heads: 107 to 125 feet.

CHANNELS, LEVEES AND FLOODWORKS

Los Banos Detention Dam and Reservoir

Dam:
Type - Earthfill
Structural Height - 167 feet
Crest Length - 1,370 feet
Base Width - 384 feet

Spillway:
Type - Uncontrolled ogee crest, chute and stilling basin.
Design Discharge - 8,600 cubic feet per second

Reservoir Capacity:
Total Storage - 34,600 Acre-Feet

Little Panoche Detention Dam & Reservoir

Dam:
Type - Earthfill
Structural Height - 151 feet
Crest Length - 1,440 feet

Spillway:
Type - Morning-glory type inlet structure conduit through dam, and stilling basin.
Design Discharge - 18,300 cubic feet per second.

Reservoir Capacity:
Total Storage - 5,580 Acre-Feet

CONSTRUCTION PROGRAM

San Luis Canal
Length - 102.5 miles, capacity - 13,100-8,350 cubic feet per socond. Bottom width - 100-50 feet
Water Depth - 21.1 to 32.8 feet

FEDERAL FACILITIES

COMPLETED WORK

Pleasant Valley Pumping Plant

9 Vertical shaft pumps - total capacity 1,185 cubic feet per second at 195 feet of head

24-040 O - 78 - 23

FEDERAL FACILITIES - continued

COMPLETED WORK - continued

CONSTRUCTION PROGRAM

O'Neill Pumping Plant (Serves both as pumping and generating plant)

6 Vertical shaft dual-purpose pump-generator units
Generator rating, each - 4,200 kilovolt-amperes at 200 revolutions per minute.
Pump Rated Capacity, each - 700 cubic feet per second at 56 feet head

Coalinga Canal and Pump Intake

Length - 13.4 miles, Capacity - 725 to 1,140 cubic feet per second. Bottom Width - 12 feet, Water depth - 9.3 to 11.84 feet

San Luis Drain

Drain:
Length - 188 miles, Capacity - 100 to 450 cubic feet per second. Bottom Width - 10 feet, Water Depth - 6.3 to 9.7 feet.

Holding Reservoirs

Kesterson

Capacity - 4700 Acre-Feet
Type - Series of Earth Dikes

Dos Palos

Capacity - 11,700 acre-feet
Type - Series of Earth Dikes

DISTRIBUTION AND DRAINAGE SYSTEMS

WESTLANDS WATER DISTRICT DISTRIBUTION SYSTEM

Distribution System

Type of System - Closed pipe. Buried a minimum of 4 feet.

Miles of Pipe - 1,204 Miles
Size of Pipe - 10 Inches to 96 Inches round

DISTRIBUTION AND DRAINAGE SYSTEMS - continued

WESTLANDS WATER DISTRICT DISTRIBUTION SYSTEM - continued

Drainage Collection System

Ultimate Area to be Drained - 300,000 Acres
Initially - 127,933 Acres

Carrier pipelines (closed joint pipe) - Miles of Pipe - 160, Size of Pipe - 15 Inches to 48 Inches round

Collector pipelines (open joint pipe) - Miles of Pipe - 930, Size of Pipe - 10 Inches to 24 Inches round

Integration Gravity and Groundwater Pumping System

The District will pump between 200,000 and 400,000 A.F. of groundwater each year. 200 to 400 wells will be required. Water will be pumped into laterals and mixed with canal water.

Right-of-Way

Quantity - 63,718 Acres
Total Estimated Cost - $43,977,000
Cost per Acre - $690 Per Acre
Acquisition - 42 percent complete as of January 1, 1978

Relocation

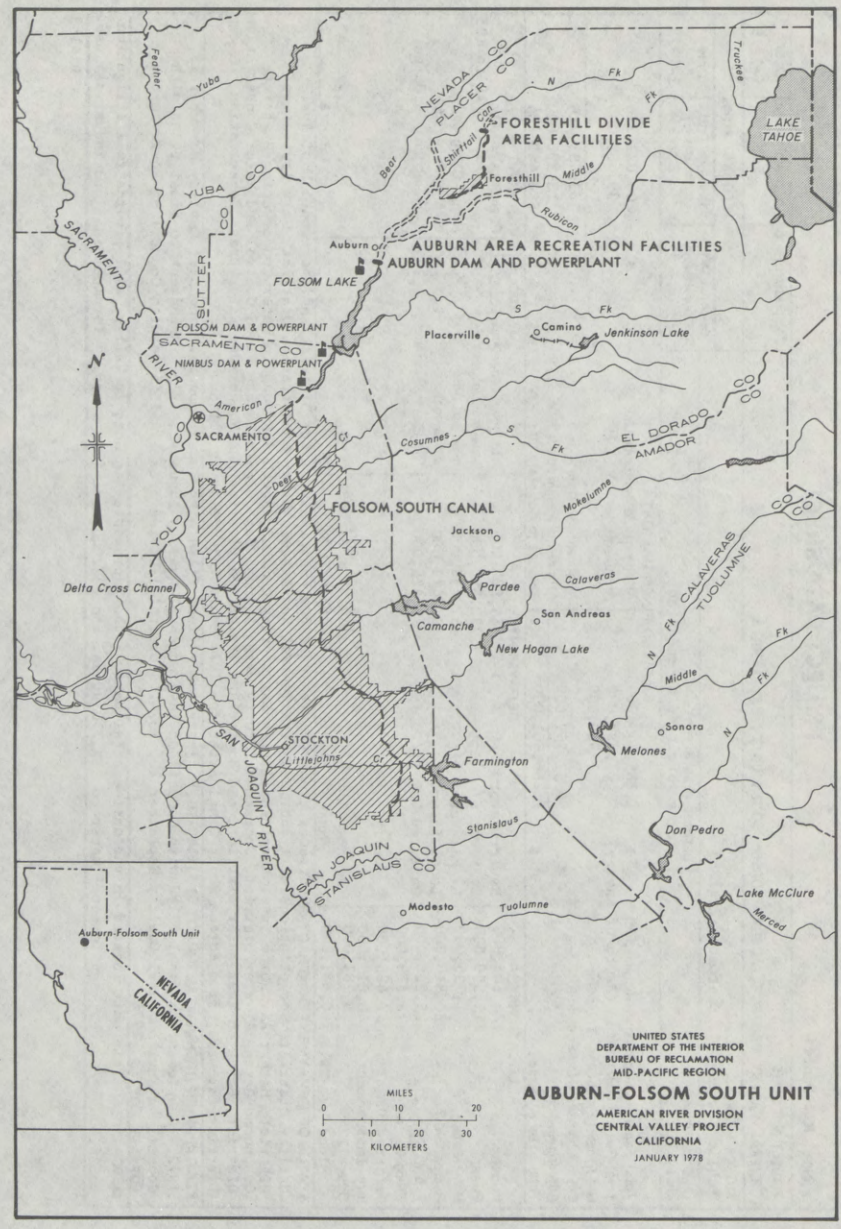
Total Estimated Cost - $13,409,000
Percent Complete - 97 percent as of January 1, 1978

Items:	Length (Mi.)	Total Cost	Cost to Sept. 30, 1977
Highways and Detours			
Relocated Highway 152	12.4	9,579,115	9,579,115
Reservoir Detour	3.0	450,985	450,985
County Road Relocations			
Little Panoche Creek Dam	2.0	256,933	256,933
San Luis Canal	1.8	68,559	68,559

Relocation - continued

Integration Gravity and Groundwater Pumping System - continued

Transmission & Telegraph Lines	67.2	923,717	923,712
Gas and Oil Lines	12.0	1,397,662	1,397,662
Southern Pacific Railroad - Reach 5		131,785	131,785


FORESTHILL DIVIDE
AREA FACILITIES
AUBURN AREA RECREATION FACILITIES
AUBURN DAM AND POWERPLANT
FOLSOM DAM & POWERPLANT
NIMBUS DAM & POWERPLANT
FOLSOM SOUTH CANAL
LAKE TAHOE
Auburn
Foresthill
Placerville
Camino
Jenkinson Lake
Jackson
Pardee
Camanche
San Andreas
New Hogan Lake
Sonora
Melones
Farmington
Don Pedro
Lake McClure
Modesto
Tuolumne
Merced
Stanislaus
Delta Cross Channel
Auburn-Folsom South Unit
NEVADA
CALIFORNIA
MILES
KILOMETERS
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
MID-PACIFIC REGION
AUBURN-FOLSOM SOUTH UNIT
AMERICAN RIVER DIVISION
CENTRAL VALLEY PROJECT
CALIFORNIA
JANUARY 1978

REGION Mid-Pacific

PROJECT DATA SHEET

PF-65 (11-75)
Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
CENTRAL VALLEY PROJECT, AUBURN-FOLSOM SOUTH UNIT, CALIFORNIA	1/	20	1-1-78

AUTHORIZATION	BENEFIT COST RATIOS		
Public Law 89-161, September 2, 1965	Based on Direct Benefits 1.7 2/	Based on Total Benefits 2.2 2/	Date 1-1-78

LAND CERTIFICATION	DEFINITE PLAN REPORT
July 20, 1967	To be submitted as required

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation)	15/ $	1,185,343,000	Allotments to September 30, 19 77 $ 244,021,716
Total Federal Obligations (Dept. of Energy)		22,599,000	Allotments for F.Y. 1978 39,482,000
Net Property and Other Transfers		960,000	
Cash Advances--Non-Federal			Allotments to Date 283,503,716
Adjustment 3/		57,759,000	Allotments Required for F.Y. 1979 13,396,000
Total to be Allocated	$	1,266,661,000	Balance to Complete after F.Y. 1979 $ 888,443,284

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 724,506,000	By Irrigators 5/	$ 169,824,000	Irrig. Invest. per Acre	$ 1,741	Payment Capacity per Acre	$25 to 125
Power	213,599,000	By Power 6/	778,393,000	Repayment of Investment per Acre:		Annual Charges:	
M & I Water	151,735,000	By M&I Water 8/	151,735,000	By Irrigators	$ 408	O & M	$
Recreation 7/	80,816,000	Local Interests 9/	11,423,000	By Power Revenues	1,333	Construction	6.00 per acre-foot
F & WL 10/	25,866,000	Deferred Use 11/	2,425,000				
Flood Control	18,619,000						
Deferred Use 11/	2,425,000						
Hwy Improvement	40,813,000						
Other 12/	8,282,000	Nonreimbursable 13/	152,861,000				
Total	$ 1,266,661,000	Total	$ 1,266,661,000			Total	$

STATUS OF REPAYMENT CONTRACT Contracts executed with East Bay Municipal Utility District and Sacramento Municipal Utility District. Negotiations will continue with Central San Joaquin Water Conservation District, Galt Irrigation District, Mather Air Force Base, Naval Facilities Engineering Command, North San Joaquin Water Conservation District, Omochumne-Hartnell Water District, Sacramento County Water Agency, San Joaquin County Flood Control and Water Conservation District, Stockton-East Water District, and Woodbridge Irrigation District and Woodbridge Water Users Conservation District for water from Folsom South Canal after the 1974 court injunction is lifted.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide - final filed with Council on Environmental Quality November 13, 1972. Supplement to final filed with Council on Environmental Quality August 6, 1973. Amendment to final filed with Council on Environmental Quality September 20, 1974. Foresthill Divide area final filed with Council on Environmental Quality May 25, 1976.

DESCRIPTION: This unit located in the east-central part of the Sacramento-San Joaquin Valley, will provide full irrigation to 28,300 14/ acres, supplemental water to 387,750 acres, and 332,000 acre-feet annually for municipal and industrial use.

BR-153

Central Valley Project, Auburn-Folsom South Unit, California

The power installation at Auburn will have an initial capacity of 300,000 kilowatts, consisting of two units of 150,000 kilowatts each, with provision for ultimate development of the hydroelectric capacity, now estimated to consist of an additional three units of 150,000 kilowatts each. The installation of the ultimate capacity will require additional authorization. This unit will also provide recreation, fish and wildlife, and flood control benefits.

OTHER INFORMATION: Funds for preconstruction planning and initial acquisition of right-of-way were appropriated in FY 1966 and for construction in FY 1967. The National Resources Defense Council, Inc. vs. Stamm, Case No. S-2663 in the U.S. District Court, Eastern District of California, was filed in December 1972. By order of the court in 1974, in the above case, the Bureau of Reclamation was enjoined from executing, negotiating, or discussing any contract (not then executed) for service from the Folsom South Canal until the Bureau has been able to resolve all objections to a final Environmental Impact Statement on the Folsom South Canal. The opposition to the Folsom South Canal results from possible decrease in American River minimal flows due to proposed diversions. The controversy is expected to continue over selection of solutions proposed and the court retains jurisdiction over canal Reaches 3, 4, and 5.

Continuation of work on the Auburn Dam feature of the unit is contingent on resolving the safety questions. A contract with Woodward-Clyde Consultants was awarded in May 1976 for earthquake evaluation studies of the Foothills Fault System and Auburn Dam Area. Services of five eminent consultants have also been obtained to review the designs and seismic studies, and other specialists were hired to analyze certain faults and other geologic aspects of the damsite. The fiscal year 1979 request includes no funds for the construction of Auburn Dam. Delays have occurred in the construction of the feature due to the current review of geologic conditions at the damsite. The amount of funding that would be required in fiscal year 1979, if the related problems are satisfactorily resolved and construction can proceed, will depend on the time of their resolution, and, therefore, cannot be estimated at this time. If the resolution of the problems indicate the need for additional funding, a timely request will be made to Congress.

Footnotes:

1/ Water is now available from the first 27 miles of the Folsom South Canal. Initial power schedule is to be determined. Depending on the level of appropriations, Auburn-Folsom South Unit could be constructed in about 9 years.

Footnotes: (Continued)

2/ Changed from 1.6 direct benefits and 2.0 benefits as presented in the Fiscal Year 1978 Budget Justifications. The increase in benefits exceeded the increase in costs as a result of the use of the latest available farm budgets.

3/ Represents interest during construction.

4/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$ 678,216,000	$ 724,506,000
Power	190,075,000	213,599,000
Municipal and Industrial Water	139,698,000	151,735,000
Recreation	76,098,000	80,816,000
Fish and Wildlife	24,086,000	25,866,000
Flood Control	17,378,000	18,619,000
Deferred Use	2,425,000	2,425,000
Hwy Improvements (Public Law 93-251)	38,384,000	40,813,000
Other	9,010,000	8,282,000
Total	$1,175,370,000	$1,266,661,000

The increase of $91,291,000 includes $66,653,000 for cost indexing, $19,000,000 for excavation and treatment of the Auburn Dam foundation to meet on-site geologic conditions, and $5,638,000 for additional seismic studies and change in designs due to seismic studies.

Cost allocated to irrigation, power, municipal and industrial water, recreation, fish and wildlife, flood control and highway improvements increased due to an increase in project cost. The decrease in the allocation to "other" results from a reduction of the requirement for cultural resources activities (Public Law 93-291).

5/ None of this amount is covered by existing contracts. Negotiations with the water users will be renewed after the 1974 court injunction is lifted.

6/ Due to operational and financial integration, repayment by the power function, including aid to irrigation, is appropriately determined only in the composite repayment analysis of the total authorized Central Valley Project. To illustrate repayment for this unit, part of the net revenues from power available for repayment of the total project is shown. See the Project Data Sheet of the Central Valley Project for the repayment analysis of this function.

7/ Includes reimbursable non-Federal recreation, $11,421,000, and nonreimbursable recreation of $69,395,000.

8/ Due to operational and financial integration repayment by the municipal and industrial function is appropriately determined only in the composite repayment analysis of the total authorized Central Valley Project. To illustrate repayment for this unit, part of the net revenues from the municipal and industrial function available for repayment of the total project is shown. See the Project Data Sheet of the Central Valley Project for the repayment analysis of this function.

9/ Reimbursable allocations to recreation, $11,421,000; and fish and wildlife enhancement, $2,000 to be repaid by local interests under Section 3 of the authorizing act.

10/ Includes reimbursable waterfowl conservation, $11,112,000; reimbursable non-Federal fish and wildlife enhancement, $2,000; and the nonreimbursable functions of fish and wildlife enhancement, $2,687,000; anadromous fishery, $4,468,000; and wildlife refuge, $8,597,000.

11/ Authorized by Public Law 89-161 to provide capacity in Folsom South Canal to serve the future Eastside Division.

12/ For cultural resources activities (Public Law 93-291).

13/ Nonreimbursable includes flood control, $18,619,000; fish and wildlife enhancement, $2,687,000; anadromous fishery, $4,468,000; wildlife refuge, $8,597,000; recreation, $69,395,000; highway improvements, $40,813,000; and cultural resources activities, $8,282,000.

14/ Changed from 29,340 acres as presented in Fiscal Year 1978 Budget Justifications. This reduction was necessary because the capacity of Sugar Pine Dam and Reservoir has been reduced from 16,500 acre-feet to 7,000 acre-feet based on project requirements.

15/ Appropriations authorized total $940,563,000 (January 1977). The current estimate of the appropriations required is $1,185,343,000. These estimates indicate that additional appropriation ceiling will be required in the future in order to complete the project. Existing ceiling is adequate to cover currently scheduled features.

CENTRAL VALLEY PROJECT, CALIFORNIA
AUBURN-FOLSOM SOUTH UNIT

PHYSICAL DATA ON STRUCTURES

CONSTRUCTION PROGRAM:

Auburn Dam and Reservoir

Dam:
Type - Concrete Arch
Structural Height - 685 Feet
Crest Length - 4,150 Feet
Base Width - 196 Feet

Spillway:
Type - 2 Chutes - 10 Submerged Gated Orifices Per Chute
Design Discharge - 316,000 Cubic Feet Per Second

Reservoir Capacity:
Total Storage - 2,300,000 Acre-feet

Auburn Powerplant

Initial authorized powerplant - 2 units with total plant capacity of 300,000 kilowatts
Provisions exist for 3 additional units of 150,000 kilowatts

Sugar Pine Dam and Reservoir

Dam:
Type - Zoned Earthfill
Structural Height - 200 Feet
Crest Length - 675 Feet
Base Width - 1,000 Feet

Spillway:
Type - Ungated Chute
Design Discharge - 13,200 Cubic Feet Per Second

Reservoir Capacity:
Total Storage - 7,000 Acre-feet

Foresthill Conveyance System - Length 18.1 mile

County Line Dam and Reservoir

Dam:
Type - Earthfill
Structural Height - 90 Feet
Crest Length - 575 Feet
Base Width - 450 Feet

Spillway:
Type - Gated Chute
Design Discharge - 15,100 Cubic Feet Per Second

Reservoir Capacity:
Total Storage - 40,000 Acre-feet

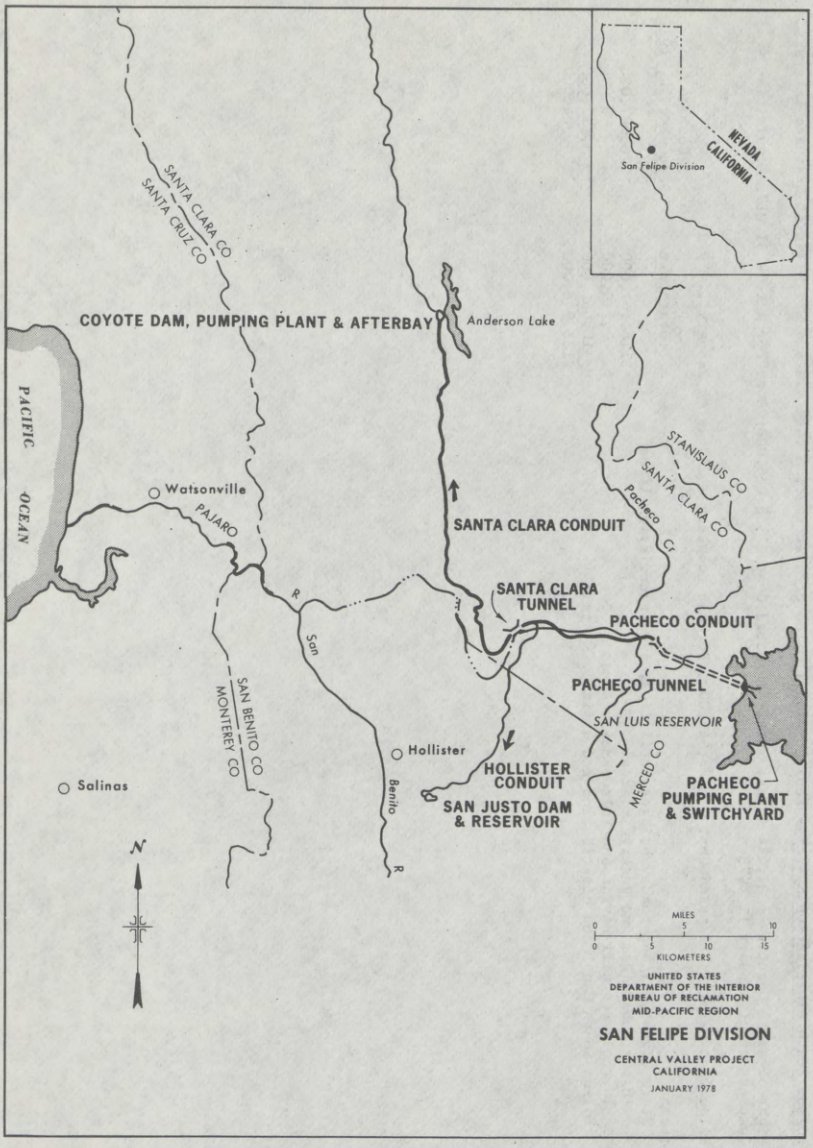
Folsom South Canal - Length - 26.7 Miles Completed, 42.1 Miles to be Constructed; Capacity - 125 to 3,500 Cubic Feet Per Second; Bottom Width - 4.0 to 34.0 Feet; Water Depth - 4.1 to 17.8 Feet.

Folsom South Distribution System - Length - 133.1 Miles of Distribution Laterals and 622 Miles of Drainage Laterals.

Right-of-Way - Quantity - 37,424 Acres; Total Estimated Cost - $38,076,000; Cost Per Acre - $1,017; Acquisition - 45% Complete as of January 1, 1978.

Relocation - Total Estimated Cost - $128,946,000; Percent Complete - 23% as of January 1, 1978.

Items:	Total Cost	Cost to September 30, 1977
State Highway 49 and roads, bridges, utilities, and transmission lines		
In the Auburn Dam and Reservoir Area	$116,161,000	$26,087,000
In the Foresthill Divide and Folsom-Malby Areas	2,719,000	0
Folsom South Canal and distribution and drainage systems	10,066,000	3,217,000
TOTAL	$128,946,000	$29,304,000


NEVADA
CALIFORNIA
San Felipe Division
SANTA CLARA CO
SANTA CRUZ CO
COYOTE DAM, PUMPING PLANT & AFTERBAY
Anderson Lake
PACIFIC OCEAN
Watsonville
PAJARO
R
San
Benito
R
SAN BENITO CO
MONTEREY CO
Salinas
Hollister
SANTA CLARA CONDUIT
SANTA CLARA TUNNEL
PACHECO CONDUIT
PACHECO TUNNEL
SAN LUIS RESERVOIR
HOLLISTER CONDUIT
SAN JUSTO DAM & RESERVOIR
MERCED CO
PACHECO PUMPING PLANT & SWITCHYARD
STANISLAUS CO
SANTA CLARA CO
Pacheco Cr.
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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
MID-PACIFIC REGION
SAN FELIPE DIVISION
CENTRAL VALLEY PROJECT
CALIFORNIA
JANUARY 1978

PROJECT DATA SHEET

PF-65 (11-76)
Bureau of Reclamation

REGION: Mid-Pacific

PROJECT AND STATE	Completion Date	% Complete	Date
CENTRAL VALLEY PROJECT, SAN FELIPE DIVISION, CALIFORNIA	1/	2	1-1-78

AUTHORIZATION	BENEFIT COST RATIOS		
Public Law 90-72, August 27, 1967	Based on Direct Benefits 2/	Based on Total Benefits 2/	Date
LAND CERTIFICATION: August 20, 1975 / DEFINITE PLAN REPORT: Scheduled for May 1978	2.7	3.4	1-1-78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 13/	$ 184,911,000	Allotments to September 30, 1977	$ 7,730,340
Total Federal Obligations (Other)		Allotments for F.Y. 1978	17,570,000
Net Property and Other Transfers	-13,616		
Cash Advances--Non-Federal	50,000	Allotments to Date	25,300,340
Adjustment 3/	25,978,616	Allotments Required for F.Y. 1979	19,234,000
Total to be Allocated	$ 210,926,000	Balance to Complete after F.Y. 1979	$ 140,376,660

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 66,757,000	By Irrigators 6/	$ 38,334,000	Irrig. Invest. per Acre	$ 1,725	Payment Capacity per Acre	$ 25 to 95
		By Power 7/	28,423,000	Repayment of Investment per Acre:		Annual Charges:	
M & I Water	117,327,000	By M&I Water 8/	117,327,000	By Irrigators	$ 990	O & M	$
Recreation 5/	8,710,000	Local Interests Payment for share of Recreation 9/	119,000	By Power Revenues	735	Construction	16.50 per acre-foot
F & WL	7,207,000	Deferred Use 10/	9,110,000				
Deferred Use 10/	9,110,000						
Other 11/	1,815,000	Nonreimbursable 12/	17,613,000				
Total	$ 210,926,000	Total	$ 210,926,000			Total	$

STATUS OF REPAYMENT CONTRACT: A water service contract with the Santa Clara Valley Water District, the major water user, was executed June 7, 1977, and validated November 10, 1977. Water service contract with San Benito County Water Conservation and Flood Control District is scheduled for execution February 1978 and validation April 1978.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide - final filed with Council on Environmental Quality March 8, 1976.

DESCRIPTION: This division is located in the central coastal area of California south of San Francisco and embraces the Santa Clara Valley in Santa Clara County, north portion of San Benito County, southern portion of Santa Cruz County, and the northern edge of Monterey County. The division will provide supplemental water to 38,700 acres and provide 132,400 acre-feet of water annually for municipal and industrial use. Water from San Luis Reservoir will be transported to the service area through Pacheco Tunnel and other principal features which include 8.5 miles of tunnels, 47.6 miles of closed conduits, two pumping plants, and two small reservoirs. The Pacheco Tunnel inlet was constructed under authority contained in the San Luis authorization act.

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Central Valley Project, San Felipe Division, California

OTHER INFORMATION: Funds were first appropriated to initiate preconstruction planning in FY 1970 and to begin construction in FY 1975. The system to serve the Watsonville area has been tentatively deleted and there continues to be no interest for this development. A lawsuit was filed by the Environmental Defense Fund and Sierra Club. The April 26, 1977 judgment in favor of the United States in U.S. District Court concerning the adequacy of the San Felipe Environmental Statement allowed the Bureau to proceed with construction. The bid opening for completing Pacheco Tunnel was held on July 14, 1977, and the low bid was $104,953,260 which exceeded the estimate by approximately $35.0 million. All bids were rejected because an award at the bid price would have resulted in the total project cost exceeding the authorized appropriation ceiling by a substantial amount. The project has now been redesigned to accomplish the project goals at significant cost savings. However, the total project cost estimate exceeds the authorized appropriation ceiling by about $4.1 million, which is 2 percent of the estimate and below the variance in estimating accuracy that can be expected on a project of this magnitude.

Footnotes:

1/ Initial delivery of water scheduled for fiscal year 1987.

2/ Changed from 2.4 based on total benefits and from 1.8 based on direct benefits shown in fiscal year 1978 Budget Justification due primarily to a significant increase in the municipal and industrial (M&I) water benefits. This was caused by a substantial increase in the alternative cost for providing M&I water to the San Felipe area.

3/ Interest during construction of $17,597,000 and $8,382,000 for the cost of the inlet to Pacheco Tunnel built concurrently with San Luis Reservoir. An adjustment of $-384 has been made to round the total to be allocated to even thousands.

Footnotes: (Continued)

4/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$ 74,340,000	$ 66,696,000
Municipal and Industrial Water	107,803,000	117,388,000
Recreation	9,943,000	8,710,000
Fish and Wildlife	8,270,000	7,207,000
Deferred Use	4,454,000	9,110,000
Other	1,772,000	1,815,000
Total	$206,582,000	$210,926,000

The net increase of $4,344,000 resulted from changes in structure locations and designs with a net effect of $-5,029,000; offset by increases of $8,768,000 in interest during construction, and $605,000 for cost indexing.

Deferred used increased $4,656,000 as based on current estimates for Pacheco Tunnel, Conduit, Pumping Plant, and Switchyard to serve the future Watsonville area.

5/ Includes reimbursable non-Federal recreation costs of $119,000 and nonreimbursable recreation costs of $8,591,000.

6/ Of the amount to be repaid, $18,316,000 is covered by an existing water service contract and the balance will be covered by execution of a future water service contract.

7/ Due to operational and financial integration, repayment by the power function, including aid to irrigation, is appropriately determined only in the composite repayment analysis of the total authorized Central Valley Project. To illustrate repayment for this unit part of the net revenues from power available for repayment of the total project is shown. See the Project Data Sheet of the Central Valley Project for the repayment analysis of this function.

8/ Due to operational and financial integration repayment by the municipal and industrial function is appropriately determined only in the composite repayment analysis of the total authorized Central Valley Project. To illustrate repayment for this unit, part of the net revenues from the municipal and industrial function available for repayment of the total project is shown. See the Project Data Sheet of the Central Valley Project for the repayment analysis of this function.

9/ Reimbursable allocation to recreation to be repaid by San Benito County under Section 3 of the Authorizing act.

10/ Estimated cost of Pacheco Tunnel, Pacheco Conduit, and Pacheco Pumping Plant and Switchyard capacity to serve future development in the Watsonville service area. If interest develops in the Watsonville service area, sufficient capacity will be included in these features to serve this area.

11/ For cultural resources activities (Public Law 93-291).

12/ Nonreimbursable includes fish and wildlife enhancement, $7,207,000; recreation, $8,591,000; and cultural resources activities, $1,815,000.

13/ Appropriations authorized are $196,232,000 (January 1977). The current estimate, including $15,400,000 in work to be performed by the San Benito County Water Conservation and Flood Control District with a Federal loan is $200,311,000.

Estimating data is not firm enough to determine if additional authorization ceiling is necessary. This situation will be analyzed periodically as new and more precise data becomes available to determine the impact of the changes and committments will be held within the existing ceiling.

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CENTRAL VALLEY PROJECT, CALIFORNIA
SAN FELIPE DIVISION

PHYSICAL DATA ON STRUCTURES

CONSTRUCTION PROGRAM:

Pacheco Tunnel: Length - 7.4 Miles; Diameter Size - 9.5 Feet Circular; Capacity - 480 Cubic Feet Per Second.

Pacheco Pumping Plant and Switchyard: 14 units with total capacity of 480 cubic feet per second.

Pacheco Conduit: Length - 8.2 Miles; Diameter Size - 114 to 120 inch; Capacity - 413 to 480 cubic feet per second.

Santa Clara Tunnel and Conduit

Tunnel:	Length - 1.1 Miles	Diameter Size - 8.0 Feet Circular	Capacity - 300 Cubic Feet Per Second
Conduit:	Length - 20.9 Miles	Diameter Size - 96 Inch	Capacity - 330 Cubic Feet Per Second

Coyote Afterbay Dam and Reservoir:

Dam:
Type - Earth and Rockfill
Structural Height - 35 Feet
Crest Length - 850 Feet
Base Width - 160 Feet

Spillway:
Type - Morning Glory
Design Discharge - 450 Cubic Feet Per Second

Reservoir Capacity:
Total Storage - 62 Acre-feet

Coyote Pumping Plant and Switchyard: 3 units with plant capacity of 200 Cubic Feet Per Second

Hollister Conduit: Length - 18.5 Miles; Diameter Size - 48 to 54 Inch; Capacity - 83 Cubic Feet Per Second.

San Justo Dam and Reservoir

Dam:
Type - Earthfill
Structural Height - 126 Feet
Crest Length - 750 Feet
Base Width - 800 Feet

Spillway:
Type - Ungated Chute
Design Discharge - 390 Cubic Feet Per Second

Reservoir Capacity:
Total Storage - 10,700 Acre-feet

Transmission Facilities: Transmission Lines - 41 Miles of 115-kilovolts.

Right-of-Way: Quantity - 695 Acres; Total Estimated Cost - $5,153,698; Cost Per Acre - $742; Acquisiton - 3% Complete as of January 1, 1978.

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Relocation: Total Estimated Cost - $1,000,000; Percent Complete - Zero as of January 1, 1978.

Items: Miscellaneous Utility Relocations - Total Cost $1,000,000; Cost to September 30, 1977 - $0.

CENTRAL VALLEY PROJECT

Repayable Investment of the United States
and Funds Returned to the Treasury
September 30, 1977

Repayable Investment of the United States:		
Appropriation allocation for advance planning, construction and operation and maintenance	$2,077,055,140	
Transfers of cost or property (net)	96,666,430	
Interest accrued on investment	86,027,705	
Interest during construction - capitalized	7,741,015	
Total investment		$2,267,490,290
Nonreimbursable:		
Capital Costs (estimated)	$ 157,000,000	
Expense	20,491,032	
Total nonreimbursable		177,491,032
Total Repayable Investment		$2,089,999,258
Funds Returned to the Treasury:		
Power operations	$ 449,712,530	
Water operations and miscellaneous	233,400,771	
Total repayment		$ 683,113,301

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CENTRAL VALLEY PROJECT OBLIGATION PROGRAM

	Estimated Total	Total to Sept. 30, 1977	Program FY 1978	Program FY 1979	Balance to Complete
Sacramento River Division.....	$ 318,264,000	$ 148,005,243	$ 31,304,000	$ 34,237,000	$ 104,717,757
San Luis Unit					
Westlands Distribution and Drainage System.....	433,020,000	153,445,365	34,611,304	7,860,000	237,103,331
San Luis Drain.....	185,320,000	40,562,835	1,582,220	11,000,000	132,174,945
Other San Luis Unit Facilities.....	429,994,000	382,170,219	2,728,476	6,013,000	39,082,305
Subtotal-San Luis Unit.....	1,048,334,000	576,178,419	38,922,000	24,873,000	408,360,581
Auburn-Folsom South Unit					
Auburn Area Facilities (Includes Auburn Dam & Res.).....	943,624,000	194,892,063	38,245,318	9,261,000	701,225,619
Foresthill Divide Area Facilities (includes Sugar Pine Dam & Res.)..	18,603,000	3,138,771	3,001,000	3,900,000	8,563,229
Folsom South Area Facilities (Includes Folsom South Canal).....	196,548,000	39,124,702	1,000,000	100,000	156,323,298
Other Facilities.....	26,568,000	3,196,862	905,000	135,000	22,331,138
Subtotal-Auburn-Folsom South Unit.....	1,185,343,000	240,352,398	43,151,318	13,396,000	888,443,284
Miscellaneous Project Programs.....	840,843,000	791,576,453	20,716,000	13,330,000	15,220,547
San Felipe Division.....	184,961,000	4,257,339	21,093,000	19,234,000	140,376,661
Subtotal.....	3,577,745,000	1,760,369,852	155,186,318	105,070,000	1,557,118,830
Non-Federal Advances.....	-168,784,120	-157,204,045	-4,478,000 1/	0	-7,102,075
Total-Federal Obligations.....	$3,408,960,880	$1,603,165,807	$150,708,318	$105,070,000	$1,550,016,755

1/ Includes Non-Federal Funds of $478,000 from Westlands Water District and $4,000,000 from city of Redding.

Appropriation Title: Construction and Rehabilitation

CENTRAL VALLEY PROJECT, CALIFORNIA

FISCAL YEAR 1979

Work Proposed	Program
Sacramento River Division:	
Tehama-Colusa Canal and Facilities. For completion of Reach 6 of the Tehama-Colusa Canal, the Orland-Artois Water District Units 1 pumping plant, and the Kanawha Water District Improvement District pumping plants, and continued construction of Reaches 7 and 8. Land acquisition and design of the Colusa County Water District Pumping Plants will be initiated.	$ 24,109,000
Tehama-Colusa Canal Distribution System. For completion of Orland-Artois Water District Unit 1 distribution system. Preconstruction work will continue on other distribution systems and rights-of-way will be purchased.	9,181,000
Permanent Operating Facilities. Purchase of operating equipment will continue.	95,000
Other Project Costs. Construction will continue on Corning Canal safety fence, and pumps will be purchased and installed.	852,000
Subtotal, Sacramento River Division	$ 34,237,000

Work Proposed	Program
San Luis Unit:	
Federal Facilities:	
O'Neill Pumping Plant. A contract for purchasing and installing the programmable monitoring system will be awarded.	$ 175,000
Relift Pumping Plants for Westlands Water District Distribution System. To continue construction on the relift pumping facilities for the Westlands distribution system.	5,000,000
San Luis Canal Turnouts. For construction of turnout facilities for San Luis and Panoche Water Districts.	800,000
San Luis Drain. Construction of the southernmost reach of the Drain will be started. Other preconstruction work will continue.	11,000,000
Distribution and Drainage Systems:	
Westlands Distribution System. Construction of Contract No. 16 laterals will be completed. Contract No. 17 and a contract for the telemetering system will be awarded. Watermetering devices and other equipment will be purchased. Preconstruction activities on future contracts will continue.	6,910,080
Drainage Collector System. Construction on Contract No. 2-D will be continued. Collection of design data for future contracts will continue.	949,920
Service Facilities. For purchase of equipment.	38,000
Subtotal, San Luis Unit	$ 24,873,000

Work Proposed:	Program
Auburn-Folsom South Unit:	
Auburn Area:	Program
Auburn Dam and Reservoir. Preparation of designs and specifications for Auburn Dam and associated contracts will continue. Land acquisition will continue.	$ 7,405,000
Auburn Powerplant. For preparation of designs and specifications.	1,470,000
Recreation Facilities. Provides for recreation, land acquisition and planning.	386,000
Foresthill Divide Area:	
Sugar Pine Dam and Reservoir. Construction will continue on Sugar Pine Dam and facilities.	3,400,000
Foresthill Conveyance System. Construction on the Main Conveyance System will continue.	500,000
Folsom South Area:	
Folsom South Canal. For continuation of preconstruction activities.	100,000
Service Facilities, Depreciation and Salvage. The construction of a storage and maintenance shop will be completed. Miscellaneous equipment will be acquired.	135,000
Subtotal - Auburn-Folsom South Unit	$ 13,396,000

Work Proposed	Program
Miscellaneous Project Programs:	
Delta Division:	
Delta-Mendota Canal. Provides for canal lining, bank work, and work on the operating roads.	$ 2,515,000
Friant Division:	
Friant-Kern Canal. For raising the canal lining.	6,380,000
Shasta Division:	
Shasta Powerplant Transformer Replacement. Provides for continuing the replacement of power transformers.	2,000,000
Trinity River Division:	
Trinity River Basin Comprehensive Action Program. Interim fish, wildlife, and watershed improvement measures will be completed. Observation and study for future measures will continue.	2,330,000
New Melones Project Facilities. For studies associated with the need to assume operation and maintenance of new facilities upon completion of construction of the New Melones Dam and Reservoir by the Corps of Engineers.	105,000
Subtotal, Miscellaneous Project Programs	$ 13,330,000

Work Proposed	Program
San Felipe Division:	
Pacheco Tunnel. For continuing construction of the tunnel.	$ 16,484,000
Pacheco Pumping Plant and Switchyard.) For preconstruction activities.	500,000
Pacheco Conduit.)	440,000
Santa Clara Tunnel and Conduit. For purchase of right-of-way and preconstruction activities.	1,400,000
Coyote Afterbay Dam and Reservoir.)	10,000
Hollister Conduit.) For preconstruction activities.	100,000
San Justo Dam and Reservoir.)	50,000
Transmission Facilities 115-kV.)	200,000
Service Facilities, Depreciation and Salvage. For purchase of equipment, materials and supplies and for communications and utilities.	50,000
Subtotal, San Felipe Division	$ 19,234,000
TOTAL, CENTRAL VALLEY PROJECT	$105,070,000

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Construction Program					
Central Valley Project					
Sacramento River Division					
1/Completed Work	21,363,594	21,363,594	-	-	-
Tehama-Colusa Canal and Facilities	172,765,144	86,082,144	26,950,000	24,109,000	35,624,000
Tehama-Colusa Canal Distribution Systems	92,238,539	6,971,539	13,055,000	9,181,000	63,031,000
Tehama-Colusa Canal Fish Facilities	24,521,722	19,932,722	633,000	-	3,956,000
Permanent Operating Facilities	5,208,292	1,735,292	1,693,000	95,000	1,685,000
Service Facilities, Depreciation and Salvage	-22,000	248,664	-	-	-270,664
Engineering and Design	(34,676,000)	(16,425,126)	(3,068,000)	(4,000,000)	(11,182,874)
Supervision and Administration	(32,654,000)	(21,544,490)	(2,348,284)	(3,062,000)	(5,699,226)
Relocation Costs	(1,408,000)	(565,672)	(287,531)	(65,000)	(489,797)
Total Construction Cost	316,075,291	136,333,955	42,331,000	33,385,000	104,025,336
Other Project Costs	1,802,698	70,414	230,284	852,000	650,000
Total Project Cost	317,877,989	136,404,369	42,561,284	34,237,000	104,675,336
Consolidated Expenditures and Credits	386,011	343,590	-	-	42,421
Total Expenditures	318,264,000	136,747,959	42,561,284	34,237,000	104,717,757
Undelivered Orders	-	11,257,284	-11,257,284	-	-
Total Obligations-Sacramento River Division	318,264,000	148,005,243	31,304,000	34,237,000	104,717,757
Method of Financing:					
Appropriations available and required			29,775,000	34,237,000	104,717,757
Prior year balance available			1,529,000		

1/ Includes Red Bluff Diversion Dam and Reservoir, Corning Canal and Facilities, Corning Water District Distribution System, Recreation Facilities and O&M Housing.

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PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 19 78, AND FISCAL YEAR 19 79

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM (Continued)					
San Luis Unit					
Joint State-Federal Facilities					
1/ Completed Work	182,172,684	182,172,684	-	-	-
San Luis Canal	140,743,183	127,192,232	-	-	13,550,951
Permanent Operating Facilities	7,600,000	7,247,706	-	-	352,294
Recreation and Fish & Wildlife Facilities	6,798,643	6,382,643	416,000	-	-
2/ Subtotal - Joint State-Federal Facilities	337,314,510	322,995,265	416,000	-	13,903,245
Federal Facilities					
1/ Completed Work	12,168,257	12,168,257	-	-	-
O'Neill Pumping Plant	10,167,000	9,422,748	225,000	175,000	344,252
Coalinga Canal and Pump Intake	8,656,590	8,651,590	5,000	-	-
Relift Pumping Plants for Distribution System	62,680,000	29,173,554	3,200,000	5,000,000	23,806,446
San Luis Canal Turnouts	16,200,000	13,365,051	900,000	800,000	1,134,949
San Luis Drain	185,320,000	40,545,055	1,600,000	11,000,000	133,674,945
Subtotal - Federal Facilities	295,191,847	113,326,255	5,930,000	16,975,000	158,960,592
Distribution and Drainage System					
Westlands Distribution System	210,780,000	142,599,805	9,800,000	11,458,000	46,922,195
Westlands Drainage Collector System	62,420,000	9,325,697	5,800,000	15,262,000	32,032,303
Integration of Gravity and Groundwater Pumping	159,820,000	77,167	-	-	159,742,833
Subtotal - Distribution and Drainage System	433,020,000	152,002,669	15,600,000	26,720,000	238,697,331
Service Facilities, Depreciation and Salvage	-	748,373	20,000	38,000	-806,373

1/ Completed Work includes San Luis Dam and Reservoir, San Luis Pumping-Generating Plant, O'Neill Dam, Forebay and Wasteway, San Luis Pumping-Generating Plant Switchyard, Dos Amigos Pumping Plant, Dos Amigos Pumping Plant Switchyard, Los Banos Detention Dam and Reservoir, Little Panoche Detention Dam and Reservoir, O'Neill Pumping Plant Intake Channel, Pleasant Valley Pumping Plant, O'Neill Pumping Plant Switchyard, Pleasant Valley Pumping Plant Switchyard, M&I Facilities for Huron, Temporary Camp, Federal Permanent Operating Facilities, and Joint State-Federal Service Facilities, Depreciation, and Salvage.

2/ All items in Joint State-Federal Facilities are funded 55 percent State and 45 percent Federal.

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM (Continued)					
San Luis Unit (Continued)					
Engineering and Design	(87,279,000)	(50,078,162)	(3,059,000)	(533,000)	(33,608,838)
Supervision and Administration	(102,658,000)	(67,178,486)	(3,590,069)	(2,000,000)	(29,889,445)
Relocation Costs	(13,409,000)	(13,062,270)	(50,000)	(-)	(296,730)
Total Construction Cost	1,065,526,357	589,072,562	21,966,000	43,733,000	410,754,795
Other Project Cost	142	142	-	-	-
Total Project Cost	1,065,526,499	589,072,704	21,966,000	43,733,000	410,754,795
Consolidated Expenditures and Credits	-17,192,499	-16,119,519	-272,766	-	-800,214
Total Expenditures	1,048,334,000	572,953,185	21,693,234	43,733,000	409,954,581
Undelivered Orders	-	3,225,234	17,228,766	-18,860,000	-1,594,000
Total Obligations - San Luis Unit	1,048,334,000	576,178,419	38,922,000	24,873,000	408,360,581
Method of Financing:					
Advance non-Federal			478,000		7,102,075
Appropriations available and required			35,312,000	24,873,000	401,258,506
Prior year balance available			3,132,000		

FF-40 (3-74)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 19 78 , AND FISCAL YEAR 19 79

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM (Continued)					
Auburn-Folsom South Unit					
Auburn Area					
Auburn Dam and Reservoir 1/	793,493,758	177,114,970	41,407,600	7,405,000	567,566,188
Auburn Powerplant	124,361,000	7,141,611	2,464,000	1,470,000	113,285,389
Auburn Powerplant Switchyard 2/ (formerly transmission lines & switchyard)	7,141,000	275,548	-	-	6,865,452
Recreation Facilities	16,746,600	5,143,421	556,000	386,000	10,661,179
Permanent Operating Facilities	1,820,000	895	-	-	1,819,105
Fish and Wildlife Lands	512,400	320,000	192,400	-	-
Subtotal - Auburn Area	944,074,758	189,996,445	44,620,000	9,261,000	700,197,313
Foresthill Divide Area	18,625,000	3,194,721	3,001,000	3,900,000	8,529,279
Folsom-Malby Area	26,568,000	32,000	-	-	26,536,000
Folsom South Area Facilities					
Folsom South Canal	100,049,000	39,238,888	1,000,000	100,000	59,710,112
All Other Facilities	96,786,000	346,814	-	-	96,439,186
Subtotal - Folsom South Area Facilities	196,835,000	39,585,702	1,000,000	100,000	156,149,298
Service Facilities, Depreciation and Salvage	-	3,201,862	905,000	135,000	-4,241,862
Engineering and Design	(106,887,000)	(23,635,000)	(5,189,000)	(4,069,000)	(73,994,000)
Supervision and Administration	(102,695,000)	(35,452,226)	(3,435,000)	(4,166,000)	(59,641,774)
Relocation Costs	(128,946,000)	(29,304,000)	(487,000)	(1,385,000)	(97,770,000)
Total Construction Cost	1,186,102,758	236,010,730	49,526,000	13,396,000	887,170,028
Other Project Costs	200,242	200,242	-	-	-
Total Project Cost	1,186,303,000	236,210,972	49,526,000	13,396,000	887,170,028
Consolidated Expenditures and Credits	-960,000	-2,233,455	199	-	1,273,256
Total Expenditures	1,185,343,000	233,977,517	49,526,199	13,396,000	888,443,284
Undelivered Orders	-	6,374,881	-6,374,881	-	-
Total Obligations - Auburn-Folsom South Unit	1,185,343,000	240,352,398	43,151,318	13,396,000	888,443,284
Method of Financing:					
Appropriations available and required			39,482,000	13,396,000	888,443,284
Prior year balance available			3,669,318		

1/ Additional appropriations will be requested when agreement is reached as to the safety of the planned Auburn Dam.

2/ Formerly Transmission Lines and Switchyards.

BR-175

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM (Continued)					
CVP--Miscellaneous Project Programs					
Delta Division					
1/ Completed Work	48,755,110	48,755,110	-	-	-
Delta-Mendota Canal	69,798,582	56,946,988	1,523,574	2,515,000	8,813,020
Subtotal - Delta Division	118,553,692	105,702,098	1,523,574	2,515,000	8,813,020
Friant Division					
2/ Completed Work	39,846,501	39,846,501	-	-	-
Friant-Kern Canal	90,781,340	76,004,351	5,580,000	6,380,000	2,816,989
Friant-Kern Distribution System	44,584,874	44,262,874	322,000	-	-
Subtotal - Friant Division	175,212,715	160,113,726	5,902,000	6,380,000	2,816,989
Shasta Division					
3/ Completed Work	164,611,739	164,611,739	-	-	-
Shasta Powerplant Transformer Replacement	4,760,000	-	1,500,000	2,000,000	1,260,000
4/ Keswick Switchyard Additions (new facility)	4,000,000	-	4,000,000	-	-
Subtotal - Shasta Division	173,371,739	164,611,739	5,500,000	2,000,000	1,260,000
American River Division					
5/ Completed Work	106,093,301	106,093,301	-	-	-
El Dorado Distribution System	25,000,000	19,017,848	5,982,152	-	-
Subtotal - American River Division	131,093,301	125,111,149	5,982,152	-	-
Trinity River Division					
6/ Completed Work	235,501,966	235,501,966	-	-	-
Trinity River Basin Comprehensive Action Program	7,620,000	1,531,422	2,418,578	2,330,000	1,340,000
Subtotal - Trinity River Division	243,121,966	237,033,388	2,418,578	2,330,000	1,340,000
New Melones Project Facilities	1,625,803	915,803	100,000	105,000	505,000
Project General					
7/ Completed Work	12,075,064	12,075,064	-	-	-

(See following page for footnotes)

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PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM (Continued)					
CVP--Miscellaneous Project Programs (Continued)					
Engineering and Design	(73,948,973)	(69,542,136)	(780,789)	(293,000)	(3,333,048)
Supervision and Administration	(59,800,000)	(56,374,185)	(1,800,000)	(842,000)	(783,815)
Total Construction Cost	855,054,280	805,562,967	21,426,304	13,330,000	14,735,009
Other Project Costs	2,053,580	1,405,580	-	-	648,000
Total Project Cost	857,107,860	806,968,547	21,426,304	13,330,000	15,383,009
Consolidated Expenditures and Credits	-16,264,860	-16,103,636	1,238	-	-162,462
Total Expenditures	840,843,000	790,864,911	21,427,542	13,330,000	15,220,547
Undelivered Orders	-	711,542	-711,542	-	-
Total Obligations-CVP--Miscellaneous Project Programs	840,843,000	791,576,453	20,716,000	13,330,000	15,220,547
Method of Financing:					
Advance non-Federal			4,000,000		
Appropriations available and required			14,662,000	13,330,000	15,220,547
Prior year balance available			2,054,000		

1/ Includes totals for Tracy Pump Plant and Intake Canal, Delta Cross Channel, Contra Costa Water and Plainview Water Distribution Systems, Tracy-Contra Costa-Clayton Ygnacio 69-kV Transmission Line and Substation, Tracy Switchyard, Permanent Operating Facilities, Delta Fish Protective Facilities, and Contra Costa Canal System.
2/ Includes Friant Dam and Reservoir, Madera Canal, and Madera Distribution System.
3/ Includes Shasta and Keswick Dams and their associated power facilities and Permanent Operating Facilities.
4/ Funds advanced by the City of Redding to construct the required facilities to allow direct service to the city.
5/ Includes totals for Folsom Dam, Reservoir, and Power Facilities, Sly Park Dam and Conduit, Nimbus Fish Protective Facilities, and Permanent Operating Facilities.
6/ Includes Lewiston Diversion Dam, Powerplant and Debris Dam, Trinity Powerplant, Judge Francis Carr Powerhouse, Recreation Facilities, Permanent Operating Facilities, O&M Housing, and Irrigation Development.
7/ Includes totals for Preference Customer Metering, Radio Network, Waterfowl Conservation, Permanent Operating Facilities, and Water Rights.

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PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM (Continued)					
San Felipe Division					
Pacheco Tunnel	57,416,081	11,214,081	20,515,000	16,484,000	9,203,000
Pacheco Pumping Plant and Switchyard (new facility)	24,760,625	139,625	160,000	500,000	23,961,000
Pacheco Conduit (formerly Pacheco Canal)	26,670,000	13,000	10,000	440,000	26,207,000
Santa Clara Tunnel and Conduit 1/	55,290,518	1,233,518	250,000	1,400,000	52,407,000
Coyote Afterbay Dam and Reservoir	1,583,434	16,434	5,000	10,000	1,552,000
Coyote Pumping Plant and Switchyard	3,733,000	37,000	-	-	3,696,000
Hollister Conduit 2/	12,800,040	172,040	100,000	100,000	12,428,000
San Justo Dam and Reservoir	6,140,996	158,996	50,000	50,000	5,882,000
Transmission Facilities 115 kV (new facility)	4,200,000	-	-	200,000	4,000,000
Wildlife Mitigation	150,000	-	-	-	150,000
Public Use Facilities	127,000	-	-	-	127,000
Recreational Lands	76,000	-	-	-	76,000
Permanent Operating Facilities	366,000	4,000	-	-	362,000
Temporary Camp	254,000	-	-	-	254,000
Service Facilities, Depreciation and Salvage	-254,000	194,449	30,000	50,000	-528,449
Engineering and Design	(19,206,000)	(4,604,414)	(1,600,000)	(2,500,000)	(10,501,586)
Supervision and Administration	(17,032,358)	(1,248,380)	(485,000)	(1,095,000)	(14,203,978)
Relocation Costs	(1,000,000)	(-)	(10,000)	(10,000)	(980,000)
Total Construction Cost	193,313,694	13,183,143	21,120,000	19,234,000	139,776,551
Other Project Costs	15,690	15,690	-	-	-
Total Project Cost	193,329,384	13,198,833	21,120,000	19,234,000	139,776,551
Consolidated Expenditures and Credits	-8,368,384	-8,967,389	-1,105	-	600,110
Total Expenditures	184,961,000	4,231,444	21,118,895	19,234,000	140,376,661
Undelivered Orders	-	25,895	-25,895	-	-
Total Obligations - San Felipe Division	184,961,000	4,257,339	21,093,000	19,234,000	140,376,661
Method of Financing:					
Appropriations available and required			17,570,000	19,234,000	140,376,661
Prior year balance available			3,523,000		

1/ Formerly the Santa Clara Canal, tunnel and switchyard.
2/ Formerly Hollister Canl and conduit.

PF-40 (5-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM (Continued)					
Total Obligations - Central Valley Project	3,577,745,000	1,760,369,852	155,186,318	105,070,000	1,557,118,830
Method of Financing:					
Advance non-Federal			4,478,000		7,102,075
Appropriations available and required			136,801,000	105,070,000	1,550,016,755
Prior year balance available			13,907,318		

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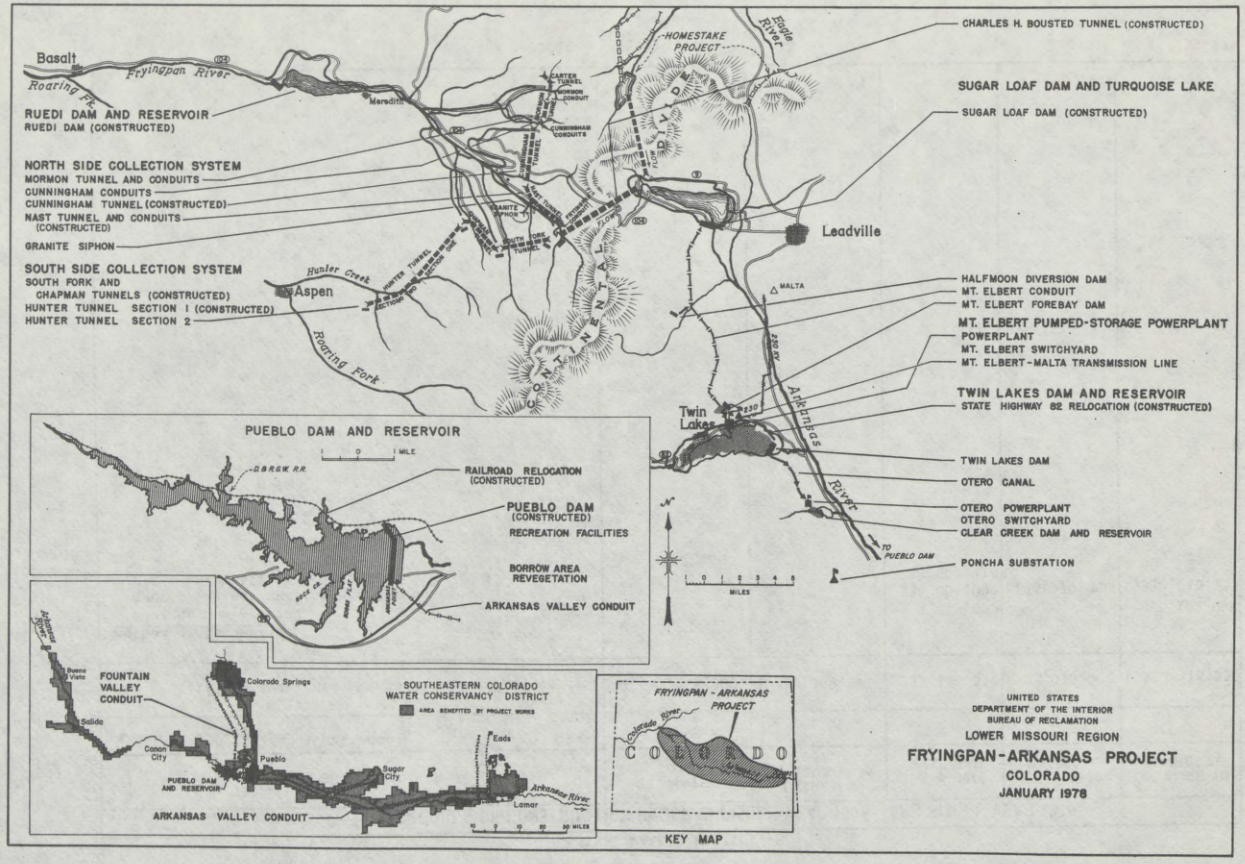
24-040 O - 78 - 25


Basalt
Fryingpan River
Roaring Fk.
RUEDI DAM AND RESERVOIR
RUEDI DAM (CONSTRUCTED)
NORTH SIDE COLLECTION SYSTEM
MORMON TUNNEL AND CONDUITS
CUNNINGHAM CONDUITS
CUNNINGHAM TUNNEL (CONSTRUCTED)
NAST TUNNEL AND CONDUITS (CONSTRUCTED)
GRANITE SIPHON
SOUTH SIDE COLLECTION SYSTEM
SOUTH FORK AND CHAPMAN TUNNELS (CONSTRUCTED)
HUNTER TUNNEL SECTION 1 (CONSTRUCTED)
HUNTER TUNNEL SECTION 2
Meredith
Hunter Creek
Aspen
Roaring Fork
HOMESTAKE PROJECT
Eagle River
CHARLES H. BOUSTED TUNNEL (CONSTRUCTED)
SUGAR LOAF DAM AND TURQUOISE LAKE
SUGAR LOAF DAM (CONSTRUCTED)
Leadville
HALFMOON DIVERSION DAM
MT. ELBERT CONDUIT
MT. ELBERT FOREBAY DAM
MT. ELBERT PUMPED-STORAGE POWERPLANT
POWERPLANT
MT. ELBERT SWITCHYARD
MT. ELBERT-MALTA TRANSMISSION LINE
TWIN LAKES DAM AND RESERVOIR
STATE HIGHWAY 82 RELOCATION (CONSTRUCTED)
Twin Lakes
Arkansas River
TWIN LAKES DAM
OTERO CANAL
OTERO POWERPLANT
OTERO SWITCHYARD
CLEAR CREEK DAM AND RESERVOIR
PONCHA SUBSTATION
TO PUEBLO DAM
PUEBLO DAM AND RESERVOIR
RAILROAD RELOCATION (CONSTRUCTED)
PUEBLO DAM (CONSTRUCTED)
RECREATION FACILITIES
BORROW AREA REVEGETATION
ARKANSAS VALLEY CONDUIT
FOUNTAIN VALLEY CONDUIT
Colorado Springs
Pueblo
Canon City
Salida
Buena Vista
Eads
Sugar City
Lamar
Arkansas River
SOUTHEASTERN COLORADO WATER CONSERVANCY DISTRICT
AREA BENEFITED BY PROJECT WORKS
FRYINGPAN - ARKANSAS PROJECT
COLORADO
KEY MAP
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
LOWER MISSOURI REGION
FRYINGPAN-ARKANSAS PROJECT
COLORADO
JANUARY 1978

PROJECT DATA SHEET

REGION Lower Missouri

PF-55 (11-76)
Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
FRYINGPAN-ARKANSAS PROJECT, COLORADO	1/	55	1/1/78

AUTHORIZATION Public Law 87-590, August 16, 1962
Public Law 93-493, October 27, 1974

BENEFIT COST RATIOS

LAND CERTIFICATION	DEFINITE PLAN REPORT	Based on Direct Benefits	Based on Total Benefits 2/	Date
September 17, 1963	Status Report in lieu of the Definite Plan Report submitted April 1972	2.5 2/	2.7	1/1/78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 11/	$ 542,578,000	Allotments to September 30, 1977	$ 284,822,012
Total Federal Obligations (Other)		Allotments for F.Y. 1978	40,530,000
Net Property and Other Transfers	1,442,000		
Cash Advances--Non-Federal 3/	565,000	Allotments to Date	325,352,012
Adjustment 4/	22,936,000	Allotments Required for F.Y. 1979	26,227,000
Total to be Allocated	$ 567,521,000	Balance to Complete after F.Y. 1979	$ 190,998,988

ALLOCATIONS 5/		REPAYMENT		AMOUNTS PER ACRE		
Irrigation	$ 87,956,000	Amount Repaid by Irrigators	$ 55,410,000 6/	Irrig. Invest. per Acre	$ 313	Payment Capacity per Acre $ 10/
Power	120,669,000	Amount Repaid by Power	149,642,000 7/	Repayment of Investment per Acre:		Annual Charges:
M & I Water	198,709,000	Amount Repaid by M & I Water	201,717,000 8/	By Irrigators	$ 197	O & M $
Recreation	35,331,000	Contribution 3/	565,000	By Power Revenues	105	Construction
F & WL	84,835,000			By M & I Water Users	11	
Flood Control	17,832,000					
Scenery Cons.	20,575,000					
Hwy Improvement	1,614,000					
Other		Nonreimbursable 9/	160,187,000			Total $
Total	$567,521,000	Total	$ 567,521,000			

STATUS OF REPAYMENT CONTRACT Contract with Southeastern Colorado Water Conservancy District executed January 21, 1965, validated April 15, 1965. Repayment contracts for Fountain Valley and Arkansas Valley Municipal Water scheduled for execution September 1978 and June 1980, respectively.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Mt. Elbert Pumped-Storage Powerplant - final filed with Council on Environmental Quality October 19, 1971. Pueblo Dam and Reservoir - final filed with Council on Environmental Quality June 2, 1972. North Side Collection System - final filed with Council on Environmental Quality July 19, 1973. Projectwide - final filed with Council on Environmental Quality April 16, 1975. Fountain Valley Conduit Supplement scheduled February 1978.

DESCRIPTION: The project is located in central Colorado involving Pitkin and Eagle Counties in the Colorado River Basin and Lake, Chaffee, Fremont, El Paso, Pueblo, Crowley, Otero, Bent, and Prowers Counties in the Arkansas River Basin. The project is a multipurpose transmountain diversion development that will provide water for supplemental irrigation of 280,600 acres and an annual supply of 57,500 acre-feet of water for municipal and industrial use. The project power system will have an installed capacity of 211 megawatts, consisting of a pumped-storage plant with 200 megawatts and a smaller plant with 11 megawatts of block loading peaking capacity. In addition, the project will provide for flood control, fish

and wildlife, recreation and scenery conservation. Principal irrigated crops are alfalfa, grain, and lesser acreage in sugar beets, fruits, vegetables, forage, and seed crops. There should be little change in the cropping pattern resulting from project water.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in fiscal year 1963 and for construction in fiscal year 1964. The Board of County Commissioners, Pitkin County, Colorado, filed a complaint in the United States District Court on January 29, 1976, (Civil Action 75-M-1268) seeking declaratory and injunctive action against the Department of the Interior on the basis that the environmental impact statement is inadequate. Intervention by the Southeastern Colorado Water Conservancy District on behalf of the Department of Interior was allowed by the Court on April 1, 1976. Motions for dismissal were filed by the intervener and the United States on September 3 and 10, 1976, respectively. The case was dismissed on April 18, 1977. Plaintiff appealed the decision on May 4, 1977, and the Conservancy District filed a motion to dismiss the appeal on June 23, 1977. In December 1977, the Department of Justice filed a brief with the court confessing an error as to the question of whether the U. S. Supreme Court had original jurisdiction. The Appelate Court is considering the action but has given no indication of when it will make a decision.

Another litigation that involes the project, in which the Bureau of Reclamation is not a party in the suit, concerns an action by Pitkin County, the City of Aspen and the U. S. Forest Service protesting the State Water Referee's favorable ruling on the application by the Southeastern Colorado Water Conservancy District's water right. A decision by the State District Water Court is pending. Impact of an adverse ruling has not been identified. The impact will be evaluated following the Court's decision.

The project proposes to divert a maximum of 270 cubic feet per second from the Hunter Creek watershed via the Hunter Creek tunnel, when available, subject to meeting downstream prior water rights and minimum fishery flow. Minimum fishery flows of 14 cubic feet per second were initially recommended by the Fish and Wildlife Service. Pitkin County has stated that the minimum flows of 14 cubic feet per second established for these creeks were inadequate and requested scientific documentation for the established minimum flows. When the Bureau requested this documentation from the Fish and Wildlife Service, they replied that they had no documentation in their files. Therefore, the Bureau of Reclamation in cooperation with the Fish and Wildlife Service, State Division of Wildlife, and the Forest Service, have performed field studies to determine the minimum flow requirements and have completed a report that recommends minimum fishery flows totalling 21 cubic feet per second. The impact is being evaluated.

Wahler and Associates, in their report of review of recently completed dams under contract with the Department, stated that there was insufficient data available to conclusively state that the Mt. Elbert Forebay and Pueblo Dam were safe. The Bureau is therefore performing tests and obtaining additional data and installing instrumentation as recommended by the consulting firm to evaluate these structures for safety. Completion of the work is expected by October 1978.

Footnotes:

1/ Initial water available in Pueblo Reservoir for irrigation and municipal use September 1975. Initial power scheduled: 100,000 KW in January 1979; 100,000 KW in 1980. The delay from October 1977 as shown in the FY 1978 Budget Justification for the first unit is due to modification to the powerplant penstocks. Initial municipal and industrial water to Colorado Springs and Fountain Valley towns in 1982, to Arkansas Valley towns in 1985.

2/ Changed from 1.9 direct benefits and 2.0 total benefits as presented in the fiscal year 1978 Budget Justifications. The increase is due to updating benefits to reflect current farm prices, higher day-use values for recreation, fish and wildlife, and current values for municipal and industrial water and power coupled with a decrease in project costs primarily as a result of favorable bids and reevaluation of requirements.

3/ Contribution by Public Service Company of Colorado for its share of Poncha Substation.

4/ Includes $13,373,000 of reimbursable interest during construction on the municipal and industrial water and $9,563,000 for the power functions.

5/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	1978 Estimate	1979 Estimate
Irrigation	$ 92,040,000	$ 87,956,000
Power	118,896,000	120,669,000
Municipal and Industrial Water	192,445,000	198,709,000
Recreation	40,261,000	35,331,000
Fish and Wildlife	87,630,000	84,835,000
Flood Control	18,358,000	17,832,000
Scenery Conservation	29,563,000	20,575,000
Highway Improvement	1,969,000	1,614,000
Total	$581,162,000	$567,521,000

The decrease is $13,641,000 and includes $29,822,000 due to favorable bids and reevaluation of requirements as work nears completion on many features. Partially offsetting increases include $4,596,000 for cost indexing, $5,250,000 for the Fountain Valley municipal and industrial system to reflect current design and conduit location, and $6,335,000 for design changes for the penstock and forebay at Mt. Elbert Powerplant to control the hydraulic energy.

Costs allocated to irrigation, fish and wildlife, flood control, recreation, scenery conservation, and highway improvement decreased due to a reduction in project cost. Costs allocated to municipal and industrial water increased due to current design and conduit location and costs allocated to power increased for design changes to the Mt. Elbert Powerplant.

6/ The scheduled amount to be repaid is covered by existing contracts with the project beneficiaries.

7/ Contracts associated with repayment of power investment costs are scheduled for implementation by January 1979, the date of initial power generation.

8/ Of the amount to be repaid, $50,570,000 is covered by existing contract. In addition, the Ruedi reimbursable municipal and industrial water allocation of $9,222,000 will be repaid by western slope interests from future water sales contracts. The repayment contract for Fountain Valley Conduit, consisting of $64,803,000, is scheduled for execution in Sept. 1978. The repayment contract for the Arkansas Valley Conduit, consisting of $77,122,000, is scheduled for execution in June 1980.

9/ Includes $35,331,000 recreation; $84,835,000 fish and wildlife; $17,832,000 flood control; $20,575,000 scenery conservation; and $1,614,000 for construction of highways to higher standards under Public Law 87-874.

10/ Payment capacity and water charges for irrigation cannot be expressed in overall per-acre or acre-feet amounts. Average annual revenues applied to irrigation consist of:

Project water (34,995 acre-feet @ $5.40)	$ 188,971
Regulation of Winter Water (60,680 acre-feet @ $2.25)	136,531
Conservancy District tax	1,036,868
Subtotal	$1,362,370
Share operation, maintenance and replacement chargeable to irrigation	-316,891
Net revenue	$1,045,479

The change in net revenue from $1,079,763 presented in the FY 1978 Budget Justification is due to an increase of $18,351 in operation, maintenance, and replacement costs due to cost indexing, and a decrease in ad valorem tax revenues of $15,933, due to an increase in these revenues needed to pay off an increased municipal and industrial water supply investment cost.

11/ Appropriations authorized are $599,807,000 (January 1977). This authorization is adequate to cover the project as currently proposed.

FRYINGPAN-ARKANSAS PROJECT, COLORADO

PHYSICAL DATA ON STRUCTURES

COMPLETED WORK:

Ruedi Dam and Reservoir

Dam:
Type - Earth and Rockfill
Structural Height - 322 Feet
Crest Length - 1,042 Feet
Base Width - 1,453 Feet

Spillway:
Type - Ogee Uncontrolled
Design Discharge - 5,540 Cubic Feet Per Second

Reservoir Capacity:
Total Storage - 102,369 Acre-feet

Sugar Loaf Dam and Turquoise Lake Enlargement

Dam:
Type - Earthfill
Structural Height - 162 Feet
Crest Length - 2,020 Feet
Base Width - 810 Feet

Spillway:
Type - Morning Glory
Design Discharge - 2,920 Cubic Feet Per Second

Reservoir Capacity:
Total Storage - 129,432 Acre-feet

Charles H. Bousted Tunnel

Length - 5.4 Miles
Diameter Size - 10.5 Feet Horseshoe
Capacity - 945 Cubic Feet Per Second

CONSTRUCTION PROGRAM:

Twin Lakes Dam and Reservoir Enlargement

Dam:
Type - Earthfill
Structural Height - 110 Feet
Crest Length - 3,200 Feet
Base Width - 300 Feet

Spillway:
Type - Morning Glory
Design Discharge - 840 Cubic Feet Per Second

Reservoir Capacity:
Total Storage - 166,200 Acre-feet

PHYSICAL DATA ON STRUCTURES--2

Pueblo Dam and Reservoir

Dam:
- Type - Concrete; Massive Head Buttress blanketed at each end by earth fill
- Structural Height - 250 Feet
- Crest Length - 10,200 Feet
- Base Width - 1,040 Feet

Spillway:
- Type - Massive Head Buttress
- Design Discharge - 191,500 Cubic Feet Per Second

Reservoir Capacity:
- Total Storage - 357,000 Acre-feet

South Side Collection System

Diversion Dams and Feeder Conduit: Three Structures - 0.2 Miles of Feeder Conduit

Tunnels:	Length (Miles)	Diameter Size (Feet Horseshoe)	Capacity (Cubic Feet Per Second)
Chapman	2.3	7.0	300
Hunter	7.5	7.3 & 8.5	175 & 270
South Fork	3.1	8.0	450

Conduits: Length - 0.7 Miles Diameter - 2.3 to 6.3 Feet Capacity - 30 to 300 Cubic Feet Per Second

North Side Collection System

Diversion Dams and Feeder Conduit: Nine Structures - 1.5 Miles of Feeder Conduit

Tunnels:	Length (Miles)	Diameter Size (Feet Horseshoe)	Capacity (Cubic Feet Per Second)
Carter	0.5	7.0 & 8.0	100 & 130
Cunningham	2.9	7.5 & 8.8	270
Mormon	1.4	7.0 & 8.0	190
Nast	3.0	7.7 & 9.3	360
Granite Adit	0.2	7.7 & 9.3	50

Conduits: Length - 1.6 Miles Diameter - 2.8 to 7.0 Feet Capacity - 30 to 360 Cubic Feet Per Second

Mt. Elbert Conduit and Halfmoon Diversion Dam

Mt. Elbert Conduit : Length - 10.5 Miles Diameter - 7.5 Feet Capacity - 350 Cubic Feet Per Second
Halfmoon Diversion Dam: Crest Length - 125 Feet Height - 29.4 Feet Drop Inlet - 150 Cubic Feet Per Second

Mt. Elbert Forebay Dam and Reservoir

Dam:
- Type - Earthfill
- Structural Height - 92 feet
- Crest Length - 2,600 feet
- Base Width - 500 feet

Spillway:
- None - The drainage area for the reservoir is very small, therefore, no spillway is required.

Reservoir Capacity:
- Total Storage - 11,530 Acre-feet

Mt. Elbert Pumped-Storage Powerplant

Two Generator Units - 100 Megawatts each
Generating Head - 455 Feet

Otero Canal

Length - 5.5 Miles Capacity - 725 Cubic Feet Per Second Bottom Width - 12.0 Feet Water Depth: 7.6 Feet

Otero Powerplant

One Generator Unit - 11 Megawatts
Generating Head - 266 Feet

Clear Creek Dam and Reservoir

Dam:
- Type - Earthfill
- Structural Height - 75 feet
- Crest Length - 2,200 feet
- Base Width - 420 feet

Spillway:
- Type - Gated
- Design Discharge - 5,865 Cubic Feet Per Second

Reservoir Capacity:
- Total Storage - 8,924 Acre-feet

Arkansas River Protective Works

5.2 Miles of rip rap and bank shaping

Transmission Lines and Switchyards

Transmission Lines - 7.6 Miles of 230 Kilovolts
Mt. Elbert Switchyard - 284,800 Kilovolts amps
Otero Switchyard and Tapline - 15,000 kVa with 3 miles of tapline

Municipal Water System

Length - 260 Miles of pipelines
Quantity - 57,500 Acre Feet Per Year
Pipe Diameter - 14 to 54 Inches
Capacity - 11 to 51 Cubic Feet Per Second

Right-of-Way

Quantity - 30,016 Acres
Total Estimated Cost - $15,701,000
Cost Per Acre - $523
Acquisition - 78% Complete as of January 1, 1978

Relocation

Total Estimated Cost - $18,912,000
Per Cent Complete - 97% as of January 1, 1978

Items:		Length	Total Cost	Cost to September 30, 1977
Denver and Rio Grande Western Railroad	-	15.4 Miles	$ 7,276,000	- $ 7,276,000
Colorado State and County Highways	-	35.7 Miles	9,081,000	9,039,000
Bessemer Ditch Company Canal Relocation	-	0.6 Miles	1,270,000	1,270,000
Various Electric, telephone, utilities, and cemetries	-	--	1,285,000	798,000
TOTAL			$18,912,000	$18,383,000

Appropriation Title: Construction and Rehabilitation

FRYINGPAN-ARKANSAS PROJECT, COLORADO

FISCAL YEAR 1979

Work Proposed	Program
Twin Lakes Dam and Reservoir Enlargement. Construction of Twin Lakes Dam will be continued and a contract will be awarded for the reservoir clearing. Land acquisition will be completed.	$ 5,274,000
South Side Collection System. The second section of Hunter Tunnel will be completed and a contract will be awarded for seeding and reforestation.	716,000
North Side Collection System. Provides for the continued construction of Cunningham Conduits, Mormon and Carter Tunnels, Mormon Conduits and Appurtenant Facilities and Granite Siphon.	5,340,000
Mt. Elbert Conduit and Halfmoon Diversion Dam. Provides for minor construction work.	478,000
Mt. Elbert Pumped-Storage and Powerplant. Construction on the first stage electrical testing contract and the second unit switchgear and governor will be completed. Construction will continue on the second stage completion contract, generator/motor and pump-turbine. Seeding and reforestation will also continue. Contracts for the control equipment and second stage electrical testing will be awarded.	4,029,000
Transmission Lines, Switchyards and Substations. Provides for the completion of the second unit transformer for the Mt. Elbert Switchyard and Poncha Substation. Non-Federal sources will advance $220,000 for the Poncha Substation.	1,145,000 1/
Municipal Water System. Contracts will be awarded on the Fountain Valley Conduit, pumping plants and terminal facilities. Land acquisition for the Fountain Valley Conduit will be completed. Preconstruction work will continue on the Arkansas Valley Conduit.	3,631,000
Recreation and Fish and Wildlife Facilities. The construction of minimum facilities at Twin Lakes and recreation facilities, fish hatchery complex and upland game facilities at Pueblo Dam and Reservoir will be continued.	4,574,000

Construction and Rehabilitation
Fryingpan-Arkansas Project, Colorado--2

FISCAL YEAR 1979

Work Proposed	Program
Permanent Operating Facilities. The remote control system for Hunter Tunnel, South Fork Chapman, and Mormon-Carter Diversion Facilities and the purchase of operating equipment will be completed.	$ 1,380,000
Service Facilities, Depreciation and Salvage. Principally for the distribution to features on a use basis, and for improving, reconstructing and maintaining construction access.	-120,000
TOTAL	$26,447,000 1/

Footnote:

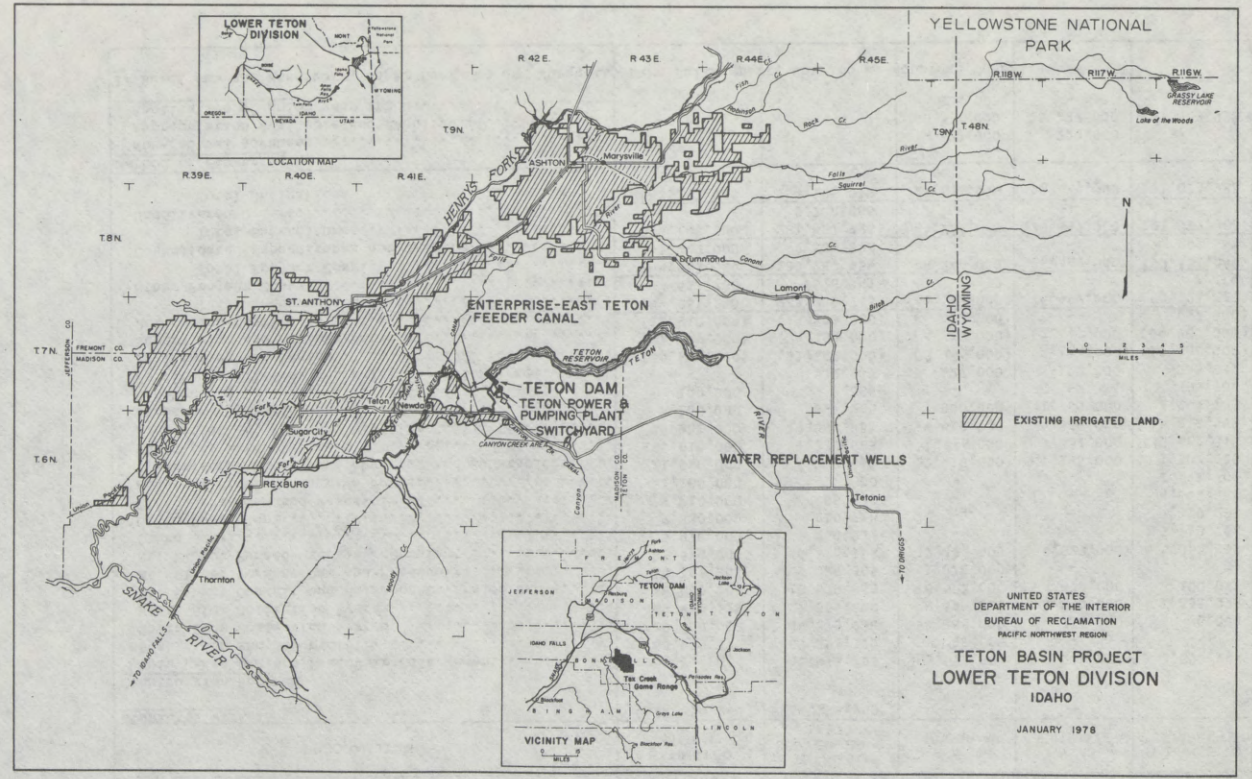
1/ Includes $220,000 Non-Federal advances.

PF-40 (3-78)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Completed Work 1/	$ 54,374,240	$ 54,374,240	-	-	-
Construction Program					
Twin Lakes Dam and Reservoir Enlargement	20,116,000	5,473,703	$ 5,476,000	$ 5,274,000	$ 3,892,297
Pueblo Dam and Reservoir	67,475,170	67,392,170	83,000	-	-
South Side Collection System	39,700,000	34,579,936	4,368,000	716,000	36,064
North Side Collection System	39,419,525	27,525,600	4,698,000	5,340,000	1,855,925
Mt. Elbert Conduit and Halfmoon Diversion Dam	18,060,000	10,579,959	6,902,000	478,000	100,041
Mt. Elbert Forebay Dam and Reservoir	10.105,305	9,029,305	1,076,000	-	-
Mt. Elbert Pumped-Storage Powerplant	67,530,000	46,326,158	12,122,000	4,029,000	5,052,842
Otero Canal	15,970,000	250,232	-	-	15,719,768
Otero Powerplant	7,630,000	210,710	-	-	7,419,290
Clear Creek Dam and Reservoir	4,710,000	66,572	-	-	4,643,428
Arkansas River Protective Works	1,160,000	12,300	-	-	1,147,700
Transmission Lines, Switchyards, and Substations	11,030,000	5,767,064	2,410,000	1,145,000	1,707,936
Municipal Water System	140,610,000	1,330,685	1,986,000	3,631,000	133,662,315
Recreation and Fish and Wildlife Facilities	39,901,000	19,083,451	4,410,000	4,574,000	11,833,549
Permanent Operating Facilities	6,160,000	697,295	840,000	1,380,000	3,242,705
O&M Housing	100,000	3,396	-	-	96,604
Service Facilities, Depreciation, and Salvage	-	532,937	-127,000	-120,000	-285,937
Engineering and Design	(55,630,000)	(31,892,000)	(3,196,000)	(2,458,000)	(18,084,000)
Supervision and Administration	(66,932,000)	(34,354,000)	(4,658,000)	(3,417,000)	(24,503,000)
Relocation Costs	(18,912,000)	(18,383,000)	(472,000)	-	(57,000)
Total Construction Cost	544,051,240	283,235,713	44,244,000	26,447,000	190,124,527
Other Project Costs	533,760	526,741	-	-	7,019
Total Project Cost	544,585,000	283,762,454	44,244,000	26,447,000	190,131,546
Consolidated Expenditures and Credits	-1,442,000	-2,334,528	86	-	892,442
Total Expenditures	543,143,000	281,427,926	44,244,086	26,447,000	191,023,988
Undelivered Orders	-	2,768,086	-2,768,086	-	-
Total Obligations	543,143,000	284,196,012	41,476,000	26,447,000	191,023,988
Method of Financing:					
Non-Federal Advances	-	-	320,000	220,000	-
Appropriation Available and Required	-	-	40,530,000	26,227,000	191,023,988
Application of prior year funds	-	-	626,000	-	-

1/ Ruedi Dam and Reservoir, Sugar Loaf Dam and Turquoise Lake Enlargement, Charles H. Boustead Tunnel.


LOWER TETON DIVISION
LOCATION MAP
YELLOWSTONE NATIONAL PARK
R.42E.
R.43E.
R.44E.
R.45E.
R.39E.
R.40E.
R.41E.
R.118W.
R.117W.
R.116W.
T.9N.
T.8N.
T.7N.
T.6N.
T.48N.
GRASSY LAKE RESERVOIR
Lake of the Woods
HENRYS FORK
Marysville
ASHTON
Drummond
Lamont
ST. ANTHONY
ENTERPRISE-EAST TETON FEEDER CANAL
TETON RESERVOIR
TETON DAM
TETON POWER & PUMPING PLANT SWITCHYARD
WATER REPLACEMENT WELLS
Newdale
Sugar City
REXBURG
Thornton
Tetonia
TO DRIGGS
SNAKE RIVER
TO BLACKFOOT
IDAHO
WYOMING
FREMONT CO.
MADISON CO.
JEFFERSON CO.
TETON CO.
N
MILES
EXISTING IRRIGATED LAND
VICINITY MAP
Teton Creek Game Range
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
PACIFIC NORTHWEST REGION
TETON BASIN PROJECT
LOWER TETON DIVISION
IDAHO
JANUARY 1978

REGION Pacific Northwest

PROJECT DATA SHEET

PF-65 (11-76)
Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
TETON BASIN PROJECT, LOWER TETON DIVISION, IDAHO 1/	1/	1/	1-1-78

AUTHORIZATION	BENEFIT COST RATIOS		
Public Law 88-583, September 7, 1964	Based on Direct Benefits 1/	Based on Total Benefits 1/	Date
LAND CERTIFICATION: First Phase June 26, 1969 / DEFINITE PLAN REPORT: First Phase approved May 6, 1969			

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation)	$ 102,410,000 1/	Allotments to September 30, 1977	$ 76,896,291
Total Federal Obligations (Other)	--	Allotments for F.Y. 1978	700,000
Net Property and Other Transfers	810,000		
Cash Advances--Non-Federal	--	Allotments to Date	77,596,291
Adjustment	706,000	Allotments Required for F.Y. 1979	500,000
Total to be Allocated	$ 103,926,000 1/	Balance to Complete after F.Y. 1979	$ 24,313,709 1/

ALLOCATIONS 1/	REPAYMENT 1/	AMOUNTS PER ACRE	
Irrigation $	Amount Repaid by Irrigators $	Irrig. Invest. per Acre $	Payment Capacity per Acre $
Power	Amount Repaid by Power	Repayment of Investment per Acre:	Annual Charges:
M & I Water	Amount Repaid by M & I Water	By Irrigators $	O & M $
Recreation		By Power Revenues	Construction
F & WL		By M & I Water Users	
Flood Control			
Other	Nonreimbursable		
Total $	Total $		Total $

STATUS OF REPAYMENT CONTRACT

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS:

1/ Due to failure of Teton Dam on June 5, 1976, all construction work has been stopped. The cause of the failure has been studied by several Federal panels and one non-Federal panel. The reports prepared by these panels are being analyzed and evaluated. Services are being provided to preserve the existing facilities and lands and to protect the public at the construction site.

BR-191

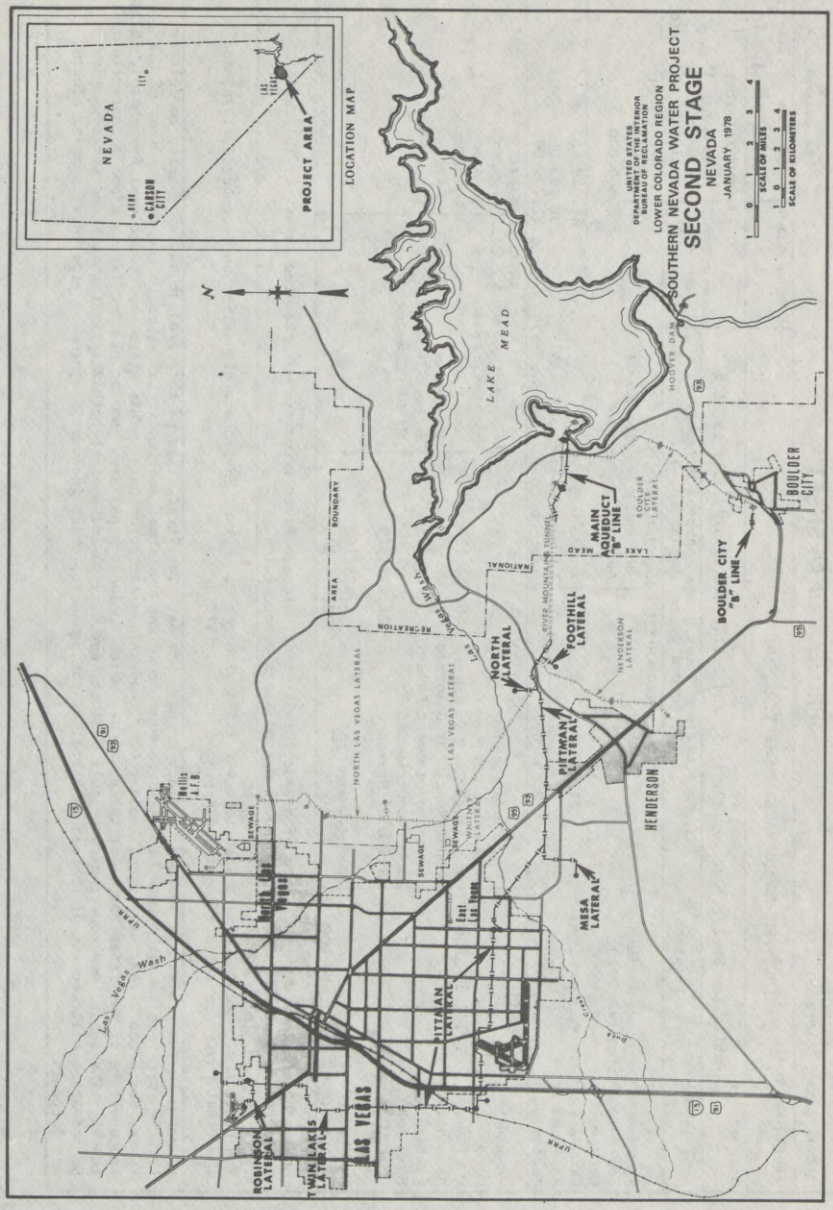
Appropriation Title: Construction and Rehabilitation

Pacific Northwest Region

FISCAL YEAR 1979

Work Proposed

Teton Project, Idaho. The program provides for continuing security and public safety activities at the damsite, administration of Federal lands and liaison with local organizations. $500,000


UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
LOWER COLORADO REGION
SOUTHERN NEVADA WATER PROJECT
SECOND STAGE
NEVADA
JANUARY 1978
SCALE OF MILES
SCALE OF KILOMETERS
LOCATION MAP
NEVADA
CARSON CITY
PROJECT AREA
LAKE MEAD
HOOVER DAM
MAIN AQUEDUCT "B" LINE
BOULDER CITY LATERAL
BOULDER CITY
BOULDER CITY "B" LINE
RIVER MOUNTAINS TUNNEL
FOOTHILL LATERAL
HENDERSON LATERAL
NORTH LATERAL
PITTMAN LATERAL
HENDERSON
MESA LATERAL
NORTH LAS VEGAS LATERAL
LAS VEGAS LATERAL
WHITNEY LATERAL
SEWAGE
North Las Vegas
East Las Vegas
PITTMAN LATERAL
LAS VEGAS
ROBINSON LATERAL
TWIN LAKES LATERAL
Wallis A.F.B.
Las Vegas Wash
UPRR
Duck Creek
NATIONAL
RECREATION
AREA
BOUNDARY

24-040 O - 78 - 26

REGION Lower Colorado

PROJECT DATA SHEET

PF-65 (11-76)
Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
SOUTHERN NEVADA WATER PROJECT, NEVADA	1/	6 1/	1-1-78

AUTHORIZATION	BENEFIT COST RATIOS		
Public Law 89-292, October 22, 1965, and Public Law 89-510, July 19, 1966	Based on Direct Benefits	Based on Total Benefits	Date
LAND CERTIFICATION: None required; DEFINITE PLAN REPORT: First Stage approved November 17, 1967; Second Stage, August 19, 1977	1.3 2/	1.3 2/	1-1-78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 3/ 11/	$ 141,870,690	Allotments to September 30, 1977	$ 53,249,682
Total Federal Obligations (Other)		Allotments for F.Y. 1978	8,600,000
Net Property and Other Transfers	136,498		
Cash Advances--Non-Federal 4/	22,577,310	Allotments to Date	61,849,682
Adjustment 5/	8,109,502	Allotments Required for F.Y. 1979	38,285,000
Total to be Allocated	$ 172,694,000	Balance to Complete after F.Y. 1979	$ 41,736,008

ALLOCATIONS		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$
Power		Amount Repaid by Power		Repayment of Investment per Acre:	
M & I Water 6/	172,694,000	Amount Repaid by M & I Water 7/	148,314,133	By Irrigators	$
Recreation		Amount Repaid by Colorado River Development Fund 8/	277,395	By Power Revenues	
F & WL		Amount Contributed by State of Nevada 9/	22,577,310	By M & I Water Users	
Flood Control				Payment Capacity per Acre	$
Other		Nonreimbursable 10/	1,525,162	Annual Charges: O & M	$
Total	$ 172,694,000	Total	$ 172,694,000	Construction	
				Total	$

STATUS OF REPAYMENT CONTRACT

Repayment Contract with the State of Nevada, Division of Colorado River Resources was executed August 4, 1977 and validated on September 23, 1977 to cover Second Stage construction.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS:

The Draft Environmental Impact Statement was filed with the Council of Environmental Quality on December 6, 1976, and the Final Environmental Statement was approved June 9, 1977.

