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Senate Hearings

Before the Committee on Appropriations

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Public Works for Water, Pollution Control, and Power Development and Atomic Energy Commission Appropriations

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91st CONGRESS, SECOND SESSION

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APPEALS AND AGENCIES CAPABILITIES

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PUBLIC WORKS FOR WATER, POLLUTION CONTROL, AND POWER DEVELOPMENT AND ATOMIC ENERGY COMMISSION APPROPRIATIONS FOR FISCAL YEAR 1971

HEARINGS

BEFORE THE

SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS UNITED STATES SENATE

NINETY-FIRST CONGRESS

SECOND SESSION

ON

H.R. 18127

AN ACT MAKING APPROPRIATIONS FOR PUBLIC WORKS FOR WATER, POLLUTION CONTROL, AND POWER DEVELOPMENT, INCLUDING THE CORPS OF ENGINEERS—CIVIL, THE PANAMA CANAL, THE FEDERAL WATER QUALITY ADMINISTRATION, THE BUREAU OF RECLAMATION, POWER AGENCIES OF THE DEPARTMENT OF THE INTERIOR, THE TENNESSEE VALLEY AUTHORITY, THE ATOMIC ENERGY COMMISSION, AND RELATED INDEPENDENT AGENCIES AND COMMISSIONS FOR THE FISCAL YEAR ENDING JUNE 30, 1971, AND FOR OTHER PURPOSES

Printed for the use of the Committee on Appropriations



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PUBLIC WORKS APPROPRIATIONS FOR FISCAL YEAR 1971

MONDAY, JUNE 29, 1970

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met at 10 a.m., in room S. 126, the Capitol, Hon. Allen J. Ellender (chairman) presiding.

Present: Senators Ellender, Holland, and Young.

DEPARTMENT OF THE ARMY

CORPS OF ENGINEERS

STATEMENT OF MAJ. GEN. F. P. KOISCH, DIRECTOR OF CIVIL WORKS

ACCOMPANIED BY:

LT. COL. RALPH T. GARVER, EXECUTIVE, CIVIL WORKS
COL. LEONARD EDELSTEIN, ASSISTANT DIRECTOR OF CIVIL WORKS FOR ATLANTIC DIVISIONS
COL. FERD E. ANDERSON, ASSISTANT DIRECTOR OF CIVIL WORKS FOR CENTRAL DIVISIONS
COL. KENNETH E. McINTYRE, ASSISTANT DIRECTOR OF CIVIL WORKS FOR PACIFIC DIVISIONS
LT. COL. CARLYLE H. CHARLES, ASSISTANT DIRECTOR OF CIVIL WORKS FOR PLAINS DIVISION
LT. COL. LEON E. McKINNEY, ASSISTANT DIRECTOR OF CIVIL WORKS FOR MISSISSIPPI VALLEY
MARK S. GURNEE, CHIEF, OPERATIONS DIVISION, CIVIL WORKS
LOUIS G. FEIL, CHIEF, PLANNING DIVISION, CIVIL WORKS
HARRY COHEN, CHIEF, PROGRAMS DIVISION, CIVIL WORKS
AUGUST J. SMET, ASSISTANT CHIEF, PROGRAMS DIVISION, CIVIL WORKS
ALEX SHWAIKO, PLANNING DIVISION, CIVIL WORKS

GENERAL INVESTIGATIONS

Senator ELLENDER. The committee will come to order.

General, as I have promised all outside witnesses I have recalled you and your staff to find out your capability on various requests made to the committee and to consider the effect of the House action on your budget requests.

GENERAL INVESTIGATIONS

We will first consider, "General investigations."

Reductions

I note the House action provides for a reduction in the amount budgeted for the general investigations program. What effect would this have on the preauthorization study program?

General Koisch. The House action on the fiscal year 1971 appropriations bill provides for an overall reduction of $1,038,000 from the amount budgeted for the general investigations program, also representing a reduction of $2,632,000 from the amount appropriated for fiscal year 1970. Taking into account the House allowance for 13 unbudgeted new studies and an increase of $1 million for the Chesapeake Bay model, the reduction applied to the budgeted program amounts to $2,047,000 in addition to the budgeted $500,000 for savings and slippages.