DESCRIPTION: The project is located in Clark County, Nevada. The First Stage of this project has a capacity to deliver 132,200 acre-feet annually from Lake Mead to supplement the municipal and industrial water in the service area of Las Vegas, North Las Vegas, Henderson, Boulder City, and Nellis Air Force Base. This stage was operational November 1, 1971, and consists of the first barrel of the aqueduct, which includes pipelines, pumping plants, laterals and a four-mile tunnel. The tunnel was constructed to full delivery capacity to accommodate both the First and Second Stages. The Second Stage will consist of the second barrel of the aqueduct, which includes a system of pipelines, pumping plants, and laterals.

BR-193

This stage when installed will have a capacity of delivering]66,800 acre-feet annually from Lake Mead to the service area, allowing for an ultimate delivery rate of supplemental municipal and industrial water from Lake Mead of 299,000 acre-feet.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in fiscal year]967, and for construction in fiscal year 1968 (First Stage). Funds to initiate preconstruction planning on the Second Stage were appropriated in fiscal year 1975, and for construction in fiscal year 1977.

Footnotes:

1/ The first stage construction, capable of providing 132,200 acre-feet of water annually to the Las Vegas area was completed in 1971. A need for the Second Stage to provide 166,800 acre-feet has developed, and a new construction start was initiated in fiscal year 1977. The construction of the Second Stage is scheduled to be completed in fiscal year 1982.

2/ No change in benefit cost ratio from fiscal year 1978 Budget Justifications. Increase in cost due to indexing offset by a corresponding increase in benefits due to updating of values.

3/ Includes $50,058,856 for First Stage and $91,811,834 for Second Stage.

4/ Funds contributed by State of Nevada, Division of Colorado River Resources to cover the cost of facilities requested by the water users that will exceed the indexed appropriation ceiling.

5/ Represents interest during construction, which includes $2,318,939 for the First Stage, and $5,790,563 for the Second Stage.

6/ Change in allocation from fiscal year 1978 budget justification:

	FY 1978 Estimate	FY 1979 Estimate
Municipal and Industrial Water	$168,501,000	$172,694,000

The increase reflects cost indexing to current prices.

7/ The repayment contract to cover the municipal and industrial water was executed with the State of Nevada, Division of Colorado River Resources.

8/ Investigation costs financed from the Colorado River Development Fund.

9/ Funds contributed by State of Nevada, Division of Colorado River Resources.

10/ Represents nonreimbursable costs associated with First Stage construction facilities serving Nellis Air Force Base.

11/ Appropriations authorized are $141,870,690 (Janauary 1977). This amount plus $22,577,310 of contributions to be provided by the water users will cover the current estimate of funding requirements.

SOUTHERN NEVADA WATER PROJECT

PHYSICAL DATA ON STRUCTURES

COMPLETED WORKS

FIRST STAGE

Main Aqueduct Tunnels - Length 4 Miles, Diameter 10-13 feet, Capacity 500-622 cubic feet per second

	Length Miles	Capacity cubic feet per second	Diameter inches	Number	Capacity cubic feet per second	Head feet
Main Aqueduct	3.0	585-300	120-96	3	311-300	223-355
Boulder City Lateral	7.0	30	36	4	15	78-455
Henderson Lateral	4.5	28	36	1	28	230
Las Vegas Valley, Whitney and Sahara Laterals	10.6	289-15	96-24	-	-	-
North Las Vegas Lateral	10.0	101-16	72-24	1	90	182

CONSTRUCTION PROGRAM

SECOND STAGE

Main Aqueduct	2.3	306	96-102	3	312-306	223-355
Boulder City Lateral	0.8	7.5	18	4	15-8	200-445
Pittman Lateral	19.9	319-140	102-72	1	262	364
Foothill, Mesa and North Laterals	2.8	46-11	42-21	-	-	-
Twin Lakes and Robinson Laterals	6.4	82-10	56-24	2	34-10	98-113

BR-195A

Appropriation Title: Construction and Rehabilitation

SOUTHERN NEVADA WATER PROJECT-SECOND STAGE, NEVADA

FISCAL YEAR 1979

Work Proposed	Program
Main Aqueduct and Associated Facilities. Construction will continue on the Main Aqueduct, Pumping Plants 1B and 2B, Forebay No. 1 expansion, and modification at Pumping Plant No. 1.	$ 7,267,000
Boulder City Lateral and Associated Facilities. For continued construction on Pumping Plant No. 7B and switchyard and modifications and additions at Pumping Plants No. 4 and 5.	621,000
Pittman Lateral and Associated Facilities. Pittman Lateral and the Hacienda Pumping Plant construction will be continued. Preconstruction activities will continue on the flow control stations.	28,568,000
Foothill, Mesa, and North Laterals. Preconstruction activities will continue.	105,000
Twin Lakes and Robinson Laterals and Las Vegas Turnouts. For continued construction of Twin Lakes Pumping Plant, Switchyard and substation. Preconstruction activities will continue on laterals and turnouts.	940,000
Permanent Operating Facilities. Work will continue on supervisory control and communication system.	719,000
Service Facilities, Depreciation, and Salvage. Provides for the Acquisition of office furniture and surveying and laboratory equipment.	65,000
TOTAL	$38,285,000

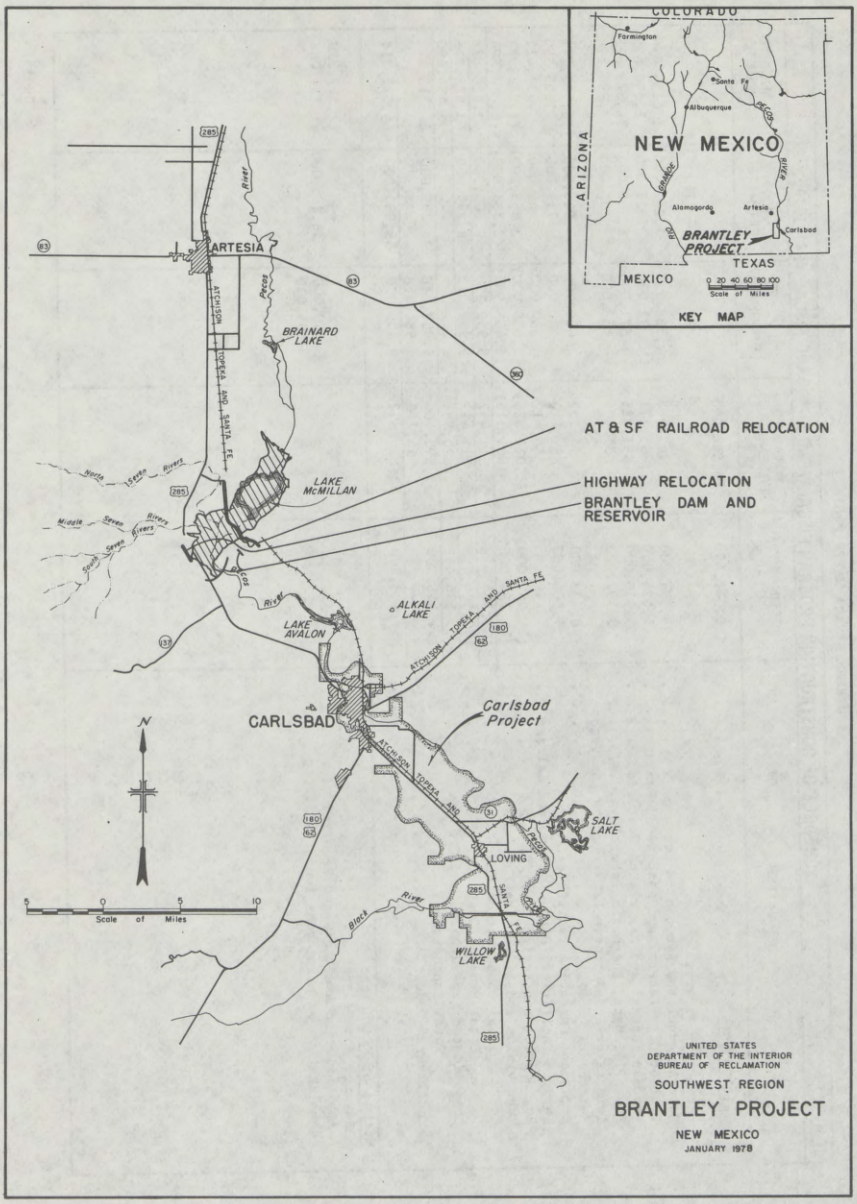
SOUTHERN NEVADA WATER PROJECT

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978 , AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Completed Work	$50,542,498	$50,542,498			
Construction Program					
Main Aqueduct and Associated Features	29,577,000	782,308	4,388,218	7,267,000	17,139,474
Boulder City Lateral and Associated Features	1,824,000	35,171	71,000	621,000	1,096,829
Pittman Lateral and Associated Features	65,610,000	891,325	4,571,000	28,568,000	31,579,675
Foothill, Mesa, and North Laterals	3,192,000	37,606	153,000	105,000	2,896,394
Twin Lakes and Robinson Laterals and Las Vegas Turnouts	8,333,000	94,722	436,000	940,000	6,862,278
Permanent Operating Facilities	5,506,000	61,410	40,000	719,000	4,685,590
Service Facilities, Depreciation, and Salvage	---	66,412	300,000	65,000	-431,412
Engineering and Design	(11,050,000)	(1,071,026)	(1,625,000)	(2,065,000)	(6,288,974)
Supervision and Administration	(10,784,000)	(831,516)	(1,483,980)	(2,388,000)	(6,080,504)
Total Construction Cost	164,584,498	52,511,452	9,959,218	38,285,000	63,828,828
Total Project Cost	164,584,498	52,511,452	9,959,218	38,285,000	63,828,828
Consolidated Expenditures and Credits	-136,498	-620,988	---	---	484,490
Total Expenditures	164,448,000	51,890,464	9,959,218	38,285,000	64,313,318
Undelivered Orders	---	554,218	-554,218	---	---
Total Obligations	164,448,000	52,444,682	9,405,000	38,285,000	64,313,318
Method of Financing:					
Advance Non-Federal	---	---	---	---	22,577,310
Appropriation Available and Required	---	---	8,600,000	38,285,000	41,736,008
Application of prior year funds	---	---	805,000	---	---

BR-197


COLORADO
Farmington
Santa Fe
Albuquerque
NEW MEXICO
ARIZONA
Pecos
Gila
Alamogordo
Artesia
Carlsbad
BRANTLEY PROJECT
TEXAS
MEXICO
0 20 40 60 80 100
Scale of Miles
KEY MAP
ARTESIA
BRAINARD LAKE
LAKE McMILLAN
ALKALI LAKE
LAKE AVALON
CARLSBAD
Carlsbad Project
SALT LAKE
LOVING
WILLOW LAKE
AT & SF RAILROAD RELOCATION
HIGHWAY RELOCATION
BRANTLEY DAM AND RESERVOIR
N
5 0 5 10
Scale of Miles
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
SOUTHWEST REGION
BRANTLEY PROJECT
NEW MEXICO
JANUARY 1978

PROJECT DATA SHEET

PF-66 (11-75)
Bureau of Reclamation

REGION	PROJECT AND STATE	Completion Date	% Complete	Date
Southwest	BRANTLEY PROJECT, NEW MEXICO	1983 1/	4	1-1-78

AUTHORIZATION	BENEFIT COST RATIOS		
Public Law 92-514, October 20, 1972	Based on Direct Benefits	Based on Total Benefits	Date
LAND CERTIFICATION: None Required 3/ — DEFINITE PLAN REPORT: Approved May 1, 1975	1.1 2/	1.1 2	1-1-78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 9/	$ 82,953,000	Allotments to September 30, 19 77	$ 3,340,044
Total Federal Obligations (Other)	...	Allotments for F.Y. 1978	5,789,000
Net Property and Other Transfers	339,000		
Cash Advances--Non-Federal	...	Allotments to Date	9,129,044
Adjustment 4/	85,000	Allotments Required for F.Y. 1979	2,200,000
Total to be Allocated	$ 83,377,000	Balance to Complete after F.Y. 19 79	$ 71,623,956

ALLOCATIONS 5/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 1,037,000	Amount Repaid by Irrigators	$ 1,037,000 7/	Irrig. Invest. per Acre	$ 41	Payment Capacity per Acre	$ 1.50
Power		Amount Repaid by Power		Repayment of Investment per Acre:		Annual Charges:	
M & I Water		Amount Repaid by M & I Water		By Irrigators	$ 41	O & M	$ 0.07
Recreation	4,413,000	Amount Repaid by Recreation	1,735,000 7/	By Power Revenues		Construction	1.15
F & WL	397,000			By M & I Water Users			
Flood Control	12,250,000						
Safety of Dams	64,714,000						
Other 6/	566,000	Nonreimbursable 8/	80,605,000				
Total	$ 83,377,000	Total	$ 83,377,000			Total	$ 1.22

STATUS OF REPAYMENT CONTRACT: The repayment contract with the Carlsbad Irrigation District was executed October 31, 1975, and validated February 11, 1976. The repayment contract with the New Mexico State Park and Recreation Commission covering the reimbursable recreation cost was executed March 11, 1977, validation not required.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide - Final filed with Council on Environmental Quality September 11, 1972.

DESCRIPTION: The project is located on the Pecos River in Eddy County, New Mexico, about 4 miles downstream from existing McMillan Dam. The site is approximately midway between Artesia and Carlsbad, New Mexico. The plan consists of the construction of the Brantley Dam and Reservoir for the purpose of irrigation, flood control, fish and wildlife, and recreation. Brantley Dam will provide replacement storage which will improve the water supply for the 25,055 acre Carlsbad Irrigation Project. In addition, Brantley Reservoir will provide storage for flood control not presently available and will eliminate the threat of failure, because of inadequate spillways at McMillan and Avalon Dams. Principal crops presently grown in the Carlsbad Irrigation District are cotton, forage, and small grains.

BR-198

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in fiscal year 1974 and for construction in fiscal year 1975.

Footnotes:

1/ The change from the FY 1978 Budget Justifications results due to the need to make additional foundation investigation studies for Brantley dam.

2/ No change from the FY 1978 Budget Justifications. The increase in costs was offset by an increase in benefits. Irrigation benefits were updated by use of the latest available farm budgets, recreation and fish and wildlife benefits were increased to reflect higher dayuse values, and flood control and safety of dams benefits were increased by indexing.

3/ This project will provide replacement storage for land in Carlsbad Irrigation District that has been irrigated for more than 50 years. No new land irrigation is involved.

4/ Reimbursable interest during construction on recreation.

5/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	1978 Estimate	1979 Estimate
Irrigation	$ 926,000	$ 1,037,000
Recreation	4,021,000	4,413,000
Fish and Wildlife	354,000	397,000
Flood Control	10,916,000	12,250,000
Safety of Dams	62,728,000	64,714,000
Other	541,000	566,000
Total	$79,486,000	$83,377,000

The increase of $3,891,000 is due to cost indexing.

6/ Includes $316,000 for nonreimbursable General Investigation costs, and $250,000 for nonreimbursable cultural resources activities (Public Law 93-291).

7/ The scheduled amount to be repaid is covered by existing contracts with the project beneficiaries.

8/ Includes recreation, $2,678,000; fish and wildlife, $397,000; flood control, $12,250,000; safety of dams, $64,714,000; $316,000 for nonreimbursable preauthorization investigation costs; and $250,000 for nonreimbursable cultural resources activities (Public Law 93-291).

9/ Appropriations authorized are $82,953,000 (January 1977). This authorization is adequate to cover this project as currently proposed.

BRANTLEY PROJECT

PHYSICAL DATA ON STRUCTURES

CONSTRUCTION PROGRAM

Brantley Dam and Reservoir

Dam:
- Type - Combination, concrete gravity and zoned earthfill
- Structural Height - 128.5 feet
- Crest Length - 13,000 feet
- Base Width - 574 feet

Spillway:
- Type - Radial gated concrete overflow
- Design Discharge - 128,600 Cubic Feet Per Second

Reservoir Capacity:
- Total Storage - 520,000 Acre-feet

Right-of-way

Quantity - 41,900 Acres 1/
Total Estimated Cost - $4,750,000
Cost Per Acre - $457
Acquisition - 1 percent complete as of January 1, 1978

Relocations

Total Estimated Cost - $11,635,000
Percent Complete - 3 percent as of January 1, 1978

Items:		Length	Total Cost	Cost to Sept. 30, 1977
Atchison, Topeka and Santa Fe Railroad	-	4.4 Miles	$10,010,000	$100,000
U.S. Highway 285	-	.5 Miles	370,000	-
County Roads	-	6.0 Miles	280,000	-
Oil and Gas Facilities	-		500,000	-
Various Relocations and Archeology survey and mitigation	-		475,000	200,000
TOTAL			$11,635,000	$300,000

1/ Includes 31,500 acres presently occupied by McMillan Dam and Reservoir which is owned by the Government.

Appropriation Title: Construction and Rehabilitation

BRANTLEY PROJECT, NEW MEXICO

FISCAL YEAR 1979

Work Proposed	Program
Brantley Dam and Reservoir. Preconstruction activities will be continued.	$2,200,000
TOTAL	$2,200,000

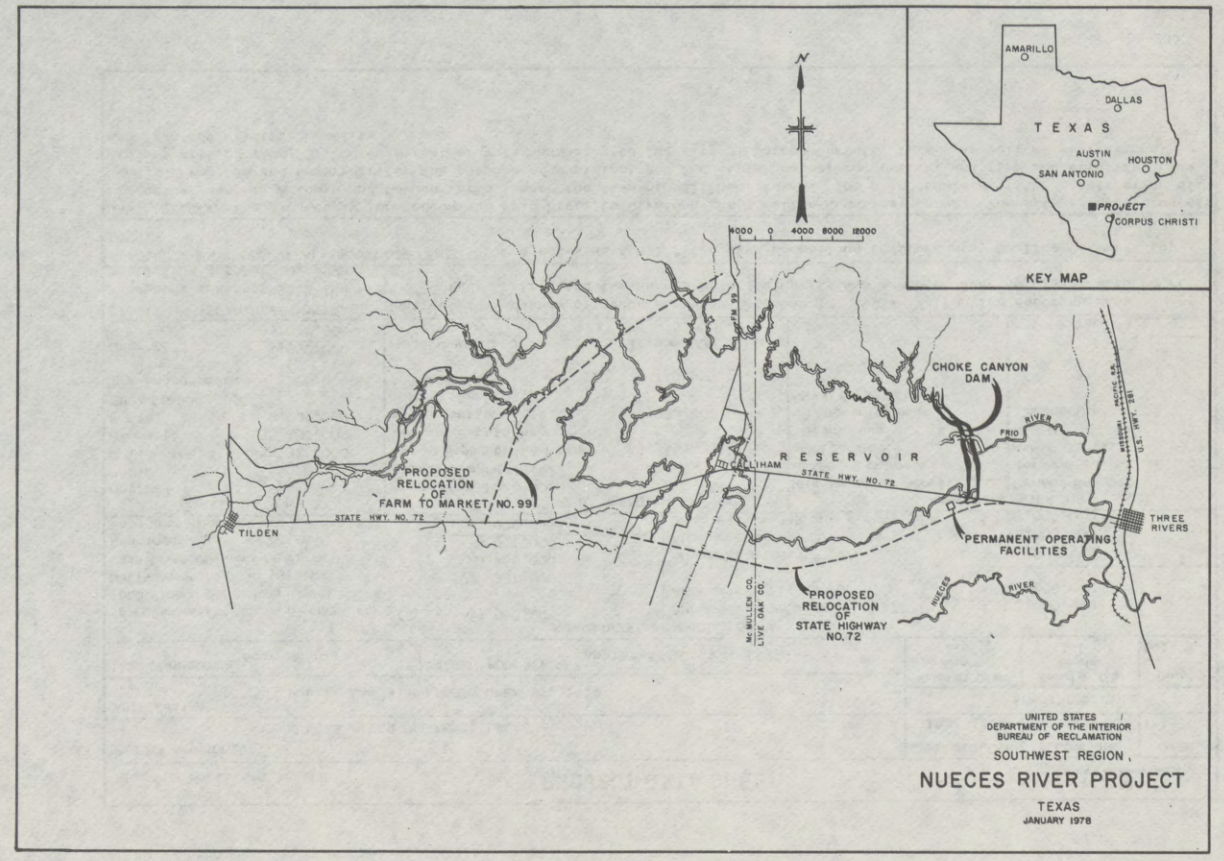
BRANTLEY PROJECT, NEW MEXICO

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM					
Brantley Dam and Reservoir	79,471,000	2,970,523	6,087,000	2,200,000	68,213,477
Permanent Operating Facilities	143,000	-	-	-	143,000
O&M Housing	63,000	-	-	-	63,000
Recreation Facilities	3,299,000	-	-	-	3,299,000
Service Facilities, Depreciation and Salvage	-	129,826	-	-	-129,826
Engineering and Design	(6,840,000)	(1,880,000)	(3,140,000)	(1,340,000)	(480,000)
Supervision and Administration	(6,414,000)	(1,134,745)	(2,850,000)	(850,000)	(1,579,255)
Relocation Costs	(11,635,000)	(300,000)	(90,000)	-	(11,245,000)
TOTAL CONSTRUCTION COSTS	82,976,000	3,100,349	6,087,000	2,200,000	71,588,651
Other Project Costs	316,000	316,000	-	-	-
TOTAL PROJECT COST	83,292,000	3,416,349	6,087,000	2,200,000	71,588,651
Consolidated Expenditures and Credits	-339,000	-374,265	-40	-	35,305
TOTAL EXPENDITURES	82,953,000	3,042,084	6,086,960	2,200,000	71,623,956
Undelivered Orders	-	297,960	-297,960	-	-
TOTAL OBLIGATIONS	82,953,000	3,340,044	5,789,000	2,200,000	71,623,956
Method of Financing					
Appropriations Available and Required			5,789,000	2,200,000	71,623,956
Application of Prior Year Funds			-	-	-

BR-203


AMARILLO
DALLAS
TEXAS
AUSTIN
HOUSTON
SAN ANTONIO
PROJECT
CORPUS CHRISTI
KEY MAP
N
4000 0 4000 8000 12000
CHOKE CANYON DAM
FRIO RIVER
RESERVOIR
CALLIHAM
STATE HWY. NO. 72
PROPOSED RELOCATION OF FARM TO MARKET NO. 99
STATE HWY. NO. 72
TILDEN
PERMANENT OPERATING FACILITIES
THREE RIVERS
PROPOSED RELOCATION OF STATE HIGHWAY NO. 72
McMULLEN CO.
LIVE OAK CO.
NUECES RIVER
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
SOUTHWEST REGION
NUECES RIVER PROJECT
TEXAS
JANUARY 1978

REGION Southwest

PROJECT DATA SHEET

PF-85 (11-75)
Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
NUECES RIVER PROJECT, TEXAS	1981 1/	17	1-1-78

AUTHORIZATION	BENEFIT COST RATIOS		
Public Law 93-493, October 27, 1974	Based on Direct Benefits 1.6 2/	Based on Total Benefits 1.6 2/	Date 1-1-78

LAND CERTIFICATION	DEFINITE PLAN REPORT
None Required	Approved July 28, 1977

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 2/	$ 67,548,000	Allotments to September 30, 19 77	$ 3,999,990
Total Federal Obligations (Other)		Allotments for F.Y. 19 78	17,854,000
Net Property and Other Transfers	291,000		
Cash Advances--Non-Federal	20,268,000	Allotments to Date 8/	21,853,990
Adjustment 3/	4,971,000	Allotments Required for F.Y. 19 79	18,600,000
Total to be Allocated	$ 93,078,000	Balance to Complete after F.Y. 19 79	$ 27,094,010

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$
Power		Amount Repaid by Power		Repayment of Investment per Acre:	
M & I Water	53,315,000	Amount Repaid by M & I Water	53,315,000 6/	By Irrigators	$
Recreation	35,150,000	Amount Repaid by Recreation	7,996,000 6/	By Power Revenues	
F & WL	2,721,000	Amount Repaid by F&WL	113,000 6/	By M & I Water Users	
Flood Control				Payment Capacity per Acre	$
Hwy Improvement	800,000			Annual Charges:	
Other 5/	1,092,000	Nonreimbursable 7/	31,654,000	O & M	$
Total	$ 93,078,000	Total	$ 93,078,000	Construction	
				Total	$

STATUS OF REPAYMENT CONTRACT Contract for advance of funds executed December 30, 1975. Validation not required. Repayment contract with the city of Corpus Christi and the Nueces River Authority was executed June 30, 1976, with court validation October 20, 1976.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide final filed with Council on Environmental Quality December 16, 1975.

DESCRIPTION: The project is located on the Frio River in Live Oak and McMullen Counties, Texas. The site is approximately midway between San Antonio and Corpus Christi near the town of Calliham, Texas. The plan consists of the construction of Choke Canyon Dam and Reservoir for the purpose of municipal and industrial water, recreation, and fish and wildlife. The project will provide 139,000 acre-feet of water annually to the city of Corpus Christi, Texas, as well as recreational and fish and wildlife benefits.

24-040 O - 78 - 27

OTHER INFORMATION: Authorization to begin construction with funds advanced by the local project sponsors was provided in reports supporting the fiscal year 1976 Appropriation Act. Federal funds were appropriated in fiscal year 1977.

Footnotes:

1/ The project is scheduled to be operational in May 1981. Some recreation and fish and wildlife facilities work is scheduled to be completed after May 1981. This is a 10 month delay from that reported in the FY 1978 Budget Justifications as it took additional time to obtain a Section 404 Permit required by Public Law 92-500.

2/ No change from the FY 1978 Budget Justifications. The increase in costs was offset by an increase in benefits. Municipal and industrial water benefits increased due to a substantial increase in the cost of the most likely alternative. Recreation and fish and wildlife benefits were updated to reflect higher day use values.

3/ Includes interest during construction of $4,810,000 for municipal and industrial water; $157,000 on the reimbursable portion of recreation; and $4,000 on the reimbursable portion of fish and wildlife.

4/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	1978 Estimate	1979 Estimate
Municipal and Industrial Water	$49,467,000	$53,315,000
Recreation	33,962,000	35,150,000
Fish and Wildlife	2,546,000	2,721,000
Highway Improvement	--	800,000
Other	899,000	1,092,000
Total	$86,874,000	$93,078,000

The increase of $6,204,000 is due to cost indexing. Also an allocation to highway improvement has been provided to cover the construction of highway relocations to higher standards under Public Law 87-874.

5/ Includes $242,000 for nonreimbursable General Investigations costs; and $850,000 for nonreimbursable cultural resource activities (Public Law 93-291).

6/ The scheduled amount to be repaid is covered by existing contracts with the project beneficiaries.

7/ Includes $27,154,000 recreation; $2,608,000 fish and wildlife; $242,000 preauthorization investigation costs; $850,000 cultural resources activities (Public Law 93-291); and $800,000 highway improvement (Public Law 87-874).

8/ Work was initiated in fiscal year 1976 with non-Federal advances provided by the city of Corpus Christi and the Nueces River Authority. The schedule of non-Federal advances is as follows: Fiscal Year 1976 and Transition Quarter - $1,197,518; Fiscal Year 1977 - $4,071,544; Fiscal Year 1978 - $5,290,000; Fiscal Year 1979 - $4,000,000; after Fiscal Year 1979 - $5,708,938.

9/ Appropriations authorized are $67,563,000 (January 1977). This authorization is adequate to cover this project as currently proposed.

NUECES RIVER PROJECT

PHYSICAL DATA ON STRUCTURES

CONSTRUCTION PROGRAM

Choke Canyon Dam and Reservoir

Dam:
Type - Earthfill
Structural Height - 116 feet
Crest Length - 18,500 feet
Base Width - 675 feet

Spillway:
Type - Gated Concrete chute
Design Discharge - 250,000 cubic feet per second

Reservoir Capacity:
Total Storage - 700,000 Acre-feet

Right-of-way

Quantity - 38,860 Acres
Total Estimated Cost - $23,167,000
Cost Per Acre - $596
Acquisition - 23 percent complete as of January 1, 1978

Relocation

Total Estimated Cost - $11,110,000
Percent Complete - 3 percent as of January 1, 1978

Items:	Length	Total Cost	Cost to Sept. 30, 1977
State Highway No. 72	13.1 Miles	$ 3,401,000	$250,000
Farm to Market Road No. 99	10.0 Miles	3,759,000	-
County Roads		500,000	-
Oil and Gas Wells and Pipelines		2,178,000	-
Various Utilities and Archeology survey and mitigation		1,272,000	100,000
TOTAL		$11,110,000	$350,000

Appropriation Title: Construction and Rehabilitation

NUECES RIVER PROJECT, TEXAS

FISCAL YEAR 1979

Work Proposed	Program
Choke Canyon Dam and Reservoir. Construction of Choke Canyon Dam, acquisition of right-of-way; and relocation of State Highway No. 72, Farm to Market Road No. 99, and powerlines will continue. A contract will be awarded for clearing the reservoir area. Contracts will be negotiated for the relocation of county roads, pipelines, telephone lines, and for provisions for the oil and gas wells.	$22,500,000
Recreation Facilities. Preconstruction work will be continued.	100,000
TOTAL	$22,600,000 1/

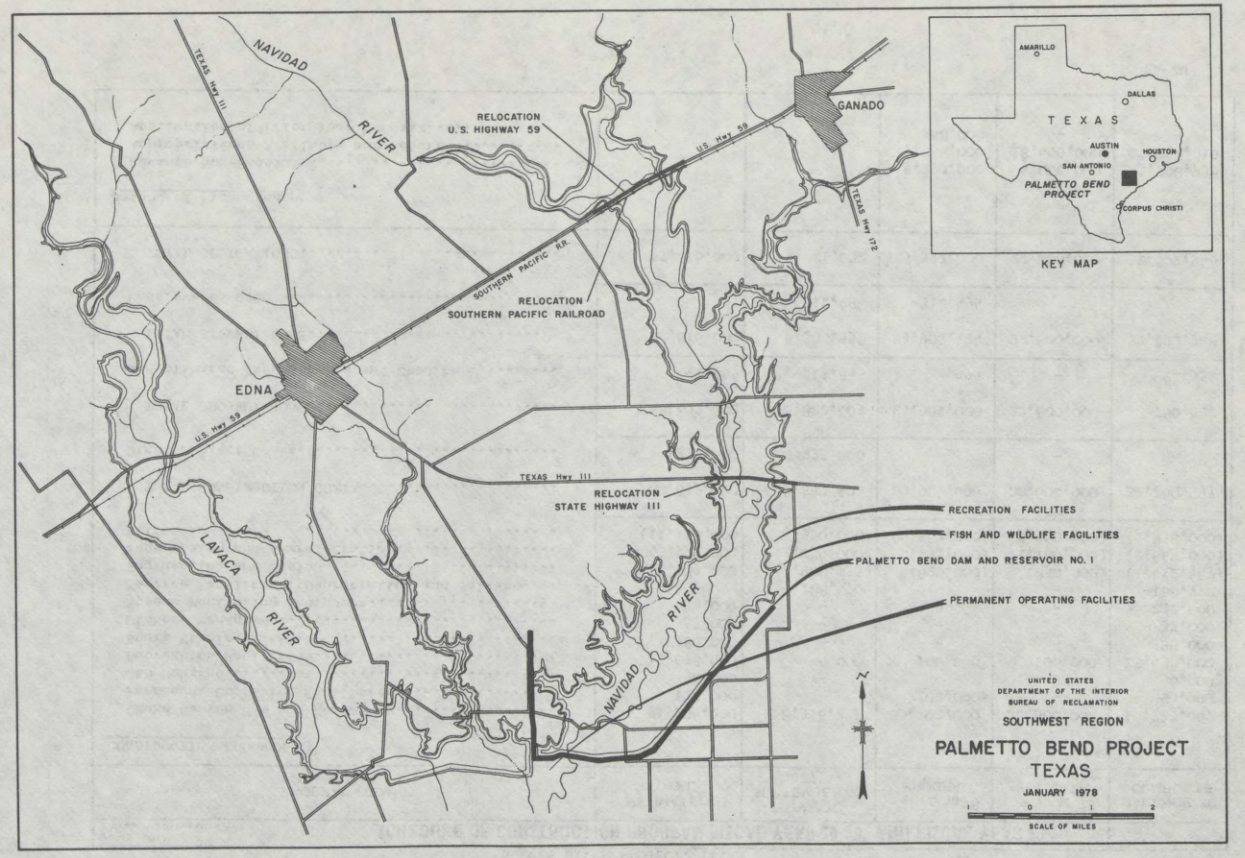
1/ Includes $4,000,000 non-Federal advances provided by the city of Corpus Christi and the the Nueces River Authority.

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM					
Choke Canyon Dam and Reservoir	71,284,000	8,318,933	23,702,000	22,500,000	16,763,067
Permanent Operating Facilities	145,000	-	102,000	-	43,000
O&M Housing	56,000	-	-	-	56,000
Recreation Facilities	15,678,000	40,000	100,000	100,000	15,438,000
Sport Fishing Facilities	380,000	-	-	-	380,000
Fishery Management	57,000	-	-	-	57,000
Stream Monitoring Equipment	232,000	-	-	-	232,000
Service Facilities, Depreciation and Salvage	-	188,470	-	-	-188,470
Engineering and Design	(4,983,000)	(1,900,553)	(820,000)	(850,000)	(1,412,447)
Supervision and Administration	(5,700,000)	(1,059,000)	(792,000)	(1,180,000)	(2,669,000)
Relocation Costs	(11,110,000)	(350,000)	(2,562,000)	(5,360,000)	(2,838,000)
TOTAL CONSTRUCTION COSTS	87,832,000	8,547,403	23,904,000	22,600,000	32,780,597
Other Project Costs	275,000	275,000	-	-	-
TOTAL PROJECT COSTS	88,107,000	8,822,403	23,904,000	22,600,000	32,780,597
Consolidated Expenditures and Credits	-291,000	-313,845	494	-	22,351
TOTAL EXPENDITURES	87,816,000	8,508,558	23,904,494	22,600,000	32,802,948
Undelivered Orders		512,494	-512,494		
TOTAL OBLIGATIONS	87,816,000	9,021,052	23,392,000	22,600,000	32,802,948
Method of Financing					
Advance Non-Federal			5,290,000	4,000,000	5,708,938
Appropriations Available and Required			17,854,000	18,600,000	27,094,010
Application of Prior Year Funds			248,000	-	-

BR-209


NAVIDAD RIVER
TEXAS Hwy 111
RELOCATION
U.S. HIGHWAY 59
GANADO
US Hwy 59
TEXAS Hwy 172
SOUTHERN PACIFIC R.R.
RELOCATION
SOUTHERN PACIFIC RAILROAD
EDNA
US Hwy 59
TEXAS Hwy 111
RELOCATION
STATE HIGHWAY 111
LAVACA RIVER
NAVIDAD RIVER
AMARILLO
DALLAS
TEXAS
AUSTIN
HOUSTON
SAN ANTONIO
PALMETTO BEND PROJECT
CORPUS CHRISTI
KEY MAP
RECREATION FACILITIES
FISH AND WILDLIFE FACILITIES
PALMETTO BEND DAM AND RESERVOIR NO. 1
PERMANENT OPERATING FACILITIES
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
SOUTHWEST REGION
PALMETTO BEND PROJECT
TEXAS
JANUARY 1978
1 0 1 2
SCALE OF MILES

PROJECT DATA SHEET

PF-65 (11-76)
Bureau of Reclamation

REGION	PROJECT AND STATE	Completion Date	% Complete	Date
Southwest	PALMETTO BEND PROJECT, TEXAS	1979 1/	82	1-1-78

AUTHORIZATION	BENEFIT COST RATIOS		
		Based on Direct Benefits	Based on Total Benefits	Date
Public Law 90-562, October 12, 1968		2.8 2/	2.8 2/	1-1-78

LAND CERTIFICATION	DEFINITE PLAN REPORT
None required	Approved July 10, 1972

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 8/	$ 68,660,000	Allotments to September 30, 19 77	$ 51,176,072
Total Federal Obligations (Other)	--	Allotments for F.Y. 19 78	9,800,000
Net Property and Other Transfers	1,213,000		
Cash Advances--Non-Federal	--	Allotments to Date	60,976,072
Adjustment 3/	4,897,000	Allotments Required for F.Y. 19 79	4,992,000
Total to be Allocated	$ 74,770,000	Balance to Complete after F.Y. 19 79	$ 2,691,928

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$
Power		Amount Repaid by Power		Repayment of Investment per Acre:	
M & I Water	51,676,000	Amount Repaid by M & I Water	51,676,000 6/	By Irrigators	$
Recreation	16,306,000	Reimbursable Fish and Wildlife	60,000 6/	By Power Revenues	
F & WL	4,268,000	Reimbursable Recreation	1,774,000 6/	By M & I Water Users	
Flood Control				Payment Capacity per Acre	$
Hwy Improvement	2,220,000			Annual Charges:	
Other 5/	300,000	Nonreimbursable 7/	21,260,000	O & M	$
Total	$ 74,770,000	Total	$ 74,770,000	Construction	
				Total	$

STATUS OF REPAYMENT CONTRACT Repayment contract with Texas Water Development Board and the Lavaca-Navidad River Authority which includes the reimbursable costs for municipal and industrial water and recreation and fish and wildlife, executed February 2, 1972, with court validation June 12, 1972. Amendatory repayment contract to cover increased cost executed January 9, 1976.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Final filed with Council on Environmental Quality (CEQ) May 24, 1972. Revised draft filed with CEQ May 6, 1974; revised final filed with CEQ September 13, 1974.

DESCRIPTION: The project is located in the central gulf coast area of Texas in Jackson County. The project involves the first stage development which will provide 75,000 acre-feet of water annually for municipal and industrial use. The project will also provide recreation and fish and wildlife benefits. Major features include the first stage Palmetto Bend Dam and Reservoir on the Navidad River. The authorization also provides for land and rights required for the dam and reservoir on the Lavaca River which will be required under additional development. However, the acquisition of right-of-way for the Lavaca River Dam has been deferred until construction of the Lavaca River Dam is authorized as

DESCRIPTION (Continued): agreed to by the Texas Water Development Board and the Lavaca-Navidad River Authority and these costs are now excluded from the estimate.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1971 and for construction in FY 1972. A suit filed on March 15, 1973, by the Sierra Club and Palmetto Citizens Group opposed the project stating that the National Environmental Policy Act requirements had not been fulfilled. On September 30, 1974, the Court granted the Plaintiff's motion for a preliminary injunction prohibiting most construction other than highway relocations. On November 21, 1974, this injunction was amended to allow work on the railroad and pipeline relocations. On October 6, 1975, the final judgment was filed denying the plaintiff's request for a permanent injunction and the case was dismissed. Plaintiffs filed an appeal on November 13, 1975, and applied for an injunction pending appeal. The injunction was denied and Plaintiffs filed a Stipulation for Dismissal of Appeal which was executed April 13, 1976.

Footnotes:

1/ The project is scheduled to be operational in September 1979. Some fish and wildlife facilities work is scheduled to be accomplished after September 1979.

2/ The ratios based on direct and total benefits are 2.8 and compare with 2.6 as presented in the FY 1978 Budget Justifications. The increase is due to the reduction in the total estimated project cost.

3/ Includes interest during construction of $4,861,000 for Municipal and Industrial water and $36,000 on reimbursable portion of recreation.

4/ Explanation of Changes in allocations from FY 1978 Budget Justifications:

	1978 Estimate	1979 Estimate
Municipal and Industrial Water	$56,440,000	$51,676,000
Recreation	16,377,000	16,306,000
Fish and Wildlife	4,393,000	4,268,000
Highway Improvement	2,220,000	2,220,000
Other	-	300,000
Total	$79,430,000	$74,770,000

The decrease of $4,660,000 is due to the elimination of land and rights for the Lavaca River Dam as support for this feature is inactive, elimination of the caretakers residence as it has been found that facilities can be rented nearby, and a reduction in contingencies on Palmetto Bend Dam as work nears completion, partially offset by an increase indexing recreation and fish and wildlife facilities. The allocation to "Other" is for cultural resources activities (Public Law 93-291).

5/ For cultural resources activities (Public Law 93-291).

6/ The scheduled amount to be repaid is covered by existing contracts with project beneficiaries.

7/ Includes $14,532,000 for recreation; $4,208,000 for fish and wildlife; $2,220,000 for relocation of highways to higher standards (Public Law 87-874), and $300,000 for cultural resources activities (Public Law 93-291).

8/ Appropriations authorized are $83,504,000 (January 1977). This authorization is adequate to cover this project as currently planned.

PALMETTO BEND PROJECT

PHYSICAL DATA ON STRUCTURES

CONSTRUCTION PROGRAM:

Palmetto Bend No. 1

Dam:
- Type - Zoned earthfill
- Structural Height - 69 feet
- Crest Length - 41,712 feet
- Base width - 485 feet

Spillway:
- Type - Gated concrete chute
- Design Discharge - 176,000 Cubic Feet Per Second

Reservoir Capacity:
- Total Storage - 204,000 Acre-feet

Right-of-way

- Quantity - 18,400 Acres
- Total Estimated Cost - $9,169,000
- Cost Per Acre - $498
- Acquisition - 95 percent complete as of January 1, 1978

Relocation

- Total Estimated Cost - $16,820,000
- Percent Complete - 93 percent as of January 1, 1978

Items:	Length	Total Cost	Cost to Sept. 30, 1977
U.S. Highway 59	1.9 Miles	$ 4,100,000	$ 4,100,000
State Highway 111 and Secondary Roads	5.7 Miles	2,016,000	1,780,000
Southern Pacific Railroad	1.3 Miles	3,150,000	3,120,000
Oil and Gas Wells and Pipelines		6,841,000	6,130,000
Various relocations		713,000	550,000
TOTAL		$16,820,000	$15,680,000

Appropriation Title: Construction and Rehabilitation

PALMETTO BEND PROJECT, TEXAS

FISCAL YEAR 1979

Work Proposed	Program
Palmetto Bend Dam and Reservoir No. 1. Construction of Palmetto Bend Dam, reservoir operation and maintenance roads, and minor relocations will be continued.	$3,685,000
Permanent Operating Facilities. The warehouse, office and shop buildings and purchase of operating equipment will be completed.	309,000
Recreation Facilities. Recreation facilities will be completed.	989,000
Fish and Wildlife Facilities. Fishery management environmental studies will be initiated.	9,000
TOTAL	$4,992,000

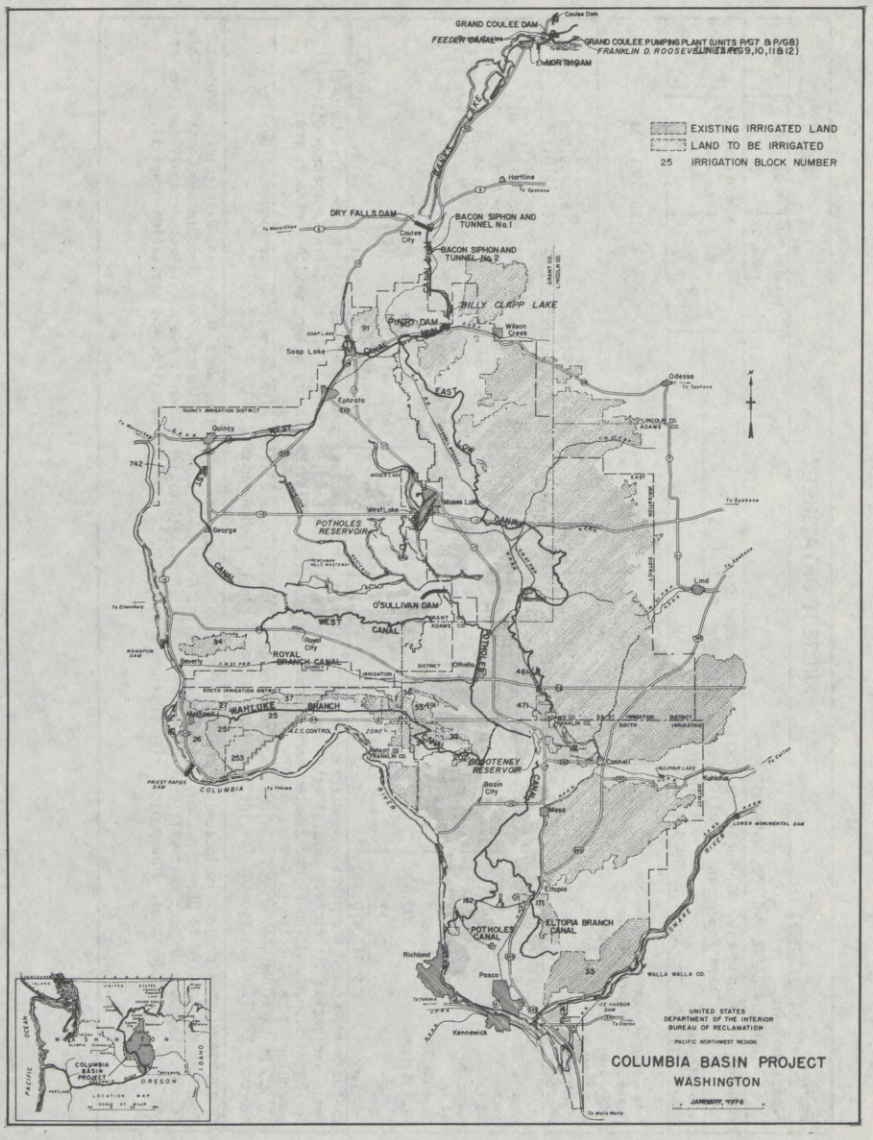
PALMETTO BEND PROJECT, TEXAS

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM					
FIRST STAGE					
Palmetto Bend Dam and Reservoir No. 1	65,340,926	42,426,375	16,515,000	3,685,000	2,714,551
Permanent Operating Facilities	816,200	2,200	505,000	309,000	--
Recreation Facilities	3,623,874	233,874	2,401,000	989,000	--
Fish and Wildlife Facilities	92,000	--	47,000	9,000	36,000
Service Facilities, Depreciation & Salvage	--	53,193	--	--	-53,193
Engineering and Design	(5,810,000)	(4,667,000)	(550,000)	(507,000)	(86,000)
Supervision and Administration	(5,632,898)	(3,823,131)	(850,000)	(776,000)	(183,767)
Relocation Costs	(16,820,000)	(15,680,000)	(587,000)	(285,000)	(268,000)
Total Construction Cost	69,873,000	42,715,642	19,468,000	4,992,000	2,697,358
Total Project Cost	69,873,000	42,715,642	19,468,000	4,992,000	2,697,358
Consolidated Expenditures and Credits	-1,213,000	-207,486	-1,000,084	--	-5,430
Total Expenditures	68,660,000	42,508,156	18,467,916	4,992,000	2,691,928
Undelivered Orders	--	8,621,916	-8,621,916	--	--
Total Obligations	68,660,000	51,130,072	9,846,000	4,992,000	2,691,928
Method of Financing:					
Appropriations available and required	--	--	9,800,000	4,992,000	2,691,928
Application of prior year funds	--	--	46,000	--	--

BR-215


GRAND COULEE DAM
FEEDER CANAL
GRAND COULEE PUMPING PLANT (UNITS P/G7 & P/G8)
FRANKLIN D. ROOSEVELT LAKE (UNITS P/G9, 10, 11 & 12)
EXISTING IRRIGATED LAND
LAND TO BE IRRIGATED
25 IRRIGATION BLOCK NUMBER
DRY FALLS DAM
BACON SIPHON AND TUNNEL No. 1
BACON SIPHON AND TUNNEL No. 2
BILLY CLAPP LAKE
PINTO DAM
Soap Lake
Ephrata
Quincy
WEST CANAL
EAST LOW CANAL
POTHOLES RESERVOIR
O'SULLIVAN DAM
ROYAL BRANCH CANAL
WAHLUKE BRANCH
POTEMKIN RESERVOIR
Basin City
Odessa
Lind
Othello
Connell
Kahlotus
Mesa
Eltopia
ELTOPIA BRANCH CANAL
POTHOLE CANAL
Richland
Pasco
Kennewick
WALLA WALLA CO.
COLUMBIA
SNAKE RIVER
LOWER MONUMENTAL DAM
UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF RECLAMATION
PACIFIC NORTHWEST REGION
COLUMBIA BASIN PROJECT
WASHINGTON
JANUARY, 1978
COLUMBIA BASIN PROJECT
OREGON
PACIFIC OCEAN
IDAHO
LOCATION MAP

PROJECT DATA SHEET

PF-65 (11-76)
Bureau of Reclamation

REGION: Pacific Northwest

PROJECT AND STATE	Completion Date	% Complete	Date
COLUMBIA BASIN PROJECT, WASHINGTON	1/	44 2/	1-1-78

AUTHORIZATION: Public Law 409, August 30, 1935, and subsequent acts. (Third Powerplant - Public Law 89-448, June 14, 1966)

LAND CERTIFICATION	DEFINITE PLAN REPORT	BENEFIT COST RATIOS: Based on Direct Benefits	Based on Total Benefits	Date
August 11, 1952 and April 7, 1976	4/	4.0 3/	4.2 3/	1-1-78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation)	$ 2,777,900,560 15/	Allotments to September 30, 1977	$ 1,209,461,762
Total Federal Obligations (Other)	--	Allotments for F.Y. 1978	56,275,000
Net Property and Other Transfers	7,900,000		
Cash Advances--Non-Federal	15,313,440	Allotments to Date	1,265,736,762
Adjustment	46,856,000 5/	Allotments Required for F.Y. 1979	42,485,000
Total to be Allocated	$ 2,847,970,000	Balance to Complete after F.Y. 1979	$ 1,469,678,798

ALLOCATIONS 6/

Irrigation	$ 2,006,303,000
Power	781,158,000
M & I Water	--
Recreation	--
F & WL	10,340,000
Flood Control	46,692,000
Navigation	1,000,000
Other	2,477,000 7/
Total	$ 2,847,970,000

REPAYMENT

Amount Repaid by Irrigators	$ 144,602,000 8/ 9/
Amount Repaid by Power	2,610,310,000 10/
Amount Repaid by M & I Water	--
Settlement Land Sales	11,500,000
Non-Federal Contributions	15,259,000 11/
Nonreimbursable	66,299,000 12/
Total	$ 2,847,970,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 1,832	Payment Capacity 8/ per Acre	$
Repayment of Investment per Acre:		Annual Charges:	
By Irrigators	$ 132 8/	O & M	$ 7.45
By Power Revenues	1,670	Construction	2.63 8/
Nonreimbursable	513/		
From Settlement Land Sales	11		
Non-Federal Contributions	14	Total	$ 10.08

STATUS OF REPAYMENT CONTRACT: Amendatory repayment contracts were executed on December 18, 1968, by the three Columbia Basin Irrigation Districts. Initial water rental contracts with the East and Quincy Columbia Basin Irrigation Districts for Bacon Siphon and Tunnel No. 2 water were executed on August 27, 1976, amendatory water service contracts are scheduled to be executed in September 1979.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Projectwide - Final statement filed with Council on Environmental Quality February 27, 1976. Statement for the Esquatzel Coulee - Final filed August 18, 1977.

DESCRIPTION: The project is located in central Washington, approximately 95 miles west of Spokane, Washington. Project features are located in Okanogan, Douglas, Grant, Franklin, Adams, Walla Walla, Stevens, Ferry and Lincoln Counties. This is a multipurpose project that will provide a power supply of 6,174,000 14/ kilowatts and a full water supply for the irrigation of 1,095,000 acres. The project also provides flood control, fish and wildlife, and navigation benefits.

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Alfalfa hay, sugar beets, potatoes, field corn, wheat, dry beans, alfalfa seed, and silage accounted for 86 percent of the irrigated acreage and produced about 84 percent of the $208 million gross crop income in the calendar year 1976. These nine crops will continue to be of great importance when the project is mature. In 1976 there were about 60 different crops demonstrating a relatively high degree of crop diversification. However, 33 percent of the irrigated acreage in 1976 was used to produce forage crops. High value crops which increased in acreage include apples, grapes, sweet corn, potatoes, peppermint, dry onions, and some specialty seed crops.

OTHER INFORMATION: Funds to initiate construction of Grand Coulee Dam and appurtenant works were appropriated in FY 1934 (National Industrial Recovery Act Funds) and the Third Powerplant in FY 1967. Irrigation facilities for approximately one-half the project have been completed and are in service. Further development of the project is scheduled to be initiated in several years in conjunction with completion of repayment ability review and negotiation.

Footnotes:

1/ Irrigation Facilities--Pump/Generator Units 9 through 12 will be on-line in December 1981, which is a delay of 14 months from the date presented in the FY 1978 Justifications. This delay has been caused by design modifications, extended equipment delivery times, and working space problems with multiple contractors. These units are to be utilized as peaking powerplants and since the peaking demand as forecasted has decreased, this delay will not adversely affect the Northwest power supply. Bacon Siphon and Tunnel No. 2 will be completed in FY 1980. Drains are constructed as the need arises and are scheduled to continue for several years. Construction of the remaining irrigation distribution facilities will require approximately 20 years to complete.

See Third Powerplant Project Data Sheet for scheduled on-line dates of the Third Powerplant units.

2/ Completion percentage has not changed from the FY 1978 Budget Justifications as cost indexing of uncompleted work negated the physical work accomplished during the same period.

3/ The direct benefits ratio of 4.0 compares with 3.8 and the total benefits ratio of 4.2 compares with 4.0 as presented in FY 1978 Budget Justifications. The increases reflect increased benefits in the power and irrigation functions. These increases have been partially offset by increased cost estimates for uncompleted work to recognize inflationary effects. The power benefits, which are based on the cost to produce power from alternative sources, increase proportionately as costs of those facilities increase. Irrigation benefit increases are attributable to better prices being received for those crops produced on the project in relation to production costs.

4/ Summary planning report for the previously authorized project facilities was submitted in March 1953 and adopted by the Commissioner in lieu of a definite plan report. The definite plan report for the Third Powerplant was approved March 18, 1968.

5/ Adjustments include Operation and Maintenance financed additions and improvements to power and multipurpose facilities, credit for sale of property under the Coulee Dam Community Act of 1957, and minor adjustments, all of which total $5,834,000 and interest during construction of $41,022,000.

6/ Change in Allocations from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$1,935,893,000	$2,006,303,000
Power	776,563,000	781,158,000
Flood Control	46,692,000	46,692,000
Navigation	1,000,000	1,000,000
Fish and Wildlife	4,100,000	10,300,000
Other	2,477,000	2,477,000
Total	$2,766,725,000	$2,847,970,000

The increase totals $81,245,000. The increase in irrigation of $70,410,000 includes $70,106,000 for cost indexing, and $304,000 for corrective work on pump/generating units. The increase in power allocation includes $4,488,000 for cost indexing, and $107,000 for corrective work on pump/generating units. The increase to fish and wildlife includes $190,000 for cost indexing and $6,050,000 for the addition of the Eagle Lakes fish and wildlife area.

7/ Includes nonreimbursable expenditures of $177,000 for spillway flood lighting--Grand Coulee Dam (July 2, 1956, 70 Stat. 474,476), and $2,300,000 for cultural resources activities (Public Law 93-291).

8/ Current construction repayment based on 50-year repayment of $131.60 per acre average. Payment capacity and increased repayment for future additions to the irrigated area are being negotiated.

9/ The scheduled amount to be repaid is covered by existing contracts with project beneficiaries.

10/ Power which is excess to project needs is delivered to and marketed by the Bonneville Power Administration as provided in Executive Order No. 8526.dated August 26, 1940. Power for project use will be repaid under existing wateruser repayment contracts. Repayment assistance for the irrigation allocation which is in excess of the waterusers repayment

ability is within the limitations established by section 6 of Public Law 89-561, regarding financial assistance to Pacific Northwest reclamation projects from net revenues of Federal Columbia River power systems.

11/ Includes $15,000,000 contribution by the State of Washington to assist in construction of Bacon Siphon and Tunnel No. 2, $313,440 contributed by the State of Washington to assist in the construction of Grand Coulee Dam and $48,560 of miscellaneous contributions, less $103,000 non-Federal contribution allocation to flood control and included in the total under Footnote No. 12.

12/ Includes flood control, $46,692,000; navigation, $1,000,000; spillway flood lighting, $177,000; nonreimbursable, Fish and Wildlife, $10,340,000; cost of irrigation service to Indian land, $5,790,000; and cultural resources activities (Public Law 93-291), $2,300,000.

13/ Cost of irrigation service to Indian lands.

14/ The power supply total of 6,174,000 kilowatts excludes generator capacity upgrading accomplished in the operation and maintenance program which will increase the nameplate rating by a total of 306,000 kilowatts when this work is complete. As of January 1, 1978, seventeen units have been rewound under the operation and maintenance program resulting in an increase of 289,000 kilowatts; the remaining unit is scheduled to be completed in FY 1979.

15/ Appropriation authorization covers Third Powerplant only. See Third Powerplant project data sheet for discussion on this point.

24-040 O - 78 - 28

COLUMBIA BASIN PROJECT, WASHINGTON

PHYSICAL DATA ON STRUCTURES

COMPLETED WORK:

Grand Coulee Dam (Including 3rd Powerplant Forebay Dam): (Franklin D. Roosevelt Lake)

Dam:
Type - Concrete Gravity
Structural Height - 550 Feet
Crest Length - 5,529 Feet

Spillway:
Type - Gated
Design Discharge - 1,000,000 cubic feet per second

Reservoir Capacity:
Total Storage - 9,562,000 acre-feet

North Dam: (Banks Lake)

Dam:
Type - Zoned Earthfill
Structural Height - 145 Feet
Crest Length - 1,450 Feet

Spillway:
(None) Water for reservoir provided from Franklin D. Roosevelt Lake by pumping

Reservoir Capacity:
Total Storage - 1,275,000 acre-feet

Dry Falls Dam: (Banks Lake)

Dam:
Type - Zoned Earthfill
Structural Height - 123 Feet
Crest Length - 9,800 Feet

Spillway:
(None) Water for reservoir provided from Franklin D. Roosevelt Lake by pumping

Reservoir Capacity:
See North Dam above as the reservoir is common to both

O'Sullivan Dam:

Dam:
Type - Zoned Earthfill
Structural Height - 200 Feet
Crest Length - 19,000 Feet

Spillway:
Type - Gated
Design Discharge - 29,600 cubic feet per second

Reservoir Capacity:
Total Storage - 511,700 acre-feet

Pinto Dam:

Dam:
Type - Zoned Earthfill
Structural Height - 130 Feet
Crest Length - 1,900 Feet

Spillway:
Type - Uncontrolled
Design Discharge - 11,900 cubic feet per second

Reservoir Capacity:
Total Storage - 64,200 acre-feet

CONSTRUCTION PROGRAM:

Grand Coulee Pumping/Generating Plant:

Units P/G 7 and 8:

Generating Capacity - 50 Megawatts each, Pumping Capacity - 1,750 cubic feet per second each, Generating Head - 280 feet

Units P/G 9-12:

Generating Capacity - 50 Megawatts each, Pumping Capacity - 1,750 cubic feet per second each, Generating Head - 180 feet

Bacon Siphon and Tunnel No. 2:

Bacon Siphon No. 2 - 0.2 mile long - 28.0 feet diameter - 12,050 cubic feet per second
Bacon Tunnel No. 2 - 2.0 miles long - 28.5 feet diameter horseshoe - 12,050 cubic feet per second

Third Powerplant:

Three Generating Units - 600 Megawatts each, Three Generating Units - 700 Megawatts each, Generating Head - 305 feet

Third Powerplant Switchyard: Rated at 4,608,000 Kilovolt amps

Grand Coulee Powerplant:

Grand Coulee Powerplant will have 18 units of 125 Megawatts when the final unit is rewound in FY 1979 under the Operation and Maintenance program. There are also three units of 10 Megawatts for station service power, making the total installed capacity 2,280 Megawatts. Generating Head - 300 feet.

Switchyards: Grand Coulee - 3,999,333 Kilovolt amps.

Pumping Plants:

Grand Coulee Pump/Generating Plant has a present pumping capacity of 9,040 cubic feet per second utilizing pumping units 1-6.
22 other pumping plants ranging in size from 40 to 460 cubic feet per second.

Main Canal (Including Bacon Siphon and Tunnel No. 1):

Main Canal - 12.9 miles - 20,000 cubic feet per second
Bacon Tunnel No. 1 - 2 miles long - 23.25 feet diameter horseshoe - 7,350 cubic feet per second
Bacon Siphon No. 1 - 0.2 mile long - 23.25 feet diameter - 7,250 cubic feet per second

Canals:

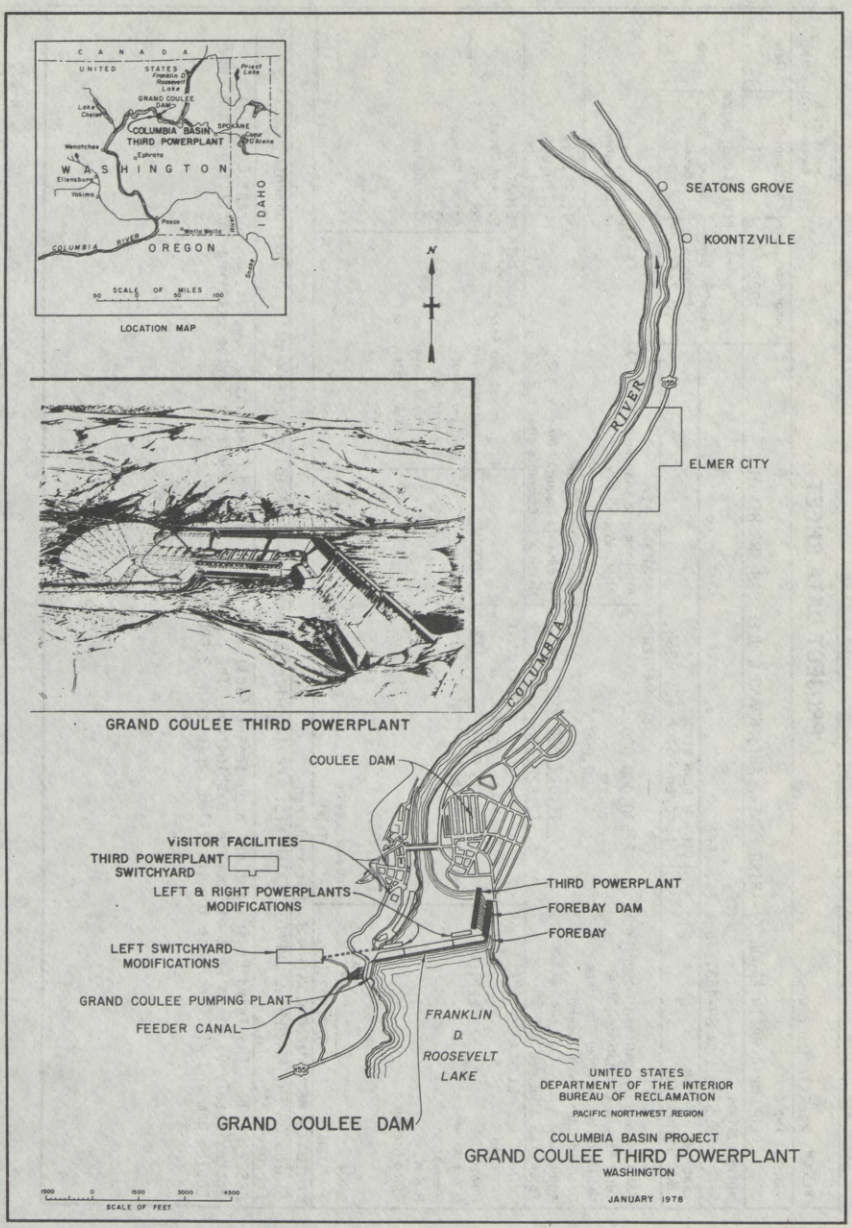
West Canal - 5,100 cubic feet per second - 96.1 miles
East Low Canal - 4,500 cubic feet per second - 86.8 miles
Potholes Canal - 3,900 cubic feet per second - 62.4 miles
Eltopia Branch Canal - 550 cubic feet per second - 25.0 miles
Wahluke Branch Canal - 2,000 cubic feet per second - 44.0 miles

Lateral Systems:

Various sizes and lengths are in service to 543,230 acres.

Spokane Indian Reservation:

Pipe Distribution system to serve 1,700 acres.


C A N A D A
UNITED STATES
Franklin D. Roosevelt Lake
GRAND COULEE DAM
Lake Chelan
COLUMBIA BASIN THIRD POWERPLANT
SPOKANE
Coeur d'Alene
Wenatchee
Ephrata
W A S H I N G T O N
Ellensburg
Yakima
I D A H O
Pasco
Walla Walla
COLUMBIA RIVER
OREGON
Snake
SCALE OF MILES
LOCATION MAP
N
SEATONS GROVE
KOONTZVILLE
RIVER
ELMER CITY
COLUMBIA
GRAND COULEE THIRD POWERPLANT
COULEE DAM
VISITOR FACILITIES
THIRD POWERPLANT SWITCHYARD
LEFT & RIGHT POWERPLANTS MODIFICATIONS
LEFT SWITCHYARD MODIFICATIONS
GRAND COULEE PUMPING PLANT
FEEDER CANAL
THIRD POWERPLANT
FOREBAY DAM
FOREBAY
FRANKLIN D. ROOSEVELT LAKE
GRAND COULEE DAM
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
PACIFIC NORTHWEST REGION
COLUMBIA BASIN PROJECT
GRAND COULEE THIRD POWERPLANT
WASHINGTON
JANUARY 1978
SCALE OF FEET

REGION Pacific Northwest

PROJECT DATA SHEET

PF-65 (11-76)
Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
COLUMBIA BASIN PROJECT, THIRD POWERPLANT, GRAND COULEE DAM, WASHINGTON	1980 1/	91	1-1-78

AUTHORIZATION	BENEFIT COST RATIOS		
Public Law 89-448, June 14, 1966	Based on Direct Benefits	Based on Total Benefits	Date
LAND CERTIFICATION: Not required; DEFINITE PLAN REPORT: Approved March 18, 1968	10.7 2/	10.7 2/	1-1-78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation)	$ 530,000,000 7/	Allotments to September 30, 19 77	$ 484,575,942
Total Federal Obligations (Other)	--	Allotments for F.Y. 1978	24,820,000
Net Property and Other Transfers	1,500,000		
Cash Advances--Non-Federal	--	Allotments to Date	509,395,942
Adjustment	41,022,000 3/	Allotments Required for F.Y. 1979	11,120,000
Total to be Allocated	$ 572,522,000	Balance to Complete after F.Y. 1979	$ 9,484,058

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE		
Irrigation	$ --	Amount Repaid by Irrigators	$ --	Irrig. Invest. per Acre	$ --	Payment Capacity per Acre $
Power	572,222,000	Amount Repaid by Power	572,222,000 6/	Repayment of Investment per Acre:		Annual Charges:
M & I Water	--	Amount Repaid by M & I Water		By Irrigators	$	O & M $
Recreation				By Power Revenues		Construction
F & WL				By M & I Water Users		
Flood Control						
Other	300,000 5/	Nonreimbursable	300,000 5/			
Total	$ 572,522,000	Total	$ 572,522,000			Total $

STATUS OF REPAYMENT CONTRACT: Not required.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Projectwide statement - final filed with Council on Environmental Quality, February 27, 1976.

DESCRIPTION: The Third Powerplant and appurtenant facilities are located in Okanogan, Douglas, and Grant Counties, approximately 95 miles west of Spokane, Washington. The powerplant is an addition to the existing facilities of Grand Coulee Dam and will increase the installed capacity by 3,900,000 kilowatts.

BR-223

OTHER INFORMATION: Funds to initiate construction were appropriated in FY 1967.

Footnotes:

1/ The first three generating units were placed in service September 26, 1975; April 8, 1976; and December 4, 1976, respectively. The remaining three units, which have slipped 7 months from the dates shown in the FY 1978 Budget Justifications due to construction difficulties, are scheduled to be on line as follows:

Unit 22 - April 1978
Unit 23 - October 1978
Unit 24 - April 1979

Construction on riverbank stabilization is scheduled to be completed in FY 1980.

2/ The direct and total benefit/cost ratios of 10.7 compare with 9.7 as presented in FY 1978 Budget Justifications. The increase is due to increased benefit values, which are based on the cost to produce power from alternative sources and as inflation pushes those costs higher, the benefits increase proportionately.

3/ Reimbursable interest during construction.

4/ No change in allocation from FY 1978 Budget Justifications.

5/ For cultural resources activities (Public Law 93-291).

6/ Power which is excess to project needs is delivered to and marketed by the Bonneville Power Administration as provided in Executive Order No. 8526 dated August 26, 1940. Power for project use will be repaid under existing wateruser repayment contracts.

7/ Appropriations authorized are $809,581,000 (January 1977). This authorization is adequate to cover this project as currently proposed.

Appropriation Title: Construction and Rehabilitation

COLUMBIA BASIN PROJECT, WASHINGTON

FISCAL YEAR 1979

Work Proposed

Columbia Basin Irrigation Facilities	Program
Grand Coulee Pumping/Generating Plant--Units P/G9 through P/G12. For completion work, continued fabrication of pump/turbines and motor/generators and modification work on the feeder canal.	$16,800,000
Bacon Siphon and Tunnel No. 2. For continued construction of the siphon and tunnel.	4,000,000
Drainage Construction. To continue drainage construction.	5,200,000
Deferred and Supplemental Construction. Provides for continued construction of deferred and supplement items and evaluation of the Eagle Lakes area as a potential development under the Fish and Wildlife Coordination Act.	4,285,000
Deferred and Bypassed Lands. For preconstruction engineering.	1,000,000
Other Project Costs. For administration of project-owned settlement lands, and continuing archeological and historical investigative work at proposed construction sites.	80,000
Subtotal - Irrigation Facilities	$31,365,000
Columbia Basin Third Powerplant	
Modification--Left Switchyard. Modification work on the 115-kV Switchyard will be completed.	$ 690,000
Third Powerplant. For completion work on the powerplant and riverbank stabilization construction. Also for permanent operating equipment and to restore and repair the road system.	9,410,000
Third Powerplant Switchyard. For completion of the 550-kV Switchyard.	1,000,000
Other Project Costs. Archeological investigations and salvage will continue	20,000
Subtotal - Third Powerplant	$11,120,000
TOTAL	$42,485,000

PF-40 (8-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM					
COLUMBIA BASIN IRRIGATION FACILITIES 1/					
Completed Work	$ 598,937,000	$598,937,000	$ --	$ --	$ --
Current Development					
Rehabilitation of Fish Hatcheries at Leavenworth, Entiat, and Winthrop	2,800,000	802,000	1,998,000	--	--
Grand Coulee Pumping/Generating Plant					
Units P/G 7 and 8	12,187,000	11,962,000	225,000	--	--
Units P/G 9, 10, 11, and 12	70,424,000	4,337,000	11,320,000	16,800,000	37,967,000
Bacon Siphon and Tunnel No. 2	56,000,000	22,819,000	13,550,000	4,000,000	15,631,000
Block 2b Laterals	6,385,000	184,000	50,000	--	6,151,000
Fish and Wildlife Facilities	6,050,000	--	--	--	6,050,000
Drainage Construction	152,700,000	75,529,945	3,663,000	5,200,000	68,307,055
Deferred and Supplemental Construction	27,495,000	8,756,000	3,638,000	4,285,000	10,816,000
Deferred and Bypassed Lands	183,285,000	1,607,000	200,000	1,000,000	180,478,000
Future Development					
Main Canal Enlargement	3,665,000	--	--	--	3,665,000
East Low Canal Extension--Irrigation System	187,050,000	201,000	--	--	186,849,000
East High Canal Irrigation System	943,680,000	3,961,000	--	--	939,719,000
Service Facilities, Depreciation and Salvage	-1,344,000	-566,000	347,000	--	-1,125,000
Other Project Costs	20,300,000	13,033,173	80,000	80,000	7,106,827
Engineering and Design	(177,021,000)	(58,971,000)	(2,690,000)	(3,070,000)	(112,290,000)
Supervision and Administration	(258,369,000)	(75,340,000)	(2,665,000)	(3,230,000)	(177,134,000)
Total Cost - Irrigation Facilities	$2,269,614,000	$741,563,118	$35,071,000	$31,365,000	$1,461,614,882

1/ Grand Coulee Dam - Left and Right Powerplants and irrigation facilities.

BR-226

FF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM					
COLUMBIA BASIN THIRD POWERPLANT 1/					
Completed Work	$ 54,598,828	$ 54,598,828	$ --	$ --	$ --
Modification - Left Switchyard	30,500,000	26,736,000	3,074,000	690,000	--
Third Powerplant	376,601,172	336,879,172	18,428,000	9,410,000	11,884,000
Third Powerplant Switchyard	65,000,000	60,960,000	3,040,000	1,000,000	--
Visitor Facilities	4,500,000	2,740,000	1,760,000	--	--
Service Facilities, Depreciation and Salvage	--	2,476,000	--	--	-2,476,000
Other Project Costs	300,000	134,000	98,000	20,000	48,000
Engineering and Design	(37,300,000)	(33,360,000)	(1,900,000)	(1,400,000)	(640,000)
Supervision and Administration	(46,500,000)	(40,687,000)	(2,950,000)	(2,100,000)	(772,000)
Relocation Costs	(660,000)	(660,000)	(--)	(--)	(--)
Total Cost - Third Powerplant	$ 531,500,000	$ 484,524,000	$26,400,000	$11,120,000	$ 9,456,000
Total Project Cost	$2,801,114,000	$1,226,087,118	$61,471,000	$42,485,000	$1,471,070,882
Consolidated Expenditures and Credits	-7,900,000	-6,515,750	7,834	--	-1,392,084
Total Expenditures	$2,793,214,000	$1,219,571,368	$61,478,834	$42,485,000	$1,469,678,798
Undelivered Orders	--	4,170,261	-4,170,261	--	--
Total Obligations	$2,793,214,000	$1,223,741,629	$57,308,573	$42,485,000	$1,469,678,798
Method of Financing					
Appropriation available and required	$ --	$ --	$56,275,000	$42,485,000	$1,469,678,798
Application of prior year funds	--	--	1,033,573	--	--

1/ Modification of left and right powerplants and third powerplant construction.

BR-227

Appropriation Title: Construction and Rehabilitation

DRAINAGE AND MINOR CONSTRUCTION

Summarized Financial Data:

Fiscal Year 1978:

Appropriation	$25,391,000	
Application of Prior Year Funds	1,083,000	
Non-Federal Advances	260,000	
Total Obligations, FY 1978		$26,734,000

Fiscal Year 1979:

Estimate of Appropriation	$18,421,000	
Total Obligations, FY 1979		$18,421,000

Description: The drainage and minor construction program consists mostly of minor completion work of projects on which major construction is completed. Work in this category includes drainage work, minor repair, modification work, miscellaneous finishing activities, preconstruction on temporarily deferred facilities, and investigations for settlement of claims. A program of investigation and construction of recreation and fish and wildlife enhancement facilities at existing reservoirs under Public Law 89-72 is included. The balance of the program provides funding on recently authorized projects which require relatively limited appropriation requirements and for the Safety of Dams Program.

Work Proposed, FY 1979: The fiscal year 1979 program involves activity on 22 projects, including start of construction work on the following five Safety of Dams Programs: Hyrum Project, Hyrum Dam; Newlands Project, Lahonton Dam; Orland Project, Stoney Gorge Dam; Rapid Valley Project, Deerfield Dam; and Sun River Project, Gibson Dam. Activities on 6 of the 22 projects will be completed in fiscal year 1979.

Appropriation Title: Construction and Rehabilitation
Drainage and Minor Construction

FISCAL YEAR 1979

PROJECTS INCLUDED IN DRAINAGE AND MINOR CONSTRUCTION CATEGORY

Work Proposed	Program
All-American Canal System - California. To continue review of Coachella Valley County Water District drainage plan.	$ 2,000
Boise Project - Payette Division - Idaho. Work will continue on minimum basic health and safety factilities on the Cascade Reservoir.	695,000
Hyrum Project, Safety of Dams - Utah. To award contract for construction of auxiliary spillway for Hyrum Dam.	830,000
Kendrick Project - Wyoming. Work will continue on the installation of generator windings, accessory electrical equipment, and generator transformer and station switchgear at Seminoe Powerplant.	350,000
Klamath Project - California-Oregon. For completion of the road rehabilitation and surfacing in the Tulelake Division and on Stage 3 of the Klamath straits Drain Enlargement. Construction will continue on the distribution system, primary and subsurface drains, perimeter dikes, and land leveling.	1,422,000
Leadville Drainage Tunnel Project - Colorado. The rehabilitation of the Leadville Drainage Tunnel will be continued.	1,925,000
Lower Rio Grande Rehabilitation Project, Mercedes Division - Texas. Rehabilitation of the river pumping plant will be completed.	111,000
Minidoka Project, American Falls Dam Replacement - Idaho. For preconstruction planning on the fish and wildlife facilities.	50,000
Miscellaneous Engineering Services - Colorado. Work will continue on completion and printing of technical records of design and construction and as-built drawings on completed projects.	10,000
Newlands Project - Safety of Dams - Nevada. For preconstruction work for the rehabilitation of Lahontan Dam spillway, corewall, and outlet works.	356,000
Orland Project, Safety of Dams - California. For the award of a contract for the rehabilitation of Stoney Gorge Dam.	1,080,000

Appropriation Title: Construction and Rehabilitation
Drainage and Minor Construction - Continued - 2

Work Proposed	Program
Rapid Valley Project, Deerfield Dam, Safety of Dams, - South Dakota. Modification of Deerfield Dam, spillway, and outlet works will be initiated and right-of-way acquisition completed.	$ 200,000
Rogue River Basin Project, Savage Rapids Dam Fishway Modifications - Oregon. For the completion of the modification of the fishway structures.	305,000
Recreation Facilities at Existing Reservoirs - Various States. This activity involves the investigations and construction of recreation and fish and wildlife enhancement facilities at existing reservoirs where such facilities were not originally authorized. Development of such facilities is to be performed on a cost-share basis with a non-Federal administering organization as authorized by the Federal Water Project Recreation Act (Public Law 89-72). The fiscal year 1979 program will provide for planning and construction in 13 reclamation reservoir areas. Of these, construction will be completed on one, underway on nine, and initiated on three. Necessary studies and arrangements for administration will be underway.	266,000
San Angelo Project - Texas. To continue work on seepage problems below Twin Buttes Dam.	2,000,000
Solano Project, Lake Berryessa Recreation Facilities - California. Provides for continuation of construction of day-use facilities at Lake Berryessa Oak Shores development.	775,000
Sun River Project, Gibson Dam, Safety of Dams - Montana. Provides for award of contract for modification of Gibson Dam.	600,000
Tualatin Project - Oregon. Provides for completion work on the lateral system.	200,000
Umatilla Project, McKay Dam - Oregon. To complete construction of spillway enlargement and gate modification.	430,000
Ventura River Project, Casitas Reservoir Open Space - California. Acquisition of right-of-way will continue.	5,626,000
Washita Basin Project - Oklahoma. A contract will be awarded for foundation cutoff wall to reduce seepage below Foss Dam.	500,000
Washoe Project - California-Nevada. Preconstruction activities will continue.	688,000
TOTAL	$18,421,000

PF-40 (8-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
PROJECTS INCLUDED IN D&MC CATEGORY PRIOR TO FY 1979					
All American Canal - California	64,514,596	64,474,008	2,000	2,000	36,588
Baker Project, Upper Division - Oregon	7,522,875	7,516,875	6,000	-	-
Belle Fourche Project - South Dakota	2,119,481	2,079,481	40,000	-	-
Boise, Payette Division - Idaho	26,477,879	23,807,879	1,660,000	695,000	315,000
Buffalo Rapids Project - Montana	4,600,000	4,485,325	60,000	-	-
Chief Joseph Dam Project, Manson Unit - Washington	17,122,048	17,092,048	30,000	-	-
Chief Joseph Dam Project, Whitestone Coulee Unit - Washington	7,458,861	7,448,861	10,000	-	-
Kendrick Project - Wyoming	35,032,729	34,346,729	336,000	350,000	-
Klamath Project - Oregon-California	29,799,000	24,167,088	3,198,000	1,422,000	1,011,912
Leadville Drainage Tunnel Project - Colorado	2,750,000	-	360,000	1,925,000	465,000
Lower Rio Grande, Mercedes Division - Texas	11,781,352	11,361,352	309,000	111,000	-
Minidoka Project, American Falls Dam Replacement - Idaho	1,200,000	-	950,000	50,000	200,000
Miscellaneous Engineering Services - Colorado	376,000	315,516	10,000	10,000	40,484
Mountain Park Project - Oklahoma	39,272,111	38,186,111	1,086,000	-	-
Palisades Project - Idaho	61,713,633	61,703,633	10,000	-	-
Rathdrum Prairie Project, East Greenacres Unit - Idaho	8,691,103	8,667,103	24,000	-	-
Recreation Facilities at Existing Reservoir - Various States	3,363,000	1,704,212	668,000	266,000	723,788
Rogue River Basin-Savage Rapids Dam Fishway Modifications - Oregon	1,114,994	109,994	700,000	305,000	-
San Angelo Project - Texas	30,159,575	25,979,244	622,000	2,000,000	1,558,331
Solano Project, Lake Berryessa Recreational Facilities - California	3,685,000	87,674	2,037,000	775,000	785,326
Umatilla Project, McKay Dam - Oregon	1,359,881	29,881	900,000	430,000	-
Ventura River Project - Casitas Reservoir Open Space - California	17,189,662	3,670,662	7,703,000	5,626,000	190,000
Washita Basin Project - Oklahoma	30,465,391	29,861,391	54,000	500,000	50,000
Washoe Project - Nevada - California	126,774,000	30,904,840	1,029,000	688,000	94,152,160
Endangered and Threatened Species	2,000,000	-	2,000,000	-	-
SUBTOTAL - D&MC PRIOR TO FY 1979	536,542,171	397,999,907	23,804,000	15,155,000	99,583,264

PF-40 (8-78)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
ADDITIONAL PROJECTS INCLUDED IN D&MC:					
Hyrum Project, Safety of Dams - Utah	830,000	-	-	830,000	-
Newlands Project, Safety of Dams - Nevada	5,030,000	-	-	356,000	4,674,000
Orland Project, Safety of Dams - California	2,630,000	-	-	1,080,000	1,550,000
Rapid Valley Project, Deerfield Dam, Safety of Dams - South Dakota	1,200,000	-	-	200,000	1,000,000
Sun River Project, Gibson Dam, Safety of Dams - Montana	1,000,000	-	-	600,000	400,000
Tualatin Project - Oregon	54,825,000	49,545,721	2,930,000	200,000	2,149,279
TOTAL OBLIGATIONS	602,057,171	447,545,628	26,734,000	18,421,000	109,356,543
Method of Financing:					
Appropriation Available and Required	-	-	25,391,000	18,421,000	-
Application of Prior Year Funds	-	-	1,083,000	-	-
Non-Federal Advances	-	-	260,000	-	-

Appropriation Title: Construction and Rehabilitation

REHABILITATION AND BETTERMENT OF EXISTING PROJECTS

Summarized Financial Data:

Fiscal year 1978:		
Appropriation	$6,794,000	
Application of prior year funds	1,236,000	
Estimate of non-Federal advances	67,000	
Total obligations, FY 1979		$8,097,000
Fiscal year 1979:		
Estimate of appropriations	$4,998,000	
Total obligations, FY 1979		$4,998,000

Description: On older projects, which have been in operation for many years, it has been found that many structures have far exceeded their useful life and are requiring an excessive maintenance program to continue operations. The deteriorated facilities often result in inefficient use or loss of irrigation water. Needed repairs in most instances are beyond the ability of the water users to finance on a current basis. In addition, there have been many changes in land use, methods of irrigation, and types of crops raised; and to place these older projects on a basis comparable to those now being constructed, the facilities must not only be rehabilitated but also improved.

Repayment: The act of October 7, 1949, as amended, the basic authorizing legislation for the rehabilitation and betterment program, requires execution of contracts with the irrigation districts concerned for the repayment of the total cost of the rehabilitation and betterment work. The annual rate of payment by the water users is based on the finding of the Secretary of the Interior as to the ability of the water users to pay, after giving due consideration to any other outstanding repayment obligations.

24-040 O - 78 - 29

Appropriation Title: Construction and Rehabilitation
Rehabilitation and Betterment

FISCAL YEAR 1979

Rehabilitation and betterment work will be underway on 11 projects during FY 1979. Nine projects will continue beyond FY 1979.

Work Proposed

	Program
Carlsbad Project - New Mexico. Rehabilitation work will continue on the laterals.	$ 400,000
Central Oregon Irrigation District - Oregon. Provides for continuing replacment of siphons and flumes.	800,000
Crooked River Project, Ochoco Irrigation District - Oregon. To continue replacement of open laterals and drains with pipe.	120,000
Minidoka Project, Burley Irrigation District - Idaho. To continue rehabilitation work on pump plants 1, 2, and 3, and H&J Canals.	220,000
Minidoka Project - Island Park Dam. To repair the spillway and outlet works concrete and enlarge the emergency spillway to pass the design flood flows.	250,000
Newlands Project - Nevada-California. For rehabilitation of Lake Tahoe Dam; repair of Rock Dam Ditch Siphon; rehabilitation and motorization of the Carson Division structures and concrete lining of canals in the Soda Lake area.	419,000
Pick-Sloan Missouri Basin Program - Frenchman Cambridge Division - Nebraska. Provides for replacement of open ditch laterals with pipe.	600,000
Salt River Project - Arizona. Provides for lining canals; constructing canal structures, lining of laterals; replacing open laterals with underground concrete pipelines; and rehabilitation of lateral structures.	1,000,000
Shoshone Project, Garland Division - Wyoming. For continuing rehabilitation work on the installation of pipe and lining of laterals	600,000

Appropriation Title: Construction and Rehabilitation--2
Rehabilitation and Betterment

Work Proposed	Program
Sun River Project, Greenfields Division, Montana. Rehabilitation work will be started on the carriage and distribution system and equipment secured for use in the rehabilitation and betterment activities.	$ 400,000
Uncompahgre Project - Colorado. All work will be completed on this rehabilitation program.	189,000
	$4,998,000

PF-40 (8-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Carlsbad, New Mexico	$5,986,838	$3,980,945	$ 301,000	$ 400,000	$1,304,893
Central Oregon Irrigation District, Oregon	1,800,000	-	400,000	800,000	600,000
Crooked River Project, Ochoco Irrigation District, Oregon	595,906	281,897	150,000	120,000	44,009
Humboldt, Nevada	599,376	428,376	171,000	-	-
Minidoka, Burley Irrigation District, Idaho	1,499,973	421,973	230,000	220,000	628,000
Minidoka, Island Park Dam, Idaho	1,500,000	-	-	250,000	1,250,000
Newlands Project, Nevada-California	2,615,000	-	2,196,000	419,000	-
P-SMBP, Frenchman-Cambridge - Nebraska	4,400,000	215,206	759,000	600,000	2,825,794
Rio Grande, El Paso County Water Improvement District 1, Texas	5,440,492	4,443,492	997,000	-	-
Salt River Project, Arizona	27,000,000	24,058,037	1,000,000	1,000,000	941,963
Shoshone, Garland Division, Wyoming	6,000,000	3,136,113	609,000	600,000	1,654,887
Solano Project - Bridge Rehabilitation, California	1,076,551	214,551	862,000	-	-
Sun River Project, Greenfields Division, Montana	8,300,000	-	-	400,000	7,900,000
Uncompahgre Project, Colorado	2,486,000	2,075,533	216,000	189,000	5,467
Yakima Project, Snipes Mountain Irrigation District, Washington	538,163	332,163	206,000	-	-
Total Obligations	$69,838,299	$39,588,286	$8,097,000	$4,998,000	$17,155,013

PF-40 (8-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978 , AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Method of Financing:					
Appropriation available and required	-	-	$6,794,000	$4,998,000	$17,155,013
Application of prior year funds.	-	-	1,236,000	-	-
Trust Funds	-	-	67,000	-	-

Appropriation Title: Construction and Rehabilitation

PICK-SLOAN MISSOURI BASIN PROGRAM

General Statement

Summarized Financial Data:

Fiscal Year 1978:

Appropriation	$44,376,000
Application of prior year funds	12,448,000
Total obligations, Fiscal Year 1978	$56,824,000

Fiscal Year 1979:

Estimate of appropriation	$21,015,000
Total obligations, Fiscal Year 1979	$21,015,000

Status: As of September 30, 1977, the Bureau has completed construction of 26 Pick-Sloan Missouri Basin Program units, except for deferred drainage and other deferred work. During fiscal year 1979, 12 units and divisions will be under active construction and 2 units will be in advance planning. Partial flood control has been achieved on several main tributaries, irrigation is underway, and municipal and industrial water is being provided on a number of units.

The total fiscal year 1979 program requested for the Pick-Sloan Missouri Basin Program is $21,015,000. On October 1, 1977, the Department of Energy was created, at which time, the Transmission Division of this program was transferred in total from the Bureau of Reclamation to the newly created Department. The fiscal year 1979 request includes no funds the the Garrison Diversion Unit. Delays have ocurred in the construction of this unit due to unresolved legal, environmental, and international questions. The amount of funding that would be required in fiscal year 1979, if the related problems are satisfactorily resolved and construction can proceed, will depend on the time of their resolution and therefore, cannot be estimated at this time. If the resolution of the problem indicates the need for additional funding, a timely request will be made to Congress. All of the projects and activities in the 1979 program will be underway at the close of fiscal year 1978.

The following tables show the repayable investments and funds returned to the Treasury and obligation programs for the units and activities involved in the Pick-Sloan Missouri Basin Program.

Separate justifications also follow for advance planning and for each division or unit scheduled in active construction.

PF-81 (12-68)
Bureau of Reclamation

PICK-SLOAN MISSOURI BASIN PROGRAM

Repayable Investment of the United States and Funds Returned to the Treasury September 30, 1977

Repayable Investment of the United States:

Bureau of Reclamation:		
Appropriation allocations for advance planning, construction, operation and maintenance	$1,597,253,104 1/	
Transfers of cost or property (net)	15,894,918 2/	
Interest during construction	24,392,415	
Interest accrued on investment	120,754,489	
Total - Bureau of Reclamation		$1,758,294,926
Corps of Engineers (Power function only):		
Cost of capital investment, including interest during construction	$ 601,342,869	
Operation and maintenance	79,835,212	
Interest accrued on investment	262,886,768	
Total - Corps of Engineers		944,064,849
Total		$2,702,359,775
Nonreimbursable:		
Capital costs (estimated)	$ 200,000,000 1/	
Expense	12,386,634	
Total nonreimbursable		212,386,634
Total Repayable Investment		$2,489,973,141

Funds Returned to the Treasury:

Power operations:		
Applicable to costs of the Bureau of Reclamation	$ 597,680,732	
Applicable to costs of the Corps of Engineers	445,901,899	
Water operations and miscellaneous	32,046,443	
Total funds returned to the Treasury		$1,075,629,074

1/ Excludes $88,841,233 transferred to other Bureaus of the Department of the Interior.
2/ Excludes $74,629,483 investigations costs transferred from Pick-Sloan Missouri Basin Program to General Investigations expense.

BR-239

PICK-SLOAN MISSOURI BASIN PROGRAM OBLIGATION PROGRAM

Division, Units, and Location	ESTIMATED TOTAL	TOTAL TO SEPT. 30, 1977	FY 1978 PROGRAM	FY 1979 PROGRAM	BALANCE TO COMPLETE
Completed and Inactive Units	$ 579,290,725	$358,814,584	$ -	$ -	$ 222,476,141
Advance Planning and Land Acquisition:					
Pollock-Herreid Unit, South Dakota	849,605	77,605	522,000	250,000	-
Shoshone Extensions Unit, Polecat Bench Area, Wyoming	757,500	57,500	300,000	400,000	-
Construction Program:					
Canyon Ferry Dust Abatement, Montana	13,355,807	11,134,807	1,803,000	418,000	-
Garrison Diversion Unit, North Dakota-South Dakota	612,600,000	122,681,952	25,289,000	1/	464,629,048
Lower Marias Unit, Montana	49,013,000	30,706,132	5,559,000	3,568,000	9,179,868
Narrows Unit, Colorado	159,655,000	4,875,023	782,000	-	153,997,977
North Loup Division, Nebraska	133,700,000	2,081,305	5,246,000	4,130,000	122,242,695
Oahe Unit, South Dakota	490,000,000	41,673,754	3,488,000	-	444,838,246
O'Neill Unit, Nebraska	188,140,000	2,680,693	5,138,000	3,758,000	176,563,307
Riverton Unit, Wyoming	22,700,000	8,093,627	4,343,000	2,889,000	7,374,373
Drainage and Minor Construction:					
Bostwick Division, Nebraska-Kansas	56,947,000	50,089,640	1,783,000	1,078,000	3,996,360
Dickinson Unit, North Dakota	4,410,256	140,256	1,014,000	3,256,000	-
East Bench Unit, Montana	24,230,000	22,752,685	56,000	50,000	1,371,315
Farwell Unit, Nebraska.	38,484,000	36,533,415	615,000	803,000	532,585
Frenchman-Cambridge Division, Nebraska	82,689,239	82,173,425	186,000	145,000	184,814
Helena Valley Unit, Montana.	16,017,947	15,468,947	249,000	200,000	100,000
Owl Creek Unit, Wyoming.	6,860,428	6,375,785	70,000	70,000	344,643
Yellowtail Unit, Montana-Wyoming	100,905,000	93,898,263	381,000	-	6,625,737
TOTAL OBLIGATIONS	$2,580,605,507	$890,309,398	$56,824,000	$21,015,000	$1,612,457,109

1/ Appropriations will be requested for FY 1979 when unresolved legal and international questions are resolved.

Appropriation Title: Construction and Rehabilitation--Pick-Sloan Missouri Basin Program

SUMMARY OF ADVANCE PLANNING PROGRAM FY 1978 AND FY 1979

Project	FY 1978 Program	FY 1979 Program
Pollock-Herreid Unit, South Dakota	522,000	250,000
Shoshone Extensions Unit, Polecat Bench Area, Wyoming	300,000	400,000
Total Program	822,000	650,000
Method of Financing:		
Allotment available or required	800,000	650,000
Application of Prior Year Funds	22,000	--
Total Financing	822,000	650,000

Purpose of Program: Subsequent to authorization of a Bureau of Reclamation project, additional detailed studies are generally required to refine the findings of the feasibility report and evolve a definite plan of development prior to start of construction. The major portion of this work consists of collecting final design data, preparation of final designs and specifications and completion of the definite plan report. It also includes negotiations with local interests leading to execution of repayment contracts. This advance planning program will finance detailed preconstruction studies on the Pollock-Herreid Unit and Shoshone Extensions Unit, Polecat Bench Area prior to the availability of construction funds. Presentations by projects are on the pages which follow.

REGION Upper Missouri

PROJECT DATA SHEET

PF-86 (11-76) Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
ADVANCE PLANNING - PICK-SLOAN MISSOURI BASIN PROGRAM POLLOCK-HERREID UNIT, SOUTH DAKOTA	1/	1/	1-1-78

AUTHORIZATION	BENEFIT COST RATIOS		
	Based on Direct Benefits 2/	Based on Total Benefits	Date
Public Law 94-228, March 11, 1976	1.2	2.3 2/	1-1-78

LAND CERTIFICATION	DEFINITE PLAN REPORT
Scheduled for July 1979	Scheduled for April 1979

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 8/	$ 30,000,000	Allotments to September 30, 19 77	$ 99,605
Total Federal Obligations (Other)		Allotments for F.Y. 19 78	500,000
Net Property and Other Transfers	370,000		
Cash Advances--Non-Federal		Allotments to Date	599,605
Adjustment 3/	4,752,000	Allotments Required for F.Y. 19 79	250,000
Total to be Allocated	$ 35,122,000	Balance to Complete after F.Y. 19 79	$ 29,150,395

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 34,559,000	Amount Repaid by Irrigators 5/	$ 3,397,000	Irrig. Invest. per Acre	$ 2,304	Payment Capacity per Acre	$ 16.90
Power		Amount Repaid by Power 5/	31,162,000	Repayment of Investment per Acre:		Annual Charges:	
M & I Water	65,000	Amount Repaid by M & I Water 5/	65,000	By Irrigators	$ 226	O & M	$ 11.07
Recreation		Fish & Wildlife 5/	38,000	By Power Revenues	2,078	Construction	4.03
F & WL	145,000			By M & I Water Users			
Flood Control							
Other 6/	353,000	Nonreimbursable 7/	460,000				
Total	$ 35,122,000	Total	$ 35,122,000			Total	$ 15.10

STATUS OF REPAYMENT CONTRACT Repayment contract with Pollock-Herreid Irrigation District scheduled for execution December 1979, validation March 1980.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Projectwide - draft scheduled to Environmental Protection Agency February 1979; final scheduled for September 1979.

DESCRIPTION: The project is located in Campbell County in north-central South Dakota. The unit provides for diversion of water from the existing Oahe Reservoir on the Missouri River by means of a pumping plant to supply on-farm sprinkler irrigation for 15,000 acres of land, municipal and industrial water service for towns of Pollock and Herreid, South Dakota, and for fish and wildlife enhancement. The plan provides for the use of existing Lake Pocasse as a regulating reservoir, a system of canals and laterals, relift pumping plants, and a drainage system. The unit is in an area of low and variable rainfall, and irrigation will change the agricultural pattern from small grains to one of livestock, dairying, and cash crops. The diversification will contribute toward economic stability of the general area.

BR-242

PROJECT DATA SHEET--2
Pick-Sloan Missouri Basin Program, Pollock-Herreid Unit, South Dakota

OTHER INFORMATION: Funds to initiate advance planning were appropriated in FY 1977.

Footnotes:

1/ Advance Planning scheduled to be completed in FY 1979. It will take 6 years to construct this project.

2/ Changed from 0.95 direct benefits and 1.42 total benefits as presented in FY 1978 Budget Justifications. The increase is due to updating farm budgets which increased the benefits over the indexed costs. Benefit-cost ratio and benefits are based on January 1977 prices.

3/ Includes assigned costs of $3,579,000 for interest-free power investment for pumping power; $1,165,000 for main stem storage; and reimbursable interest during construction of $4,000 for municipal and industrial water, and $4,000 for fish and wildlife enhancement.

4/ Explanation of changes in allocation from FY 1978 Budget Justifications:

	1978 Estimate	1979 Estimate
Irrigation	$32,766,000	$34,559,000
Municipal and Industrial Water	60,000	65,000
Fish and Wildlife	125,000	145,000
Other. (Preauthorization Costs)	353,000	353,000
TOTAL	$33,304,000	$35,122,000

The change in total of $1,818,000 reflects application of cost indexing.

5/ The scheduled amount to be repaid will be covered by contract with the project beneficiaries before construction is initiated. The scheduled amount to be repaid by power is covered within the present Pick-Sloan Missouri Basin Program power rates schedule.

6/ Represents preauthorization costs under Public Law 92-149.

7/ Represents nonreimbursable costs for fish and wildlife of $107,000, and preauthorization investigation cost of $353,000 under Public Law 92-149.

8/ Appropriations authorized are $30,000,000 (January 1977). This authorization is adequate to cover the project as currently proposed.

Advance Planning

CONSTRUCTION AND REHABILITATION

PICK-SLOAN MISSOURI BASIN PROGRAM
POLLOCK-HERREID UNIT, SOUTH DAKOTA

Summarized Financial Data:

Total estimated advance planning program	$849,605
Obligations as of September 30, 1977	$ 77,605
FY 1978 program	522,000
FY 1979 program	250,000
Balance to complete after September 30, 1979	-0- 1/

Justification: The Pollock-Herreid Unit is located in an area where there is a low and variable rainfall that averages less than 15 inches per year which results in unstable crop yields. Adaptable crops are limited and yields vary greatly from year to year with the precipitation, placing restrictions on the diversity in farming operations and the raising of livestock. Development of irrigation will change the agricultural pattern primarily from wheat and small grain to a more diversified one of feeder and fattening livestock, dairying, and a variety of cash crops. With provision of water for irrigation, farmers can plan their operations with an assurance that their production would not vary greatly from year to year, and they would experience a security that is now lacking. The primary benefit from irrigation of the Unit would be economic stability.

South Dakota recently experienced the worst drought in 40 years. The situation in 1976 ranked with those of 1934 and 1936 in terms of severity. The total effect on the economy, if drought conditions continue, could be disastrous and thousands of farmers may be forced to give up farming and as many as 40,000 residents of South Dakota could be out of work. Development of the Pollock-Herreid Unit could enhance the population growth of the urban and rural areas as well as stimulate the whole economy of the State of South Dakota.

The project was authorized March 11, 1976, by Public Law 94-228.

Fiscal Year 1979	Program
Work Proposed. The definite plan report, a new draft environmental impact statement, and negotiating contractual repayment arrangements will be completed.	$250,000

1/ Advanced planning is scheduled to be completed in FY 1979.

REGION Upper Missouri

PROJECT DATA SHEET

PF-65 (11-76)
Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
PICK-SLOAN MISSOURI BASIN PROGRAM SHOSHONE EXTENSTIONS UNIT, POLECAT BENCH AREA, WYOMING	1/	1/	1-1-78

AUTHORIZATION
Public Law 94-228, March 11, 1976

LAND CERTIFICATION	DEFINITE PLAN REPORT	BENEFIT COST RATIOS: Based on Direct Benefits	Based on Total Benefits	Date
Scheduled for July 1979	Scheduled for September 1978	0.9 2/	1.3 2/	1-1-78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 8/	$ 52,410,000	Allotments to September 30, 19 77	$ 57,500
Total Federal Obligations (Other)		Allotments for F.Y. 1978	300,000
Net Property and Other Transfers	496,000		
Cash Advances--Non-Federal		Allotments to Date	357,500
Adjustment 3/	1,788,000	Allotments Required for F.Y. 19 79	400,000
Total to be Allocated	$ 54,694,000	Balance to Complete after F.Y. 1979	$ 51,652,500

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE		
Irrigation	$ 53,582,000	Amount Repaid by Irrigators 5/	$ 7,392,000	Irrig. Invest. per Acre	$ 2,791	Payment Capacity per Acre $ 15.60
Power		Amount Repaid by Power 5/	46,190,000	Repayment of Investment per Acre:		Annual Charges:
M & I Water		Amount Repaid by M & I Water		By Irrigators	$ 385	O & M $ 4.70
Recreation	304,000			By Power Revenues	2,406	Construction 7.70
F & WL	347,000			By M & I Water Users		
Flood Control		Reimbursable Recreation 5/	216,000			
Other 6/	461,000	Nonreimbursable 7/	896,000			
Total	$ 54,694,000	Total	$ 54,694,000			Total $ 12.40

STATUS OF REPAYMENT CONTRACT Repayment contract with Polecat Bench Irrigation District scheduled for execution September 1979; validation December 1979.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Projectwide filed with Council on Environmental Quality on October 22, 1970. The statement will be updated with advance planning studies. The updated statement is scheduled to Environmental Protection Agency - draft July 1978; final September 1979.

DESCRIPTION: The unit is located in the northeast corner of Park County, northwestern Wyoming. Polecat Bench is a high mesa. The development would provide a full water supply for the irrigation of 19,200 acres. Water would be supplied from the Shoshone River through joint use of Buffalo Bill Reservoir, Shoshone Canyon Conduit, and Heart Mountain Canal, existing facilities of the Shoshone Project. Heart Mountain Canal would deliver water to the proposed Polecat Canal, which would terminate in and deliver water to proposed Holden Reservoir. Other features include two small pumping plants, laterals, drains, and recreational facilities at Holden Reservoir.

OTHER INFORMATION: Funds to initiate planning were appropriated in fiscal year 1977. A major portion of the unit's 19,200 irrigable acres is presently held in private ownership of 8,030 acres by the Two Dot Ranching Corporation, 1,690 acres by the Burlington Northern Railroad, 440 acres by the State of Wyoming, and 3,530 acres by various small holders. These non-Federal lands need to be acquired and disposed of jointly along with Federal lands to promote the development of family-sized farms in compliance with Reclamation laws. At the present time, project support has been expressed by the Two Dot Ranching Corporation. The State of Wyoming continues to plan investigating the possibility of acquiring lands owned by the ranching corporation that will be eventually required for project development.

Footnotes:

1/ Advance planning is scheduled to be completed in FY 1979. It will take 9 years to construct this project.

2/ Total benefits changed from 1.28 as presented in the FY 1978 Budget Justifications due to rounding. No change in direct benefits. The increases in project benefits due to updating farm budgets were offset in whole by the increase in costs due to indexing. Benefit-cost ratio and benefits are based on January 1977 prices.

3/ Includes assigned costs of $1,476,000 for Shoshone Project; $306,000 for interest-free pumping power investment; and reimbursable interest during construction for recreation of $6,000.

4/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	1978 Estimate	1979 Estimate
Irrigation	$50,672,000	$53,582,000
Recreation	304,000	304,000
Fish and Wildlife	347,000	347,000
Other (preauthorization costs)	461,000	461,000
TOTAL	$51,784,000	$54,694,000

The change in total of $2,910,000 reflects application of cost indexing.

5/ The scheduled amount to be repaid will be covered by contract with the project beneficiaries before construction is initiated. The amount to be repaid by power is covered under present Pick-Sloan Missouri Basin Program power rate schedule.

6/ Represents preauthorization costs under Public Law 92-149.

7/ Includes $88,000 for recreation, $347,000 for fish and wildlife, and $461,000 for preauthorization costs under Public Law 92-149.

8/ The appropriations authorized are $52,410,000 (January 1977) for the construction of this unit of the Pick-Sloan Missouri Basin Program. This authorization is adequate to cover the currently proposed project construction.

Advance Planning

CONSTRUCTION AND REHABILITATION
PICK-SLOAN MISSOURI BASIN PROGRAM
SHOSHONE EXTENSIONS UNIT, POLECAT BENCH AREA, WYOMING

Summarized Financial Data:

Total estimated advanced planning program $757,500

Obligations as of September 30, 1977	$ 57,500
FY78 program	300,000
FY79 program	400,000
Balance to complete after September 30, 1979	-0- 1/

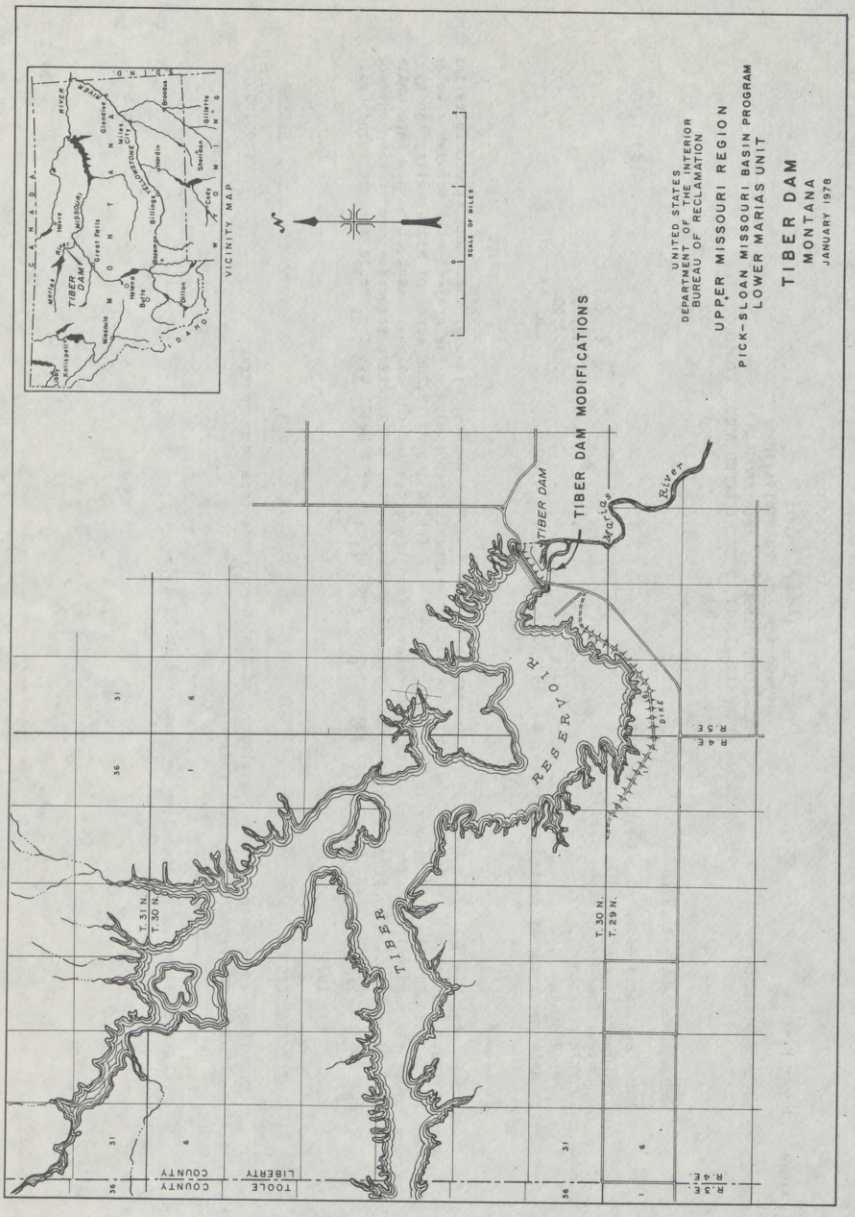
Justification:

The Polecat Bench Area is located in the northeast corner of Park County, Wyoming, where annual precipitation averages less than 8 inches per year which results in unstable crop yields. The project will furnish a water supply from Buffalo Bill Reservoir (66,600 acre-feet) for irrigation of 19,200 acres of high-quality lands, presently used only for grazing. Water and related land resources for the establishment of 80 new farm units will be provided. The proposed development will also enhance fish and wildlife resources and provide outdoor recreation opportunities. A municipal water supply for the city of Powell, Wyoming, could also be furnished. The project was authorized March 11, 1976, by Public Law 94-228.

FISCAL YEAR 1979

Work Proposed	Program
The final environmental impact statement will be completed, repayment contract executed, and design data collected.	$400,000

1/ Advance planning scheduled to be completed in FY 1979.


UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
UPPER MISSOURI REGION
PICK-SLOAN MISSOURI BASIN PROGRAM
LOWER MARIAS UNIT
TIBER DAM
MONTANA
JANUARY 1978
TIBER DAM MODIFICATIONS
VICINITY MAP
SCALE OF MILES
TIBER DAM
Marias River
TIBER RESERVOIR
DIKE
T. 31 N.
T. 30 N.
T. 29 N.
R. 3 E.
R. 4 E.
R. 5 E.
TOOLE COUNTY
LIBERTY COUNTY
CANADA
IDAHO
MONTANA
WYOMING
SOUTH DAKOTA
Great Falls
Havre
Helena
Butte
Billings
Hardin
Sheridan
Cody
Gillette
Broadus
Glendive
Miles City
Lake Kalispell
Missoula
Dillon
Bozeman
Marias River
Missouri River
Yellowstone River
Tiber Dam

PROJECT DATA SHEET

PP-65 (11-76) Bureau of Reclamation

REGION: Upper Missouri

PROJECT AND STATE: PICK-SLOAN MISSOURI BASIN PROGRAM, LOWER MARIAS UNIT, MONTANA

Completion Date	% Complete	Date
1982 1/	64 2/	1-1-78

AUTHORIZATION: Flood Control Act of 1944

BENEFIT COST RATIOS

Based on Direct Benefits	Based on Total Benefits	Date
0.8 3/	1.1 3/	1-1-78

LAND CERTIFICATION: Not required pending congressional auth. of irrig. works

DEFINITE PLAN REPORT: Approved September 12, 1952

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 10/	$ 49,013,000	Allotments to September 30, 19 77	$ 30,865,132
Total Federal Obligations (Other)		Allotments for F.Y. 19 78	5,400,000
Net Property and Other Transfers 4/	-1,461,598		
Cash Advances--Non-Federal		Allotments to Date	36,265,132
Adjustment		Allotments Required for F.Y. 19 79	3,568,000
Total to be Allocated	$ 47,551,402	Balance to Complete after F.Y. 1979	$ 9,179,868

ALLOCATIONS 5/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation 6/	$ 22,967,328	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$
Power		Amount Repaid by Power		Repayment of Investment per Acre:	
M & I Water	523,065	Amount Repaid by M & I Water 7/	523,065	By Irrigators	$
Recreation	1,854,504			By Power Revenues	
F & WL	1,426,542	Deferred Use 8/	22,967,328	By M & I Water Users	
Flood Control	20,779,963				
Other		Nonreimbursable 9/	24,061,009		
Total	$ 47,551,402	Total	$ 47,551,402		

Payment Capacity per Acre	$
Annual Charges:	
O & M	$
Construction	
Total	$

STATUS OF REPAYMENT CONTRACT: Contract not required since proposed plan provides for replacement of flood control storage in Tiber Dam and Lake Elwell. Repayment of dam modification costs deferred pending authorization of Marias-Milk Unit.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Negative Determination made on June 29, 1976.

DESCRIPTION: The unit is located on the Marias River in Liberty County, north-central Montana. The unit consists of Tiber Dam and Lake Elwell which were completed in 1956, and have since provided functions of flood control, recreation, fish and wildlife, and municipal and industrial water. Settlement of the crest section of Tiber Dam spillway followed initial filling of the reservoir and became a serious problem following the major flood of 1964. Measures to protect the structure consisting of closing off the existing spillway and converting the canal outlet into an auxiliary spillway were completed during the period 1967 to 1970, with restrictions on storage of water in the reservoir. The plan for permanent modification of the dam consists of constructing a new spillway structure and raising the dam and dike 5 feet to restore the original active conservation and flood control storage and to contain floods of the magnitude now projected.

BR-249

PROJECT DATA SHEET--2
Pick-Sloan Missouri Basin Program, Lower Marias Unit, Montana

OTHER INFORMATION: Funds to initiate preconstruction planning for Lower Marias Unit were appropriated in fiscal year 1945 and for construction in fiscal year 1952. Funds to initiate Tiber Dam modification work were appropriated in fiscal year 1976.

Active conservation space to be restored in Lake Elwell is 390,000 acre-feet, a major part of which was initially intended for irrigation. It is now planned that the irrigation storage be allocated on an interim basis to flood control which is needed for the Pick-Sloan Missouri Basin Program reservoir system. Studies show that benefit values of $275,000 annually would be realized from the additional replacement flood control versus $849,000 for irrigation. The additional flood control storage would be of major importance during periods that the system reservoirs are fully taxed, such as the case in 1975 when high runoff resulted in reservoirs spilling and the resulting uncontrolled discharges caused flooding. Replacement flood control water later released could be used for power production at the downstream hydropowerplants. When demands for irrigation or other uses of water develop in the future, such as for the proposed multipurpose Marias-Milk Unit, the interim flood control allocation would be reduced to provide a water supply for these uses.

Footnotes:

1/ Completion date of 1981 for modification of Tiber Dam and spillway sam as presented in FY 1978 Budget Justifications. Improved appearance of project facilities and expansion of basic health and safety facilities now estimated 1982.

2/ The work now scheduled involves modification of Tiber Dam and spillway initially built in 1956.

3/ Change from 1.08 total benefits as presented in the FY 1978 Budget Justifications reflects rounding. The ratio based on direct benefits remains unchanged.

4/ Represents costs for abandoned investigations and transfers associated with modification work on Tiber Dam and spillway built in 1956.

5/ No change in allocations from FY 1978 Budget Justifications.

6/ Allocation based on anticipated future irrigation development.

7/ The scheduled amount to be repaid by the M&I water is covered by existing contracts with Tiber County Water District, Devon Water, Inc., and Dugout Water Association.

8/ Repayment of these costs deferred pending further development of associated project. These costs are associated with irrigation benefits to be derived from the proposed Marias-Milk Unit. Repayment will be by irrigators and the Pick-Sloan Missouri Basin Program funds.

9/ Includes nonreimbursable recreation, $1,854,504; fish and wildlife, $1,426,542; and flood control, $20,779,963.

10/ The appropriation ceiling for this unit was included as a part of the total authorized to be appropriated by Public Law 92-371 for the Pick-Sloan Missouri Basin Program. The total amount authorized to be appropriated to complete the balance of the program is $195,219,000 (January 1977). The current estimated requirement is $170,169,791. The appropriations requested for FY 1979 will bring the total amount appropriated to $115,635,935. This authorization is adequate to cover this project as proposed.

P-S MBP, LOWER MARIAS UNIT, MONTANA
PHYSICAL DATA ON STRUCTURES

COMPLETED WORK:

Tiber Dam and Lake Elwell

Dam:
Type - Zoned Earthfill
Structural Height - 205 Feet
Crest Length - 4,300 Feet
Base Width (Maximum) - 1,300 Feet

Spillway:
Type - Gated, concrete crest and concrete-lined open channel
Design Discharge - 54,250 Cubic Feet Per Second

Reservoir Capacity:
Total Storage - 1,424,478 Acre-feet

Dike:
Type - Zoned Earthfill
Structural Height - 60 Feet
Crest Length - 17,000 Feet
Base width (Maximum) - 310 Feet

CONSTRUCTION PROGRAM:

Tiber Dam Modifications

Modification of Spillway:
Type - Gated, concrete crest and concrete-lined open channel
Design Discharge - 68,500 Cubic Feet Per Second

Right-of-Way

Quantity - 2,400 Acres
Total Estimated Cost - $1,200,000
Cost Per Acre - $500
Acquisition - 0% complete as of September 30, 1977

Relocations

No major relocations required

PF-81 (12-68)
Bureau of Reclamation

Appropriation Title: Construction and Rehabilitation

PICK-SLOAN MISSOURI BASIN PROGRAM
LOWER MARIAS UNIT, MONTANA

FISCAL YEAR 1979

Work Proposed — Program

Tiber Dam Modifications. Provides for continuation of modification of Tiber Dam spillway. Acquisition of right-of-way and preconstruction work will also continue for raising the dam and dike. $3,481,000

Temporary Camp. For continued lease payments of trailers at Tiber Dam. Details of fund requirements are as follows: 87,000

Item	Total estimated cost	September 30, 1977	1978	1979	Balance to complete
Portable family dwellings and garages	$453,777	$107,484	$88,000	$87,000	$171,293
Utilities	146,223	146,223	--	--	--
Total	$600,000	$253,707	$88,000	$87,000	$171,293

Total $3,568,000

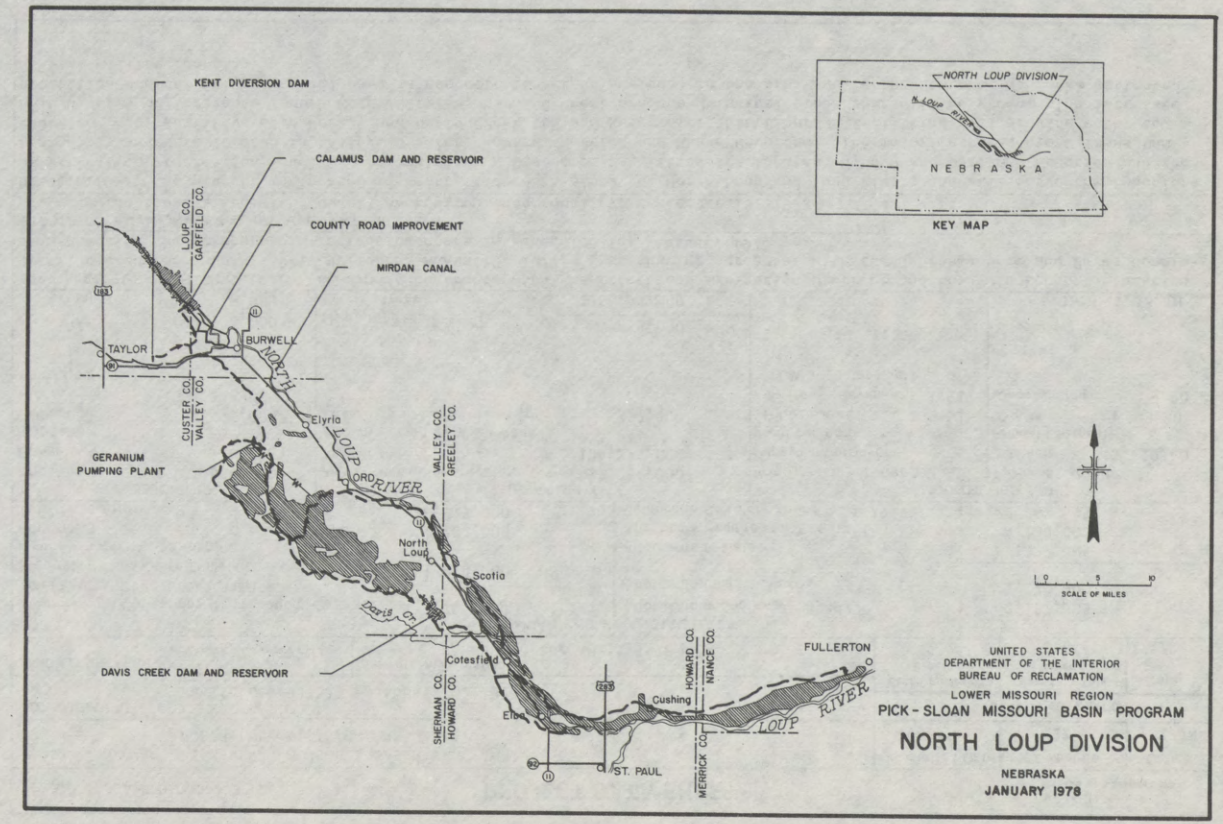
PICK-SLOAN MISSOURI BASIN PROGRAM, LOWER MARIAS UNIT, MONTANA

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 19 78, AND FISCAL YEAR 19 79

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM					
Completed Work 1/	$24,451,402	$24,451,402	$ --	$ --	$ --
Tiber Dam Modifications	20,900,000	3,241,503	6,932,000	3,481,000	7,245,497
Minimum Basic Health and Safety Facilities	2,200,000	--	--	--	2,200,000
Temporary Camp	600,000	253,707	88,000	87,000	171,293
Service Facilities, Depreciation & Salvage	-600,000	-4,272	-127,000	--	-468,728
Engineering and Design	(1,000,000)	(470,000)	(300,000)	(200,000)	(30,000)
Supervision and Administration	(3,191,000)	(726,737)	(643,000)	(778,000)	(1,670,263)
Total Construction and Project Cost	47,551,402	27,942,340	6,893,000	3,568,000	9,148,062
Consolidated Expenditures and Credits	1,461,598	1,430,166	-374	--	31,806
Total Expenditures	49,013,000	29,372,506	6,892,626	3,568,000	9,179,868
Undelivered Orders	--	1,333,626	-1,333,626	--	--
Total Obligations	49,013,000	30,706,132	5,559,000	3,568,000	9,179,868
Method of Financing:					
Appropriation available and required	--	--	5,400,000	3,568,000	9,179,868
Prior year balance available	--	--	159,000	--	--

1/ Includes Tiber Dam and Reservoir, Tiber Dam Modifications, General Property, Minimum Basic Health and Safety Facilities, and Temporary Camp.


KENT DIVERSION DAM
CALAMUS DAM AND RESERVOIR
COUNTY ROAD IMPROVEMENT
MIRDAN CANAL
LOUP CO.
GARFIELD CO.
TAYLOR
BURWELL
NORTH LOUP RIVER
CUSTER CO.
VALLEY CO.
Elyria
GERANIUM PUMPING PLANT
VALLEY CO.
GREELEY CO.
North Loup
Scotia
Davis Cr.
DAVIS CREEK DAM AND RESERVOIR
Cotesfield
SHERMAN CO.
HOWARD CO.
Elba
ST. PAUL
HOWARD CO.
NANCE CO.
Cushing
FULLERTON
MERRICK CO.
LOUP RIVER
NORTH LOUP DIVISION
NEBRASKA
KEY MAP
SCALE OF MILES
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
LOWER MISSOURI REGION
PICK-SLOAN MISSOURI BASIN PROGRAM
NORTH LOUP DIVISION
NEBRASKA
JANUARY 1978

REGION Lower Missouri	**PROJECT DATA SHEET**	PF-65 (11-76) Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
PICK-SLOAN MISSOURI BASIN PROGRAM NORTH LOUP DIVISION, NEBRASKA	1987 1/	2%	1/1/78

AUTHORIZATION	BENEFIT COST RATIOS		
Public Law 92-514, October 20, 1972	Based on Direct Benefits 2.2 2/	Based on Total Benefits 2.6 2/	Date 1/1/78

LAND CERTIFICATION	DEFINITE PLAN REPORT
April 20, 1976	Scheduled for April 1978

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 9/	$ 133,700,000	Allotments to September 30, 1977	$ 2,157,305
Total Federal Obligations (Other)	---	Allotments for F.Y. 1978	5,170,000
Net Property and Other Transfers	1,870,000		
Cash Advances--Non-Federal	---	Allotments to Date	7,327,305
Adjustment 3/	1,203,000	Allotments Required for F.Y. 1979	4,130,000
Total to be Allocated	$ 136,773,000	Balance to Complete after F.Y. 1979	$ 122,242,695

ALLOCATIONS 4/		REPAYMENT 6/		AMOUNTS PER ACRE			
Irrigation	$ 131,558,000	Amount Repaid by Irrigators	$ 27,284,000	Irrig. Invest. per Acre	$ 2,482	Payment Capacity per Acre	$ 19.40
Power	---	Amount Repaid by Power	104,274,000	Repayment of Investment per Acre:		Annual Charges:	
M & I Water	---	Amount Repaid by M & I Water	---	By Irrigators	$ 515	O & M	$ 8.20
Recreation	1,075,000	Reimbursable Recreation	357,000	By Power Revenues	1,967	Construction	9.90
F & WL	1,142,000			By M & I Water Users			
Flood Control	---						
Other 5/	2,998,000	Nonreimbursable 7/	4,858,000				
Total	$ 136,773,000	Total	$ 136,773,000			Total	$ 18.10

STATUS OF REPAYMENT CONTRACT Repayment contracts with the Twin Loups Irrigation District and the Twin Loups Reclamation District executed June 4, 1976, validated August 2, 1977. 8/ Cost-sharing agreement with the Nebraska Game and Parks Commission covering the reimbursable recreation costs is scheduled for February 1978.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS:
Project-wide final filed with Council on Environmental Quality, September 18, 1972.

DESCRIPTION: The project is located in central Nebraska along the North Loup and Loup Rivers and will serve the functions of irrigation, recreation, and fish and wildlife. Diversion facilities are located in Loup and Garfield Counties and the irrigable lands are located in Valley, Greeley, Howard, Merrick and Nance Counties. The major features are Calamus Dam and Reservoir, Kent Diversion Works, and Davis Creek Dam and Reservoir. Distribution facilities will provide water to 53,000 acres of irrigable land. Corn, alfalfa, hay and wheat are the principal crops that will be grown. The increased production due to irrigation will have an economic impact to business in the area and in the State of Nebraska estimated at $111 million annually.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in fiscal year 1974 and for construction in fiscal year 1976. Construction began in June, 1976, with execution of road improvement contracts. Four landowners in the project area have filed suits in U.S. District Court (Civil Actions 76-L-170 and 76-L-189) challenging the legality of the repayment contracts and the adequacy of the environmental impact statement. Court trial has been rescheduled for the fall session beginning in October 1978. All construction work is continuing to proceed as scheduled.

Footnotes:

1/ Initial water for irrigation service scheduled for May, 1984, a delay of one year from FY 1978 Budget Justification due to the scheduling of construction of Calamus Dam with two contracts to provide better design. Project completion scheduled 1987.

2/ Changed from 1.6 direct benefits and 1.9 total benefits as presented in the FY 1978 Budget Justifications. The increase is due to updating benefits and indexing costs. The increase in benefits, which are based on current agricultural price standards, exceeded the cost increase due to indexing.

3/ Includes $1,191,000 for interest-free power investment for pumping power; and reimbursable interest during construction of $12,000 for recreation.

4/ Explanation of changes in allocations from the FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$121,476,000	$131,558,000
Recreation	1,066,000	1,075,000
Fish and Wildlife	1,140,000	1,142,000
Other	2,918,000	2,998,000
TOTAL	$126,600,000	$136,773,000

The total change of $10,173,000 in the allocation is due to cost indexing.

5/ Represents nonreimbursable preauthorization investigation costs of $1,668,000 and $1,330,000 for cultural resources activities (Public Law 93-291).

6/ Of the amount to be repaid $27,284,000 is covered by existing contracts; $357,000 will be repaid by a nonfederal source in accordance to Public Law 89-72 (Cost-sharing agreement with the Nebraska Game and Parks Commission is scheduled for February 1978); and the balance, $104,274,000, is covered with power rates currently in effect for the Pick-Sloan Missouri Basin Program.

Footnotes: (Continued)

7/ Includes nonreimbursable fish and wildlife $1,142,000; recreation $718,000; $1,668,000 preauthorization investigation costs; and $1,330,000 for cultural resources activities.

8/ Four land owners have appealed the validation to the Nebraska Supreme Court. The appeal is expected to be heard in the spring of 1978.

9/ The appropriations authorized are $133,813,000 (January 1977) for the construction of this division of the Pick-Sloan Missouri Basin Program. This authorization is adequate to cover the currently proposed project construction.

PICK-SLOAN MISSOURI BASIN PROGRAM
NORTH LOUP DIVISION, NEBRASKA

PHYSICAL DATA ON STRUCTURES

COMPLETED WORK:

Access Road to Calamus Damsite

Type - Asphalt Concrete

Length - 6.5 Miles

CONSTRUCTION PROGRAM:

Calamus Dam and Reservoir

Dam:
Type - Earthfill
Structural Height - 115 Feet
Crest Length - 6,400 Feet
Base Width - 560 Feet, Max.

Spillway:
Type - Morning Glory
Design Discharge - 2,760 Cubic Feet Per Second

Reservoir Capacity:
Total Storage - 128,200 Acre-feet

Davis Creek Dam and Reservoir

Dam:
Type - Earthfill
Structural Height - 138 Feet
Crest Length - 2,900 Feet
Base Width - 690 Feet, Max.

Spillway:
Type - Morning Glory
Design Discharge - 430 Cubic Feet Per Second

Reservoir Capacity:
Total Storage - 32,500 Acre-feet

Kent Diversion Works

Dam:
Type - Concrete and Rolled Earth
Structure Height - 9 Feet
Crest Length - 1,000 Feet
Diversion Capacity - 500 Cubic Feet Per Second

Spillway:
Type - Concrete Ogee
Design Discharge - 3,610 Cubic Feet Per Second

Reservoir Capacity:
Total Storage - None

Geranium Pumping Plant

4 Units - Total Capacity 160 cubic feet per second at 110 feet head

Canals	Length Miles	Capacity Cubic feet per second	Service Area Acres
Kent Canal	4	500	Feeder Canal
Mirdan Canal	47	720-240	11,890
Geranium Canal	18	160-24	8,700
Scotia Canal	34	240-12	11,850
Fullerton Canal	49	440-12	16,680
Elba Canal	10	80-12	3,880

Lateral Distribution System Length - About 213 Miles, Capacity - 80 to 4 cubic feet per second

Rights-of-Way

Quantity - 19,674 Acres
Total Estimated Cost - $11,012,000
Cost per Acre - $560
Acquisition - No rights-of-way have been acquired as of January 1, 1978.

Relocation

Total Estimated Cost - $3,000,000
Percent Complete - No relocations have been accomplished as of January 1, 1978.

Appropriation Title: Construction and Rehabilitation

PICK-SLOAN MISSOURI BASIN PROGRAM
NORTH LOUP DIVISION, NEBRASKA

FISCAL YEAR 1979

Work Proposed	Program
Calamus Dam and Reservoir. For construction of Calamus Dam foundation and the completion of right-of-way acquisition.	$ 3,330,000
Davis Creek Dam and Reservoir. Preconstruction work will continue.	50,000
Diversion Works, Pumping Plant, and Various Canals, Laterals, and Surface Drains. For the continued acquisition of right-of-way for Mirdan Canal and collection of field data and preconstruction activities.	690,000
Subsurface Drains, Recreational Development and Permanent Operating Facilities. Preconstruction work will continue.	40,000
Service Facilities, Depreciation, and Salvage. For the purchase of automotive, work, and laboratory equipment.	20,000
TOTAL	$4,130,000

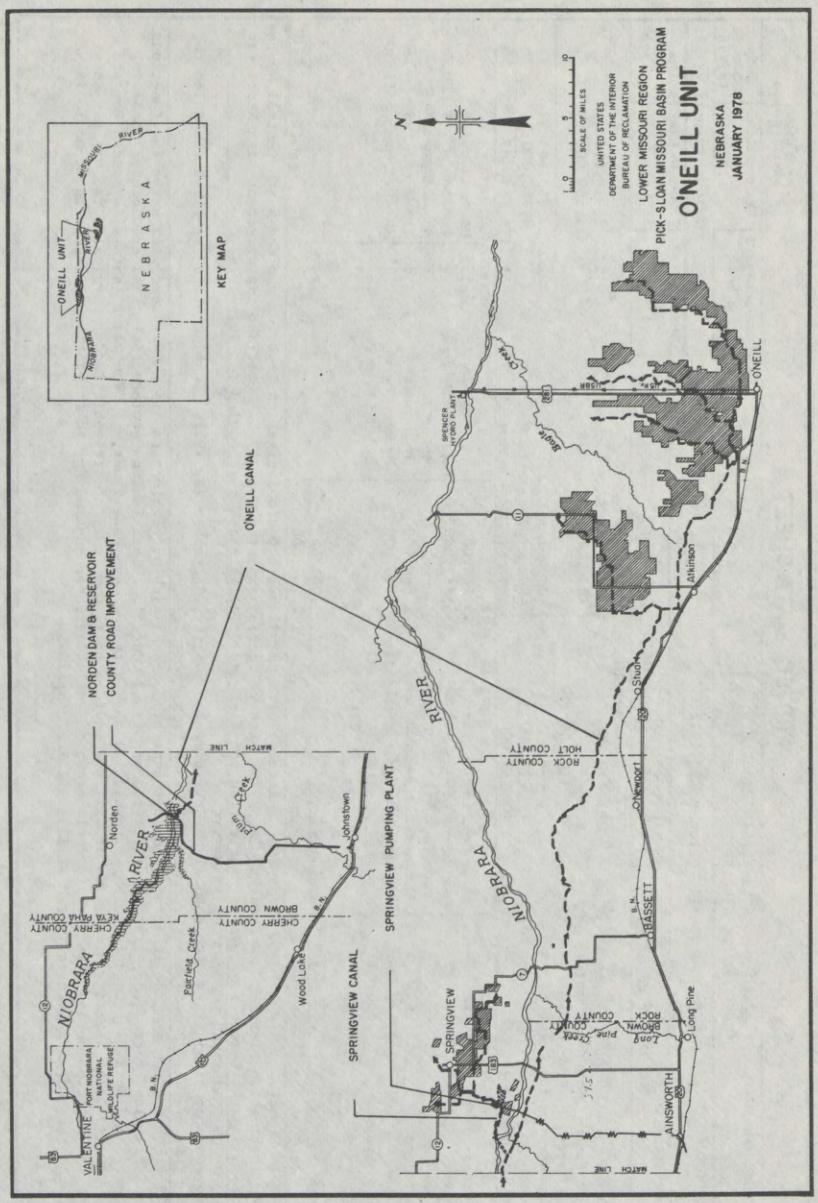
PICK-SLOAN MISSOURI BASIN PROGRAM, NORTH LOUP DIVISION - NEBRASKA

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Construction Program					
Calamus Dam and Reservoir	35,460,000	1,191,446	4,375,266	3,330,000	26,563,288
Davis Creek Dam and Reservoir	14,830,000	147,516	60,000	50,000	14,572,484
Diversion Works, Pumping Plant, Canals, Laterals, and Surface Drains	77,200,000	698,994	620,000	690,000	75,191,006
Subsurface Drains	3,220,000	19,387	10,000	20,000	3,170,613
Recreational Development	700,000	11,081	5,000	10,000	673,919
Permanent Operating Facilities	1,463,000	12,917	5,000	10,000	1,435,083
O&M Housing	87,000	-	-	-	87,000
Service Facilities, Depreciation, and Salvage		71,737	195,000	20,000	-286,737
Engineering and Design	(14,600,000)	(3,178,122)	(1,320,000)	(1,200,000)	(8,901,878)
Supervision and Administration	(20,376,000)	(159,833)	(300,000)	(450,000)	(19,466,167)
Relocation Costs	(3,000,000)	-	-	-	(3,000,000)
Total Construction Cost	132,960,000	2,153,078	5,270,266	4,130,000	121,406,656
Other Project Costs	2,610,000	1,668,323	-	-	941,677
Total Project Cost	135,570,000	3,821,401	5,270,266	4,130,000	122,348,333
Consolidated Expenditures and Credits	-1,870,000	-1,764,362	-	-	-105,638
Total Expenditures	133,700,000	2,057,039	5,270,266	4,130,000	122,242,695
Undelivered Orders	-	24,266	-24,266	-	-
Total Obligations	133,700,000	2,081,305	5,246,000	4,130,000	122,242,695
Method of Financing:					
Appropriations available and required	-	-	5,170,000	4,130,000	122,242,695
Prior year balance available	-	-	76,000	-	-

BR-261


O'NEILL UNIT
NEBRASKA
JANUARY 1978
SCALE OF MILES
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
LOWER MISSOURI REGION
PICK-SLOAN MISSOURI BASIN PROGRAM
KEY MAP
NEBRASKA
O'NEILL UNIT
MISSOURI RIVER
NIOBRARA RIVER
O'NEILL CANAL
NORDEN DAM & RESERVOIR
COUNTY ROAD IMPROVEMENT
SPRINGVIEW PUMPING PLANT
SPRINGVIEW CANAL
SPENCER HYDRO PLANT
NIOBRARA RIVER
VALENTINE
FORT NIOBRARA NATIONAL WILDLIFE REFUGE
Norden
Johnstown
Wood Lake
Fairfield Creek
Plum Creek
CHERRY COUNTY
KEYA PAHA COUNTY
BROWN COUNTY
MATCH LINE
SPRINGVIEW
AINSWORTH
Long Pine
Long Pine Creek
BASSETT
Newport
Stuart
Atkinson
O'NEILL
Bagle Creek
ROCK COUNTY
HOLT COUNTY
B.N.

PROJECT DATA SHEET

REGION Lower Missouri

PF-68 (11-76) Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
PICK-SLOAN MISSOURI BASIN PROGRAM O'NEILL UNIT, NEBRASKA	1989 1/	2%	1/1/78

AUTHORIZATION	BENEFIT COST RATIOS		
Public Law 92-514, October 20, 1972	Based on Direct Benefits	Based on Total Benefits	Date
LAND CERTIFICATION: March 29, 1976 — DEFINITE PLAN REPORT: Approved March 24, 1977	2.7 2/	3.2 2/	1/1/78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 8/	$ 188,140,000	Allotments to September 30, 1977	$ 3,318,693
Total Federal Obligations (Other)	---	Allotments for F.Y. 1978	4,500,000
Net Property and Other Transfers	1,350,000		
Cash Advances--Non-Federal	---	Allotments to Date	7,818,693
Adjustment 3/	2,771,000	Allotments Required for F.Y. 1979	3,758,000
Total to be Allocated	$ 192,261,000	Balance to Complete after F.Y. 1979	$ 176,563,307

ALLOCATIONS 4/		REPAYMENT 6/		AMOUNTS PER ACRE			
Irrigation	$ 181,127,000	Amount Repaid by Irrigators	$ 45,245,000	Irrig. Invest. per Acre	$ 2,353	Payment Capacity per Acre	$ 20.40
Power	---	Amount Repaid by Power	135,882,000	Repayment of Investment per Acre:		Annual Charges:	
M & I Water	---	Amount Repaid by M & I Water	---	By Irrigators	$ 588	O & M	$ 7.40
Recreation	4,962,000	Reimbursable Recreation	1,660,000	By Power Revenues	1,765	Construction	11.30
F & WL	2,670,000	Reimbursable Fish & Wildlife	413,000	By M & I Water Users			
Flood Control	650,000						
Other 5/	2,852,000	Nonreimbursable 7/	9,061,000				
Total	$ 192,261,000	Total	$ 192,261,000			Total	$ 18.70

STATUS OF REPAYMENT CONTRACT: Repayment contracts with the Niobrara Basin Irrigation District and the North Central Nebraska Reclamation District executed May 18, 1976, with validation expected July 1978. Cost-sharing agreement with Nebraska Game and Parks Commission covering recreation and fish and wildlife cost is scheduled for July 1978.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS:
Project-wide final filed with Council on Environmental Quality, September 22, 1972. Supplement to the final scheduled to be filed March 1978 with the Environmental Protection Agency.

DESCRIPTION: The project is located in northcentral Nebraska within the Niobrara River Basin and will serve the functions of irrigation, recreation, fish and wildlife, and flood control. Diversion and storage facilities are located in Brown, Cherry, and Keya Paha Counties with irrigable lands in Holt and Keya Paha Counties. The major feature is Norden Dam and Reservoir on the Niobrara River. Water will be provided to 77,000 acres of irrigable land. Corn, alfalfa, hay and wheat are the principal crops that are presently grown. The increased production due to irrigation will have an economic impact on the state of Nebraska estimated at $191 million annually.

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OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1974 and for initiation of construction in FY 1976. Construction started May 24, 1976 with execution of a road improvement contract. Save the Niobrara River Association, Inc. filed a complaint June 26, 1975, in U.S. District Court requesting an injunction prohibiting the Bureau of Reclamation from any further activity on the project until the final environmental impact statement (FES) has been amended to conform to the National Environmental Policy Act. Judicial action on the complaint found the FES deficient in four areas and an injunction was issued by U.S. District Court on March 4, 1977. Work is progressing on supplementing the FES in these areas and is scheduled for completion in March 1978. All scheduled construction work has been stopped.

Footnotes:

1/ Initial water for irrigation service is planned for May 1985 while project completion is scheduled in 1989. This represents a delay of one year from the projection stated in the FY 1978 Budget Justifications due to the U.S. District Court enjoining construction until the environmental impact statement has been completed.

2/ Changed from 1.7 direct benefits and 1.9 total benefits as presented in the FY 1978 Budget Justifications. The increase is due to updating benefits and indexing costs. The increase in benefits, which are based on current agricultural price standards, exceeded the cost increase due to indexing.

3/ Includes $2,668,000 for interest-free power investment for pumping power, and reimbursable interest during construction of $80,000 for recreation, and $23,000 for fish and wildlife enhancement.

4/ Explanation of change in allocations from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$ 169,602,000	$ 181,127,000
Recreation	4,830,000	4,962,000
Fish and Wildlife	2,602,000	2,670,000
Flood Control	634,000	650,000
Other	2,807,000	2,852,000
TOTAL	$ 180,475,000	$ 192,261,000

The total change of $11,786,000 in the allocations is due to cost indexing.

5/ Represents nonreimbursable preauthorization investigation costs of $1,047,000 and $1,805,000 for cultural resource activities (Public Law 93-291).

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PROJECT DATA SHEET--3
PICK-SLOAN MISSOURI BASIN PROGRAM
O'Neill Unit, Nebraska

Footnotes: (Continued)

6/ Of the amount to be repaid $45,245,000 is covered by existing contracts; $2,073,000 ($1,660,000 reimbursable recreation and $413,000 reimbursable Fish and Wildlife) will be repaid by a nonfederal source in accordance with Public Law 89-72 (Cost-sharing agreement with the Nebraska Game and Parks Commission is scheduled for July 1978); and the balance, $135,882,000, is covered with power rates currently in effect for the Pick-Sloan Missouri Basin Program.

7/ Includes nonreimbursable fish and wildlife $2,257,000; flood control $650,000; recreation $3,302,000; $1,047,000 preauthorization investigation costs; and $1,805,000 for cultural resources activities.

8/ The appropriations authorized are $188,640,000 (January 1977), for the construction of this unit of the Pick-Sloan Missouri Basin Program. This authorization is adequate to cover the currently proposed project construction.

PICK-SLOAN MISSOURI BASIN PROGRAM
O'NEILL UNIT, NEBRASKA

PHYSICAL DATA ON STRUCTURES

CONSTRUCTION PROGRAM:

Norden Dam and Reservoir

Dam:
Type - Rolled Earth
Structural Height - 247 feet
Crest Length - 3,700 feet
Base Width - 1,250 feet

Spillway:
Type - Morning Glory
Design Discharge - 8,800 Cubic feet per second

Reservoir Capacity:
Total Storage - 411,000 Acre-feet

O'Neill Canal

Concrete lined, Length 63.3 miles, Capacity 1400 to 1240 cubic feet per second

Springview Forebay Dam

Dam:
Typed - Rolled Earth
Structural Height - 91 feet
Crest Length - 375 feet
Base Width - 376 feet

Spillway:
Type - Morning Glory
Design Discharge - 140 Cubic feet per second

Reservoir Capacity:
Total Storage - 170 Acre-feet

Springview Pumping Plant

Number of Pumping Units - 6

Total Capacity - 132 Cubic feet per second

Static head - 300 feet

Canals	Length Miles	Capacity Cubic feet per second	Service Area Acres
Springview Canal	18	130 to 4	8,000
O'Neill Subcanal	40	850 to 6	29,000
Atkinson Canal	17	350 to 4	18,000
Eagle Canal	16	220 to 4	12,000
Blackbird Canal	16	170 to 6	10,000
Lateral Distribution System	195	80 to 4	

Rights-of-Way

Quantity - 30,264 Acres
Total Estimated Cost - $14,150,000
Cost per Acre - $468
Acquisition - No rights-of-way have been acquired as of January 1, 1978.

Relocation

Total Estimated Cost - $1,840,000
Percent Complete - No relocations have been accomplished as of January 1, 1978.

Appropriation Title: Construction and Rehabilitation

PICK-SLOAN MISSOURI BASIN PROGRAM
O'NEILL UNIT, NEBRASKA

FISCAL YEAR 1979

Work Proposed		Program
Norden Dam and Reservoir. The program provides for continued acquisition of right-of-way for Norden Dam and Reservoir and award of the contract for construction of Norden Dam foundation. Improvement of the county road for access to Norden Dam will be completed. Salvage of cultural resources will be undertaken if necessary.		$2,850,000
O'Neill Canal. For right-of-way acquisition, collection of field data, and preconstruction activities.		350,000
Springview Area - Springview Pump, Canal, Laterals and Surface Drains.	) Preconstruction work will continue	100,000
O'Neill-Atkinson Area - Canals, Laterals and Surface Drains.	)	200,000
Recreational Development and Fish and Wildlife Facilities. For acquisition of right-of-way.		250,000
Service Facilities, Depreciation and Salvage. For purchase of laboratory and office equipment and servicing automotive equipment.		8,000
TOTAL		$ 3,758,000

PICK-SLOAN MISSOURI BASIN PROGRAM, O'NEILL UNIT - NEBRASKA

PP-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Construction Program					
Norden Dam and Reservoir	51,140,000	1,106,510	4,081,889	2,850,000	43,101,601
O'Neill Canal	71,170,000	797,127	300,000	350,000	69,722,873
Springview Area - Springview Pump, Canal, Laterals, and Surface Drains	14,490,000	169,200	45,000	100,000	14,175,800
O'Neill - Atkinson Area, Canals, Laterals, and Surface Drains	42,490,000	495,359	130,000	200,000	41,664,641
Subsurface Drains	2,080,000	24,902	10,000	---	2,045,098
Permanent Operating Facilities	1,262,000	14,570	10,000	---	1,237,430
O&M Housing	58,000	285	---	---	57,715
Fish and Wildlife Facilities	1,570,000	16,000	450,000	50,000	1,054,000
Recreational Development	3,190,000	37,726	100,000	200,000	2,852,274
Service Facilities, Depreciation, and Salvage	---	---	60,000	8,000	-68,000
Engineering and Design	(17,500,000)	(2,911,631)	(973,000)	(858,000)	(12,757,369)
Supervision and Administration	(30,340,000)	(170,908)	(200,000)	(400,000)	(29,569,092)
Relocation Costs	(1,840,000)	---	---	---	(1,840,000)
Total Construction Cost	187,450,000	2,661,679	5,186,889	3,758,000	175,843,432
Other Project Costs	2,040,000	1,046,977	---	---	993,023
Total Project Cost	189,490,000	3,708,656	5,186,889	3,758,000	176,836,455
Consolidated Expenditures and Credits	-1,350,000	-1,076,852	---	---	-273,148
Total Expenditures	188,140,000	2,631,804	5,186,889	3,758 000	176,563,307
Undelivered Orders	---	48,889	-48,889	---	---
Total Obligations	188,140,000	2,680,693	5,138,000	3,758,000	176,563,307
Method of Financing:					
Appropriations available and required	---	---	4,500,000	3,758,000	176,563,307
Prior year balance available	---	---	638,000	---	---

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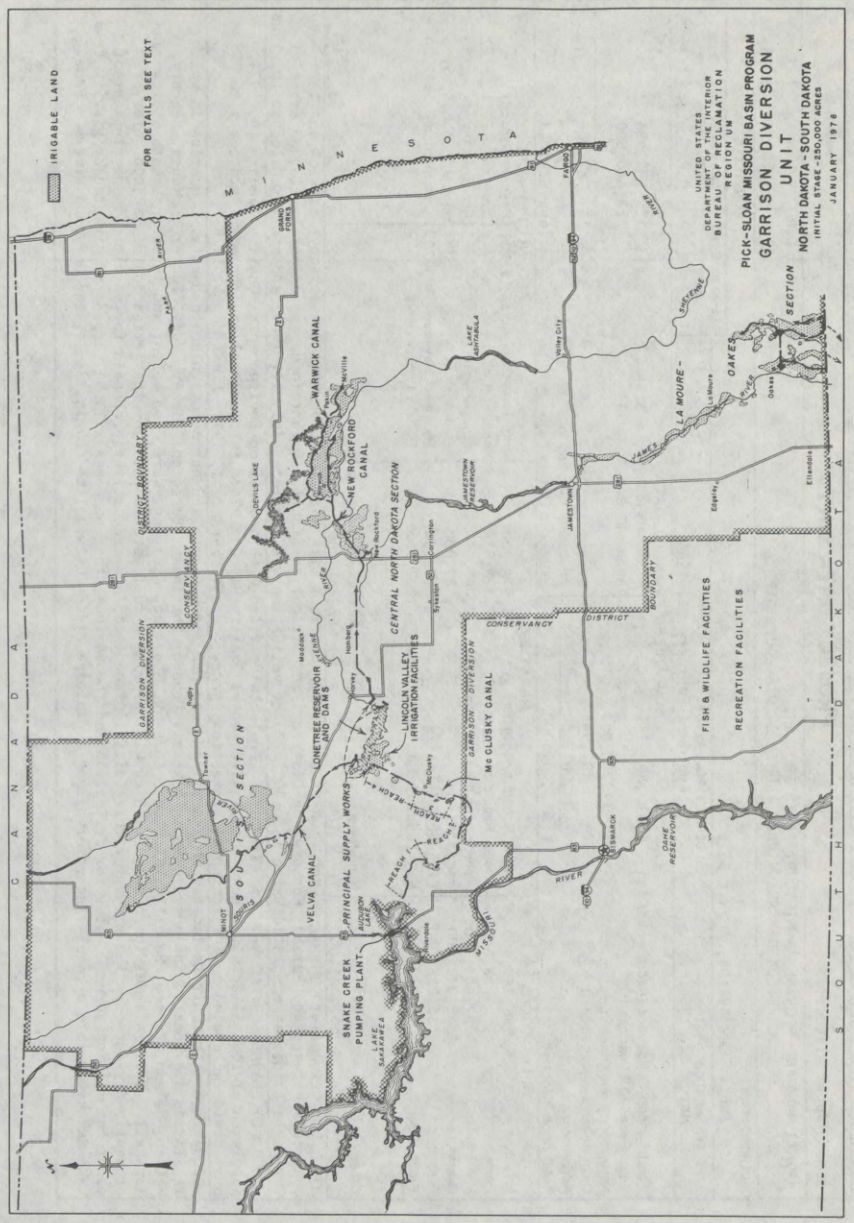

IRIGABLE LAND
FOR DETAILS SEE TEXT
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
REGION UM
PICK-SLOAN MISSOURI BASIN PROGRAM
GARRISON DIVERSION
UNIT
NORTH DAKOTA - SOUTH DAKOTA
INITIAL STAGE - 250,000 ACRES
JANUARY 1978
MINNESOTA
CANADA
SOUTH DAKOTA
GRAND FORKS
FARGO
WARWICK CANAL
NEW ROCKFORD CANAL
DEVILS LAKE
CENTRAL NORTH DAKOTA SECTION
LAKE ASHTABULA
JAMESTOWN RESERVOIR
JAMESTOWN
LA MOURE - OAKES SECTION
Valley City
Edgeley
Ellendale
Oakes
La Moure
Carrington
Sykeston
Hamberg
Maddock
Harvey
LONETREE RESERVOIR AND DAMS
LINCOLN VALLEY IRRIGATION FACILITIES
GARRISON DIVERSION
CONSERVANCY DISTRICT
BOUNDARY
FISH & WILDLIFE FACILITIES
RECREATION FACILITIES
McCLUSKY CANAL
McCLUSKY
SOURIS SECTION
VELVA CANAL
PRINCIPAL SUPPLY WORKS
AUDUBON LAKE
SNAKE CREEK PUMPING PLANT
LAKE SAKAKAWEA
WINOT
Towner
Rugby
GARRISON DIVERSION
CONSERVANCY
DISTRICT BOUNDARY
MISSOURI RIVER
BISMARCK
OAHE RESERVOIR
SHEYENNE RIVER
JAMES RIVER
PARK RIVER
SOURIS RIVER
REACH 1
REACH 2
REACH 3
REACH 4

REGION Upper Missouri

PROJECT DATA SHEET

PF-65 (11-76)
Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
PICK-SLOAN MISSOURI BASIN PROGRAM, GARRISON DIVERSION UNIT, NORTH DAKOTA-SOUTH DAKOTA	1/	20	1-1-78

AUTHORIZATION	BENEFIT COST RATIOS		
Public Law 89-108, August 5, 1965	Based on Direct Benefits	Based on Total Benefits	Date
LAND CERTIFICATION: March 12, 1966 / DEFINITE PLAN REPORT: Approved February 21, 1966	1.9 2/	3.5 2/	1-1-78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation)	11/	$ 612,392,034	
Total Federal Obligations (Other)			
Net Property and Other Transfers		11,200,000	
Cash Advances--Non-Federal	3/	207,966	
Adjustment	4/	38,561,000	
Total to be Allocated		$ 662,361,000	

Allotments to September 30, 19 77	$ 129,102,986
Allotments for F.Y. 19 78	18,660,000
Allotments to Date	147,762,986
Allotments Required for F.Y. 19 79 10/	0
Balance to Complete after F.Y. 1979	$ 464,629,048

ALLOCATIONS 5/	
Irrigation	$ 536,789,000
Power 6/	38,000
M & I Water	32,005,000
Recreation	32,311,000
F & WL	55,255,000
Flood Control	2,813,000
Other 8/	3,150,000
Total	$ 662,361,000

REPAYMENT	
Amount Repaid by Irrigators 7/	$ 19,296,000
Amount Repaid by Power 7/	517,323,034
Amount Repaid by M & I Water 7/	32,005,000
Recreation 7/	3,387,000
Fish and Wildlife 7/	1,390,000
Non-Federal Contributions 3/	207,966
Nonreimbursable 9/	88,752,000
Total	$ 662,361,000

AMOUNTS PER ACRE			
Irrig. Invest. per Acre	$ 2,147	Payment Capacity per Acre	$ 6.69
Repayment of Investment per Acre:		Annual Charges:	
By Irrigators	$ 77	O & M	$ 5.25
By Power Revenues	2,070	Construction	1.20
By M & I Water Users		Total	$ 6.45

STATUS OF REPAYMENT CONTRACT: Execution of the master contract with Garrison Diversion Conservancy District and three-way contracts between the Bureau, Conservancy District, and irrigation districts, containing approximately 113,000 acres of irrigable land, was completed March 16, 1966. Court validation was completed July 26, 1966, and confirmed August 10, 1966.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Projectwide filed with Council on Environmental Quality January 10, 1974. Supplemental-F&WL filed with Council on Environmental Quality May 3, 1974. Supplemental environmental statement to projectwide scheduled to Environmental Protection Agency - draft February 1, 1978; final May 1, 1978.

DESCRIPTION: The unit is located in central and eastern North Dakota and northeastern South Dakota. Counties in which facilities are located include, in North Dakota - Benson, Bottineau, Burleigh, Dickey, Eddy, Foster, LaMoure, McHenry, McLean, Nelson, Ramsey, Renville, Richland, Sargent, Sheridan, Stutsman, Ward, and Wells; and in South Dakota - Brown and Marshall. This is a multipurpose unit which will provide a full water supply for the irrigation of 250,000 acres, presently dry-farmed. The plans for this initial stage take into account the proposals for an ultimate development of about one million acres. Water for irrigation and the various other purposes will be pumped, or diverted by gravity from Lake Sakakawea into a regulating reservoir on a drainage divide between the Souris, James, and Sheyenne Rivers. From

there, water will be released as needed along the three streams. The plan provides for restoration of Devils and Stump Lakes, for pollution abatement, municipal and industrial water, recreation, conservation of fish and wildlife, and flood control.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in fiscal year 1966 and for construction in fiscal year 1967. An appropriation of $1,000,000 was provided in fiscal year 1976 to accelerate studies to develop more definitive answers with respect to the effects of the Garrison Diversion Unit on the quantity and quality of flows in the Souris, Red, and James Rivers as a sound basis for environmental decision related to construction of the unit. The result of the study was submitted to Congress June 1, 1976. These studies indicate that while there will be some adverse effects due to the result of return flows from the project, the overall effect will be beneficial.

Canada has expressed concern about the effect of project return flows and claimed that flows would violate the water quality provisions of the 1909 Boundary Waters Treaty. Meetings have been held between United States and Canadian representatives to discuss return flows and effects on water quality. As a result of these meetings, the Governments of Canada and the United States requested on October 22, 1975, the International Joint Commission (IJC) to investigate and report on the trans-boundary effects of the completion and operation of the unit, and to recommend measures that might be taken, if necessary, in ensuring that the unit will not cause injury to health or property in Canada. The Commission's study board report was submitted on December 14, 1976, with a final Commission report to the two Governments on September 19, 1977. The Commission's report is being reviewed so consultations can begin. The report recommends that: the risk of interbasin biota transfer be eliminated; that further modifications, research, monitoring, and mitigation for water quality be incorporated; and that appropriate water quality agreements be negotiated.

On May 27, 1976, the National Audubon Society, Inc. filed suit (Civil No. 76-0943) against further construction and land acquisition on the Garrison Diversion Unit. Under the Stipulation and Court Order agreed to on May 11, 1977, the Secretary of the Interior made a commitment to complete a comprehensive supplementary environmental statement that describes all reasonable alternatives for the project. A draft environmental statement will be completed on or about February 1, 1978, filed with the Environmental Protection Agency (EPA) and accompany proposed legislation to Congress requesting authorization of an option for project development, or reauthorization or deauthorization of the project. The final environmental statement is to be filed with EPA within 90 days after filing of the draft. A fish and wildlife mitigation plan will also be submitted within the proposed legislation. The Stipulation also provides for completion of McClusky Canal while the above actions take place, but does not allow construction or land acquisition beyond McClusky Canal except for 8 parcels of land in Lonetree Reservoir area.

On October 3, 1977, the Secretary of Interior advised the Court that he intends to abide by the stipulation and Order Agreement of May 11, 1977. An amount of $11.3 million is programmed in fiscal year 1978 for new contract awards in accordance with the accepted project plan which can be awarded when problems are resolved.

The State of North Dakota and the Garrison Diversion Conservancy District filed suit (Civil No. A77-1048) in Supreme Court for the State of North Dakota June 16, 1977. The State's action requested that the Court issue an Order to Show Cause why respondents (Cecil D. Andrus and Warren Jamison) should not be temporarily enjoined from violating contractural rights of the petitioners.

The Supreme Court of the State of North Dakota issued an Order, dated June 22, 1977, setting a hearing for July 21 to determine (1) whether or not that Court had jurisdiction to consider such a petition, (2) whether or not that Court should exercise original jurisdiction if it has jurisdiction, and (3) whether or not that Court should grant a temporary injunction. The suit was moved to U.S. District Court July 15, 1977, at the request of the Federal Government.

A motion filed in U.S. District Court for the District of Columbia (Civil No. 76-0943) by the National Audubon Society sought an injunction restraining the State of North Dakota from proceeding with their action (No. A77-1048). The Court denied plaintiff (Aububon) motion on September 26, 1977. The State filed a motion October 4, 1977, to remand the case to the North Dakota Supreme Court. Respondents filed a motion to dismiss and supporting memorandum on October 28, 1977, in U.S. District Court for the State of North Dakota.

Petitioners served a motion in U.S. District Court for the State of North Dakota on November 10, 1977, to amend petition and to substitute parties. Parties have agreed that oral arguments on the motion are not necessary. The Court is expected to rule on the motion in the near future. A hearing on the suit has not yet been scheduled.

Footnotes:

1/ Initial water service for features of the unit are not firm.

2/ Changed from 1.7 direct benefits and 2.9 total benefits as presented in the FY 1978 Budget Justifications. The benefit-cost ratio has been updated to recognize January 1977 benefits, including new farm budgets, and cost indexing. Increase in benefits exceeds increase in costs. The computations reflect the project as authorized by P.L. 89-108.

3/ Funds advanced by Garrison Diversion Conservancy District for construction of district headquarters building.

4/ Includes interest-free pumping power investment of $17,148,000; main-stem storage cost of $19,410,000; interest during construction for municipal and industrial water of $2,002,000; and interest during construction of $1,000 associated with assigned costs for potential power at Jamestown Dam.

Footnotes: (Continued)

5/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	1978 Estimate	1979 Estimate
Irrigation	$497,989,000	$536,789,000
Power	38,000	38,000
Municipal and Industrial Water	29,816,000	32,005,000
Recreation	30,116,000	32,311,000
Fish and Wildlife	51,405,000	55,255,000
Flood Control	2,813,000	3,813,000
Other	3,150,000	3,150,000
TOTAL	$615,327,000	$622,361,000

The change in total of $47,034,000 reflects increases of $43,019,000 for cost indexing, and $4,015,000 for erosion damage repairs and for fish screen and trash structure requirements for McClusky Canal.

6/ Represents assigned costs of Jamestown Dam for potential power.

7/ The scheduled amount to be repaid is covered by existing contracts with the projects beneficiaries. The amount to be repaid by power is covered within the present Pick-Sloan Missouri Basin Program power rate schedule.

8/ Includes $2,800,000 for construction of highways to current standards under P.L. 93-251, and $350,000 for cultural resources protection under P.L. 93-291.

9/ Includes $53,865,000 fish and wildlife; $28,924,000 recreation; $2,813,000 flood control; $2,800,000 for construction of highways to current standards under P.L. 93-251; and $350,000 for cultural resources activities under P.L. 93-291.

10/ Appropriations will be requested when environmental studies are completed and accepted modifications have been developed.

11/ The appropriations authorized total $596,622,000 (January 1977) for the construction of this unit. The current estimate of appropriations required is $612,392,000 which exceeds the ceiling by $15,770,000. Additional appropriation ceiling will be requested at such time it appears certain that this difference is firm and that the project will not be completed within the authorized ceiling limitation. This difference at present is less than the amount of the contingency in the balance to complete.

PICK-SLOAN MISSOURI BASIN PROGRAM, GARRISON DIVERSION UNIT, NORTH DAKOTA-SOUTH DAKOTA

PHYSICAL DATA ON STRUCTURES

COMPLETED FACILITIES:

Jamestown Reservoir and Dam

Dam:
Type - Earthfill
Hydraulic Height - 64 feet
Crest Length - 1,420 feet
Base Width - 780 feet

Spillway:
Type - Morning Glory
Design Discharge - 2,930 Cubic feet per second

Reservoir Capacity:
Total Storage - 380,000 Acre-feet

CONSTRUCTION PROGRAM:

Principal Supply Works

Snake Creek Pumping Plant

Capacity - 2,050 Cubic feet per second
Static Head - 75 feet (Maximum)

McClusky Canal Capacity - 1,950 cubic feet per second, Length - 73.7 Miles.

Lonetree Reservoir and Dams

Lonetree Dam:
Type - Earthfill
Structural Height - 90 feet
Crest Length - 3,200 feet
Base Width - 540 feet

Spillway:
Type - None

Reservoir Capacity:
Total Storage - 424,700 Acre-feet

Wintering Dam:
Type - Earthfill
Structural Height - 40 feet
Crest Length - 5,180 feet
Base Width - 320 feet

PICK-SLOAN MISSOURI BASIN PROGRAM, GARRISON DIVERSION UNIT, NORTH DAKOTA-SOUTH DAKOTA--2

PHYSICAL DATA ON STRUCTURES

Principal Supply Works (Continued)

James River Dike:
Type - Earthfill
Structural Height - 27 feet
Crest Length - 940 feet
Base Width - 170 feet

Souris Section

Velva Canal Length - 86.0 Miles, Capacity - 2,000 - 160 cubic feet per second.

Karlsruhe Irrigation Area- Distribution system 39 miles, drains 64 miles, service area 12,200 acres.

Middle Souris Irrigation Area - Distribution system 279 miles, Drains 1,024 miles, service area 103,800 acres.

Oakes Section

Oakes Pumping Plant - Capacity - 320 cubic feet per second, Static Head - 31 feet.

West Side Irrigation Facilities - Distribution system 51 miles, Drains 121 miles, Service Area 19,770 acres.

Taayer Reservoir, Dike & Pumping Plant

Taayer Reservoir and Dike

Dam:
Type - Earthfill
Structural Height - 20 feet
Crest Length - 4,300 feet
Base Width - 360 feet

Spillway:
Type - None

Reservoir Capacity:
Total Storage - 38,000 Acre-feet

Taayer Pumping Plant Capacity - 490 cubic feet per second, Static Head - 26 feet.

East Side Irrigation Facilities Distribution System - 62 miles, Drains - 179 Miles, Irrigable acres - 26,210.

PHYSICAL DATA ON STRUCTURES

LaMoure Section

LaMoure Irrigation Area Distribution System - 39 miles, Drains - 67 miles, Irrigable acres - 13,350.

Central North Dakota Section

New Rockford Canal Length - 53.0 Miles, Capacity - 1,100 cubic feet per second.

James River Feeder Canal Length - 3.0 miles, Capacity - 450 cubic feet per second.

James River Improvement Length - 191 Miles, Capacity - 450 cubic feet per second.

Warwick-McVille Irrigation Area Distribution system - 178 Miles, Drains - 338 Miles, Irrigable acres - 47,220.

Devils Lake and Stump Lake Canals Length - 21 Miles, Capacity - 400 and 200 cubic feet per second.

New Rockford Irrigation Area Distribution system - 44 Miles, Drains - 179 Miles, Irrigable acres - 20,935.

Lincoln Valley Irrigation Area Distribution system - 15 Miles, Drains - 108 Miles, Irrigable acres - 6,515.

Right-of-Way

Quantity - 330,800 Acres
Total Estimated Cost - $82,620,000
Cost Per Acre - $250
Acquisition - 17 percent complete as of January 1, 1978

Relocations

Total Estimated Cost - $9,640,000
Percent Complete - 54 percent complete as of January 1, 1978

Items:

	Length	Total Cost	Cost to 9-30-77
County and State Highways	77	$8,230,000	$5,038,000
Utilities	139	1,410,000	162,000
		$9,640,000	$5,200,000

Appropriation Title: Construction and Rehabilitation

PICK-SLOAN MISSOURI BASIN PROGRAM
GARRISON DIVERSION UNIT, NORTH DAKOTA-SOUTH DAKOTA

FISCAL YEAR 1979

Work Proposed

The fiscal year 1979 request includes no funds for the Garrison Diversion Unit. Delays have occurred in the construction of this unit due to unresolved legal, environmental, and international questions. The amount of funding that would be required in fiscal year 1979, if the related problems are satisfactorily resolved and construction can proceed, will depend on the time of their resolution, and, therefore, cannot be estimated at this time. If the resolution of the problems indicate the need for additional funding, a timely request will be made to Congress.

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM					
Completed Work 1/	3,727,379	3,727,379	--		--
Principal Supply Works					
Snake Creek Pumping Plant	20,900,000	19,410,471	300,000		1,189,529
McClusky Canal	71,000,000	64,440,866	6,559,000		134
Lonetree Reservoir and Dams	32,310,000	14,739,830	8,400,000		9,170,170
Souris Section					
Velva Canal	39,900,000	914,162	100,000		38,885,838
Karlsruhe Irrigation Facilities	13,870,000	573,600	100,000		13,196,400
Middle Souris Irrigation Facilities	120,340,000	5,140,151	400,000		114,799,849
Oakes Section					
Oakes Pumping Plant	4,470,000	248,662	1,200,000		3,021,338
West Side Irrigation Facilities	25,950,000	2,653,386	1,600,000		21,696,614
Taayer Reservoir, Dike and Pumping Plant	8,010,000	261,874	300,000		7,448,126
East Side Irrigation Facilities	40,010,000	2,192,119	300,000		37,517,881
LaMoure Section					
Irrigation Facilities	18,510,000	1,149,909	500,000		16,860,091
Central North Dakota Section					
New Rockford Canal	24,310,000	956,455	500,000		22,853,545
James River Feeder Canal	1,080,000	63,555	100,000		916,445
James River Improvement	8,840,000	407,258	500,000		7,932,742
Warwick-McVille Irrigation Facilities	63,540,000	1,851,699	300,000		61,388,301
Devils Lake and Stump Lake Canals	7,260,000	92,440	100,000		7,067,560
New Rockford Irrigation Facilities	15,870,000	784,681	800,000		14,285,319
Lincoln Valley Irrigation Facilities	10,570,000	591,508	300,000		9,678,492

1/ Jamestown Dam and Reservoir.

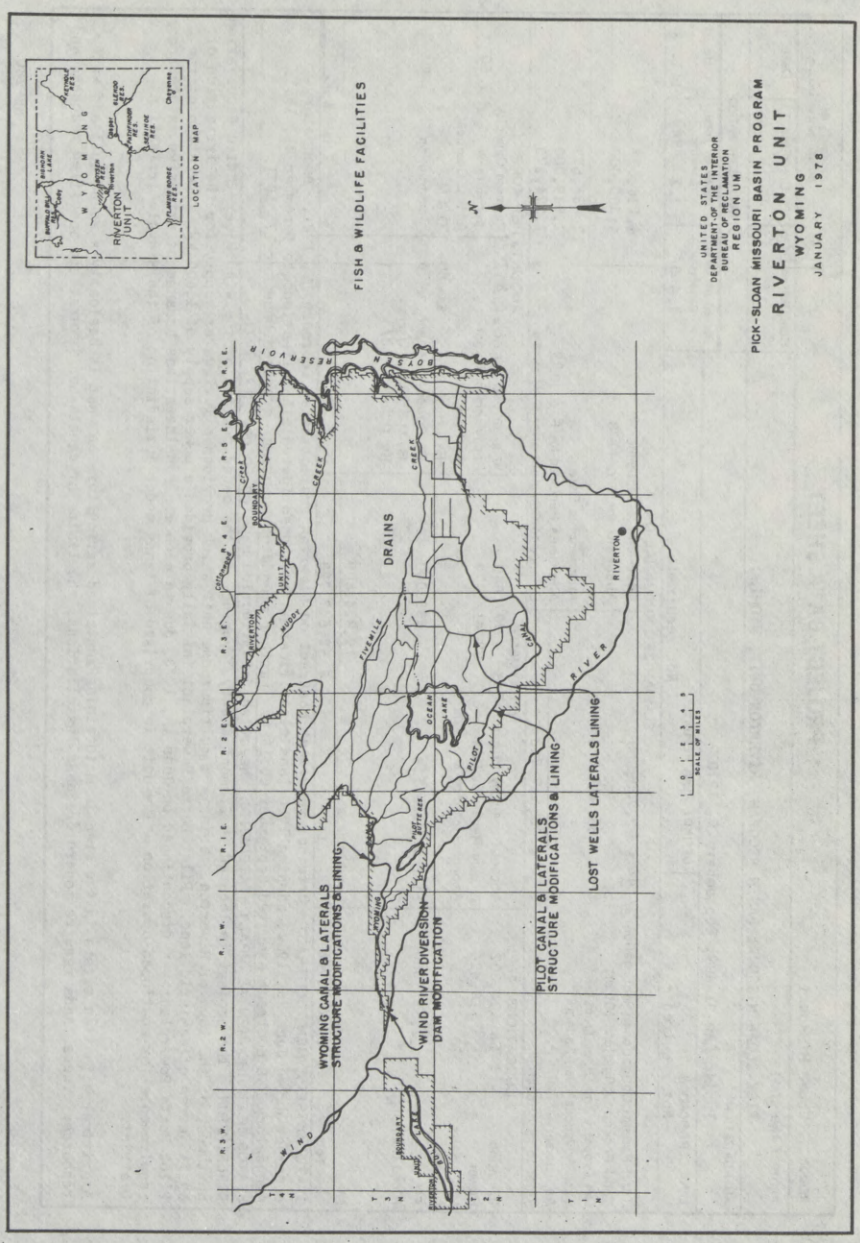
BR-278

24-040 O - 78 - 32

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 19 78 , AND FISCAL YEAR 19 79

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 1978 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM (Continued)					
General Facilities					
Permanent Operating Facilities	9,240,000	1,778,766	1,600,000		5,861,234
Fish and Wildlife Facilities	68,310,000	4,974,402	4,005,000		59,330,598
Recreation Facilities	9,740,000	2,410,603	800,000		6,529,397
Temporary Camps	500,000	86,496	--		413,504
Service Facilities, Depreciation and Salvage	-700,000	147,319	122,600		-969,919
Engineering and Design	(42,300,000)	(23,950,000)	(7,840,000)		(12,226,000)
Supervision and Administration	(60,300,000)	(22,630,000)	(3,500,000)		(32,070,000)
Relocations	(9,440,000)	(5,200,000)	(100,000)		(2,050,000)
Total Construction Cost	617,557,379	129,597,591	28,886,600		459,073,188
Other Project Costs	6,242,621	166,799	250,119		5,825,703
Total Project Cost	623,800,000	129,764,390	29,136,719		464,898,891
Consolidated Expenditures and Credits	-11,200,000	-10,930,157	--		-269,843
Total Expenditures	612,600,000	118,834,233	29,136,719		464,629,048
Undelivered Orders	--	3,847,719	-3,847,719		--
Total Obligations	612,600,000	122,681,952	25,289,000		464,629,048
Method of Financing:					
Advance non-Federal	--	207,966	--	--	--
Appropriation available and required	--	--	18,660,000	--	464,629,048
Application of prior year funds	--	--	6,629,000	--	--


FISH & WILDLIFE FACILITIES
LOCATION MAP
RIVERTON UNIT
WYOMING
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
REGION UM
PICK-SLOAN MISSOURI BASIN PROGRAM
RIVERTON UNIT
WYOMING
JANUARY 1978
DRAINS
WYOMING CANAL & LATERALS
STRUCTURE MODIFICATIONS & LINING
WIND RIVER DIVERSION
DAM MODIFICATION
PILOT CANAL & LATERALS
STRUCTURE MODIFICATIONS & LINING
LOST WELLS LATERALS LINING
RIVERTON
RIVER
WIND
BOYSEN RESERVOIR
OCEAN LAKE
PILOT
FIVEMILE
CREEK
MUDDY
CANAL
SCALE OF MILES

REGION Upper Missouri	**PROJECT DATA SHEET**	PF-65 (11-76) Bureau of Reclamation		
PROJECT AND STATE PICK-SLOAN MISSOURI BASIN PROGRAM, RIVERTON UNIT, WYOMING		Completion Date 1/	% Complete 45 2/	Date 1-1-78
AUTHORIZATION Public Law 91-409, September 25, 1970		BENEFIT COST RATIOS		
		Based on Direct Benefits 1.4 3/	Based on Total Benefits 2.1 3/	Date 1-1-78
LAND CERTIFICATION Not required	DEFINITE PLAN REPORT Not required			

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 2/ 9/	$ 22,700,000	Allotments to September 30, 1977	$ 8,136,627
Total Federal Obligations (Other)		Allotments for F.Y. 1978	4,300,000
Net Property and Other Transfers 4/	30,947,728		
Cash Advances--Non-Federal		Allotments to Date	12,436,627
Adjustment		Allotments Required for F.Y. 1979	2,889,000
Total to be Allocated	$ 53,647,728	Balance to Complete after F.Y. 1979	$ 7,374,373

ALLOCATIONS 5/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 50,604,302	Amount Repaid by Irrigators 6/	$ 4,777,040	Irrig. Invest. per Acre	$ 847	Payment Capacity per Acre	$ 5.60
Power	510,426	Amount Repaid by Power 6/	28,412,879	Repayment of Investment per Acre:		Annual Charges:	
M & I Water		Amount Repaid by M & I Water		By Irrigators	$ 80	O & M	$ 4.00
Recreation				By Power Revenues	456	Construction	1.60
F & WL	2,533,000	Fish & Wildlife 6/	633,000	By M & I Water Users			
Flood Control				By Others 8/	311		
Other		Nonreimbursable 7/	19,824,809				
Total	$ 53,647,728	Total	$ 53,647,728			Total	$ 5.60

STATUS OF REPAYMENT CONTRACT Original repayment contract on Riverton Project dated February 12, 1931. Amendatory contract dated June 26, 1952, adopted 1950 land classification and consolidated all obligations to December 31, 1951. Amendatory R&B contract executed September 6, 1956. Further amendatory contract executed December 17, 1971.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Negative Determination made on October 19, 1971.

DESCRIPTION: The project is located in Fremont County, Wyoming, on the ceded portion of the Wind River Indian Reservation northwest of the town of Riverton. This is a multipurpose unit which provides a full water supply for the irrigation of 59,713 acres of semiarid land. Pilot Butte Powerplant initially provided a power supply of 1,600 kW. Operation of the Pilot Butte Powerplant was discontinued on June 15, 1973, due to economic considerations because of extensive maintenance requirements for continued operation. The unit is comprised of lands under jurisdiction of the Midvale Irrigation District.

A critical situation exists in the area in maintaining sustained agriculture on what is basically a sound soil and water resource. These lands require modern drainage installations, the lining of canals and laterals in specified reaches, and

due to the alkaline content of the soil, the replacement or modification of many structures built 30 to 40 years ago. The crops presently grown are cereals, forage, and cash crops of beans and sugar beets. It is anticipated that during construction and after completion the same crops will be produced.

OTHER INFORMATION: Funds to initiate preconstruction planning as well as construction were appropriated in fiscal year 1973.

Footnotes:

1/ The work program for rehabilitation and modification of existing facilities will be completed in fiscal year 1981. Drainage construction and fish and wildlife facilities will be constructed as the need arises with completion scheduled in fiscal year 1982.

2/ The work now scheduled involves construction of modern drainage installations, lining of canals and laterals in certain reaches, and replacement or modification of many structures built 30 to 40 years ago.

3/ No change from 1.4 direct benefits and 2.1 total benefits as presented in FY 1978 Budget Justifications. The ratios remain unchanged due to updating the farm budgets which increased the benefits which was offset by indexed costs estimates. The benefit-cost ratios are based on January 1977 prices.

4/ Work completed on Riverton Project under the Riverton construction program includes construction of a powerplant, three dams, and irrigation facilities consisting of canals, laterals, and drains and related facilities. Also, the completed work includes rehabilitation and betterment construction on the Bull Lake and Pilot Butte Dams, and the irrigation facilities in the First and Second Divisions. The cost of the completed work has been included in the total to be allocated.

5/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	1978 Estimate	1979 Estimate
Irrigation	$49,837,302	$50,604,302
Power	510,426	510,426
Fish and Wildlife	2,400,000	2,533,000
TOTAL	$52,747,728	$53,647,728

The change in total of $900,000 reflects application of cost indexing.

6/ The scheduled amounts to be repaid by irrigators and fish and wildlife are covered by existing contracts with the Midvale Irrigation District and Wyoming Game and Fish Commission. The amount to be repaid by power is covered under the present Pick-Sloan Missouri Basin Program power rate schedule.

7/ Represents nonreimbursable costs associated with the completed plan of Riverton Project consisting of $16,255,000 of charge-offs and purchase of unproductive lands, irrigation repayment of $1,458,520 prior to January 1, 1971, $185,289 for contributions in aid of construction, $1,900,000 for nonreimbursable fish and wildlife facilities, $26,000 for nonreimbursable cost for investigations requested by Congress to determine whether there are sufficient lands capable of sustained production under irrigation.

8/ Reflects nonreimbursable costs associated with completed work on the project consisting of all costs enumerated in footnote 7/ except $1,900,000 for nonreimbursable fish and wildlife facilities.

9/ The appropriations authorized are $22,700,000 (January 1977) for the construction of this unit of the Pick-Sloan Missouri Basin Program. This authorization is adequate to cover the currently proposed project construction.

P-S MBP, RIVERTON UNIT, WYOMING
PHYSICAL DATA ON STRUCTURES

COMPLETED WORK:

Bull Lake Dam

Dam:
Type - Modified homogeneous earthfill
Structural Height - 81 Feet
Crest Length - 3,456 Feet
Base Width (Maximum) - 544 Feet

Spillway:
Type - Gated, concrete-lined open channel
Design Discharge - 11,000 Cubic Feet Per Second

Reservoir Capacity:
Total Storage - 152,000 Acre-feet

Pilot Butte Dams

Dam Embankment No. 1:
Type - Zoned Earthfill
Structural Height - 51 Feet
Crest Length - 1,300 Feet
Base Width (Maximum) - 220 Feet

Spillway:
Type - Uncontrolled concrete-lined open channel
Design Discharge - 500 Cubic Feet Per Second

Reservoir Capacity:
Total Storage - 37,000 Acre-feet

Dam Embankment No. 2:
Type - Zoned Earthfill
Structural Height - 25 Feet
Crest Length - 1,200 Feet
Base Width (Maximum) - 200 Feet

Spillway:
In right abutment of main embankment (Embankment No. 1)

Reservoir Capacity:
Included in Dam Embankment No. 1

Dam Embankment No. 3:
Type - Zoned Earthfill
Structural Height - 12 Feet
Crest Length - 3,400 Feet
Base Width (Maximum) - 60 Feet

Spillway:
In right abutment of main embankment (Embankment No. 1)

Reservoir Capacity:
Included in Dam Embankment No. 1

501

Wind River Diversion Dam

Crest Length - 2,464 Feet Structural Height - 37 Feet Diversion Capacity - 2,200 Cubic Feet Per Second

Pilot Butte Powerplant (Currently not in operation)

Two generator units - 800 Kilowatts each
Generating Head - 105 Feet

CONSTRUCTION PROGRAM:

Wyoming Canal (Original Construction)

Length - 16.5 Miles Capacity - 2,200 Cubic Feet Per Second Maximum Bottom Width (Earth) - 65.0 Feet
Water Depth - 10.0 Feet Maximum Bottom Width (Concrete) - 12.5 Feet

Pilot Canal (Original Construction)

Length - 38.0 Miles Capacity - 1,000 Cubic Feet Per Second Maximum Bottom Width - 30.0 Feet
Water Depth - 10.0 Feet

Wyoming Canal Laterals (Original Construction)

Length - 130 Miles Irrigation Service Land (Full) - 16,342 Acres

Pilot Canal Laterals (Original Construction)

Length - 96.7 Miles Irrigation Service Land (Full) - 25,351 Acres

Lost Wells Laterals (Original Construction)

Length - 30.7 Miles Irrigation Service Land (Full) - 3,660 Acres

Drains (Including original construction)

Length - 478 Miles

Right-of-Way

All donation easements

Relocations

None Required

Appropriation Title: Construction and Rehabilitation

PICK-SLOAN MISSOURI BASIN PROGRAM
RIVERTON UNIT, WYOMING

FISCAL YEAR 1979

Work Proposed		Program
Wyoming Canal.		$ 325,000
Pilot Canal.		65,000
Wyoming Canal Laterals.	For continued rehabilitation of existing structures, lining and installation of buried pipe.	84,000
Pilot Canal Laterals.		285,000
Lost Wells Laterals.		74,000
Drains. Construction of drains will be continued.		2,030,000
Fish and Wildlife Facilities. For continued construction on waterfowl impoundments and conveyance facilities.		19,000
Service Facilities, Depreciation, and Salvage. Includes automotive and work equipment partially offset by depreciation charged to permanent property on a use basis.		7,000
	TOTAL	$2,889,000

PICK-SLOAN MISSOURI BASIN PROGRAM, RIVERTON UNIT, WYOMING

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM					
Completed Work 1/	14,955,426	14,955,426	--	--	--
Wyoming Canal	3,700,000	2,843,154	497,000	325,000	34,846
Pilot Canal	3,110,000	2,757,894	90,000	65,000	197,106
Wyoming Canal Laterals	4,484,000	2,063,307	1,751,000	84,000	585,693
Pilot Canal Laterals	5,320,000	3,217,641	1,263,000	285,000	554,359
Lost Wells Laterals	686,107	602,107	10,000	74,000	--
Drains	12,432,240	5,168,781	1,069,000	2,030,000	4,164,459
Fish and Wildlife Facilities	2,533,000	393,459	143,000	19,000	1,977,541
Service Facilities, Decpreciation & Salvage	--	55,439	52,000	7,000	-114,439
Other Project Costs	6,426,955	6,274,955	152,000	--	--
Engineering and Design	(1,700,000)	(730,000)	(310,000)	(320,000)	(340,000)
Supervision and Administration	(2,800,000)	(1,195,088)	(546,000)	(480,000)	(578,912)
Total Project Cost	53,647,728	38,332,163	5,027,000	2,889,000	7,399,565
Consolidated Expenditures and Credits	-30,947,728	-30,766,156	-156,380	--	-25,192
Total Expenditures	22,700,000	7,566,007	4,870,620	2,889,000	7,374,373
Undelivered Orders		527,620	-527,620		
Total Obligations	22,700,000	8,093,627	4,343,000	2,889,000	7,374,373
Method of Financing:					
Appropriation available and required	--	--	4,300,000	2,889,000	
Prior year balance available			43,000		

1/ Includes Bull Lake Dam, Pilot Bulk Dam, Wind River Diversion Dam and modifications, Wyoming Canal, Laterals, Drains, Muddy Ridge Canal, Laterals and Drains, Power Facilities, and General Property.

BR-287

Appropriation Title: Construction and Rehabilitation

PICK-SLOAN MISSOURI BASIN PROGRAM
Drainage and Minor Construction

Summarized Financial Data:

Fiscal Year 1978:		
Appropriation	$5,546,000	
Application of Prior Year Funds	611,000	
Total Obligations, FY 1978		$6,157,000
Fiscal Year 1979:		
Appropriation	$6,020,000	
Total Obligations, FY 1979		$6,020,000

Description: The drainage and minor construction program consists of projects on which major construction is complete except for facilities which are temporarily deferred and where relatively small amounts of funds are being requested in the budget year. Work in this category includes installing gates and modifying spillway for Dickinson Dam, dike repairs, drainage work, minor repair or replacement work, miscellaneous finishing activities, preconstruction on temporarily deferred facilities, and construction to insure structural safety of Helena Valley Dam.

Work Proposed, F.Y. 1979: Work will continue on eight units or divisions.