In its report the House committee points to the compelling need for expansion of the water resources program in the immediate future to meet the needs that have been projected by the Water Resources Council in its first assessment completed in 1968. The general investigations program is geared toward producing timely reports for meeting these needs. The reduction in funds proposed by the House committee would slow down completion of reports for urgently needed improvements and may require some reduction in staff capability necessary to sustain the long range study program.

While a substantial backlog of authorized but unfunded projects now exists, a continuing high level of study funding is necessary to maintain a balanced nationwide program which is responsive to the changing needs of our society. The increased attention currently being given to improved environmental quality and the interrelationship of current water resources planning efforts to high priority programs for solving urban problems impose added requirements for sustaining the current level of study effort. It is recommended that the $2,047,000 reduction proposed by the House be restored.

San Francisco Bay Study

Senator Ellender. I note that House action would eliminate funds for the continuation of the San Francisco Bay (in-depth) study. How would this affect your plans?

General Koisch. Elimination of the budgeted amount of $350,000 for continuation of this study would adversely affect the orderly programing for the study and would result in untimely delays in the implementation of comprehensive action programs for the San Francisco Bay area. The uniqueness of this study, as set forth in the preliminary draft of the plan of study, is highlighted by explicit recognition that future use and development of the bay resources must take into account the role of the bay resources for transportation, for environmental enhancement, for recreational and cultural purposes, and for general community well-being. All these uses and functions

should and will have legitimate claim on how the bay resources will be used and managed in the future.

The San Francisco Bay (indepth) study will be designed and executed to establish use and development criteria under alternative conditions related to the several major objectives such as transportation, environment, and general community use and can serve as guides to the implementation of action programs. We do know that in the near future hard decisions will have to be made with respect to harbor and related developments for transportation in the area as well as decisions with respect to the enhancement and protection of environmental and community values of the bay resources. The proposed study would provide the basis for making these decisions at the Federal level as well as the State, local, and private levels.

It is anticipated that the detailed plan of study will be submitted to the Office of the Chief of Engineers by December 1970. After review it will be promptly forwarded to the Appropriations Committees. Completion of the detailed plan of study will involve reaching agreements with other agencies, State and local as well as Federal, with respect to their role and participation in the study. Early approval of plan of study in 1971 could then be followed by actual initiation of the study itself. In the absence of funds for that purpose it would be most difficult to obtain the necessary commitments from others to carry forward this effort within a time frame responsive to the objectives for the use and development of the bay resources.

Senator ELLENDER. General, in view of the lateness of completion of the detailed plan of study, couldn't you get by with, let us say, an appropriation of $100,000?

General KOISCH. Yes, sir; we could.

Senator ELLENDER. All right. We'll see what we can do.

CANNONBALL RIVER BASIN, NORTH DAKOTA

Senator YOUNG. What is the status of the Cannonball River Basin survey?

Colonel CHARLES. Sir, this study is in the early stage of development. Collection, review, and tabulation of basic data is under preparation, and an inventory of existing projects has been compiled. We have received from Federal and State agencies statements as to their interests in basin developments, and are compiling detailed flood damage data at the present time. The budget for fiscal year 1971 includes $5,000 which will be used in conjunction with $10,000 to be released from budgetary reserve for continuation of work on the survey in fiscal year 1971.

Senator YOUNG. What is your capability on this study for fiscal year 1971?

Colonel CHARLES. Sir, subject to usual qualifications, our capability on this survey for fiscal year 1971 is $30,000. This is in addition to the $10,000 which is to be released from budgetary reserve.

CROSS-WABASH VALLEY WATERWAY, IND., MICH., AND OHIO

OPPOSITION

Senator ELLENDER. The National Wildlife Federation claims that a Cross-Wabash Valley Waterway would replace modern and efficient

methods of transporting goods and materials with an outdated and inefficient method. Have you any comments on this statement?

Colonel ANDERSON. Judging by the tremendous growth of traffic on the Nation's inland waterways, and the preference of bulk shippers to use waterborne methods of transportation wherever possible because of the savings in shipping costs over alternative methods, barge navigation can hardly be called outdated and inefficient. Our study will compare the economic pros and cons of shipping via waterway as opposed to shipping via alternative modes such as rail and truck. At this stage of the study, we don't yet know which method would have an economic advantage for moving the types of commodities that would be involved.

Senator ELLENDER. The Federation also claims that a Cross-Wabash Valley Waterway would seriously affect antipollution efforts and fish and wildlife values in the area. Have you any reason for concern over the possible pollution and fish and wildlife aspects of a new canal?

Colonel ANDERSON. At this point, we haven't selected the most promising route for the prospective waterway. We are not aware of any specific or insurmountable problems concerning pollution or fish and wildlife resources that a canal would cause. Assuming a full-scope survey of the waterway is undertaken, these matters will be closely coordinated with the appropriate Federal and State agencies having expertise and responsibilities in these fields, including the Department of the Interior.

CONSTRUCTION

HOUSE REDUCTION FOR "CONSTRUCTION, GENERAL"

Senator ELLENDER. I note that the House increased the amount of slippage reduction for "Construction, general" by $3,425,000 and also made a further general reduction of $25,168,000, based on anticipated additional carryover balances. Will your carryover be greater, and what effects will these general reductions have on your program?

General KOISCH. Mr. Chairman, our carryover for "Construction, general" will be greater than was estimated in the budget, but this has mostly been due to the fact that the contract deferral program directed by the President last fall has greatly reduced our flexibility to compensate for slippages on going work. Under more normal circumstances, when we incur delays on land acquisition or the award of a contract, we are able to switch the funds and make an earlier award of another contract on the same or on another project to compensate for the slippage—but with 75 percent of our new contract obligations deferred we have had very few opportunities to reallocate the funds to equally productive work.

We are hopeful that fiscal year 1971 will not see a repetition of this situation, and we fully expect to be able to utilize both our carryover and the 1971 appropriation effectively. Also, we consider it extremely important that we get on with the tremendous water resource development job that must take place if we are to meet the needs of the people over the next decade or two. If the general reductions made by the House are not restored, we will probably have to let some of the work we had scheduled for fiscal year 1971 slip because of a lack of funds.

Alabama River Channel Improvement, Alabama

Senator Ellender. The budget request was $792,000. The House has included $792,000 and local interests have requested $1,500,000. What is your capability on this project?

General Koisch. Our capability on this project is $792,000, Mr. Chairman, the budget amount.

Montgomery, Ala.

Senator Ellender. There is nothing in the budget. The House has included $50,000 in planning funds and local interests have requested $50,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $50,000 to resume preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$4,580,000
Total allocations to date	36,000
Balance to complete	4,544,000
Amount that could be used in fiscal year 1971	50,000

Authorization: 1958 River and Harbor Act

Location and Description—The City of Montgomery, the capital of Alabama, is located on the left bank of the Alabama River 300 miles above its mouth, in the south central section of the State of Alabama. The proposed improvements consist of 14,434 feet of levee, 820 feet of floodwall, 6 gated outlet structures and culverts, 7 temporary closure structures, 15,800 feet of drainage ditches, and 1 pumping station with storage pond.

Proposed Operations—The $50,000 could be used to resume preconstruction planning.

Justification—The north part of Montgomery is subject to recurrent flooding. Floods have seriously affected the development of the north part of Montgomery, which is well suited for industrial development because of access to many railroads and the river. The flood of February-March 1961 caused damages, in the area to be protected, estimated at $2,200,000 and the average annual flood damages to existing development are $168,000. The proposed improvements would protect 1,463 acres which contain 62 business establishments, 863 residences, and 517 acres of land that could be developed for commercial and industrial use. Six counties within a reasonable commuting distance of Montgomery have been designated redevelopment areas under the Public Works and Economic Development Act of 1965. Average annual benefits are $497,000 for flood control and $30,000 for area redevelopment. The benefit-to-cost ratio is 1.7 to 1.