Appropriation Title: Construction and Rehabilitation
Pick-Sloan Missouri Basin Program
Drainage and Minor Construction--2

FISCAL YEAR 1979

PROJECTS INCLUDED IN THE DRAINAGE AND MINOR CONSTRUCTION CATEGORY

Work Proposed	Program
Bostwick Division - Nebraska - Kansas. Provides for continuing construction of subsurface drains.	$1,078,000
Canyon Ferry Unit - Montana. Work on repair of dikes, drains, and wildlife nesting islands will continue.	418,000
Dickinson Unit - North Dakota. Modification of auxiliary spillway on Dickinson Dam will be completed, and a contract will be awarded for installation of gates on existing spillway. Relocation and purchase of right-of-way will be completed.	3,256,000
East Bench Unit - Montana. For continuing drain construction.	50,000
Farwell Unit - Nebraska. For continuing construction of drains.	803,000
Frenchman-Cambridge Division - Nebraska. To continue construction of drains and Frenchman Creek channelization work.	145,000
Helena Valley Unit - Montana. Remedial work on Helena Valley Dam will continue.	200,000
Owl Creek Unit - Wyoming. Corrective work on Anchor Reservoir will continue.	70,000
TOTAL	$6,020,000

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 19 78 , AND FISCAL YEAR 19 79

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM					
Bostwick Division, Nebraska-Kansas	56,947,000	50,089,640	1,783,000	1,078,000	3,996,360
Canyon Ferry Unit	13,355,807	11,134,807	1,803,000	418,000	-
Dickinson Unit, North Dakota	4,410,256	140,256	1,014,000	3,256,000	-
East Bench Unit, Montana	24,230,000	22,752,685	56,000	50,000	1,371,315
Farwell Unit, Nebraska	38,484,000	36,533,415	615,000	803,000	532,585
Frenchman-Cambridge Division, Nebraska	82,689,239	82,173,425	186,000	145,000	184,814
Helena Valley Unit, Montana	16,017,947	15,468,947	249,000	200,000	100,000
Owl Creek Unit, Wyoming	6,860,428	6,375,785	70,000	70,000	344,643
Yellowtail Unit, Montana	100,905,000	93,898,263	381,000	-	6,625,737
Total Obligations	343,899,677	318,567,223	6,157,000	6,020,000	13,155,454
Method of Financing:					
Appropriations Available and Required	-	-	5,546,000	6,020,000	13,155,454
Application of Prior Year Funds	-	-	611,000	-	-

ITEMIZATION OF ESTIMATE

Department of the Interior
Appropriation Title: Construction and Rehabilitation (In Dollars) Bureau of Reclamation

	Estimate 1978	Estimate 1979	Increase or Decrease (-)
Program and Financing			
Total direct obligations	$ 571,018,533	$290,562,000	$-280,456,533
Unobligated balance available, start of year	-220,215,533	.....	220,215,533
Transfer out for Pay Raise	4,022,000	.....	-4,022,000
Transfer to Department of Energy	8,010,000	.....	-8,010,000
Appropriation	362,835,000	290,562,000	-72,273,000
Object Classification			
11.0 Personnel compensation	53,020,000	50,409,000	-2,611,000
12.1 Personnel benefits: Civilians	5,293,000	4,972,000	-321,000
13.0 Benefits for former personnel	.....	.....	.....
21.0 Travel and transportation of persons	2,400,000	2,408,000	8,000
22.0 Transportation of things	1,166,000	957,000	-209,000
23.0 Rent, communications, and utilities	7,369,000	6,596,000	-773,000
24.0 Printing and reproduction	761,000	552,000	-209,000
25.0 Other services	5,639,000	4,314,000	-1,325,000
26.0 Supplies and materials	4,504,000	2,935,000	-1,569,000
31.0 Equipment	4,907,000	3,942,000	-965,000
32.0 Lands and structures	336,790,533	212,393,000	-124,397,533
33.0 Investments and loans	.....	967,000	967,000
41.0 Grants, subsidies and contributions	10,000	10,000	.....
42.0 Insurance claims and indemnities	149,159,000	107,000	-149,052,000
99.0 Total direct obligations	$ 571,018,533	$290,562,000	$-280,456,533

CONSTRUCTION AND REHABILITATION

Explanation of difference between obligations in U.S. Budget
(Itemization of Estimate) and Congressional Justification
(In Dollars)

	Obligations	
	1978	1979
Itemization of Estimate (total direct obligations on budget program and financing)	$571,018,533	$290,562,000
Transfer out for Pay Raises	4,022,000	.....
Non-Federal advances not included in the Construction and Rehabilitation activity of the U.S. Budget:		
Central Valley project:		
Misc. Project Programs	4,000,000	.....
San Luis Unit	478,000	.....
Fryingpan-Arkansas Project	320,000	220,000
Nueces	5,290,000	4,000,000
Yakima-Snipes Mountain (R&B)	67,000	.....
Solano Project	260,000	.....
Congressional Justification	$585,455,533	$294,782,000

24-040 O - 78 - 33

UPPER COLORADO STORAGE PROJECT

General Statement

Summarized Financial Data:

Fiscal year 1978:		
Appropriation	$ 67,268,000	
Application of prior year funds	2,912,670	
Operating revenue applied to O&M	4,906,000	
Funds Advanced by Water Users	362,000	
Total obligations, F.Y. 1978		$ 75,448,670
Fiscal year 1979:		
Estimate of appropriation	70,274,000 1/	
Operating revenue applied to O&M	6,654,000	
Funds Advanced by Water Users	339,000	
Total obligations, F.Y. 1979		77,267,000

1/ Excludes initial underfinancing of $ 2,520,000.

For fiscal year 1979 the Bureau requests a total of $70,274,000 for work financed by appropriations to the Upper Colorado River Storage Project and participating projects, including $4,025,000 for work authorized under provisions of Section 8 of the basic legislation. This appropriation request, plus $6,654,000 for operation and maintenance derived from project operating revenue, and $339,000 advanced by water users will provide a total program of $77,267,000. This compares with the FY 1978 program of $75,448,670.

On October 1, 1977, the Department of Energy was created. At that time, the construction and operational functions of Power Transmission and Power Marketing were transferred from the Bureau of Reclamation to the newly created Department along with $3,798,000 of the FY 1978 Upper Colorado River Storage Project appropriations and $20,649,000 of the operating revenue program.

In fiscal year 1979 construction will continue on the Central Utah Project; Bonneville and Jensen Units; and on the Dallas Creek, Dolores, and Lyman Projects. Drainage and minor construction work will continue on the Emery County Project, and begin on the Modification to Completed Facilities program and the San Juan-Chama Project.

Advance planning will continue on five other projects.

Work continues on Recreational and Fish and Wildlife Facilities under provision of Section 8 of the authorizing legislation.

Physical accomplishments in FY 1979, in the main, will reflect the application of appropriations in previous years, while the result of the FY 1979 appropriations in terms of future new irrigation service and municipal and industrial service and hydroelectric generating capacity will be principally felt in the years following.

The FY 1979 program for operation and maintenance covers four storage units, Bonneville Unit--Central Utah Project, Seedskadee and San Juan-Chama Projects. Related activities include flood control activities on Florida and Paonia Projects, Quality of Water and Consumptive Use Studies. As a permanent activity, the Bureau of Reclamation operates and maintains only power facilities and other reserved works on multipurpose projects. Power transmission facilities will be operated by the Department of Energy. Completed irrigation facilities are turned over to water user organizations for operation and maintenance as rapidly as the necessary agreements can be consummated. Under its FY 1979 program of power operations, the Bureau will operate and maintain a total nameplate rating of 1,276,000 kilowatts in six powerplants in the Upper Colorado River Basin.

Operation and maintenance, including nonreimbursable activities, will be financed from revenues and advances from water users. (The repayable debt of the storage project and participating projects will be reduced by the amount of revenue applied to the nonreimbursable functions.)

Tables on the following pages show the repayable investment and the funds returned to the Treasury, the total obligation programs, and the method of financing for the FY 1978 program and the FY 1979 estimates.

UPPER COLORADO RIVER STORAGE PROJECT AND PARTICIPATING PROJECTS
Repayable Investment of the United States
and Funds Returned to the Treasury
September 30, 1977

Repayable Investment of the United States:		
Appropriation Allocations for advance planning, construction, and for recreational and fish and wildlife activities	$1,178,591,440	
Transfer cost or property (net)	15,443,950	
Interest during construction	64,067,264	
Interest accrued on investment	139,911,874	
Total investment		$1,398,014,528
Nonreimbursable:		
Capital costs	-248,952,734	
Expense	-2,812,546	
Total nonreimbursable		-251,765,280
Total repayable investment		$1,146,249,248
Funds Returned to the Treasury:		
Power operations	235,282,747	
Water operations and miscellaneous	7,637,805	
Total funds returned to Treasury		$ 242,920,552

UPPER COLORADO RIVER STORAGE PROJECT OBLIGATION PROGRAM

Projects, Units and Location	Estimated Total	Total to Sept 30,1977	Program FY 1978	Program FY 1979	Balance to Complete
Completed and Inactive Units, and Part. Projects.....	$478,892,835	$427,730,611	$	$	$51,162,224
Advance Planning:					
Participating Projects:					
Animas-La Plata, Colorado-New Mexico.....	282,974,500	2,319,108	350,000	300,000	280,005,392
Central Utah, Uintah Unit, Utah.....	90,154,000	1,224,668	500,000	300,000	88,129,332
Central Utah, Upalco Unit, Utah.....	43,406,000	2,131,628	223,000	300,000	40,751,372
San Miguel, Colorado.....	70,437,000	1,473,811	355,000	300,000	68,308,189
West Divide, Colorado.....	127,858,000	871,777	152,000	200,000	126,634,223
Subtotal - Advance Planning.....	614,829,500	8,020,992	1,580,000	1,400,000	603,828,508
Construction Program:					
Participation Projects:					
Central Utah, Bonneville Unit, Utah.....	805,949,000	143,321,114	31,032,991	27,259,000	604,335,895
Central Utah, Jensen Unit, Utah.....	36,051,000	7,575,754	7,744,000	7,707,000	13,024,246
Dallas Creek, Colorado.....	45,210,000	7,366,774	11,775,000	10,780,000	15,288,226
Dolores, Colorado.....	186,286,000	2,774,879	5,701,000	14,110,000	163,700,121
Fruitland Mesa, Colorado.....	92,130,000	2,947,781	108,000	....	89,074,219
Lyman, Utah-Wyoming.....	29,372,000	20,457,549	4,854,000	3,900,000	160,451
Savery-Pot Hook, Colorado-Wyoming.....	79,450,000	2,076,357	77,000	....	77,296,643
Drainage and Minor Construction:					
Units:					
Curecanti Unit, Colorado.....	133,087,524	130,693,524	794,000	....	1,600,000
Modifications to Completed Facilities, Various.....	7,112,000	398,804	544,000	2,607,000	3,562,196
Participating Projects:					
Central Utah, Vernal Unit, Utah.....	10,176,718	9,458,718	718,000	....	....
Emery County, Utah.....	15,270,202	14,293,046	396,000	391,000	190,156
San Juan-Chama, Colorado-New Mexico.....	95,310,000	72,419,849	600,000	615,000	21,675,151
Subtotal - Drainage and Minor Construction.....	260,956,444	227,263,941	3,052,000	3,613,000	27,027,503
Anticipated Delays and Slippage.....	....	....	....	-2,520,000	2,520,000
Subtotal - Advance Planning and Construction...	2,150,233,944	421,805,141	65,923,991	66,249,000	1,596,255,812
Recreational & Fish & Wildlife Facilities.....	189,126,360	42,996,821	4,256,679	4,025,000	137,847,860
Subtotal - Completed, Inactive, Advance Planning and Construction Projects, and Recreational,Fish & Wildlife Facilities.....	2,818,253,139	892,532,573	70,180,670	70,274,000	1,785,265,896

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UPPER COLORADO RIVER STORAGE PROJECT OBLIGATION PROGRAM

Projects, Units and Location	Estimated Total	Total Sept 30,1977	Program FY 1978	Program FY 1979	Balance to Complete
Operation and Maintainance:					
Colorado River Storage Project					
Upper Colorado Region Area	....	....	$ 4,304,000	$6,030,000	....
Participating Projects:					
Central Utah, Bonneville Unit, Utah	....	....	58,000	81,000	....
Florida, Colorado	....	....	5,000	5,000	....
Paonia, Colorado	....	....	3,000	3,000	....
San Juan-Chama, Colorado-New Mexico	....	....	368,000	340,000	....
Seedskadee, Wyoming	....	....	166,000	165,000	....
Quality of Water Studies	....	....	118,000	123,000	....
Consumptive Use Studies	....	....	246,000	246,000	....
Subtotal - Operation and Maintenance	....	....	5,268,000	6,993,000	....
Total Obligation Program	....	....	75,448,670	77,267,000	....

UPPER COLORADO RIVER STORAGE PROJECT

METHOD OF FINANCING
FY 1978 and FY 1979
(in thousands of dollars)

Project and state	Fiscal Year 1978				Fiscal Year 1979		
	Appropriation	Prior year funds	Non-Federal advances and other applied 1/ revenue	Total obligations	Appropriation	Non-Federal advances and other applied 1/ revenue	Total obligations
Upper Colorado River Basin Fund:							
Advance Planning	1,519	61	--	1,580	1,400	--	1,400
Construction:							
Participating Projects:							
Central Utah, Bonneville Unit, Utah	30,965	68	--	31,033	27,259	--	27,259
Central Utah, Jensen Unit, Utah	7,204	540	--	7,744	7,707	--	7,707
Dallas Creek, Colorado	11,775	--	--	11,775	10,780	--	10,780
Dolores, Colorado	5,500	201	--	5,701	14,110	--	14,110
Fruitland Mesa, Colorado	--	108	--	108	--	--	--
Lyman, Wyoming-Utah	4,219	635	--	4,854	3,900	--	3,900
Savery-Pot Hook, Colorado-Wyoming	--	77	--	77	--	--	--
Drainage and Minor Construction Program	2,071	981	--	3,052	3,613	--	3,613

BR-301

UPPER COLORADO RIVER STORAGE PROJECT

METHOD OF FINANCING
FY 1978 and FY 1979
(in thousands of dollars)

Project and state	Fiscal Year 1978				Fiscal Year 1979		
	Appropriation	Prior year funds	Non-Federal advances and other applied 1/ revenue	Total obligations	Appropriation	Non-Federal advances and other applied 1/ revenue	Total obligations
Participating Projects (Cont.): Undistributed reduction based on anticipated delays	--	--	--	--	-2,520	--	-2,520
Subtotal, advance planning, and construction	63,253	2,671	--	65,924	66,249	--	66,249
Operation and Maintenance	--	--	5,268	5,268	--	6,993	6,993
Subtotal - UCRBF	63,253	2,671	5,268	71,192	66,249	6,993	73,242
Recreational & Fish & Wildlife Facilities: Construction							
Recreational Facilities	1,195	222	--	1,417	4,000	--	4,000
Fish & Wildlife Facilities . .	2,820	20	--	2,840	25	--	25
Subtotal - R&F&WLF	4,015	242	--	4,257	4,025	--	4,025
Total - UCRSP	67,268	2,913	5,268	75,449	70,274	6,993	77,267

1/ Funds

	FY 1978	FY 1979
Funds advanced by water users	362	339
Operating revenue	4,906	6,654
Total	5,268	6,993

BR-302

Appropriation Title: Upper Colorado River Storage Project
Upper Colorado River Basin Fund

SUMMARY OF ADVANCE PLANNING PROGRAM, F.Y. 1978 AND F.Y. 1979

PROJECT	FY 1978 PROGRAM	FY 1979 PROGRAM
Participating Projects:		
Animas-La Plata, Colorado-New Mexico	350,000	300,000
San Miguel, Colorado	355,000	300,000
Uintah Unit, Central Utah, Utah	500,000	300,000
Upalco Unit, Central Utah, Utah	223,000	300,000
West Divide, Colorado	152,000	200,000
Total program	1,580,000	1,400,000
Method of Financing:		
Allotment available or required	1,519,000	1,400,000
Application of prior year funds	61,000	--
Total financing	1,580,000	1,400,000

Purpose of Program:

Dependable water supplies are urgently needed in the Upper Colorado River Basin area to expand municipal and industrial water supply systems to meet the needs of population growth, to stabilize irrigated agriculture, to control flood flows, and to supply fish and wildlife and recreational benefits.

It is necessary to analyze the various plans to assure the proper allocation of water supply to the rapidly expanding municipal and industrial water market. Where needs dictate, plans will be reformulated to achieve minimum environmental impact and assure optimum utilization of available water resources consistent with the requirements of the area and national priorities.

Funds will be utilized to evolve definite plans of development in consonance with the above objectives. Work will include engineering and economic studies, preparation of environmental impact statements and other preconstruction activities prior to initiation of construction.

Advance planning presentations by projects are on the pages which follow.

PROJECT DATA SHEET

PF-85 (11-76)
Bureau of Reclamation

REGION: Upper Colorado

PROJECT AND STATE: ANIMAS-LA PLATA PARTICIPATING PROJECT, COLORADO-NEW MEXICO

Completion Date	% Complete	Date
1/	1/	1/1/78

AUTHORIZATION: Public Law 90-537, September 30, 1968

BENEFIT COST RATIOS

Based on Direct Benefits	Based on Total Benefits	Date
1.2 2/	1.4 2/	1/1/78

LAND CERTIFICATION: Scheduled for April 1979

DEFINITE PLAN REPORT: Scheduled for submission July 1978

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation)	15/	$ 282,729,500
Total Federal Obligations (Other)	3/15/	1,350,000
Net Property and Other Transfers		1,093,000
Cash Advances--Non-Federal	4/	24,500
Adjustment	5/	12,667,000
Total to be Allocated		$ 297,864,000

Allotments to September 30, 1977	$ 2,319,108
Allotments for F.Y. 1978	350,000
Allotments to Date	2,669,108
Allotments Required for F.Y. 1979	300,000
Balance to Complete after F.Y. 1979	$ 279,760,392

ALLOCATIONS 6/

Irrigation	$ 222,247,000
Power	
M & I Water 7/	72,786,000
Recreation	520,000
F & WL	2,311,000
Flood Control	
Other	
Total	$ 297,864,000

REPAYMENT

Amount Repaid by Irrigators 8/9/	$ 14,450,000
Amount Repaid by Power	
Amount Repaid by M & I Water 9/	72,593,000
Rev. Ad Val. Tax 10/	17,260,000
Amt. Repd. by UCRBF Rev. 11/12/	189,822,000
CRDF & Contr. Funds 13/	908,000
Nonreimbursable 14/	2,831,000
Total	$ 297,864,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 3,283	Payment Capacity per Acre	$ 25.20
Repayment of Investment per Acre:		Annual Charges:	
By Irrigators	$ 213	O & M	$ 17.20
By Power Revenues		Construction	4.20
By M & I Water Users			
By CRDF & Cont. Funds	11		
By UCRBF	2,804		
By Ad Val. Tax	255		
		Total	$ 21.40

STATUS OF REPAYMENT CONTRACT: Repayment Contract with La Plata Conservation District and the La Plata Water Conservancy District scheduled for execution March 1979; validation April 1979.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide scheduled to Environmental Protection Agency - draft August 1978; final January 1979.

DESCRIPTION: The project is located in Montezuma and La Plata Counties of southwestern Colorado and in San Juan County of northwestern New Mexico. This is a multipurpose project which will provide 87,300 acre-feet annually of municipal and industrial water supplies and will also provide a full water supply for irrigation of 46,600 acres of new land a supplemental supply for 21,100 acres of presently irrigated land. Benefits will result from irrigation, municipal and industrial water, recreation, and fish and wildlife. The crops presently grown are alfalfa, pasture, and small grains. It is anticipated that with project water the trend would be toward more intensive farming and the production of cash crops and dairy products.

BR-304

Animas-La Plata Participating Project, Colorado-New Mexico

OTHER INFORMATION : Funds to initiate preconstruction planning were appropriated in FY 1971.

Footnotes:

1/ Advance Planning is scheduled to be completed in Fiscal Year 1979. Construction is estimated to require 12 years.

2/ Changed from 1.0 as presented in the FY 1978 Budget Justifications to 1.2 in the ratio based on direct benefits due to the increased benefits associated with municipal and industrial water based on higher prices, increased interest rates, and increase in service amounts from 76,200 acre-feet to 87,300 acre-feet annually. Change from 1.6 total reflects a current evaluation of indirect and public benefits identified with irrigation.

3/ Represents specific recreation costs of $520,000 and specific fish and wildlife costs of $830,000.

4/ Contributions made by Colorado Water Conservation Board, $10,000; Southwestern Water Conservation District, $7,500; City of Durango, $2,000; LaPlata County, $2,000; LaPlata Water Conservancy District, Colorado, $1,850; LaPlata Conservation District, New Mexico, $650; and the Southern Ute Indian Tribe, $500.

5/ Reimbursable interest during construction.

6/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$ 84,030,000	$222,247,000
Municipal and Industrial Water	32,162,000	72,786,000
Recreation	681,000	520,000
Fish and Wildlife	1,082,000	2,311,000
TOTAL	$117,955,000	$297,864,000

The increase of $179,909,000 includes $122,021,000 for cost indexing from 1967. Other changes include: Increase of $84,610,000 for a pressurized lateral sprinkler system to save water and reduce salinity input to the Colorado River; decrease of $14,440,000 due to elimination of 4,420 acres from the plan because of unsuitable soils, which eliminated the need for Ute Meadows Dam, and decrease of $12,282,000 to reflect the selection of the Ridges Basin damsite in lieu of the previously planned Howardsville and Animas Mountain damsites to eliminate adverse environmental effects.

Animas-LaPlata Participating Project, Colorado-New Mexico

Footnotes - Continued:

The increase in allocations to Irrigation, Municipal and Industrial water, and Fish and Wildlife are due to the increased costs of the project. The Municipal and Industrial water allocation also increased as the plan now reflects an additional 11,100 acre-feet of water assigned to that purpose. The Recreation allocation decreased due to elimination of recreation requirements on reservoirs deleted from the plan.

7/ Includes interest during construction.

8/ Includes $2,903,000 cost of irrigation service to Indian lands. Repayment will be deferred under the Leavitt Act, 25, U.S.C. 386a.

9/ The scheduled amount to be repaid will be covered by contracts with project beneficiaries before construction is initiated.

10/ Includes $17,260,000 for irrigation.

11/ From Upper Colorado River Basin revenues apportioned to States of Colorado, $143,822,000 and New Mexico, $46,000,000.

12/ Repaid from net power revenues

13/ Nonreimbursable Colorado River Development Fund investigation costs of $654,000 and contributed funds, $254,000.

14/ Includes $520,000 for recreation facilities and $2,311,000 for fish and wildlife facilities.

14/ The appropriation ceiling for this project was included with the total authorized to be appropriated by Public Law 90-537. The total amount authorized to be appropriated is $806,265,000. The authorization is adequate to cover projects as currently proposed.

Advance Planning

UPPER COLORADO RIVER STORAGE PROJECT
ANIMAS-LA PLATA PARTICIPATING PROJECT, COLORADO-NEW MEXICO

Summarized Financial Data:

Total estimated advance planning program		$2,969,108
Obligations as of September 30, 1977	$2,319,108	
FY 1978 program	350,000	
FY 1979 program	300,000	
Balance to complete after September 30, 1979	1/ 0	

Justification: A dependable water supply is an urgent need of the project area. It is essential to the stabilization of agriculture on the presently irrigated area, and to the continuing development of other resources. Project water will not only stabilize the economy for the supplemental service lands, but will provide a supply for 46,520 acres of full service lands; all of which will make possible settlement opportunities for approximately 225 new farm families.

Expansion of the municipal water supply system of the area has not kept pace with the population growth, and sizeable quantities of industrial water are required for the development of thermal electric powerplants which would utilize the area's significant coal reserves. The economy of the area is largely dependent upon tourist trade and the exploration, production, and processing of mineral and petroleum resources. Tourist trade is seasonal and mineral and petroleum industries are very sensitive to price relationship.

The States of Colorado and New Mexico, the City of Durango, and local interests have actively supported development of the Animas-La Plata and have contributed funds toward the cost of feasibility investigations. The La Plata Water Conservancy District in Colorado and the La Plata Conservancy District in New Mexico have been organized to serve as contractual and operating agencies for the project.

Fiscal Year 1979

Work Proposed	Program
The program provides for completion of the environmental impact statement and for collection of design data, and preparation of specifications designs and estimates.	$300,000

1/ Advance Planning is scheduled to be completed in fiscal year 1979.

PROJECT DATA SHEET

REGION: Upper Colorado

PF-65 (11-76)
Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
SAN MIGUEL PARTICIPATING PROJECT, COLORADO	1/	1/	1-1-78

AUTHORIZATION: Public Law 90-537, September 30, 1968

LAND CERTIFICATION	DEFINITE PLAN REPORT	BENEFIT COST RATIOS: Based on Direct Benefits	Based on Total Benefits	Date
Scheduled for September 1979	Scheduled for submission February 1979	1.4 2/	1.7 2/	1-1-78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 13/	$ 70,417,000	Allotments to September 30, 1977	$ 1,511,811
Recreational-Fish & Wildlife 3/ 13/	820,000	Allotments for F.Y. 1978	317,000
Net Property and Other Transfers	1,093,000		
Cash Advances--Non-Federal 4/	20.000	Allotments to Date	1,828,811
Adjustment 5/	2,729,000	Allotments Required for F.Y. 1979	300,000
Total to be Allocated	$ 75,079,000	Balance to Complete after F.Y. 1979	$ 68,288,189

ALLOCATIONS 6/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 56,137,000	Amount Repaid by Irrigators 8/	$ 5,760,000	Irrig. Invest. per Acre	$ 2,339	Payment Capacity per Acre	$ 14.20
Power		Amount Repaid by Power		Repayment of Investment per Acre:		Annual Charges:	
M & I Water 7/	17,802,000	Amount Repaid by M & I Water 8/	17,736,000	By Irrigators	$ 240	O & M	$ 7.20
Recreation	300,000	Amount Repaid by UCRBF Rev. 9/ 10/	49,448,000	By Power Revenues		Construction	4.80
F & WL	840,000	CRDF & Contrib. Funds 11/	408,000	By M & I Water Users			
Flood Control		Ad Valorem Tax Revenues	587,000	By UCRBF Revenues	2,060		
				By Ad Valorem Tax	25		
Other		Nonreimbursable 12/	1,140,000	By CRDF & Contrib. Funds	14		
Total	$ 75,079,000	Total	$ 75,079,000			Total	$ 12.00

STATUS OF REPAYMENT CONTRACT: Repayment Contract with San Miguel Water Conservancy District scheduled for execution October 1979, validation November 1979.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide scheduled to Environmental Proection Agency - draft April 1979 - final August 1979.

DESCRIPTION: This project is located in Montrose and San Miguel Counties in southwestern Colorado. It would provide a firm supply of 30,000 acre-feet annually for municipal and industrial purposes. It would develop water of the San Miguel River for irrigation of 11,500 acres of full service and 12,500 acres of supplemental service land. Recreation facilities would be provided at project reservoirs and fish and wildlife conservation measures taken. It is anticipated that with project water, the cropping trend would be toward livestock herd increases and stabilized livestock production.

BR-308

PROJECT DATA SHEET - 2

San Miguel Participating Project, Colorado

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1971.

Footnotes:

1/ Advance planning in scheduled to be completed in fiscal year 1979. Construction is estimated to require 6 years.

2/ Changed from 0.8 Direct and 1.34 Total as presented in the FY 1978 Budget Justification due to indexing and updating of the plan to reflect local needs. These changes are explained in footnote 6/. Benefits were updated to reflect the current plan and the changes in the consumer price indexes.

3/ Represents specific recreation costs of $300,000 and specific fish and wildlife of $520,000.

4/ Includes contributions for studies by Colorado Water Conservancy Board, $10,000; Southwestern Water Conservancy District, $7,500; and San Miguel Conservancy District, $2,500.

5/ Represents interest during construction, $2,729,000.

6/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$56,022,000	$56,137,000
Municipal & Industrial Water	12,285,000	17,802,000
Recreation	466,000	300,000
Fish and Wildlife	4,179,000	840,000
Flood Control	1,080,000	-
TOTALS	$74,032,000	$75,079,000

The increase of $1,047,000 includes $76,235,000 for cost indexing from 1967 offset by a reduction of $75,188,000 resulting from the updating of the project plan. A decrease of $48,532,000 was realized by the conversion from gravity to sprinkler irrigation methods, a reduction in both irrigation and municipal and industrial water needs and a subsequent reduction in the size of Saltado Reservoir. The replacement of the canal and tunnel conveyance system from Saltado Reservoir to the project lands with a pipeline and pumping plant reduced costs by $17,900,000 and the elimination of Radium Dam and Reservoir decreased costs by $8,756,000.

San Miguel Participating Project, Colorado

Footnotes (Continued):

7/ Includes $2,729,000 interest during construction.

8/ The scheduled amount to be repaid will be covered by contracts with the project beneficiaries before construction is initiated.

9/ From Upper Colorado River Basin Fund revenues apportioned to State of Colorado.

10/ Repaid from net power revenues.

11/ Includes $361,000 for Colorado River Development Fund of which $66,000 is for municipal and industrial water costs and $295,000 for irrigation costs; and $47,000 contributed funds for irrigation costs.

12/ Includes $840,000 for Fish and Wildlife; and $300,000 for Recreation.

13/ The appropriated ceiling for this project was included with the total authorized to be appropriated by Public Law 90-537. The total amount authorized to be appropriated is $806,265,000. The authorization is adequate to cover the projects as currently proposed.

Advance Planning

UPPER COLORADO RIVER STORAGE PROJECT
SAN MIGUEL PARTICIPATING PROJECT, COLORADO

Summarized Financial Data:

Total estimated advance planning program	$2,128,811
Obligations as of September 30, 1977	$1,473,811
FY 1978 program	355,000
FY 1979 program	300,000
Balance to complete after September 30, 1979	1/

Justification: There is a need in the project area for new agricultural development which would create new settlement opportunities, more work on existing farms, and employment in related service industries. Such development would be a boom to the area's younger generation needing job opportunities and to many now in the labor force with uncertain futures in the mining industry. Interest has been shown in development of a firm municipal and industrial water supply to stabilize and expand present operations of the coal reserves in the area, and establishing a wood pulp or pulp and paper mill to utilize the products of nearby forests. Development of the area's potash reserves and the use of water in secondary oil and gas recovery operations represent other potential water needs. Recreation facilities at project reservoirs would help meet the needs of the growing number of tourists in the project area.

State and local interests have actively supported development of the project and have contributed toward investigations of the project. In 1957, local farmers, ranchers, and businessmen from Norwood, Redvale, and Naturita formed the San Miguel Water Conservancy District to stimulate interest in the project and also to serve as the project administrative and contracting agency.

This advance planning program provides for studies directed toward refining and firming up a plan of development. The studies will lead to completion of definite plan report prior to undertaking construction plans and specifications.

FISCAL YEAR 1979

Work Proposed	Program
The program provides for continuation of preconstruction activities consisting of environmental statement preparation, repayment contract negotiations, preparation of specifications designs, and collection of data.	$300,000

1/ Advance Planning is scheduled to be completed in fiscal year 1979.

24-040 O - 78 - 34

PROJECT DATA SHEET

PF-85 (11-76)
Bureau of Reclamation

REGION: Upper Colorado

PROJECT AND STATE: CENTRAL UTAH PARTICIPATING PROJECT, UINTAH UNIT, UTAH

Completion Date	% Complete	Date
1/	1/	1/1/78

AUTHORIZATION: Public Law 94-423, September 28, 1976

BENEFIT COST RATIOS

Based on Direct Benefits	Based on Total Benefits	Date
1.1 2/	1.2 2/	1/1/78

LAND CERTIFICATION: Scheduled for September 1978

DEFINITE PLAN REPORT: Scheduled for Submission January 1978

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 13/	$ 90,154,000	Allotments to September 30, 19 77	$ 1,224,668
Recreational-Fish and Wildlife 3/ 13/	12,669,000	Allotments for F.Y. 19 78	500,000
Net Property and Other Transfers	1,125,000		
Cash Advances--Non-Federal	...	Allotments to Date	1,724,668
Adjustment 4/	373,000	Allotments Required for F.Y. 19 79	300,000
Total to be Allocated	$ 104,321,000	Balance to Complete after F.Y. 1979	$ 88,129,332

ALLOCATIONS 5/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 75,612,000	Amount Repaid by Irrigators 7/ 8/	$ 11,700,000	Irrig. Invest. per Acre	$ 1,126	Payment Capacity per Acre	$ 5.07
Power	...	Amount Repaid by UCRBF Reven. 9/	63,678,000	Repayment of Investment per Acre:		Annual Charges:	
M & I Water 6/	3,545,000	Amount Repaid by M & I Water 8/	2,332,000	By Irrigators	$ 174	O & M	$ .58
Recreation	11,766,000	CRDF 10/	246,000	By Power Revenues	948	Construction	3.49
F & WL	12,499,000	Ad Valorem Tax	1,201,000	By M & I Water Users	...		
Flood Control	899,000			By CRDF	4		
Other		Nonreimbursable 11/	25,164,000				
Total	$ 104,321,000	Total	$ 104,321,000			Total	$ 4.07

STATUS OF REPAYMENT CONTRACT: Repayment contract with Central Utah Water Conservancy District scheduled for execution October 1978, validation January 1979.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide scheduled to Environmental Protection Agency, draft March 1978, final July 1978.

DESCRIPTION: The project is located in Duchesne and Uintah Counties near Roosevelt, in northeastern Utah. This is a multipurpose project which will provide a full water supply to approximately 7,820 acres of Indian lands and a supplemental supply to 34,160 acres of Indian lands and 25,150 acres 12/ of non-Indian lands. It would provide a firm supply of 1,000 acre-feet for municipal and industrial purposes. Benefits for recreation, fish and wildlife, and flood control will also result. Crops presently grown are alfalfa pasture and small grains, mainly to support the production of livestock, consisting of dairy cattle, beef cattle, and sheep. It is anticipated that with project water, livestock production would be expanded as well as the livestock feeds.

BR-312

PROJECT DATA SHEET--2

Central Utah Participating Project, Uintah Unit, Utah

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1976. Planning studies of the Unit will be evaluated on the basis of the Ute Indian Water Resources Planning Agreement entered into April 30, 1974, by the United States of American, Central Utah Water Conservancy District, Ute Indian Tribe of the Uintah and Ouray Reservations and Individual Ute Indians. This agreement is an outgrowth of the Bonneville Unit Environmental litigation (Civil Action No. C-74-9). This agreement stipulated that steps toward development of the water resources for the benefit of the Ute Indian Tribe would be expedited and that the parties to the agreement shall use their best efforts to agree to a plan prior to the construction of Bonneville Unit facilities east of Currant Creek. This agreement united efforts of parties in the litigation and set forth a plan allowing Bonneville Unit construction to proceed.

Footnotes:

1/ Advance Planning is scheduled to be completed in fiscal year 1979. Construction of the project will take approximately 6 years.

2/ Changed from 1.0 direct benefits and no change from 1.2 total benefits as presented in the FY 1978 Budget Justifications due to indexing of costs and updating of benefits to reflect changes in consumer indexes.

3/ Includes $903,000 specific fish and wildlife costs; and $11,766,000 specific recreation costs.

4/ Reimbursable interest during construction.

5/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$66,093,000	$75,612,000
Municipal and Industrial Water	1,462,000	3,545,000
Recreation	11,494,000	11,766,000
Fish and Wildlife	10,507,000	12,499,000
Flood Control	840,000	899,000
Total	$90,396,000	$104,321,000

Central Utah Participating Project, Uintah Unit, Utah

Footnotes (Continued):

The increase of $13,925,000 is due to cost indexing. The allocation to municipal and industrial water also increased due to a higher interest rate now in effect.

6/ Includes $373,000 interest during construction.

7/ Includes $7,920,000 associated with Indian lands. This repayment is deferred under the Leavitt Act, 25 U.S.C. 386a, as long as the lands remain in Indian ownership.

8/ The scheduled amount to be repaid will be covered by contracts with project beneficiaries before construction is initiated.

9/ From Upper Colorado River Basin Fund revenues apportioned to State of Utah.

10/ Includes $236,000 for irrigation costs and $10,000 for municipal and industrial water costs.

11/ Includes $899,000 for flood control, $12,499,000 for fish and wildlife,and $11,766,000 for recreation.

12/ Relects total irrigable acreage that can receive project water. Water available will only serve 11,000 acres of irrigable land. Allocation of water to project lands has not been accomplished.

13/ The appropriations authorized are $103,333,000 (January 1977) for construction of this unit. This authorization is adequate to cover this project as currently proposed.

Advance Planning

UPPER COLORADO RIVER STORAGE PROJECT
CENTRAL UTAH PROJECT - UINTAH UNIT

Summarized Financial Data:

Total estimated advance planning program	$2,024,668
Obligations as of September 30, 1977	$1,224,668
FY 1978 program	500,000
FY 1979 program	300,000
Balance to complete after September 30, 1979	-- 1/

Justification: A dependable water supply is needed in this economically depressed area. Many of the economic difficulties in the project area stem from the area's dependency on the livestock industry and the lack of sufficient irrigation water for production of adequate feed supplies for livestock. The unemployment rate in the project area is extremely high particularly for the Indians who form a large percent of the local population. Project water would aid the agricultural development and alleviate the economic and social conditions of the Indians. The City of Roosevelt, Utah, has a need for additional municipal and industrial water for future growth. Part of the storage in Uintah and Whiterocks Reservoirs would replace irrigation storage presently provided by 13 upstream mountain reservoirs. This would permit these lakes to be stabilized and further developed for fish and wildlife and recreation use which in turn will increase tourism trade in the project area. The project will virtually eliminate flooding of agricultural lands, allowing for earlier planting on lands which were previously inundated by spring floods and subjected to loss by frequent changes in stream channels.

The unit is actively supported by Utah State Department of Natural Resources, Central Utah Water Conservancy District, Uintah Water Conservancy District, Utah Fish and Game Department, Indian interests, irrigation companies, and local land owners.

Fiscal Year 1979

Work Proposed	Program
The program provides for continuation of preconstruction activities consisting of preparation of environmental statement, collection of design data, preparation of specification designs and estimates, repayment contract negotiations, and right-of-way appraisals, and collection of data.	$300,000

1/ Advance Planning is scheduled to be completed in fiscal year 1979.

PROJECT DATA SHEET

PP-65 (11-76)
Bureau of Reclamation

REGION		Completion Date	% Complete	Date
Upper Colorado	CENTRAL UTAH PARTICIPATING PROJECT, UPALCO UNIT, UTAH	1/	1/	1/1/78

AUTHORIZATION: Public Law 84-485, April 11, 1956

BENEFIT COST RATIOS

LAND CERTIFICATION	DEFINITE PLAN REPORT	Based on Direct Benefits	Based on Total Benefits	Date
Scheduled for May 1979	Approved June 20,1969 Supplement scheduled for submittal August 1978	1.1 2/	1.2 2/	1/1/78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 9/	$ 43,406,000	Allotments to September 30, 19 77	$ 2,154,628
Recreational-Fish and Wildlife 3/9/	3,894,000	Allotments for F.Y. 19 78	200,000
Net Property and Other Transfers	88,000		
Cash Advances--Non-Federal	---	Allotments to Date	2,354,628
Adjustment	---	Allotments Required for F.Y. 1979	300,000
Total to be Allocated	$ 47,388,000	Balance to Complete after F.Y. 1979	$ 40,751,372

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 25,606,000	Amount Repaid by Irrigators 5/6/	$ 4,581,000	Irrig. Invest. per Acre	$ 600	Payment Capacity per Acre	$ 3.16
Power	--	Amount Repaid by UCRBF 7/	20,985,000	Repayment of Investment per Acre:		Annual Charges:	
M & I Water	--	Amount Repaid by M & I Water	--	By Irrigators	$ 107	O & M	$ .38
Recreation	2,904,000	By CRDF	40,000	By Power Revenues	492	Construction	2.15
F & WL	18,069,000			By M & I Water Users	...		
Flood Control	521,000			By CRDF	1		
Hwy Improvement	288,000	Nonreimbursable 8/	21,782,000				
Total	$ 47,388,000	Total	$ 47,388,000			Total	$ 2.53

STATUS OF REPAYMENT CONTRACT: Repayment contract with Central Utah Water Conservancy District scheduled for execution June 1979, validation August 1979.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide scheduled to Encironmental Protection Agency, draft October 1978, final March 1979.

DESCRIPTION: The Upalco Unit of the Central Utah Project is located in Duchesne County near Roosevelt, Utah, on the Lake Fork and Yellowstone Rivers. This is a multipurpose project which will supply supplemental irrigation water to approximately 27,540 acres of non-Indian lands and 15,070 acres of Indian lands. Recreation, fish and wildlife, and flood control benefits will also result from the project.

BR-316

PROJECT DATA SHEET--2

Central Utah Participating Project, Upalco Unit, Utah

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1962. Preconstruction activities including preparation of the Definite Plan Report continued through 1970. No funds were appropriated in the period FY 1971 through FY 1973. Funds for preconstruction planning were appropriated again in FY 1974 so that the project could be reevaluated to reflect changing local needs and to prepare the Environmental Impact Statement.

Footnotes:

1/ Advance Planning is scheduled to be completed in fiscal year 1979. The project will take approximately four years to construct.

2/ No change from FY 1978 Budget Justifications. The increase in cost was offset by updated benefits reflecting current conditions and inclusion of benefits from stabilizing upstream lakes in Ashley National Forest.

3/ Represents costs of specific fish and wildlife facilities, $990,000 and specific recreation facilities, $2,904,000.

4/ Explanation in changes in allocations from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$ 19,450,000	$ 25,606,000
Recreation	445,000	2,904,000
Fish and Wildlife	16,517,000	18,069,000
Flood Control	391,000	521,000
Highway Improvement	243,000	288,000
Total	$ 37,046,000	$ 47,388,000

The increase of $10,342,000 includes $2,087,000 for cost indexing. The remaining $8,255,000 is for the Taskeech Dam and Reservoir to reflect current structures quantities based on advancement of studies. Allocations to irrigation, fish and wildlife, flood control and highway improvement increased due to the change in the estimates. The allocation to recreation increased due to the inclusion of benefits from stabilizing upstream lakes in Ashley National Forest.

Central Utah Participating Project, Upalco Unit, Utah

Footnotes (Continued):

5/ Includes $640,000 deferred payment associated with Indian-owned land under the Leavitt Act, 25 U.S.C. 386a.

6/ The scheduled amount to be repaid, less Leavitt Act amount, will be covered by contracts with project beneficiaries before construction is initiated.

7/ Upper Colorado River Basin Fund revenues apportioned to the State of Utah.

8/ Includes allocations of $18,069,000 to fish and wildlife, $2,904,000 to recreation, $521,000 to flood control, and $288,000 for relocation of highways to higher standards (P.L. 93-251).

9/ The appropriation authority for this project was provided in Public Laws 84-485 and 92-370 which covered many of the units and participating projects of the Colorado River Storage Project. The currently indexed total under this legislation is $1,839,887,000 and the currently estimated total appropriation requirement for these projects is $1,908,968,475. The appropriations requested for fiscal year 1979 will bring the total amount appropriated to $1,031,173,728. If the difference between the authorization and the total estimate remains firm, new legislation for additional appropriation ceiling will be recommended at an appropriate time.

Advance Planning

UPPER COLORADO RIVER STORAGE PROJECT
CENTRAL UTAH PROJECT - UPALCO UNIT

Summarized Financial Data:

Total estimated advance planning program	$2,654,628
Obligations as of September 30, 1977	$2,131,628
FY 1978 program	223,000
FY 1979 program	300,000
Balance to complete after September 30, 1979	1/

Justification: The Upalco Unit would serve an economically depressed segment of Duchesne County, Utah. The County has high unemployment, particularly among the Indian population. The project will provide a supplemental water supply for 42,610 acres of land, 27,540 acres of this being non-Indian and 15,070 acres with Indian water rights. During the latter part of the irrigation season the present supplies are inadequate to mature the crops. Storage regulation provided by the project would assure a late season water supply. It is generally recognized that the Upalco Unit is the only practicable means by which the usable irrigation supplies of the area may be increased and stimulation given to local economic growth and development.

Local requirements for additional municipal and industrial water have developed since completion of the 1969 definite plan report and will be considered in a reevaluation of the plan. Fish and wildlife and recreation uses would be enhanced at 14 upstream mountain reservoirs through stabilization. This will be accomplished by replacing irrigation storage presently provided by the upstream reservoirs with project storage from Taskeech Reservoir. Flood control and area redevelopment are also project purposes.

The unit is actively supported by Utah State Department of Natural Resources, Central Utah Water Conservancy District, Utah Fish and Gam Departments, Indian interests, irrigation companies, and local landowners.

FISCAL YEAR 1979

Work Proposed	Program
This program will provide for continuation of preconstruction activities including collection of design data, preparation of specification designs and estimates, repayment contract negotiations, and collection of data and preparation of the Environmental Impact Statement.	$300,000

1/ Advance planning is scheduled to be completed in fiscal year 1979.

REGION Upper Colorado

PROJECT DATA SHEET

PP-65 (11-76) Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
WEST DIVIDE PARTICIPATING PROJECT, COLORADO	1/	1/	1-1-78

AUTHORIZATION: Public Law 90-537, September 30, 1968

LAND CERTIFICATION: Scheduled for February 1980

DEFINITE PLAN REPORT: Scheduled for Submission June 1979

BENEFIT COST RATIOS

Based on Direct Benefits	Based on Total Benefits	Date
1.0 2/	1.2 2/	1-1-78

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation)	11/ $ 127,858,000	Allotments to September 30, 1977	$ 871,777
Total Federal Obligations (Other)	2,540,000	Allotments for F.Y. 1978	152,000
Net Property and Other Transfers	1,042,000		
Cash Advances--Non-Federal		Allotments to Date	1,023,777
Adjustment 3/	5,228,000	Allotments Required for F.Y. 1979	200,000
Total to be Allocated	$ 136,668,000	Balance to Complete after F.Y. 1979	$ 126,634,223

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 97,049,000	Amount Repaid by Irrigators 6/	$ 4,063,000	Irrig. Invest. per Acre	$ 3,197	Payment Capacity per Acre	$ 33.00
Power 5/	8,368,000	Amount Repaid by Power 7/	8,341,000	Repayment of Investment per Acre:		Annual Charges:	
M & I Water 5/	25,566,000	Amount Repaid by M & I Water 6/	25,483,000	By Irrigators	$ 134	O & M	$ 20.75
Recreation	2,540,000	Amount by Ad. Val. Tax	4,949,000	By Power Revenues		Construction	4.00
F & WL	3,145,000	CRDF & Contrib. Funds 8/	429,000	By M & I Water Users			
Flood Control		Upper Colorado River Basin Fund 9/	87,718,000	By UCRBF Rev.	2,889		
				By CRDF	11		
Other		Nonreimbursable 10/	5,685,000				
Total	$ 136,668,000	Total	$ 136,668,000	By Ad. Val. Taxes	163	Total	$ 24.75

STATUS OF REPAYMENT CONTRACT: Repayment contract with West Divide Conservancy District scheduled for execution March 1980, validation April 1980.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide statement scheduled to Environmental Protection Agency - draft September 1979, final January 1980.

DESCRIPTION: The project is located in Mesa, Garfield, and Eagle counties of west-central Colorado. It would develop water from the Colorado River and a series of tributaries south of the river. This is a multipurpose project which would provide 10,000 acre-feet annually of municipal water. It would also provide a full water supply for the irrigation of 11,790 acres of new land, a supplemental supply for 18,570 acres of presently irrigated land, and 11,200 kW of installed capacity for generation of power. The project would also provide benefits to recreation and fish and wildlife.

BR-320

West Divide Participating Project, Colorado

Livestock production is the main agricultural enterprise, and centers around beef and sheep. Crops presently grown are alfalfa, pasture, small grains, and some cash crops. It is anticipated that with project water, livestock production would remain the predominant agricultural enterprise but would be strengthened and expanded.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in Fy 1973. Progress to date on the planning studies have found that changes are required to reflect current needs. Municipal and industrial water originally planned to be utilized by an oil shale industry has not developed. As a result, the major storage reservoir has been deleted. Water will be obtained directly from the Colorado River and a powerplant has been added to provide power for pumping. The irrigated area has also been reduced to eliminate areas with high operation and maintenance costs.

Footnotes:

1/ Advance planning is scheduled to be completed in fiscal year 1979. Construction of the project will take approximately five years.

2/ Changed from 1.1 direct and 1.8 total as presented in the FY 1978 Budget Justifications. The decrease results from an updated project plan to reflect local needs. Plan changes are explained in Footnote 5. Benefits were updated to reflect the new plan and changes in the consumer prices indexes.

3/ Reimbursable interest during construction of Municipal and Industrial Water and Power.

4/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$ 74,280,000	$ 97,049,000
Power	-	8,368,000
Municipal and Industrial Water	32,937,000	25,566,000
Recreation	-	2,540,000
Fish and Wildlife	1,319,000	3,145,000
Flood Control	280,000	-
TOTAL	$108,816,000	$136,668,000

West Divide Participating Project, Colorado

Footnotes (Continued):

Of the total increase of $27,852,000, cost indexing accounts for $1,960,000. The remaining $25,892,000 is associated with the updated plan that reflects irrigation service by river pumping in lieu of reservoir storage, reduced municipal and industrial water development to reflect local needs and the inclusion of recreation facilities. These changes result in reduced municipal and industrial water service as a proposed oil shale development is not now imminent. With this change the plan for the Placita Reservoir has been eliminated and a powerplant has been added to provide power for project pumping directly from the Colorado River.

Allocations changes are as follows: Irrigation increased due to indexing; municipal and industrial water decreased due to reduction in amount of water to be developed; power was added to cover a need for pumping power; recreation allocation has now been added; fish and wildlife allocation increased due to cost indexing and addition of facilities for mitigation; and the flood control allocation was deleted as Placita Reservoir was removed from project plan.

5/ Includes interest during construction of $1,288,000 for Power and $3,940,000 for Municipal and Industrial water.

6/ This amount, to be repaid, will be covered by contracts with projects beneficiaries before construction is initiated.

7/ Contract not yet executed.

8/ Colorado River Development Fund assigned as follows: $319,000 to irrigation, $83,000 to Municipal and Industrial Water, and $27,000 to Power.

9/ Repaid from net power revenues.

10/ Includes $3,145,000 fish and wildlife and $2,540,000 recreation cost.

11/ The appropriation ceiling for this project was included with the total authorized by Public Law 90-537. The total amount authorized to be appropriated is $806,265,000. The authorization is adequate to cover the projects as currently proposed.

Advance Planning

UPPER COLORADO RIVER STORAGE PROJECT
WEST DIVIDE PARTICIPATING PROJECT, COLORADO

Summarized Financial Data:

Total estimated advance planning program	$1,223,777
Obligations as of September 30, 1977	$871,777
FY 1978 program	152,000
FY 1979 program	200,000
Balance to complete after September 30, 1979	1/

Justification: Because of inadequate irrigation supplies, agricultural incomes in the project irrigation service area on the south side of the Colorado River are unstable and many farm operations are marginal. Less than half of the arable lands are irrigated. Even lands with high priority water rights often have late season water shortages and lands with low priority water rights receive almost no irrigation water in drought years. Recent decreases in grazing permits on public lands have aggravated the agricultural problems and forced a number of farmers to reduce their livestock herds and sell or abandon their farms. An increased supply of irrigation water made dependable by reservoir storage, such as would be provided by the West Divide Project, would alleviate the farm problems and provide a base for an expanded and more prosperous agriculture.

Municipal water is urgently needed to support suburban and recreational areas rapidly expanding in the eastern portion of the project area southward from Glenwood Springs and in the vicinity of Redstone.

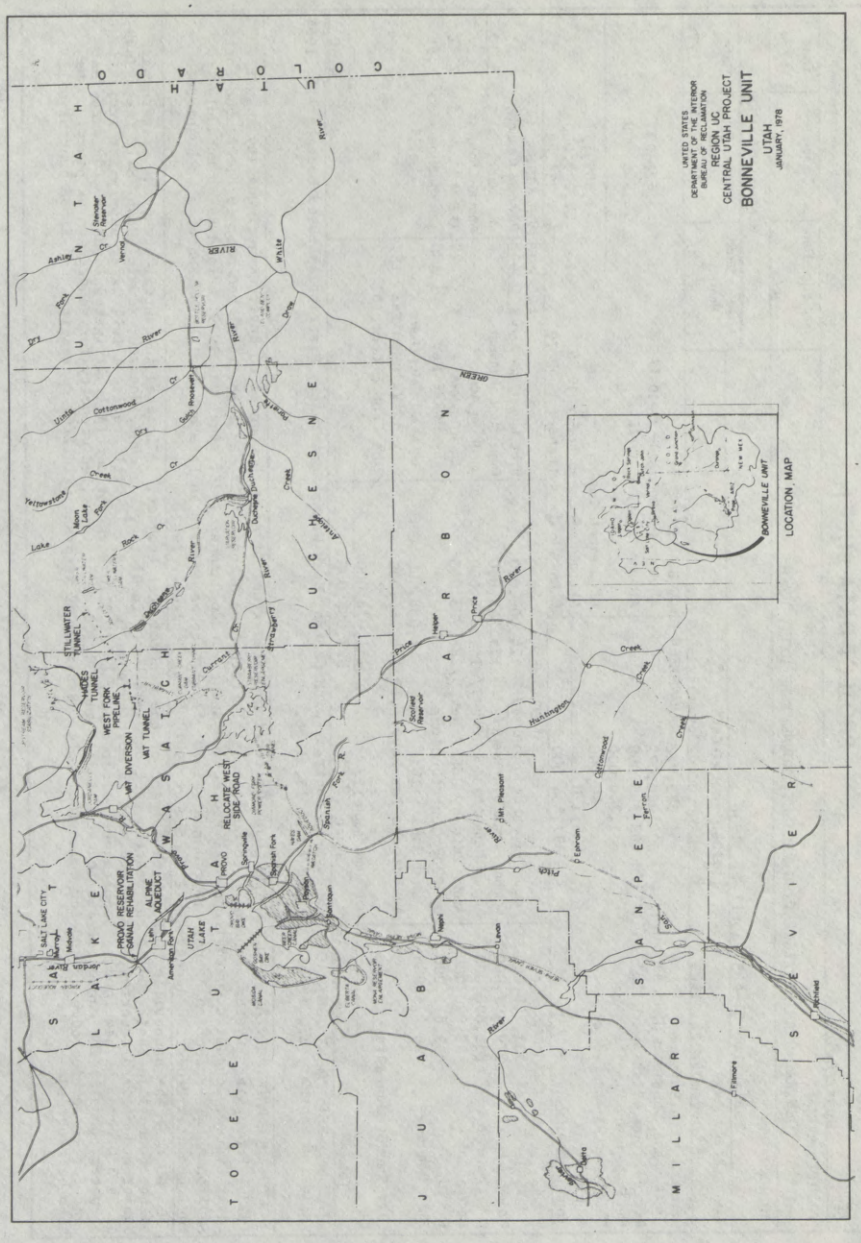
The Colorado Water Conservation Board has assisted financially in establishing stream gaging stations and obtaining aerial topography needed for the project investigations. The Colorado River Water Conservancy District has made water right filings for the project and has actively assisted in a number of other ways.

This advance planning program provides for studies directed toward firming up a plan of development and culminating in a definite plan report before undertaking construction plans and specifications.

FISCAL YEAR 1979

Work Proposed	Program
This program provides for preconstruction activities and collection of data.	$200.000

1/ Advance Planning is scheduled to be completed in fiscal year 1979.


UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
REGION UC
CENTRAL UTAH PROJECT
BONNEVILLE UNIT
UTAH
JANUARY, 1978
LOCATION MAP
BONNEVILLE UNIT
COLORADO RIVER
UINTAH
DUCHESNE
WASATCH
SALT LAKE
UTAH
TOOELE
JUAB
CARBON
SANPETE
SEVIER
MILLARD
STILLWATER TUNNEL
WEBER TUNNEL
WEST FORK PIPELINE
DIVERSION
WAY TUNNEL
RELOCATE WEST SIDE ROAD
PROVO RESERVOIR CANAL REHABILITATION
ALPINE AQUEDUCT
Provo
Springville
Spanish Fork
Salt Lake City
Utah Lake
Scofield Reservoir
Price River
Price
Huntington
Ephraim
Manti
Gunnison
Fillmore
Delta
Green River
Duchesne River
Strawberry
Duchesne
Roosevelt
Vernal
Dry Fork
Ashley Creek
Stansbury
Tooele
Grantsville
Lake Point
Jordan River
Provo River
Weber River
Spanish Fork River
Sevier River
Sevier Lake
Juab
Nephi
Levan
Scipio
Meadow
Holden
Kanosh
Oak City
Leamington
Lynndyl
Delta
Hinckley
Abraham
Aurora
Salina
Gunnison
Fayette
Ephraim
Manti
Sterling
Mayfield
Axtell
Fountain Green
Moroni
Spring City
Mt. Pleasant
Wales
Levan
Juab
Nephi
Mona
Goshen
Santaquin
Payson
Springville
Provo
Orem
American Fork
Lehi
Alpine
Pleasant Grove
Lindon
Vineyard
Utah Lake
Saratoga Springs
Lehi
Salt Lake City
Murray
Sandy
Midvale
Bingham Canyon
Magna
Tooele
Grantsville
Stockton
Lake Point
Erda
Dugway
Skull Valley
Rush Valley
Vernon
Stansbury Reservoir
Dry Fork
Ashley Creek
Uinta
Cottonwood
Dry Fork
Yellowstone
Moon Lake
Lake Fork
Rock Creek
Duchesne River
Strawberry
Duchesne
Roosevelt
Vernal
Ashley Creek
Stansbury
Tooele
Grantsville
Lake Point
Jordan River
Provo River
Weber River
Spanish Fork River
Sevier River
Sevier Lake
Juab
Nephi
Levan
Scipio
Meadow
Holden
Kanosh
Oak City
Leamington
Lynndyl
Delta
Hinckley
Abraham
Aurora
Salina
Gunnison
Fayette
Ephraim
Manti
Sterling
Mayfield
Axtell
Fountain Green
Moroni
Spring City
Mt. Pleasant
Wales
Levan
Juab
Nephi
Mona
Goshen
Santaquin
Payson
Springville
Provo
Orem
American Fork
Lehi
Alpine
Pleasant Grove
Lindon
Vineyard
Utah Lake
Saratoga Springs
Lehi
Salt Lake City
Murray
Sandy
Midvale
Bingham Canyon
Magna
Tooele
Grantsville
Stockton
Lake Point
Erda
Dugway
Skull Valley
Rush Valley
Vernon
Stansbury Reservoir

PROJECT DATA SHEET

PF-85 (11-76)
Bureau of Reclamation

REGION: Upper Colorado

PROJECT AND STATE: CENTRAL UTAH PARTICIPATING PROJECT, BONNEVILLE UNIT, UTAH

Completion Date	% Complete	Date
1/	18	1/1/78

AUTHORIZATION: Public Law 84-485, April 11, 1956

BENEFIT COST RATIOS

Based on Direct Benefits	Based on Total Benefits	Date
1.5 2/	1.6 2/	1/1/78

LAND CERTIFICATION: December 28, 1965

DEFINITE PLAN REPORT: Approved November 5, 1965

SUMMARIZED FINANCIAL DATA

Construction Revenues	928,928	Allotments to September 30, 19 77	$ 142,420,177
Total Federal Obligations (Reclamation) 13/	$ 804,980,072	Allotments for F.Y. 19 78	30,965,000
Recreational-Fish and Wildlife 3/13/	63,389,000		
Net Property and Other Transfers	1,746,000		
Cash Advances--Non-Federal	40,000	Allotments to Date	173,385,177
Adjustment 4/	26,770,000	Allotments Required for F.Y. 19 79	27,259,000
Total to be Allocated	$ 897,854,000	Balance to Complete after F.Y. 19 79	$ 604,335,895

ALLOCATIONS 5/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 351,249,000	Amount Repaid by Irrigators 7/	$ 24,005,000	Irrig. Invest. per Acre	$ 1,448	Payment Capacity per Acre	$ 5.30
Power 6/	179,497,000	Amount Repaid by Power 8/	179,248,000	Repayment of Investment per Acre:		Annual Charges:	
M & I Water 6/	236,090,000	Amount Repaid by M & I Water 7/	155,606,000	By Irrigators	$ 99	O & M	$ 2.52
Recreation	32,890,000	Amt. Paid by UCRBF Rev. 9/	288,723,000	By UCRBF Rev.	1,190	Construction	1.98
F & WL	59,613,000	By CRDF Contributions and Other 10/	1,088,000	By M & I Water Users	...		
Flood Control	26,275,000	Ad Valorem Tax Rev. 7/, 11/	118,166,000	By Ad Valorem Tax	157		
Hwy Improvements	12,240,000			By CRDF & Contrib.	2		
Other		Nonreimbursable 12/	131,018,000				
Total	$ 897,854,000	Total	$ 897,854,000			Total	$ 4.50

STATUS OF REPAYMENT CONTRACT: Repayment contract with Central Utah Water Conservancy District executed December 28, 1965, validated February 17, 1966. Amended April 15, 1966.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Collection System-final filed with Council on Environmental Quality August 2 1973. Provo River System, scheduled to Environmental Protection Agency-draft May 1978, final December 1978, Diamond Fork Power System, scheduled to Environmental Protection Agency-draft October 1978, final May 1979; Leland Bench scheduled to Environmental Protection Agency-draft January 1979, final October 1979, Utah Lake and Irrigation Features, scheduled to Environmental Proection Agency-draft September 1981, final September 1982.

DESCRIPTION: The Bonneville Unit, which is part of the Central Utah Project, is located in central Utah, the eastern part of the Bonneville Basin and in the western part of Uinta Basin in Uintah, Duchesne, Wasatch, Summit, Utah, Salt Lake, Juab, Sevier and Millard Counties, Utah. The unit is multipurpose in scope. It will provide a full water supply for irrigation of 29,370 acres of new land, a supplemental water supply to 213,170 acres of partially irrigated lands, 99,000 acre-feet of water annually for municipal and industrial use, and 133,500 kW of installed capacity for generation of power, to be used for irrigation pumping and for commerical sale. Benefits of fish and wildlife, recreation, and flood control will also be provided.

BR-324

PROJECT DATA SHEET--2

Central Utah Participating Project, Bonneville Unit, Utah

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1957 and for construction in FY 1966. In the initial planning of the Central Utah Project, irrigation development of 15,242 acres of Indian land was to occur as part of the initial phase of the Central Utah Project in the Uinta Basin. In the Definite Plan Report planning of the Bonneville Unit, Central Utah Project, the Ute Indian Tribe deferred current use of their water for later irrigation development of 15,242 acres of land so that construction of the Bonneville unit could proceed. The Ute Indian Tribe passed a resolution dated August 18, 1975, requesting that development of Indian facilities proceed concurrently with development of non-Indian facilities. The Secretary of the Interior at this time expressed a desire to meet the request of the Ute Tribe. Development of 15,242 acres of land on Leland Bench for Indian use will meet the Ute Tribal request. Investigations are being carried out on lands of the Leland Bench to determine if irrigation of that area is feasible and will meet the expressed needs of the Ute Indian Tribe. Reconaissance estimates of the total cost of the Leland Bench is $45,000,000. Investigations of Leland Bench are to be completed in fiscal year 1979.

Footnotes:

1/ Supplemental water has been delivered to 26,450 acres and municipal and industrial water of 3,000 acre-feet has been delivered. Facilities to provide an additional 15,000 acre-feet of municipal and industrial water was available in September 1977. Construction of this project is scheduled to be completed in 1993.

2/ Changed from 1.3 (direct) and 1.4 (total) as presented in the FY 1978 Budget Justification because benefits increased greater than costs. Power benefits increased due to application of new power rates. Irrigation benefits were updated to reflect changes in consumer price indices. Flood control benefits increased to reflect updating of benefits to currant price levels.

3/ Includes specific fish and wildlife costs of $30,499,000 and specific recreation costs of $32,890,000.

4/ Represents interest during construction of $10,310,000 for power and $16,460,000 for municipal and industrial water facilities.

Central Utah Participating Project, Bonneville Unit, Utah

Footnotes - (Continued):

5/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$347,879,000	$351,249,000
Power	145,633,000	179,497,000
Municipal and Industrial Water	245,965,000	236,090,000
Recreation	31,375,000	32,890,000
Fish and Wildlife	61,748,000	59,613,000
Flood Control	14,559,000	26,275,000
Highway Improvement	15,508,000	12,240,000
Total	$862,667,000	$897,854,000

The change in total of $35,187,000 includes cost indexing of $34,849,000 and $338,000 to reflect progress to date. The allocations to irrigation, recreation, and flood control increased to reflect increased costs. The allocation to power increased due to increased benefits based on increased power rates. By assigning a greater allocation of costs of multiple use facilities to power, the municipal and industrial water allocation decreased. Fish and wildlife and the allocation to highway improvements decreased to reflect current estimates of the cost of the facilities.

6/ Includes interest during construction as identified in Footnote 4.

7/ Of the amount to be repaid, $172,087,000 is covered by existing contracts and the balance will be covered with an increase in water rates and third party agreements scheduled for implementation by 1985.

8/ Repaid from net power revenues.

9/ From Upper Colorado River basin Fund revenues apportioned for use in the State of Utah.

10/ Colorado River Development Fund investigations costs, $881,000; contributions, $157,000; income received from grazing leases on withdrawn lands, $50,000. These costs are assigned $516,000 to irrigation, $323,000 to municipal and industrial water, and $249,000 to power.

Central Utah Participating Project, Bonneville Unit, Utah

Footnotes - (Continued):

11/ Includes $38,005,000 for irrigation and $80,161,000 for municipal and industrial water.

12/ Includes $26,275,000 for flood control; $59,613,000 for fish and wildlife; $32,890,000 for recreation; and $12,240,000 for relocation of highways to higher standards under Public Law 87-874.

13/ The appropriation authority for this project was provided in Public Laws 84-485 and 91-370 which covered many of the units and participating projects of the Colorado River Storage Project. The currently indexed total under this legislation if $1,839,887,000 and the currently estimated total appropriation required for these projects is $1,908,968,475. The appropriations requested for fiscal year 1979 will bring the total amount appropriated to $1,031,173,728. If actual bid amounts on future critical construction items substantiate the above total of estimated requirements, new legislation for additional appropriation ceiling will be recommended at an appropriate time.

24-040 O - 78 - 35

CENTRAL UTAH PROJECT-BONNEVILLE UNIT, UTAH

PHYSICAL DATA ON STRUCTURES - 5

COMPLETED WORK:

Starvation Dam and Reservoir

Dam:
Type - Zoned Earthfill
Structural Height - 200 feet
Crest Length - 3070 feet
Base Width - 870 feet

Spillway:
Type - Bath tub inlet chute
Design Discharge - 16,600 cubic feet per second

Reservoir Capacity:
Total Storage - 167,319 Acre-feet

CONSTRUCTION PROGRAM:

Upper Stillwater Dam and Reservoir

Dam:
Type - Asphalt face Rock fill
Structural Height - 270 feet
Crest Length - 2920 feet
Base Width - 820 feet

Spillway:
Type - Morning Glory
Design Discharge - 7820 cubic feet per second

Reservoir Capacity:
Total Storage - 29,500 Acre-feet

Currant Creek Dam and Reservoir

Dam:
Type - Zoned earthfill
Structural Height - 177 feet
Crest Length - 1,600 feet
Base Width - 825 feet

Spillway
Type - Rectangular conduct
Design Discharge - 850 cubic feet per second

Reservoir Capacity:
Total Storage - 15,670 Acre-feet

Soldier Creek Dam, Strawberry Reservoir Enlargement and Collection Works

Soldier Creek Dam, Strawberry Reservoir Enlargement

Soldier Creek Dam
Type - Zoned earthfill
Structural Height - 264 feet

Crest Length - 1290 feet
Base Width - 1650 feet

Spillway: None

Reservoir Capacity:
Total Storage - 1,106,500 Acre-feet

CENTRAL UTAH PROJECT-BONNEVILLE UNIT, UTAH
PHYSICAL DATA ON STRUCTURES - 6

Tunnels:	Length (miles)	Diameter Size (Feet horseshoe)	Capacity (Cubic feet per second)
Water Hollow	4.1	10.33	620
Layout	3.3	10.33	620
Currant	1.7	10.33	620
Vat	7.3	8.25	475
Rhodes	1.8	7.33	325
Hades	3.4	7.33	305
Stillwater	8.0	8.25	285

Pipelines:	Length (miles)	Diameter Size (Feet horseshoe)	Capacity (Cubic feet per second)
West Fork	4.2	7.0	475
North Fork Siphon	1.1	6.0	305
Currant Creek	0.8	10.5	620
Wolf Creek Pipeline	1.0	7.0	325

Diversion Dams and Feeder Conduits: Six structures - 5.3 Miles of feeder conduit

Hayes Dam and Reservoir

Dam:
- Type - Zoned earthfill
- Structural Height - 241 feet
- Crest Length - 1,870 feet
- Base Width - 1300 feet

Spillway:
- Type - Morning Glory
- Design Discharge - 4000 cubic feet per second

Reservoir Capacity:
- Total Storage - 51,500 Acre-feet

Mona Dam and Reservoir Enlargement

Dam:
- Type - earthfill
- Structural Height - 62 feet
- Crest Length - 550 feet
- Base Width - 225 feet

Spillway:
- Type - Morning Glory
- Design Discharge - 2200 feet per second

Reservoir Capacity:
- Total Storage - 47,060 Acre-feet

CENTRAL UTAH PROJECT-BONNEVILLE UNIT, UTAH
PHYSICAL DATA ON STRUCTURES - 7

Goshen Bay Dike

Dam:
Type - earthfill
Structural Height - 30 feet
Crest Length - 5.4 miles
Base Width - 500 feet

Spillway:
None

Reservoir Capacity:
None

Jordanelle Dam and Reservoir

Dam:
Type - zoned earthfill
Structural Height - 391 feet
Crest Length - 2,507
Base Width - 1645

Spillway:
Type - Morning Glory
Design Discharge - 3,110 cubic feet per second

Reservoir Capacity:
Total Storage - 320,000 Acre-feet

Jordan Aqueduct System

Tunnel	Length (miles)	Diameter Size (Feet horseshoe)	Capacity (Cubic feet per second)
Alpine Aqueduct Sec.I	0.34	7.5	450

Pipelines	Length (miles)	Diameter Size (Feet horseshoe)	Capacity (Cubic feet per second)
Jordan Aqueduct Section 1&2	14.9	6.5	270
Jordan Aqueduct Section 3	6.3	4.5	80
Alpine Aqueduct Section 1	0.57	7.5	450
Alpine Aqueduct Section 2	2.8	5.0	150

Canals	Length (miles)	Capacity (Cubic feet per second)	Diameter (feet)
Jordan Aqueduct Section 4 (Provo Reservoir Canal Rehabilitation)	17.0	270	6.0

Rehabilitation of Duchesne River Area Canal System

Length - 66.5 mile Capacity - Various Cubic feet per second Bottom Width - 2 to 12 feet Water Depth- .96 to 4.7 feet

Wasatch Aqueduet and Laterals

Tunnels	Length (miles)	Diameter Size (feet horseshoe)	Capacity (cubic feet per second)
No.1	1.5	7.0	200
No.2	4.0	7.0	200

Pipelines - Length 16.9 miles Diameter 6.0 to 4.5 feet Capacity 200 to 150 cubic feet per second

Canals - Length 9.5 miles Capacity 200 to 150 cubic feet per second

Beer Creek Dike, Pump Plant, Canal and Laterals

Dike:
- Type - Earthfill
- Structural Height - 12 feet
- Crest Length - 1.4 miles
- Base Width - 116 feet

Pump Plant:
- Two units
- 12.5 cubic feet per second each

Canal - Length 7.9 miles Capacity 100 to 200 cubic feet per second

Mona-Nephi Pump Plant, Canal and Laterals

Pump Plants
Mona - 4 units 125 cubic feet per second total capacity 256 foot vertical head
Nephi - 3 units 150 cubic feet per second total capacity 153 foot vertical head
Canal - Length 24.4 miles Capacity 190 to 25 Cubic feet per second

Elberta Canal and Laterals
Canal - Length 10.0 miles Capacity 130 to 25 Cubic feet per second

Pipelines - Length 2.1 miles Capacity 130 to 25 Cubic feet per second

Mosida Pump Plants, Canals and Laterals

Pump Plants
Lower Capacity 200 cubic feet per second 105 foot vertical head
Relift Capacity 120 cubic feet per second 70 foot vertical head
Canal Length 17.8 miles Capacity 200 to 15 cubic feet per second

Nephi-Sevier Canal
Canal - Length 27.1 miles Capacity 150 cubic feet per second

Provo Bay Associated Features
Dike:
Type - Earthfill
Structural Height - 24 feet
Crest Length - 6.5 miles
Base Width - 366 feet

Pumping Plants -
Irrigation - Three units at 25 cubic feet per second each
Two units at 12.5 cubic feet per second
Total Head 18 feet
Drainage - Four units at 75 cubic feet per second each
Total Head 24 feet

Canals - Length 11.6 miles Capacity 100 to 20 Cubic feet per second

Bonneville Basin Drains

Location and length to be determined by subsequent investigation

Taylor Canal Area Drains

Location and length to be determined by subsequent investigation

Diamond Fork Power System

Dams:
Syar Dam:
Type - Earthfill
Structural Height - 98 feet
Crest Length - #1 2030 feet
#2 1210 feet
Base Width - #1 350 feet
#2 610 feet

Spillway:
Type - Glory Hole
Design Discharge - 600 cubic feet per second

Reservoir Capacity:
Total Storage - 965 Acre-feet

Sixth Water Dam:
Type - Zoned earthfill
Structural Height-150 feet
Crest Length - 590 feet
Base Width - 1650 feet

Spillway:
Type - Open chute
Design Discharge - 5080 feet per second

Reservoir Capacity:
Total Storage - 1020 Acre-feet

Power Plants:
Syar - 1 Generating Unit - 10.5 Megawatts, Generating Head - 332 feet

Sixth Water - 2 Generating Units - 45 Megawatts each, Generating Head - 770 feet

Dyne - 1 Generating Unit - 33 Megawatts, Generating Head - 770 feet

Tunnels - length 7.6 miles, diameter 8.0 - 12.5 feet, capacity 450-800 cubic feet per second

Pipelines - length 2.4 miles, diameter 10.0 - 12.5 feet, capacity 615-800 cubic feet per second

Switchyard - Syar 13,750 kVa, Sixth Water 41,600 kVa, Dyne 45,000 kVa, Diamond Fork 5,000,000 kVA

Right-of-Way

Quantity - 27,549 acre
Total Estimated cost - $19,755,728
Cost per acre - $717
Acquisition- 9 percent complete as of January 1, 1978

Relocations

Total Estimated Cost - $44,129,000
Percent complete - 21.5 percent as of January 1, 1978

Items	Length	Total cost	Cost to September 30, 1977
United States Highways	27.1 miles	$30,304,000	$3,788,000
Utah State and County Highways	43.5 miles	7,165,000	3,548,000
Forest Service Roads and Trails	15.2 miles	2,744,000	2,128,000
Union Pacific Railroad	5.7 miles	2,850,000	--
Various Electric, Telephone, Utilities, and Cemetaries	--	1,066,000	100,000
Total		$44,129,000	$9,564,000

Appropriation Title: Upper Colorado River Storage Project
Upper Colorado River Basin Fund

CENTRAL UTAH PARTICIPATING PROJECT
BONNEVILLE UNIT, UTAH

FISCAL YEAR 1979

Work Proposed	Program
Upper Stillwater Dam and Reservoir. For preconstruction activities.	$ 400,000
Soldier Creek Dam, Strawberry Reservoir Enlargement and Collection Works. Construction will be completed on Vat Tunnel and relocation of West Side Roads and will continue on Stillwater Tunnel, West Fork Pipeline, Vat Diversion Dam and Feeder Pipeline. A contract will be awarded for Rhodes-Hades Tunnel Complex. Preconstruction activities will be continued.	21,491,000
Hayes Dam and Reservoir.)	50,000
Mona Dam and Reservoir.) Provides for preconstruction activities.	20,000
Goshen Bay Dike.)	100,000
Jordenelle Dam and Reservoir.)	100,000
Jordan Aqueduct System. Construction will continue on the Provo Reservoir Canal Rehabilitation. Preconstruction activities on the system will be continued.	4,163,000
Rehabilitation Duchesne River Area Canal System.) Provides for preconstruction activities	100,000
Wasatch Aqueduct and Laterals.)	100,000

Appropriation Title: Upper Colorado River Storage Project
Upper Colorado River Basin Fund--2

CENTRAL UTAH PARTICIPATING PROJECT
BONNEVILLE UNIT, UTAH

FISCAL YEAR 1979

Work Proposed		Program
Beer Creek Dike, Pumping Plant, Canal and Laterals.	)	$ 20,000
Mona-Nephi Pumping Plants, Canal and Laterals.	)	20,000
Elberta Canal and Laterals.	)	10,000
Mostda Pumping Plants, Canals and Laterals.	)	20,000
Nephi-Sevier Canal.	) Provides for preconstruction activities	10,000
Provo Bay Associated Features.	)	100,000
Diamond Fork Power System.	)	300,000
Permanent Operating Facilities. Purchase of operating equipment will continue.		5,000
Other Project Costs. Investigations will continue on the Leland Bench Area.		250,000
TOTAL		$ 27,259,000

CENTRAL UTAH PARTICIPATING PROJECT, BONNEVILLE UNIT, UTAH

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Construction Program					
Completed Work[1/]	22,884,247	22,884,247	--	--	--
Upper Stillwater Dam and Reservoir	49,842,000	4,372,010	1,744,000	400,000	43,325,990
Currant Creek Dam and Reservoir	23,511,051	23,391,051	120,000	--	--
Soldier Creek Dam, Strawberry Reservoir Enlargement and Collection Works	177,437,000	70,312,888	23,961,000	21,491,000	61,672,112
Hayes Dam and Reservoir	30,540,000	494,725	58,000	50,000	29,937,275
Mona Dam and Reservoir Enlargement	10,470,000	148,314	20,000	20,000	10,281,686
Goshen Bay Dike	55,750,000	837,418	120,000	100,000	54,692,582
Jordanelle Dam and Reservoir	109,730,000	1,746,449	142,000	100,000	107,741,551
Jordan Aqueduct System	39,500,000	13,483,098	6,295,000	4,163,000	15,558,902
Rehabilitation Duchesne River Area Canal System	6,600,000	95,565	--	100,000	6,404,435
Wasatch Aqueduct and Laterals	43,607,000	662,101	100,000	100,000	42,744,899
Beer Creek Dike, Pumping Plant, Canals and Laterals	2,729,000	37,349	20,000	20,000	2,651,651
Mona-Nephi Pumping Plants, Canal, Laterals and Switchyards	20,404,000	405,047	20,000	20,000	19,958,953
Elberta Canal and Laterals	5,540,000	76,397	10,000	10,000	5,443,603
Mosida Pumping Plants, Canals and Laterals	12,120,000	340,412	20,000	20,000	11,739,588
Nephi-Sevier Canal	7,960,000	135,529	10,000	10,000	7,804,471
Provo Bay Associated Features	58,700,000	671,597	100,000	100,000	57,828,403
Bonneville Basin Drains	10,110,000	159,667	--	--	9,950,333
Taylor Canal Area Drains	990,000	11,921	--	--	978,079
Diamond Fork Power System	114,825,000	1,875,288	300,000	300,000	112,349,712
Permanent Operating Facilities	1,742,376	9,119	5,000	5,000	1,723,257
O&M Housing	923,000	--	--	--	923,000
Service Facilities, Depreciation and Salvage	-1,543,674	-386,864	646,000	--	-1,802,810
Engineering and Design	(91,600,000)	(20,822,637)	(3,539,000)	(2,400,000)	(64,838,363)
Supervision and Administration	(98,389,000)	(16,359,547)	(2,327,000)	(2,170,000)	(77,532,453)
Relocation Costs	(44,129,000)	(9,564,000)	(930,000)	(370,000)	(33,265,000)
Total Construction Cost	804,371,000	141,763,328	33,691,000	27,009,000	601,907,672
Other Project Cost	3,324,000	293,997	335,000	250,000	2,445,003
Total Project Cost	807,695,000	142,057,325	34,026,000	27,259,000	604,352,675

BR-337

CENTRAL UTAH PARTICIPATING PROJECT, BONNEVILLE UNIT, UTAH--2

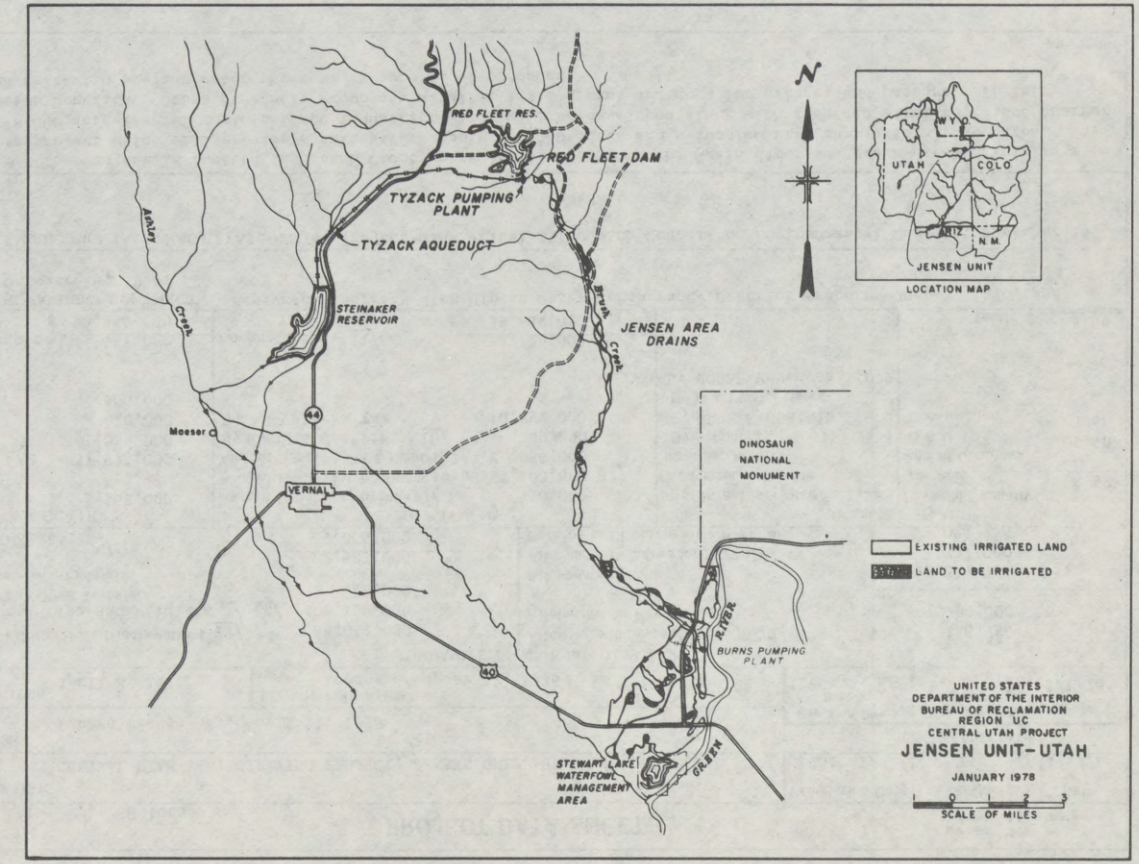
PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Consolidated Expenditures and Credits.....	-1,746,000	-1,729,552	332	--	-16,780
Total Expenditures.....	805,949,000	140,327,773	34,026,332	27,259,000	604,335,895
Undelivered Orders.....	--	2,993,341	-2,993,341	--	--
Total Obligations.....	805,949,000	143,321,114	31,032,991	27,259,000	604,335,895
Method of Financing					
Appropriation available and required.....	--	--	30,965,000	27,259,000	604,335,895
Application of prior year funds.....	--	--	67,991	--	--

1/Includes Starvation Dam and Reservoir and Duchesne Temporary Camp.

BR-337A


RED FLEET RES.
RED FLEET DAM
TYZACK PUMPING PLANT
TYZACK AQUEDUCT
STEINAKER RESERVOIR
JENSEN AREA DRAINS
Ashley Creek
Brush Creek
Maeser
VERNAL
44
40
DINOSAUR NATIONAL MONUMENT
BURNS PUMPING PLANT
GREEN RIVER
STEWART LAKE WATERFOWL MANAGEMENT AREA
N
WYO
UTAH
COLO
UTAH
N.M.
JENSEN UNIT
LOCATION MAP
EXISTING IRRIGATED LAND
LAND TO BE IRRIGATED
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
REGION UC
CENTRAL UTAH PROJECT
JENSEN UNIT-UTAH
JANUARY 1978
0 1 2 3
SCALE OF MILES

PROJECT DATA SHEET

PF-65 (11-76)
Bureau of Reclamation

REGION	PROJECT AND STATE	Completion Date	% Complete	Date
Upper Colorado	CENTRAL UTAH PARTICIPATING PROJECT, JENSEN UNIT, UTAH	1981 1/	25	1/1/78

AUTHORIZATION	BENEFIT COST RATIOS		
	Based on Direct Benefits	Based on Total Benefits	Date
Public Law 84-485, April 11, 1956	1.9 2/	1.9 2/	1/1/78

LAND CERTIFICATION	DEFINITE PLAN REPORT
April 8, 1971	Approved August 12, 1976

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 12/	$ 36,051,000	Allotments to September 30, 19 77	$ 8,115,754
Recreational-Fish and Wildlife 3/ 12/	1,106,000	Allotments for F.Y. 19 78	7,204,000
Net Property and Other Transfers	20,000		
Cash Advances--Non-Federal		Allotments to Date	15,319,754
Adjustment 4/	2,687,000	Allotments Required for F.Y. 1979	7,707,000
Total to be Allocated	$ 39,864,000	Balance to Complete after F.Y. 19 79	$ 13,024,246

ALLOCATIONS 5/		REPAYMENT		AMOUNTS PER ACRE			
Irrigation	$ 5,163,000	Amount Repaid by Irrigators 7/	$ 750,000	Irrig. Invest. per Acre	$ 1,265	Payment Capacity per Acre	$ 5.98
Power	...	Amount Repaid by UCRBF Revenues	4,403,000 8/9/	Repayment of Investment per Acre:		Annual Charges:	
M & I Water 6/	31,975,000	Amount Repaid by M & I Water 7/	21,064,000	By Irrigators	$ 184	O & M	$ 1.40
Recreation	1,055,000	By CRDF & Contrib. 10/	69,000	By CRDF & CONTRIB.	2	Construction	3.68
F & WL	620,000	By Ad Valorem Tax	10,852,000	By M & I Water Users	...		
Flood Control	600,000			By UCRBF Revenues	1,079		
Hwy Improvement	451,000	Nonreimbursable 11/	2,726,000				
Total	$ 39,864,000	Total	$ 39,864,000			Total	$ 5.08

STATUS OF REPAYMENT CONTRACT: Repayment contract with Uintah Water Conservancy District executed June 3, 1976, and validated October 14, 1976.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide -final filed with Council on Environmental Quality, December 16, 1975.

DESCRIPTION: The project is located in Uintah County near Jensen, Utah, on the Green River and Brush Creek. This is a multipurpose project which will provide a full water supply for 440 acres and a supplemental supply for 3,640 acres. In addition, 18,000 acre-feet of municipal and industrial water will be developed along with fish and wildlife, flood control and recreation benefits. Crops presently grown are alfalfa, small grains and corn for silage, and pasture. It is anticipated that with project water the same crops will be produced.

BR-338

PROJECT DATA SHEET--2

Central Utah Participating Project, Jensen Unit, Utah

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1962 and for construction in FY 1971.

Footnotes:

1/ Project facilities are scheduled to be completed in 1981 except for the construction of drains which will be completed as the need develops.

2/ Changes from 1.7 (Direct) and 1.8 (Total) as presented in the FY 1978 Budget Justification to reflect increased benefits for Municipal and Indutrial Water and updating of irrigation benefits based on consumer price indicies.

3/ Represents estimated cost of specific facilities for recreation, $1,055,000; and fish and wildlife, $51,000.

4/ Represents reimbursable interest during construction on Municipal and Industrial Water.

5/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$ 4,902,000	$ 5,163,000
Municipal and Industrial Water	30,017,000	31,975,000
Recreation	825,000	1,055,000
Fish and Wildlife	566,000	620,000
Flood Control	542,000	600,000
Highway Improvement	451,000	451,000
Total	$ 37,303,000	$ 39,864,000

The increase of $2,561,000 is due to cost indexing.

Central Utah Participating Project, Jensen Unit, Utah

Footnotes (Continued):

6/ Includes reimbursable interest during construction of $2,687,000.

7/ The scheduled amount to be repaid is covered by existing contracts with the Uintah Water Conservancy District.

8/ From Upper Colorado River Basin Fund revenues apportioned to State of Utah.

9/ Repaid from net power revenues with power rate as announced in "Schedule of Rates for Wholesale Power Service," (schedule UC-F2) dated March 14, 1977.

10/ Includes $65,000 from nonreimbursable Colorado River Development Fund of which $59,000 is for Municipal and Industrial Water and $6,000 for irrigation and contributed funds of $4,000 for investigations which is to be used for irrigation repayment.

11/ Includes nonreimbursable allocations of $620,000 for fish and wildlife; $1,055,000 for recreation; $600,000 for floo control; and $451,000 for highway improvement under Public Law 87-874.

12/ The appropriation authority for this project was provided in Public Laws 84-485 and 92-370 which covered many of the units and participating projects of the Colorado River Storage Project. The currently indexed total under this legislation is $1,839,887,000 and the currently estimated total appropriation requirement for these projects is $1,908,968,475. The appropriations requested for fiscal year 1979 will bring the total amount appropriated to $1,031,173,728. If actual bid amounts on future critical construction items substantiate the above total of estimated requirements, new legislation for additional appropriation ceiling will be recommended at an appropriate time.

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CENTRAL UTAH PROJECT-JENSEN UNIT, UTAH

PHYSICAL DATA ON STRUCTURES - 4

CONSTRUCTION PROGRAM:

RED FLEET DAM AND RESERVOIR (formerly TYZACK DAM AND RESERVOIR)

Dam:
Type-Zoned earth fill
Structural Height-145 feet
Crest Length-1,640 feet
Base Width-818 feet

Spillway:
Type-Open Chute
Design Discharge-5,510 feet per second.

Reservoir Capacity:
Total Storage-26,000 Acre-feet

PROJECT DISTRIBUTION SYSTEM

Pumping Plants:

Tyzack
Four Units-Total Capacity 46 cubic feet per second-587 feet of head
Burns
Fourteen Units-Total Capacity 115.4 cubic feet per second-Total head 52 to 195 feet
Pipelines
Tyzack Length 11.9 miles Capacity - 46 Cubic feet per second.
Burns Length 2.0 miles Capacity - 12 to 39 cubic feet per second.

JENSEN AREA DRAINS

Closed drains - Length 4.7 miles
Open drains - Length 1.4 miles

RIGHT-OF-WAY

Quantity - 765 acres
Total Estimated cost - $421,861
Cost per Acre - $551
Acquisition - 93 per complete as of January 1, 1978

CENTRAL UTAH PROJECT-JENSEN UNIT, UTAH
PHYSICAL DATA ON STRUCTURES - 5

RELOCATIONS

Total Estimated Cost - $412,000
Percent complete - 100 percent complete as of January 1, 1978

Items	Length	Cost	Cost to September 30, 1977
County Roads	3.35 miles	$412,000	$412,000

Appropriation Title: Upper Colorado River Storage Project
Upper Colorado River Basin Fund

CENTRAL UTAH PARTICIPATING PROJECT
JENSEN UNIT, UTAH

FISCAL YEAR 1979

Work Proposed	Program
Red Fleet (formerly Tyzack) Dam and Reservoir. Construction will continue on Red Fleet Dam.	$ 4,759,000
Project Distribution System. This system provides municipal and industrial water to the City of Vernal. A contract will be awarded for construction of Tyzack Pumping Plant and Aqueduct, and land and rights will be required.	2,948,000
TOTAL	$ 7,707,000

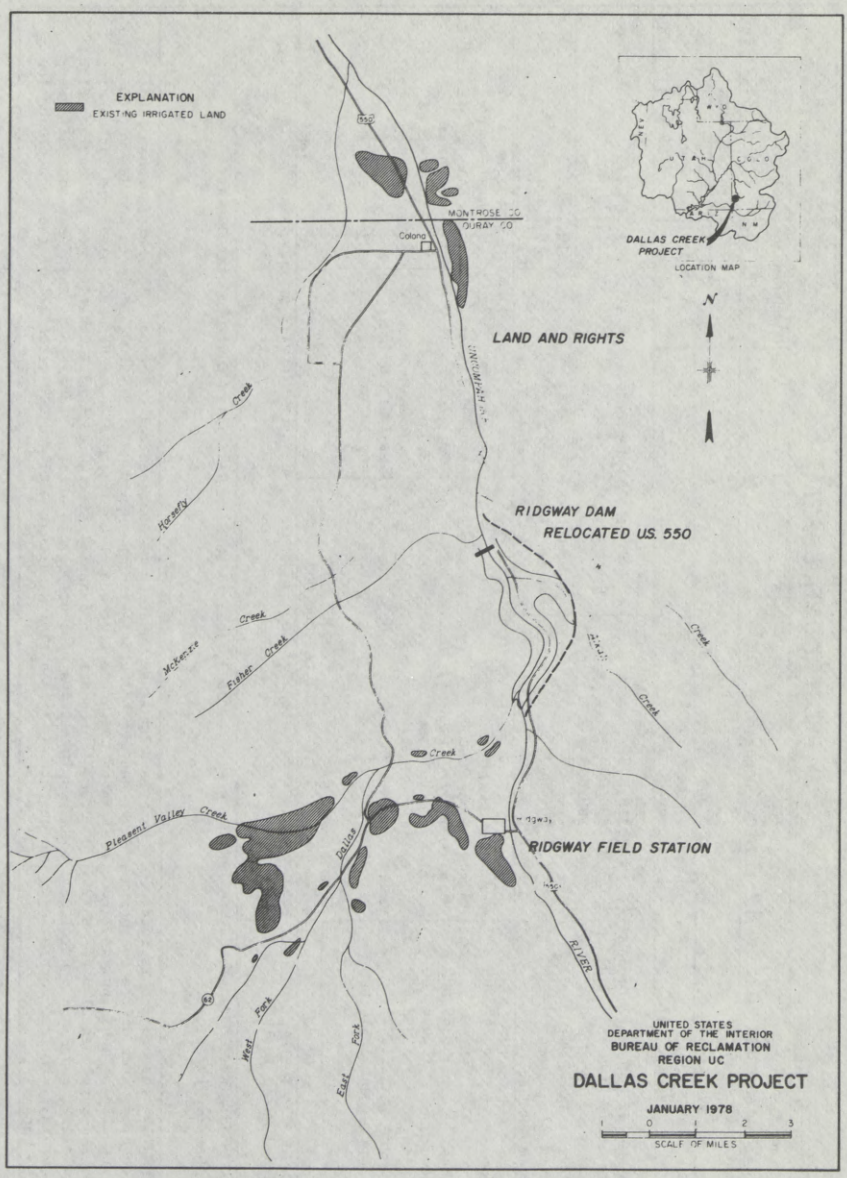
CENTRAL UTAH PARTICIPATING PROJECT, JENSEN UNIT, UTAH

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 19 78 , AND FISCAL YEAR 19 79

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19 77	F.Y. 1978 PROGRAM	F.Y. 19 79 ESTIMATE	BALANCE TO COMPLETE
Construction Program					
Red Fleet (Formerly Tyzack) Dam and Reservoir....	20,560,000	5,332,801	8,091,000	4,759,000	2,377,199
Project Distribution System.....	14,548,000	770,346	200,000	2,948,000	10,629,654
Jensen Area Drain.....	933,848	89,848	844,000	--	--
Permanent Operating Facilities.....	29,152	--	--	--	29,152
Service Facilities, Depreciation and Salvage.....	--	63,543	-12,000	--	-5 ,543
Engineering and Design.....	(5,098,000)	(3,010,853)	(600,000)	(300,000)	(1,187,147)
Supervision and Administration.....	(4,790,363)	(402,876)	(752,000)	(1,515,000)	(2,120,487)
Relocation Costs.....	(412,000)	(412,000)	(--)	(--)	(--)
Total Construction Cost.....	36,071,000	6,256,538	9,123,000	7,707,000	12,984,462
Total Project Cost.....	36,071,000	6,256,538	9,123,000	7,707,000	12,984,462
Consolidated Expenditures and Credits.....	-20,000	-60,044	260	--	39,784
Total Expenditures.....	36,051,000	6,196,494	9,123,260	7,707,000	13,024,246
Undelivered Orders.....	--	1,379,260	-1,379,260	--	--
Total Obligations.....	36,051,000	7,575,754	7,744,000	7,707,000	13,024,246
Method of Financing					
Appropriations available and required.....	--	--	7,204,000	7,707,000	13,024,246
Application of prior year funds	--	--	540,000	--	--

BR-344


EXPLANATION
EXISTING IRRIGATED LAND
MONTROSE CO
OURAY CO
Colona
DALLAS CREEK PROJECT
LOCATION MAP
N
LAND AND RIGHTS
UNCOMPAHGRE
RIDGWAY DAM
RELOCATED U.S. 550
Creek
McKenzie Creek
Fisher Creek
Pleasant Valley Creek
Dallas
RIDGWAY FIELD STATION
RIVER
West Fork
East Fork
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
REGION UC
DALLAS CREEK PROJECT
JANUARY 1978
SCALE OF MILES

PROJECT DATA SHEET

PF-85 (11-76)
Bureau of Reclamation

REGION: Upper Colorado

PROJECT AND STATE: DALLAS CREEK PARTICIPATING PROJECT, COLORADO

Completion Date	% Complete	Date
1981	18	1/1/78

AUTHORIZATION: Public Law 90-537, September 30, 1968

BENEFIT COST RATIOS

Based on Direct Benefits	Based on Total Benefits	Date
1.4 1/	1.5 1/	1/1/78

LAND CERTIFICATION: December 17, 1976

DEFINITE PLAN REPORT: Approved December 28, 1976

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation)	10/	$45,210,000	
Recreational-Fish and Wildlife	2/ 10/	11,890,000	
Net Property and Other Transfers		700,000	
Cash Advances--Non-Federal		---	
Adjustment 3/		4,204,000	
Total to be Allocated		$62,004,000	

Allotments to September 30, 1977	$ 7,366,774
Allotments for F.Y. 1978	11,775,000
Allotments to Date	19,141,774
Allotments Required for F.Y. 1979	10,780,000
Balance to Complete after F.Y. 1979	$15,288,226

ALLOCATIONS 4/

Irrigation	$ 16,242,000
Power	
M & I Water	30,369,000
Recreation	10,650,000
F & WL	1,952,000
Flood Control	1,281,000
Hwy. Improvement	1,510,000
Other	
Total	$ 62,004,000

REPAYMENT

Amount Repaid by Irrigators 5/	$ 3,200,000
Amount Repaid by Power	
Amount Repaid by M & I Water 5/	30,164,000
Amount by Ad Valorem Tax	3,066,000
CRDF 6/	332,000
Amount Repaid, UCRBF Rev. 7/ 8/	9,849,000
Nonreimbursable 9/	15,393,000
Total	$ 62,004,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$779
Repayment of Investment per Acre:	
By Irrigators	$154
By Power Revenues	472
By M & I Water Users	
By Ad Val Tax	147
By CRDF	6

Payment Capacity per Acre	$ 22.30
Annual Charges:	
O & M	$ .34
Construction	20.41
Total	$ 20.75

STATUS OF REPAYMENT CONTRACT: Repayment contract with Tri-County Water Conservancy District executed January 14, 1977, validated March 1, 1977.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide - final filed with Council on Environmental Quality - September 28, 1976.