Tennessee-Tombigbee Waterway, Ala. and Miss.

Senator Ellender. The budget request was $1 million. The House has included $1 million and local interests have requested $2 million. What is your capability on this project?

General Koisch. Our capability on this project is $2 million, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $1 million?

General Koisch. The additional amount would be used to acquire additional land and to accomplish additional design.

OPPOSITION

SUBSIDY TO BARGE TRANSPORTATION

Senator ELLENDER. The committee has heard testimony expressing opposition to the Tennessee-Tombigbee Waterway project. It was stated that the proposed project would be constructed, maintained, and operated at no cost to the beneficiaries. Consequently, such costs need not be reflected in barge rates which give the illusion of lower barge rates and costs, and that any form of public aid in the absence of user charges leads to the uneconomic expansion of the subsidized facility and permits the establishment of rates below the appropriate economic level.

Colonel EDELSTEIN. Mr. Chairman, Federal participation in construction and maintenance of waterways at no cost to waterway users is an inherent part of national policy to make inland water transportation publicly available. The criteria and standards for measuring savings for navigation projects are prescribed by Congress and no provision is made for considering the cost of constructing and maintaining the project in developing the barge rates.

EVALUATION PROCEDURES

Senator ELLENDER. It was further stated that section 7 of the Department of Transportation Act requires navigation benefits be computed by comparing estimated barge rates with current rates of carriers moving the traffic. The opposition contends that this procedure cannot measure national income gains or social savings in terms of resource requirements.

Colonel EDELSTEIN. Mr. Chairman, the evaluation standards for navigation projects as used in this report were prescribed by Congress in the Department of Transportation Act of 1966, section 7(a). Contrary to the statement, it is considered that the movement of traffic by the most economical means available, and the savings thereby realized, contribute to national efficiency and promote economic development that is beneficial to the general public.

Senator ELLENDER. It was also stated that a number of studies over a period of many years have found the benefit-cost ratio for the Tennessee-Tombigbee Waterway to be only marginal. The opposition then states, it is rather difficult to understand how the computation of benefits in accordance with section 7 of the Department of Transportation Act and changing the period of the economic life of the project results in a benefit-cost ratio of 1.6 to 1.

Colonel EDELSTEIN. Mr. Chairman, in benefit evaluations made prior to the 1969 reevaluation, savings were measured on the basis of the least costly alternative which, in many cases, was the alternative Mississippi River water route even though the traffic was moving by overland routing. This method tended to minimize the savings. Prospective traffic has been reanalyzed in accordance with section 7 of the 1966 Transportation Act, with savings computed to reflect the difference between rates shippers are actually paying via the mode being used and rates they probably would pay via the proposed waterway. This results in an increase in the unit savings. Also, the 50-year

period of analysis was changed from 1976–2026 to 1980–2030 in accordance with the up-to-date construction schedule. This 4-year project delay results in a higher base year tonnage estimate. This comprehensive reevaluation of benefits and costs resulted in an increase in the benefit-cost ratio from 1.2 in the 1966 report to 1.6 in the 1969 reevaluation.

Senator ELLENDER. It was testified that the Tennessee-Tombigbee report fails to evaluate differences in time and services in estimating traffic and transportation savings. The witness contended that time and service considerations should be included or added to estimated barge rates in estimating traffic and transportation savings.

Colonel EDELSTEIN. Mr. Chairman, the Corps is directed by section 7 of the Department of Transportation Act of 1966 to measure savings as the difference between the freight rates prevailing at the time of the study for the movement by the alternative means and those which would be charged on the proposed waterway. The traffic that is estimated to move via the proposed waterway was based on a thorough analysis of the existing traffic movement in the tributary area. The potential traffic was carefully screened to eliminate those movements that were not, for a variety of reasons, susceptible to movement on the waterway. The elements considered in screening the potential traffic included the annual volume of the movement, the frequency and volume of individual shipments, the ability of shippers and receivers to handle barge lots, time in transit, the nature of the commodity, its adaptability to barge transportation, and the origin, destination, and direction of movement in relation to the waterway. The traffic available for water movement, after the screening process was completed, was subjected to a rate analysis. Based on a consideration of the magnitude of the indicated savings, a decision was made as to whether or not the movement would be diverted to the waterway. In making the decision, consideration was given to such factors as the value of the commodity, added warehousing and inventory costs, and the views of the shippers and receivers concerned. Only traffic for which the difference in rates was judged to be sufficiently large to divert the traffic to the waterway was included in the estimated waterway traffic. These criteria are followed in all similar type navigation studies. Admittedly, they are difficult to quantify, but every effort is expended to obtain a reasonable estimate of prospective traffic and savings.

INTEREST RATES

Senator ELLENDER. It was stated that current justification of the Tennessee-Tombigbee Waterway results, in part, from the unrealistic interest rate used to compute costs and discount benefits. The witness further stated that, the Water Resources Council formula for computing interest rates, as adopted in December 1968, allows the subject waterway to be studied on the basis of an interest rate of 3¼ percent; whereas, if the project were analyzed on the more appropriate rate of 6 percent, the benefit-cost could be less than 1 to 1. Will you comment on this?

Colonel EDELSTEIN. Yes, Mr. Chairman; the Bureau of the Budget, in December 1968, approved the present formula proposed by the Water Resources Council for computing interest rates in evaluating

water projects. Under the Water Resources Council's regulation, the project is eligible for evaluation at the 3.25 percent rate since it was authorized prior to the issuance of that regulation and satisfactory assurances regarding local cooperation have been received. The same situation applies to all other authorized projects.

PUBLIC REVIEW OF CORPS ANALYSES

Senator ELLENDER. The Association of American Railroads claims that the Corps of Engineers has a long-standing policy of not releasing relevant information for the interested public to review, and the contend that this policy protects the Corps of Engineers from independent criticism of its analyses.

Colonel EDELSTEIN. Sir, the Corps of Engineers endeavors to make available all information that can be supplied under the provisions of the statutes relative to public information. With regard to the subject report, details of assumptions and methods used in deriving commerce and savings, barge-costing procedures, and traffic projection factors and methods are described in the published appendices. However, there are certain details regarding production and marketing patterns for specific movements which are obtained on a privileged or confidential basis and which cannot be identified or released on an individual basis.

NEED FOR THE PROJECT

Senator ELLENDER. The Association of American Railroads states that there is no real need for the project and its construction will result in the wasteful use of the Nation's limited resources. The witness contends that the Tennessee-Tombigbee Waterway area is adequately served by motor carriers, barge lines, pipelines, and railroads. Not only is transportation capacity more than adequate, but the level of rates is such as to promote the movement of commodities to, and within, the area. He further states that the availability of a navigable waterway does not assure economic growth. However, if the objective of the proposed project is to encourage economic expansion along the proposed waterway, the witness contends that the costs and benefits of alternative programs should be analyzed.

Colonel EDELSTEIN. Mr. Chairman, waterway navigation projects are developed by the corps at the direction of Congress in conjunction with the national transportation policy which encourages the development of all modes of transportation, recognizing that each has inherent advantages in an overall nationally efficient transportation system. The Tennessee-Tombigbee Waterway serves an area of Appalachia which is suffering from economic underdevelopment. The project would provide low-cost barge transportation for heavy and bulk commodities to and from the tributary area along the Tennessee-Tombigbee Waterway. The waterway will also open a new direct and more competitive mode of transportation to and from the Gulf of Mexico through the Port of Mobile to serve the Appalachia region of north Alabama, Mississippi, and Tennessee. The project will also greatly stimulate the economic development and growth of the surrounding Appalachia area. However, benefits estimated do not include those of an intangible or secondary nature, or those attributable to stimulation of economic growth. Justification for the project is based on savings in

transportation charges which would accrue to shippers distributed over a wide area in eastern and southeastern regions.

NATIONAL PRIORITIES

Senator ELLENDER. The Association of American Railroads states that, if the 1971 budget is recommending that construction be initiated on only high-priority projects, funds should not be appropriated for initiating construction of the Tennessee-Tombigbee Waterway.