DESCRIPTION: The project is located in Ouray and Montrose Counties of west-central Colorado. The multipurpose project will develop water of the Uncompahgre River and its tributaries in the Upper Colorado River Basin to provide 28,100 acre-feet annually of municipal and industrial water to the rural towns of Colona, Olathe, Montrose, Delta, and surrounding areas, and supplemental water to 20,850 acres of presently inadequately irrigated land. Benefits for recreation, fish and wildlife, and flood control will also result. Crops presently grown are livestock feeds, sugar beets, fruit crops, small grains, alfalfa, corn silage, and pasture. It is anticipated that with project water all of the crop production will be intensified.

BR-345

PROJECT DATA SHEET--2

Dallas Creek Participating Project--Colorado

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1970, for land acquisition in FY 1973 and for construction in FY 1975.

Footnotes:

1/ No change from the FY 1978 Budget Justification. Increase in costs due to indexing were accompanied by corresponding updating of benefits to reflect current consummer price indexes.

2/ Includes $5,400,000 for 20,900 acre-feet of storage in Ridgway Reservoir, $5,255,000 for recreation facilities costs, and fish and wildlife costs of $1,235,000.

3/ Includes $4,204,000 interest during construction for municipal and industrial water.

4/ Explanation of changes in allocations from FY 1978 Budget Justification:

	1978 Estimate	1979 Estimate
Irrigation	$15,279,000	$16,242,000
Municipal and Industrial Water	28,171,000	30,369,000
Recreation	10,100,000	10,650,000
Fish and Wildlife	1,773,000	1,952,000
Flood Control	1,206,000	1,281,000
Highway Improvement	1,430,000	1,510,000
Total	$57,959,000	$62,004,000

The increase of $4,045,000 is due to cost indexing.

5/ The scheduled amount to be repaid is covered by existing contracts with the project beneficiaries.

6/ Municipal and industrial water cost, $205,000; irrigation cost, $127,000.

7/ From Upper Colorado River Basin Fund revenues apportioned to Colorado.

Dallas Creek Participating Project-- Colorado

Footnotes (Continued):

8/ Repaid from net power revenues.

9/ Includes $10,650,000 recreation costs; $1,952,000 fish and wildlife; $1,281,000 flood control; and $1,510,000 relocation of highways to higher standards under Public Law 87-874.

10/ The appropriation ceiling for this project was included with the total authorized to be appropriated by Public Law 90-537. The total amount authorized to be appropriated is $806,265,000. The authorization is adequate to cover the projects as currently proposed.

DALLAS CREEK PROJECT, COLORADO

PHYSICAL DATA ON STRUCTURES--4

CONSTRUCTION PROGRAM:

Ridgway Dam and Reservoir

Dam:
Type - Earthfill
Structural Height - 227 Feet
Crest Width - 30 Feet
Crest Length - 2,430 Feet

Spillway:
Type - Concrete, uncontrolled
Length - 1,120 Feet
Design Discharge - 8,660 Cubic Feet per second

Reservoir Capacity:
Total Storage - 80,000 Acre-Feet
Water Surface Area - 1,030 Acres

Right-of-Way
Quantity - 3,453 Acres
Total Estimated Cost - $4,923,000
Cost Per Acre - $1,426
Acquisition - 80% Complete as of January 1, 1978

Relocation
Total Estimated Cost - $4,670,000
Percent Complete - 0 percent as of January 1, 1978

Items:	Length	Total Cost	Cost to Sept. 30, 1977
United States Highway 550	6 Miles	$2,574,000	0
Power Line Relocation	5 Miles	189,000	0
Telephone Line Relocation	5 Miles	46,000	0
Various Other Relocations	--	1,861,000	0
TOTAL		$4,670,000	0

Appropriation Title: Upper Colorado River Storage Project
Upper Colorado River Basin Fund

DALLAS CREEK PARTICIPATING PROJECT, COLORADO

FISCAL YEAR 1979

Work Proposed		Program
Ridgway Dam and Reservoir.	Program provides for continuation of construction of	$10,780,000
Ridgway Dam and Reservoir.	Relocation of U.S. Highway 550 will be completed.	
	TOTAL	$10,780,000

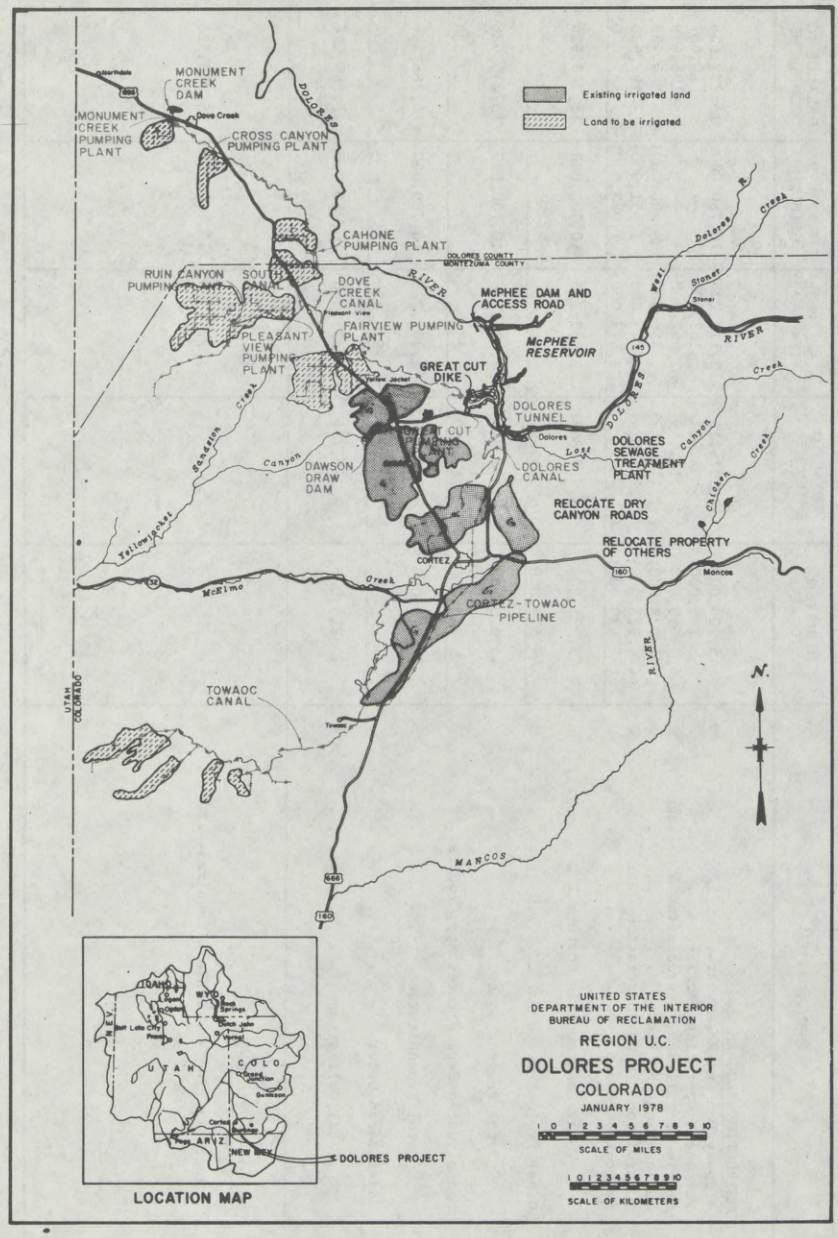
DALLAS CREEK PARTICIPATING PROJECT, COLORADO

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM					
Ridgway Dam and Reservoir	45,200,000	6,907,116	12,175,226	10,780,000	15,337,658
Permanent Operating Facilities	175,000	2,313	162,000	--	10,687
Service Facilities, Depreciation & Salvage	-40,000	10,419	52,000	--	-102,419
Engineering and Design	(4,029,000)	(2,414,512)	(350,000)	(400,000)	(864,488)
Supervision and Administration	(4,923,000)	(1,136,074)	(2,243,000)	(1,351,000)	(192,926)
Relocation Costs	(4,670,000)	(0)	(3,577,000)	(1,093,000)	(0)
Total Construction Costs	45,335,000	6,919,848	12,389,226	10,780,000	15,245,926
Other Project Costs	575,000	575,000			
Total Project Cost	45,910,000	7,494,848	12,389,226	10,780,000	15,245,926
Consolidated Expenditures and Credits	-700,000	-742,300			42,300
Total Expenditures	45,210,000	6,752,548	12,389,226	10,780,000	15,288,226
Undelivered Orders		614,226	-614,226		
Total Obligations	45,210,000	7,366,774	11,775,000	10,780,000	15,288,226
Method of Financing					
Appropriation Available & Required			11,775,000	10,780,000	15,288,226

BR-350


Existing irrigated land
Land to be irrigated
MONUMENT CREEK DAM
MONUMENT CREEK PUMPING PLANT
Dove Creek
CROSS CANYON PUMPING PLANT
DOLORES
CAHONE PUMPING PLANT
DOLORES COUNTY
MONTEZUMA COUNTY
RUIN CANYON PUMPING PLANT
SOUTH CANAL
DOVE CREEK CANAL
RIVER
McPHEE DAM AND ACCESS ROAD
FAIRVIEW PUMPING PLANT
PLEASANT VIEW PUMPING PLANT
McPHEE RESERVOIR
GREAT CUT DIKE
DOLORES TUNNEL
Dolores
DOLORES SEWAGE TREATMENT PLANT
DOLORES CANAL
DAWSON DRAW DAM
RELOCATE DRY CANYON ROADS
RELOCATE PROPERTY OF OTHERS
CORTEZ
Mancos
McElmo
Creek
CORTEZ-TOWAOC PIPELINE
TOWAOC CANAL
UTAH
COLORADO
MANCOS
RIVER
West Dolores R.
Stoner
Creek
Canyon
Chicken
Sandstone
Yellowjacket
N.
LOCATION MAP
DOLORES PROJECT
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
REGION U.C.
DOLORES PROJECT
COLORADO
JANUARY 1978
SCALE OF MILES
SCALE OF KILOMETERS

PROJECT DATA SHEET

PF-65 (11-76)
Bureau of Reclamation

REGION: Upper Colorado

PROJECT AND STATE: DOLORES PARTICIPATING PROJECT, COLORADO

Completion Date	% Complete	Date
1/	2	1/1/78

AUTHORIZATION: Public Law 90-537, September 30, 1968

BENEFIT COST RATIOS

Based on Direct Benefits	Based on Total Benefits	Date
1.1 2/	1.3 2/	1/1/78

LAND CERTIFICATION: Certified June 28, 1977

DEFINITE PLAN REPORT: Approved July 5, 1977

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 13/	$ 186,286,000	Allotments to September 30, 1977	$ 2,975,879
Recreational-Fish and Wildlife 3/	11,959,000	Allotments for F.Y. 1978	5,500,000
Net Property and Other Transfers	957,000		
Cash Advances--Non-Federal	---	Allotments to Date	8,475,879
Adjustment 4/	1,361,000	Allotments Required for F.Y. 1979	14,110,000
Total to be Allocated	$ 200,563,000	Balance to Complete after F.Y. 1979	$ 163,700,121

ALLOCATIONS 5/

Irrigation	$ 157,292,000
Power	---
M & I Water 6/	16,620,000
Recreation	6,440,000
F & WL	17,393,000
Flood Control	1,042,000
Hwy Improvement	1,026,000
Other 7/	750,000
Other	
Total	$ 200,563,000

REPAYMENT

Amount Repaid by Irrigators 8/	$ 12,870,000
Amount Repaid by UCRBC Rev. 9/	139,702,000
Amount Repaid by M & I Water 10/	16,533,000
CRDF & Other Funds 11/	507,000
Ad Val. Tax Revenues 10/	4,300,000
Nonreimbursable 12/	26,651,000
Total	$ 200,563,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 2,551	Payment Capacity per Acre	$ 16.60
Repayment of Investment per Acre:		Annual Charges:	
By Irrigators	$ 209	O & M	$ 9.30
By Power Revenues	2,265	Construction	4.10
By M & I Water Users	--		
By Ad Val. Tax	70		
CRDF & Contr.Funds	7		
		Total	$ 13.40

STATUS OF REPAYMENT CONTRACT: Repayment Contract with Dolores Water Conservancy District executed September 23, 1977, validated September 23, 1977.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide statement - Final filed with Council on Environmental Quality May 9, 1977.

DESCRIPTION: The project is located in Montezuma and Dolores Counties in southwestern Colorado. This is a multipurpose project which will provide 8,700 acre-feet annually of municipal and industrial water supplies with new municipal and industrial supplies allocated for the Ute Mountain Ute Indians. Benefits will result from irrigation, municipal and industrial, recreation, fish and wildlife, and flood control. The project will also provide a full water supply for the irrigation of 27,860 acres of land in the Dove Creek area and 7,500 acres located on the Ute Mt. Ute Indian Reservation near Towaoc. A supplemental supply will be provided for 26,300 acres of presently irrigated land. The crops presently

grown in the supplemental service area are in support of the production of livestock and consist of alfalfa, small grains, pasture, and some corn for ensilage. A small acreage of fruit, mostly apples, is grown in a few favorable areas. Crops grown in the full service area presently under dry farming are pinto beans and wheat. It is anticipated that with project water there will be an increased production of alfalfa, small grains, corn and pasture similar to the adjacent irrigated lands.

OTHER INFORMATION: Funds to initiate advance planning were appropriated in FY 1970 and construction in FY 1977.

Footnotes:

1/ Initial delivery of 7,200 acre-feet of municipal and industrial water and initial delivery of water to 7,700 acres of full service land and to 26,300 acres of supplemental land, scheduled in fiscal year 1983.

2/ Changed from 1.0 Direct and unchanged from 1.3 Total as presented in the FY 1978 Budget Justifications. Increase in direct benefits is due to updating of project benefits to reflect changes in consumer and agricultural prices indexes.

3/ Represents specific recreation costs of $6,440,000; fish and wildlife costs of $5,519,000.

4/ Includes reimbursable interest during construction.

5/ Explanation of change in allocation from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$147,828,000	$157,292,000
Municipal and Industrial Water	15,763,000	16,620,000
Recreation	5,980,000	6,440,000
Fish and Wildlife	16,170,000	17,393,000
Flood Control	1,025,000	1,042,000
Highway Improvement	974,000	1,026,000
Other (Cultural Resource Activities)	710,000	750,000
Total	$188,450,000	$200,563,000

The increase of $12,113,000 is due to cost indexing.

Dolores Participating Project, Colorado

Footnotes (Continued):

6/ Includes $1,361,000 interest during construction.

7/ For nonreimbursable cultural resources activities (Public Law 93-291).

8/ Includes $5,445,000 cost of irrigation service to Indian lands. Repayment will be deferred under the Leavitt Act of July 1, 1931 (47 Stat. 564). The balance to be repaid is fully covered by a contract with the Dolores Water Conservancy District.

9/ Repaid from net power revenues.

10/ Repayment for 7,700 acre-feet of 8,700 acre-feet is fully covered by contract with Dolores Water Conservancy District. The additional 1,000 acre-feet is assigned to the Ute Mountain Ute Indian Tribe and will be contracted for prior to delivery.

11/ Includes $475,000 from the Colorado River Development Fund and $32,000 from the Bureau of Indian Affairs (BIA). The Colorado River Development Fund will be prorated $87,000 for municipal and industrial water and $388,000 for irrigation costs. The BIA funds will be used for irrigation costs as it was advanced to pay costs of investigation of irrigation on Indian lands.

12/ Includes $6,440,000 recreation costs, $17,393,000 fish and wildlife costs, $1,042,000 flood control, $750,000 for cultural resources activity (Public Law 93-291), and $1,026,000 highway improvement (Public Law 87-874).

13/ The appropriation ceiling for this project was included with the total authorized to be appropriated by Public Law 90-537. The total amount authorized to be appropriated is $806,265,000. The authorization is adequate to cover the projects as currently proposed.

DOLORES PROJECT, COLORADO

PHYSICAL DATA ON STRUCTURES - 4

CONSTRUCTION PROGRAM:

McPhee Dam and Reservoir

Dam:
- Type - Earthfill
- Structural Height - 270 feet
- Crest Width - 30 feet
- Crest Length - 1,300 feet

Spillway:
- Type - Gated Concrete Chute
- Design Discharge - 33,300 Cubic Feet per Second
- Outlet Works - 5,000 Cubic Feet per Second

Reservoir Capacity:
- Total Storage - 381,000 Acre-feet
- Water Surface Area - 4,470 acres

Great Cut Dike

Dam:
- Type - Earthfill
- Structural Height - 64 feet
- Crest Width - 30 feet
- Crest Length - 1,900 feet

Spillway:
- None
- Outlet Works - 820 Cubic Feet per Second

Monument Creek Dam

Dam:
- Type - Earthfill
- Structural Height - 43 feet
- Crest Width - 30 feet
- Crest Length - 2,850 feet

Spillway:
- Type - Concrete
- Design Discharge - 432 Cubic Feet per Second
- Outlet Works - 55 Cubic Feet per Second

Reservoir Capacity:
- Total Storage - 690 Acre-feet
- Water Surface Area - 84 Acres

Dove Creek Distribution System

Great Cut Pumping Plant
- Capacity - 380 cubic feet per second at 108 feet total head

24-040 O - 78 - 37

Sprinkler Pumping Plants

Six pumping plants to provide water to pipe laterals for sprinkler irrigation. Capacity 20-98 cubic feet per second with total heads from 83-171 feet.

Dove Creek Canal - Length 39.4 miles, Canal Capacity - 380 to 30 Cubic Feet per Second

South Canal Distribution System

South Canal - Length, 7.6 miles, Canal Capacity - 160 to 30 Cubic Feet per Second

Cortez-Towaoc Distribution System

Dolores Tunnel - Length 1.3 miles, diameter 9 feet, capacity 520 cubic feet per second

Dolores Canal - Length, 1.3 miles, Canal Capacity - 520 to 70 Cubic feet per Second

Towoac Canal - Length, 45.4 miles, Canal Capacity - 135 to 86 Cubic Feet per Second

Cortez-Towaoc M&I Pipeline - Length 19.5 miles, Diameter 21 to 10 Inches, Capacity 17 to 3 cubic feet per second

Laterals

Twelve Lateral Pipe Systems with a total of 84.7 Miles to deliver water to farms in the Dove Creek and Towaoc areas.

Drains

73 miles of buried pipe drains.

Transmission Lines - Total length 18.5 miles

Right-of-way

Quantity - 7,474 acres
Total Estimated Cost - $5,264,000
Cost Per Acre - $704
Acquisition -29 percent complete as of January 1, 1978

DOLORES PROJECT, COLORADO

PHYSICAL DATA ON STRUCTURES - 6

Relocation

Total Estimated Cost - $8,000,000
Percent Complete - Nothing completed as of January 1, 1978

Items:	Total Cost	Cost to September 30, 1977
County Roads	$6,210,000	$ - -
Various Electrical, Telephone, Utilities and Cemetaries	690,000	- -
Canals	662,000	- -
Sewage Tretment Plant for Dolores	330,000	- -
Miscellaneous Relocations	108,000	- -
Total	$8,000,000	$ - -

Appropriation Title: Upper Colorado Storage Project
Upper Colorado River Basin Fund

DOLORES PARTICIPATING PROJECT, COLORADO

FISCAL YEAR 1979

Work Proposed		Program
McPhee Dam and Reservoir. For continued construction of McPhee Dam and relocations. Work on the relocation of the Dolores Sewage Treatment Plant and purchase of rights-of-way will be completed. Other preconstruction activities will continue.		$12,602,000
Dove Creek Distribution System.)		300,000
(Provides for preconstruction activities.		
Cortez-Towaoc Distribution System.)		200,000
Service Facilities, Depreciation and Salvage. For continued construction of Dolores Field Station. Purchase of office and laboratory equipment will continue.		658,000
Other Project Costs. Provides for completion of archaeological salvage in the McPhee Dam site area.		350,000
	TOTAL	$14,110,000

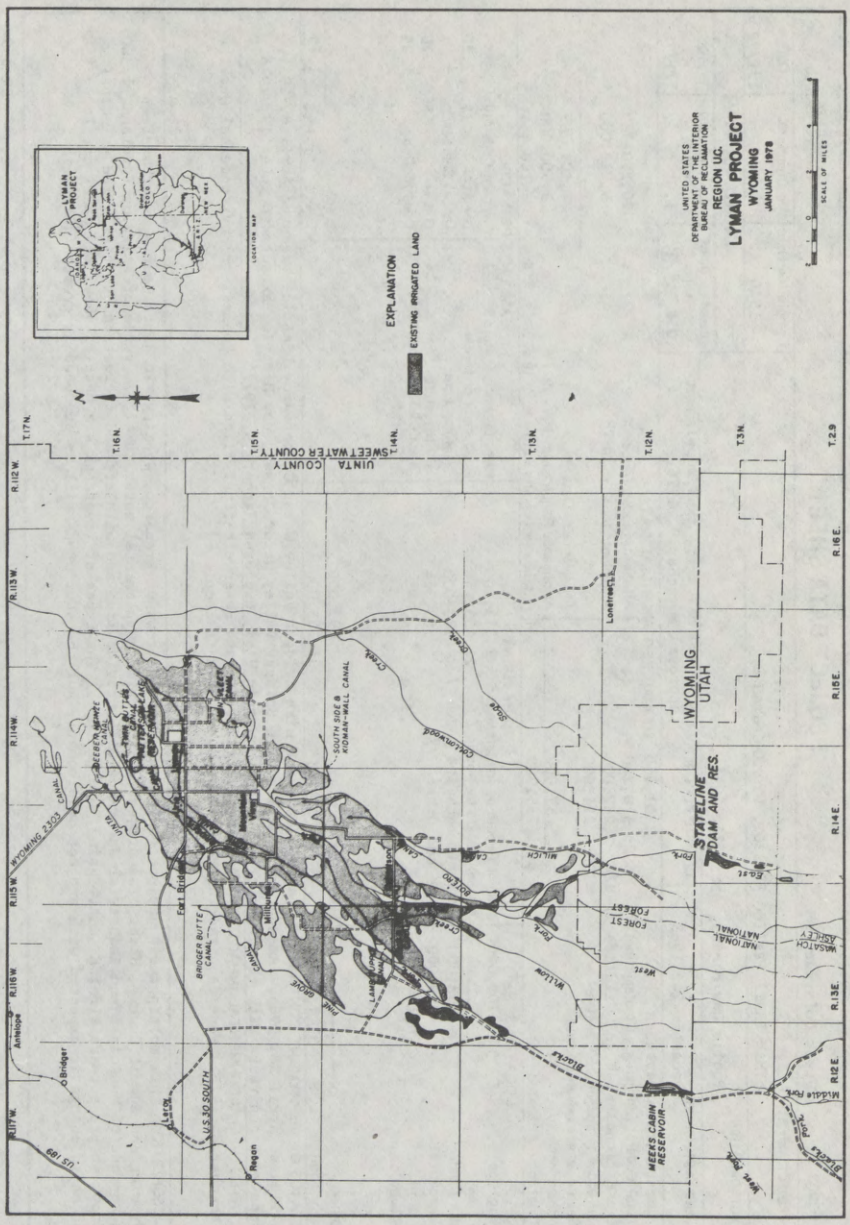
DOLORES PARTICIPATING PROJECT, COLORADO

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978 , AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Construction Program					
McPhee Dam and Reservoir	64,300,000	1,373,412	5,161,000	12,602,000	45,163,588
Monument Creek Dam and Reservoir	2,600,000	48,834	--	--	2,551,166
Dove Creek Distribution System	49,953,000	942,026	--	300,000	48,710,974
South Canal Distribution System	13,945,000	258,956	--	--	13,686,044
Cortez-Towaoc Distribution System	48,550,000	900,243	--	200,000	47,449,757
Drains	5,200,000	98,207	--	--	5,101,793
Permanent Operating Facilities	1,900,000	34,979	--	--	1,865,021
O&M Housing	140,000	322	--	--	139,678
Service Facilities, Depreciation, and Salvage	-200,000	20,699	197,593	658,000	-1,076,292
Engineering and Design	(18,326,000)	(3,311,560)	(1,046,000)	(1,500,000)	(12,468,440)
Supervision and Administration	(22,398,000)	(314,000)	(880,000)	(1,083,000)	(20,121,000)
Relocation Costs	(8,000,000)	(0)	(468,000)	(2,400,000	(5,132,000)
Total Construction Costs	186,388,000	3,677,678	5,358,593	13,760,000	163,591,729
Other Project Costs	855,000	--	400,000	350,000	105,000
Total Project Cost	187,243,000	3,677,678	5,758,593	14,110,000	163,696,729
Consolidated Expenditures and Credits	-957,000	-960,392	--	--	3,392
Total expenditures	186,286,000	2,717,286	5,758,593	14,110,000	163,700,121
Undelivered Orders	--	57,593	-57,593	--	--
Total Obligations	186,286,000	2,774,879	5,701,000	14,110,000	163,700,121
Method of Financing					
Appropriations available and required	--	--	5,500,000	14,110,000	163,700,121
Application of prior year funds	--	--	201,000	--	--

BR-358


UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
REGION UC.
LYMAN PROJECT
WYOMING
JANUARY 1978
SCALE OF MILES
EXPLANATION
EXISTING IRRIGATED LAND
LYMAN PROJECT
LOCATION MAP
UINTA COUNTY
SWEETWATER COUNTY
WYOMING
UTAH
STATELINE DAM AND RES.
MEEKS CABIN RESERVOIR
SOUTH SIDE & KIDMAN-WALL CANAL
BRIDGER BUTTE CANAL
WYOMING 2303 CANAL
PINE GROVE CANAL
BOTERO CANAL
MILICH CANAL
FOREST
NATIONAL
WASATCH
ASHLEY
Fort Bridger
Millburn
Lonetree
Antelope
Bridger
Leroy
Regan
US 30 SOUTH
US 189
Blacks Fork
Middle Fork
West Fork
Sage Creek
Cottonwood Creek
Willow Fork
East Fork
T.17N.
T.16N.
T.15N.
T.14N.
T.13N.
T.12N.
T.3N.
T.2S.
R.112W.
R.113W.
R.114W.
R.115W.
R.116W.
R.117W.
R.16E.
R.15E.
R.14E.
R.13E.
R.12E.

PROJECT DATA SHEET

REGION: Upper Colorado

PF-85 (11-76)
Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
LYMAN PARTICIPATING PROJECT, WYOMING-UTAH	1980	70	1/1/78

AUTHORIZATION: Public Law 84-485, April 11, 1956

LAND CERTIFICATION	DEFINITE PLAN REPORT	BENEFIT COST RATIOS: Based on Direct Benefits	Based on Total Benefits	Date
December 24, 1963	Approved March 15, 1963. Supplement approved November 9, 1976.	0.8 1/	1.0 1/	1/1/78

		SUMMARIZED FINANCIAL DATA	
Construction Revenues	801,760	Allotments to September 30, 19 77	$ 20,290,789
Total Federal Obligations (Reclamation) 9/	$ 28,570,240	Allotments for F.Y. 19 78	4,219,000
Recreational-Fish and Wildlife 2/ 9/	2,082,000		
Net Property and Other Transfers	224,000	Allotments to Date	24,509,789
Cash Advances--Non-Federal	...	Allotments Required for F.Y. 19 79	3,900,000
Adjustment 3/	57,000	Balance to Complete after F.Y. 19 79	$ 160,451
Total to be Allocated	$ 31,735,000		

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE		AMOUNTS PER ACRE	
Irrigation	$ 23,709,000	Amount Repaid by Irrigators 5/	$ 2,212,000	Irrig. Invest. per Acre	$ 555	Payment Capacity per Acre	$ 2.30
Power	...	Amount Repaid by Power 6/	21,433,646	Repayment of Investment per Acre:		Annual Charges:	
M & I Water	933,000	Amount Repaid by M & I Water 5/	933,000	By Irrigators	$ 52	O & M	$ .70
Recreation	959,000	CRDF and Other 7/	63,354	By UCRBF Revenues	502	Construction	1.05
F & WL	6,134,000			By CRDF	1		
Flood Control							
Other		Nonreimbursable 8/	7,093,000				
Total	$ 31,735,000	Total	$ 31,735,000			Total	$ 1.75

STATUS OF REPAYMENT CONTRACT: Repayment contract with Bridger Valley Water Conservancy District executed April 8, 1964, validated April 28, 1965. Amendatory contract with Bridger Valley Water Conservancy District executed October 19, 1976. Repayment contracts with the towns of Lyman and Mountain View, executed January 6, 1977.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Stateline Dam and Reservoir-final filed with Council on Environmental Quality December 8, 1975. None required for Meeks Cabin Dam which is completed.

DESCRIPTION: This multipurpose project is located near the town of Evanston, Wyoming, in Uinta County, southwestern Wyoming and Summit County, Utah. The project will provide supplemental water to 42,674 acres of existing farmland, 1,500 acre-feet of Municipal and Industrial Water and will provide fish and wildlife and recreation benefits. The principal crops at present are alfalfa, small gains, and pasture. The types of livestock are cattle, sheep and dairy cattle. No basic change is expected with project development, but the same crops will be produced in greater quantities.

BR-359

Lyman Participating Project, Wyoming-Utah

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in fiscal year 1957 and for construction of Meeks Cabin Dam in fiscal year 1964. Funds to initiate construction of Stateline Dam were appropriated in fiscal year 1977.

Footnotes:

1/ Decrease from 0.9 (direct) as presented in the FY 1978 Budget Justifications due to the increased costs on Stateline Dam. There is no change in total benefits.

2/ Includes specific fish and wildlife facilities, $1,123,000; and specific recreation facilities, $959,000.

3/ Represents the reimbursable interest during construction for Municipal and Industrial Water.

4/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$ 22,114,000	$ 23,709,000
Municipal and Industrial Water	794,000	933,000
Recreation	936,000	959,000
Fish and Wildlife	5,419,000	6,134,000
Total	$ 29,263,000	$ 31,735,000

The increase of $2,472,000 represents a current estimate to complete Stateline Dam based on progress to date. Changes in allocations have been increased because of the estimated change.

5/ The scheduled amount to be repaid is covered by existing contracts with the project beneficiaries; irrigation water, Bridger Valley Water Conservancy District, municipal and industrial water, Mountain View and Lyman, Wyoming.

6/ From Upper Colorado River Basin Fund revenues apportioned to State of Wyoming.

Lyman Participating Project, Wyoming-Utah

Footnotes (Continued):

7/ Colorado River Development Funds, $60,101; revenues received from grazing lease on withdrawn lands, $3,253.

8/ Includes fish and wildlife facilities, $6,134,000 and specific recreation facilities, $959,000.

9/ The appropriation authority for this project was provided in Public Laws 84-485 and 92-370 which covered many of the units and participating projects of the Colorado River Storage Project. The currently indexed total under this legislation is $1,839,887,000 and the currently estimated total appropriation for these projects is $1,908,968,475 The appropriations requested for fiscal year 1979 will bring the total amount appropriated to $1,031,173,728. If actual bid amounts on future critical construction items substantiate the above total of estimated requirements new legislation for additional appropriation ceiling will be recommended at an appropriate time.

LYMAN PROJECT, UTAH-WYOMING

PHYSICAL DATA ON STRUCTURES - 4

COMPLETED WORK:

Meeks Cabin Dam and Reservoir

Dam:
Type - Earth and Rock fill
Structural Height - 184.5 feet
Crest Length - 3,162 feet
Base Width 1030 feet

Spillway: Freeflow chute
Type -
Design Discharge - 7,900
Cubic feet per second

Reservoir Capacity:
Total Storage - 32,470
Acre-feet

CONSTRUCTION PROGRAM

Stateline Dam and Reservoir

Dam:
Type - Zoned Earthfill
Structural Height - 126 feet
Crest Length - 2,830 feet
Base Width - 860 feet

Spillway:
Type - Glory Hole
Design Discharge - 6,090
Cubic feet per second

Reservoir Capacity:
Total Storage - 13,000
Acre-feet

Right-of-Way

Quantity - 627.7 acres
Total Estimated cost - $33,302
Cost per Acre - $53
Acquisitim - 100 percent complete as of January 1, 1978

Relocations

Total Estimated Cost - $1,249,000
Percent Complete - 100 percent as of January 1, 1978

Items	Total Cost	Cost to September 30, 1977
Forest Service Facilities		
Meeks Cabin Dam & Reservoir	49,000	49,000
State Line Dam and Reservoir	$1,200,000	$1,200,000

Appropriation Title: Upper Colorado River Storage Project
Uppet Colorado River Basin Fund

LYMAN PARTICIPATING PROJECT, WYOMING-UTAH

FISCAL YEAR 1979

Work Proposed

	Program
Stateline Dam and Reservoir. For continuation of construction.	$ 3,894,000
Other Project Costs. For operation of completed facilities prior to transfer to water users.	6,000
TOTAL	$ 3,900,000

LYMAN PARTICIPATING PROJECT, UTAH-WYOMING

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 19 78 , AND FISCAL YEAR 19 79

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Construction Program					
Completed Work (Meeks Cabin Dam and Reservoir)	10,509,491	10,509,491	--	--	--
Stateline Dam and Reservoir	18,787,000	9,815,424	4,925,000	3,894,000	152,576
Permanent Operating Facilities	19,509	--	--	--	19,509
Temporary Camp	437,336	437,336	--	--	--
Service Facilities, Depreciation and Salvage	-437,336	-367,408	--	--	-69,928
Engineering and Design	(3,763,000)	(3,484,836)	(125,000)	(130,000)	(23,164)
Supervision and Administration	(4,723,031)	(3,136,859)	(729,000)	(775,000)	(82,172)
Relocation Costs	(1,249,000)	(1,249,000)	(--)	(--)	(--)
Total Construction Cost	29,316,000	20,394,843	4,925,000	3,894,000	102,157
Other Project Cost	280,000	261,351	6,000	6,000	6,649
Total Project Cost	29,596,000	20,656,194	4,931,000	3,900,000	108,806
Consolidated Expenditures and Credits	-224,000	-275,724	79	--	51,645
Total Expenditures	29,372,000	20,380,470	4,931,079	3,900,000	160,451
Undelivered Orders	--	77,079	-77,079	--	--
Total Obligations	29,372,000	20,457,549	4,854,000	3,900,000	160,451
Method of Financing					
Appropriations available and required	--	--	4,219,000	3,900,000	160,451
Application of prior year funds	--	--	635,000	--	--

BR-364

Appropriation Title: Upper Colorado River Storage Project
Upper Colorado River Basin Fund

DRAINAGE AND MINOR CONSTRUCTION PROGRAM

Summarized Financial Data:

Fiscal Year 1978		
Appropriation	$ 2,071,000	
Application of prior year funds	981,000	
Total obligation, F.Y. 1978		$ 3,052,000
Fiscal Year 1979:		
Estimate of appropriation	3,613,000	
Total obligations, F.Y. 1979		3,613,000

Description: The drainage and minor construction category includes units and participating projects of the Upper Colorado River Storage Project on which major construction has been completed, except for facilities temporarily deferred or for which relatively small amounts of funds are being requested in the budget year for drainage construction, minor repair or replacement work, miscellaneous finishing activities or preconstruction work on the temporarily deferred facilities.

Work Proposed, F.Y. 1979: The program involves work on four units and two participating projects.

FISCAL YEAR 1979

PROJECTS INCLUDED IN DRAINAGE AND MINOR CONSTRUCTION CATEGORY

Work Proposed	Program
Emery County Participating Project, Utah. Provides for continued construction of drains and minor completion work.	$ 391,000

Appropriation Title: Upper Colorado River Storage Project
Upper Colorado River Basin Fund
Drainage and Minor Construction Program--2

FISCAL YEAR 1979

Work Proposed (Continued)	Program
Modifications to Complete Facilities, Various. Provides for construction of a warehouse and purchase of operating equipment on Curecanti Unit; completion of Dutch John water supply additions on Flaming Gorge Unit; completion of transformer deck oil spill protection and to initiate construction of power-plant access tunnel lining on Glen Canyon Unit; and to initiate grouting contract on Navajo Unit.	$ 2,607,000
San Juan-Chama Participating Project, Colorado-New Mexico. Provides for contract award for Blanco Diversion Dam modifications to alleviate operation difficulties and erosion problems and completion of the water-flow control system. Preconstruction activities on the Taos Unit and reading of stream gages will be continued.	615,000
TOTAL	$ 3,613,000

UPPER COLORADO RIVER STORAGE PROJECT--DRAINAGE AND MINOR CONSTRUCTION

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 19 78 , AND FISCAL YEAR 19 79

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
UNITS					
Curecanti Unit, Colorado	$ 133,087,524	$ 130,693,524	$ 794,000	$ ---	$ 1,600,000
Modifications to completed Facilities, Various	7,112,000	398,804	544,000	2,607,000	3,562,196
PARTICIPATING PROJECTS					
Central Utah, Vernal Unit, Utah.	10,176,718	9,458,718	718,000	---	---
Emery County, Utah	15,270,202	14,293,046	396,000	391,000	190,156
San Juan-Chama, Colorado-New Mexico.	95,310,000	72,419,849	600,000	615,000	21,675,151
Total Obligations.	$ 260,956,444	$ 227,263,941	$ 3,052,000	$ 3,613,000	$ 27,027,503
Method of Financing:					
Appropriations Available and Required.	---	---	2,071,000	3,613,000	27,027,503
Application of prior year funds.	---	---	981,000	---	---

BR-367

UPPER COLORADO RIVER STORAGE PROJECT
Operation and Maintenance

Summarized Financial Data:

Fiscal Year 1978:		
Applied operating revenue	$ 4,906,000	
Advances from water users	362,000	
Total obligations, FY 1978		$ 5,268,000
Fiscal Year 1979:		
Applied operating revenue	$ 6,654,000	
Advances from water users	339,000	
Total obligations, FY 1979		$ 6,993,000

Description: The Upper Colorado River Storage Project and Participating Projects are located in the States of Arizona, Colorado, New Mexico, Utah, and Wyoming. Section 5(c) of the authorization act for the project provides that all revenue collected in connection with the operation of the project and participating projects shall be credited to the Upper Colorado River Basin Fund and shall be available without further appropriation for defraying the costs of operation, maintenance, replacements, and emergency expenditures for all facilities of the project and participating projects. With respect to each participating project, costs of operation, maintenance, and replacements shall be paid from revenues received from each such project. Costs allocated to flood control, recreation and fish and wildlife facilities are nonreimbursable as provided in the project act. Revenues will be used by the Department of Energy to fund the operation and maintenance of the transmission facilities which were transferred to that agency on October 1, 1977.

The FY 1979 program provides for operation, maintenance, and replacement on the following: Curecanti, Flaming Gorge, Navajo and Glen Canyon units; and the Central Utah, Bonneville Unit, San Juan-Chama and Seedskadee participating projects. Flood control studies will continue on Florida and Paonia participating projects. Quality of water studies and consumptive use studies required by P.L. 90-537 will also be continued. These studies and other nonreimbursable operation and maintenance expense will be financed by the revenues and the repayable debt of the storage project will be reduced by the amount used for this purpose.

State and Project	Fiscal Year 1978	Estimated Fiscal Year 1979	FY 1979 Increase (+) or Decrease (-)
UPPER COLORADO RIVER STORAGE PROJECT			
UNITS			
Various States	$ 4,304,000	$ 6,030,000	$ +1,726,000
Curecanti, Flaming Gorge, Glen Canyon, and Navajo Units, Arizona, Utah, New Mexico, Colorado, Wyoming			

Net change of $1,726,000 includes $1,048,000 for replacement and additions, $628,000 for extra ordinary maintenance, and $635,000 for regular operation and maintenance including $68,000 for the first full year of operation at Crystal Dam. The increase of $2,311,000 was partially offset by a decrease of $585,000 including $80,000 for the replacement program and $505,000 for the extraordinary maintenance program.

Replacement and additions total $968,000 for two stator windings and a large water pump and motor at Glen Canyon.

Extraordinary maintenance work total $123,000 for protective work at the Navajo Dam observation point; spillway tunnel repairs, and scaling of canyon wall at Flaming Gorge; repair of power plant roofs, modification to powerplant sewage plant, rotor pole piece caller, and tailrace improvements at Glen Canyon.

State and Project	Fiscal Year 1978	Estimated Fiscal Year 1979	FY 1979 Increase (+) or Decrease (-)
UPPER COLORADO RIVER STORAGE PROJECT			
PARTICIPATING PROJECTS:			
Colorado			
Florida	$ 5,000	$ 5,000	$ --
	No change.		
Paonia	$ 3,000	$ 3,000	$ --
	No change.		
New Mexico - Colorado			
San Juan-Chama	$ 368,000	$ 340,000	$ -28,000
	Decreased $ 59,000 for replacements, partially offset by increases of $31,000 for materials and supplies.		
Utah			
Central Utah - Bonneville Unit	$ 58,000	$ 81,000	$ +23,000
	Increased to reflect first full year operation of facilities at Strawberry Reservoir.		
Wyoming			
Seedskadee	$ 166,000	$ 165,000	$ -1,000
	Decreased $ 16,000 due to completion of painting in the powerplant and switchyard partially offset by an increase of $15,000 for replacement of a work boat and tools and work equipment.		

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	Fiscal Year 1978	Estimated Fiscal Year 1979	FY 1979 Increase (+) or Decrease (-)
CONSUMPTIVE USE STUDIES			
Lower Colorado Region Area	$ 104,000	$ 104,000	$ --
	No change.		
Upper Colorado Region Area	$ 142,000	$ 142,000	$ --
	No change.		
QUALITY OF WATER STUDIES	$ 118,000	$ 123,000	$ +5,000
	Increased for pay raise.		
Total Obligation Program	$ 5,268,000	$ 6,993,000	$+1,725,000

UPPER COLORADO RIVER STORAGE PROJECT
OPERATION AND MAINTENANCE
F.Y. 1978 and F.Y. 1979

METHOD OF FINANCING (In Thousands of Dollars)

State	Project	Advances F.Y. 1978	Advances F.Y. 1979	Operating Revenue F.Y. 1978	Operating Revenue F.Y. 1979	Total Obligations F.Y. 1978	Total Obligations F.Y. 1979
Upper Colorado River Storage Project:							
Various	Upper Colorado Region Area.....	10	10	4,294	6,020	4,304	6,030
Participating Projects:							
Colorado	Florida.....	...	...	5	5	5	5
Colorado	Paonia.....	...	...	3	3	3	3
New Mexico-Colorado	San Juan-Chama.....	324	299	44	41	368	340
Utah	Central Utah-Bonneville..	8	6	50	75	58	81
Wyoming	Seedskadee.....	20	24	146	141	166	165
Various	Consumptive Use Studies..	...	...	246	246	246	246
Various	Quality of Water Studies.....	...	...	118	123	118	123
	Total.....	362	339	4,906	6,654	5,268	6,993

UPPER COLORADO RIVER STORAGE PROJECT
OPERATION AND MAINTENANCE
F.Y. 1978 and F.Y. 1979

OBLIGATIONS BY FUNCTIONS (In Thousands of Dollars)

State	Project	Power		Recreation, Fish and Wildlife Facilities		Municipal and Industrial Water	
		F.Y. 1978	F.Y. 1979	F.Y. 1978	F.Y. 1979	F.Y. 1978	F.Y. 1979
Upper Colorado River Storage Project:							
Various	Upper Colorado Region Area	4,144[1/]	5,871[1/]	97	113	55	40
Participating Projects:							
Colorado	Florida	-	-	-	-	-	-
Colorado	Paonia	-	-	-	-	-	-
New Mexico-Colorado	San Juan- Chama	-	-	44	41	232[2/]	214[2/]
Utah	Central Utah-Bonneville.	-	-	50	75	-	-
Wyoming	Seedskadee	111	106	35	35	20[2/]	24[2/]
Other:							
Various	Consumptive Use Studies.	-	-	-	-	-	-
Various	Quality of Water	-	-	-	-	-	-
	Total	4,255	5,977	226	264	307	278

1/ Includes $10,000 Water Users Advances.
2/ Water Users Advances.

UPPER COLORADO RIVER STORAGE PROJECT
OPERATION AND MAINTENANCE
F.Y. 1978 and F.Y. 1979

OBLIGATIONS BY FUNCTIONS (In Thousands of Dollars)--2

State	Project	Other		Total Obligations	
		F.Y. 1978	F.Y. 1979	F.Y. 1978	F.Y. 1979
Upper Colorado River Storage Project:					
Various	Upper Colorado Region Area.....	8 3/	6 3/	4,304	6,030
Participating Projects:					
Colorado	Florida.....	5 3/	5 3/	5	5
Colorado	Paonia.....	3 3/	3 3/	3	3
New Mexico-Colorado	San Juan-Chama.....	92 4/	85 4/	368	340
Utah	Central Utah-Bonneville.....	8 4/	6 4/	58	81
Wyoming	Seedskadee.....	-	-	166	165
Other:					
Various	Consumptive Use Studies.....	246	246	246	246
Various	Quality of Water.....	118	123	118	123
	Total.....	480	474	5,268	6,993

3/ For Flood Control
4/ Water Users Advance for Irrigation.

ITEMIZATION OF ESTIMATE

Department of the Interior
Appropriation Title: Upper Colorado River Storage Project (In Dollars) Bureau of Reclamation

Upper Colorado River Basin Fund	Estimate 1978	Estimate 1979	Increase or Decrease (-)
Program and Financing			
Total direct obligations	$81,750,274	$79,615,190	$-2,135,084
Amounts becoming available:			
Appropriation	67,051,000	66,249,000	-802,000
Less Transfer to Department of Energy	-3,798,000	.....	3,798,000
Revenues and other receipts:			
Sale of electric energy and water	20,337,000	12,331,000	-8,006,000
Funds advanced by water users	362,000	339,000	-23,000
Nonoperating revenues	150,000	155,000	5,000
Repayment contract collections	1,173,518	1,227,717	54,199
Total amounts becoming available	85,275,518	80,301,717	-4,973,801
Unobligated balance available, start of year (Fund bal.)	7,376,589	4,528,530	-2,848,059
Unobligated balance available, end of year (Fund bal.)	-4,528,530	-4,519,738	8,792
Capital transfers: Payment of earnings	-6,373,303	-695,319	5,677,984
Financing applied to program	$81,750,274	$79,615,190	$-2,135,084

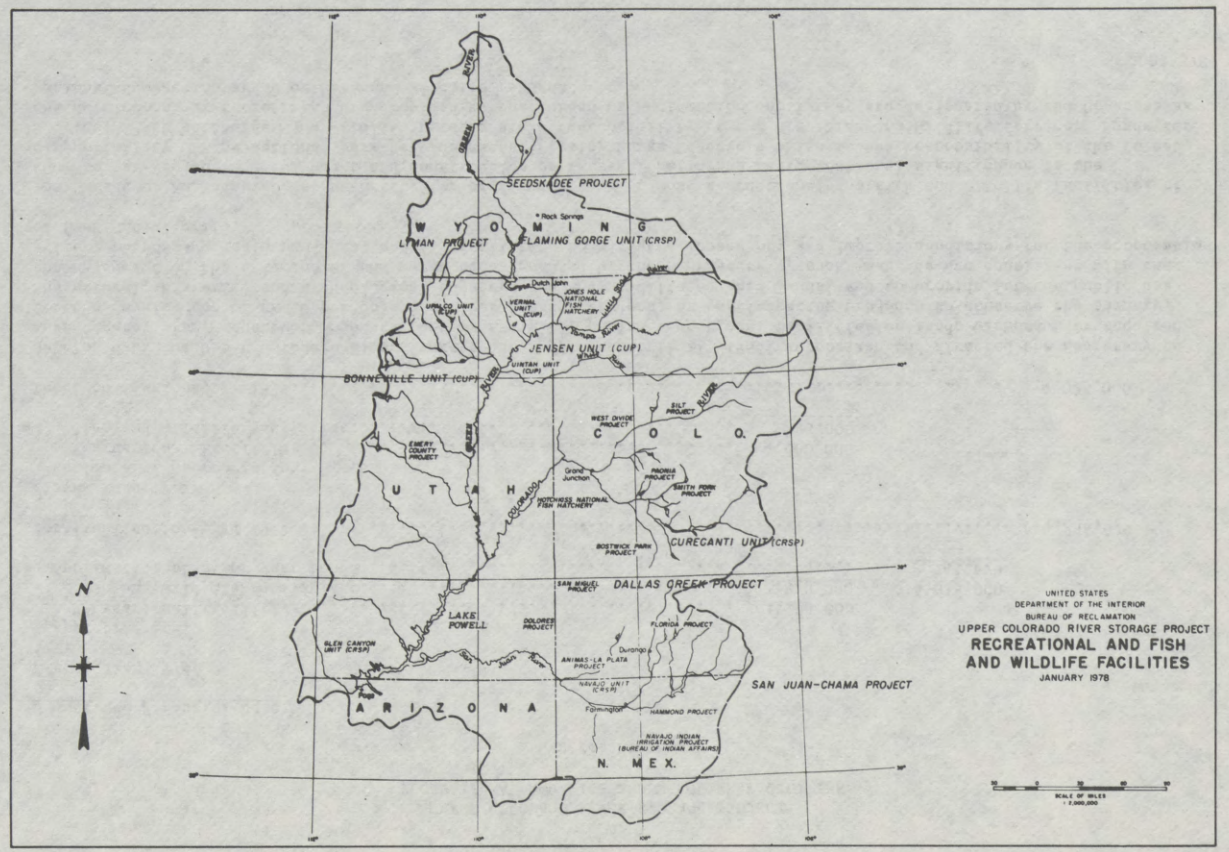
Itemization of Estimate, Upper Colorado River Storage Project, Upper Colorado River Basin Fund--2

		(In Dollars)		Bureau of Reclamation
		Estimate 1978	Estimate 1979	Increase or Decrease (-)
Object Classification				
11.0	Personnel compensation	$11,645,000	$11,935,000	$ 290,000
12.1	Personnel benefits: Civilians	1,144,000	1,164,000	20,000
21.0	Travel and transportation of persons	429,000	481,000	52,000
22.0	Transportation of things	524,000	526,000	2,000
23.0	Rent, communications, and utilities	1,208,000	1,228,000	20,000
24.0	Printing and reproduction	70,000	75,000	5,000
25.0	Other services	1,864,000	1,959,000	95,000
26.0	Supplies and materials	847,000	912,000	65,000
31.0	Equipment	497,000	559,000	62,000
32.0	Land and structures	52,963,991	54,403,000	1,439,009
43.0	Interest and dividends	10,558,283	6,373,190	-4,185,093
99.0	Total direct obligations	$81,750,274	$79,615,190	$-2,135,084

UPPER COLORADO RIVER STORAGE PROJECT

Explanation of differences between obligations in U.S. Budget (Itemization Statement) and Congressional Justification

	Obligations	
	1978	1979
Itemization of estimate (direct obligations on Program and Financing)	$ 81,750,274	$79,615,190
Interest expense, payments to Treasury not reflected in Congressional Justification	-10,558,283	-6,373,190
Subtotal, Upper Colorado River Basin Fund	71,191,991	73,242,000
Add: Recreational and Fish and Wildlife Facilities	4,256,679	4,025,000
Congressional Justification	$ 75,448,670	$77,267,000


SEEDSKADEE PROJECT
W Y O M I N G
LYMAN PROJECT
FLAMING GORGE UNIT (CRSP)
Rock Springs
Dutch John
JONES HOLE NATIONAL FISH HATCHERY
VERNAL UNIT (CUP)
UINTAH UNIT (CUP)
JENSEN UNIT (CUP)
BONNEVILLE UNIT (CUP)
EMERY COUNTY PROJECT
WEST DIVIDE PROJECT
SILT PROJECT
COLO.
Grand Junction
PAONIA PROJECT
SMITH FORK PROJECT
UTAH
HATCHERY NATIONAL FISH HATCHERY
CURECANTI UNIT (CRSP)
BOSTWICK PARK PROJECT
SAN MIGUEL PROJECT
DALLAS CREEK PROJECT
LAKE POWELL
DOLORES PROJECT
FLORIDA PROJECT
Durango
GLEN CANYON UNIT (CRSP)
ANIMAS-LA PLATA PROJECT
NAVAJO UNIT (CRSP)
SAN JUAN-CHAMA PROJECT
ARIZONA
Farmington
HAMMOND PROJECT
NAVAJO INDIAN IRRIGATION PROJECT (BUREAU OF INDIAN AFFAIRS)
N. MEX.
N
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
UPPER COLORADO RIVER STORAGE PROJECT
RECREATIONAL AND FISH AND WILDLIFE FACILITIES
JANUARY 1978
SCALE OF MILES

UPPER COLORADO RIVER STORAGE PROJECT
RECREATIONAL AND FISH AND WILDLIFE FACILITIES

General Statement

Summarized Financial Data:

Fiscal Year 1978:

Appropriation:			
Recreational facilities	$ 1,195,000		
Fish and wildlife facilities	2,820,000	$ 4,015,000	
Application of prior year funds		241,679	
Total obligations, FY 1978			$ 4,256,679

Fiscal Year 1979:

Estimate of Appropriation:		
Recreational facilities	4,000,000	
Fish and wildlife facilities	25,000	
Total obligations, FY 1979		$ 4,025,000

Section 8 of the Upper Colorado River Storage Act, approved April 11, 1956, authorized and directed the Secretary to investigate, plan, construct, operate, and maintain (1) public receational facilities on lands withdrawn or acquired for the development of the Upper Colorado River Storage Project, or participating projects to conserve the scenery, the natural, historic, and archeological objects, and the wildlife on said lands, and to provide for the public use and enjoyment of the same and of the water areas created by these projects by such means as are consistent with the primary purposes of said projects, and (2) facilities to mitigate losses of, and improve conditions for the propagation of fish and wildlife.

The Bureau of Reclamation has authority for continuing work on most recreational and fish and wildlife facilities of the Storage Project. Development and construction of recreational areas having national significance is the responsibility of the National Park Service except Flaming Gorge Reservoir which is the responsibility of the Forest Service. Fish hatcheries and wildlife refuges are a responsibility of the U.S. Fish and Wildlife Service. Funds for the development of these areas are provided by the Bureau of Reclamation until they are designated by the Congress as National Recreation areas or National Wildlife refuges.

The investment through September 30, 1977 at public use areas created by the Upper Colorado River Storage Project Act totaled nearly $43 million. In 1977 about 5.0 million fish were produced by the two fish hatcheries constructed as a part of the project; and about 2.2 million fish were caught at the main stream reservoirs and all participating projects. There were 4,175,000 visitations at the 18 completed Upper Colorado River Storage Project reservoirs during the 1977 recreation season.

Details of the FY 1979 program are included on the pages which follow.

Appropriation Title: Upper Colorado River Storage Project
Recreational and Fish and Wildlife Facilities

RECREATIONAL AND FISH AND WILDLIFE FACILITIES, ARIZONA, COLORADO, NEW MEXICO
UTAH AND WYOMING

FISCAL YEAR 1979

Work Proposed	Program
Curecanti Unit, Colorado	
Blue Mesa Reservoir. For continuation of upgrading and improvements at Elk Creek area.	$ 339,000
Central Utah Participating Project, Utah	
Bonneville Unit, Utah	
Strawberry Reservoir. For construction of camp utilities at the Soldier Creek site.	537,000
Currant Creek Reservoir. For continued construction of utilities.	740,000
Jensen Unit, Utah	
Red Fleet Reservoir (Tyzack Reservoir). For continued construction of access roads and boat ramp and award of contract for construction of utilities.	591,000
Dallas Creek Participating Project, Colorado	
Ridgway Dam. Program provides for continued progress payments on recreation portion of Ridgway Dam.	1,793,000
Seedskadee Participating Project, Wyoming	
Fishery Planning and Development. To continue the second year of a three year post impoundment study of river below Fontenelle Dam.	25,000
TOTAL	$ 4,025,000

Appropriation Title: Upper Colorado River Storage Project
Recreational and Fish and Wildlife Facilities

RECREATIONAL AND FISH AND WILDLIFE FACILITIES, ARIZONA, COLORADO, NEW MEXICO, UTAH AND WYOMING--2

FISCAL YEAR 1979

Work Proposed (Continued)

Change in Total Obligations:

1978 Estimate	$ 176,532,829
1979 Estimate	189,126,360
Increase	12,593,531

The increase of $12,593,531 includes $7,605,317 for cost indexing, $2,825,000 for plan changes and $2,163,214 for refinements in the estimates. The plan changes include an increase of $2,540,000 for West Divide Project, an increase of $964,000 on the Upalco Unit to recognize the current plan, an increase of $669,000 on Animas-La Plata Project for recreation facilities on recently identified project features; partially offset by a decrease of $723,000 on the Bonneville Unit reflecting deletions of a reduced stream flow study, a decrease of $415,000 on San Miguel Project due to elimination of recreation facilities at Radium Reservoir and a reduction of facilities at a smaller Saltado Reservoir, and a decrease of $210,000 on Fruitland Mesa Project to reflect reduced recreation requirements associated with a smaller reservoir based on new water supply studies.

Refinement in the estimates reflects updated designs, final contract values based on actual pay quanties and bids, and court awards on land acquisition. The refinements result in increases of $1,097,000 for the Navajo Unit, $927,000 for the Seedskadee Project and $450,000 for the Flaming Gorge Unit which are partially offset by decrease of $270,000 for National Fish Hatcheries, $40,517 for Curecanti Unit and $269 for Glen Canyon Unit.

UPPER COLORADO RIVER STORAGE PROJECT--RECREATIONAL & FISH & WILDLIFE FACILITIES

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978 , AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Construction Program					
Colorado River Storage Project					
Curecanti Unit - Colorado					
Recreational Facilities					
General Area	2,600,000	175,102	--	--	2,424,898
Blue Mesa Reservoir	16,704,300	3,420,739	255,000	339,000	12,689,561
Morrow Point Reservoir	2,104,500	486,791	--	--	1,617,709
Crystal Reservoir	756,000	--	--	--	756,000
Fish and Wildlife Facilities					
Big Game Range Planning and Development	177,000	15,815	--	--	161,185
Fishery Planning and Development	2,759,000	717,687	110,000	--	1,931,313
Subtotal - Curecanti Unit	25,100,800	4,816,134	365,000	339,000	19,580,666
Flaming Gorge - Utah, Wyoming					
Recreational Facilities (Completed)	4,557,361	4,557,361	--	--	--
Fish and Wildlife Facilities					
Big Game Range Planning and Development	862,915	662,421	--	--	200,494
Fishery Planning and Development	5,250,986	3,779,986	1,471,000	--	--
Completed Work	436,738	436,738	--	--	--
Subtotal - Flaming Gorge	11,108,000	9,436,506	1,471,000	--	200,494
Navajo Unit - Colorado, New Mexico					
Recreational Facilities					
Completed Work	2,559,158	2,559,158	--	--	--
Tailwater Area Development	2,221,147	237,147	3,000	--	1,981,000
Fish and Wildlife Facilities					
Completed Work	665,200	665,200	--	--	--
Fishery Planning and Development	1,775,495	143,649	50,000	--	1,581,846
Subtotal - Navajo Unit	7,221,000	3,605,154	53,000	--	3,562,846

☆ GPO 1976-678-173
BR-382

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978 , AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Central Utah					
Bonneville Unit - Utah					
Recreational Facilities					
Starvation Reservoir	6,558,000	776,043	--	--	5,781,957
Strawberry Reservoir	17,723,000	735,175	390,909	537,000	16,059,916
Currant Creek Reservoir	3,687,000	795,944	202,000	740,000	1,949,056
Upper Stillwater Reservoir	3,020,000	--	10,000	--	3,010,000
Future Work	1,902,000	4,595	10,000	--	1,887,405
Fish and Wildlife Facilities					
Big Game Range Planning and Development	270,472	165,278	1,000	--	104,194
Fishery Planning and Development	3,271,000	229,637	2,000	--	3,039,363
Wildlife Area Planning and Development	11,014,000	--	--	--	11,014,000
Indian Reservation Area					
Completed Work	1,230,528	1,230,528	--	--	--
Lower Stillwater Dam and Reservoir	11,143,000	79,546	199,770	--	10,863,684
Wildlife Management Areas	3,570,000	77,163	1,000	--	3,491,837
Subtotal - Bonneville Unit	63,389,000	4,093,909	816,679	1,277,000	57,201,412
Jensen Unit - Utah					
Recreational Facilities					
Red Fleet Reservoir (Tyzack Reservoir)	1,055,000	42,108	110,000	591,000	311,892
Fish and Wildlife Facilities					
Big Game Range Planning and Development	24,000	--	--	--	24,000
Waterfowl Area Planning and Development	27,000	--	--	--	27,000
Subtotal - Jensen Unit	1,106,000	42,108	110,000	591,000	362,892
Dallas Creek - Colorado					
Recreational Facilities					
Ridgway Dam	5,400,000	--	100,000	1,793,000	3,507,000
Ridgway Reservoir	5,255,000	--	--	--	5,255,000
Fish and Wildlife Facilities					
Big Game Range Planning and Development	1,180,000	--	--	--	1,180,000
Fishery Planning and Development	55,000	--	--	--	55,000
Subtotal - Dallas Creek Project	11,890,000	--	100,000	1,793,000	9,997,000

* GPO 1976-678-173

BR-383

PF-40 (8-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Lyman - Utah - Wyoming					
Recreational Facilities					
Meeks Cabin Reservoir	425,000	24,168	15,000	--	385,832
Stateline Reservoir	534,000	--	5,000	--	529,000
Fish and Wildlife Facilities					
Big Game Range Planning and Development	352,000	--	--	--	352,000
Fishery Planning and Development	771,000	54,069	70,000	--	646,931
Subtotal - Lyman Project	2,082,000	78,237	90,000	--	1,913,763
San Juan-Chama - Colorado, New Mexico					
Recreational Facilities					
Heron Reservoir	684,551	586,551	98,000	--	--
Nambe Falls Reservoir	114,498	101,498	13,000	--	--
Fish and Wildlife Facilities					
Completed Work	1,520,433	1,520,433	--	--	--
Fishery Planning and Development	475,518	54,099	5,000	--	416,419
Subtotal - San Juan-Chama	2,795,000	2,262,581	116,000	--	416,419
Seedskadee - Wyoming					
Recreational Facilities					
Fontenelle Reservoir	1,044,000	398,750	205,000	--	440,250
Fish and Wildlife Facilities					
Fishery Planning and Development	848,000	105,406	25,000	25,000	692,594
National Wildlife Refuge	5,963,000	1,108,786	905,000	--	3,949,214
Subtotal - Seedskadee	7,855,000	1,612,942	1,135,000	25,000	5,082,058
Completed Work - Various States					
Recreational Facilities	9,865,630	9,865,630	--	--	--
Fish and Wildlife Facilities	529,930	529,930	--	--	--
Subtotal - Completed Work	10,395,560	10,395,560	--	--	--

☆ GPO 1976-678-173
BR-384

PF-40 (8-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Future Construction - Various States					
Recreational Facilities	27,165,222	108,427	--	--	27,056,795
Fish and Wildlife Facilities	19,018,778	6,545,263	--	--	12,473,515
Subtotal - Future Construction	46,184,000	6,653,690	--	--	39,530,310
Summary					
Recreational Facilities	115,935,269	24,875,187	1,416,909	4,000,000	85,643,173
Fish and Wildlife Facilties	73,191,091	18,121,634	2,839,770	25,000	52,204,687
TOTAL OBLIGATIONS - ALL PROJECTS	189,126,360	42,996,821	4,256,679	4,025,000	137,847,860

* GPO 1976-678-173
BR-385

24-040 O - 78 - 39

ITEMIZATION OF ESTIMATE

Department of the Interior
Appropriation Title: Upper Colorado River Storage Project (In Dollars) Bureau of Reclamation

Recreational & Fish & Wildlife Facilities	Estimate 1978	Estimate 1979	Increase or Decrease (-)
Program and Financing			
Total direct obligations	$4,256,679	$4,025,000	$-231,679
Unobligated balance available, start of year	-241,679	.....	241,679
Appropriation	4,015,000	4,025,000	10,000
Object Classification			
11.0 Personnel compensation	248,000	248,000	.....
12.1 Personnel benefits: Civilians	33,000	33,000	.....
21.0 Travel and transportation of persons	15,000	15,000	.....
22.0 Transportation of things	8,000	8,000	.....
23.0 Rent, communications, and utilities	42,000	42,000	.....
24.0 Printing and reproduction	4,000	4,000	.....
25.0 Other services	540,000	540,000	.....
26.0 Supplies and materials	30,000	30,000	.....
31.0 Equipment	4,000	4,000	.....
32.0 Lands and structures	3,332,679	3,101,000	-231,679
99.0 Total direct obligations	$4,256,679	$4,025,000	$-231,679

COLORADO RIVER BASIN PROJECT
LOWER COLORADO RIVER BASIN DEVELOPMENT FUND

General Statement

Summarized Financial Data:

Fiscal Year 1978:		
Appropriations	$78,145,000	
Application of prior year funds	25,635,838	
Operating revenue applied to O&M	23,540,000	
Total Obligations, F.Y. 1978		$127,320,838
Fiscal Year 1979:		
Estimate of Appropriations	$73,770,000	
Operating revenue applied to O&M	27,336,000	
Total Obligations, F.Y. 1979		$101,106,000

The Bureau of Reclamation is requesting a total of $73,770,000 for fiscal year 1979 work financed by appropriations to the Colorado River Basin Project. This amount continues construction on Central Arizona Project.

The following table shows the total obligation programs:

Lower Colorado River Basin Development Fund (Continued)

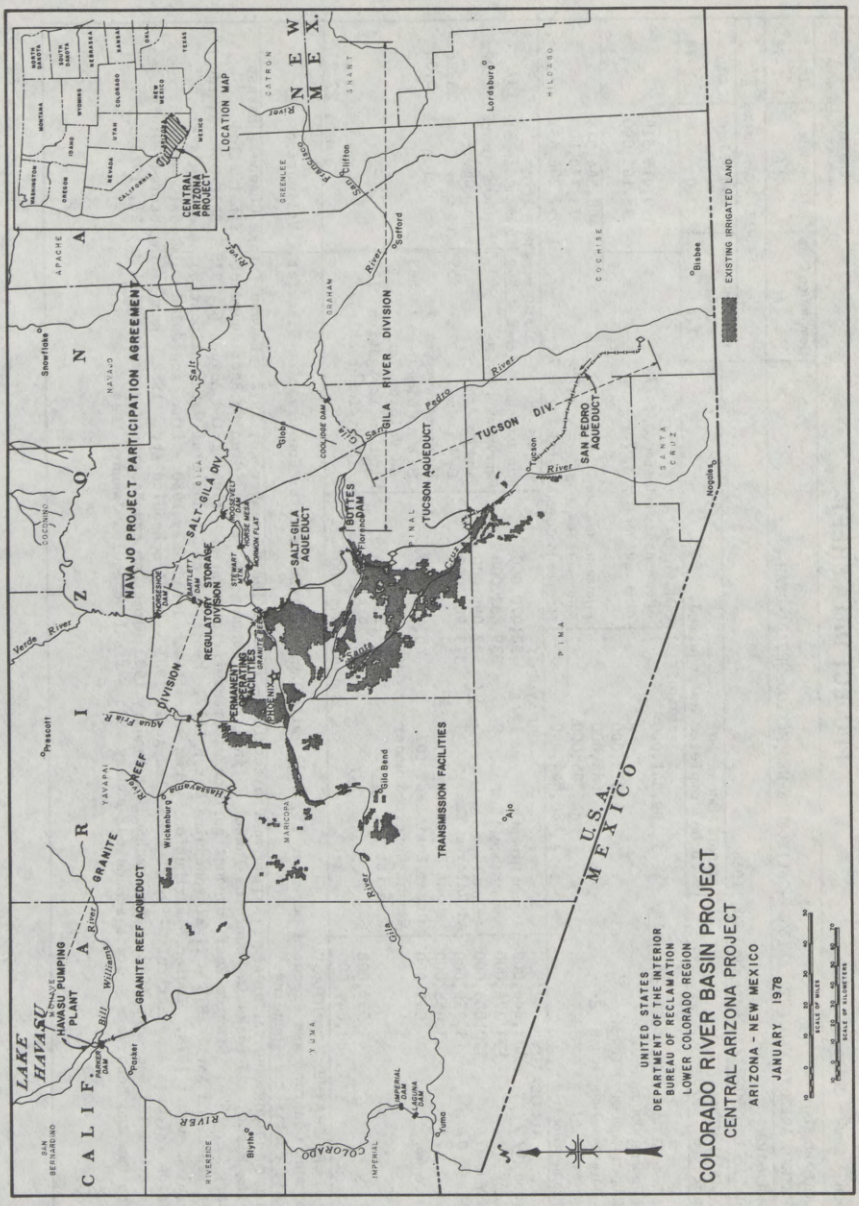
General Statement--2

(In Thousands of Dollars)

The following table shows the total obligation programs:

Project and State	Fiscal Year 1978				Fiscal Year 1979		
	Appropriation	Application of Prior Year Funds	Applied Revenues	Totals	Appropriation	Applied Revenues	Totals
Construction:							
Central Arizona, Arizona-California-New Mexico-Nevada-Utah							
Navajo Participation Agreement.....	--	23,811	--	23,811	--	--	--
Project Works.....	78,145	1,825	--	79,970	73,770	--	73,770
Operation and Maintenance:							
Navajo Project Participation Agreement.....	--	--	23,540	23,540	--	27,336	27,336
Total	78,145	25,636	23,540	127,321	73,770	27,336	101,106

Detailed descriptions of the projects are on the pages which follow.


COLORADO RIVER BASIN PROJECT
CENTRAL ARIZONA PROJECT
ARIZONA - NEW MEXICO
JANUARY 1978
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
LOWER COLORADO REGION
LOCATION MAP
CENTRAL ARIZONA PROJECT
EXISTING IRRIGATED LAND
NAVAJO PROJECT PARTICIPATION AGREEMENT
GILA RIVER DIVISION
TUCSON DIV.
TUCSON AQUEDUCT
SAN PEDRO AQUEDUCT
SALT-GILA DIV.
SALT-GILA AQUEDUCT
REGULATORY STORAGE DIVISION
PERMANENT PUMPING FACILITIES
TRANSMISSION FACILITIES
GRANITE REEF AQUEDUCT
HAVASU PUMPING PLANT
LAKE HAVASU
CALIFORNIA
ARIZONA
NEW MEX.
U.S.A.
MEXICO
SCALE OF MILES
SCALE OF KILOMETERS

REGION Lower Colorado

PROJECT DATA SHEET

PF-85 (11-76)
Bureau of Reclamation

PROJECT AND STATE
CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

Completion Date	% Complete	Date
1/	25 1/	1-1-78

AUTHORIZATION
Public Law 90-537, September 30, 1968

BENEFIT COST RATIOS 2/

Based on Direct Benefits	Based on Total Benefits	Date
1.6	2.0	1-1-78

LAND CERTIFICATION
April 16, 1973

DEFINITE PLAN REPORT
To be completed as required.

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 14/	$ 1,599,541,000	Allotments to September 30, 1977	$ 390,419,518
Total Federal Obligations (Other)	--	Allotments for F.Y. 1978	78,145,000
Net Property and Other Transfers	4,313,000		
Cash Advances--Non-Federal 3/	685,000	Allotments to Date	468,564,518
Adjustment 4/	84,305,000	Allotments Required for F.Y. 1979	73,770,000
Total to be Allocated	$ 1,688,844,000	Balance to Complete after F.Y. 1979	$ 1,057,206,482

ALLOCATIONS 5/

Irrigation 6/	$ 802,866,000
Power 7/	133,274,000
M & I Water 7/	520,088,000
Recreation 7/	15,959,000
F & WL 7/	43,056,000
Flood Control	126,069,000
Other 8/	47,532,000
Total	$ 1,688,844,000

REPAYMENT

Amount Repaid by Irrigators 9/	$ 58,470,000
Amount Repaid by Power 9/	339,833,000
Amount Repaid by M & I Water 9/	522,095,000
Ad Valorem Tax	313,964,000
Amount Repaid by Other Entities 10/	40,334,000
Amount Deferred under Leavitt Act 11/	183,230,000
Nonreimbursable 12/	230,918,000
Total	$ 1,688,844,000

AMOUNTS PER ACRE

Irrig. Invest. per Acre	$ 806	Payment Capacity 13/ per Acre-foot	$ 15.65
Repayment of Investment per Acre:		Annual Charges:	
By Irrigators	$ 59	O & M	$ 25.26
By Power Revenues)		Construction	2.00
By M & I Water Users)	563		
Ad Valorem Tax)			
Indian Irrigation (Nonreimbursable)	184		
		Total	$ 27.26

STATUS OF REPAYMENT CONTRACT
Repayment Contract was executed December 15, 1972, with Central Arizona Water Conservation District. Validation of this contract is pending.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Projectwide - final filed September 26, 1972. Havasu Intake Channel, Havasu Pumping Plant, and Buckskin Mountains Tunnel - final filed January 15, 1973. Granite Reef Aqueduct - final filed January 22, 1974. Granite Reef Aqueduct portion of transmission system - final filed August 4, 1975. Salt-Gila Aqueduct - draft scheduled April 1978 - final scheduled March 1979. Municipal and Industrial Water Allocation Assessments - scheduled August 1978. Indian Distribution System - draft scheduled July 1980 - final scheduled July 1981. Tucson Division - Tucson Aqueduct only - draft scheduled April 1981 - final scheduled April 1982. Regulating Storage Division - draft scheduled December 1982 - final scheduled January 1983 (Orme Dam and Reservoir - draft filed May 21, 1976). Buttes Dam and Reservoir - draft scheduled January 1983 - final scheduled January 1984.

PROJECT DATA SHEET--2
Colorado River Basin Project

Central Arizona Project, Arizona-California-New Mexico-Nevada-Utah

DESCRIPTION: The Central Arizona Project is located in Maricopa, Pima, Cochise, Yuma, and Pinal Counties of Arizona; San Bernardino County, California; Grant County, New Mexico; Clark County, Nevada; and Kane and Washington Counties, Utah. The Navajo Power Project is located in Coconino County, Arizona. The transmission lines of the project are located in Coconino, Mohave, Yavapai, and Maricopa Counties, Arizona; Kane and Washington Counties, Utah; Clark County, Nevada; and San Bernardino County, California. The unit is multi-purpose in scope. It will provide a supplemental water supply to 996,955 acres of partially irrigated lands and 510,000 acre-feet of water annually to municipal and industrial use. Benefits to fish and wildlife, recreation, and flood and sediment control will also be provided. In addition, 546,750 kilowatts of power entitlement is available to the project through terms of the Navajo Project Participation Agreement.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1970 and for construction in FY 1971. Funds were also appropriated in FY 1970 to cover the initial liquidation of the contract authority for the Navajo Project Participation Agreement power development features.

Legal proceedings were initiated June 11, 1975, by Citizens Concerned About the Project, et al., seeking an injunction to halt construction of the Agua Fria River, New River, and Salt River Siphons. On July 14, 1975, a temporary restraining order was denied. The Central Arizona Water Conservation District's motion to intervene was granted after a hearing on December 1, 1975. The plaintiffs and the Government conducted discovery proceedings through 1976. On August 3, 1977, a temporary restraining order to halt construction of the Salt River Siphon was denied.

The final notice of allocation of project water for Indian Irrigation use was published in the Federal Register on October 18, 1976. Legal proceedings were initiated by the Salt River Pima-Maricopa Indian Community and the Gila River Indian Community on November 3, 1976, and January 4, 1977, respectively, opposing the Secretary's Indian Water allocation. Neither community is actively pursuing their case at this time.

A hearing on the validation suit for repayment contract with Central Arizona Water Conservation District is scheduled for January 17, 1978.

Central Arizona Project, Arizona-California-New Mexico-Nevada-Utah

Footnotes:

1/ The completion percentage includes expenditures under the obligation established for liquidation of contract authority on the Navajo Project Participation Agreement. Initial operation of Navajo Project was May 31, 1974. Initial operation of the last (third) generating unit began April 30, 1976. Initial water delivery via the Granite Reef Aqueduct to the Phoenix metropolitan area is scheduled for January 1985. Water deliveries to Pinal County and the Tucson metropolitan area are scheduled for 1985 and 1987, respectively. Water delivery to the central Arizona Indian communities, who will receive water from the Granite Reef and Salt-Gila Aqueducts, is scheduled for January 1985 and to the Papago Reservation by 1987, assuming its' allocation is delivered via the Tucson Aqueduct.

2/ No change in benefit-cost ratio as presented in FY 1978 Budget Justifications net increase in cost due to indexing and revised estimates was offset by net increases in benefits due reallocation and updating to reflect current values.

3/ Funds advanced by the State of Arizona for advance planning work.

4/ Represents reimbursable interest during construction.

5/ Explanation of changes in allocations from FY 1978 Budget Justifications:

	1978 Estimate	1979 Estimate
Irrigation	$ 754,224,000	$ 802,866,000
Power	117,647,000	133,274,000
Municipal and Industrial Water	686,083,000	520,088,000
Recreation	16,609,000	15,959,000
Fish and Wildlife	45,972,000	43,056,000
Flood Control	126,791,000	126,069,000
Other	47,046,000	47,532,000
Total	$1,794,372,000	$1,688,844,000

Central Arizona Project, Arizona-California-New Mexico-Nevada-Utah

Footnotes (Continued):

5/ (Continued)
The decrease of $105,528,000 is due to indexing of construction costs which added $37,134,000, offset by decreases of $142,662,000 due to revised estimates and designs for portions of the aqueduct system. The changes in municipal and industrial Water and Irrigation Allocations resulted from revised Project water allocation to these functions. The power allocation was increased after studies reflected increased capitalized operation and maintenance costs which should be assigned to the generation of power. The other allocations reflect changes in the estimated costs of the project.

6/ Includes $183,230,000 for the Indian Water Allocation which is deferred under the Leavitt Act and $619,636,000 which is reimbursable.

7/ Includes reimbursable interest during construction of $15,572,000 for commercial power, $68,634,000 for municipal and industrial water, $80,000 for recreation, and $19,000 for fish and wildlife.

8/ Includes nonreimbursable costs of $36,500,000 for the Indian irrigation distribution system, $9,128,000 for the Colorado River Division, $941,000 for the New Mexico fish hatchery associated with Hooker Dam, and $963,000 for contributed investigation costs.

9/ The scheduled amount to be repaid is covered by an existing contract with project beneficiaries.

10/ Consists of reimbursable costs to be repaid by entities other than the Central Arizona Water Conservation District; Hooker Dam and Reservoir, $23,986,000; Charleston Dam and Reservoir, $14,650,000; recreation, $1,375,000; and fish and wildlife, $323,000. Repayment contracts for these items will be executed as required.

11/ Amount for Indian Water Allocation. The Leavitt Act permits repayment to be deferred as long as the land is in Indian ownership.

Footnotes (Continued):

12/ The nonreimbursable costs include Colorado River Division of $9,128,000; Distribution System for Indian Irrigation Water of $36,500,000; New Mexico Fish Hatchery, $941,000; recreation of $14,584,000; fish and wildlife, $42,733,000; flood control, $126,069,000; and contributed investigation costs of $963,000.

13/ The payment capacity per acre-foot was based on farm budgets using 1970 prices. Annual charges, however, were based on January 1977 costs. The payment capacity is being reevaluated.

14/ Appropriations ceiling authorized is $1,861,305,000 (January 1977). This authorization is adequate to cover the project as currently proposed.

COLORADO RIVER BASIN PROJECT

CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

PHYSICAL DATA ON STRUCTURES

CONSTRUCTION PROGRAM

GRANITE REEF DIVISION

Granite Reef Aqueduct

Length - 176.6 Miles Capacity - 3,000 Cubic Feet Per Second Bottom Width - 24.0 Feet Water Depth - 16.4 Feet

Pumping Plants:	Capacity (Cubic Feet Per Second)	Head (Feet)
Havasu	3,000	820
Bouse Hills	3,000	105
Little Harquahala	3,000	105
Hassayampa	3,000	178

Tunnels:	Length (Miles)	Diameter Size (Feet)	Capacity (Cubic Feet Per Second)
Buckskin Mountains	6.80	22.0 (Circular-precast)	3,000
Burnt Mountain	0.55	19.5 (Horseshoe)	3,000
Agua Fria	0.73	19.5 (Horseshoe)	3,000

Siphons:			
Cunningham Wash	0.72	21	3,000
Centennial Wash	1.09	21	3,000
Jackrabbit Wash	0.30	21	3,000
Hassayampa River	0.73	21	3,000
New River	1.09	21	3,000
Agua Fria	1.89	21	3,000
Salt River	1.65	21	3,000

REGULATORY STORAGE DIVISION

Alternative regulatory sites are currently under investigation

SALT-GILA DIVISION

Salt-Gila Aqueduct - Reach Nos. 1 through 4

Length - 59 Miles Capacity - 2,500 cubic feet per second Bottom Width - 22.0 feet Water Depth - 15.4 feet

Pumping Plants:	Capacity (Cubic feet per second)	Head (Feet)
Salt-Gila	2,500	84
Picacho Mountain No. 1	750	146
Picacho Mountain No. 2	750	310

Siphons:	Length (Miles)	Diameter Size (Feet)	Capacity (Cubic feet per second)
Queen Creek	0.1	19	2,500
Gila River	0.4	19	2,500

Salt-Gila Aqueduct - Reach No. 5

Length - 33 Miles Capacity - 750 cubic feet per second Bottom Width - 12.0 feet Water Depth - 9.7 feet

GILA RIVER DIVISION

Buttes Dam and Reservoir

Dam:
Type - Earthfill
Structural Height - 210 feet-
Crest Length - 950 feet
Base Width - 1,309 feet-

Spillway:
Type - Ogee
Design Discharge - 251,000 cubic feet per second

Reservoir Capacity:
Total Storage - 366,000 Acre-feet

618

Buttes Supply Canal

Length - 3.5 Miles Capacity - 1,200 cubic feet per second Bottom Width - 8.0 feet Water Depth - 7.8 feet

TUCSON DIVISION

Cat Mountain Dam and Reservoir

Dam:
Type - Earthfill
Structural Height - 130 feet
Crest Length - 1,310 feet
Base Width - 690 feet

Spillway:
Type - Concrete Pipe
Design Discharge - 150 cubic feet per second

Reservoir Capacity:
Total Storage - 11,500 Acre-feet

Marano-Cat Mountain Aqueduct

Length - 27.6 Miles of Pipeline Capacity - 150 cubic feet per second Pipe Diameter - 72 inches

Pumping Plants:	Capacity (Cubic feet per second)	Head (Feet)
Marana	150	340
Picture Rocks Road	150	337
Camino de Oesta	150	276

TRANSMISSION FACILITIES

287.4 Miles of 230-kV line
115.4 Miles of 115-kV line

INDIAN DISTRIBUTION DIVISION

Facilities required to distribute water to five central Arizona Indian communities.

DRAINAGE SYSTEM

Drains required for the service area.

COLORADO RIVER DIVISION

National Fish Hatchery - Warm Water
National Fish Hatchery - Trout
Cibolo Wildlife Refuge
Rough Fish Eradication

POWER DEVELOPMENT

NAVAJO PROJECT PARTICIPATION AGREEMENT

Federal entitlement to 546,750 kilowatts of power from the Navajo Generating Station located at Page, Arizona.

RIGHT-OF-WAY

Quantity - 77,453 Acres
Total Estimated Cost - $79,077,000
Cost Per Acre - $1,021
Acquisition - 18 percent complete as of January 1, 1978

RELOCATIONS

Total Estimated Cost - $78,636,000
Percent Complete - 4 percent as of January 1, 1978

Items:	Total Cost	Cost to Sept. 30, 1977
Highway 87	$ 4,567,000	$ -
Bush Highway	1,023,000	-
Verde River Bridge	9,036,000	-
Phoenix Water Wells and Filter Plant	1,597,000	-
Southern Pacific Railroad - Buttes Dam and Reservoir	25,307,000	-
Southern Pacific Railroad - Charleston Dam and Reservoir	16,201,000	-
Highway 90	2,900,000	-
Various Electric, Telephone, and Other Utilities	200,000	42,658
Various Farm and County Roads and Bridges	13,367,000	2,018,369
Various State and Federal Highways	3,382,000	988,686
Various Railroad Crossings	1,056,000	-
	$78,636,000	$3,049,713

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Appropriation Title: Colorado River Basin Project
Lower Colorado River Basin Development Fund

CENTRAL ARIZONA PROJECT, ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

FISCAL YEAR 1979

Work Proposed	Program
WATER DEVELOPMENT	
Granite Reef Division. Contracts will be awarded for pumps, motors and valves for the Havasu Pumping Plant; structures, pumps, motors, and valves for Bouse Hills, Little Harquahala and Hassayampa Pumping Plants; Canal Reaches Nos. 3 and 8. Construction will continue on Canal Reaches Nos. 2 and 7; Havasu Pumping Plant structure, Buckskin Mountains, Burnt Mountain, and Agua Fria Tunnels; and Hassayampa River, Jackrabbit Wash, and Centennial Wash Siphons. Construction will be completed on Canal Reaches Nos. 6 and 9; Agua Fria River, New River, and Salt River Siphons; and urban fencing for Canal Reach No. 10. Acquisition of right-of-way and preconstruction activities on other portions of the Division will continue.	$66,096,000
Regulatory Storage Division. Preconstruction activities to determine a regulatory Reservoir site.	800,000
Salt-Gila Division. Acquisition of right-of-way and preconstruction studies will continue.	3,012,000
Gila River Division. Preconstruction activities and related studies for environmental impact statement for Buttes Dam and Reservoir will continue.	100,000
Tucson Division. For preconstruction activities.	50,000

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Colorado River Basin Project
Lower Colorado River Basin Development Fund
Central Arizona Project, Arizona-California-New Mexico-Nevada-Utah--2

FISCAL YEAR 1979

Work Proposed	Program
WATER DEVELOPMENT (Continued)	
Transmission Facilities. Construction of Liberty-Parker 230-kV Transmission Line and Liberty Substation 230-kV Additions will continue. Preconstruction studies will continue.	3,261,000
Indian Distribution Division.)	15,000
Drainage System.) For preconstruction activities.	13,000
Colorado River Division.)	13,000
Permanent Operating Facilities.)	46,000
Service Facilities, Depreciation, and Salvage. Provide for purchases of work and office equipment partially offset by depreciation charged to project feature on a use basis.	364,000
TOTAL	$73,770,000

COLORADO RIVER BASIN PROJECT, CENTRAL ARIZONA PROJECT--ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM					
Project Works					
Granite Reef Division	548,445,000	116,792,523	78,717,073	74,240,877	278,694,527
Regulatory Storage Division	231,344,000	4,260,168	800,000	800,000	225,483,832
Salt-Gila Division	176,442,000	5,405,099	1,725,000	3,012,000	166,299,901
Gila River Division	133,382,000	2,499,486	500,000	100,000	130,282,514
Tucson Division	119,405,000	681,043	20,000	50,000	118,653,957
Transmission Facilities	80,895,000	15,173,656	6,967,927	6,261,082	52,492,335
Indian Distribution Division	36,500,000	226,054	5,000	15,000	36,253,946
Drainage System	21,161,000	116,856	5,000	13,000	21,026,144
Colorado River Division	9,128,000	900,277	5,000	13,000	8,209,723
Navajo Project Participation Agreement (Bureau of Reclamation Administrative Costs)	1,600,000	1,535,291	15,000	--	49,709
Permanent Operating Facilities	17,237,000	299,377	25,000	46,000	16,866,623
Service Facilities, Depreciation, and Salvage	--	1,794,667	1,425,000	600,000	-3,819,667
Engineering and Design	(125,416,000)	(24,908,000)	(8,177,000)	(7,320,000)	(85,011,000)
Supervision and Administration	(83,610,000)	(16,604,545)	(5,451,498)	(4,879,720)	(56,674,237)
Relocation Costs	(78,636,000)	(3,049,713)	(2,348,000)	(1,085,000)	(72,153,287)
Total Construction and Project Costs	1,375,539,000	149,684,497	90,210,000	85,150,959	1,050,493,544
Consolidated Expenditures and Credits	-4,313,000	-8,916,938	--	--	+4,603,938
Total Expenditures	1,371,226,000	140,767,559	90,210,000	85,150,959	1,055,097,482
Undelivered Orders	--	+21,620,959	-10,240,000	-11,380,959	--
Total Obligations	1,371,226,000	162,388,518	79,970,000	73,770,000	1,055,097,482

BR-401

COLORADO RIVER BASIN PROJECT, CENTRAL ARIZONA PROJECT--ARIZONA-CALIFORNIA-NEW MEXICO-NEVADA-UTAH

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
POWER DEVELOPMENT					
Navajo Project Participation Agreement					
Total Requirement, Power Development 1/.....	229,000,000	203,080,162	23,810,838	--	2,109,000
Total All Facilities, Central Arizona Project.....	1,600,226,000	365,468,680	103,780,838	73,770,000	1,057,206,482
Method of Financing:					
Appropriation available and required.....	--	--	78,145,000	73,770,000	1,057,206,482
Application of prior year funds.....	--	--	25,635,838	--	--

1/ Liquidation of contract authority.

BR-402

ITEMIZATION OF ESTIMATE

Department of the Interior
Appropriation Title: Colorado River Basin Project

(In Dollars)

Bureau of Reclamation

	Estimate 1978	Estimate 1979	Increase or Decrease (-)
Program and Financing			
Total direct obligations	$107,165,000	$104,468,000	$-2,697,000
Unobligated balance available, start of year	-9,410,428	-7,585,428	1,825,000
Unobligated balance available, end of year	7,585,428	7,585,428	.....
Operating revenues applied to O&M	-23,540,000	-27,336,000	-3,796,000
Interest expense, payments to Treasury	-3,655,000	-3,362,000	293,000
Appropriation	78,145,000	73,770,000	-4,375,000
Object Classification			
11.0 Personnel compensation	7,139,000	7,197,000	58,000
12.1 Personnel benefits: Civilians	705,000	717,000	12,000
21.0 Travel and transportation of persons	381,000	422,000	41,000
22.0 Transportation of things	378,000	371,000	-7,000
23.0 Rent, communications, and utilities	443,000	437,000	-6,000
24.0 Printing and reproduction	38,000	24,000	-14,000
25.0 Other services	28,663,000	29,558,000	895,000
26.0 Supplies and materials	554,000	515,000	-39,000
31.0 Equipment	1,077,000	980,000	-97,000
32.0 Land and structures	64,125,295	60,878,000	-3,247,000
42.0 Insurance claims and indemnities	7,000	7,000	.....
43.0 Interest and dividends	3,655,000	3,362,000	-293,000
99.0 Total direct obligations	$107,165,000	$104,468,000	$-2,697,000

COLORADO RIVER BASIN SALINITY CONTROL PROJECTS

General Statement

Summarized Financial Data:

Fiscal Year 1978:

Appropriation	$22,675,000	
Application of prior year funds	20,626,823	
Total obligations, FY 1978		$43,301,823

Fiscal Year 1979:

Planning allowance	$42,315,000	
Total obligations, FY 1979		$42,315,000

The Bureau of Reclamation is requesting a total $42,315,000 for fiscal year 1979 for work financed by approporations to the Colorado River Basin Salinity Control Projects.

The appropriation provides for the construction of certain works directed toward the enhancement and protection of the quality of water in the Colorado River for use in the United States and Mexico.

Fiscal year 1979 appropriations provide for continuation of design and construction of features downstream from Imperial Dam consisting of the Yuma Desalting Plant and appurtenant works, the Coachella Canal replacement, protective and regulatory pumping, fish and wildlife facilities, and for continued research and development work at the Yuma Desalting Test Facility.

In addition, the appropriation provides for continued construction on three salinity control units in the initial stage of the Colorado River Basin Salinity control program under Title II of the authorizing legislation.

Tables on the following pages show the total obligation program, and the method of financing for the FY 1978 program, and FY 1979 estimated.

COLORADO RIVER BASIN SALINITY CONTROL PROJECTS OBLIGATION PROGRAM

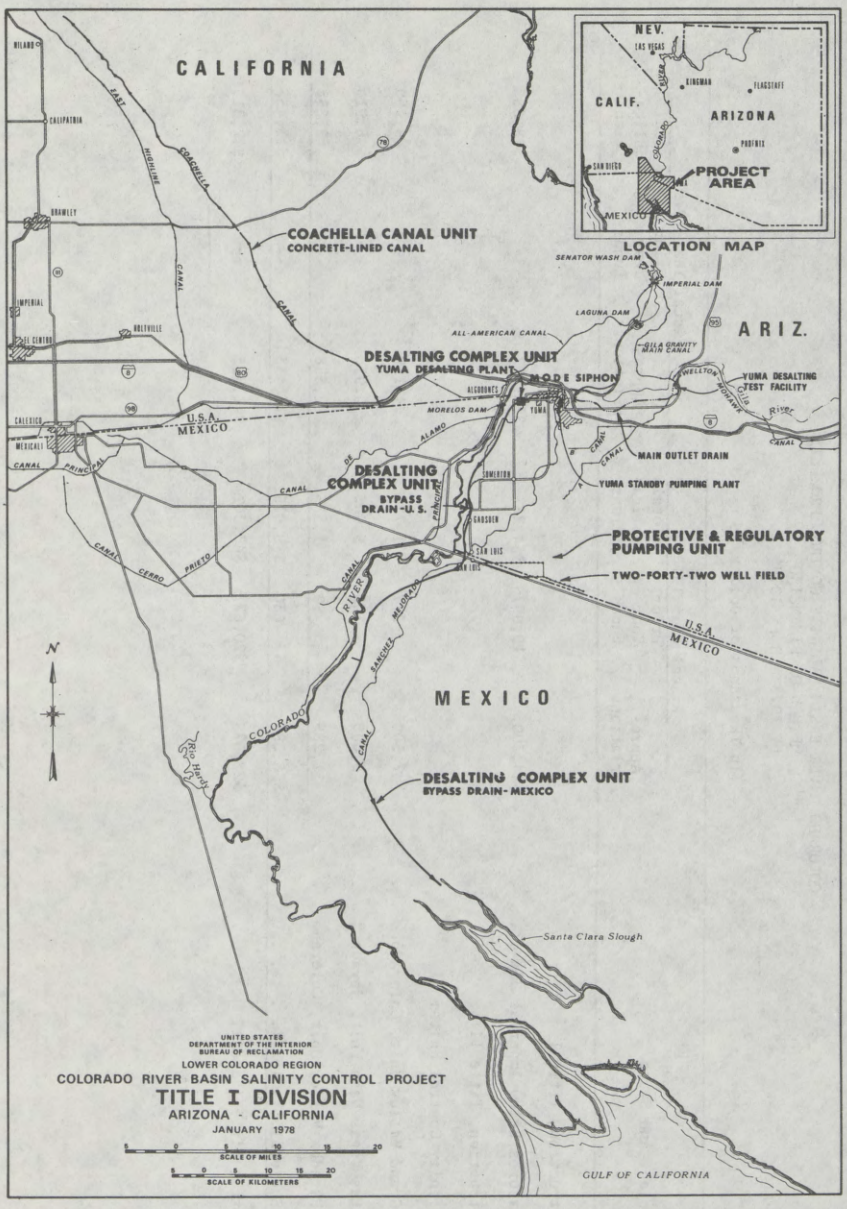
Projects, Units, and Location	Estimated total	Total to September 30, 1977	Program FY 1978	Program FY 1979	Balance to Complete
Inactive Units 1/	$ 106,288	$ 106,288			
Construction, Title I:					
Measures below Imperial Dam	333,692,000	73,558,073	$34,286,414	$28,882,000	$196,965,513
Subtotal, Title I	333,692,000	73,558,073	34,286,414	48,882,000	196,965,513
Construction, Title II:					
Salinity Control Units:					
Grand Valley Unit, Colorado	$130,145,000	$ 1,898,037	$ 1,777,000	$ 4,159,000	$122,310,963
Las Vegas Wash Unit, Nevada	59,000,000	1,005,143	5,903,000	6,916,000	45,175,857
Paradox Valley Unit, Colorado	50,235,000	1,935,636	1,335,409	2,358,000	44,605,955
Subtotal, Title II	$239,380,000	$ 4,838,816	$ 9,015,409	$13,433,000	$212,092,775
Total Obligation Program	$573,178,288	$78,503,177	$43,301,823	$42,315,000	$409,058,288

1//Crystal Geyser Unit.

COLORADO RIVER BASIN SALINITY CONTROL PROJECTS
METHOD OF FINANCING
FY 1978 AND FY 1979

(In Thousands of Dollars)

Project and State	Fiscal Year 1978			Fiscal Year 1979		
	Appropriations	Prior Year Funds	Total obligations	Appropriations	Prior Year Funds	Total obligations
Construction, Title I:						
Measures Below Imperial Dam	$14,290	$19,997	$34,287	$28,882	--	$28,882
Construction, Title II:						
Salinity Control Units:						
Grand Valley Unit, Colorado	1,500	277	1,777	4,159	--	4,159
Las Vegas Wash Unit, Nevada	5,600	303	5,903	6,916	--	6.916
Paradox Valley Unit, Colorado	1,285	50	1,335	2,358	--	2,358
Subtotal, Title II	$ 8,385	$ 630	$ 9,015	$13,433	--	$13,433
Total, Title I and II	$22,675	$20,627	$43,302	$42,315	--	$42,315


CALIFORNIA
ARIZ.
MEXICO
NEV.
CALIF.
ARIZONA
PROJECT AREA
LOCATION MAP
COACHELLA CANAL UNIT
CONCRETE-LINED CANAL
DESALTING COMPLEX UNIT
YUMA DESALTING PLANT
MODE SIPHON
DESALTING COMPLEX UNIT
BYPASS DRAIN-U.S.
PROTECTIVE & REGULATORY PUMPING UNIT
TWO-FORTY-TWO WELL FIELD
DESALTING COMPLEX UNIT
BYPASS DRAIN-MEXICO
YUMA DESALTING TEST FACILITY
MAIN OUTLET DRAIN
YUMA STANDBY PUMPING PLANT
SENATOR WASH DAM
IMPERIAL DAM
LAGUNA DAM
ALL-AMERICAN CANAL
GILA GRAVITY MAIN CANAL
MORELOS DAM
U.S.A.
MEXICO
Santa Clara Slough
GULF OF CALIFORNIA
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
LOWER COLORADO REGION
COLORADO RIVER BASIN SALINITY CONTROL PROJECT
TITLE I DIVISION
ARIZONA - CALIFORNIA
JANUARY 1978
SCALE OF MILES
SCALE OF KILOMETERS

PROJECT DATA SHEET

PF-65 (11-76)
Bureau of Reclamation

REGION Lower Colorado

PROJECT AND STATE	Completion Date	% Complete	Date
COLORADO RIVER BASIN SALINITY CONTROL PROJECTS - TITLE I - ARIZONA - CALIFORNIA	1/	26	1-1-78

AUTHORIZATION
Public Law 93-320 June 24, 1974

BENEFIT COST RATIOS 2/

Based on Direct Benefits	Based on Total Benefits	Date

LAND CERTIFICATION
Not required

DEFINITE PLAN REPORT 3/

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 9/	$ 333,692,000	Allotments to September 30, 1977	$ 93,554,487
Total Federal Obligations (Other)	--	Allotments for F.Y. 1978	14,290,000
Net Property and Other Transfers	533,897		
Cash Advances--Non-Federal	--	Allotments to Date	107,844,487
Adjustment	--	Allotments Required for F.Y. 1979	28,882,000
Total to be Allocated	$ 334,225,897	Balance to Complete after F.Y. 1979	$ 196,965,513

ALLOCATIONS 4/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$ 43,640,000	Amount Repaid by Irrigators 6/	$ 43,640,000	Irrig. Invest. per Acre	$
Power	--	Amount Repaid by Power	--	Repayment of Investment per Acre:	
M & I Water	--	Amount Repaid by M & I Water	--	By Irrigators	$
Recreation	--			By Power Revenues	
F & WL	--			By M & I Water Users	
Flood Control	--				
Mexican Treaty	290,422,000				
Other 5/	163,897	Nonreimbursable 7/	290,585,987		
Total	$ 334,225,897	Total	$ 334,225,897		

Payment Capacity per Acre $
Annual Charges:
O & M $
Construction
Total $

STATUS OF REPAYMENT CONTRACT Repayment contract with Coachella Valley County Water District for lining of the Coachella Canal scheduled for execution January 1978. 8/

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Title I - Project-wide final filed with Council on Environmental Quality on June 18, 1975.

DESCRIPTION: The project is located in southwestern Arizona in Yuma County and in southeastern California in Imperial County. The project is for the enhancement and protection of the quality of water available in the Colorado River for the United States and the Republic of Mexico, and to comply with the requirements of Minute No. 242, and its obligation under the agreement with Mexico of August 30, 1973. The project will provide fish and wildlife mitigation measures.

BR-407

631

Colorado River Basin Salinity Control Projects - Title I, Arizona-California

OTHER INFORMATION: Funds to initiate construction were appropriated in fiscal year 1975.

Footnotes:

1/ Desalting Complex Unit - FY 1983
Coachella Canal Unit - FY 1981
Protective and Regulatory Pumping Unit - 6 wells and associated features - FY 1978
8 wells and associated features - FY 1979
7 wells and associated features - FY 1980
14 wells - Balance to complete after 1983

2/ Assessment of the full beneficial impact of improving water quality as a result of this authorized project has not been made. Previous agreements with the Mexican Government concerning salinity control in the Colorado River and Public Law 93-320 authorizing Title I and Title II activities are based upon social and political justifications. The economic impacts of the project currently are under evaluation as part of the Definite Plan Report (DPR). The DPR will indicate the economic status of the project. Cost efficiency methods, as well as engineering and environmental considerations, will determine final facility plans and designs.

3/ Status Report for Desalting Complex Unit submitted November 1977. Definite Plan Reports are scheduled to be submitted for the Desalting Complex Unit in April 1978, Coachella Canal Unit in June 1978, and Protective and Regulatory Pumping in June 1978.

4/ Explanation of changes in allocation from FY 1978 Budget Justification:

	FY 1978 Estimate	FY 1979 Estimate
Irrigation	$ 40,546,000	$ 43,640,000
Mexican Treaty	275,865,000	290,422,000
Other	163,897	163,897
	$316,574,897	$334,225,897

The increase of $17,651,000 primarily for cost indexing.

Colorado River Basin Salinity Control Project - Title I, Arizona-California

Footnotes: - Continued

5/ Nonreimbursable General Investigation costs (Public Law 92-149).

6/ The scheduled amount to be repaid will be covered by a contract with the project beneficiaries before construction is initiated. Repayment of construction costs will be nonreimbursable during the period from completion of a new Coachella Canal to the end of the first year that main stream Colorado River water is delivered to California in an amount less than the sum of quantities requested by California under Section 5 of the Boulder Canyon Project Act.

7/ Includes $290,442,000 Mexican Treaty Measures and $163,897 for preauthorization investigation costs (Public Law 92-149).

8/ Cost of the Desalting Complex are nonreimbursable except for cost associated with other beneficiaries. The Secretary's determination is to be made after data has been finalized. Costs for the Coachella Canal replacement will be shared by the United States and the Coachella Valley County Water District. Distribution will be on the basis of the benefit of water savings accruing to the United States, this distrubution to be resolved when studies are completed. Costs associated with the Protective and Regulatory Pumping, including delivery of water to Mexico, will be nonreimbursable, except for water used in the United States.

9/ Appropriations authorized are $219,831,000 (July 1977). The current estimate is $333,692,000 which is greater than the appropriation authorized. Additional appropriation ceiling will be requested.

PF-81 (12-68)
Bureau of Reclamation

COLORADO RIVER BASIN SALINITY CONTROL PROJECTS
TITLE I DIVISION

PHYSICAL DATA ON STRUCTURES

CONSTRUCTION PROGRAM:

Yuma Desalting Plant

Plant:
Type - Membrane (Reverse Osmosis)
Capacity - 96 million gallon per day

Bypass Drain

Length - 16 miles in U.S.
37 miles in Mexico

Capacity - 353 Cubic Feet Per Second

Bottom Width - 12.0 feet
Water Depth - 6.06 feet

M.O.D.E. Siphon

Length - 3,075 feet

Capacity - 353 Cubic Feet Per Second

Diameter - 10.0 feet

Coachella Canal Replacement

Length - 49.0 miles

Capacity - 1,500 Cubic Feet Per Second

Bottom Width - 16 feet
Water Depth - 10.42 feet to Station 861+20,
12.34 feet to end.

Protective and Regulatory Pumping

Wells:
Number - 35

Depth - 600 feet

Total Production - 130,000 acre-feet per year

Conveyance System - Capacity - 7.5 to 300 Cubic Feet Per Second
Open Channel - 5.9 miles

Closed Pipeline - 12.8 miles

Bottom Widths - 4.0 to 6.0 feet
Water Depth - 2.8 to 5.8 feet
Diameter - 27 to 72 inches

BR-410

634

Transmission Lines and Switchyards

Transmission Lines - 18.7 miles of 34.5 Kilovolts
- 27.2 miles of 69 Kilovolts
Yuma Desalting Plant Switchyard - 62,500 Kilovolts-Amps

Right-of-Way and Land Acquisition

Quantity - 46,233 acres
Total Estimated Cost - $32,752,468
Cost Per Acre - $708
Acquisition - 57 percent Complete as of January 1, 1978.

Appropriation Title: Colorado River Basin Salinity Control Projects

COLORADO RIVER BASIN SALINITY CONTROL PROJECTS
TITLE I DIVISION, ARIZONA-CALIFORNIA

FISCAL YEAR 1979

Work Proposed

	Program
Desalting Complex Unit. Contracts for membrane desalting equipment and other desalting plant control equipment will be continued. The Irrigation Efficiency Improvement Program and contracts for cleaning of citrus acreage will be continued in the Wellton-Mohawk Irrigation and Drainage District. Contracts will be awarded for additional equipment for the plant, switchyards, transmission lines, and for removal of irrigation facilities on land purchased under the Wellton-Mohawk acreage reduction program.	$14,244,000
Coachella Canal Unit. Construction will be continued on the first 33 miles of the canal replacement and a contract will be awarded for construction of the remaining 16 miles of the canal.	10,962,000
Protective and Regulatory Pumping Unit. Construction of wells and related works will be continued.	2,320,000
Fish and Wildlife Facilities. Provides for continuation of mitigation measures in Arizona.	301,000
Yuma Desalting Test Facility. Ongoing research efforts and operation of facility will be completed.	555,000
Other Project Costs. Studies will continue for replacement of brine stream waters bypassed to Santa Clara Slough in Mexico from the desalting plant.	500,000
TOTAL PROGRAM	$28,882,000

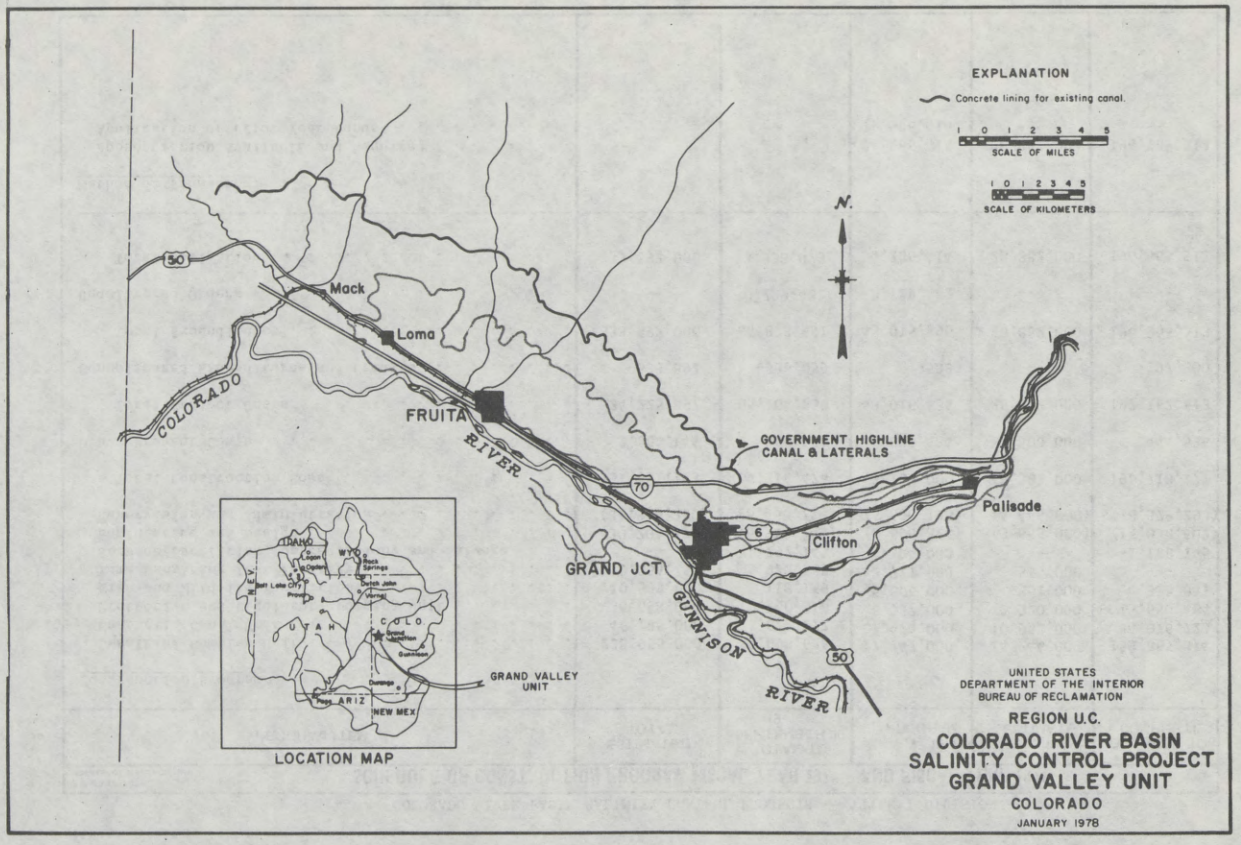
COLORADO RIVER BASIN SALINITY CONTROL PROJECTS -- TITLE I DIVISION

PF-40 (8-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978 AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 19	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Construction Program					
Desalting Complex Unit	228,955,000	43,098,626	17,747,000	14,244,000	153,865,374
Coachella Canal Unit	46,185,000	3,672,277	7,474,000	10,962,000	24,076,723
Protective and Regulatory Pumping Unit	36,688,000	10,160,516	8,557,000	2,320,000	15,650,484
Fish and Wildlife Facilities	10,539,000	118,159	5,806,000	301,000	4,313,841
Yuma Desalting Test Facility	9,254,753	5,972,753	2,727,000	555,000	---
Service Facilities, Depreciation, and Salvage	--	1,292,145	-104,000	---	-1,188,145
Engineering and Design	(30,204,172)	(6,914,245)	(4,596,324)	(3,655,000)	(15,038,603)
Supervision and Administration	(36,916,210)	(8,450,744)	(5,620,173)	(4,466,000)	(18,379,293)
Total Construction Cost.	331,621,753	64,314,476	42,207,000	28,382,000	196,718,277
Other Project Costs	2,604,144	850,174	809,434	500,000	444,536
Total Project Costs	334,225,897	65,164,650	43,016,434	28,882,000	197,162,813
Consolidated Expenditures and Credits	-533,897	-336,059	-538	---	-197,300
Total Expenditures	333,692,000	64,828,591	43,015,896	28,882,000	196,965,513
Undelivered Orders	--	8,729,482	-8,729,482	---	---
Total Obligations	333,692,000	73,558,073	34,286,414	28,882,000	196,965,513
Method of Financing:					
Appropriation Available and Required			34,286,414	28,882,000	196,965,513
Application of Prior Year Funds			19,996,414	---	---

BR-413


EXPLANATION
Concrete lining for existing canal.
SCALE OF MILES
SCALE OF KILOMETERS
N.
50
Mack
Loma
COLORADO
RIVER
FRUITA
GOVERNMENT HIGHLINE
CANAL & LATERALS
70
6
Clifton
Palisade
GRAND JCT
GUNNISON
RIVER
50
IDAHO
WYO.
COLO.
UTAH
ARIZ.
NEW MEX.
GRAND VALLEY
UNIT
LOCATION MAP
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
REGION U.C.
COLORADO RIVER BASIN
SALINITY CONTROL PROJECT
GRAND VALLEY UNIT
COLORADO
JANUARY 1978

24-040 O - 78 - 41

PROJECT DATA SHEET

PF-65 (11-76)
Bureau of Reclamation

REGION	PROJECT AND STATE	Completion Date	% Complete	Date
Upper Colorado	COLORADO RIVER BASIN SALINITY CONTROL PROJECTS TITLE II--GRAND VALLEY UNIT, COLORADO	FY 1987	2	1/1/78

AUTHORIZATION	BENEFIT COST RATIOS		
Public Law 93-320, June 24, 1974	Based on Direct Benefits 1/	Based on Total Benefits 1/	Date 1/

LAND CERTIFICATION	DEFINITE PLAN REPORT
Not Required	Stage I Scheduled to be submitted March 1978

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 4/	$ 130,145,000	Allotments to September 30, 1977	$ 2,175,037
Total Federal Obligations (Other)		Allotments for F.Y. 1978	1,500,000
Net Property and Other Transfers	325,000		
Cash Advances--Non-Federal		Allotments to Date	3,675,037
Adjustment		Allotments Required for F.Y. 1979	4,159,000
Total to be Allocated	$ 130,470,000	Balance to Complete after F.Y. 1979	$ 122,310,963

ALLOCATIONS 2/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$
Power		Amount Repaid by Power		Repayment of Investment per Acre:	
M & I Water		Amount Repaid by M & I Water		By Irrigators	$
Recreation		By Lower Colorado River Basin Development Funds 3/	27,724,000	By Power Revenues	
F & WL		By Upper Colorado River Basin Fund 3/	4,893,000	By M & I Water Users	
Flood Control		Nonreimbursable 3/	97,853,000	Payment Capacity per Acre	$
Salinity Control	130,470,000			Annual Charges: O & M	$
Other				Construction	
Total	$ 130,470,000	Total	$ 130,470,000	Total	$

STATUS OF REPAYMENT CONTRACT None Required.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide - Regional Analysis (Colorado River Water Quality Improvement Program) - Final filed with Council on Environmental Quality May 19, 1977. Environmental Assessment scheduled for determination March 1978.

DESCRIPTION: This unit is located in Mesa County in western Colorado at the confluence of the Gunnison and Colorado Rivers near Grand Junction. Irrigation in the area encompasses 76,000 acres, with 200 miles of canals and 500 miles of laterals, most of which are earth lined. Much of the land has been irrigated for more than 50 years and it is estimated that the Grand Valley contributes about 650,000 to 850,000 tons of salt annually to the Colorado River. Investigations indicated that lining the canals, lining or piping the laterals, rehabilitating or replacing canal and lateral structures, constructing adequate measurement control devices and improving on-farm irrigation systems could reduce the salt contribution to the Colorado River by 410,000 tons per year. The current construction program is expected to reduce the salt contribution 200,000 tons per year.

TITLE II--Grand Valley Unit, Colorado

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1975, and to begin construction in FY 1977.

Footnotes:

1/ Previous agreements with the Mexican Government concerning salinity control in the Colorado River and Public Law 93-320 authorizing Title I and Title II activities are based upon economic, social and political justification. The economic impacts of the project currently are under evaluation as part of the Definite Plan Report (DPR). The DPR will indicate the engineering and economic status of the project. Cost efficiency methods, as well as engineering and environmental considerations, will determine final facility plans and designs.

2/ Explanation of change in allocation from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Salinity Control	$83,900,000	$130,470,000

The increase of $47,570,000 is due to the following: cost indexing $3,520,000; changing project laterals from an open-lined to a closed-pipe system for environmental, operation and maintenance, and salinity cost effectiveness considerations, $30,070,000; updating of the estimate of the Government Highline Canals to reflect current design criteria, $9,180,000; and including mitigation measures to replace lost wildlife habitat, $4,800,000, and includes a current estimate for operating equipment.

3/ Public Law 93-320 Section 205, states that 75 percent of the costs will be nonreimbursable. The other 25 percent is divided as follows: 85 percent to the Lower Colorado River Basin Development Fund and 15 percent to the Upper Colorado River Basin Fund.

4/ The appropriation authority for this project was included as part of the total authorized by Public Law 93-320 covering this project and also the Crystal Geyser, Las Vegas Wash, and Paradox Valley Projects. The total amount authorized to be appropriated for these four projects is $182,116,000 (January 1977). The estimate to construct these projects is $239,486,288, which is greater than the authorized appropriation. These estimates indicate that additional appropriation ceiling will be required in order to complete construction. When the estimate data become firm, an increased appropriation ceiling will be proposed. Current commitments will be held within the existing ceiling.

TITLE II -- GRAND VALLEY UNIT, COLORADO

PHYSICAL DATA ON STRUCTURES

Canals			Laterals		
Name	Length miles	Capacity cubic feet per second	Name	Length miles	Capacity cubic feet per second
Government Highline Canal	47.5	600-25	Government Highline Laterals	150	90-2
Grand Valley Canal	12.5	650-500	Grand Valley Laterals	30	8-2
Grand Valley Highline Canal	23.5	300-140	Grand Valley Highline Laterals	40	30-2
Grand Valley Mainline Canal	14.0	250-25	Grand Valley Mainline Laterals	60	30-2
Mesa County Ditch	4.7	40-2	Mesa County Ditch Laterals	15	8-2
Independent Rachman's Canal	11.8	70-30	Independent Rachman's Laterals	20	15-2
Keifer Extension Canal	15.4	140-25	Keifer Extension Laterals	15	20-2
Price Ditch	1.8	100-10	Price Ditch Laterals	50	8-2
Stubb Ditch	10.2	30-4	Stubb Ditch Laterals	7	6-2
Orchard Mesa Power Canal	2.4	850	Orchard Mesa Power Laterals	7	2
Orchard Mesa Canal No. 1	16.3	110-6	Orchard Mesa No. 1 Laterals	35	30-2
Orchard Mesa Canal No. 2	17.3	70-6	Orchard Mesa No. 2 Laterals	20	6-2
Redlands Power Canal	1.8	850	Redlands Power Laterals	1	2

Appropriation Title: Colorado River Basin Salinity Control Project

TITLE II -- GRAND VALLEY UNIT, COLORADO

FISCAL YEAR 1979

Work Proposed	Program
Grand Valley Canal System. Program provides for construction on canal lining. Preconstruction activities will continue.	$2,050,000
Grand Valley Lateral System. Provides for continued lining of the Laterals. Preconstruction activities will continue on other laterals	1,891,000
Service Facilities, Depreciation, and Salvage. For continued purchase of equipment.	80,000
Other Project Costs. To continue irrigation management scheduling with local water users.	138,000
TOTAL	$4,159,000

TITLE II -- GRAND VALLEY UNIT, COLORADO

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
CONSTRUCTION PROGRAM					
Grand Valley Canal System	61,900,000	1,104,579	--	2,050,000	58,745,421
Grand Valley Lateral System	63,100,000	706,180	1,586,000	1,891,000	58,916,820
Permanent Operating Facilities	120,000	--	--	--	120,000
Service Facilities, Depreciation and Salvage		4,881	163,000	80,000	-247,881
Engineering and Design	(14,139,000)	(1,217,302)	(66,000)	(125,000)	(12,730,698)
Supervision and Administration	(17,281,000)	(630,050)	(1,237,000)	(1,004,000)	(14,409,950)
Total Construction Cost	125,120,000	1,815,640	1,749,000	4,021,000	117,534,360
Other Project Costs	5,350,000	331,874	80,000	138,000	4,800,126
Total Project Costs	130,470,000	2,147,514	1,829,000	4,159,000	122,334,486
Consolidated Expenditure and Credits	-325,000	-301,563	86	--	-23,523
Total Expenditures	130,145,000	1,845,951	1,829,086	4,159,000	122,310,963
Undelivered Orders	--	+52,086	-52,086	--	--
Total Obligations	130,145,000	1,898,037	1,777,000	4,159,000	122,310,963
Method of Financing					
Appropriation Available & Required	--	--	1,500,000	4,159,000	122,310,963
Application of Prior Year Funds	--	--	277,000		

GPO 1976-678-173

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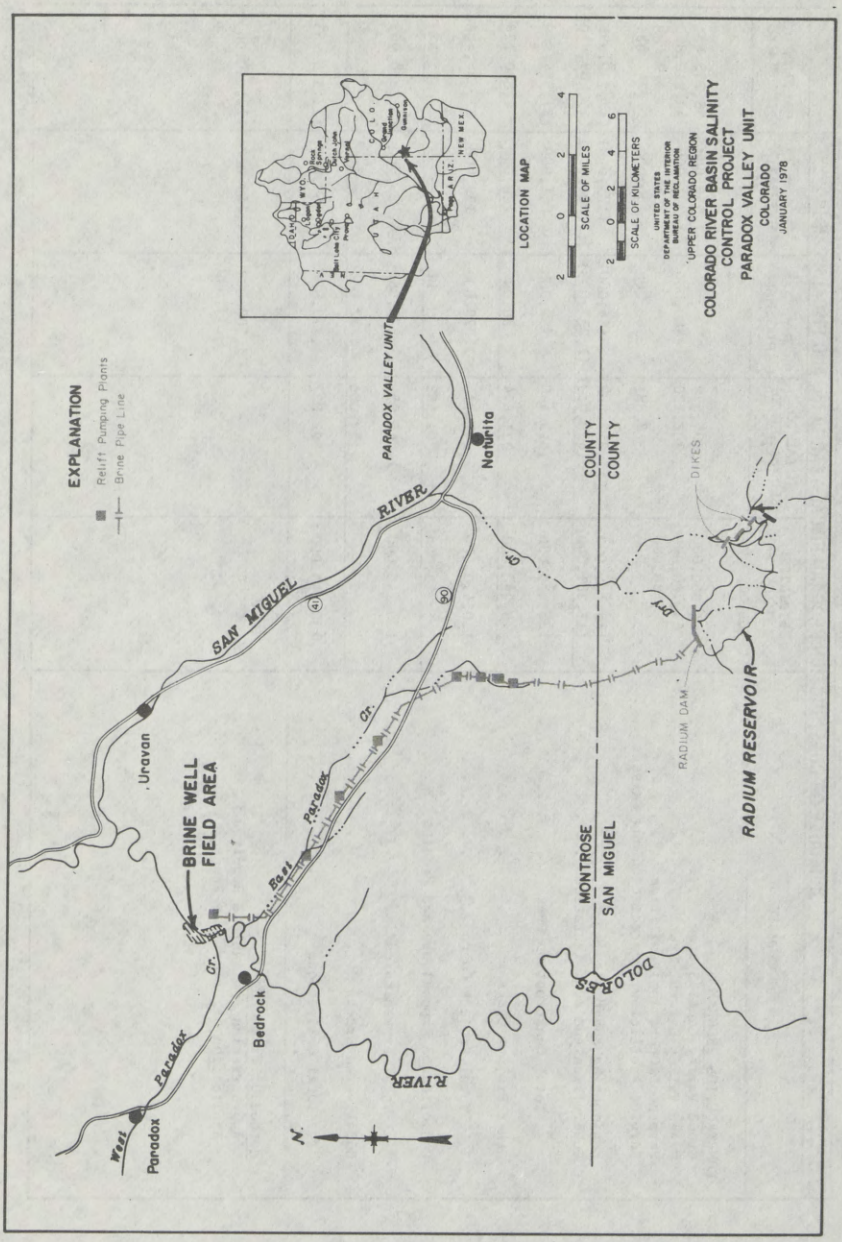
EXPLANATION
Relift Pumping Plants
Brine Pipe Line
LOCATION MAP
SCALE OF MILES
SCALE OF KILOMETERS
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
UPPER COLORADO REGION
COLORADO RIVER BASIN SALINITY
CONTROL PROJECT
PARADOX VALLEY UNIT
COLORADO
JANUARY 1978
PARADOX VALLEY UNIT
BRINE WELL
FIELD AREA
Uravan
Bedrock
Paradox
West Paradox Cr.
East Paradox Cr.
SAN MIGUEL RIVER
Naturita
MONTROSE COUNTY
SAN MIGUEL COUNTY
DOLORES RIVER
RADIUM DAM
DIKES
RADIUM RESERVOIR
N.

PROJECT DATA SHEET

PF-65 (11-76)
Bureau of Reclamation

REGION	Upper Colorado			
PROJECT AND STATE	COLORADO RIVER BASIN SALINITY CONTROL PROJECT TITLE II - PARADOX VALLEY UNIT, COLORADO	Completion Date 1983	% Complete 4 1/	Date 1-1-78
AUTHORIZATION	Public Law 93-320, June 24, 1974	BENEFIT COST RATIOS		
LAND CERTIFICATION	Not Required	DEFINITE PLAN REPORT Scheduled for submission March 1978	Based on Direct Benefits 2/	Based on Total Benefits 2/ Date 2/

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation)	5/ $	50,235,000	Allotments to September 30, 1977	$ 1,986,045
Total Federal Obligations (Other)			Allotments for F.Y. 1978	1,285,000
Net Property and Other Transfers		479,000		
Cash Advances--Non-Federal			Allotments to Date	3,271,045
Adjustment			Allotments Required for F.Y. 1979	2,358,000
Total to be Allocated	$	50,714,000	Balance to Complete after F.Y. 1979	$ 44,605,955

ALLOCATIONS 3/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$
Power		Amount Repaid by Power		Repayment of Investment per Acre:	Payment Capacity per Acre $
M & I Water		Amount Repaid by M & I Water			Annual Charges:
Recreation		By Lower Colorado River		By Irrigators $	O & M $
F & WL		Basin Development Fund 4/	10,776,000	By Power Revenues	Construction
Flood Control		By Upper Colorado River		By M & I Water Users	
Salinity Control	50,714,000	Basin Fund 4/	1,902,000		
			38,036,000		
Other		Nonreimbursable 4/			
Total	$ 50,714,000	Total	$ 50,714,000		Total $

STATUS OF REPAYMENT CONTRACT

None Required

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Project-wide - Regional Analysis (Colorado River Water Quality Improvement Program) - Final filed with Council on Environmental Quality May 19, 1977. Detailed Unit Statement scheduled to Environmental Protection Agency - Draft March 1978; Final August 1978.

DESCRIPTION: This unit is located in Montrose County in southwestern Colorado near Bedrock and is situated along the axis of a collapsed salt anticline of pure salt and salt-rich shales over 14,000 feet in depth. It is estimated that Paradox Valley contributes about 200,000 tons of salt per year to the Colorado River system via the Dolores River. By constructing and utilizing a system of wells, pumps, pipelines, and solar evaporation ponds, it is estimated that this salt loading can be reduced by 180,000 tons annually.

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TITLE II - Paradox Valley Unit, Colorado

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in FY 1975 and construction in FY 1977.

Footnotes:

1/ Changed from 7 percent in FY 1978 Budget Justifications. Decrease of 3 percent due to large increase in estimated total cost of the project.

2/ Assessment of the full beneficial impact of improving water quality as a result of this authorized project has not been made. Previous agreements with the Mexican Government concerning salinity control in the Colorado River and Public Law 93-320 authorizing Title I and Title II activities are based upon social and political justifications. The impacts of the project currently are under evaluation as part of the Definite Plan Report (DPR). The DPR will indicate the economic status of the project. Cost efficiency methods, as well as engineering and environmental considerations will determine final facility plans and designs.

3/ Explanation of change in allocations from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Salinity control	$21,180,000	$50,714,000

The increase of $29,534,000 is due to cost indexing of $1,290,000; total embankment in Radium Dam and dikes tripled because of the need to shift the axis of the dam based on geological conditions encountered and the need to provide additional storage in the evaporation pond to store normal flood flows increased the total cost $13,000,000; the need to blanket the evaporation pond to eliminate seepage of the saline water into underground aquifers, $10,000,000; application of current design criteria on Hydrogen Sulfide Stripping station and other refinements in designs and estimates, $4,109,000; an outlet works required to accommodate flows through the dam during construction and a spillway to pass maximum floods flows to protect the structure have been added to the dam, $600,000; housing for operation and maintenance personnel $340,000; and mitigation measures to reduce effect of the project on wildlife resources, $195,000. In addition to these changes, transmission lines are now identified which previously had been included with the pumping plant and the temporary brine disposal system and are now included with the brine well field. The order of the budget presentation is now based on the flow of the brine from the well field through project features to the evaporation pond.

4/ Public Law 93-320, section 205, states that 75 percent of the costs will be nonreimbursable. The other 25 percent is divided as follows: 85 percent to the Lower Colorado River Basin Development Fund and 15 percent to the Upper Colorado River Basin Fund.

Footnotes: (Continued)

5/ The appropration authority for this project was included as part of the total authorized by Public Law 93-320 covering this project and also the Crystal Geyser, Grand Valley, and Las Vegas Wash Projects. The total amount authorized to be appropriated for these four projects is $182,116,000 (January 1977). The estimate to construct these projects is $239,486,288 which is greater than the authorized appropriation. These estimates indicate that additional appropriation ceiling will be required in order to complete construction. When the estimate data become firm, an increased appropriation ceiling will be required in order to complete construction. When the estimate data become firm, and increased appropriation ceiling will be proposed. Current commitments will be hel within the existing ceiling.

COLORADO RIVER BASIN SALINITY CONTROL PROJECT
TITLE II - PARADOX VALLEY UNIT

PHYSICAL DATA ON STRUCTURES - 3

CONSTRUCTION PROGRAM:

Radium Dam, Dike and Evaporation Pond

Dam:
- Type - Earthfill
- Structural Height - 87 feet
- Crest Width - 30 feet
- Crest Length - 8,300 feet

Spillway:
- Type - Combined Structure
- Design Discharge - 50 Cubic Feet/Second
- Outlet Works - 800 Cubic Feet/Second

Dike:
- Type - Earthfill
- Structural Height - 56 Feet
- Crest Width - 30 Feet
- Crest Length - 7,500 Feet

Evaporation Pond:
- Storage Capacity - 86,800 Acre Feet

Brine Well Field - Eighteen Production Wells with a combined pumping rate of 5 cubic feet per second.

Hydrogen Sulfide Stripping Plant - Capacity - 5 cubic feet per second.

Brine Pipeline - Length - 20 miles; Capacity - 5 cubic feet per second; Diameter - 15 inches to 18 inches.

Brine Pipeline Pumping Plants - Eight plants with total capacity of 10 cubic feet per second.

Right-of-Way - Quantity - 5,379 Acres; Total Estimated Cost - $2,568,000; Cost Per Acre - $477; Acquisition - 0% as of January 1, 1978

Relocation - Total Estimated Cost - $120,000; Percent Complete - 0% as of January 1, 1978

Item: San Miguel County Road - Length - 3.8 miles; Total Cost - $120,000; Cost to September 30, 1977 - $0.

Appropriation Title: Colorado River Basin Salinity Control Project

PARADOX VALLEY UNIT

FISCAL YEAR 1979

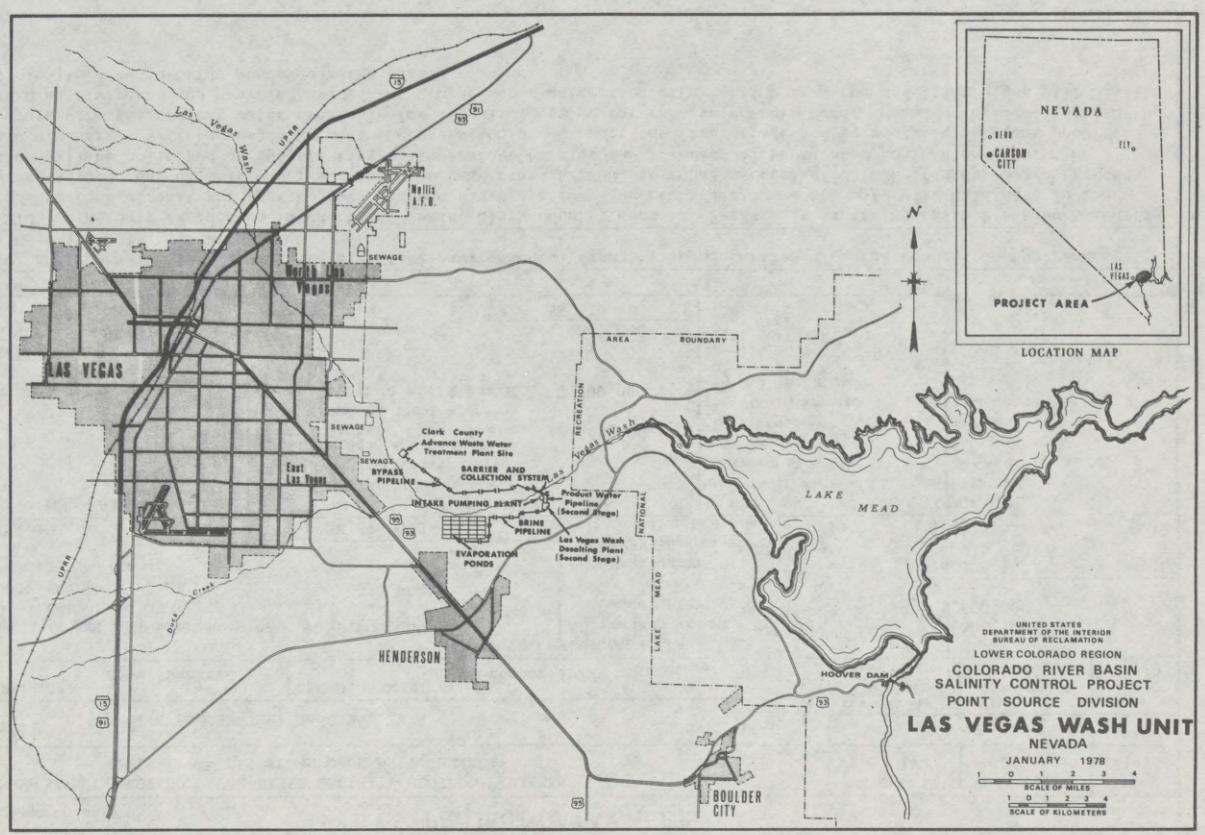
Work Proposed:		Program
Brine Well Field - For continuation of construction of wells.		$ 237,000
Hydrogen Sulfide Stripping Plant -	)	100,000
Brine Pipeline -	)	50,000
Brine Pipeline Pumping Plants (Re-lift Pumping Plant) -	) For preconstruction activities	50,000
Radium Dam, Dike, and Evaporation Pond -	)	1,800,000
Permanent Operating Facilities -	)	18,000
Temporary Camp -	)	20,000
Service Facilities, Depreciation, and Salvage - Program provides for continued purchase of equipment		83,000
	TOTAL	$2,358,000

COLORADO RIVER BASIN SALINITY CONTROL PROJECT
TITLE II - PARADOX UNIT, COLORADO

PF-40 (3-78)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Construction Program					
Brine Well Field	1,600,000	173,243	543,000	237,000	646,757
Hydrogen Sulfide Stripping Plant	2,200,000	58,110	200,000	100,000	1,841,890
Brine Pipeline	6,000,000	334,282	--	50,000	5,615,718
Brine Pipeline Pumping Plants (Relift Pumping Plant)	4,500,000	721,253	--	50,000	3,728,747
Radium Dam, Dike and Evaporation Pond	34,000,000	576,960	600,000	1,800,000	31,023,040
Transmission Lines (Relift Pumping Plant)	1,050,000	--	--	--	1,050,000
Permanent Operating Facilities	515,000	25,423	10,000	18,000	461,577
O&M Housing	340,000	--	--	--	340,000
Temporary Camp	400,000	--	--	20,000	380,000
Service Facilities, Depreciation and Salvage	-542,000	21,408	20,000	83,000	-666,408
Engineering and Design	(4,331,000)	(1,800,000)	(600,000)	(1,200,000)	(731,000)
Supervision and Administration	(5,293,000)	(543,366)	(483,000)	(954,000)	(3,312,638)
Relocation Costs	(120,000	(0)	(0)	(0)	(120,000)
Total Construction Costs	50,063,000	1,910,679	1,373,000	2,358,000	44,421,321
Other Project Costs	651,000	455,600	--	--	195,400
Total Project Cost	50,714,000	2,366,279	1,373,000	2,358,000	44,616,721
Consolidated Expenditures and Credits	-479,000	-468,154	-80	--	-10,766
Total Expenditures	50,235,000	1,898,125	1,372,920	2,358,000	44,605,955
Undelivered Orders		37,511	-37,511	--	
Total Obligations	50,235,000	1,935,636	1,335,409	2,358,000	44,605,955
Method of Financing					
Appropriations available and required	--	--	1,285,000	2,358,000	44,605,955
Application of prior year funds	--	--	50,409		


NEVADA
CARSON CITY
PROJECT AREA
LOCATION MAP
N
LAS VEGAS
North Las Vegas
Nellis A.F.B.
SEWAGE
Las Vegas Wash
UPRAN
AREA BOUNDARY
RECREATION
Clark County Advance Waste Water Treatment Plant Site
BYPASS PIPELINE
BARRIER AND COLLECTION SYSTEM
INTAKE PUMPING PLANT
Product Water Pipeline (Second Stage)
BRINE PIPELINE
Las Vegas Wash Desalting Plant (Second Stage)
EVAPORATION PONDS
East Las Vegas
Duck Creek
HENDERSON
LAKE MEAD NATIONAL
LAKE MEAD
HOOVER DAM
BOULDER CITY
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
LOWER COLORADO REGION
COLORADO RIVER BASIN
SALINITY CONTROL PROJECT
POINT SOURCE DIVISION
LAS VEGAS WASH UNIT
NEVADA
JANUARY 1978
SCALE OF MILES
SCALE OF KILOMETERS

REGION Lower Colorado

PROJECT DATA SHEET

PF-86 (11 76)
Bureau of Reclamation

PROJECT AND STATE	Completion Date	% Complete	Date
COLORADO RIVER BASIN SALINITY CONTROL PROJECTS TITLE II -- LAS VEGAS WASH UNIT, NEVADA	1982 1/	3	1-1-78

AUTHORIZATION	BENEFIT COST RATIOS		
Public Law 93-320, June 24, 1974	Based on Direct Benefits 2/	Based on Total Benefits 2/	Date 1-1-78

LAND CERTIFICATION	DEFINITE PLAN REPORT
None Required	October 1977

SUMMARIZED FINANCIAL DATA

Total Federal Obligations (Reclamation) 6/	$ 59,000,000	Allotments to September 30, 1977	$ 1,308,143
Total Federal Obligations (Other)	--	Allotments for F.Y. 1978	5,600,000
Net Property and Other Transfers	-324,000		
Cash Advances--Non-Federal	--	Allotments to Date	6,908,143
Adjustment	--	Allotments Required for F.Y. 1979	6,916,000
Total to be Allocated	$ 58,676,000	Balance to Complete after F.Y. 1979	$ 45,175,857

ALLOCATIONS 3/		REPAYMENT		AMOUNTS PER ACRE	
Irrigation	$	Amount Repaid by Irrigators	$	Irrig. Invest. per Acre	$
Power		Amount Repaid by Power		Repayment of Investment per Acre:	
M & I Water		Amount Repaid by M & I Water		By Irrigators	$
Recreation		Lower Colorado River Basin Development Fund 4/	$12,469,000	By Power Revenues	
F & WL		Upper Colorado River Basin Fund 4/	2,200,000	By M & I Water Users	
Flood Control					
Salinity Control	58,676,000			Payment Capacity per Acre	$
Other		Nonreimbursable 4/	44,007,000	Annual Charges:	
				O & M	$
				Construction	
Total	$ 58,676,000	Total	$ 58,676,000	Total	$

STATUS OF REPAYMENT CONTRACT Not required.

STATUS OF ENVIRONMENTAL IMPACT STATEMENTS: Final environmental impact statement filed with the Council on Environmental Quality Mary 19, 1977.

DESCRIPTION: The unit is located in southern Nevada, Clark County, near Las Vegas. It is estimated that the Wash contributes 208,000 tons of salt per year to the Colorado River system. The construction of the unit will eliminate in the first stage 41,000 tons of salt per year; in the second stage 42,000, to equal a total of 83,000 5/. The saline groundwater flow will be collected by constructing an impervious barrier and a series of perforated collection pips. The collected discharges will be pumped to nearby evaporation ponds under the first stage and to a desalting plant under the second stage with the project water available for in-valley use or for release to Lake Mead. Manmade surface flows in the wash would be divereted and conveyed around the ground-water collection site. Brine from the desalting plant will be disposed of in lined evaporation ponds near the site.

BR-427

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the ground-water collection site. Brine from the desalting plant under the second stage will be disposed of in lined evaporation ponds near the plant site.

OTHER INFORMATION: Funds to initiate preconstruction planning were appropriated in fiscal year 1975, and appropriations were provided in fiscal year 1977 to initiate construction.

Footnotes:

1/ Advance planning was completed in March 1977. Construction of stage one was initiated in fiscal year 1977 and is to be completed in fiscal year 1982. Construction of stage two, the Desalting Complex, is being delayed pending positive determination of need.

2/ Assessment of the full beneficial impact of improving water quality as a result of this authorized project has not been made. Previous agreements with the Mexican Government concerning salinity control in the Colorado River and Public Law 93-320 authorizing Title I and Title II activities are based upon social and political justifications. Cost per ton of salt removed is $63, and for each milligram per liter reduction at Imperial Dam is $518,000. Annual equivalent irrigation, municipal and industrial water benefits to the Lower Colorado River water users based on an 80-year period of analysis for the first stage are $1,150,000. The annual equivalent costs for the first stage are $2,588,000. There are no quantified net benefits but the unquantified benefits enumerated above are believed to be in excess of project costs.

3/ Explanation of change in allocations from FY 1978 Budget Justifications:

	FY 1978 Estimate	FY 1979 Estimate
Salinity Control	$56,556,000	$58,676,000

Increase of $2,120,000 is due to cost indexing.

4/ Public Law 93-320, Section 205, states that 75 percent of the costs will be nonreimbursable. The other 25 percent is divided as follows: 85 percent to the Lower Colorado River Basin Development and 15 percent to the Upper Colorado River Basin Fund.

5/ The change from 138,000 to 83,000 tons of salt eliminated per year is a result of refinements in the analysis of Las Vegas Wash flows passing the Unit's interception facility. Refinements have also been made in the determination of the length of time required for the existing saline ground-water mound to diminish after industrial compliance with the Environmental Protection Agency's national pollutant discharge elimination system permits.

O&M OBLIGATIONS BY FUNCTIONS (In Thousands of Dollars)
DETAILS FOR "OTHER"

Project and State	M&I WATER		FISH AND WILDLIFE		WATER CONTROL 1/		RECREATION		HISTORICAL ARCHEOLOGICAL		TOTAL OTHER	
	F.Y. 1978	F.Y. 1979	F.Y. 1978	F.Y. 1979	F.Y. 1978	F.Y. 1979	F.Y. 1978	F.Y. 1979	F.Y. 1978	F.Y. 1979	F.Y. 1978	F.Y. 1979
Oregon												
Crooked River. . . .	-	-	4	6	-	-	2	2	-	-	6	8
Rogue River Basin, Talent Div.	-	-	2	2	-	-	-	-	-	-	2	2
Tualatin.	11	11	3	3	6	6	7	7	-	-	27	27
Umatilla.	-	-	1	10	-	-	1	2	-	-	2	12
Oregon-California												
Klamath	-	-	-	-	-	-	2	2	-	-	2	2
Washington												
Columbia Basin. . . .	-	-	156	146	19	22	30	31	-	-	205	199
Yakima	-	-	64	69	-	-	80	85	-	-	144	154

O&M OBLIGATIONS BY FUNCTIONS (In Thousands of Dollars)
DETAILS FOR "OTHER"

Project and State	M&I WATER		FISH AND WILDLIFE		WATER CONTROL 1/		RECREATION		HISTORICAL ARCHEOLOGICAL		TOTAL OTHER	
	F.Y. 1978	F.Y. 1979	F.Y. 1978	F.Y. 1979	F.Y. 1978	F.Y. 1979	F.Y. 1978	F.Y. 1979	F.Y. 1978	F.Y. 1979	F.Y. 1978	F.Y. 1979
Various States												
Irrigation Management Services.	-	-	-	-	216	240	-	-	-	-	216	240
Pick-Sloan Missouri Basin Program . .	108	112	61	69	-	-	320	501	-	-	489	682
Projects financed entirely with advanced funds (Rapid Valley). .	11	12	-	-	-	-	-	-	-	-	11	12
Soil and Moisture Conservation operations. . .	-	-	-	-	2,927	3,250	-	-	-	-	2,927	3,250
Total	1,029	1,018	4,307	2,889	5,088	6,212	1,282	2,099	27	6	11,733	12,224

1/ Includes navigation, phreatophyte clearing, salinity control, land and water conservation practices, water quality improvement, and operations under the Mexican Treaty.

BUREAU OF RECLAMATION
EXPLANATION OF CHANGES IN APPROPRIATION REQUIREMENTS
FROM FY 1978 TO FY 1979

Appropriation Title: Operation and Maintenance

State and project	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
Arizona-California			
Colorado River Basin Salinity Control Projects - Title I	$ 380,000	$ 1,000,000	+$ 620,000
	Increase of $620,000 includes $465,000 for an additional eight wells and fish and wildlife facilities entering operation and maintenance status in the budget year, $70,000 for supplies and materials, $75,000 for full year power costs on initial six wells entering operation and maintenance status in mid-FY 1978, and $10,000 for additional costs of the Mexico portion of the Bypass Drain.		
Yuma Area Projects	$ 1,276,000	$ 1,379,000	+$ 103,000
	The total FY 1979 program increase of $103,000 includes $99,000 for replacements and additions; and $4,000 for supplies and materials. Replacement items total $237,000 and include $125,000 for a hydraulic excavator, $56,000 for two replacement wells, $36,000 to replace four drainage well pumps, and $20,000 for miscellaneous equipment.		
Arizona-California-Nevada			
Colorado River Front Work and Levee System	$ 8,920,000	$ 5,500,000	-$ 3,420,000
	Decrease of $3,420,000 reflects a reduction of $1,763,000 in the maintenance dredging, bankline and structure protection programs; and $1,657,000 for completion of the Cibola Wildlife Refuge land acquisition program.		
Parker-Davis Project	$ 1,251,000	$1,299,000	+$ 48,000
	Increases in FY 1979 include $49,500 for replacements and additions, and $17,000 for extraordinary maintenance. These increases have been partially offset by a reduction		

State and project	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
Arizona-California-Nevada (Continued)			
Parker-Davis Project (Continued)	of $18,500 in recurring operation and maintenance expenses primarily as a result of consolidation of maintenance forces for the Davis Dam and Parker Dam installation Replacements and additions total $114,000 and are composed of $50,000 for a fire truck, $40,000 for a wheeled tractor with loader and backhoe, $17,000 for tools and work equipment, and $7,000 for transportation equipment. Extraordinary maintenance totals $29,000 and consists of $20,000 for repairs to the domestic water system at Davis Dam, and $9,000 to rehabilitate braking and jacking equipment on generators at Parker Dam Powerplant.		
Arizona-Nevada			
Boulder Canyon Project	$ 5,327,000	$ 8,947,000	+$ 3,620,000
	The increase includes $2,981,000 for replacements and additions; $460,000 for extraordinary maintenance; $120,000 for wage board pay increases; $59,000 for materials and supplies; which includes $17,000 for purchase of computer equipment and rentals. Replacements and additions for fiscal year 1979 total $4,789,000 and include $2,772,000 for turbine runner replacement, $1,000,000 for replacing the cooling systems in the main generating units and other major unit repairs and improvements which will be performed by Operating Agents, $300,000 for crane hoist motors and controls, $275,000 to replace 90 oil-filled transformers with dry-type transformers, $125,000 for a supervisory control system for the Boulder City water system, $105,000 for a milling machine, $75,000 for security systems, $38,000 for miscellaneous property, $20,000 for a dock mule (tug), $15,000 for a drill press, $13,000 for motor vehicles, $10,000 for Boulder City water supply pipe, $10,000 for a forklift, $9,000 for a portable compressor and tanks, $8,000 for a power hacksaw, $8,000 for a filter press, and $6,000 for powerplant sewage pumps. Extraordinary maintenance totals $460,000 consisting of $350,000 for road work; $50,000 for repair of transformer deck and dam expansion joints; $40,000 for chlorine storage buildings at powerplant and filter plant; and $20,000 for flammable materials storage facilities.		

Appropriation Title: Operation and Maintenance

	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
California			
Cachuma-Solano Projects	$ 657,000	$ 1,100,000	+$ 443,000

The increase of $443,000 reflects increases of $438,000 for replacement and addition items, and $50,000 for new facilities at the Lake Berryessa Oak Shores Development being partially offset by a decrease of $45,000 in extraordinary maintenance work.

Replacements and additions in FY 1979 total $450,000 and will provide for starting construction of administrative headquarters facilities at Lake Berryessa.

Central Valley Project	$23,260,000	$25,172,000	+$ 1,912,000

The increase includes $1,421,000 for extraordinary maintenance; $949,000 for new facilities on the New Melones Unit and the Tehama-Colusa Canal; and $216,000 for materials, supplies, space rental costs, and other services. Increases are partially offset by a decrease of $674,000 in the replacement and addition program.

The total replacement and addition program of $4,209,000 includes $711,000 for circuit breakers, disconnects and associated electrical equipment at Shasta, Folsom, and Tracy; $536,000 for specialized vehicles including two 35-ton truck cranes; $292,000 for motor vehicle replacements; $ 275,000 for domestic water filtration system at Shasta Dam;$265,000 for the centralized water and power system control complex; $262,000 for Folsom Switchyard modification; $173,000 for radio equipment at Shasta, Folsom, and Fresno; $162,000 for uprating programs at Shasta and Folsom; $152,000 for automation and modernization programs at Shasta and Folsom; $150,000 to replace pumping units at the Corning Pumping Plant; $120,000 for vehicle and oil storage facilities at Shasta; $116,000 for security monitoring systems at Shasta and Fresno; $110,000 for water quality telemetering; $105,000 for safety items at Shasta, Folsom, Tracy, and Fresno; $90,000 for line protective relay replacement; $88,000 for miscellaneous equipment; $75,000 for hydromet systems; $145,000 for tourist facilities at Shasta; $58,000 for water meters at Tracy and Fresno; $55,000 to replace roof at Keswick Powerplant; $53,000 for coaster gate repair at Shasta Dam; $45,000 for communication system replacement; $42,000 for batteries at Folsom, Nimbus, and Shasta Powerplants; $30,000 for spillway gate cables at Lewiston Dam; $22,000 for pumps at Tracy and Fresno; $20,000 for gate valves at Tracy fish facilities; $20,000 for oil collection booms at Shasta; $20,000 for brake vacuum system at Spring Creek Powerplant; $12,000 for thrust bearing high-pressure lube system at Shasta

State and project	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
California (Continued)			
Central Valley Project (Continued)			
	Powerplant; and $5,000 for automation of Corning Canal and Pumping Plant.		
	The extraordinary maintenance program totals $1,960,000 and includes $300,000 for work on a traveling weed screen on the California acqueduct; $253,000 for riprap on the Friant-Kern Canal; $210,000 for lining repair on the Delta-Mendota Canal; $199,000 for road repairs at Shasta, Folsom, and Tracy; $120,000 for breaker and parts at Tracy Switchyard; $107,000 for governor modification at Numbus Powerplant; $80,000 for 13.8 kV cable at Tracy Pumping Plant; $80,000 for repairing river outlet gates at Keswick; $64,000 for cooling water control replacement at Shasta; $78,000 for repairing turnout trashracks and gates on the Delta-Mendota Canal; $62,000 for painting at Folsom and Tracy; $58,000 for power and control cable replacement at Shasta Dam and Powerplant; $54,000 to rehabilitate elevators at Shasta; $50,000 for repairs to station service system at Tracy Switchyard; $50,000 for stoplogs at Nimbus Dam; $30,000 to overhaul turbine Units 1 and 2 at Shasta Powerplant; $30,000 to repair riprap at Folsom Dam; $28,000 for crane repair at Folsom; $27,000 for bridge rehabilitation on the Friant-Kern Canal; $25,000 for bushings at Tracy Switchyard; $15,000 for repairing ventilation and cooling systems at Shasta, J. F. Carr, and Trinity Powerplants; $15,000 for control structure repair at Fresno River turnout on the Madera Canal; $12,000 to rebuild spare impeller at Tracy Pumping Plant; $10,000 for water meter modifications; and $3,000 for miscellaneous items.		
Orland Project	$ 129,000	$ 119,000	-$ 10,000
	The decrease reflects completion of vehicle purchases in FY 1978.		
Colorado			
Collbran Project	$ 210,000	$ 195,000	-$ 15,000
	Decrease reflects the completion of several replacement and extraordinary maintenance items in FY 1978.		
Colorado-Big Thompson Project	$ 4,109,000	$ 3,639,000	-$ 470,000
	Decrease includes $512,000 for replacements and additions, $23,000 for extraordinary		

State and project	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
Colorado (Continued)			
Colorado-Big Thompson Project (Continued)			

maintenance, and $5,000 for utilities, rents, and communications. The decrease was partially offset by an increase of $70,000 for the initial phase of maintenance of the remote supervisory control system.

Replacements and additions in FY 1979 total $1,652,000 and include $570,000 for supervisory control system, $495,000 for maintenance shop buildings at Flatiron Powerplant and Loveland service area and a service building for Loveland service area, $216,000 for trucks and heavy equipment, $172,000 for various miscellaneous replacements including switch gear, butterfly valve controls, and minor system modifications, $100,000 for shop and safety equipment, and $99,000 to replace Willow Creek Feeder Canal concrete chute.

Extraordinary maintenance work in 1979 totals $220,000 and includes $61,000 for seal rings and valves at Green Mountain, Granby, and Pole Hill Powerplants, $50,000 for asphalt paving and concrete lining repairs at Estes Powerplant and Charles Hansen Feeder Canal, $48,000 to repaint Estes and Marys Lake penstocks, $40,000 for repairs to oil spill control barriers at various switchyards, and $21,000 to replace domestic water pipelines at Granby Pumping Plant and Estes and Flatiron Powerplants.

Fryingpan-Arkansas Project	$ 442,000	$ 794,000	+$ 352,000

Increase includes $409,000 for the Mt. Elbert Pump-Storage powerplant entering operation and maintenance status, partially offset by a decrease of $57,000 for extraordinary maintenance.

Replacements and additions in FY 1979 total $21,000 for work and safety equipment.

Extraordinary maintenance work totals $77,000 and includes $67,000 for irrigating and fertilizing seeded borrow areas at Pueblo Dam and $10,000 for stream channel maintenance below Sugar Loaf Dam.

Mancos Project	$ 13,000	$ 13,000	$ -

No change.

Appropriation Title: Operation and Maintenance

State and project	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
Colorado-New Mexico-Oklahoma			
San Luis Valley, Carlsbad and Washita Basin Projects	$ 111,000	$ 78,000	-$ 33,000

The decrease of $33,000 reflects a reduction in replacements.

Replacements for fiscal year 1979 total $25,000 for completion of automation of the outlet works at Platoro Dam, San Luis Valley Project.

Idaho-Oregon			
Boise Area Projects	$ 1,639,000	$ 1,805,000	+$ 166,000

The increase includes $119,000 for replacement and addition items; $27,000 for operating costs; $10,000 for extraordinary maintenance work; and $10,000 for new facilities.

Replacements and additions in FY 1979 total $749,000 which include $513,000 to continue work on the supervisory control system; $175,000 for continuing the hydrological-meteorological data collection system; $25,000 for powerplant roof repairs at Anderson Ranch Powerplant; and $36,000 for miscellaneous items of equipment including vehicles.

Extraordinary maintenance work in FY 1979 totals $21,000 and includes $11,000 for drum gate repairs at Arrowrock Dam and $10,000 for septic tank and drain field repairs at Anderson Ranch Powerplant.

Idaho-Wyoming			
Minidoka Area Projects	$ 1,773,000	$ 1,952,000	+$ 179,000

The increase includes $110,000 for extraordinary maintenance work, $35,000 for replacement and addition items, and $34,000 in operating expenses including $12,000 for the initial operation of the rebuilt American Falls Dam.

Replacements and additions in FY 1979 total $411,000 and include $307,000 for continuing the hydrological-meteorological data collection system, $50,000 for a new turbine runner at Minidoka Powerplant, $9,000 for vehicle replacements, and $45,000 for other equipment acquisitions.

Appropriation Title: Operation and Maintenance

State and project	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
Idaho-Wyoming (Continued)			
Minidoka Area Projects (Continued)			
	Extraordinary maintenance work in FY 1979 totals $130,000 and includes $100,000 to resurface streets in Palisades camp, $20,000 to continue Jackson Lake Dam outlet works repair, and $10,000 to repair the outlet control house at Palisades Dam.		
Montana			
Hungry Horse Project	$ 1,117,000	$ 1,043,000	-$ 74,000
	The decrease reflects a reduction of $196,000 in replacement and addition items, partially offset by an increase of $90,000 in extraordinary maintenance work, and $32,000 for operation and maintenance costs.		
	The FY 1979 replacement and addition program totals $73,000 and includes $50,000 for extending a boat ramp, $13,000 for a generating unit pressure lube system, and $10,000 for miscellaneous equipment and replacements and additions.		
	Extraordinary maintenance work in FY 1979 includes $40,000 for generator cooling system repairs and $60,000 for seal coating the powerplant service road and parking areas.		
Milk River Project	$ 46,000	$ 48,000	+$ 2,000
	Increase reflects the need for additional maintenance and for the purchase of mobile radios for remote control of Fresno Dam and Reservoir.		
Nevada-California			
Newlands Project	$ 1,603,000	$ 1,603,000	$ -
	No change as increased operation expenses of $28,000 and replacement and addition items of $62,000 have been offset by a reduction of $90,000 in extraordinary maintenance work.		
	The total replacements and additions program of $112,000 includes $70,000 for water measuring devices and $42,000 for stream gaging stations.		

State and project	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
Nevada-California (Continued)			
Newlands Project (Continued)	The total extraordinary maintenance program of $115,000 includes $50,000 for canal lining and $65,000 for road maintenance.		
Washoe Project	$ 232,000	$ 229,000	-$ 3,000
	The FY 1979 program reflects a decrease of $13,000 for replacements and additions and an increase of $10,000 for contract maintenance work and other services.		
	The replacements and additions program totals $50,000 for surface treatment of Prosser Creek Dam roadway and access road.		
	The extraordinary maintenance program totals $6,000 for slope stabilization at Prosser Creek and Stampede Dam.		
New Mexico			
Middle Rio Grande Project	$ 1,786,000	$ 1,893,000	+$ 107,000
	Increase of $107,000 includes $58,000 for replacements and additions, $34,000 for other operating expenses, and $15,000 for materials and supplies.		
	Replacements and additions for FY 1979 total $340,000 and include $200,000 for a dredge $50,000 for a wheeled gravel-screening machine, $25,000 for a maintenance bridge, $25,000 for tools and work equipment, $20,000 for a shop exhaust removal system, and $20,000 for Rio Grande River channel improvements.		
New Mexico-Texas			
Pecos River Basin Water Salvage Project	$ 468,000	$ 535,000	+$ 67,000
	Increase of $67,000 includes $4,000 for materials and supplies, and $63,000 for replacements and additions.		
	Replacements and additions for fiscal year 1979 total $98,000 and include $50,000 to replace a crawler tractor, $45,000 to replace wheel-type tractors and $3,000 for tools and work equipment.		

Appropriation Title: Operation and Maintenance

State and project	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
New Mexico-Texas (Continued)			
Rio Grande Project	$ 909,000	$ 915,000	+$ 6,000
	Increase includes $42,000 for operating costs; $34,000 for replacements and additions; and $15,000 for materials and supplies. These increases are offset by a reduction in extraordinary maintenance of $85,000.		
	Replacements and additions for FY 1979 total $112,000 and include $22,000 to continue powerplant modifications, $20,000 for generator voltage regulator, $15,000 for station service switch gear, $15,000 for oil storage tanks, $15,000 for tools and work equipment, $10,000 for hig-pressure piping system, $6,000 for relays and meters, $5,000 for crane modifications, and $4,000 for water system pumps.		
Oregon			
Crooked River Project	$ 17,000	$ 25,000	+$ 8,000
	The increase provides for spillway repairs at Arthur R. Bowman Dam.		
Rogue River Basin Project			
Talent Division	$ 102,000	$ 126,000	+$ 24,000
	The increase of $24,000 provides $20,000 in extraordinary maintenance for repainting a surge tank at the Green Springs Powerplant and $4,000 in recurring operating costs.		
Tualatin Project	$ 21,000	$ 19,000	-$ 2,000
	Decrease reflects reduction in recurring O&M expenses.		
Umatilla Project	$ 12,000	$ 22,000	+$ 10,000
	Increase includes $2,000 for increased costs of materials and supplies, and $8,000 for costs of flood control, fish and wildlife, and recreation upon completion of spillway modifications at McKay Dam.		
Oregon-California			
Klamath Project	$ 272,000	$ 272,000	$ -
	No change.		

Appropriation Title: Operation and Maintenance

State and project	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
Utah			
Provo River Project	$ 47,000	$ 49,000	+$ 2,000
	The $2,000 reflects increases for materials and supplies.		
Washington			
Columbia Basin Project	$ 9,355,000	$10,223,000	+$ 868,000
	Included in the increase is $599,000 for replacement and addition items; $116,000 for increases in operation and maintenance expenses, including materials and supplies; $78,000 for extraordinary maintenance work; and $75,000 for operation of new Third Powerplant facilities.		
	Replacements and additions in FY 1979 total $1,305,000 and include: $500,000 for generator stator windings; $165,000 for miscellaneous replacements and additions; $150,000 for a spare 115-kV transformer; $100,000 for acquisition of right-of-way in reservoir slide areas; $70,000 for noise level control; $60,000 for vehicle replacements; $50,000 to replace a debris boom; $50,000 for fire and security equipment; $50,000 for reservoir riprapping; $30,000 for lighting improvements; $20,000 for an electric crane; $20,000 for metric survey equipment; $20,000 for crane load indicating devices; and $20,000 for office equipment.		
	Extraordinary maintenance work in FY 1979 totals $713,000 and includes: $200,000 for painting drum gates; $147,000 for elevator rehabilitation; $121,000 for rehabilitation of electrical distribution equipment in dam station service and industrial areas; $100,000 for safety modifications; $100,000 for reservoir debris cleanup; $25,000 for cleaning ventilation ducts; and $20,000 for modernizing an office building.		
Yakima Project	$ 1,460,000	$ 1,719,000	+$ 259,000
	This increase includes $145,000 for extraordinary maintenance work; $77,000 for replacement and addition items; and $37,000 for regular operation and maintenance expenses including materials and supplies.		

Appropriation Title: Operation and Maintenance

State and project	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
Washington (Continued)			
Yakima Project (Continued)			
	The FY 1979 replacements and additions program totals $684,000 and includes $496,000 for continuing the replacement of outlet gates at Cle Elum Dam, $53,000 for minor items, $50,000 for a supervisory control system, $40,000 for continuing the hydrological-meteorological data collection system, $30,000 for vehicles and $15,000 for a weed rake at Roza Dam.		
	Extraordinary maintenance work for FY 1979 totals $263,000 and includes $68,000 for canal repairs on Roza and Chandler Canals, $42,000 for sluice valve and leaf gate heater repairs at Chandler Forebay, $34,000 for maintenance work at storage reservoirs, $25,000 for Roza Powerplant annunciators, $20,000 for grading and resurfacing roads around Roza Powerplant, $20,000 to continue transmission line maintenance, $18,000 for transformer maintenance, $16,000 for radial gate and heater repairs at Roza, $10,000 for Chandler residence repairs, $5,000 for gate seal replacement at Prosser Dam, and $5,000 for crane controls.		
Various States			
Examination of Existing Structures	$ 641,000	$ 645,000	+$ 4,000
	Increase for materials and supplies.		
Irrigation Management Services Operations Program	$ 216,000	$ 240,000	+$ 24,000
	Reflects continuing development of the program with 28 water districts serving about 1,250 farm units totaling 330,000 acres.		
Miscellaneous Flood Control Operations	$ 24,000	$ 25,000	+$ 1,000
	Increase for supplies and materials.		

Appropriation Title: Operation and Maintenance

State and project	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
Various States (Continued)			
Negotiation and Administration of Water Marketing Contracts	$ 51,000	$ 66,000	+$ 15,000
	The increase reflects transfer of water service and repayment contract administrative responsibility from the Corps of Engineers for the completing Trinidad Project.		
Pick-Sloan Missouri Basin Program Kansas River Area	$ 1,230,000	$ 1,006,000	-$ 224,000
	Decrease results from reduced requirements for replacement and addition items		
	Replacements and additions in FY 1979 total $364,000 and include $150,000 for remote control system, $180,000 for two generators and a truck-mounted excavator, and $34,000 for miscellaneous replacements and additions.		
Missouri-Oahe Area	$ 150,000	$ 146,000	-$ 4,000
	Decrease reflects a $20,000 reduction in extraordinary maintenance work and $1,000 for replacement and addition items, partially offset by $17,000 for increased costs of materials and supplies.		
	Replacement and addition items for FY 1979 total $4,000 to replace a pickup.		
	Extraordinary maintenance totals $25,000 in fiscal year 1979 and includes $20,000 for sedimentation survey at Angostura Reservoir and $5,000 for settlement point surveys at Shadehill, Keyhole, and Pactola Reservoirs.		
Missouri-Souris Area	$ 66,000	$ 181,000	+$ 115,000
	Increase includes $49,000 for replacement and addition items, $45,000 for management of recreational facilities at Heart Butte and Jamestown Reservoirs, $13,000 for materials and supplies, and $8,000 for increased maintenance expenses.		
	Replacement and addition items total $57,000 in fiscal year 1979 and include $50,000 to replace the dam tenders residence at Heart Butte and $7,000 for minor work equipment.		

Appropriation Title: Operation and Maintenance

Various States (Continued)	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
Various States (Continued)			
Pick-Sloan Missouri Basin Program			
North Platte Area	$ 3,724,000	$ 4,852,000	+$ 1,128,000

Increase includes $231,000 for extraordinary maintenance items and $897,000 for replacement and addition items.

Replacement and addition items total $1,876,000 for FY 1979 and include $490,000 for remote terminal units at Stegall, Lovell, and Thermopolis Substations and Heart Mountain Powerplant, $455,000 for supervisory control and communication equipment, $250,000 for transformers at Shoshone Switchyard, $250,000 for turbine runners at Glendo Powerplant, $90,000 for a tractor and dozer, $78,000 for oilspill containment facilities at Alcova, Glendo, Fremont Canyon, and Boysen Powerplants and Switchyards, $42,000 for a paint storage building; $68,000 for sewer system replacement at Shoshone, Glendo, and Seminoe Powerplants, and $153,000 for various other items.

Extraordinary maintenance work for FY 1979 totals $388,000 and includes $200,000 to repair the penstock liner at Shoshone Powerplant, $60,000 for painting the Guernsey surge tank and penstock, $50,000 for seal coating access roads, and $78,000 for miscellaneous items, including repairs on houses at the Glendo Camp.

Upper Missouri Region Area	$ 2,443,000	$ 2,774,000	+$ 331,000

Reflects an increase of $144,000 for replacement and addition items; $10,000 for extraordinary maintenance; $96,000 for recreation management expenses at Barretts Diversion Dam, Lake Elwell, Clark Canyon, Buffalo Bill, Cameahwait, Boysen, Ocean Lake, and Pilot Butte Reservoirs; $61,000 for materials, supplies, and other expenses; and $20,000 for first full year of operation and maintenance on dust abatement dikes in Canyon Ferry Reservoir.

Replacement and addition items for fiscal year 1979 total $451,000 and include $65,000 for a crawler tractor, $55,000 for a fire station and area landscaping at Yellowtail Dam, $55,000 for oil spill protection at Yellowtail Powerplant, $50,000 for control cable for Yellowtail afterbay dam, $50,000 to replace heating system at the

Appropriation Title: Operation and Maintenance

State and project	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
Various States (Continued)			
Upper Missouri Region Area (Continued)			
	Yellowtail camp housing, $50,000 for an equipment storage building at Canyon Ferry Dam, $45,000 for housing improvements at Canyon Ferry Dam, $10,000 for a gas tank and pump, $10,000 for motor vehicles, $10,000 for unit greasing system at Yellowtail Powerplant; $9,000 for safety improvements; and $42,000 for miscellaneous items. Extraordinary maintenance work for fiscal year 1979 totals $82,000 and provides $75,000 for Yellowtail Dam Spillway Stilling Basin repairs and $7,000 for sealing observation wells at Helena Valley Reservoir.		
Subtotal - Pick-Sloan Missouri Basin Program	$ 7,613,000	$ 8,959,000	+$ 1,346,000
Soil and Moisture Conservation			
Pacific Northwest Region	$ 401,000	$ 453,000	+$ 52,000
	The increase provides $28,000 for shoreline stabilization program at American Falls Reservoir and seeding of areas around Palisades Reservoir, and $24,000 for additional costs associated with cooperative agreements for weed control and fire protection of Government lands.		
Mid-Pacific Region	$ 364,000	$ 450,000	+$ 86,000
	A total program increase of $86,000 includes: Increases of $29,600 for fencing and erosion control on Central Valley, Solano, and Newlands Projects; $22,400 for conservation functions on the Cachuma, Central Valley, Orland, Solano, Ventura, and Humboldt Projects; $8,500 for inspections, surveys, and contract work on all projects; and $3,500 for noxious weed control. Central Valley Project increases include $39,000 for conservation functions, $8,000 for fire protection, $2,700 for erosion control, and $2,000 for vegetative drawdown studies. Partially offsetting these increases is a reduction of $29,700 for work on the access road at Boca Reservoir.		
Lower Colorado Region	$ 16,000	$ 16,000	$ -
	No change.		

Appropriation Title: Operation and Maintenance

State and project	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
Various States (Continued)			
Soil and Moisture Conservation (Continued)			
Upper Colorado Region	$ 250,000	$ 231,000	-$ 19,000
	Decrease due to work completed at various reservoir sites.		
Southwest Region	$ 318,000	$ 350,000	+$ 32,000
	The increase of $32,000 includes $19,000 for increased erosion control measures on the Wichita, Mountain Park, Norman, Washita Basin, and W. C. Austin Projects; and $13,000 for material and supplies.		
Upper Missouri Region	$ 1,100,000	$ 1,220,000	+$ 120,000
	Increase includes $115,000 for constructing additional fencing, roads, and public safety and control facilities at Heart Butte Reservoir, In-Line Lake, and Jamestown Reservoir; $23,000 for maintenance of erosion control facilities and for surface water control measures on withdrawn lands in Wyoming; $12,000 for noxious weed control $7,000 for stream, gully, and drainage control at Milk River; $5,000 for protective riprap on Pryor and Fly Creeks and the Yellowstone River; $4,000 for reseeding, fencing, and other facilities to prevent land degradation at Keyhole Unit; and $10,000 for basinwide studies. The increase is partially offset by a decrease of $24,000 for completion of riprap stockpiling at Sun River and Willow Creek; $18,000 for erosion control and trail construction at Boysen Reservoir; and $14,000 due to completion of public safety and control facilities at Pactola Reservoir.		
Lower Missouri Region	$ 438,000	$ 490,000	+$ 52,000
	$32,000 of the increase is for woody vegetation control on Kansas and Nebraska reservoirs due to reduced water levels caused by drought and $20,000 for construction of access roads on Pathfinder and Seminoe Reservoirs to prevent destruction of vegetation by unrestricted vehicular traffic.		
Engineering and Research Center	$ 15,000	$ 15,000	$ -
	No change.		

Appropriation Title: Operation and Maintenance

State and project	Fiscal year 1978	Estimated fiscal year 1979	FY 1979 increase (+) or decrease (-)
Various States (Continued)			
Subtotal - Soil and Moisture Conservation	$ 2,902,000	$ 3,225,000	+$ 323,000
Pay Raise	$ -	$ 3,000,000	+$ 3,000,000
Total - Operation and Maintenance	$78,391,000 1/	$87,873,000	+$ 9,482,000

1/ Excludes $79,009,000 transferred to Department of Energy. The appropriations for fiscal year 1978 totaled $157,400,000.

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ITEMIZATION OF ESTIMATE

Department of the Interior
Appropriation Title: Operation and Maintenance

(In Dollars)

Bureau of Reclamation

	Estimate 1978	Estimate 1979	Increase or Decrease (-)
Program and Financing			
Total direct obligations	$ 88,387,000	$94,989,000	$ 6,602,000
Non-Federal funds advanced by water users:			
Unobligated balance available, start of year.	-1,847,304	-1,847,304	.....
New advances	-7,056,000	-7,116,000	-60,000
Unobligated balance available, end of year	1,847,304	1,847,304	.....
Transfer in for Pay Raises	-2,940,000	.....	2,940,000
Transfer to Department of Energy	79,009,000	.....	-79,009,000
Appropriation	157,400,000	87,873,000	69,527,000
Object Classification			
11.0 Personnel compensation	38,921,000	39,826,000	905,000
12.1 Personnel benefits: Civilians	3,977,000	4,017,000	40,000
21.0 Travel and transportation of persons	1,227,000	1,449,000	222,000
22.0 Transportation of things	1,103,000	1,161,000	58,000
23.0 Rents, communications, and utilities	1,968,000	1,998,000	30,000
24.0 Printing and reporduction	152,000	157,000	5,000
25.0 Other services	7,490,000	7,658,000	168,000
26.0 Supplies and materials	6,230,000	6,366,000	136,000
31.0 Equipment	5,664,000	5,712,000	48,000
32.0 Lands and structures	21,627,000	26,617,000	4,990,000
41.0 Grants, subsidies and contributions	8,000	8,000	.....
42.0 Insurance claims and indemnities	20,000	20,000	.....
99.0 Total direct obligations	$88, 387,000	$94,989,000	$ 6,602,000

BR-468

OPERATION AND MAINTENANCE

Explanation of Difference between Obligations shown in U.S. Budget
(Itemization of Estimate) and Congressional Justification

	Obligations	
	1978	1979
Itemization of estimate (Program and Financing).....	$88,387,000	$94,989,000
Non-Federal trust fund advances not included in the O&M activity of the U.S. Budget (by projects):		
Middle Rio Grande.....	200,000	225,000
Minidoka Area.....	100,000	.....
Soil and Moisture Conservation operations.....	25,000	25,000
Transfer in for Pay Raises.....	-2,940,000	.....
Congressional Justification.....	$85,772,000	$95,239,000

LOAN PROGRAM

GENERAL STATEMENT

Summarized Financial Data:

Fiscal Year 1978:	
Appropriation	$27,753,000
Application of prior year funds	3,674,237
Total obligations, FY 1978	$31,427,237
Fiscal Year 1979:	
Estimate of Appropriation	$23,031,000
Total obligations, FY 1979	$23,031,000 1/

1/ Excludes initial underfinancing of $1,968,000.

Authorization: Under Public Law 130, 84th Congress (69 Stat. 244), as amended, the Bureau of Reclamation is authorized to make loans for the construction of irrigation distribution systems and under Public Law 984, 84th Congress (70 Stat. 1044); as amended, to make loans for the construction, rehabilitation, and betterment of small Reclamation projects, both under specific criteria established by the authorizing legislation.

Status: During FY 1978, work will be completed on 13 projects and will continue on 10 others. There are seven new starts in FY 1978, of these one will be completed in FY 1978 and five will be completed in FY 1979. The new starts in FY 1978 do not include any supplemental loans. The administration of the loan program will be continued.

Work Proposed, FY 1979: The appropriation estimate is $23,031,000. Work will continue on 10 projects and of these 7 will be completed by the end of FY 1979. No new loan starts are identified. The program provides funding for increased construction costs due to price escalation. The administration of the loan program will continue. The project descriptions and the estimated distribution of the proposed total program are as follows:

Continuing Loan Program

Cameron County Water Control and Improvement District No. 19, Texas (Public Law 84-984)

The project is located in the Lower Rio Grande Valley near the city of Harlingen, Texas. The District will rebuild various parts of the distribution and drainage systems which provide irrigation water to about 7,600 acres. The principal work will include: rehabilitation of the existing pumping plants and main canals; replacement of a part of the existing open laterals and canals with pipelines; and improvement of the drainage system.

The work will be completed . . . . . $ 250,000

Deluz Heights Municipal Water District, California (Public Law 84-984)

This loan project is located in San Diego County, California. The loan will be used to construct a water distribution system to serve 1,825 acres of existing and proposed irrigable lands and scattered rural residences. A dividing groundwater supply has caused critical water supply problems and the project provides for pipelines, storage reservoirs, and a pumping plant to deliver imported water from the San Diego Aqueduct.

The work will be completed $1,885,000

Gila River Farms Project, Arizona (Public Law 84-984)

The Gila River Farms Project is located in Pinal County in the south-central part of Arizona about 30 miles southeast of Phoenix. The loan will be used to provide concrete lining for approximately 19 miles of the South-Side Canal starting at McClellan Siphon, rehabilitate portions of the lateral system by concrete lining ditches, replace road crossings, install tail water pickups, purchase equipment to upgrade farm efficiency and improve the maintenance of irrigation work, and move the headquarters to central location for better efficiency. The facilities to be rebuilt will serve about 4,469 acres with a dependable water supply.

The work will continue $3,000,000

Hidalgo County Water Control and Improvement District No. 1, Texas (Public Law 84-984)

The project is located in the Lower Rio Grande Valley near the cities of Edinburg and McAllen, Texas. The District will rehabilitate its existing irrigation facilities which serve about 66,400 acres. The principal work will include: rehabilitation of the river intake channel, the existing pumping plants, and the main canals; construction of a 500 acre-foot reservoir; replacement of part of the open distribution system with pipelines, and purchase of maintenance equipment.

The work will continue $2,000,000

Hidalgo County Water Improvement District No. 5, Texas (Public Law 84-984)

This project is located in the Lower Rio grande Valley in Hidalgo County, Texas. The District will rehabilitate the existing irrigation facilities which serve about 6,000 acres. The principal work will include: placing the entire distribution system in concrete pipelines; replacing the river and relift pump units with new pumps and motors; cleaning storage reservoirs; and purchasing maintenance equipment.

The work will continue $1,000,000

Joe Wright Reservoir Enlargement Project (Public Law 84-984)

Joe Wright Reservoir is located adjacent to Highway No. 14, 3 miles northeast of Cameron Pass in Larimer County, Colorado. The project is a multipurpose water storage development that will provide supplemental irrigation to 33,797 acres of land and 1,350 acre-feet of municipal and industrial water. The project involves construction of a dam and reservoir on Joe Wright Creek near an existing dam.

The work will be completed $5,177,000

Kanawha Water District - Improvement District No. 2, California (Public Law 84-130)

Kanawha Water District is located five miles west of Willows in Glenn County. The loan for Improvement District No. 2 will be used for construction of Laterals 3, 4, and 5 from turnouts on the Tehama-Colusa Canal. Full irrigation will be provided to 6,072 acres.

The work will be completed $1,296,000

Kanawha Water District - Improvement District No. 3, California (Public Law 84-130)

Kanawha Water District is located 5 miles west of Willows in Glenn County. Provides using water for the Tehama-Colusa Canal to serve an expanded service area. The system consists of an underground pipeline distrubution system to deliver water to the recently annexed Lincoln service area which consists of 3,613 acres.

The work will be completed $2,526,000

Westside Water District, California (Public Law 84-130)

Westside Water District is located about 5 miles west of Colusa, California in Colusa County. Loan funds will be used to construct a pipeline distribution system to convey water from the Tehama-Colusa Canal to the district to serve 14,526 acres.

The work will be completed $3,750,000

Whitney Irrigation District, Nebraska (Public Law 84-984)

This project is located in northwestern Nebraska in Dawes County. The plan provides for installation of concrete pipeline to replace the existing 5-1/2 miles wood-stave pipeline. In addition to replacing the pipeline, the project includes rehabilitation and improvement of the distribution system. The system serves 7,148 acres.

This work will be completed . . . . . $ 674,000

Construction Cost Increases (Public Law 94-181)

Cost estimates on the small Reclamation projects generally increase in total before construction is completed because of rising prices. This program will be available to meet such requirements and allow the loan programs to be completed without delays which might otherwise be experienced in the appropriation process. Repayment contracts now being executed include a provision to recognize the probability of increases due to cost escalation so that repayment will be covered without the need for contract amendments.

The funding will be applied as required $3,000,000

Administration of the Loan Program

This program is used for investigation of potential loans, negotiations of contracts, and other administrative actions necessary to the program, including answering inquiries; explaining technical and legal requirements to potential applicants; and similar activities. These activities must be performed prior to the granting of a loan and, therefore, require an independent source of financing. Upon execution of a contract for a loan under this program, all costs incurred on that specific proposal to that time, as well as all future costs, will be charged to the organization securing the loan to be repaid as part of the loan. Since the authorizing acts make no provision for the collection of funds spent on unsuccessful applications or on administrative functions not assignable to specific completed loans, a portion of these administrative funds and of all previously appropriated funds for this purpose is considered nonreimbursable.

The program for fiscal year 1979 will provide for the continuation of the administration of the loan program . . . . . $ 441,000

Total Program	$24,999,000
Undistributed reduction based on anticipated delays	- 1,968,000
FY 1979 appropriation estimate	$23,031,000

FF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 1978, AND FISCAL YEAR 1979

PROGRAM ITEM	PUBLIC LAW	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Completed Loans - Fully Financed Prior to FY 1978	--	$ 233,990,254	$ 233,990,254	--	--	--
Buffalo Rapids Irrigation District No. 1	84-984	989,345	797,345	$ 192,000	--	--
Cameron County Water Control and Improvement District No. 5	84-984	4,881,845	4,879,845	2,000	--	--
Central Nebraska Public Power and Irrigation District	84-984	10,000,250	9,259,250	741,000	--	--
Graham-Curtis Project - Supplemental	84-984	2,670,000	1,000,000	1,670,000	--	--
Hidalgo and Willacy Counties Water Control and Improvement District No. 1	84-984	5,096,005	5,086,005	10,000	--	--
Mitchell Irrigation District Supplemental	84-984	587,705	258,705	329,000	--	--
Pond-Poso Improvement District - Supplemental	84-984	5,195,000	5,000,000	195,000	--	--
Redwood Valley County Water District	84-984	4,776,025	3,544,025	1,232,000	--	--
San Luis Water District - Supplemental	84-130	5,410,000	4,500,000	910,000	--	--
Santa Maria Water Control and Improvement District - Cameron County No. 4 - Supplemental	84-984	829,000	--	829,000	--	--
Valley Center Municipal Water District - Supplemental	84-984	3,499,765	2,850,765	649,000	--	--
Water Supply and Storage Company	84-984	1,708,080	1,698,080	10,000	--	--
Wenatchee Heights Reclamation District	84-984	894,583	845,583	49,000	--	--
Cameron County Water Control and Improvement District No. 19	84-984	2,063,228	997,228	816,000	$ 250,000	--
DeLuz Heights Municipal Water District	84-984	5,339,000	--	3,454,000	1,885,000	--
Gila River Farms	84-984	9,915,000	500,000	3,419,000	3,000,000	$ 2,996,000

LOAN PROGRAM

PF-40 (3-76)
Bureau of Reclamation

SCHEDULE OF CONSTRUCTION PROGRAM FISCAL YEAR 19 78, AND FISCAL YEAR 1979

PROGRAM ITEM	PUBLIC LAW	ESTIMATED TOTAL	TOTAL TO SEPTEMBER 30, 1977	F.Y. 1978 PROGRAM	F.Y. 1979 ESTIMATE	BALANCE TO COMPLETE
Hidalgo County Water Control and Improvement District No. 1	84-984	$ 7,501,000	$ --	$ 1,000,000	$ 2,000,000	$ 4,501,000
Hidalgo County Water Improvement District No. 5	84-984	3,835,808	996,808	863,000	1,000,000	976,000
Joe Wright Reservoir Enlargement . .	84-984	7,127,000	--	1,950,000	5,177,000	--
Kanawha Water Improvement District No. 2	84-130	3,760,000	1,000,000	1,464,000	1,296,000	--
Kanawha Water Improvement District No. 3	84-130	2,996,000	--	470,000	2,526,000	--
Westside Water District	84-130	7,980,000	--	4,230,000	3,750,000	--
Whitney Irrigation District	84-984	1,674,000	--	1,000,000	674,000	--
CONSTRUCTION COST INCREASES	94-181	18,000,000	--	3,000,000	3,000,000	12,000,000
REPROGRAMMING ADJUSTMENTS 1/		2,502,000	--	2,502,000	--	--
ADMINISTRATION OF LOAN PROGRAM . . .		6,519,712	3,748,619	441,237	441,000	1,888,856
TOTAL OBLIGATIONS		$359,740,605	$280,952,512	$31,427,237	$24,999,000 2/	$22,361,856

1/ Available for reprogramming to meet work acceleration should that occur.

2/ Includes $1,968,000 initial underfinancing.

ITEMIZATION OF ESTIMATE

Department of the Interior
Appropriation Title: Loan Program

(In Dollars)

Bureau of Reclamation

	Estimate 1978	Estimate 1979	Increase or Decrease (-)
Program and Financing			
Total direct obligations	$31,427,237	$23,031,000	$-8,396,237
Unobligated balance available, start of year	-3,674,237	.....	3,674,237
Appropriation	27,753,000	23,031,000	-4,722,000
Object Classification			
11.0 Personnel compensation	518,000	483,000	-35,000
12.1 Personnel benefits: Civilians	45,000	43,000	-2,000
21.0 Travel and transportation of persons	55,000	55,000	.....
22.0 Transportation of things	2,000	2,000	.....
23.0 Rent, communications, and utilities	56,000	56,000	.....
24.0 Printing and reproduction	14,000	14,000	.....
25.0 Other services	52,000	52,000	.....
26.0 Supplies and materials	6,000	6,000	.....
31.0 Equipment	6,000	6,000	.....
33.0 Investments and Loans	29,003,237	22,314,000	-6,689,237
41.0 Grants, subsidies, and contributions	1,670,000	.....	-1,670,000
99.0 Total obligations	$31,427,237	$23,031,000	$-8,396,237

EMERGENCY FUND

General Statement

Summarized Financial Data:

Fiscal Year 1978:	
Application of prior year funds	$8,611,936
Total obligations, FY 1978	$8,611,936

Status: The emergency funds during fiscal year 1978 are being used on 58 different projects for emergency work related with the 1976 - 1977 drought in the West. Estimated expenditures associated with the work total about $14 million for fiscal year 1978 from prior year obligations. In fiscal year 1978 an additional $3 million has been obligated leaving a balance of $5,497,466 available as of January 1, 1978 to meet new emergency situtions.

FY 1979 Program: The Bureau is not requesting an appropriation for the Emergency Fund.

ITEMIZATION OF ESTIMATE

Department of the Interior
Appropriation Title: Emergency Fund

(In Dollars)

Bureau of Reclamation

	Estimate 1978	Estimate 1979	Increase or Decrease (-)
Program and Financing			
Total direct obligations	$ 8,611,936	$.....	$-8,611,936
Unobligated balance available, start of year	-8,811,936	.....	8,811,936
Transfer to Department of Energy	200,000	.....	-200,000
Appropriation	.....	.....	.....
Object Classification			
92.0 Undistributed funds available for emergencies	8,611,936	.....	-8,611,936
99.0 Total obligations	$ 8,611,936	$.....	$-8,611,936

GENERAL ADMINISTRATIVE EXPENSES
(excludes DOE transfer)

Appropriation Act, 1977	$21,820,000	
Supplemental Appropriations Act, 1977 (P. L. 95-26)	900,000	
Appropriation, 1977 (adjusted)		$22,720,000
Appropriation Act 1978	23,665,000	
Proposed F.Y. 1978 supplemental appropriation, for October, 1977 pay raises, (Ex. Order 12010)	1,180,000	
Appropriation, 1978 including proposed supplemental		24,845,000

Increase Requested, 1979	Departmental and Engineering and Research Center Offices	Regional Offices	Total
1. For incremental costs resulting from periodic salary increases and related benefits for 1978 positions	$215,000	$140,000	$355,000
2. For annualization of pay raise for classified positions, effective October, 1977 (Executive Order 12010). An additional pay period would pertain to fiscal year 1979 pay raise	29,000	21,000	50,000

Appropriation Estimate, 1979 ..... $25,250,000

Analysis of Activities
(in dollars)

	FY 1977 Available	FY 1978 Available	FY 1979 Estimate	Increase 1979 Compared with 1978
Department and Engineering and Research Center Offices	$10,624,855	$12,030,000	$12,274,000	$244,000
Regional Offices	12,068,000	12,815,000	12,976,000	161,000
Unobligated balance lapsing	27,145	---	---	---
Total	$22,720,000	$24,845,000	$25,250,000	$405,000

JUSTIFICATIONS

General

An appropriation of $25,250,000 is requested to finance the General Administrative Expenses of the Bureau of Reclamation in FY 1979. The increase of $405,000 over FY 1978 results from: (1) $355,000 for incremental costs resulting from periodic step increases associated with a stabilized career organization; and (2) $50,000 to put on a full year basis the increased cost of the pay raise granted classified employees in October 1977.

The FY 1979 estimate is based on a constant organization level, notwithstanding the continuously increasing Reclamation investment and attendant management burden. At September 30, 1977, the Federal assets under the administrative jurisdiction of the Bureau of Reclamation amounted to $10 billion compared to $9 billion at the same time last year.

The General Administrative Expenses appropriation finances the overall managerial responsibilities of the Bureau's program as performed in the Commissioner's Office in Washington, D.C., the Engineering and Research Center in Denver, Colorado, and the seven regions. This direction includes the formulation and implementation of policies, standards, criteria, and similar managerial functions which are not for the benefit of any individual project. Practically all the costs of the Commissioner's Office in Washington, D.C., are financed from this appropriation, while only that part of the cost pertaining to general administrative work in the Engineering and Research Center in Denver and the regional offices is financed from this source. The functions performed under this appropriation are nonreimbursable in accordance with Subsection "O" of Section 4 of the Fact Finder's Act, as amended on April 19, 1945. (59 Stat. 54)

Commissioner's Office in Washington, D.C., and Engineering and Research Center in Denver

The estimate of $25,250,000 includes $12,274,000 for the Commissioner's Office in Washington, D.C., and the Engineering and Research Center in Denver, Colorado. The total number of employees in these offices under this activity adjusted for the transfer to the Department of Energy has remained level, despite increasing demands upon the staff. Increased efficiency has been achieved through development of a stabilized career organization.

The major portion of the expense required to maintain the Engineering and Research Center in Denver, Colorado, is incurred in rendering technical assistance and services to field offices, project, and activities and is financed apart from the General Administrative Expenses appropriation. In FY 1979 as heretofore, these services will be financed by transfer of funds from project or activity estimates for the fiscal year. A major portion of such funds will be transferred from the several construction appropriations, although some funds will be transferred from the Operation and Maintenance, General Investigations, and other appropriations. The advance of funds will be based on the project or activity program that governs the amount of planning, design, laboratory work, and related activities which the Engineering and Research Center in Denver will be required to perform directly for each such project or activity.

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General Administrative Expenses

Bureau construction often is of a scale which requires the engineering design work to extend over a period of years. The activities of the Denver office, therefore, do not relate directly to the construction program in the field for any given fiscal year. Design work usually precedes the construction by a year or more. Year to year increases or decreases in the Bureau's field programs and the changes in the Denver office requirements do not necessarily coincide in any given year. Work to be performed in the Denver office during FY 1979 financed by transferred funds is estimated at $26,100,000. Of this amount, $2,800,000 is for miscellaneous items of equipment used in work assignments to service projects from the Engineering and Research Center in Denver, Colorado. Major items to be purchased in fiscal year 1979 includes $325,000 for computer terminals to display engineering drawings graphically at remote locations and $500,000 for a mini-computer graphics system that permits the user to modify plans and designs as they are displayed on the graphics terminal to support Bureau requirements for interactive graphics, and $700,000 for an uninterruptable power system to provide protection so that power fluctuations and outages do not distrupt time-critical applications on the Bureau's CYBER computer.

Regional Offices

The General Administrative Expenses requirement in the seven regional offices during 1979 is estimated at $12,976,000. In addition to the nonproject administrative responsibilities of the regional offices, there are certain types of work such as construction design and contracting, planning, accounting, procurement, personnel, etc., required by and of direct benefit to a project or other activity, which are performed more economically and efficiently on a centralized basis. Where circumstances permit and to avoid duplication of office staffs, the Bureau detaches the common part of project organizations, which it centralizes regionally for the performance of such work. By this procedure, the Bureau can supply the skilled services required in the various technical fields at lesser cost to the several project or activities controlled by the central office.

Since the Centralized Project Activity work is performed for the direct benefit of projects and identified with them, such work is financed through payments by those projects from the activity allotments financing their programs; and the obligations for the work are included in the schedules of the projects receiving the services. Work of this type in FY 1979 is estimated at $31,000,000. Some of this cost is for office equipment to service the operating personnel. In FY 1979 a significant item is included and it amounts to $90,000 for a word-processing system to be used in the Southwest regional centralized headquaters.

ITEMIZATION OF ESTIMATE

Department of the Interior
Appropriation Title: General Administration Expenses

(In dollars)

Bureau of Reclamation

	Estimate 1978	Estimate 1979	Increase or decrease (-)
Program and Financing			
Total direct obligations	$24,845,000	$25,250,000	$+405,000
Appropriation	$24,845,000	$25,250,000	$+405,000
Object Classification			
11.0 Personnel compensation	$15,665,000	$16,033,000	$+368,000
12.1 Personnel benefits; Civilian	1,565,000	1,602,000	+ 37,000
21.0 Travel and transportation of persons	638,000	638,000	--
22.0 Transportation of things	80,000	80,000	--
23.1 Standard level user charges	793,000	793,000	--
23.2 Communications, utilities, and other rent	1,200,000	1,200,000	--
24.0 Printing and reproduction	370,000	370,000	--
25.0 Other services	3,784,000	3,784,000	--
26.0 Supplies and materials	500,000	500,000	--
31.0 Equipment	250,000	250,000	--
99.0 Total direct obligations	$24,845,000	$25,250,000	$+405,000

DEPARTMENT OF THE INTERIOR
Bureau of Reclamation

OTHER PERMANENT APPROPRIATIONS

Summarized Financial Data:

Fiscal Year 1978:		
Appropriation	$2,700,000	
Total obligations, FY 1978		$2,700,000
Fiscal Year 1979:		
Appropriation	2,700,000	
Total obligations, FY 1979		2,700,000

Colorado River Dam Fund, Boulder Canyon Project:

Payment of interest on advances from the Treasury, $1,600,000. Interest is paid to the Treasury on moneys advanced for construction (43 U.S.C. 618a(b)).

Payment to States of Arizona and Nevada, $600,000. Annual payments of $300 thousand each are made to Arizona and Nevada from operation of the Boulder Canyon Project as provided by law (43 U.S.C. 618a(c)).

Operation, Maintenance and Replacement of project works, North Platte project, $30,000. This fund is derived from operation of project powerplants, leasing of project grazing and farmlands, sale or use of townsites, and sale or rental of surplus water (66 Stat. 755, Sec. 4).

Payment to Farmers' Irrigation District (North Platte project, Nebraska-Wyoming), $8,000. Payments are made to Farmers' Irrigation District on behalf of the Northport Irrigation District for water carriage (62 Stat. 273, as amended).

Payments to local units, Klamath Reclamation Area, $140,000. Certain revenues collected from the leasing of Klamath project reserved Federal lands within the boundaries of certain National Wildlife refuges shall be used (a) to credit or pay the Tule Lake Irrigation District amounts already committed, and (b) to make annual payments to the counties in which such refuges are located (78 Stat. 850).

Refunds and returns, $322,000. Overcollections are refunded and unpaid deposits are returned (64 Stat. 689).

DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

Explanation of Language Change, FY 1979

GENERAL INVESTIGATIONS

Insertion of language to derive the General Investigations appropriation from the Reclamation Fund

This change is proposed based on an opinion of the Office of the Solicitor of the Department of the Interior that the General Investigations appropriation is required to be derived from the Reclamation Fund by subsection "0" of the Fact Finders' Act of December 5, 1924, as amended by the Act of April 19, 1945, 43 U.S.C. 377.

CONSTRUCTION AND REHABILITATION

Deletion of proviso that not to exceed $2,000,000 is available to carry out the purposes of the Endangered Species Act of 1973.

This proviso has served its purpose for coverage of the fiscal year 1978 program.

DEPARTMENT OF THE INTERIOR
Bureau of Reclamation

Insertion of Language Pertaining to Purchase of Motor Vehicles

The total number of Bureau-owned motor vehicles has steadily declined over the past 10 years with the exception of a few instances when there were fluctuations in the light truck fleet. A table summarizing this trend follows:

	Automobiles		Station wagons		All types
Fiscal Year	Number	Average miles per vehicles year	Number	Average miles per vehicle year	Total passenger-carrying and trucks
1967	202	10,144	29	10,729	2,035
1968	161	9,975	32	9,414	1,891
1969	151	10,258	32	10,089	1,701
1970	141	11,237	36	10,203	1,738
1971	144	9,972	37	10,324	1,666
1972	139	10,427	39	10,925	1,757
1973	138	10,555	39	10,860	1,659
1974	135	7,830	45	8,744	1,548
1975	122	8,726	49	9,573	1,541
1976	122	9,475	49	10,057	1,547
1977	144	9,500	50	10,500	1,614
			Projected Trend		
1978	128	9,500	37	10,500	1,413
1979	131	9,500	37	10,500	1,442

We are requesting purchase authority for a total of 19 passenger-carrying vehicles in fiscal year 1979. Sixteen of these vehicles (or 9 percent of the passenger-carrying fleet) will be needed for the upgrading of our present fleet as vehicles meet the current replacement standards of age, mileage, or both. The balance of three passenger-carrying vehicles are to meet additional program requirements. The upward trend in fiscal year 1977 was due to the General Service Administration's inability to provide motorpool support adequate to accomplish the Bureau's missions. Bureau vehicles were purchased in lieu thereof.

The decrease in fiscalyear 1978 reflects transfer of vehicles to the Department of Energy.

BUREAU OF RECLAMATION

ADMINISTRATIVE PROVISIONS

ACQUISITION OF PASSENGER-CARRYING MOTOR VEHICLES

FISCAL YEAR 1979

Area	Replacement only[1/]	Additional[2/]	Total
Pacific Northwest	4	0	4
Mid-Pacific	9	0	9
Lower Colorado	1	0	1
Upper Colorado	1	0	1
Southwest	0	3	3
Upper Missouri	1	0	1
Lower Missouti	0	0	0
Engineering and Research Center, Denver	0	0	0
Total	16	3	19

1/ The 16 passenger-carrying motor vehicles are to be purchased new to replace units which quality for replacement because they meet the replacement criteria expressed in Federal Property Management Regulations 101-38.9 (6 years or 60,000 miles for sedans and station wagons).

2/ The additional three passenger-carrying motor vehicles are required for expanded program requirements for which it is anticipated that the General Service Administration will be unable to furnish vehicles from Interagency Motor Pool. (One sedan at the San Luis Valley Project, Closed Basin Division, Colorado and two sedans at McGee Creek Project, Oklahoma.)

INSPECTION OF DAMS

With reference to your dam safety program, what type of project would you be inspecting? The U.S. Army Corps of Engineers is inspecting the non-Federal dams all over the country. Will you be inspecting only the Bureau of Reclamation dams?

Mr. HIGGINSON. Mr. Chairman, we have no program for inspection of dams outside the Bureau of Reclamation. We maintain and operate over 300 dams, and our program is related to insuring the safety of the Bureau structures.

Now, we have offered assistance to the States in the form of providing them with technical expertise at their request, to help them review matters within their State, under the State dams safety program.

We have also offered to allow State personnel to participate with us in the inspection of the Bureau dams. We are not in any way duplicating what the corps is doing in its inspection of non-Federal structures.

Mr. BEVILL. Very good. Is the corps also subject to call by those same States?

Mr. HIGGINSON. Yes, Mr. Chairman, they would be.

Mr. BEVILL. So do not the States, in effect, have a choice of selecting either the Bureau or the Corps of Engineers to inspect these non-Federal dams?

Mr. HIGGINSON. Well, they do, but we are not in the same business with regard to the program that the corps has underway. The corps is funded to carry on an inspection program of non-Federal structures.

I am just indicating, Mr. Chairman, that we have offered the States an opportunity to utilize our technical assistance in the way of training their local State people, by allowing them to participate with us in our program as we make our regular inspections of the Bureau dams under our jurisdiction.

Mr. MARTIN. Mr. Chairman, I might be able to help. When the administration addressed that problem of the non-Federal dams, the decision that they made was to have one agency basically provide that service, and that agency is the corps. What the corps will do is as yet unfinalized, but what it will probably be is to structure with the Bureau of Reclamation a priority of review.

We expect the Bureau of Reclamation to be involved from a technical standpoint, but not to have the primary Federal responsibility to do the non-Federal dam inspections.

As a policy matter, we are in a very strong agreement that we should not create a Federal program which overcomes present existing State capabilities, but rather rely on the States to do their own work, if they are willing and able to do so.

Mr. BEVILL. You just point out the dangers to the States.

Mr. MARTIN. Precisely.

Mr. BEVILL. Would you furnish for the record a project listing indicating the fiscal year 1979 capabilities for the various projects?

Mr. HIGGINSON. We would be pleased to do that.

[The following was received for the record:]

DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

FY 1979 Total Capability
by Appropriation and Project

Project	FY 1979 Program	Additional Capability	Total Capability
	(In thousands of dollars)		
GENERAL INVESTIGATIONS			
Central Valley Fish and Wildlife Management Study, California	-	100	100
Central Valley Project:			
Comprehensive Water Requirement and Supply Study, California	-	200	200
Delta Division:			
Delta Support Studies, California	435	150	585
Kellogg Unit Reformulation, California	-	100	100
Pick-Sloan Missouri Basin Program:			
Apple Creek Unit, North Dakota Pumping Division, North Dakota	-	300	300
Little Blue Unit, Nebraska	50	100	150
Republican River Basin Water Management Study, Colorado-Kansas-Nebraska	200	75	275
Pick-Sloan Missouri Basin Program, Western Division, and Colorado River Storage Project, Wind-Hydroelectric Energy Integrated Study, Colorado-Wyoming-Utah	284	2,500	2,784
San Luis Solar, Wind and Hydro Integration Study, California	-	100	100
Susanville Geothermal Investigation, California	58	325	383
Texas Basins Project:			
Big Cow Creek Project, Texas	-	50	50
Bon Wier Project, Texas	-	75	75
Nueces River Basin Study, Texas	-	50	50
Ventura County Water Management Project, California	100	60	160
General Engineering and Research:			
Atmospheric Water Resources Management Program	4,554	3,000	7,554
Other General Investigations	16,519	-	16,519
TOTAL APPROPRIATION, GENERAL INVESTIGATIONS	22,200	7,185	29,385

Project	FY 1979 Program	Additional Capability	Total Capability
	(In thousands of dollars)		
CONSTRUCTION AND REHABILITATION			
Advance Planning:		--	
Chief Joseph Dam, Oroville-Tonasket Unit, Washington	500	200 1/	700
McGee Creek Project, Oklahoma	1,000	6,000 1/	7,000
San Luis Valley Project, Closed Basin Division, Colorado	500	100 1/	600
Central Valley Project:			
Auburn-Folsom South Unit, California	13,396	2/	13,396
Columbia Basin Project (Franklin D. Roosevelt (FDR) Lake Fish, Wildlife, and Recreation Study), Washington	-	400	400
Pick-Sloan Missouri Basin Program:			
Advance Planning:			
Kanopolis Unit, Kansas	-	300	300
Garrison Diversion Unit, North Dakota-South Dakota	-	2/	-
Lower Marias Unit, Montana	3,568	900	4,468
Other Construction and Rehabilitation	266,742	-	266,742
Undistributed Reduction Based on Anticipated Delays	-15,144	-	-15,144
TOTAL APPROPRIATION, CONSTRUCTION AND REHABILITATION	270,562	7,900	278,462
UPPER COLORADO RIVER STORAGE PROJECT			
Advance Planning:			
Animas-La Plata, Colorado-New Mexico	300	500 1/	800
Central Utah Project:			
Uintah Unit, Utah	300	2,000 1/	2,300
Upalco Unit, Utah	300	1,500 1/	1,800
Bonneville Unit, Utah	27,259	6,700	33,959
Other Upper Colorado River Storage Projects	40,610	-	40,610
Undistributed Reduction Based on Anticipated Delays	-2,520	-	-2,520
TOTAL APPROPRIATION, UPPER COLORADO RIVER STORAGE PROJECT	66,249	10,700	76,949
RECREATIONAL AND FISH AND WILDLIFE FACILITIES, Various	4,025	11,030	15,055

1/ To initiate construction.
2/ Additional capability will be considered when problems are resolved.

Project	FY 1979 Program	Additional Capability	Total Capability
	(In thousands of dollars)		
LOAN PROGRAM			
Glenn-Colusa Irrigation District, California	-	4,750	4,750
Hidalgo and Willacy Counties Water Improvement District No. 1 (Willacy Supplemental), Texas	-	200	200
Hidalgo County Water Improvement District No. 2, Texas	-	1,000	1,000
La Grande Water District, California	-	873	873
Overland Ditch and Reservoir Company, Colorado	-	386	386
Pleasant Valley County Water District, California	-	4,685	4,685
Rainbow Municipal Water District, California	-	2,114	2,114
South Weber Water Improvement Company, Utah	-	1,720	1,720
West Bench Irrigation District, Montana	-	1,000	1,000
Other Loan Programs	24,999	-	24,999
Undistributed Reduction Based on Anticipated Delays	-1,968	-	-1,968
TOTAL APPROPRIATION, LOAN PROGRAM	23,031	16,728	39,759
OTHER APPROPRIATIONS	231,908	-	231,908
TOTAL - ALL APPROPRIATIONS	617,975	53,543	671,518

STUDIES

Mr. BEVILL. The Bureau's 1979 budget includes funds for the initiation of 18 studies, while the Corps of Engineers' 1979 budget contains no new study starts. In addition, the 1979 budget reflects deletion or delay of over 100 studies being conducted by the corps.

Are any Bureau studies being deleted or delayed?

Mr. HIGGINSON. Mr. Chairman, it will be necessary in connection with ongoing studies in the Bureau to delay some of them in order to give a high priority to these new investigation starts in the area of hydropower, which will help make a contribution towards the Nation's energy requirement. These studies have been given a high priority, and as a result, some of the other investigations that are currently underway will be delayed.

Mr. BEVILL. How many?

Mr. HIGGINSON. There are a total of 11 that would be delayed, Mr. Chairman.

Mr. BEVILL. So the corps has 100 studies delayed, and the Bureau has 11 delayed? The corps has no new study starts. The Bureau has 18 new studies. Actually the Bureau is getting much better treatment, coming out much better on this year's budget than the corps, apparently, and I wonder if you might be able to enlighten me as to the reason?

Mr. HIGGINSON. Mr. Chairman, I could not do that. I have no basis for comparison of our budgets. I am familiar with our budget, but I am not familiar with the corps'.

Mr. BEVILL. The justification states the new studies will emphasize the importance of clean energy supplies, including integration of potential solar and wind resources into existing hydro-electric based systems.

How will this type of effort be coordinated with the Department of Energy?

Mr. HIGGINSON. Mr. Chairman, we have an ongoing activity which was an add-on to the budget by the Congress last year, to do a study of the potential for wind energy at Medicine Bow, Wyo. It is an area that was identified as having one of the highest wind energy potentials in the Nation. The theory being that if you can generate wind energy when the wind is blowing, you can store the energy in water, in reservoirs, by cutting back on the releases of water, which otherwise would generate hydropower.

We are looking at that as a potential. It is fully in coordination with the Department of Energy. They are well aware of the investigation, and are, as we understand it, in fact considering making some major contributions toward wind energy research.

Mr. BEVILL. How much additional power would be created if these studies all result in a favorable project recommendation? I am referring, of course, to the hydroelectric development studies.

Mr. HIGGINSON. I would ask, if I could, Mr. Chairman, if any of our staff has the total potential megawatts of power production for these 18 studies?

Mr. BARRETT. We have figures for each one of the studies individually, but not totaled.

Mr. BEVILL. Will you supply that for the record?
Mr. BARRETT. Yes, sir.
[The following was received for the record:]

ADDITIONAL ENERGY FROM DEVELOPMENT AT EXISTING FACILITIES

In addition, in fiscal year 1979, the Bureau has proposed 17 new site-specific studies for increasing hydroelectric power capacity for a total of about 1,700 megawatts.

If all these potential projects were constructed, they would have a combined capacity of 9,400 megawatts. A new low-head hydroelectric evaluation and inventory is also proposed for fiscal year 1979. After completion of the inventory and evaluation, we will be able to determine how much additional power would be created as a result of development at the most favorable sites.

The Bureau currently has underway eight studies for additional hydroelectric power capacity totaling 7,700 megawatts. These include: The Anderson Ranch powerplant third unit, Grand Coulee Dam third powerplant extension, Minidoka powerplant enlargement, Rogue River Basin, Hoover powerplant modifications, Dominguez Reservoir project, North Platte hydroelectric, and Seminoe Dam modifications.

Mr. BEVILL. I have many other questions here, but I am going to yield at this point. I know Mrs. Smith has particular interest in your Bureau.

I am going to yield to Congressman Myers.

Mr. MYERS. I will try to be brief here, and give Mrs. Smith the opportunity to have more time.

RECREATION FACILITIES

First, did I understand in your presentation here, that the States are returning the responsibility to operate the recreational facilities to you?

Mr. HIGGINSON. Yes; they are coming back, not only from State government, but also from county government or whoever the manager is. They cannot continue to operate and maintain them, and they are turning them back to the Bureau.

Mr. MYERS. Did they not accept a contractual responsibility when the project was built, that they were to operate these facilities? Is it not a breach of contract?

Mr. HIGGINSON. I will ask Mr. Barrett to answer that.

Mr. BARRETT. No, sir these are the older projects, which were built before Public Law 89–72, which required cooperation by the States and counties. These are projects where we built the minimum basic public facilities, and then, as a matter of policy, went out and sought somebody else to operate and maintain them.

We went to counties and States and any local government, to take them over. The agreement that we have with them provides for turning them back to us. So it is not a violation of their contracts.

What they are finding is that as the public demands grow, and the public demands higher quality of facilities, that they become quite a financial burden on the local government to operate and maintain these, and they are finding it not in their interest.

Mr. MYERS. It does not present a burden to the Bureau of Reclamation?

Mr. BARRETT. It presents a burden to us too, but they have no obligation to maintain it, and then they hand it back to us.

Mr. MYERS. How are you going to recapture the additional cost that is going to be incurred by BOR, or are you?

Mr. BARRETT. Most of these were built prior to——

Mr. MYERS. Yes; you already told me. But how are you going to recapture the additional cost?

Mr. BARRETT. We are having to absorb the cost as a nonreimbursable item.

Mr. MYERS. Why do you not close them? Why do you have to provide recreation to the local community? If they do not want it, why should you provide it?

Mr. HIGGINSON. Mr. Chairman, Mr. Myers, there has been a long history of these recreation items. I think if you went back to the earlier days of the first dams built by the Bureau of Reclamation, the policy at the time was to keep the public off, because reservoirs were built for water supply and other purposes. The public demand has forced the opening of those reservoirs for recreation because the people were attracted by the water on public lands. They demanded the opportunity to use those facilities for recreation.

It is the problem with those old structures. Now, where we have authority under new projects, we operate, maintain, and build the facilities. But on the older projects we have no such authority. The maintenance has been by the local entity. The public is still using these facilities.

Mr. MYERS. I have some question why we, the taxpayers of Indiana, should support recreation for Utah or Nebraska.

I see no reason why we should. If the local people are interested in the pleasure for themselves, why should the burden be on the Bureau of Reclamation only?

Mr. HIGGINSON. It is not only on the Bureau of Reclamation projects. Recreation areas also exist on Corps of Engineers and TVA dams in the Eastern States which are publicly supported and nonreimbursable.

Mr. MYERS. I do not know that they should be.

Mr. HIGGINSON. These in the West are in the same category as the recreation facilities in the Eastern States.

Mr. MYERS. Right now we cannot start new construction in Illinois, because the State does not want to have to do it. Why should we in Indiana assume the responsibility, if the Western States do not?

Mr. HIGGINSON. You raise a very legitimate point, and it is one of considerable concern for us in Reclamation.

Mr. MYERS. Will you justify why you can do it in the West, and you cannot in the Midwest?

Would you, on the record, show why it cannot be done?

Mr. HIGGINSON. We will submit a statement.

Mr. MYERS. I would like to see an explanation of why this is true.

Would you like to add to it right now?

Mr. MARTIN. No, sir.

[The following was received for the record:]

MANAGEMENT OF RECREATION RETURNED TO THE BUREAU OF RECLAMATION

The Bureau of Reclamation develops and operates recreation facilities on projects in the contiguous 17 Western States and Hawaii. As a general policy recreation facilities are managed by others. However, we do take over the operation of those facilities when others have relinquished the management because of their inability to finance the work or from other Bureaus. For the most part, these funds used are nonreimbursable.

There are several reasons why the local people decide to turn the administration of an area back to Reclamation. Minimum basic facilities on the earlier projects (prior to 1965) were constructed by Reclamation as a part of the total multi-purpose project. The project beneficiaries are repaying the capital cost of these facilities. However, the local agency that assumed the recreation management role assumed all the costs of developing facilities to meet the needs of the general public and all of the costs of operation, maintenance, and replacement. New Federal laws relating to pollution, health, and safety have made many of these facilities obsolete and illegal. It is impossible to close these areas down and keep people out of desirable recreation sites. We must, therefore, maintain these sites in a condition which will protect the public from a health and safety standpoint. The following discusses the principal reasons why areas are returned to us.

1. Nonlocal recreation users. In the case of the larger areas, the users are people on vacation from outside the county, region, and the State in which the area is located. The local people feel that they should not use local tax dollars to provide facilities for nonlocal users.

2. Inadequate facilities. In many areas, the recreation facilities were not designed to handle the existing level of public use. After years of overuse, the facilities are simply beyond efficient operation, maintenance, and repair. Currently, the local agencies do not have enough capital development funds available to upgrade facilities to properly handle the existing number of visitors, and subsequently permit a reasonable operation and maintenance cost.

3. Inefficient design. Often the recreation facilities were not designed from an efficient operation and maintenance standpoint and the associated costs subsequently become too high for a local administering agency to finance.

NEW POSITIONS

Mr. MYERS. You created a new position of Deputy Commissioner, as I understand. Are the other three positions new?

Mr. HIGGINSON. No, sir, they are redesignations. Existing people.

Mr. MYERS. You only have one new person, the Deputy Commissioner?

Mr. HIGGINSON. We have no new person, we eliminated one position to create the Deputy Commissioner position. We had four Assistant Commissioners. We now have three Assistant Commissioners and a Deputy. We just changed the title, and gave him new responsibilities.

Mr. MYERS. Yesterday we had a discussion relative to benefit cost analysis.

BENEFIT COST

I notice things like irrigation and power are benefits. How are they national benefits? Just a few people can use the irrigation. Some of these benefits could be used someplace else, if they were not used there.

Mr. HIGGINSON. Well, I do not know that the benefit cost ratio and the benefits from irrigation have ever been portrayed as national in scope.

Mr. MYERS. You are using them as benefits. The criteria you established yesterday is that they had to be national in scope, or they could not be benefits. Now you are saying they are not national. You changed the rules overnight.

Mr. HIGGINSON. I was not here yesterday during that discussion. I do not know what the discussion was that took place.

Mr. MARTIN. We will submit a statement for the record, to try to explain that.

[The letter that was submitted was not responsive to the request.]

Mr. MYERS. It will take a little study. You are not prepared today?

Mr. MARTIN. No, sir, I think we did explain it yesterday, and we clearly differed on it. But I think the benefits that you described are national in scope.

Mr. MYERS. Irrigation is national in scope?

Mr. MARTIN. That is right. It can provide a benefit that is of national value.

Mr. MYERS. I am going to be regional. Does national scope mean that you are making land irrigable out there, and land that will produce a crop that we do not need?

Well, in another subcommittee we heard the other day, farmers were saying take land out of production—we have too much——

Mr. MARTIN. I would think, Mr. Myers, that if the decision of this committee is that an area proposed for irrigation would be for crops that are not needed, that they should not fund that project. But I take it that they are funding that project because they feel that those crops would be needed very much and have a national benefit.

Mr. MYERS. What crops do you produce on irrigated lands that you cannot otherwise produce on them?

Mr. MARTIN. It is not a question of whether you can.

Mr. MYERS. How can it benefit the Nation, by producing, that is what I am trying to find out? How do you evaluate? What weight do you give it to make it of a national interest? The criteria you established yesterday?

Mr. MARTIN. I think we can supply that in detail in the submission, but it is known, and it is behind the entire policy.

Mr. MYERS. But if a new factory is going to hire people, it is not a national benefit? And yet irrigation of land that is not capable of producing crops is national?

Mr. MARTIN. As we indicated, if the alternative to the new factory that is going to hire people is, for instance, not going to happen anywhere else, then—except outside the Nation, then it could be regarded as a national benefit.

Mr. MYERS. We have one surplus crop right now, of just about every grain product, and it could be used someplace else.

Mr. MARTIN. If it is your judgment that we have a surplus in every area, and no irrigation is necessary, it is a decision that the committee could make.

Mr. MYERS. I did not make it. You said it yesterday. We did not make the ground rules. You did.

Mr. MARTIN. Yes, sir, we did, and we think it is right.

Mr. MYERS. But you cannot defend it, can you?

Mr. MARTIN. Yes, sir, I think we can.

Mr. MYERS. You can defend it in the West, but not the Midwest?

Mr. MARTIN. No, sir.

Mr. MYERS. You changed the rules.

Mr. MARTIN. No, sir.

Mr. MYERS. How is a job different than a bushel of corn?

Mr. MARTIN. Well, we will not attempt to explain that, but it can be explained.

Mr. MYERS. I think that is all.

Mr. BEVILL. The Chair recognizes Mr. Burgener.

COMPREHENSIVE REVIEW OF RECLAMATION LAW

Mr. BURGENER. Yesterday we talked about the 160-acre limitation. I do not think we need to go into a great deal of detail, except to ask if the administration has a program in mind for revising or redrawing the 1902 Reclamation Act itself?

I realize that we are in court in a number of areas, and that the courts have ordered the Department of the Interior to provide the environmental impact studies. We talked about that yesterday, and I think it was generally concluded that those will take about a year.

Now, does the administration have a program? Is it going to introduce legislation, for example, to revise the 1902 reclamation law?

Mr. HIGGINSON. I would like to have Secretary Martin answer that.

Mr. MARTIN. Mr. Chairman, Mr. Burgener, there is no plan at the present time for a comprehensive revision of the reclamation law. Any comprehensive administration legislation will await the result of that study, the impact studies that we discussed yesterday on excess lands.

We have been asked to respond to a series of legislative proposals that deal specifically with the excess land provisions of that law, and we will be responding to the proposals as asked by the committee. That is the extent of our plan at the present time.

Mr. BURGENER. Well, would the Department and the administration expect the initiatives to revise the 1902 law to come under Congress then?

Mr. MARTIN. No, sir, we will regard our response to the congressional legislation to be initiatives on our own part. We are going to respond in good faith, given the legislation that is taken up.

Mr. BURGENER. Respond is one thing, but to initiate is another.

Mr. MARTIN. We assume that some of our amendments will be new ideas, as well as ideas of other people.

In other words, we think that we can benefit from some study, and we intend to do it, and we recognize the court required it, but we are going to respond in good faith to the legislative initiative, and make our best ideas available to the Congress.

Mr. BURGENER. You do acknowledge that the 1902 law needs revision?

Mr. MARTIN. We certainly do, and have said so on many occasions.

Mr. BURGENER. On the environmental impact studies, will those be confined to what the court ordered, or will they be the subject of your proposed regulations which go far beyond what the court ordered?

Mr. MARTIN. They will certainly cover the proposed regulations.

Mr. BURGENER. It makes the assumption that if the regulations were adopted?

Mr. MARTIN. Yes, sir.

Mr. BURGENER. What would the impact be?

Mr. MARTIN. I might also say we will be covering, in the impact statement, a series of alternatives, as required by law.

AUBURN DAM

Mr. BURGENER. If we can move to Auburn Dam for a moment. If a decision is made relative to the seismic question prior to the start of fiscal year 1979, and assuming that the Federal Government is satisfied with these studies, what is the capability of the Bureau for fiscal year 1979?

Mr. HIGGINSON. I would like to refer that matter with regard to the timing of the studies first to Mr. Jansen and then I will respond concerning our capability.

Mr. BURGENER. Good.

Mr. Jansen?

Mr. JANSEN. We are in the middle of the evaluation of the seismic safety problem and we have broadened our studies to look at various options that we might have on the project, once we have the answer to the seismic problem.

We expect that those studies and our discussions with the various State agencies involved in California will take several more months before we can reach the point where we feel that we have a well defined course of action.

Mr. BURGENER. Are you saying then that you have not projected the capabilities for fiscal year 1979 in terms of construction?

Mr. HIGGINSON. I can respond to it, if I might, Mr. Burgener.

The answer will of course depend upon the point of time during fiscal 1979 when the decision can be made to award the prime construction. We have some numbers that relate to various points in time, which relate to the amount of contractor earnings that would take place after that date.

With a very early solution to the problems we could use up to $26 million of the additional capability. However, if the timing is such that the contract award would be in May 1979, our capability is $11.6 million. If award is not until July, it is $8.2 million, and if it is not until September, 1979, it is $2.8 million. It will depend upon when the award of the contract.

The input from the State of California, related to the final decision as to whether we proceed or do not proceed with the design will affect the timing.

Mr. BURGENER. In the unhappy event that it does not turn out to be safe, what would then be your next step? Would there be a redesign?

Mr. HIGGINSON. Mr. Burgener, we are looking at alternative designs now.

Mr. BURGENER. Such as earth or rockfill?

Mr. HIGGINSON. Yes, such as earth or rockfill, up and down river from the site. We are looking at these should we not be able to proceed with the current design.

Mr. BURGENER. Alternatives would affect the cost?

Mr. HIGGINSON. Yes, alternatives would impact the cost of the project and availability to deliver water.

Mr. BURGENER. Going back to the State of California for review, I have a letter here from the Seismic Safety Commission. They express their concern that your review, your seismic safety review does not adequately provide for their review in the State of California.

Would you—and I will put the letter in the record, but would you comment on that?

Mr. HIGGINSON. I would like to ask Mr. Jansen to speak to this.

Mr. BURGENER. Do they have veto, or do they not have veto?

Mr. HIGGINSON. The Secretary made it clear yesterday that the decision with regard to Auburn had been deferred to the State of California insofar as their input is concerned. He indicated that he was not going to agree necessarily that the State of California would have a veto over the project, but he agreed to wait until California could render its decision as to whether to proceed or not.

Mr. BURGENER. I am not necessarily suggesting that they should, but just inquiring.

Mr. HIGGINSON. I think Mr. Jansen could answer that.

Mr. JANSEN. I will be glad to but I do not know the basis of their concerns on the seismic study.

Mr. BURGENER. We will provide you with the letter.

Mr. JANSEN. But I can assure you that, in my view, this is probably the most exhausting study of a damsite that has probably ever been undertaken in the whole world. It is a very meticulous comprehensive study by the Bureau of Reclamation, and its various consultants.

Mr. BURGENER. So we really should have some hard answers when we are through?

Mr. JANSEN. I am fairly confident that we will. I cannot imagine what the basis of their comment would be.

Mr. BURGENER. Well, perhaps I cannot, either. Just take a look at their letter, and then we can talk about that.

Mr. JANSEN. I will be glad to provide my comments for the record.

[The letter and comments follow:]

STATE OF CALIFORNIA
EDMUND G. BROWN JR., Governor
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455 Capitol Mall, Suite 535
SACRAMENTO, CALIFORNIA 95814
(916) 322-4917
Robert A. Olson,
Executive Director

February 8, 1978

Honorable Clair W. Burgener
United States Congress
House Office Building
Washington, D.C. 20515

Dear Congressman Burgener:

The California Seismic Safety Commission has been closely monitoring the Federal and State seismic safety review process of the Auburn Dam Project since August, 1975. Although the review is nearing completion and conclusions will soon be forthcoming regarding the dam's safety, the role of the State of California's review is still not clear as to the impact and implications of its findings.

The Conference Report dated July 20, 1977 (House of Representatives, Report No. 95-507 to accompany H.R. 7553), and the language inserted therein needs clarification regarding the State's role in the review process. It says in part that:

> "...Studies on the potential for seismic problems and design of Auburn Dam were initiated over a year ago. These studies will be reviewed also by the State of California. None of the funds made available are to be used to award a contract to initiate construction of Auburn Dam until completion of the review and a final determination is made on the safety questions."

Since Divisions within the State Department of Conservation and the State Department of Water Resources have undertaken extensive seismic, geologic, and engineering studies in cooperation with the U.S. Bureau of Reclamation, and concomitant with the Bureau and the Bureau's consultants, the Seismic Safety Commission believes that such studies should not be merely reviewed. The studies should be recognized as definitively and with equal impact as those research studies done through Federal efforts.

The Seismic Safety Commission therefore respectfully requests, through a unanimous vote on December 8, 1977, that language be inserted into the 1979 Appropriation Bill indicating the necessity for approval of the design criteria and safety of the Auburn Dam by the State of California.

Very truly yours,

Robert B. Rigney

ROBERT B. RIGNEY
Chairman

COMMENTS ON SEISMIC SAFETY COMMISSION

LETTER TO HON. CLAIR W. BURGENER

The Chairman of the California Seismic Safety Commission requested in the subject letter that the Appropriation Committee insert language in the fiscal year 1979 appropriation bill indicating the necessity of approval for design criteria and safety of Auburn Dam by the State of California.

Both the Secretary of the Interior and the Commissioner of Reclamation have indicated that the results of the studies on the safety of Auburn Dam being conducted by the State of California will be a major factor in the future decisions to be made on Auburn Dam. However, since the Federal Government will be ultimately responsible for the construction and operation of Auburn Dam, it would be inappropriate to give the State final approval authority.

Mr. MARTIN. I might add that the Bureau does have substantial confidence that the work it has undertaken will be thorough enough to give us good answers.

I think that the consultations that we undertake in conjunction with that of the State, and also public review of that, will lead us to an answer that is very open and determinative to everyone's satisfaction.

Mr. BURGENER. I would hope the State would take a hard look at your work, but I would hope they would not attempt to duplicate it on their own, and go through another year. I would hope that that would not be repeated.

How much already has been spent on the project, approximately?

Mr. ANDERSON. About $190 million, Mr. Burgener, was spent through last September 30. We will spend another $40 million this year.

Mr. BURGENER. Out of a total of how much?

Mr. ANDERSON. The estimate of the Auburn Dam and powerplant is $994 million.

Mr. BURGENER. And how many megawatts of power, roughly?

Mr. ANDERSON. 300 megawatts of power with a potential of adding 3 more units of each with a capacity of 150,000 megawatts.

Mr. BURGENER. Is it roughly rule of thumb that 1 megawatt would serve 1,000 people, does that sound right?

Mr. HIGGINSON. Yes, that is the rule of thumb.

Mr. BURGENER. So we are talking about power then for 300,000 people, all right.

Mr. JANSEN. Yes.

SUSANVILLE GEOTHERMAL INVESTIGATIONS

Mr. BURGENER. Congressman Johnson has an interest in the Susanville geothermal investigation.

Mr. HIGGINSON. The 1979 budget request is $58,000.

Mr. BURGENER. What is your capability?

Mr. ANDERSON. We have an additional capability of $325,000, to give us a total capability of $383,000.

Mr. BURGENER. On the Susanville geothermal investigation?

Mr. ANDERSON. Yes, sir.

Mr. BURGENER. What is the status of the Salton Sea investigation?

Mr. BARRETT. The studies to date indicate that the Salton Sea waters are compatible for reinjection into the geothermal wells. If the development of the geothermal resource is feasible we could withdraw from the Salton Sea about 120,000 acre-feet of water annually to reinject, and that would stabilize the Salton Sea in about 15 years.

The total program for the geothermal studies on the East Mesa Anomaly in 1979 is $555,000. The Salton Sea study is a part of that.

Mr. BURGENER. For everywhere?

Mr. HIGGINSON. Yes; for the East Mesa geothermal resource investigation.

Mr. BURGENER. And when did you expect these studies to be completed?

Mr. HIGGINSON. A feasibility report on East Mesa is scheduled for 1983, although there will be a number of other reports available commencing in 1980.

SUN DESERT NUCLEAR PLANT

Mr. BURGENER. The Governor is trying to kill our Sun Desert nuclear plant. He is alleging that one of the alternatives, including windmills and burning woodchips, is geothermal. We hope and think that that might be an alternative, but certainly not anything on the scale of Sun Desert nuclear.

If we are only spending half a million dollars, we have already sunk over $80 million into the Sun Desert light water nuclear plant. I believe it is a drop in the bucket.

COACHELLA CANAL LINING

What is the status of the construction of the concrete lining in the Coachella Canal?

Mr. HIGGINSON. The canal lining project, as part of the Colorado River Basin salinity control project, is scheduled for award in the current fiscal year and will be continued in 1979.

Mr. BURGENER. How much is budgeted in fiscal year 1979?

Mr. HIGGINSON. The amount of money for 1979 is $10,962,000. Construction will be started this current fiscal year.

COLORADO RIVER STORAGE PROJECT AND METROPOLITAN WATER DISTRICT

Mr. BURGENER. I have a few additional questions and I would appreciate your response.

With regard to the Upper Colorado River storage project, what is the fiscal year 1979 funding request, and how does that compare with the fiscal year 1978 appropriation and the fiscal year 1979 capability?

Mr. HIGGINSON. The fiscal year 1979 request is $70,274,000. This represents an increase of $3,006,000 over the fiscal year 1978 appropriation. The Bureau has an additional capability of $21,730,000 for fiscal year 1979 for this project.

ATMOSPHERIC WATER RESOURCES MANAGEMENT PROGRAM

Mr. BURGENER. What is the interest and capability of the Bureau of Reclamation in the Colorado River weather modification demonstration project?

Mr. HIGGINSON. Data from the recently completed Colorado River Basin pilot project and other experiments substantiates the estimated potential of increasing mountain snowfall 10 to 15 percent annually by selectively seeding winter storms. Also, the accompanying environmental studies showed no significant short-term adverse ecological im-

pacts. These results remove much of the basic scientific uncertainty, but a demonstration of the operational effectiveness of large-scale augmentation, verification of benefits and costs, and determination of long-term cumulative environmental effects are still needed before confident widespread application of currently developed techniques can be made. The Congress provided $600,000 in fiscal year 1978 for this item and we are conducting an environmental assessment and are coordinating with the basin States to prepare a plan for initiating a 10-year demonstration program. This work is currently underway.

There is capability requiring an additional $500,000 in fiscal year 1979. This amount would allow completion of the initial planning and design of the experiment and environmental impact assessment in more detail, and initiation of the basic monitoring and evaluation of a long-range program.

ATMOSPHERIC WATER RESOURCES MANAGEMENT PROGRAM

Mr. BURGENER. How does the Bureau of Reclamation assess the progress of the Weather Modification Advisory Board that advises the Secretary of Commerce pursuant to the Weather Modification Policy Act of 1976, Public Law 94–490, and to what extent has the Bureau cooperated with that advisory board?

Mr. HIGGINSON. The Secretary of Commerce established an independent Weather Modification Advisory Board in January 1977. Its first meeting was held May 4 and 5, 1977, and although a number of meetings, hearings, and site visits have been conducted over the past 12 months, the Board is not expected to issue a report on its findings and recommendations until about June 1978. The Bureau has participated in the study to the extent that we have provided complete and detailed information about our activities to the Board, hosted the Board at an onsite visit to one of our High Plains experimental sites, and participated in nearly all of the meetings of the Board as an invited observer.

LEGISLATION TO INCREASE COST CEILING OF COLORADO RIVER BASIN SALINITY CONTROL PROJECTS—TITLE I

Mr. BURGENER. The current cost estimate for title I projects under the Colorado River Basin Salinity Control Act is greater than the appropriation ceiling. Last year Commissioner Anderson stated that legislation to increase the appropriation ceiling would be submitted in the first session of this Congress. That was not done. Do you know why the legislation was not submitted, and what are your plans for submitting such legislation in this session?

Mr. HIGGINSON. A delay in the award of the desalting membranes due to the injunction obtained by the unsuccessful offerers has caused a slippage of the award of the Yuma desalting plant prime contract from fiscal year 1979 to fiscal year 1980. Therefore, we have delayed submission of the ceiling legislation until this session of Congress. A request for additional appropriation ceiling and other amendments to the act has been prepared and is under review by the Department of the Interior. We expect to submit that amendatory legislation during the current session of Congress.

COLORADO RIVER WATER QUALITY IMPROVEMENT PROGRAM

Mr. BURGENER. I have noted that the President's budget request for the Colorado River Basin water quality improvement program amounts to only $1,595,000 under "General investigations." Studies that have been conducted by the seven Basin States/Colorado River Basin Salinity Control Forum indicate that delays of from 1 to 2½ years will be caused in the completion of feasibility reports on half a dozen potential salinity control units due to insufficient funding, could adversely affect the meeting of salinity control standards established by the States, and approved by the Environmental Protection Agency. If this committee were to add $600,000 to $800,000 to the President's budget for this item, would the Bureau of Reclamation be able to constructively and advantageously use the additional money?

Mr. HIGGINSON. The emphasis on high priority energy studies at the present time, would not allow us to effectively use additional funds for this program in fiscal year 1979.

BOULDER CANYON PROJECT, HOOVER POWERPLANT MODIFICATION STUDY PROGRESS

Mr. BURGENER. It is my understanding that the Bureau is currently studying the feasibility of constructing additional hydroelectric generating capacity at Hoover Dam. What is the status of the study?

Mr. HIGGINSON. The current work consists of basic data collection and development of alternative plans. The determination of possible alternatives and their impacts and the elimination of unacceptable alternatives will be studied in fiscal year 1978. Plan formulation work will be nearly completed in fiscal year 1978.

Mr. BURGENER. Can the study be accelerated?

Mr. HIGGINSON. The Hoover powerplant modification study has already been accelerated because of the high priority placed on expanding hydroelectric generating capability at existing reclamation facilities.

The investigation cannot be accelerated further because of the requirements of the principles and standards procedure with its extensive public involvment process.

Mr. BURGENER. What is the potential for additional hydroelectric capacity at Hoover Dam?

Mr. HIGGINSON. It is too soon to make any definitive statement about the outcome of the investigation. However, studies to date indicate that any alternatives that include more than uprating existing units appear to be only marginally justified.

Mr. BURGENER. I believe that is all, Mr. Chairman.

Thank you.

Mr. BEVILL. The Chair recognizes Mrs. Smith.

Mrs. SMITH. Thank you, Mr. Chairman.

O'NEILL UNIT, PICK-SLOAN MISSOURI BASIN PROJECT

Commissioner Higginson, I believe you were here yesterday when Secretary Andrus Said that it was not his intent to reevaluate the

O'Neill reclamation project in my district. He said he was going to go out to Nebraska because the Governor had invited him to visit, and he was not coming with an axe in his hands.

Now, can you tell me what the Bureau's position is on this project? Do you still support the construction of the O'Neill project?

Mr. HIGGINSON. The Bureau of Reclamation, as you know, supports the project. We are required to meet certain requirements of the National Environmental Policy Act.

O'NEILL UNIT ENVIRONMENTAL IMPACT STATEMENT

In connection with that project, a suit was filed as to the adequacy of the environmental impact statement that had been prepared on it. The court directed that we answer some four additional questions. We have prepared a draft supplement, and that is currently out for review and comment.

In the event that is cleared and approved by the court, we would be prepared to proceed to construct the project.

Mrs. SMITH. Could you tell me when you think that you will be ready with the report to go before the judge in Lincoln, with the environmental impact statement, so that we can get the project back on the road?

Mr. HIGGINSON. The supplement to the final impact statement is scheduled to be filed in March of this year. It would depend upon the progress of the court action thereafter, as to whether the judge would find that to be adequate.

Mrs. SMITH. I understand that.

NORTH LOUP DIVISION, PICK-SLOAN MISSOURI BASIN PROJECT

Now, you have asked for about $4.1 million on construction in the North Loup project in fiscal 1979. Can you describe what this money will be used for, and is the work on schedule?

Mr. HIGGINSON. Yes, the North Loup project is on schedule. We would use the funds in 1979 for acquisition of rights-of-way for the Calamus Reservoir and land acquisition for the Mirdan Canal will be continued. The Calamus Dam foundation construction will be continued and design of the Davis Creek Dam will begin.

WHITNEY IRRIGATION DISTRICT

Mrs. SMITH. Now, going to the Whitney Irrigation District. Last year we provided the Bureau with $1 million for the loan program for the irrigation district. This was to be used for replacement of some pipeline.

Now, in the budget this year there is $674,000 for the project. Is all of this money being used, and is the project to be completed in the next fiscal year?

Mr. HIGGINSON. Yes, the project would be completed in 1979 with the $674,000.

Mrs. SMITH. Good.

WILDLIFE REFUGE IN PLATTE RIVER BASIN

Now, I am going to a little different area. As you know, there is a plan by the Fish and Wildlife Service which some of my constituents say turn half of Nebraska into a wildlife refugee. That may be a little exaggeration, but the facts are they want to set aside a portion of the Platte River Basin for migrating birds. Now, I have nothing against birds, but they seem to have been migrating for a good many years without the help of the Federal Government.

In any case, some of us have protested this action, and have worked to put a stop to it, and so now they are planning to conduct a study in this area. Of course, they should have done this several years ago, before they proposed the wildlife refuge, but in any case there are many of us who believe that a more comprehensive study should be conducted in the Platte River Basin to balance out priorities, and what I want to ask you is do you plan to participate along with the Fish and Wildlife Service and the Geological Survey in the Platte Water River management and habitat study?

PLATTE RIVER WATER MANAGEMENT AND HABITAT STUDY

Mr. HIGGINSON. The answer to the question is yes. We would participate along with the Geological Survey and the Fish and Wildlife Service in the studies. The study is somewhat divided. The Fish and Wildlife Service will look at the habitat and biological aspects of the study, whereas the Geological Survey and the Bureau will look at the water supply and inventory the water needs portion of the Platte River study.

Mrs. SMITH. Water supply and water needs. Could you tell me anything more about what is entailed in this study?

Mr. HIGGINSON. Yes, Mrs. Smith, the study is just now being formulated and as you might imagine we do not have a complete program statement, nor do we have the final answer with regard to how it might be funded.

Mrs. SMITH. That was going to be my next question, since the Fish and Wildlife Service has its funds, what funding will be needed by the Bureau, and by the Geological Survey?

Mr. HIGGINSON. The total amount of the study over a 4-year period we estimate is $1,306,000. Reclamation would need $547,000, and Geological Survey would need about $759,000.

Mrs. SMITH. Now, what is your capability for this study in fiscal 1979?

Mr. HIGGINSON. Well, our capability, and that of the Geological Survey is somewhat limited. Both funding and staff ceilings are critical. We estimate that funding requirement for both agencies in fiscal year 1979 is $420,000, and that will require a staff of about 13.

Mrs. SMITH. Is there any possibility that we could get this started in 1978?

Mr. HIGGINSON. Yes; by either a supplemental appropriation to the budget, or by reprograming $80,000 of existing funds. Reprograming would, of course, have to result from approval of the Appropriations Committees of the Congress.

Mrs. SMITH. Could future demands for water, such as has occurred in the Prairie Bend area, be a part of this study?

Mr. HIGGINSON. Yes; it certainly could do that, and identify the future water needs of the Prairie Bend area, making that one of the purposes of the study.

OTOE-CASS PROJECT

Mrs. SMITH. Then, going over to Congressman Thone's district, in the First District of Nebraska, you told him that you had no capability to begin an appraisal study in the Otoe-Cass project. This is a project, as I understand it, to take water out of the Missouri waters, to irrigate 40,000 acres.

Inasmuch as you have reduced the budget for my district by $5 million, and I do not know by how much in Mr. Thone's district, would you justify the statement that you do not have the capability to begin a study, and if you had the capability, how much money could you use in fiscal 1979 for the study?

Mr. HIGGINSON. Mrs. Smith, as in many of the programs, where there is interest from the local area, it is possible that we could do additional work, but it is limited primarily by personnel. We have a situation where we do not have the capability of taking on new work without allowing ongoing work to slide and be delayed and slowed down.

If we had the necessary personnel then we would have a budget capability, but without the personnel we do not, so we have to indicate that we have no capability on a project such as this.

LITTLE BLUE UNIT, PICK-SLOAN MISSOURI BASIN PROGRAM

Mrs. SMITH. Does that explain then why there is only $50,000 in the budget allocated for fiscal 1979 on the Little Blue unit?

Mr. HIGGINSON. It is the same thing.

Mrs. SMITH. What additional capability do you have in fiscal year 1979 on the Little Blue unit?

Mr. HIGGINSON. The Bureau has the capability to use an additional $100,000 on the Little Blue unit.

Mrs. SMITH. I think this completes my questions, Mr. Chairman. Thank you very much.

CENTRAL ARIZONA PROJECT

Mr. BEVILL. Mr. Commissioner, what is the current status of the central Arizona project, and what work is planned in fiscal year 1979?

Mr. HIGGINSON. The central Arizona project is on schedule. Our intended delivery date of the first water is December 1985, and in the Tucson area 1987. Work contemplated for this current year will include the following: Construction will be initiated on the Havasu pumping plant structure, discharge lines, roads, and bridges; Burnt Mountain and Agua Fria Tunnels; Hassayampa River, Jackrabbit Wash, and Centennial Wash Siphons; Canal Reaches Nos. 2 and 7—Granite Reef Aqueduct; Canal Reach No. 10—install security fencing; Liberty-Parker 23-kilovolt transmission line; Liberty Substation

230-kilovolt additions stage 02; office building located at Parker-Davis project headquarters complex, and mechanical equipment and materials laboratory building located at Parker-Davis project headquarters complex.

Mr. BEVILL. Would you explain the reduction of $105 million in the cost of this project?

Mr. HIGGINSON. The decrease of $105 million is due to revised estimates and designs. We have received some good bids for the construction of the facilities that have contributed to the reduction. There was a partially offsetting increase due to indexing of construction costs which added $37 million.

Mr. BEVILL. This will not, in any way, deter from the project as proposed?

Mr. HIGGINSON. No; we are still on target, and will deliver water in 1985, if future budgets provide the funds.

CENTRAL ARIZONA PROJECT LITIGATION STATUS

Mr. BEVILL. What is the status of any litigation affecting the project?

Mr. HIGGINSON. Citizens concerned about the project initiated a lawsuit on June 11, 1975, seeking an injunction to halt construction of the Agua Fria River, New River, and Salt River siphons. On July 14, 1975, a temporary restraining order was denied. The Central Arizona Water Conservation District's motion to intervene was granted. Discovery proceedings were conducted through 1976. On August 3, 1977, a temporary restraining order to halt construction of the Salt River siphon was denied and work is nearly complete on the aqueduct.

Salt River Pima-Maricopa Indian community and the Gila River Indian community on November 3, 1976, and January 4, 1977, respectively, initiated legal proceedings opposing the Secretary's Indian water allocation. Neither community is actively pursuing their case at this time.

ENVIRONMENTAL IMPACT STATEMENT

Mr. BEVILL. Recently it was brought to the committee's attention that the Bureau is preparing a comprehensive environmental impact statement covering reclamation programs in the Colorado River Basin States.

What is the status of this EIS?

Mr. HIGGINSON. The comprehensive EIS was started through some initial contracts that were let, and some initial studies have begun. Because of the interest and concern of the States and the Members of the Congress. We have determined not to proceed with any new activity until such time as the matter is presented to the Congress and the Congress concurs in our proceeding with that statement. It will require either a reprograming, or a supplemental appropriation for the current fiscal year and/or a budget amendment for 1979 and future years. That matter is currently under consideration within the Department, and we will be coming to the Congress once a decision on the proposal as to how to proceed has been reached.

FUNDING OF ENVIRONMENTAL IMPACT STATEMENTS

Mr. BEVILL. What funds are you using for this study?

Mr. HIGGINSON. We were using project funds, Mr. Chairman.

Mr. BEVILL. And what authority do you have to use the project funds?

Mr. HIGGINSON. Mr. Chairman, the preparation of EIS's has never been specifically funded. Since every project requires an environmental impact statement to be prepared before we can proceed with it. We have used general investigation, advanced planning, construction, and operation and maintenance funds for the preparation of the EIS's on all of the projects because there have been no line items on any environmental impact statements for the Bureau.

PROJECTS DELAYED OR DELETED IN 1979 BUDGET

Mr. BEVILL. The fiscal year 1979 budget for the Corps of Engineers reflects the deletion of 8 planning projects, delay of 8 ongoing planning projects, and the stretchout of 46 construction projects.

Have any ongoing Bureau projects in the planning or construction stage been delayed or stretched out?

Mr. HIGGINSON. I believe, Mr. Chairman, we answered that with regard to the planning, that there were some eight projects that would be delayed or stretched out due to giving high priority to energy studies. In addition, 21 other studies have been delayed in this budget for one reason or another.

Mr. BEVIL. What about the 46 construction projects?

Mr. HIGGINSON. Mr. Chairman, there are 11 projects under construction that because of lawsuits and other matters, have been delayed unavoidably.

Mr. BEVILL. But not stretched out for funding reasons?

Mr. HIGGINSON. But not stretched out by reason of funding. Any delay caused by funding amounted to less than 1 fiscal year.

Mr. BEVILL. Yes.

COMMITTEE QUESTIONS FOR THE RECORD

Mr. MYERS. Mr. Chairman, I have some questions that have been provided by our colleague on the Appropriations Committee, by the Honorable Mark Andrews of North Dakota, and also by Congressman Jim Johnson.

At this point we would like to put them in the record, and have you respond to them.

Mr. HIGGINSON. I will be pleased to respond to them.

[The following was received for the record:]

QUESTIONS SUBMITTED BY HON. MARK ANDREWS

APPLE CREEK FEASIBILITY REPORT

Question. What is the status of the Apple Creek feasibility report?

Answer. The report is scheduled to be completed late in fiscal year 1978.

APPLE CREEK UNIT

Question. What acreage is feasible for irrigation in each county within the Apple Creek circuit?

Answer. The feasibility studies on the Apple Creek unit will show that costs of development are too high for the potential in Emmons County; that there is a potential for 45,000 acres of new development in Burleigh County; and that while

there are 150,000 acres which could be developed in Kidder County, environmental problems are of such magnitude that recommendation for development cannot be made at this time as further studies are required.

Question. What additional funds are needed to complete the Apple Creek feasibility study and what is your fiscal year 1979 capability?

Answer. To complete the study, $572,228 is required. Of this amount, we have the capability to spend $300,000 in fiscal year 1979. The remainder of the requirement would be needed in fiscal year 1980 to complete the feasibility report.

ATMOSPHERIC WATER RESOURCES MANAGEMENT PROGRAM

Question. Weather modification research funding has been decreased from $7.6 million (fiscal year 1978) to $4.5 million (fiscal year 1979). Considering that the Western United States has just been through a drought, how do you justify cutting this modest research budget to the bone?

Answer. The budget request for $4.5 million in fiscal year 1979 is a result of budgetary restrictions.

Question. It is my understanding that $4 million of additional funding is needed to keep Hiplex, Sierra, and Colorado River Basin weather modification research on schedule. Do you agree with this estimate?

Answer. No. Our additional capability is $3 million which will keep the program at approximately the same level as in fiscal year 1978.

FORT CLARK UNIT PUMPING PLANT INTAKE

Question. As I understand it, operation of the Garrison Reservoir to obtain peaking power has caused sandbars to form there by obstructing the Fort Clark project pumping plant. This has made continuous pumping impossible during the past few irrigation seasons. Would you comment please.

Answer. At the time of its construction, the Fort Clark pumping plant was located on an ideal outside curve, with a deep water channel immediately in front of the plant. After the construction of the Corps of Engineers' Garrison Dam, the reduction in river flows caused the main channel to move away from the pumping plant. In addition, because of the fluctuation in riverflows resulting from peak-power operation at Garrison Dam, sandbars developed in front of the pumping plant, and for a number of years, serious difficulties have been encountered in getting water to the plant. Keeping the channel open is beyond the capability of the district. As a result, irrigators were without water much of the 1977 irrigation season.

Question. Could soil and moisture conservation funds be used to protect this investment? How much funds are needed? What is your capability?

Answer. Yes, soil and moisture conservation funds could be used to correct the situation at the Fort Clark pumping plant intake. The estimated cost of the channel rectification is $175,000. At this time, we do not have capability to expand funds for the work in fiscal year 1978 or fiscal year 1979 because of employment ceiling limitations. Should these personnel ceiling situations improve additional funds could be used.

WIND-HYDROELECTRIC ENERGY INTEGRATION STUDY

Question. For the purpose of meeting long-term electric power needs it is my understanding that the Bureau of Reclamation has conducted studies on programs to integrate a renewable energy source; namely wind power, with hydroelectric facilities.

The Denver Office of the Bureau has investigated the potential of wind turbine-generators providing peaking capacity for the Colorado River storage project and they have done so with the encouragement of this committee. Have the investigations regarding the potential of wind turbine-generators been completed, and what is your appraisal of the study?

Answer. The investigations referred to have not been completed. Work is underway on an environmental assessment and instrumentation has been installed to collect data to evaluate wind characteristics. The ability to integrate wind energy with the power operation of the Colorado River storage project system would be evaluated. We expect to complete these studies in fiscal year 1981 and anticipate that the studies will show favorable results.

Question. What is your capability to construct such a unit if funds are made available in fiscal year 1979?

Answer. We could effectively utilize $2,500,000 to initiate construction of the verification unit in fiscal year 1979.

Question. How much money would be needed for a 2-megawatt verification unit?

Answer. We estimate that it would cost about $8 million to install a 2-megawatt verification unit. It would take approximately 2 years to complete the installation.

Question. How much additional money and manpower would be needed to install the 98-megawatt project?

Answer. We have not evaluated the cost or manpower requirements for installing a 98-megawatt project. As studies continue and more information becomes available we should be able to develop a reasonable estimate.

Question. Without restrictions on funds and personnel, how soon could you get the initial wind power project at Medicine Bow, Wyo., in operation?

Answer. Without funding and manpower restrictions, we would be able to proceed with construction as soon as we have completed the necessary studies and construction is authorized. Unfortunately this would not remove all constraints. In preparing a schedule for expedited construction, major problems could be encountered such as manufacturing capability to provide the large number of wind turbine generators and the magnitude of integration problems that may become apparent during the study phase. Therefore, we are not able to provide a firm schedule at this time.

Questions Submitted by Hon. James P. Johnson

NARROWS UNIT

Question.—Despite favorable action by this subcommittee, and the full committee and the House, no funds were appropriated for the Narrows Unit of the Pick-Sloan Missouri Basin program in fiscal year 1978. Instead, a special investigation was conducted wherein five specific issues were examined ranging from safety to protection of endangered species.

That special investigation was completed by the Bureau of Reclamation and a special report issued under date of February 15, 1978. The report was positive on all five issues; that is, it confirmed that the Narrows project should proceed as authorized. Assuming the administration gives final approval to that special report, two questions arise.

What prior appropriated but unused funds could be made available for an early resumption of project activity?

Answer.—There is about $450,000 available on the Narrows Unit that could be used to resume project activity.

Question.—What capability does the Bureau of Reclamation have for full-scale acquisition and construction work in fiscal year 1979?

Answer.—We can utilize $3,300,000 for land acquisition and design of the railroad relocation in the Narrows reservior area.

Mr. Bevill. Mr. Dicks.

FULL CAPABILITY TO DO WORK

Mr. Dicks. If this committee should appropriate funds to bring the Bureau to a work schedule of full capability in fiscal year 1979, would you be affected by personnel ceilings?

Mr. Higginson. Yes; the current personnel ceiling for the Bureau does limit our capability to perform additional work.

Mr. Dicks. Do you have enough manpower to perform additional tasks?

Mr. Higginson. No, sir, generally we need additional personnel to take on more work.

1978 WATER SUPPLY OUTLOOK IN NORTHWEST

Mr. Dicks. Would you describe the water situation in the Northwest as it affects Reclamation operations?

Mr. HIGGINSON. Precipitation in water year 1978 has been above normal in the Northwest through January 1978. The snow cover is near or above normal in most areas, and it is expected that streamflows in 1978 will be near normal. Reservoir storage levels remain well below normal but continue to increase. If precipitation levels remain near normal in the coming months there will be a normal water supply available in 1978, although storage in reservoirs will remain below normal levels.

MITIGATING FUTURE DROUGHTS

Mr. DICKS. Even though this is a good water year in the Northwest and West, we cannot forget the drought of 1977. Now, a panel of climatologists predict severe droughts over the next two decades. I asked last year about your long range programs to avert drought and to provide adequate water storage. What is the status of your long range efforts to plan for western drought?

Mr. HIGGINSON. Long range efforts will look to planning and constructing of storage facilities. In addition, we will continue to identify and implement ways to make more efficient use of existing water, such as lining open ditches. Studies on water conservation opportunities on identified Federal projects will be made to make more efficient use of water.

LIMITATION OF 160 ACRES

Mr. DICKS. Will excess lands under development prior to this year be given water?

Mr. HIGGINSON. Yes; water deliveries to lands served in the past will not be interrupted during the 1978 growing season because of noncompliance with the acreage or residency requirements but will be continued. This action was taken in view of the delay in publishing final rules and regulations until a detailed environmental impact statement on the rules has been completed.

Mr. DICKS. How do you propose to administer a leasing regulation? How will you enforce it?

Mr. HIGGINSON. We will continue to administer the acreage limitation provisions and the rules that will be adopted through the water-user entity that has contracted with the United States for the reclamation project. The provisions of the final regulations will not be determined until the environmental impact statement has been completed. If a leasing restriction is included in the final regulations, we will work with districts to determine land that is leased and its eligibility to receive project water based on the regulations. The enforcement of leasing provisions would be accomplished by withholding water deliveries to ineligible lands.

Mr. DICKS. How are you going about compiling an EIS on excess lands?

Mr. HIGGINSON. We envision an extensive data-gathering task on ownerships and operatorships of reclamation-served lands before the actual statement preparation can begin. We also believe a number of separate studies on specific impacts and areas may be necessary from which the overall EIS will be developed. We have not determined if the statement will be prepared in-house or will be contracted to an outside organization.

Mr. DICKS. How many people will be affected by the regulations?

Mr. HIGGINSON. The number of individuals affected by the regulations will depend entirely on the requirements set forth in the final rules. As of December 1976, our data indicates that 1,332,306 acres of excess lands were owned by 5,288 individuals. These people willl be affected by the regulations in some manner. Due to recent court actions, we estimate that 750,000 acres in other districts may be classified as excess land. If restrictions on leasing, residency, and ownership of land in more than one district are imposed in the final regulations, additional people may be affected.

OROVILLE-TONASKET UNIT, CHIEF JOSEPH DAM PROJECT, WASHINGTON

Mr. DICKS. What is your capability in fiscal year 1979 for the Oroville-Tonasket unit of the Chief Joseph Dam project?

Mr. HIGGINSON. An additional $200,000 could be utilized on this project to initiate construction. With the $500,000 that is presently in the budget for advance planning work a total of $700,000 would be available to allow us to initiate construction on this project.

Mr. DICKS. How would you spend additional funds?

Mr. HIGGINSON. The $200,000 would be utilized to initiate construction and to acquire right-of-way. The initial construction work would begin on Osoyoos pumping plant. Right-of-way would be acquired for the Osoyoos pumping plant and for the Cordell and Crater Lakes pipe distribution systems.

Mr. DICKS. If funded at full capability in the out years, what is your estimate for completion of this project?

Mr. HIGGINSON. Completion of the total project is estimated at 6 years. The first water would be delivered in the fourth year with additional increments in the fifth and sixth years.

SECOND BACON SIPHON AND TUNNEL

Mr. DICKS. Once Second Bacon Siphon and Tunnel construction has been completed, when will you be ready to deliver water? Have you agreed with local water district people on a price?

Mr. HIGGINSON. The Second Bacon Siphon and Tunnel are now expected to be complete in 1979. Delivery of water could start in late 1979 or early 1980. However, prior to the delivery of water through these facilities it will be necessary for us to enter into additional contracts with the water users which will provide additional terms and conditions on the use of the siphon and tunnel and repayment arrangements for distribution and drainage facilities.

We have not reached an agreement with the water districts on a price. At the present time, we are working with water users in an attempt to reach a mutually agreeable amount. Such agreement is possible this fiscal year.

COLUMBIA BASIN PROJECT, WASHINGTON

Mr. DICKS. Please give me a status report on the proposed Eagles Lake project.

Mr. HIGGINSON. We have been working with the Fish and Wildlife Service and the Washington State Department of Game to determine potential benefits and possible operational arrangements if we were to acquire the area. At the present time we are evaluating this data and attaining an appraisal of the property. The appraisal is scheduled to be completed in June. If it is determined that this project would be beneficial, we will proceed with an environmental assessment and an environmental statement this summer.

Mr. BEVILL. Mr. Santini has submitted several questions that he wants answered for the record, and I am going to submit them, and would you respond to them also?

[The following was received for the record.]

[Questions submitted by Hon. James Santini follow:]

SOUTHERN NEVADA WATER PROJECT

Question. Does the recommended fiscal year 1979 appropriation of $38,300,000 for the southern Nevada project represent the full capacity of the Bureau of Reclamation for the project?

Answer. Yes.

Question. Is the recommended fiscal year 1979 appropriation of $38,300,000 sufficient to meet your current projected schedule of completion of the project?

Answer. Yes. Our current schedule of completion is fiscal year 1982. Portions of the project are being scheduled to provide service earlier to the city of Henderson to assist a portion of its service area which is in short supply.

Question. Will your current completion schedule date meet the projected water delivery requirements of all water users served by the project?

Answer. Yes, sir, with the anticipated water delivery capability to the city of Henderson in fiscal year 1982, this should meet our projected water delivery requirements of all the project water users. The continued rapid growth and demand for water from the project indicates that the scheduled completion date should be maintained or water demands could exceed project capability.

Question. If the Bureau had additional capability, would you be able to effectively and efficiently expend funds in excess of $38,300,000 in fiscal year 1979?

Answer. We have no additional capability in fiscal year 1979.

STATUS OF WASHOE PROJECT

Question. What amounts are being requested for fiscal year 1979 with respect to the Washoe project?

Answer. The budget request includes $688,000 for this project.

Question. What is the current status of this project?

Answer. As of February 1, 1978, the project was 25 percent complete. We have completed construction of the Prosser Creek and Stampede Dams and Reservoirs, Marble Bluff Dam, Pyramid Lake fishway, and Numana Dam fish ladder and irrigation screens. Work continues on planning studies on Stampede Powerplant and Switchyard, and the Watasheamu Division. In fiscal year 1979, these studies are scheduled to be completed on the Watasheamu Division. Preconstruction work will continue on Stampede Powerplant and Switchyard, and other features of the project.

BENEFIT FROM WASHOE PROJECTS, STAMPEDE DAM

Question. What benefits are currently being provided by Stampede Dam and Reservoir?

Answer. Stampede Dam has been used for purposes of flood control, recreation, and fish and wildlife benefits.

Question. Isn't it true that a substantial portion of Stampede's construction cost was allocated to municipal and industrial water benefits?

Answer. Yes.

Question. Hasn't the Bureau of Reclamation consistently represented to this committee in all appropriations requests submitted for this project since 1964, that the municipal and industrial water supply would be made available to the

Reno/Sparks area, and that the sale of this water would reimburse the United States for a substantial portion of the costs of the Stampede facility?

Answer. The initial plans for Stampede Reservoir included municipal and industrial allocations, and a master agreement was prepared in 1965 which included those allocations. However, because of unanswered questions regarding the tribe's entitlement to water from the Truckee River system, the master agreement was never finalized. In 1969, prior to completion of Stampede Dam and Reservoir, the Secretary notified the Carson-Truckee Water Conservancy District that Stampede water would not be available for municipal and industrial purposes until the issue of Indian water rights was resolved. The various suits concerning water rights in the basin have not finally been resolved.

Question. Has any water in fact been supplied to these communities for municipal and industrial purposes?

Answer. No.

STAMPEDE RESERVOIR

Question. How much water has been released from Stampede Reservoir in the past 8 years?

Answer. A total of approximately 390,000 acre-feet of stored water has been released.

Question. Has the Government received any reimbursement for any of the water released from Stampede so far?

Answer. No.

Question. Why not?

Answer. The Secretary of the Interior is unwilling to approve a long-term contract concerning repayment on the Stampede Division until the costs of the Stampede Division are finally allocated. Until certain litigation concerning water rights of the Truckee River Basin are concluded, no final project cost allocations can be made.

Question. If the Stampede facility continues to be operated for flood control, recreation, and fish and wildlife purposes, will any portion of the construction costs ever be repaid?

Answer. It is not our intention to operate the facility on a permanent basis exclusively for flood control, recreation, and fish and wildlife purposes. Once water right disputes are resolved concerning the use of water within the Truckee River basin, we will contract for repayment of those reimbursable functions of the dam.

Question. Why hasn't the Bureau of Reclamation operated Stampede in a manner that would allow the reimbursement?

Answer. Existing water right disputes regarding the use of water within the Truckee River basin have prevented the Secretary from contracting for repayment of reimbursable functions of Stampede Dam.

Question. What is preventing you from making the Stampede water available to the people of the Reno-Sparks area?

Answer. While existing water right disputes prevent entering into a long-term repayment contract at this time, the Bureau is pursuing possibilities of securing an interim contract with the Carson-Truckee Water Conservancy District which would provide municipal and industrial water to the Reno-Sparks area in times of severe drought conditions.

Question. Has Congress ever been told by the Bureau of Reclamation or the Department of the Interior that the Stampede facility was not being operated for municipal and industrial purposes?

Answer. We have not formally advised the legislative committees of the situation. However, the revised operating criteria for the Truckee and Carson River basin are published annually in the Federal Register. In addition a letter dated March 11, 1977, from Acting Commissioner Anderson to Senator Howard W. Cannon, dealt with the current operation of Stampede Reservoir.

FISH AND WILDLIFE DEVELOPMENT EXPENDITURES

Question. Section 4 of the Washoe Project Act (43 U.S.C. 614c) provides as follows:

"Facilities shall be provided for the development of fish and wildlife resources of the project area including facilities to permit increased minimum water releases from Lake Tahoe and restoration of the Pyramid Lake fishery. The

cost of such facilities including operation and maintenance, shall be nonreimbursable. *The cost to the Federal Government of constructing these facilities shall not exceed $2 million.*" [Emphasis added.]

Has the $2 million limitation in this provision been complied with?

Answer. The question of whether or not a congressionally imposed ceiling limitation for Fish and Wildlife expenditures has been exceeded is currently in issue in the litigation in the case of *Carson-Truckee Water Conservancy District, et al.*, v. *the Secretary, et al.*, Civ. No. R–76–152 BRT USDC, Reno, Nev. Prior to the filing of that case, the Department was of the view that the ceiling had not been exceeded. Since then, we have reviewed the question again and have communicated our views to the Attorney General. He is the spokesman for the Government in this phase in the lawsuit, and he will shortly present his views to the court. At that time, the Government's views will become public. The Secretary cannot and should not preempt the Attorney General's authority in this lawsuit. This answer also applies to your questions 16 through 24.

Congressman Jim Santini questions (16–24):

The following questions on Washoe project cannot be answered pending receipt of decision from the Attorney General's Office.

Question 16. Isn't it true that the Bureau of Reclamation has exceeded the spending limitation, after cost indexing, imposed by the Washoe Project Act by over $9 million?

Question 17. Describe the facilities that were constructed in violation of the spending limit in section 4 of the Washoe Project Act?

Question 18. Have these excess expenditures ever been reported to Congress?

Question 19. This is true even though the Bureau of Reclamation had been advised by the regional solicitor on September 27, 1976 (see attached memorandum) that the expenditures were not authorized, and, in fact, the Bureau obtained additional funds in 1977 for the fiscal year 1978 for the development of fish and wildlife resources of the project area, knowing that they were not authorized?

Question 20. Was there deliberate deception on the part of the Bureau of Reclamation in failing to disclose to Congress that the funds obtained for fish and wildlife facilities at the project were not authorized?

Question 21. Can there be any further appropriations for fish and wildlife resources for this project without express authorization from Congress?

Question 22. How much of this current request is for operation and maintenance of these "unauthorized" facilities?

Question 23. What legal basis do we have to appropriate funds for the operation and maintenance of facilities that were never authorized by Congress and were built in violation of a specific spending limit?

Question 24. Isn't it true that the water that has been released from Stampede over the past 8 years has been used primarily to support these fishery restoration facilities that have been built at the Pyramid Lake Indian Reservation in violation of the spending limits imposed under section 4 of the Washoe Project Act?

STATUS OF REPAYMENT CONTRACT

Question. The project data sheet submitted by the Bureau of Reclamation in support of its appropriation request in 1970, in describing the status of the repayment contract for the project, indicated "the contract between the United States and Carson-Truckee Water Conservancy District was executed February 19, 1965." Has this contract ever been implemented?

Answer. No. Once water right disputes are resolved, the Secretary will contract for repayment of those reimbursable functions of the reservoir which he may legally provide.

Question. Has Congress ever been advised of this?

Answer. Not officially, however, Congress was informed of the Secretary's decision to operate Stampede Dam and Reservoir for flood control, recreation, and fish and wildlife through the annual appropriation requests for the Washoe project.

Question. So, as matters now stand, the project is not being operated to obtain any reimbursement of the project costs or to supply any municipal and industrial water to the Reno/Sparks area, notwithstanding that these were both part of the congressional intent in authorizing the project and in appropriating funds for its construction.

Answer. Stampede Dam was completed in 1971, and is presently operated only for flood control, recreation, and fish and wildlife enhancement, pending resolution of the water rights issue.

Question. The intent of Congress is not, therefore, being carried out, is it?

Answer. Yes; we believe the intent of Congress is being carried out in that we are restoring the Pyramid Lake fishery as required under the Washoe Act, and we are providing the necessary flood control, recreation, and fish and wildlife purposes. There is no intention of forgoing recovery of reimbursable costs. However, entering into a repayment contract before settlement of the water rights issues could inhibit the Secretary in carrying out his responsibilities under the Fish and Wildlife Coordination Act, the Endangered Species Act, and his fiduciary responsibilities to the Pyramid Lake Paiute Tribe of Indians.

Mr. BEVILL. Also, Congressman Roncalio and Congressman McKay have submitted questions. Please supply answers for the record.

[The following was received for the record:]

QUESTIONS SUBMITTED BY HON. GUNN MCKAY

BONNEVILLE UNIT, CENTRAL UTAH PROJECT

Question. The Bureau plans to spend only $30,965,000 of the $32,965,000 appropriated for the Bonneville unit in fiscal 1978. This arbitrary reduction of $2 million is described as an "undistributed reduction based on project delays." Would you please provide a detailed analysis of the causes for this slippage in the construction schedule.

Answer. The scheduled contract award for construction of the West Fork Pipeline and Vat diversion dam and feeder pipeline has slipped due to the need to take more time to design. This feature accounted for $700,000 of the reduced requirement. Additionally, we have been able to reduce contingencies associated with other ongoing construction by $1,300,000 based upon progress to date reflecting construction finished by the contractors.

Question. Please include the effects of personnel ceilings on the transfer of Bureau personnel to the Department of Energy in your analysis. How have personnel cuts been distributed among Bureau projects?

Answer. This reduction has not forced a delay in approved work. Likewise, the transfer of the Bureau of Reclamation power marketing and transmission functions with the corresponding transfer of personnel involved with those functions to the Department of Energy has not affected the work progress of the Bureau.

JENSEN UNIT, CENTRAL UTAH PROJECT

Question. The Bureau plans to spend only $7,204,000 of $8,204,000 appropriated for the Jensen unit in fiscal year 1978. Please provide the same information for the Jensen unit that is requested for the Bonneville unit.

Answer. The $1 million reduction is based on delays in the scheduled award date for construction of Red Fleet (Tyzack) Dam. An independent review has been made to assure that the selected designs are acceptable. This has taken more time than previously anticipated.

UPPER STILLWATER RESERVOIR

Question. Congress appropriated $1 million for preconstruction work on the upper Stillwater Reservoir to be completed in fiscal year 1978. Please provide a detailed description of the work to be accomplished under this congressional mandate this year. Please include data on the time schedule for letting contracts and obligating funds.

Answer. On the upper Stillwater Dam the work to be completed includes: Surveying, construction material exploration, topography of the damsite, foundation drilling, geophysical investigations, geology field work, field review by outside experts, and preliminary designs. Necessary applications, national pollutant discharge elimination system, and 404 water quality permits will be requested, and agreements for construction power at damsite will be negotiated. Also, we expect designs will be completed in July 1979. Firm contract award dates have not been established as they are dependent upon future budgetary restrictions.

UPPER STILLWATER DAM CONSTRUCTION FUNDS

Question. Would you please explain why the Bureau did not request construction funds for the upper Stillwater in fiscal year 1979?

Answer. Construction funds for the upper Stillwater Dam were not included due to budgetary considerations. The completion date of this project as presented in the fiscal year 1978 budget did not change as the result of this decision.

UINTAH AND UPALCO UNITS—ADVANCED PLANNING

Question. Would you please explain why the Uintah and Upalco units are still in a state of advance planning after years of planning for both of these units?

Answer The Uintah unit was authorized September 28, 1976. Funds for advance planning were first appropriated in fiscal year 1976. Work commenced at that time to prepare a definite plan report and an environmental statement. The draft environmental statement is scheduled to be filed in March 1978. Filing of the final statement is scheduled for July 1978. The completion of the definite plan report is now scheduled for April 1978. The environmental statement preparation has taken longer than anticipated due to the time it took to gather baseline biological data, and incorporation of such data into the environmental statement.

The Upalco unit was authorized April 11, 1956. Funds for advance planning were first appropriated in fiscal year 1961. A definite plan report was completed in June of 1969; however, construction was not initiated at the completion of the definite plan report because of budgetary restraints. No activity was scheduled on the unit during fiscal year 1971, 1972, and 1973 for the same reason.

Funds were again appropriated for advance planning in fiscal year 1973. Work on preparation of the environmental statement has continued, and we expect a draft statement to be filed October 1978 and a final statement filed March 1979. A revised definite plan report incorporating latest costs and environmental considerations is to be completed August 1978.

Question. What obstacles remain to prevent the Bureau from moving to construction of these units?

Answer. Both the Uintah unit and Upalco unit will be ready for construction after filing of their final environmental statement and signing of a repayment contract.

BONNEVILLE UNIT, UTAH

Question. What is the effect of the "no new starts" policy in the fiscal year 1979 budget on the upper and lower Stillwater Reservoirs and the Jordanelle Reservoir?

Answer. The "no new start" policy only applies to new project starts and not to the start of construction on features of a project. Thus the "no new start" policy has no effect on the upper and lower Stillwater Reservoirs and the Jordanelle Reservoir.

Question. When will these projects be ready for construction?

Answer. We are moving ahead with the preconstruction work and are entering into a contract with the State of Utah to design the U.S. Highway 40 relocation around Jordanelle Reservoir, the first construction contract on that feature. Also, designs are to be completed by early 1979. We anticipate initiation of field data collection on lower Stillwater Dam this summer, and, we anticipate final designs will be completed on upper Stillwater Dam in July 1979. Timing of contract awards is dependent upon future budgetary restrictions.

NEAR-TERM POTENTIAL IN HYDROELECTRIC PRODUCTION, LOW-HEAD HYDRO, AND WIND ENERGY

Question. Would you please provide for the record a discussion of the Bureau's near-term potential in hydroelectric production and its efforts in low-head hydro and wind energy.

Answer. In the February 1977 "Report on the Western Energy Expansion Study" a number of studies were identified for near-term hydropower development. These include 10 appraisal studies with an estimated total capacity of over 500 megawatts and 4 feasibility studies with an estimated total capacity of over 2,500 megawatts of which about 2,200 megawatts would be pumped storage. After the report was completed, an additional 8 appraisal studies were

identified, totaling over 4,500 megawatts most of which would be pumped storage projects.

The Bureau proposes to initiate a low-head hydro study in fiscal year 1979 of potential development at specific sites in the 17 Western States. We expect this study to identify promising sites which can be recommended for more detailed studies. The study is scheduled for completion in fiscal year 1981.

In addition, the Bureau began a special wind hydroelectric energy integration study. This study will examine the potential for integrating a 50-unit, 100-megawatt wind farm in southern Wyoming with the Colorado River storage project hydroelectric system. The study is scheduled for completion in fiscal year 1981.

QUESTIONS SUBMITTED BY HON. TENO RONCALIO

WIND-HYDROELECTRIC ENERGY INTEGRATION STUDY

Question. Has the investigation regarding the potential of wind turbine generators been completed and what is your appraisal of the study?

Answer. That study has not been completed. Work has begun on an environmental assessment and instruments to measure wind conditions have been installed near Medicine Bow, Wyo. Studies will be made of wind data characteristics to compute wind energy generation potentials and the ability to integrate wind energy into present and future power operations of the Colorado River storage project. Studies are scheduled for completion in fiscal year 1981.

Question. It would appear the construction of a system verification unit would be highly desirable from a technical and economic point of view. What is your capability to construct such a unit at Medicine Bow, Wyo., if funds were made available in fiscal year 1979? How much money would be needed for a 2-megawatt verification demonstration unit? How much additional money and manpower would be needed to install a 98-megawatt unit?

Answer. We agree that the construction of a verification unit would be desirable. It would permit identification and resolution of operational problems of the integrated wind generator-hydrogenerator systems; $2,500,000 could be utilized to begin installation of a verification unit in fiscal year 1979. We anticipate that it would take 2 years to install and put the unit into operation at a total cost of $8 million.

We do not know, at the present time, the cost and manpower requirements of installing a 98-megawatt unit. Those requirements will be determined as studies proceed and more information is obtained on the concept. One of the unknowns at this time is what the cost of the wind turbine generators will be as the manufacture of those units moves from the research and development stage to full-scale production.

Question. Without restriction on funds and personnel, how soon could the Bureau of Reclamation get the initial wind power project at Medicine Bow, Wyo., in operation?

Answer. With no restriction on funds and personnel we would be able to proceed with construction upon completion of necessary studies and obtaining construction authorization. A time schedule cannot be provided at the present, because of the uncertainties to be evaluated during the planning phase and other unknowns such as the capability to provide the wind turbine generators.

NEW MELONES DAM

Mr. BURGENER. The New Melones project has been built by the Corps of Engineers?

Mr. HIGGINSON. That is right.

Mr. BURGENER. But you are going to operate and maintain it?

Mr. HIGGINSON. That is right.

Mr. BURGENER. I believe there is a dispute as to the level of water in the reservoir, is that true?

Mr. MARTIN. There is a dispute, and I do not suppose it is resolved at this time, but we are proceeding with the Bureau's plans to operate.

Mr. BURGENER. If you are going to take over a dam built by the corps, who decides how high the water is going to be?

Mr. MARTIN. It would be a Bureau decision ultimately.

Mr. BURGENER. It will ultimately be your decision?

Mr. MARTIN. All of the decisions will relate to New Melones, and those include service area, and distribution service, and all the rest.

Mr. BURGENER. Provide for the record the authority for operating the New Melones project.

Mr. MARTIN. I will be glad to put that in the record.

Mr. MYERS. Thank you.

[The following was received for the record.]

PROCESS AND AUTHORITY, CENTRAL VALLEY PROJECT, CALIFORNIA NEW MELONES UNIT

A report relating to the determination of the reservation area and projected water requirements for the Stanislaus River basin as required by Public Law 87–874 is being reviewed within the Department of the Interior. That law modified the New Melones project as previously authorized and provided in part:

". . . That before initiating any diversions of water from the Stanislaus River Basin in connection with the operation of Central Valley Project, the Secretary of the Interior shall determine the quantity of water required to satisfy all existing and anticipated future needs within the basin and the diversions shall at all times be subordinate to the quantities so determined. . . ."

Approval of the report would constitute the determination as required by Public Law 87–874. Following approval of the report, Reclamation will then initiate the required second-phase studies for allocating New Melones Reservoir water supply to specific areas within the Stanislaus River basin.

ADDITIONAL ENERGY FROM DEVELOPMENT AT EXISTING FACILITIES

Mr. BEVILL. I have some additional questions. Numerous studies currently underway or proposed in the budget relate to hydroelectric development at existing facilities or expansion of existing hydro facilities. How much additional power would be created if these studies all result in a favorable project recommendation?

Mr. HIGGINSON. The Bureau currently has underway seven studies for additional hydroelectric power capacity totaling 4,100 megawatts. These include: The Anderson Ranch powerplant third unit, Minidoka powerplant enlargement, Rogue River basin, Hoover powerplant modifications, Dominguez Reservoir project, North Platte hydroelectric, and Seminoe Dam modifications.

In addition, in fiscal year 1979, the Bureau has proposed 17 new site specific studies for increasing hydroelectric power capacity for a total of about 1,700 megawatts.

If all these potential projects were constructed they would have a combined capacity of 5,800 megawatts. A new low-head hydroelectric evaluation and inventory is also a proposed new study for fiscal year 1979. After completion of the inventory and evaluation we will be able to determine how much additional power would be created as a result of development at the most favorable sites.

BOISE PROJECT, POWER AND MODIFICATION DESCRIPTION

Mr. BEVILL. Describe the Boise project power and modification study which is being initiated in fiscal year 1979.

Mr. HIGGINSON. The initial phases of the study would evaluate the potential for adding a hydroelectric powerplant at the existing

Arrowrock Dam, as well as the potential for increasing the generating capacity at the existing Boise River diversion dam downstream; enlarging the powerplant at the existing Black Canyon Dam; adding a powerplant at the existing Cascade Dam; and meeting instream and other water needs related to the above sites. Alternative river and reservoir operations would be evaluated, including the existing operation, operations to move stored water from Arrowrock Reservoir to Lucky Peak Reservoir in the winter to improve power production at Arrowrock, and operations to provide improved streamflows downstream in the Boise River and Payette River systems.

Other phases of the study would evaluate the potential for restoring irrigation service to suburban areas which have water rights but which were developed without irrigation facilities, and for improving existing irrigation systems through provision of pipe systems with sprinkler pressure or other improvements.

CHIEF JOSEPH DAM PROJECT—COLVILLE INDIAN STUDY

Mr. BEVILL. What preliminary results can you report as a result of the Chief Joseph Dam project—Colville Indian study which is being completed in the current fiscal year?

Mr. HIGGINSON. The appraisal report will identify 17 potential development areas that appear worthy of further study. Eleven areas have a potential irrigation function with a total of about 30,000 irrigable acres. Recreation potential will also be identified in three areas. In addition, environmental quality functions will be identified in most areas.

The Colville Tribal Council strongly supports the study.

HUNGRY HORSE PROJECT STUDY

Mr. BEVILL. What factors led to the decision to move up the scheduled completion date of the Hungry Horse project study from fiscal year 1980 to fiscal year 1979?

Mr. HIGGINSON. Work on this appraisal study is being accelerated so we will be in a position to move into a feasibility investigation as soon as possible. This project appears to have high potential for the development of additional hydroelectric power.

YAKIMA PROJECT, CLE ELUM AND TIETON POWERPLANTS STUDY DESCRIPTION

Mr. BEVILL. Describe the new study proposal of the Yakima project, Cle Elum and Tieton powerplants in Washington.

Mr. HIGGINSON. A powerplant of about 20 megawatts at Cle Elum and 30 megawatts at Tieton will be studied. Potential for pumped-storage development at the Cle Elum site will be considered.

At this stage of planning, it is anticipated that the present seasonal operation of the reservoirs to meet irrigation needs will not be changed due to the addition of the powerplants.

Power would be generated as a byproduct of the operation that now meets existing water commitments. Plan sizing and power marketing constraints will be major study items.

SAN JOAQUIN VALLEY DRAINAGE INVESTIGATION

Mr. BEVILL. Explain the delay in the completion of the San Joaquin Valley drainage investigation, California.

Mr. HIGGINSON. It was determined that additional water quality studies were necessary to evaluate the impact of discharging drainage water into the Western Delta-Suisun Bay and other receiving waters during drought years. These studies are being made utilizing a mathematical model and the results must be analyzed. In addition, a delay in completing the environmental assessment has delayed development of a recommended plan.

WHIPPLE WASH PUMPED-STORAGE PROJECT DESCRIPTION

Mr. BEVILL. Describe the proposed new study of the Whipple Wash pumped-storage project, California.

Mr. HIGGINSON. The purpose of the investigations is to develop plans to meet the needs of the Pacific Southwest by examining the engineering feasibility of constructing a pump-storage project on the wash. Additional peaking capacity is needed throughout the Pacific Southwest. By 1986, the Western Systems Coordinating Council, which is an organization of 45 interconnected utilities in the Western United States, predicts that the Southwest area will require an additional 2,892,000 kilowatts of peaking capacity to accommodate anticipated load growth. Pumped-storage is particularly suitable for peaking power production due to its capability of responding rapidly to changing demands. Whipple Wash is well suited to being a pumped-storage hydroelectric power project due to the geologic, topographic, and hydrologic setting of the wash.

The potential project is envisioned as consisting of three concrete dams, an earthfill dam, several low earth dikes, and three pump-generating plants. The dynamic head between Lake Havasu and the two uppermost dams would be in excess of 1,500 feet. Eighteen 250-megawatt pump-generator units would be installed with a capacity of 4,500 megawatts. Environmental, fish and wildlife, and socioeconomic impacts of the project will also be evaluated.

LAKE MEREDITH SALINITY STUDY ANTICIPATED SOLUTIONS

Mr. BEVILL. The Lake Meredith salinity study project is scheduled for completion in the current fiscal year. What type of solutions to the salinity problem are contemplated?

Mr. HIGGINSON. The solution must be aimed at a method to reduce the static head of the saline aquifer which is contaminating the Canadian River. One solution may involve solar evaporation of water pumped from the aquifer in ponds. An aquifer drawdown test program, which involves pumping of the salty water is currently in progress.

STATUS OF CANYON FERRY DAM

Mr. BEVILL. What is the current status of the study of converting existing power facilities at Canyon Ferry Dam, Mont., to a peaking operation?

Mr. HIGGINSON. Based on very preliminary studies it appears that converting existing power at Canyon Ferry to a peaking operation would be favorable. We have prepared a plan of study and we are contracting other Federal, State, and local agencies regarding their interest in the development. Work is also underway on reviewing and evaluating available data.

GENERAL INVESTIGATION PRIORITIES

Mr. BEVILL. On page 27, the justification for the Wind River basin water supply study, Wyo., states that "because of high priority power enhancement studies" the scheduled completion date had been delayed from fiscal year 1979 to fiscal year 1980. This is also true of many other ongoing Bureau studies. Is development of water resources for purposes other than power no longer a prime Bureau concern?

Mr. HIGGINSON. Development of water resources for purposes other than power is still a high priority Bureau concern and we are giving it as much emphasis as possible within our manpower limitations. But our highest priority at this point in time is the development of hydroelectric power at existing facilities. Development of power on this basis appears to be a very feasible and environmentally acceptable concept in helping the Nation meet its needs for a clean, renewable energy source.

SPARKS UNIT

Mr. BEVILL. $75,000 was appropriated in the current year for the study of the Sparks unit, Nebr. Why is this study being slowed down?

Mr. HIGGINSON. The Spark study is proceeding as fast as our manpower limitations will permit.

BOISE PROJECT, ANDERSON RANCH POWERPLANT THIRD UNIT

Mr. BEVILL. Only $10,000 will be required after fiscal year 1979 to complete the study of the Boise project, Anderson Ranch Powerplant, third unit. Why didn't you request an additional $10,000 this year and complete the study?

Mr. HIGGINSON. Our proposed report is scheduled for completion in June 1979 and the final report is scheduled for completion in December 1979. As a minimum, it takes at least 6 months to review and revise the proposed report before the final report can be completed. In fact it usually takes more time than this due to the increasingly complex problems that need to be resolved before the final report is submitted.

FISHERY STUDIES, GRANTS PASS DIVISION, ROGUE RIVER BASIN PROJECT, OREGON

Mr. BEVILL. Outline the need for additional fishery studies in connection with the study of the Grants Pass Division of the Rogue River basin project.

Mr. HIGGINSON. The additional studies are needed to better quantify fish passage data at Savage Rapids Dam which is needed for completion of the Fish and Wildlife Coordination Act report.

Mr. BEVILL. What impact will these studies have on the cost and completion date of the studies?

Mr. HIGGINSON. The fishery studies will delay the completion of feasibility studies about 2 years and increase the cost by approximately $130,000.

YAKIMA INDIAN NATION STUDY SUSPENSION

Mr. BEVILL. Why is the study involving the Yakima Indian Nation being suspended?

Mr. HIGGINSON. The Yakima Indian Tribal Council is considering alternative courses of action to accomplish water resource development on their reservation and have withdrawn their support of a feasibility study by the Bureau.

Mr. BEVILL. What funds have been expended on the study?

Mr. HIGGINSON. $108,079 have been spent on the study since initiation in fiscal year 1977.

WEST SACRAMENTO CANAL UNIT REFORMULATION DESCRIPTION AND STATUS

Mr. BEVILL. Describe the reformulation of the West Sacramento Canal unit, California, which is being initiated in the current year.

Mr. HIGGINSON. During fiscal year 1978, previous data from the 1970 feasibility report will be reviewed, the service area and service area water requirements will be determined, the available water supply and water rights for the unit will be evaluated, geological exploration and drilling of reservoir sites will be initiated, ground-water geology will be studied, and alternative plans formulated.

In fiscal year 1979, all engineering and economic studies will be completed and the final plan will be selected. The feasibility report field draft will be completed and the preparation of the environmental statement will begin.

INCREASE OF TOTAL ESTIMATED COST OF KLAMATH PROJECT, BUTTE VALLEY DIVISION

Mr. BEVILL. Explain the increase of $335,000 in the cost of the study of the Butte Valley Division of the Klamath project, California and Oregon.

Mr. HIGGINSON. As a result of the wider acceptability of ground water development as a means of meeting Butte Valley water needs, a more intensive ground water study is needed. The study, which will enable us to better quantify the ground water resources in the little-explored deep aquifer of the valley, includes a drilling program to determine the feasibility of plans based on ground water utilization. Funds are also included for the 1976 classified pay raise.

PROGRAMED FUNDS OF SUSANVILLE GEOTHERMAL INVESTIGATION

Mr. BEVILL. I believe we discussed this item earlier. The amount of $565,000 was allocated in the current year to the Susanville geothermal investigation. Why is only $58,000 requested in fiscal year 1979?

Mr. HIGGINSON. Investigations related to expanding our Nation's domestic energy capability through additional hydroelectric powerplants, especially at existing reclamation facilities, were given the

greatest program emphasis, which reduced our ability to fund the Susanville study.

Mr. BEVILL. Isn't the Susanville study also energy related?

Mr. HIGGINSON. The Susanville investigation is concerned with the feasibility of developing a geothermal resource for the explicit benefit of the community in the form of using hot geothermal fluid for heating.

COLORADO RIVER STORAGE PROJECT POWER PEAKING CAPACITY STUDY COST INCREASE

Mr. BEVILL. Explain the cost increase of $2 million on the Colorado River storage project power peaking capacity study.

Mr. HIGGINSON. Most of the cost increase is a result of selecting three potential units for more detailed studies as new starts in fiscal year 1979. Two of the proposed feasibility investigations are concerned with installing generators at the outlet works of two existing dams, Blue Mesa and Glen Canyon. The third will examine a pumped-storage site on the west side of Utah Lake.

The investigation cost was also increased to continue examining other sites that have potential to meet additional peaking power capacity requirements of Southwestern United States in response to the Nation's need to develop additional hydroelectric power supplies.

STATUS OF GARRISON DIVERSION UNIT, MUNICIPAL AND INDUSTRIAL FACILITIES STUDY

Mr. BEVILL. Outline the current status of the Garrison diversion unit, municipal and industrial facilities study.

Mr. HIGGINSON. Feasibility investigations are being made of conveyance and storage facilities to deliver water from authorized Garrison diversion unit features to individual municipalities. These studies will include water service plans involving small pumping plants, pipelines, and small reservoirs, and consideration of the multipurpose aspects of water supply to nearby rural water systems.

The first study phase which is scheduled for completion in fiscal year 1978 is considering water service to the communities of Garrison, Harvey, and Fessenden. These are 3 out of the 32 communities currently indicating a desire for studies.

The schedule for the study of these facilities to deliver Garrison diversion unit water to the communities is being adjusted as necessary so that they will be completed as water becomes available to each community from the facilities of the unit. Currently, the studies are scheduled to continue through fiscal year 1983, but this may change as the legal, environmental, and international problems associated with the unit are resolved.

COLORADO RIVER WATER QUALITY IMPROVEMENT PROGRAM

Mr. BEVILL. Describe the work planned in the current year and fiscal year 1979 on the Colorado River water quality improvement program.

Mr. HIGGINSON. There are 13 feasibility investigations of salinity control projects underway with support studies including river modeling, economic impacts of salinity, and research into brine pond cost reduction and desalting pretreatment studies. Feasibility reports are scheduled for completion on the La Verkin Springs unit in fiscal year 1978 and the lower Gunnison and Uintah basin units in fiscal year 1979. The other units are in various stages of data collection and plan formulation.

Irrigation management services are being administered on the lower Gunnison, Uintah basin, and Colorado River Indian Reservation units. A status report is being prepared on the Palo Verde Irrigation District and Colorado River Indian Reservation units in fiscal year 1978. The conclusions of this report will determine if investigations will continue on these units.

A mobile pretreatment study facility has been constructed for use at the salinity control units of which desalting is a potential salinity control scheme. An evaporation pond research facility will be constructed at the Las Vegas Wash site in fiscal year 1978 to evaluate spray evaporation and other evaporation cost reduction potentials.

SOUTHWEST IDAHO WATER MANAGEMENT STUDY

Mr. BEVILL. Why is it necessary to use computer models in connection with the southwest Idaho water management study?

Mr. HIGGINSON. Studies are needed to evaluate different types of analyses which are used to estimate firm water yields. Accordingly, we are developing a computer model using stochastic hydrology as a basis for determining anticipated water yields. This model can be used to evaluate the risks involved in alternative management plans and in potential project plans which are based on operating criteria derived from various sequences of events. The computer model is a tool that will improve the evaluation process and the final results of the investigation.

PROGRAMING OF DELTA SUPPORT STUDIES

Mr. BEVILL. Over $700,000 is available in the current year for the delta support studies, California, and only $435,000 is requested in fiscal year 1979. Why is this study being slowed down?

Mr. HIGGINSON. Because of the need to increase the Nation's domestic energy supply, major program emphasis is being placed on those investigations with emphasis on expanding hydroelectric powerplants. This emphasis is performed at the expense of other studies including the delta support.

RECLAMATION AND ENERGY RESOURCES STUDY DESCRIPTION

Mr. BEVILL. Describe the new study involving the Lake Mead National Recreation Area between Davis Dam and Grand Canyon National Park.

Mr. HIGGINSON. The investigation will examine the energy resource potential of the proposed Lake Mead National Recreation Wilderness Designation Area.

In order to determine the potential of pumped-storage facilities in the area, archeological, biological, and hydrological studies will be performed. A review and determination of needed roads and power corridor routes in the future will be made. The necessary requirements for protective works of reclamation facilities in the area will also be determined.

In view of the potential power needs of the West, no wilderness designation will be made until additional studies firm up the hydroelectric energy potential of the area. Accordingly, the Bureau plans to make investigations of the hydroelectric and water resource potentials in Lake Mead National Recreation Wilderness Designation Area and work with the National Park Service in order to exclude from future wilderness proposals those sites that studies indicate to be feasible for future development.

STATUS OF LLANO ESTACADO TOTAL WATER MANAGEMENT STUDY

Mr. BEVILL. What is the current status of the Llano Estacado total water management study, and what is planned in fiscal year 1979?

Mr. HIGGINSON. A plan of study has been prepared and sent to other agencies for review and comments. A pilot testing program using high altitude satellite imagery to identify and inventory the number and size of playa lakes, wetlands, and vegetative patterns was completed for a portion of the project area. A contract has been executed with Texas Technical University Water Resources Center to conduct phase I of the watershed model studies. A status report has been prepared and was released to certain members of the congressional delegation for the States of Texas, Oklahoma, Kansas, Colorado, and New Mexico on January 11, 1978.

During fiscal year 1978, pilot testing program data will be reviewed to develop the methodology and correlation studies to expand the inventory to the whole project area. The watershed model studies and the further outlining of problems and needs will also be underway. Scheduled assessments include: Ground water—summary of findings and conclusions reported in previous studies; ground water recharge potential; existing surface water supply sources; land ownership; present use of playas; and fish and wildlife resources. Close coordination is being maintained with the "Six-State High Plains Study" being conducted by the Economic Development Administration, Department of Commerce.

During fiscal year 1979, analysis of data produced by the pilot testing program for playa lakes, wetlands, and vegetation of the project area will continue. Ground water and surface water assessments will continue.

FISCAL YEAR 1979 ANTICIPATED ACCOMPLISHMENT OF TOTAL WATER MANAGEMENT STUDY, MISSOURI RIVER UPSTREAM OF GAVINS POINT

Mr. BEVILL. $9,000 is requested for the total water management study, Missouri River upstream of Gavins Point, with $170,000 needed to complete after fiscal year 1979. What work will be accomplished with $9,000?

Mr. HIGGINSON. A report outline will be developed for all areas of study undertaken in the total water management effort. We will maintain liaison and coordination with State and other Federal agencies.

STATUS OF WIND-HYDROELECTRIC ENERGY INTEGRATION STUDY

Mr. BEVILL. What is the status of the wind-hydroelectric energy integrated study, which is being initiated in the current year?

Mr. HIGGINSON. Work has begun on an environmental assessment, and instruments to measure wind conditions have been installed near Medicine Bow, Wyo. Studies will be made of wind data characteristics to compute wind energy generation potentials and the ability to integrate wind energy into present and future power operations of the Colorado River storage project. Studies are scheduled for completion in fiscal year 1981.

LOW-HEAD HYDROELECTRIC EVALUATION AND INVENTORY DESCRIPTION

Mr. BEVILL. What is planned in connection with the low-head hydroelectric evaluation and inventory being started in fiscal year 1979?

Mr. HIGGINSON. During the proposed 3-year term of the study, reclamation will inventory potential sites for low-head hydroelectric power installations including existing dams and irrigation canal locations in the 17 Western States. The study will identify the gross potential for these types of developments and, through a comparative evaluation, will select individual sites to be studied in more detail. The initial activities in fiscal year 1979 will consist of developing detailed study methodology and evaluation criteria, such as site selection criteria, hydrologic criteria, design and cost-estimating criteria, power marketing criteria, economic evaluation criteria, and so forth, so that the study procedures and results will be consistent throughout Reclamation's seven regions. Following these activities, the actual site inventory will begin in fiscal year 1979 and will continue through fiscal year 1981. Reclamation's present cooperative efforts with the Department of Energy in low-head hydroelectric research are designed to provide input into the initial year's activities to establish study methodology and criteria.

GEOTHERMAL INVESTIGATIONS PROGRAM

Mr. BEVILL. Why are funds for geothermal resource investigations being cut from $3.4 million in the current year to only $555,000 in fiscal year 1979?

Mr. HIGGINSON. A feasibility report on the East Mesa geothermal project is scheduled for 1980. Field investigations and support studies including major studies by contracts will be essentially complete in fiscal year 1978, resulting in substantially lower funding requirements in fiscal year 1979.

ATMOSPHERIC WATER RESOURCES MANAGEMENT PROGRAM

Mr. BEVILL. Last year the committee provided additional funds for the atmospheric water resources management program, including in-

creased funding for the High Plains and Colorado River augmentation demonstration program. How were these funds used and what work is planned in fiscal year 1979 for these programs?

Mr. HIGGINSON. Nature cooperated very well at all three High Plains field experiment sites in 1977 by providing an abundant amount of convective activity which generated a large quantity of data. Additional funding in fiscal year 1977 provided additional flights of the cloud physics aircraft, while additional funds in fiscal year 1978 were used to accelerate the processing and analysis of the cloud physics and other meteorological data obtained from radars, rawinsondes, and rain gage networks. Because of the excellent opportunities to obtain data and further refine the detailed design of the seeding experiments, additional exploratory seeding flights in the Miles City, Mont., area were flown and showed that cloud top seeding from jet aircraft would be a more effective method for delivery of seeding materials than cloud base seeding. It is now planned to begin full-scale randomized seeding of single or definable clusters of cumulus clouds in the summer of 1978 at Miles City, using a more expensive, higher performance jet aircraft. Work at the Texas and Kansas sites continued to be concentrated on the background studies necessary to design and carry out areawide seeding experiments and to evaluate mesoscale effects. Calibration and test seeding flights are planned for the Big Spring, Tex., area during the summer of 1978.

Nature was not so cooperative during the severe drought in the Sierra project. However, the transport and diffusion of seeding materials studies continued and will provide the basis for determining the location and mode of seeding for the randomized tests. Work on the environmental impact statement is continuing, as are the environmental studies being performed by the Forest Service.

The $600,000 provided by the Congress in fiscal year 1978 for the proposed Colorado River demonstration program is being used to conduct an environmental assessment and to coordinate the preparation of a plan with the Basin States to conduct this large-scale research project.

GENERAL INVESTIGATIONS APPROPRIATION LANGUAGE

Mr. BEVILL. The fiscal year 1979 budget contains new language under the "General investigations" account as follows: "$22,200,000 to be derived from the Reclamation fund." Why is this language necessary?

Mr. HIGGINSON. Prior to fiscal year 1973, the "General investigations" appropriations were funded from the reclamation fund. When Public Law 92–149 was passed which made investigation costs nonreimbursable a determination was made to fund general investigations from the general fund. The Department's Solicitor has now recommended that we return to the practice of using the reclamation fund to cover requirements for general investigations. This will conform with subsection O of the Fact Finder's Act, as amended April 19, 1945. The fiscal year 1979 budget request has been changed to agree with this recommendation.

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FUNCTIONS TRANSFERRED TO DEPARTMENT OF ENERGY

Mr. BEVILL. A number of functions were transferred from the Bureau of Reclamation to the new Department of Energy. What are these functions and how much is contained in the fiscal year 1979 budget for them?

Mr. HIGGINSON. The basic functions transferred to the Department of Energy were the power marketing function, including the construction, operation, and maintenance of transmission lines and attendant facilities, and the functions of transmission and disposition of the electric power and energy generated at Falcon Dam and Amistad Dam. The Department of Energy fiscal year 1979 appropriation request for the Western Area Power Administration is $101,452,000 as shown on pages 373 and 374 of the appendix to the President's budget.

PERSONNEL TRANSFERRED TO DOE

Mr. BEVILL. How many personnel were transferred to DOE as a result of the transfer?

Mr. HIGGINSON. The number of full-time positions transferred to DOE on October 1, 1977, was 991.

AUBURN-FOLSOM SOUTH UNIT, GARRISON DIVERSION UNIT

Mr. BEVILL. The fiscal year 1979 budget contains no funds for either the Auburn Dam or the Garrison diversion unit. What is the current status of each of these projects and what is the outlook for resuming them?

Mr. HIGGINSON. Continuation of work on the Auburn Dam feature of the unit is contingent on resolving the safety questions. The fiscal year 1979 budget request includes no funds for construction of the dam because of the current review of geologic conditions at the damsite. Woodward-Clyde Consultants and the services of five other eminent consultants have been obtained for earthquake evaluation studies and to review the designs and seismic studies for the dam. Other specialists have been hired to analyze faults and geologic aspects of the damsite. The amount of funding that would be needed in fiscal year 1979 will depend on the time of resolution of the safety questions. If the need for additional funding is indicated, a request will be made to the Congress.

The fiscal year 1979 budget request on the Garrison diversion unit includes no funds for construction of the unit because of the legal, environmental, and international problems associated with the project. It is the intention of the administration to request deferral of certain fiscal year 1978 funds for use in fiscal year 1979 and to request additional funding if needed.

The timing and need for fiscal year 1979 funding is dependent on the resolution of the legal questions under the May 11, 1977, court approved stipulation and order in the case of the *National Audubon Society, Inc.* v. *Cecil D. Andrus, et al.* Civil Action No. 76–0934 and also upon resolution of the international issues through the forthcoming consultations with the Government of Canada.

FUNDING OF "HIT LIST" PROJECTS

Mr. BEVILL. What is the current status of the projects included on last year's "hit list" which were not funded in the current year?

Mr. HIGGINSON. Four projects were not funded in fiscal year 1978 due to the results of the water project review. These projects were the Oahe unit and Narrows unit, both of the Pick-Sloan Missouri basin program, and Fruitland Mesa and Savery-Pot Hook projects of the Upper Colorado River Basin fund.

Construction of the Oahe pumping plant is nearly complete while the manufacturing of pumps and motors is 70 percent finished. Reach 1A and 1B of the Pierre Canal are completed at 39 percent and 98 percent, respectively. No further construction is scheduled. Land acquisition to date totals 12,293 acres. Currently, a plan of study to determine the requirements for termination of the project is being pursued.

Reevaluation of the Narrows unit has been recently completed. It concludes that a safe dam can be constructed at the proposed site and that the issues of reservoir seepage, flood control, water quality for recreation, effects of the Narrows unit on the Platte River system and a ground water recharge alternate would not result in significant problems. Resumption of work could resume if the reevaluation report is accepted and funding made available. Ongoing work on Fruitland Mesa and Savery-Pot Hook projects is being wrapped up and these projects are being terminated.

OAHE UNIT, S. DAK.

Mr. BEVILL. What is the current status of the Oahe unit, South Dakota?

Mr. HIGGINSON. During this fiscal year, we have utilized carryover Oahe unit construction funds to assure site safety, to determine the status of work for final payment, and to maintain completed features. Total carryover funds amounted to about $3.5 million. At this time, about $1.5 million of the carryover funds have been utilized or committed. Site safety has been essentially completed with one cross drainage structure to be completed before spring. Pumps are being completed and will be stored in California for possible use on other projects. Partially completed motors have been scrapped with related supply contracts having been broken. Maintenance is continuing along with work on land acquisition, relocation assistance, and land management matters that have been carried over from fiscal year 1977. Neither studies nor any other actions have been undertaken for continuance of the authorized project.

The issue of local support for the project has not been resolved. The Oahe conservancy subdistrict board of directors remains adamantly opposed to the project. A lawsuit seeking reapportionment of the voting districts which elect the subdistrict board of directors has been remanded to the local courts for trial but no trial date has been set. We are undertaking a study of project termination which should be completed by the end of this calendar year.

NARROWS UNIT

Mr. BEVILL. Has the study of the Narrows unit, Colorado, been completed?

Mr. HIGGINSON. The President's water project review identified five issues for additional study and recommended that funding for the unit be deleted until the issues were resolved. Reclamation has completed additional studies and submitted its report entitled "Special Report, Investigation of Review Issues, Narrows Unit, Pick-Sloan Missouri Basin Program, Colorado, February 1978" to the Secretary of the Interior for his review on February 15, 1978.

Mr. BEVILL. What do the results of the study indicate?

Mr. HIGGINSON. This report is under review by the Department of Interior. The findings which are included in the "special report" briefly are:

A safe dam can be constructed at the Narrows site using state-of-the-art techniques.

Flood control benefits have been reevaluated and remain valid.

The water quality in Narrows Reservoir would not preclude primary contract recreation.

The Narrows unit would have no adverse effect on sandhill cranes. To the extent that whooping and sandhill cranes utilize the same habitat, the Narrows unit should not have any effect on the endangered whooping crane or its habitat.

A ground-water recharge alternative to the Narrows unit is not economically feasible.

DELAYS OF PLANNING OR CONSTRUCTION PROJECTS

Mr. BEVILL. We touched on this earlier, I believe. The fiscal year 1979 budget for the Corps of Engineers reflects the deletion of 8 planning projects, delay of 8 ongoing planning projects, and the stretchout of 46 construction projects. Have any ongoing Bureau projects in the planning or construction stage been delayed or stretched out?

Mr. HIGGENSON. In our planning program, there are 29 investigations which are to be delayed. Thev arious reasons have been explained i nthe Budget justifications. Of these 29 investigations, approximately 11 have been scheduled for delay because of the high priority placed on hydroelectric energy studies.

In our construction program budget justifications, we show 11 major projects with delayed completion dates from those shown in last year's justifications. All 11 were delayed because of nonbudgetary actions, such as lawsuits, need for additional field work or design data, or completion of environmental impact statements. All budgetary constraint delays were short term, therefore, projects were not delayed, for budgetary reasons, from one fiscal year to the next.

Last year in the development of our program for fiscal year 1978 almost every project was delayed because of the budgetary constraints in the years beyond fiscal year 1978. The completion dates that were established reflected a proposed fiscal year 1979 funding level that allowed no new major contract awards in fiscal year 1979. Since the 1979 President's budget allows new contract awards on selected proj-

ects, we have been able to keep projects on schedule from a budgetary standpoint.

Mr. BEVILL. Are funds requested for any projects on which you are unable to proceed at this time?

Mr. HIGGINSON. Yes, there are nine projects which are affected. Progress on the O'Neill unit of the Pick-Sloan Missouri basin program has been delayed in order to satisfy the Nebraska District of the U.S. district court which required us to supplement the final environmental impact statement. We are hopeful that we can resume design work after the supplement is filed in April 1978.

To complete the San Luis unit distribution and drainage system work scheduled to start during the budget year it would require additional appropriation ceiling of $43 million of which $18,860,000 is included in the budget request.

The five safety-of-dam projects, Rapid Valley, Newlands, Hyrum, Orland, and Sun River need congressional authorization for the work to proceed in fiscal year 1979.

As the situation stands on the Newlands rehabilitation and betterment project, we are unable to proceed with work because a repayment contract remains to be negotiated with the Truckee-Carson Irrigation District. A meeting for this purpose is expected some time before June of this year and we are optimistic about the outcome.

Construction of the Orland-Artois Water District distribution system is infeasible under the present terms of the repayment contract. This system is a feature of the Sacramento River division in the Central Valley project. An impasse exists over the repayment contract which would provide water service up to a cost of $27 million while our presently designed construction would cost about $44 million. We have informed the district that construction would not begin until the system was redesigned to reduce the cost and sufficient lands were annexed to the district to insure complete repayment or the contract was renegotiated to increase the district's repayment obligation.

LITIGATION ON BUREAU PROJECTS

Mr. BEVILL. Bring the committee up to date on the status of any projects in litigation.

Mr. HIGGINSON. There are about 24 cases currently under legal challenge which may have signficant impacts. At this time it appears there are three cases that may impact our potential activity in fiscal year 1979 capability.

On the Garrison diversion unit in North Dakota, the Department of the Interior released on February 1, 1978, a draft supplementary environmental statement and report for public review and also submitted proposed legislation to the Office of Management and Budget. We have completed the first stages of compliance with the May 11, 1977, stipulation and order. We plan to hold public hearings in North Dakota late in March and file the final environmental statement in May of 1978. Due to the continuing unresolved legal and international issues, we have not requested funding for fiscal year 1979.

On the O'Neill unit in Nebraska, we are continuing work to prepare the final supplemental environmental statement required by the court. We expect to file the final statement in April of 1978 and make a decision on resumption of work shortly thereafter.

A suit has been filed to compel opening of bids and continuation of construction on the distribution system for the Orland-Artois Water District. The district would be served from the Tehama-Colusa Canal, Sacramento River division of the Central Valley project in California. We have taken the position that construction of the system is not feasible under the present terms of the contracts and have offered the district two alternative courses of action involving renegotiation of the contract: that they agree to repay the increased cost of the presently planned system, or accept a redesigned system that would reduce costs. The district maintains that we are bound by the contract and must proceed with construction.

If the Orland-Artois Water District is successful in its attempt to force the United States to perform under the terms of the existing repayment contract, then no significant impact on the 1979 budget request is expected. If the court rules in favor of the United States and no agreement for amending the repayment contract is reached with the district, then about $7.5 million of the fiscal year 1979 request would not be required.

We will furnish for the record a tabulation that summarizes the current status of our major litigation.

DATE February 24, 1978

Bureau of Reclamation Projects
Active NEPA Litigation

Case No.*	Project and Lawsuit	Issues	Status
1	Tracy Pumping Plant, Central Valley Project, California. Sierra Club v. Morton, USDC Northern District California Civil No. 71-500 3/16/71	Operation of pumping plant without permits from Corps of Engineers or adequate NEPA compliance.	Ruling in favor of plaintiffs. Bureau will apply for Corps' permits, EIS will be Corps responsibility. Appealed to 9th Circuit Court 2/13/76. Briefs have been filed, but a date for oral argument has not been set.
7	New Melones Dam, California. EDF v. Armstrong, USDC N. California. Civil No. 72-1057 6/8/72	NEPA--Adequacy of Corps EIS	Court ruled that EIS as revised was adequate, and retained jurisdiction to insure that further EIS (or additional data) be filed on the use of the conservation yield in specific areas prior to the execution of water service contracts.
8	Auburn-Folsom South Unit, Central Valley Project, California. NRDC & EDF v. Morton, USDC California, Civil No. S-2663, 12/15/72	NEPA--Adequacy of EIS	EIS with supplement and amendment ruled adequate. Court retained jurisdiction over reaches 3, 4, and 5 of Folsom South Canal pending completion of Bureau studies.
10	Rio Grande, Middle Rio Grande and Pecos River Projects, New Mexico. Audubon Society v. Morton, USDC New Mexico, Civil No. 10118, 5/18/73	NEPA--Adequacy of EIS and in particular, coverage of phreatophyte clearing activities for water salvage.	FES for Rio Grande and Middle Rio Grande Project filed and given to court 5/11/77. June 30, 1977, judge dismissed the claim on Rio Grande and Middle Rio Grande Project that defendents failed to satisfy NEPA. Pecos part of suit still active. Essential O&M activities allowed during trial, but new clearing prohibited. DES on Pecos filed 8/18/77 and filed with the Court. Following reciept of Geological Survey report on Water Salvage, program will be reassessed.

*Case numbers represent Code 150 file folder numbering.
Completed cases are not listed.

Case No.	Project and Lawsuit	Issues	Status
11	Yellowtail and Boysen Reservoir, Montana. EDF v. Morton, USDC Montana, Civil No. 73-1220 10/16/73	NEPA--Sale of M&I water from the two reservoirs without an EIS.	Judge ruled in favor of US finding that no EIS was required. Appeal filed in the Ninth Circuit Court on 9/20/76. Briefs for the US, EDF, and intervening energy companies have been filed.
17	Colorado-Big Thompson Project, Colorado. Colorado River Water Conservation District v. Morton, USDC Colorado, Civil No. 74-448 5/20/74 SETTLED	NEPA--Transfer of water through Bureau facilities on the basis of a Negative Determination (ND) rather than an EIS.	March 24, 1975 ND ruled adequate. Appeal to 10th Circuit denied. EIS being prepared. DES due 4/78, FES 8/78
19	Newlands Project, Nevada. City of Fallon v. Morton USDC, Nevada Civil No. 74-101 7/29/74	NEPA--Contesting Federal takeover of Newlands Project without EIS.	Case pending until other suits over legitimacy of Federal takeover are tried. (Draft EIS out for review as of 5/20/77).
20	Glen Canyon Dam Operations, Colorado River Storage Project, Utah & Arizona. Lamarr Badoni v. Higginson USDC Utah Civil No. 74-275 9/3/74	NEPA--Operation of the dam and reservoir without an EIS. One issue concerns water in Rainbow Bridge Nacional Monument.	March 1976 Bureau filed affidavit on plans for NEPA compliance, operation of Glen Canyon dam to be covered in Colorado River Comprehensive EIS. 12/29/77 Court granted US motion for summary judgment and dismissed suit.
21	Central Arizona Project, Arizona. Citizens Concerned About the Project v. Frizzel, USDC Arizona, Civil No. 75-365, 6/11/75	NEPA--Construction of three siphons prior to completion of Orme Dam EIS. Amended complaint proposed by plaintiffs April 27, 1977, would remove reference to Orme Dam and limit the issue to only the Salt River Siphon on adequacy of NEPA compliance and compliance with excess lands provisions.	Initial request for preliminary injunction denied. Motions were argued in January 1977 for summary judgement. 8/3/77 judge denied plaintiffs request for a temporary restraining order in regard to construction of the Salt River siphon. CAWCD* was granted leave to intervene for the defendants. Work on aqueduct is nearing completion

*Central Arizona Water Conservation District

Case No.	Project and Lawsuit	Issues	Status
22	O'Neill Unit, Nebraska. Save the Niobrara River Assn. v. Hathaway, USDC Nebraska, Civil No. 75-L-96 6/26/75	NEPA--Adequacy of existing EIS.	Following trial in December 1976, injunction granted on 3/4/77, halting work on the project until the EIS is supplemented in four specific subject areas. The draft supplement was filed 12/20/77. Final scheduled for 4/78.
25	Fryingpan-Arkansas Project, Colorado. Board of County Commissioners of Pitkin County v. Kleppe, USDC Colorado, Civil No. 75-M-1268 11/26/75	NEPA--Adequacy of EIS.	Petition for preliminary injunction denied. Judge ruled in favor of U.S. on 4/17/77, but U.S. has reopened suit by filing an admission of error in regard to the previous judgment with the 10th Circuit Court, Court has not acted on the filing.
26	San Luis Unit, Central Valley Project, California. Contra Costa County Water District v. Kleppe, USDC, Northern District California, Civil No. 75-2508 11/26/75	NEPA--Water District feels separate EIS needed for Westlands contract. Bureau feels San Luis EIS adequate.	Trial scheduled for April 1977 postponed. Parties entered into stipulation on 3/31/77 providing for preparation of a supplemental EIS. Supplement to be completed by April 1, 1979.
27	Bonneville Unit, Central Utah Project, Utah. Floyd Wopsock v. Frizzel, USDC Utah Civil No. 75-317 12/19/75 (originally filed 8/75)	NEPA--Adequacy of EIS regarding Indian impacts. Legality of Ute Indian Deferral Agreement.	Suit dismissed 8/76 on the basis that plaintiffs did not have standing to sue. Appealed to Tenth Circuit Court 10/76. Hearings scheduled for 3/77 postponed pending action by Congress on the President's recommended modification to the project.
28	Watertown-Souix City 345 kV Transmission Line, PSMBP, South Dakota. John L. Breece v. Kleppe, USDC South Dakota Civil No. 76-4022 2/27/76	NEPA--Adequacy of EIS in addressing impacts of line on radio station.	In informal meeting 9/7/76 judge granted a continuance with no date for further hearings. Out of court settlement expected. Project jurisdiction transfered to DOE.

TO DOE

Case No.	Project and Lawsuit	Issues	Status
29	To DOE Hayden-Ault Transmission Line Colorado, Wyoming, Fred A. McCabe v. Kleppe USDC District of Wyoming, Civil No. 76-93 5/17/76	NEPA--Adequacy of EIS not questioned. Suit alleges U.S. did not give full, fair, and adequate consideration to EIS in decisionmaking.	District court ruled U.S. had complied with NEPA. On appeal, 10th Circuit Court ruled on 2/1/78 that trial error occurred, and remanded the case back to the trial court for retrial. Construction of transmission line is complete, and project has been transfered to DOE.
30	Garrison Diversion Unit, PSMBP, North Dakota, USDC District of Columbia, National Audubon v. Kleppe, Civil No. 76-0943 5/27/76	NEPA--Adequacy of EIS, migratory bird treaty, land aquisition procedures.	Motions to move trial to project area. denied. Plaintiffs filed motions for summary judgment. Following negotiations both parties agreed to a stipulation and order dated May 11, 1977, requiring preparation of a supplemental EIS and legislative package prior to reauthorization by Congress. DES and report completed 2/1/77. FES due 5/1/77
31	Narrows Unit, PSMBP, Colorado. Regional Landowners, Inc. v. Kleppe, USDC Colorado Civil No. 76-608 6/11/76	NEPA--Adequacy of EIS, Administrative Procedures Act, Freedom of Information Act, Federal Water Projects Recreation Act, Fish & Wildlife Coordination Act, Fifth Amendment to Constitution.	Pretrial conference scheduled for December 3, 1976, indefinitely postponed. Negotiations underway with plaintiff for dismissal without prejudice.
32	North Loup Division, PSMBP, Nebraska. Lloyd Geweke v. Twin Loups Irrigation District, USDC Nebraska Civil No. 76-L-170 8/17/76	NEPA--Adequacy of EIS.	Plaintiffs request for preliminary injunction denied 8/20/76. Trial scheduled for Fall session beginning October 1978. Supplemental EIS being prepared, due 3/78.

Case No.	Project and Lawsuit	Issues	Status
34	Central Arizona Project, Arizona. Salt River Pima-Maricopa Indian Communities v. Kleppe, USDC Arizona, Civil No. 76-796 11/18/76	NEPA--Contests validity of water allocation made without EIS.	No date scheduled for hearings. Plaintiffs filed motion for Secretary to show cause why allocation should not be injoined, but recently withdrew the motion. Affidavits have been filed on the NEPA issue.
35	Navajo Indian Irrigation Project, New Mexico. National Wildlife Federation v. Kleppe, USDC District of Columbia, Civil No. 76-2266 12/10/76	NEPA--Adequacy of EIS in regard to powerplant. Alternatives and downstream impacts. Fish and Wildlife Coordination Act--Did not do required coordination. Authorization of 23 mw powerplant--Department did not obtain authorization of powerplant at dam.	June 21, 1977, judge ruled in favor of plaintiff on all three counts and stopped construction of powerplant until Department complied. Bureau of Indian Affairs has lead responsibility.
36	Trinity River Division, Central Valley Project, California. County of Trinity v. Andrus et al., USDC Eastern District, California, Civil No. S-77-343 PCW 6/24/77	NEPA--Changing operation of project without EIS. Also alleges violation of Fish and Wildlife Coordination Act, Trinity River Division Authorization.	Hearing was held on 7/11/77 and judge denied injunction. 12/12/77 judge ruled in favor of the US. and dismissed the suit.
37	Colorado River Basin Salinity Control Project (7 basinstates) EDF v. Costle, Andrus, and Higginson, USDC, District of Columbia, Civil No. 77-1436, 8/22/77	Suit alleges inadequacies in EPA's promulgation and enforcement of water quality standards for the Colorado River Basin. Fifth and sixth claims contend that Interior (through Reclamation) is not adequately implementing the Colorado River Basin Salinity Control Act of 1974 and has not developed appropriate alternatives for reducing salinity pollution in violation of Section 102(2)(E) of NEPA.	12/23/77 court denied change of venue request by U.S. Plaintiffs have requested and are inspecting documents related to the Project.

Case No.	Project and Lawsuit	Issues	Status
38	Acreage Limitation Proposed Rules and Regulations; (6 consolidated actions), County of Fresno, American Farm Bureau Federation, County of Imperial, County of King, Lower Tule River Irrigation District, County of Kern v. Andrus, USDC Eastern District of California, Civil Nos. F-77-202, 203, 204, 205, 209, and 213, 11/10/77	NEPA--Contests finalizing and adopting excess lands rules and regulations without EIS.	Preliminary injunction on the rule-making issued 12/8/77 until an EIS is prepared, circulated for comment, and considered adequate, and the proposed rules are reconsidered and revised in light of the comments received. Preparation of the EIS has been initiated.
Non-NEPA Litigation			
1	Control of Water in California Delta	Several suits involving State of California and the U.S. over amount of control the State has over release of water from Federal impoundments.	One case argued before Ninth Circuit Court of Appeals 9/7/76. No opinion yet. Other cases pending that decision.
2	National Land for People v. Bureau of Reclamation	Sale of excess lands without adequate rules and regulations.	Injunction granted on approvals of excess land sales until rules and regulations are prepared. (See # 38 above.)
3	Orland-Artois Water District distribution system 11/11/77	Suit to compel U.S. to open bids and continue construction on distribution system under existing contract.	Hearing to be scheduled shortly.
4	American Falls Dam Replacement, Idaho	Alledges that activities in regard to the dam replacement are unlawful and asks for damages and an injunction.	Suit by Burley Irrigation District dismissed by the District Court in late 1977, but is under appeal in the Ninth Circuit Court. Suit by William Kerner in the District Court was dismissed in January of 1978, but recently reinstated.

Mr. BEVILL. Last year the Congress approved bill language earmarking funds to carry out the purposes of the Endangered Species Act of 1973. Why has this language been stricken in the 1979 budget submission?

Mr. HIGGINSON. At this time we do not see a need for additional funding for this purpose. The Congress supplied authority last year which provided $2 million for this purpose and as yet we have not had an occasion arise to use these funds. If and when this authority is used it will then be appropriate to seek additional authority to meet the new requirement.

Mr. BEVILL. How were the fiscal year 1978 funds used?

Mr. HIGGINSON. We did not have a need in fiscal year 1978 to use the funds provided under this proviso. The funds will be used for this purpose when a need develops.

Mr. BEVILL. Last year $245 million of the $362 million appropriated for "Construction and rehabilitation" was derived from the reclamation fund. This year, out of a total request of $270 million, only $60 million is to be derived from the reclamation fund. What accounts for the large decrease?

Mr. HIGGINSON. This decrease results from the fact that $90,207,000 of the reclamation fund will be used by the Department of Energy in fiscal year 1979 and $22,200,000 will be used for the "General investigations" appropriation. Satisfying these two new needs results in less available for use for the "Construction and rehabilitation" appropriation.

ALLEN CAMP UNIT, CENTRAL VALLEY PROJECT, CALIFORNIA

Mr. BEVILL. Describe the Allen Camp unit of the Central Valley project on which planning is being initiated in the current fiscal year.

Mr. HIGGINSON. This unit is located in northwestern Lassen County and southwestern Modoc County, about 100 miles northeast of Redding, and 50 miles southwest of Alturas, Calif. Water will be stored on the Pit River at Allen Camp damsite to serve the functions of irrigation, flood control, fish and wildlife, and recreation. Water will be supplied to 11,300 acres of new lands and supplemental water would be furnished to the proposed 10,000-acre national wildlife refuge by direct diversions, reuse of irrigation return flows and ground-water pumping. Recreation development would include facilities for boating, fishing, swimming, picnicking, hunting, and camping.

OROVILLE-TONASKET UNIT CHIEF JOSEPH DAM PROJECT, WASHINGTON

Mr. BEVILL. $500,000 is requested to complete planning of the Oroville-Tonasket unit of the Chief Joseph Dam, Wash. Describe this project on which planning is being initiated in the current year.

Mr. HIGGINSON. The project is essentially a rescue operation for 9,320 acres of orchard lands but will also provide irrigation service to 650 acres of other lands as well as a municipal and industrial water supply.

The project is located in north-central Washington between the towns of Oroville and Tonasket. The distribution system presently serving the Oroville-Tonasket Irrigation District is in critical need

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of replacement because of age, location on chronic slide areas, and damaging effects of the 1972 flood. Water losses in the present system are about 40 percent and efficient utilization of the water supply is impossible. The threat exists of a major failure in the system which would leave mature apple orchards without water. Any significant loss of trees or reduction in apple production would have an adverse effect on the economy of the Okanogan River Valley.

CLOSED BASIN DIVISION, SAN LUIS VALLEY PROJECT

Mr. BEVILL. Why have you again extended the completion date of advance planning of the Closed Basin Division of the San Luis Valley project, Colorado, by 1 year?

Mr. HIGGINSON. We are continuing advance planning activities until funds are made available for a construction start. The additional year will be used for completion of the definite plan report and environmental statement. Fieldwork is being performed to acquire these data.

DELAYS IN SALMON FALLS DIVISION, UPPER SNAKE RIVER PROJECT, IDAHO

Mr. BEVILL. What is the nature of the delays being encountered in completing planning of the Salmon Falls Division of the upper Snake River project, Idaho?

Mr. HIGGINSON. Delays encountered in formulating the service area due to changes in landowner interests and other problems being encountered in securing a ground water supply resulted in slippage of completion of the definite plan report.

KENNEWICK DIVISION EXTENSION, YAKIMA PROJECT, WASHINGTON

Mr. BEVILL. Planning on the Kennewick Division Extension of the Yakima project, Washington, began in fiscal year 1977 and isn't scheduled for completion until fiscal year 1980. Why does it take 4 years for the planning work?

Mr. HIGGINSON. There appear to be significant changes in the needs of the area, particularly in view of the continued encroachment of suburban development in agricultural areas and the objections which have been voiced concerning further depletions of the Yakima River which may require reformulation in the project. During fiscal year 1978, the major activity will be related to reevaluating the needs and resources of the area and identifying alternative means of meeting these needs. Several plans will be considered and preliminary cost estimates and benefits developed for these plans. This information will then be presented to the Kennewick Irrigation District and other interests and a decision made with respect to further work, authority, and funding.

CENTRAL VALLEY PROJECT, ORLAND-ARTOIS WATER DISTRICT, CALIF.

Mr. BEVILL. What is the status of the litigation filed by the Orland-Artois Water District affecting the Central Valley project, California?

Mr. HIGGINSON. We have taken the position that construction of the district's distribution system is not feasible under the present terms

of the district's repayment contract. The district was informed that construction would not commence until the system was redesigned to reduce the cost and sufficient lands were annexed to the district to insure complete repayment or the contract was renegotiated to increase the district's repayment obligation.

On November 11, 1977, the district filed suit against Reclamation officials in District Court of the Eastern District of California directing the defendants to specifically perform the contract.

On December 16, 1977, the Regional Solicitor recommended that this action be dismissed on the grounds that as the district has not claimed that the individual defendants have acted unconstitutionally, pursuant to an unconstitutional grant of power or lack of delegated power, the action is against the sovereign, the United States, and the court cannot restrain the sovereign from acting or compel it to act.

A ruling is still pending.

CENTRAL VALLEY PROJECT, SANS LUIS UNIT, CALIFORNIA

Mr. BEVILL. What is the status of negotiations on an amendatory repayment contract with the Westlands Water District as part of the San Luis Unit, Calif.?

Mr. HIGGINSON. The Department has rescinded the amendatory contract with the Westlands Water District. The Department and the district are currently negotiating temporary water service contracts for the 1978 irrigation season. We are not taking further action regarding negotiation of amendatory or long-term water service contracts with the district until the present matter concerning the 1978 temporary water service contract has been concluded. Public Law 95–46 requires that any contracts with Westlands to provide water service beyond June 30, 1978 lie before the Congress for 90 days.

TASK FORCE REPORT, CENTRAL VALLEY PROJECT, SAN LUIS UNIT, CALIFORNIA

Mr. BEVILL. What were the findings of the task force which reviewed the management, organization, and operation of the San Luis Unit?

Mr. HIGGINSON. The task force completed its study and submitted its report to the Congress the first of January 1978. The report documents a number of problems with the implementation of the San Luis Act Public Law 86–488, in particular and reclamation laws in general. The findings related inadequacies in the authorization process and the process in which design changes are reported to the Congress; deficiencies in repayment contracting procedures; adequacy of public notice and involvement in contract negotiations; enforcement of the 160-acre limitation and the residency requirement in the Westlands Water District; and inadequate cost ceiling authority to cover the total estimated cost for the Westlands distribution system and drains.

The task force recommended, among other things, that:

A two-stage authorization process be considered for reclamation projects to provide an opportunity for more definite construction plans to be developed before authorization and also that all projects which have been authorized longer than eight years without any con-

struction be deauthorized unless specifically extended on a year-to-year basis by Congress.

Repayment on the Westlands distribution system begin immediately and additional construction on the system beyond fiscal year 1978 await execution of a new amendatory contract and that the proposed amendatory contract be revised to allow adjustment of water rates every 5 years; that in lieu of State financial assistance, repayment of the San Luis drain be made directly by San Luis water users under a 9(d) repayment contract rather than a water service contract; that water rates be based on a current ability to pay calculation and that the traditional 25-percent reduction in ability to pay for contingency purposes be discontinued; that temporary contracts contain water rates based on irrigator's ability to pay rather than on present low water rates that are not based on current payment capacity.

The Bureau discontinue the practice of reducing water rates to reimburse funds contributed by the districts under the Contributed Funds Act and that repayment contracts be executed prior to commencement of construction of facilities; and that water deliveries be consistent with amounts specified in water service contracts.

The Department require written notice to all appropriate congressional committees in advance of making significant design changes in project features.

The Department return to the authorizing and appropriation committees for formal action to secure approval of changes which substantially increase the total Federal obligation or where substantial changes are made which alter the basic character of the project.

The Bureau of Reclamation publish contracting and public participation procedures in the Federal Register, which would provide for full opportunity for all affected and interested parties to comment on the proposed contract, including public hearings.

The Department exercise what authority it may have, and seek authority from Congress if necessary, to operate the Central Valley project to protect the delta; the Bureau of Reclamation cooperate with the appropriate Federal and State agencies to complete studies of the environmental impact of State and Federal projects on the delta, and complete negotiations and execute agreements with the State and water users to meet water quality standards in the delta and to provide for better coordination with the State water project.

The Bureau should refrain from signing other firm contracts for Central Valley project water which have substantial effect on water availability in the delta until the Central Valley project is authorized and committed to provide water for delta protection.

That no Federal money be invested in groundwater development in the Westlands Water District until an enforceable system for groundwater management in the San Joaquin Valley is in place.

That the residency requirement be enforced and that acreage limitation enforcement be tightened in several respects.

That the Department and Congress proceed with an expeditious reevaluation of reclamation law and programs, examining particularly the basis and broad objectives of reclamation law in light of present day conditions.

The Task Force recommended that the San Luis unit be reauthorized to complete the distribution system and collector drainage system and to complete the San Luis drain from Kesterson Reservoir south to Kettleman City.

SAN LUIS UNIT, WESTLANDS WATER DISTRICT, SUPPLEMENTAL ENVIRONMENTAL STATEMENT STATUS

Mr. BEVILL. What is the status of the supplemental environmental impact statement being prepared in connection with the Westlands Water District?

Mr. HIGGINSON. A lawsuit was filed on November 26, 1975, by the Contra Costa County Water District requesting that the United States be enjoined from executing the proposed amendatory contract with Westlands Water District until the provisions of Public Law 91–190, the National Environmental Policy Act had been complied with. A stipulation entered into by the United States in the lawsuit requires completion of a supplement environmental impact statement which is now scheduled to be filed with the Environmental Protection Agency as a draft in May 1978 and filed as a final in January 1979.

The draft is currently under preparation.

SAN LUIS UNIT, CENTRAL VALLEY PROJECT, CALIF.

Mr. BEVILL. What additional monetary authorization is required for the San Luis Unit, and when will it be required?

Mr. HIGGINSON. To complete all San Luis unit distribution and drainage system work scheduled to start during the budget year would require additional appropriation ceiling totaling $43,000,000 of which $18,860,000 is included in the fiscal year 1979 budget request.

The additional ceiling is needed for construction of the following San Luis unit distribution and drainage system facilities to be continued or started in fiscal year 1979: southernmost reach of the San Luis Drain; Westlands Water District distribution system contract No. 17 and telemetering system; and remaining work on contract 2D of the drainage collector system.

AUBURN-FOLSOM SOUTH UNIT, FOLSOM SOUTH CANAL LITIGATION STATUS

Mr. BEVILL. What is the status of litigation affecting the Folsom South Canal?

Mr. HIGGINSON. The U.S. District Court of Northern California retained jurisdiction over reaches 3, 4, and 5 of the Folsom South Canal pending completion of Bureau studies.

The Bureau has attempted to reach an understanding on use of water in the lower American River with the involved interests. This effort has been underway for almost 3 years with no success, therefore, the Bureau plans to complete a study on alternative ways to increase the flow in the lower American River together with a supplement to the environmental statement and provided this material to the court.

We expect to release the draft report and draft environmental impact statement for public review in March 1979.

AUBURN-FOLSOM SOUTH EARTHQUAKE STUDIES

Mr. BEVILL. Earthquake evaluation studies of the Auburn Dam project were conducted by Woodward-Clyde Consultants. What conclusions were reached as a result of those studies?

Mr. HIGGINSON. Among the conclusions contained in the report, Woodward-Clyde classified six faults within 20 miles of the Auburn damsite as being active or indeterminate active. The magnitude of the maximum credible earthquake that might occur is a magnitude 6 to 6½ earthquake at a focal depth of approximately 6 miles. Woodward-Clyde also conclude that if the 1975 Oroville earthquake is assumed not to be reservoir induced, the likelihood for a reservoir-induced earthquake greater to or equal to the Oroville earthquake, magnitude 5.7 to 6.0, occurring near Auburn Dam during the design life of the dam is 2 to 5 percent. If the Oroville earthquake is assumed to be reservoir induced, the likelihood is 30 percent.

In the absence of deposits at the Auburn damsite that can be used to conclusively assess the activity or inactivity of the faults in the foundation of the Auburn Dam, Woodward-Clyde judged that there is a very low to low possibility that active faults traverse the Auburn Dam foundation.

AUBURN-FOLSOM SOUTH UNIT COST INCREASE

Mr. BEVILL. Explain the cost increase of $91.3 million for the Auburn-Folsom South unit, California.

Mr. HIGGINSON. The cost increase is primarily due to application of cost indexes. In addition, the estimate for excavating Auburn Dam, keyways and spillways has been increased based on current designs to meet onsite geologic conditions.

STATUS OF THE SAN FELIPE DIVISION, CENTRAL VALLEY PROJECT, CALIF.

Mr. BEVILL. Outline the current status of the San Felipe Division, California.

Mr. HIGGINSON. Bids were opened on July 14, 1977, for construction of Pacheco Tunnel, the main feature of the San Felipe Division. The low bid was 50 percent greater than the engineer's estimate, and all bids were rejected. The bids indicated that our estimate on excavation costs were low in the bidders' opinion. We, therefore, reviewed our previous alternative plans and combined a shorter, smaller tunnel at a higher elevation cutting the estimated excavation about in half.

Plans and specifications for the revised facilities are now complete and available for proceeding toward a contract. The negative determination for environmental impacts has been completed and is awaiting approval. The definite plan report is being updated and will be completed April 1, 1978.

On June 7, 1977, the Santa Clara Valley Water District and the Bureau of Reclamation signed a water service contract. On January 20, 1978, the pending water service contract between the Bureau of Reclamation and the San Benito County Water Conservation and Flood Control District was conditionally approved by the Department of the Interior. Subject to clarification and agreement of the parties concern-

ing the contract's rate adjustment clause, the Regional Director is now authorized to execute this second major contract.

Under our current schedule, the major construction contract for Pacheco Tunnel and appurtenant works will be awarded by September 30, 1978.

Mr. BEVILL. Why was it necessary to redesign the project?

Mr. HIGGINSON. In addition to the redesign of Pacheco Tunnel, the following changes have been made in the plan:

The 1967 Feasibility Report H.D. 500, 89th Congress, 2d session projected the year 2020 import requirements for San Felipe division at 293,000 acre-feet. This requirement was for the entire service area, including Santa Clara, Hollister, and Watsonville subareas.

Currently the import requirements for these subareas on the basis of advance planning studies are projected for year 2020 at 216,000 acre-feet. About 20,000 acre-feet of this estimated import requirement is for the Watsonville subarea—which is being deferred at this time. The remainder, 196,000 acre-feet, is planned for import to the Santa Clara and Hollister subareas. The current projection, 216,000 acre-feet, reduces the previous estimate by about 77,000 acre-feet.

Several factors entered into and resulted in this reduced import water requirement. The principal ones were:

1. Reduced projected population growth on the basis of reduced immigration, particularly to Santa Clara County during the late 1960's and early 1970's coupled with the declining live birthrate.

2. Additional import supplies obtained by Santa Clara County from existing supplies—Hetch Hetchy and South Bay aqueduct.

3. Determination that a small portion of the Hollister area—Bolsa subarea—in San Benito County had sufficient groundwater supply and did not need project service.

Mr. BEVILL. Is additional monetary authorization required for this project?

Mr. HIGGINSON. We are looking into this problem at this time and we do not have all the needed information to make this determination. At this time, we are firming up the estimate and when this is done we can then make a decision as to the need for a change in the monetary authorization. If one is needed, we will propose a change before we proceed with construction.

FRYINGPAN-ARKANSAS LITIGATION STATUS

Mr. BEVILL. What is the current status of litigation affecting the Fryingpan-Arkansas project, Colorado?

Mr. HIGGINSON. In December 1977, the Department of Justice filed a brief with the court confessing an error as to the question of whether the U.S. Supreme Court had original jurisdiction. The appellate court is considering the brief, but the court has not given any indication of when it will make a decision.

TETON BASIN PROJECT

Mr. BEVILL. How will the $500,000 requested for the Teton Basin project, Idaho, be used?

Mr. HIGGINSON. The fiscal year 1979 budget request will provide for continuing security and public safety activities of the damsite, administration of Federal lands, and liaison with local organizations.

TETON DAM CLAIMS PROGRAM

Mr. BEVILL. What is the status of claims filed as a result of the Teton Dam failure?

Mr. HIGGINSON. A total of $400 million has been appropriated for the Teton Dam claims program. As of February 17, 1978, the Bureau of Reclamation has paid more than $232.1 million to 7,089 claimants.

SAFETY OF DAMS

Mr. BEVILL. Last year, the National Research Council published a review of the program of the Bureau of Reclamation for the safety of existing dams. What have you done as a result of recommendations contained in this report, and what funding will be required?

Mr. HIGGINSON. Most significantly, we have organized an office of Dam Safety, increased the use of independent reviews, and placed dam safety activities at a higher priority. Reclamation is in agreement with the specific recommendations made by the National Research Council which concentrated on programs for the safety of our existing structures.

Reclamation is currently implementing the recommendations of the National Research Council and other reviews. However, the total impact of funding needs has not been identified. Within the fiscal year 1979 budget request is approximately $20 million associated with specific dam safety related activities which is an indication of the high priority we are placing on dam safety.

BRANTLEY PROJECT

Mr. BEVILL. What is the reason for the 2-year slip in the completion date of Brantley project, New Mexico?

Mr. HIGGINSON. Initiation of construction on Brantley Dam has been delayed to allow for additional subsurface investigations and groundwater studies. A recent review of the geologic and foundation conditions by a panel of independent consultants resulted in a recommended realinement of the right abutment axis to take advantage of what appears to be more favorable geologic conditions. A new feasibility design and cost estimate for Brantley Dam is being prepared. Final designs should be completed in fiscal year 1979.

Mr. BEVILL. Why will it cost over $10 million to relocate 4.4 miles of railroad in connection with the Brantley project?

Mr. HIGGINSON. A portion of the Santa Fe Railroad will be inundated by the reservoir behind Brantley Dam. The Sante Fe Railroad has essentially completed its cost estimates for the relocation of the tracks affected by the reservoir. Negotiations with the railroad have been temporarily suspended until the dam alinement is formally established.

GENERAL ACCOUNTING OFFICE REPORT ON PALMETTO BEND DAM

Mr. BEVILL. On December 16, 1977, the General Accounting Office issued a report citing the need for improved analysis of alternatives and cost data on the Palmetto Bend Dam and Reservoir. Please comment on the report's conclusions and what the Bureau has done in response to the report.

Mr. HIGGINSON. The December 16, 1977, General Accounting Office report on Palmetto Bend Dam and Reservoir recommends that information included on budget documents and at appropriation hearings be in a different format and in more detail in regard to the project cost estimates, and that different procedures should be followed in regard to project utilization and selection. The Bureau will work with the committee to determine how the recommendations are to be implemented.

THIRD POWERPLANT BENEFIT-COST RATIO

Mr. BEVILL. What is the basis for the increase in the benefit-cost ratio of the third powerplant from 9.7 to 10.7 since last year?

Mr. HIGGINSON. The increase is due to increased power benefit values as computed from the cost to produce power from alternative sources.

GRAND COULEE THIRD POWERPLANT CONSTRUCTION DELAY

Mr. BEVILL. Why have the power online dates for the remaining three units slipped 7 months since last year?

Mr. HIGGINSON. In the remaining three units you mentioned, we have experienced some construction delays. These have resulted primarily because of labor problems, failure of unit 21 because of a fire, and problems in testing of unit 22, which have caused the online dates to slip to April 1978, October 1978, and April 1979 for units 22, 23, and 24 respectively.

We expect no adverse effect on the Northwest power supply from these delays. Both the third powerplant and pump/generating units are to be used as peaking powerplants, and the most recent peaking demand forecasts indicate other plants will be able to meet the anticipated demands.

PROJECTS REQUIRING LEGISLATIVE ACTION

Mr. BEVILL. What projects will require additional monetary authorization or other legislation in the current year or fiscal year 1979?

Mr. HIGGINSON. There are eight projects—the San Luis unit of the Central Valley project, title I of the Colorado River Basin salinity control projects, Central Oregon Irrigation District, a rehabilitation and betterment project, and the safety of dam projects—Rapid Valley, Newlands, Hyrum, Orland, and Sun River. The San Luis unit distribution and drainage system work scheduled to start during the budget year requires $18,860,000, and title I requires additional appropriation ceiling of $301,000 for fish and wildlife mitigation facilities. Language is needed for the Central Oregon Irrigation District author-

izing the expenditure of an additional $800,000, while the fire safety of dam projects require legislative approval to expend $3,066,000.

SAFETY OF DAMS

Mr. BEVILL. Describe the work planned in fiscal year 1979 on five safety-of-dams programs under the drainage and minor construction activity.

Mr. HIGGINSON. Under the five safety-of-dams programs in the fiscal year 1979 drainage and minor construction activity, we plan to award a contract for construction of an auxiliary spillway for Hyrum Dam, Hyrum project; perform preconstruction work for rehabilitation of the spillways and outlet works and construction of a concrete curtain wall in Lahonton Dam, Newlands project; award a contract for rehabilitation of Stoney Gorge Dam, Orland project; initiate modification of spillway and outlet works and complete right-of-way acquisition for Deerfield Dam, Rapid Valley project; and award a contract for modification of Gibson Dam, Sun River project.

STATUS OF THE NEWLANDS PROJECT

Mr. BEVILL. Outline the status of the Newlands project, including the status of the repayment contract.

Mr. HIGGINSON. Six lawsuits involving or related to the Newlands project have been filed.

On September 14, 1973, the Secretary of the Interior advised the Truckee-Carson Irrigation District that the 1926 contract for the operation and maintenance of Newlands project would be canceled because of the district's failure to observe the operating criteria. To prevent the takeover of project operations by the United States, the district filed the suit *Truckee-Carson Irrigation District* v. *Secretary of the Interior*, Civil No. R–34–74 BRT.

PICK-SLOAN MISSOURI BASIN PROGRAM POLLOCK-HERREID UNIT BENEFIT-COST RATIO

Mr. BEVILL. What accounts for the increase in the benefit-cost ratio in the Pollock-Herreid unit, S. Dak., from 0.95 to 1.2 since last year?

Mr. HIGGINSON. The increase is due to updating the farm budget studies which increased the irrigation benefits to a degree that more than offset the increased costs.

NORTH LOUP DIVISION AND O'NEILL UNITS

Mr. BEVILL. What work is planned in fiscal year 1979 on the North Loup and O'Neill projects in Nebraska?

Mr. HIGGINSON. Work planned in fiscal year 1979 on the North Loup Division includes continued construction of the foundation for Calamus Dam and initiation of design for Davis Creek Dam. Land acquisition will be completed for Calamus Reservoir and continued for the Mirdan Canal. Preconstruction activities on other features of the project will continue.

Work on the O'Neill unit is subject to the court lifting the injunction on construction activity. If the injunction is removed this year, as anticipated, planned activities in fiscal year 1979 include acquisition of rights-of-way for Norden Reservoir and the O'Neill Canal, improvement of a county road for access to Norden damsite, design of Norden Dam, and preconstruction activities on other features of the project.

Mr. BEVILL. Last year's committee report directed the Bureau to begin construction of the Norden Dam and Calamus Dam. What action has been taken in response to the committee report?

Mr. HIGGINSON. We are planning to award the contract for construction of the Calamus Dam foundation late this summer.

We are unable to start construction of Norden Dam this year due to the U.S. court order of March 4, 1977, enjoining the Bureau from any further construction activity until the final environmental statement is supplemented.

We plan to file the supplemental statement in April and are prepared to resume collection of field data for design of Norden Dam immediately following the lifting of the court injunction.

GARRISON DIVERSION UNIT

Mr. BEVILL. A draft report and a draft supplemental environmental statement on alternatives to the Garrison diversion unit was filed February 1 with EPA?

Mr. HIGGINSON. That is correct. At the same time, draft legislation to effect authorization of the modified plan described in the draft report was transmitted by the Secretary of the Interior to the Office of Management and Budget for clearance and submission to the Congress.

GARRISON DIVERSION UNIT

Mr. BEVILL. Describe the recommended plan and briefly outline the various alternatives discussed in the statement.

Mr. HIGGINSON. Six primary plans, ranging in size of irrigable acreage from 250,000 downward to 20,000 acres, were identified for detailed analysis in the supplemental environmental statement. Other alternatives also will be discussed in the alternatives chapter of the statement. The sizes and costs of those six primary plans are: plan 1, 250,000 acres, $623,800,000; plan 2, 215,000 acres, $643,300,000; plan 3, 137,000 acres, $913,500,000; plan 4, 124,000 acres, $453,100,000; plan 5, 102,000 acres $373,400,000; and plan 6(a) 20,000 acres, $176,000,000.

In addition to those six alternatives, the draft report released on February 1, 1978, describes a proposed plan for modification of the project. That proposed plan is a synthesis of features of the six alternatives. It would utilize many of the presently constructed facilities, reduce the total cost by slightly over 40 percent, irrigate 96,300 acres of land, supply water to 15 or more communities, develop 56,847 acres for fish and wildlife mitigation, and develop five areas for recreation use. The proposed plan would minimize wetland losses, water quality impacts on receiving streams, and the need for stream channelization. The proposed plan would cost an estimated total of $365,900,000.

GARRISON DIVERSION UNIT

Mr. BEVILL. The B–C ratio on the Garrison project has increased from 2.9 to 3.5 since last year. Explain the increase.

Mr. HIGGINSON. Based on the total benefits, the benefit-cost ratio for the unit has increased from 2.9 to 3.5 to 1. Based on direct benefits the ratio increased from 1.7 to 1.9 to 1. Those increases reflect the updating of costs and benefits to January 1977 price levels, including new farm budgets. The resulting increase in benefits exceeded the increase in costs.

ANIMAS-LA PLATA PROJECT

Mr. BEVILL. The cost of the Animas-LaPlata project has increased $180 million, including $122 million for cost indexing from 1967. Why haven't these costs been updated since 1967?

Mr. HIGGINSON. The current plan of development for the project is different from that envisioned at the time of authorization. We have been developing alternative plans for the project; and until a firm plan was developed, we felt it was not useful to update the cost annually. Now that we have a firm plan of development the estimated cost has been updated.

Mr. BEVILL. Explain the increase of $84.6 million for a pressurized lateral sprinkler system.

Mr. HIGGINSON. The conversion from gravity to sprinkler irrigation methods has been made to minimize return flow salinity problems, lower operating costs, and to eliminate the need for Hay Gulch Dam and Reservoir.

SAN MIGUEL PROJECT

Mr. BEVILL. What accounts for the change in the B–C ratio on the San Miguel project, Colorado—from 0.8 to 1.4 since last year?

Mr. HIGGINSON. The change is due to updating of the plan to reflect local needs. A considerable cost savings was realized by conversion from gravity to sprinkler irrigation methods, a reduction in both irrigation and municipal and industrial water needs, and a subsequent reducton in the size of Saltado Reservoir. Replacement of the canal and tunnel conveyance system from Saltado Reservoir to project lands with a pipeline elimination of Rodium Dam and Reservoir reduced costs further.

WEST DIVIDE PROJECT

Mr. BEVILL. The benefit-cost ratio on the West Divide project, Colorado, based on total benefits has dropped from 1.8 to 1.2. Explain the decrease.

Mr. HIGGINSON. The decrease resulted from an updated project plan to reflect local needs. The project cost has increased approximately $28 million since the fiscal year 1978 estimate due to cost indexing and modification of the development plan to provide water service for irrigation from the Colorado River in lieu of reservoir storage on Crystal River.

Mr. BEVILL. What are the features of the updated plan for the West Divide project which have caused a cost increase of $25.9 million?

Mr. HIGGINSON. The project was modified in at least two major areas of concern. First, the National Environmental Policy Act necessitated

a reevaluation of environmental impacts. Second, a major oil shale industry failed to materialize. This resulted in reducing the project scope and modifying or deleting facilities. Major revisions include deletion of storage on the Crystal River and elimination of the Huntsman conduit. A pumping scheme from the Colorado River near New Castle, Colo., is now envisioned which would convey water to peaking storage reservoirs for subsequent release to irrigation service areas for municipal, rural, and industrial water users. To defray pumping cost, a run-of-the-river powerplant would be constructed on the Colorado River near Rifle, Colo.

BONNEVILLE UNIT, CENTRAL UTAH PROJECT

Mr. BEVILL. What is the current status of the Bonneville unit of the central Utah project?

Mr. HIGGINSON. As of February 23, 1978, the Bonneville unit is 20 percent complete. Starvation Dam, Knight Diversion Dam, Jordan aqueduct schedules 1 and 2, Soldier Creek Dam, Water Hollow, layout and current tunnels, Strawberry East Side road relocation, Rock Creek Road improvement, and North Fork Duchesne River access road have been completed. Construction is continuing on Currant Creek Dam and pipeline, West Fork Duchesne River access road, Vat tunnel and Stillwater tunnel.

UPPER COLORADO RIVER STORAGE PROJECT: INCREASE IN OPERATION AND MAINTENANCE REQUIREMENTS

Mr. BEVILL. Explain the increase of $1.7 million for operation and maintenance of various units of the Upper Colorado River storage project.

Mr. HIGGINSON. The $1,726,000 increase includes $968,000 for replacement and additions, $123,000 for extraordinary maintenance, and $635,000 for regular operation and maintenance, including $68,000 for the first full year of operation of Crystal Dam.

INCREASE IN RECREATION AND FISH AND WILDLIFE FACILITIES COSTS, UPPER COLORADO RIVER STORAGE PROJECT

Mr. BEVILL. As shown on page 381, total obligations for recreational and fish and wildlife facilities are estimated to increase by $12.6 million, including $2.2 million for "refinements in the estimates." What are these "refinements?"

Mr. HIGGINSON. The refinements in the estimates reflect updated designs, final contract values based on actual pay quantities and bids, and final court awards on land acquisition. The refinements result in increases of $1,097,000 for the Navajo unit, $927,000 for the Seedskadee project, and $450,00 for the Flaming Gorge unit which are partially offset by a decrease of $270,000 for national fish hatcheries, $40,517 for the Curecanti unit, and $269,000 for the Glen Canyon unit.

COLORADO RIVER BASIN SALINITY CONTROL PROJECTS—TITLE I

Mr. BEVILL. Outline the status of the Colorado River Basin salinity control project and describe the work planned in fiscal year 1979.

Mr. HIGGINSON. Construction is essentially complete for the main outlet drainage extension siphon and the United States and Mexican sections of the bypass drain. Land on the south Mesa near the Mexican border has been acquired under condemnation action.

During fiscal year 1978, work will be completed on the first six wells of the protective and regulatory pumping unit, and land acquisition will be completed for the desalting plant site, Wellton-Mohawk acreage reduction, and on the Imperial East Mesa. Design work is continuing on the Yuma desalting plant and will shortly begin on reach 1B of the Coachella Canal replacement. Contracts will be awarded for the desalting equipment for the Yuma desalting plant, reach 1A of the Coachella Canal replacement, and eight additional wells under the protective pumping program. Activities are continuing on the Wellton-Mohawk irrigation efficiency improvement program, for testing at the Yuma desalting facility, and for the reject steam replacement studies.

Best and final proposals for the desalting equipment for the Yuma desalting plant were received by the Bureau in August 1977. After an extensive technical and cost evaluation of the proposals received, the Bureau informed the proposers of their relative ranking and the Bureau's intention to award contracts to two firms. Protests of this action were received from four of the potential suppliers. All of the documentation pertinent to the selection has been submitted to the General Accounting Office for review and resolution. The completion of the overall project may be delayed from 1 to 6 months or more.

During fiscal year 1979, contracts will be awarded for additional desalting equipment and incoming power for the Yuma desalting plant, reach 1B of the Coachella Canal, and an additional seven wells under the protective pumping program. Design of the Yuma desalting plant, and operation of the Yuma desalting test facility, will continue. Activity will also continue on Wellton-Mohawk irrigation efficiency improvement program, reject stream replacement studies, and fish and wildlife mitigation.

TITLE I—COACHELLA CANAL

Mr. BEVILL. Last year the Congress provided funds for initiating work on the Coachella Canal. How were those funds used?

Mr. HIGGINSON. Last year, the committee authorized the use of $200,000 within the fiscal year 1978 appropriation of the Colorado River Basin salinity control projects, title I to begin work on the Coachella Canal replacement. Acquisition of right-of-way will be completed by September 30, 1978. A contract for relocation of the bridge at the Highway 78 crossing is scheduled for award in July 1978. A contract for construction of the first 33 miles of the canal is scheduled for award also in July 1978. We anticipate no problem in maintaining this schedule.

COLORADO RIVER BASIN SALINITY CONTROL PROJECTS

Mr. BEVILL. Explain the cost increases of $47.6 million for the Grand Valley unit, Colorado, and $29.5 million for the Paradox Valley unit, Colorado. Is the present appropriation ceiling adequate for this project?

Mr. HIGGINSON. The increase of $47,570,000 on the Grand Valley unit is due to the following: Cost indexing, $3,520,000; changing project laterals from an open-lined to a closed-pipe system for environmental, operation and maintenance, and salinity cost effectiveness considerations, $30,070,000; updating of the estimate of the Government highline canals to reflect current design criteria, $9,180,000; and including mitigation measures to replace lost wildlife habitat, $4,800,000, and includes a current estimate for operating equipment.

The increase of $29,534,000 on the Paradox Valley unit is due to cost indexing of $1,290,000; total embankment increase in Radium Dam and dikes because of geological conditions encountered and the need to provide additional storage in the evaporation pond increased the total cost $13 million, lining the evaporation pond $10 million; application of current design criteria on hydrogen sulfide stripping station and other refinements in designs and estimates, $4,109,000; an outlet works required to accommodate flows through the dam during construction and a spillway to pass maximum floods flows to protect the structure have been added to the dam, $600,000; housing for operation and maintenance personnel $340,000; and mitigation measures to reduce effect of the project on wildlife resources, $195,000. In addition to these changes, transmission lines are now identified which previously had been included with the pumping plant and the temporary brine disposal system and are now included with the brine well field.

The appropropration authority for this project was included as part of the total authorized by Public Law 93–320 covering this project and also the Crystal Geyser, Grand Valley, and Las Vegas Wash projects. The total amount authorized to be appropriated for these four projects is $182,116,000 (January 1977). The estimated cost to construct these projects is $239,486,288 which is greater than the authorized appropriation. These estimates indicate that additional appropriation ceiling will be required in order to complete construction. When the estimate data become firm, an increased appropriation ceiling will be requested in order to complete construction. In the meantime current commitments will be held within the existing ceiling.

COLORADO RIVER FRONT WORK AND LEVEE SYSTEM DECREASE

Mr. BEVILL. Explain the large decrease of $3.4 million since last year for the Colorado River front work and levee system.

Mr. HIGGINSON. The decrease results because of a reduction of $1,763,000 in the maintenance dredging, bankline and structure protection programs for completion of work, and $1,657,000 for completion of the Cibola Refuge land acquisition program.

INCREASED OPERATION AND MAINTENANCE REQUIREMENTS ON BOULDER CANYON PROJECT

Mr. BEVILL. Outline the work planned in fiscal year 1979 on the Boulder Canyon project for which you are requesting an increase of $3.6 million over the current year.

Mr. HIGGINSON. We plan to replace some worn out turbine runners in the Hoover Dam powerplant as well as some crane hoist motors at the same facility. The runners and motors are estimated to cost about $2 million. We also plan on replacing some transformers at Hoover

Dam and do some roadway modifications on the Arizona side of the dam for safety purposes. This is the major work planned which is responsible in part for the request for increased funds on this project. The balance of the increase is needed for numerous replacement and addition items including vehicles, pumps, compressors, and water and sewage pipe used in our routine work on the project.

COLORADO-BIG THOMPSON PROJECT OPERATION AND MAINTENANCE REQUIREMENTS

Mr. BEVILL. Why is there a decrease in the request for operation and maintenance of the Colorado-Big Thompson project, Colorado.

Mr. HIGGINSON. On this project our operation and maintenance program decreases in fiscal year 1979 by $470,000. This results as we completed major replacement work on the Willow Creek Feeder Canal and the Granby pumping plant in fiscal year 1978. In summary our replacements and addition program decreased $512,000, extraordinary maintenance by $23,000 which were partially offset by a net increase of $65,000 which is for the initial maintenance on our supervisory control system.

BOISE PROJECT INCREASED OPERATION AND MAINTENANCE REQUIREMENTS

Mr. BEVILL. Explain the increase of $166,000 for Boise area projects. Specifically, what projects are involved?

Mr. HIGGINSON. The increase includes $119,000 for replacement and addition items, $27,000 for operating costs, $10,000 for extraordinary maintenance, and $10,000 for new facilities. This program covers the operation and maintenance for completed projects or the following Boise area projects: Boise, Burnt River, Baker, Vale, and Wildhorse.

STATUS OF THE TAKEOVER OF THE NEWLANDS PROJECT

Mr. BEVILL. What is the status of the Newlands project? Do you anticipate taking over operation of the project? Are the budgeted funds required in fiscal year 1979?

Mr. HIGGINSON. Currently, there is a considerable amount of complex litigation which must be resolved before we could take over the operation of this project although we are under court order to do so. Under these circumstances there is very little real chance that Reclamation will need all of the $1,603,000 requested in fiscal year 1979 to operate and maintain Newlands project. We will need $100,000 for management activities on the recreation area at Lake Tahoe.

MAINTENANCE IN THE PECOS RIVER BASIN

Mr. BEVILL. What type of maintenance work is done at the Pecos River basin water salvage project in New Mexico and Texas?

Mr. HIGGINSON. Basically, we are maintaining areas previously cleared of phreatophytes to prevent their regrowth. We wish to emphasize that we will not be clearing any new phreatophytes in the river basin during fiscal year 1978 or 1979.

COLUMBIA BASIN PROJECT INCREASED OPERATION AND MAINTENANCE COSTS

Mr. BEVILL. What are the main items which caused the operation and maintenance costs on the Columbia Basin project. Wash. to increase by $868,000.

Mr. HIGGINSON. The increase includes $599,000 for replacement and additions, $116,000 for increases in operation and maintenance expense which includes materials and supplies, $78,000 for extraordinary maintenance work and $75,000 for operation of the new third powerplant facilities.

NEGOTIATION AND ADMINISTRATION OF WATER MARKETING CONTRACTS

Mr. BEVILL. $66,000 is requested for negotiation and administration of water marketing contracts. How many contracts are involved?

Mr. HIGGINSON. There is a total of 11. Six are in the Central Valley project, three in the Pick-Sloan Missouri basin program, and one each in the Mirage Flats and Trinidad projects.

LOAN PROGRAM

Mr. BEVILL. Again this year, no new loans are proposed in the budget. What is your backlog of pending applications?

Mr. HIGGINSON. Under the Small Reclamation Projects Act, we have one application, Pleasant Valley County Water District, Calif., approved and forwarded to the Congress. An additional eight loan applications are being processed and we should have these submitted to Congress by May 1.

They are: Pleasant Valley County Water District, Calif.; Glenn-Colusa Water District, Calif.; Hidalgo County Water Improvement District No. 2, Tex.; Hidalgo and Willacy Counties Water Control and Improvement District No. 1, Tex. (supplemental); Overland Ditch and Reservoir Co., Colo.; Rainbow Municipal Water District, Calif.; South Weber Water Improvement District, Utah; and West Bench Irrigation District, Mont.

Under the Distribution System Loans Act, we have one application, LaGrande Water District, Calif., which will be requested by us in the near future.

Mr. BEVILL. $3 million, the same as last year, is requested for construction cost increases. How are these funds being spent in the current year?

Mr. HIGGINSON. To date, none of the $3 million has been expended. However, we have one request from the Farmington Area Pressurized Irrigation District in Utah for a cost escalation loan of $1,454,000. That application is in the final stage of processing. In addition, we are anticipating requests for cost escalation loans from three other districts. We believe those requests will be processed and approved during fiscal year 1978. They are the Pioneer Water Co., Calif.; Buffalo Rapids Irrigation District, Mont.; and Redwood Valley County Water District, Calif. and these will essentially utilize the full $3 million.

Mr. BEVILL. On page 467 it indicates that $2.5 million is available in the current year for reprograming adjustments. How will these be used?

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Mr. HIGGINSON. Funds identified as reprograming adjustments are prior year carryovers caused by slippage and savings. They will be used to fund existing projects which may have increased contractor earnings.

EMERGENCY FUND

Mr. BEVILL. The budget contains nothing for the emergency fund. As of January 1, 1978, $5.5 million was available from prior years to meet new emergency situations. Is that amount adequate to cover possible emergencies in the balance of fiscal year 1978 and fiscal year 1979?

Mr. HIGGINSON. Yes. Based on previous years' experience with the requirements for the emergency, the $5.5 million available for the remainder of fiscal year 1978 and fiscal year 1979 appears adequate.

GENERAL ADMINISTRATIVE EXPENSES

Mr. BEVILL. $25,250,000 is requested for general administrative expenses. How many positions will this fund in fiscal year 1979, and to what extent will that number change from the current year.

Mr. HIGGINSON. In fiscal year 1978 and fiscal year 1979 the general administrative expenses appropriation will fund 806 positions. There is no change in the number of positions allocated to this appropriation between the 2 fiscal years.

Mr. BEVILL. Provide a breakdown for the record of the fiscal year 1979 personnel by Department, Engineering and Research Center and regional offices compared to the current year.

Mr. HIGGINSON. In fiscal year 1978 and 1979 the number of positions funded by the general administrative expenses appropriation is 235 for the Bureau of Reclamation, Washington, D.C. office; 130 for the Engineering and Research Center in Denver, Colo.; and 441 for the seven regional offices. We provide no direct funding of positions in the Department of the Interior.

Mr. BEVILL. What are the major items you propose to purchase in fiscal year 1979 for use at the Engineering and Research Center?

Mr. HIGGINSON. We propose to purchase computer terminals to display engineering drawings graphically at remote locations at a cost of $325,000; a minicomputer graphics system that permits the user to modify plans and designs as they are displayed on the graphics terminal at a cost of $500,000; and for $700,000 an uninterruptable power system so that power fluctuations and outages do not disrupt the time-critical applications on the Bureau computer.

Mr. BEVILL. Explain the need for a $90,000 word processing system to be used in the Southwest regional centralized headquarters.

Mr. HIGGINSON. The acquisition of this $90,000 word processing system is needed to enable the Southwest regional office to perform its typing workload more efficiently so that present delays can be prevented in the typing of environmental impact statements, reports, contracts, specifications, and correspondence. The acquisition of this system will also release clerical-typing personnel staff time that will be utilized for other purposes such as better records maintenance, and performance of more clerical support for professional and other higher

graded staff, thus releasing their time for concentration on higher level duties.

Mr. BEVILL. The budget justification submitted for this $25 million appropriation request covers only five pages and is totally inadequate.

Provide a justification for the record which reflects, in detail, what your personnel do and why they are needed. The committee will expect that this budget justification will be expanded for the next budget cycle.

Mr. HIGGINSON. I will provide that for the record.

[The information follows:]

DEPARTMENT OF INTERIOR
BUREAU OF RECLAMATION
GENERAL ADMINISTRATIVE EXPENSES
Additional Justification

The General Administrative Expenses appropriation is used by seven regional headquarters offices, the Engineering and Research Center in Denver, Colorado, and the headquarters office in Washington, D.C. In each of these offices, policy is formulated, policy direction is furnished, and policies are implemented and managed. Personnel are engaged in (1) direction of the program (2) establishment of policies, standards and requirements for performance of the objectives (3) review and control of the operations, (4) supervision of methods and objectives of executive activities, and (5) coordination of the approved policies and standards. In the regional offices, the E&R Center, and the Washington headquarters office, general administrative functions common to any large organization, such as mail and records activities, financial management, administrative procurement, personnel management, and similar functions, are also a part of this program. Some at the specific functions involved are:

General Administration
General Hearings Requiring Bureau Participation
Safety of Dams - Policy and Administration
Interagency Meetings and Reports
Compact Commissions - Meetings and Studies
Contracts Review for Policy
Environmental Policy, Review & Management
Equal Employment Opportunities - Management and Policy
Budgetary Formulation & Planning
Zero Base Budget - Policy & Application
Freedom of Information Problems - Policy and Management
Preparation of Bulletins, Operators' Instructions, Cost Information & Reports
Average Rate & Repayment Reviews
Contract Review for Repayment
Informational Reports
Data Collection & Publication
Assistance in Consultation
Gaging Station and Meteorological Programs Coordination
Attendance at Meetings of Technical Societies and Professional Groups
Review of Bureau Information Report
Policy Regarding Correspondence
Employee Training
Civil Defense Administrative Participation
Administration inForeign Activities Work
Policy and Administration of the Safety Program

The General Administrative Expense function is a requirement that has been delegated through the organization with direction moving from the Commissioner's office in Washington, D.C. and Denver to the seven regional offices.

Each region is responsible for administering the Bureau's program in a geographical area. This involves:

- Construction programs, building multi-purpose dams, and related water resource facilities to provide water, power, flood control, recreation and salinity control and other benefits.

- Loan program to non-Federal organizations for the construction and rehabilitation and betterment of small water resources projects.

GENERAL ADMINISTRATIVE EXPENSES

- Loan program under the Distribution System Loan Act for construction of irrigation and municipal and/or industrial water distribution systems on authorized Federal Reclamation projects.

- Planning of potential developments for the conservation and utilization of water and related land resources and formulation investigations, geothermal investigations, and general engineering and research activities.

- Operation and maintenance of projects to develop power, municipal, and industrial water supplies, irrigation, and other benefits.

To perform the General Administrative Expenses functions, a staff of 806 has been established. This represents a base force of personnel to meet the increased requirements and cover needs of management. The Commissioner's office controls the distribution of staff and this has been maintained at a constant level that is carefully analyzed periodically to assure that buildups are not occurring. Because of employee ceiling limitations, this is of upmost importance as staff levels are needed for execution of important construction and operation and maintenance functions. Staff level in Washington, D.C. are 235; in the Engineering and Research Center, 130, and about 63 in each of the seven regional headquarters office.

Regional Offices	FY 1978	FY 1979
Programs.	$12,815,000	$12,976,000

This increase of $161,000 in FY 1979 over 1978 is for within-grade salary advancements and for annualization in fiscal year 1979 of the October 1977 pay raise.

Management responsibility at each office is as follows:

Regional Office Located at Boise, Idaho:

The Regional office at Boise, Idaho, administers the Bureau programs in the Columbia River drainage area, an area encompassing the entire State of Washington, major portions of Idaho and Oregon, and parts of Montana and Wyoming.

Regional Office Located at Sacramento, California:

The Regional office located at Sacramento, California, administers the Bureau program in the State of California, north of the Tehachapi Mountains, a small portion of southern Oregon, and the greater portion of Nevada.

Regional Office Located at Boulder City, Nevada:

The Regional office located at Boulder City, Nevada, administers the Bureau's program that covers the area of the Colorado River Basin below Lee's Ferry (below Glen Canyon Dam) and includes all of the State of Arizona and parts of California, Nevada, Utah, and New Mexico.

Regional Office Located at Salt Lake City, Utah:

The Regional office located at Salt Lake City, Utah, administers the Bureau's program in all of the drainage of the Upper Colorado River Basin and the Bonneville Basin and covers the State of Utah, half of the State of Colorado, and parts of the States of Wyoming, New Mexico, and Arizona.

GENERAL ADMINISTRATIVE EXPENSES

Regional Office Located at Amarillo, Texas:

The Regional office located at Amarillo, Texas, administers the Bureau's program covering all of the State of Texas; all of the State of Oklahoma; all of the State of Kansas in the Arkansas River Basin except those portions lying in the drainage above Ellinwood; all of the State of New Mexico, except those portions in the Colorado River Basin and in the Upper Arkansas River drainage; and those portions of Colorado in the Cimarron, Canadian, and Rio Grande Basin.

Regional Office Located at Billings, Montana:

The Regional office located at Billings, Montana, administers the Bureau's program in the States of Montana, North and South Dakota, and the upper part of Wyoming.

Regional Office Located at Denver, Colorado:

The Regional office located at Denver, Colorado, administers the Bureau's program for the Lower Missouri River Basin comprising parts of the States of Colorado, Kansas, Nebraska, South Dakota, and Wyoming.

The Engineering and Research Center, Denver, Colorado:

	FY 1978	FY 1979
Programs.....	$3,800,000	$3,863,000

The Engineering and Research Center, located at Denver, Colorado, serves as the central engineering and research office for theBureau of Reclamation. The primary function of this office is to provide expertise in the engineering and research fields for all Bureau offices covering the 17 Western States. Because of its expertise in these fields, it also provides assistance to other Federal agencies, State and local governments, foreign governments, and also to non-Federal interests. These functions require a permanent staff of personnel with specialized technical and managerial skills to serve the various offices within theBureau as well as those outside the Bureau. This funding from General Administrative Expense covers administration only. The cost of the technical operations at the Center are charged to the projects and included in the budget on each.

The estimate for this office's expenses for fiscal year 1979 is $3,863,000. This amount is an increase of $63,000 over fiscal year 1978 and is for within-grade salary advancements and for annualization in fiscal year 1979 of the October 1977 pay raise.

Headquarters Office Located in Washington, D.C.:

	FY 1978	FY 1979
Programs.....	$8,230,000	$8,411,000

The Bureau's headquarters office plans, directs, and controls all Reclamation activities in the 17 Western States within prescribed regulations and procedures. Within this framework, it supervises and coordinates the Bureau's water resource planning activities and the Bureau's participation in foreign technical assistance programs. It directs and coordinates the Bureau's design, construction, and research programs. All ongoing water, land, power, and youth conservation programs of the Bureau receive their overall policy and executive direction from this office. In addition, it supervises and coordinates all Bureau administrative activities, including budget and financial management, procurement and property management,

personnel, safety, data processing, organization and administrative management, general services programs and the Bureauwide administrative automatic data processing applications.

Additionally, this office carries the primary responsibility of administering and formulating policy for the Safety of Dams Program. It also performs coordination work involving intra and interagency assignments with offices located in the Washington, D.C. area and other areas where this responsibility is retained by the headquarters office.

The estimate for this office's expenses for fiscal year 1979 is $8,411,000. This amount is an increase of $181,000 over fiscal year 1978 and is for within-grade salary advancements and for annualization in fiscal year 1979 of the October 1977 pay raise.

Summary:

The budget request of $25,250,000 for fiscal year 1979 will finance the general administrative management requirements associated with program direction and administration of the Bureau of Reclamation. This covers the needs for salaries, travel, and other costs. Policy establishment and planning, analysis and evaluation, legal, financial and resource management, and system analyses are functions to be accomplished with this program.

PURCHASE OF VEHICLES

Mr. BEVILL. You are asking authority to purchase 19 vehicles, including 16 for replacement. Why is it necessary to purchase 3 new vehicles?

Mr. HIGGINSON. Two additional passenger vehicles are needed for expanded project work at the McGee Creek project in Oklahoma, and one additional for the San Luis Valley project, closed basin division, in Colorado.

Mr. BEVILL. Are the 19 vehicles adequate to cover the construction activities of the Bureau?

Mr. HIGGINSON. No. When the budget was originally prepared, we asked for authority to purchase 19 vehicles. We have now requested that this be increased to 30 vehicles. Sixteen of these vehicles are required to replace passenger vehicles which have reached mileage or age replacement standards and are no longer economical to operate.

The other 11 vehicles are to supply requirements for passenger vehicles which would normally be requested from GSA interagency motor pools. For the last 2 years, GSA has been unable to supply all our requirements; therefore, we are requesting authority to purchase passenger vehicles for use on the Dallas Creek project, the Dolores project, and the South Platte projects office—all in Colorado—and at the central Nebraska projects office in Nebraska. These 30 vehicles are adequate to meet the replacement needs for the Bureau as well as meeting the passenger vehicle needs at the locations where expanded construction activities are planned.

Mr. BEVILL. Any other questions?

This committee will stand adjourned.

[Whereupon, at 11:12 a.m., the subcommittee adjourned.]

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