Colonel EDELSTEIN. Mr. Chairman, the Tennessee-Tombigbee Waterway project is one of 16 new construction projects proposed for initiation in fiscal year 1971. An analysis of the water resources needs of the various regions of the country shows that these projects are high-priority projects for meeting those needs. The Tennessee-Tombigbee Waterway is a high-priority project which will provide a trade route from the gulf coast to the midcontinent region of the United States. It will make possible cheaper transportation costs, thereby lowering production and marketing costs benefiting a major segment of the United States. The economic impact of the waterway is considered to be national in scope and the project will return benefits in the order of 1.6 times its cost. This project is considered to be a sound investment for the United States.

DECLINE OF COMMON CARRIERS

Senator ELLENDER. It was stated that trends of public expenditure for nonrail transport would tend to accelerate the trends toward overexpansion of transport capacity and continue the decline of common carriers. With the close proximity of the Mississippi River navigation facilities and the existence of adequate rail, highway and pipeline transport facilities, the witness contends that there is no lack of transportation in the Tennessee-Tombigbee area. He also asserts that the proposed waterway will further divert traffic from the railroads and have an adverse effect on their revenue.

Colonel EDELSTEIN. Mr. Chairman, the 1961 Doyle report predicted a serious decline of common carriers, with private carriage becoming the base of the Nation's transportation system. According to statistics published by the Transportation Association of America, the railroad share of total freight traffic declined about 2 percent between 1961 and 1967. During that period, railroad ton-mile traffic increased about 28 percent—from 570 billion in 1961 to 731 billion in 1967. It appears that the predicted serious decline in railroad freight traffic has not occurred. It is pointed out that the inland waterway's percentage of total traffic has remained substantially unchanged during this same period, which does not bear out the implication that the waterways are responsible for the slight decline in the railroad's share of total traffic.

OVERSTATEMENT OF TRAFFIC AND SAVINGS

Senator ELLENDER. The Association of American Railroads Tennessee-Tombigbee Waterway Committee submitted a statement before the Public Works Subcommittee in 1967 demonstrating that prospective traffic is grossly overstated. Their statement perports to show that this resulted from a failure by the Engineers to recognize alternative routes and sources, and by an overstatement of the demand for pe-

troleum. Further, they contend that many of the commodities which are estimated to move over the proposed waterway are now moving via rail and will, in many cases, continue to do so. The witness asserts that contributing to this overstatement is the fact that there are movements via rail of commodities expected to move via this waterway to points now located on water at rates higher than barge rates.

Colonel EDELSTEIN. Questions concerning prospective traffic and transportation savings presented before the Public Works Subcommittee in 1967 have been answered in the previous Chief of Engineer's testimony before this committee. However, since the railroad's brief specifically questions the petroleum traffic, this point is discussed again. The tributary area defined by the Corps included considerably more counties in Alabama than used by the Association of American Railroads, and an equal number in Tennessee, and took into consideration the possibility of pipeline competition. The information on sources of shipments in the tributary area was determined by the corps through field investigation. The Association of American Railroads evidently determined their tributary limits on the basis of computed delivery costs from the nearest refinery (or one from which the lowest transportation costs would apply). The pattern of distribution of petroleum products is determined by a complex group of relationship of supplies of material and cost and not by a simple calculation based on refinery locations. The tributary area used by the corps was determined by investigation—not computation based solely on refinery locations—and this larger tributary area accounts for the difference in estimated base-year tonnages.

Another issue is that of the lowest available rates applying to the movement of petroleum products. Although the Association of American Railroads unit savings on products estimated to move compare favorably with the average unit savings determined by the Corps, the Association of American Railroads suggests that existing pipelines could be extended along the route of the waterway to handle much of this tonnage estimated (by the corps) to move via barge-truck to consumers. This may be true, but the fact remains that such facilities do not now exist, and the transportation rates now applying do not reflect their existence. Until such facilities are provided, the barge-truck movement via the proposed waterway is estimated to be the most economical mode of transportation for the tonnages in question.

Many of the points now located on water and using rail transportation find the present Mississippi River water routes unsatisfactory because of the long circuitous routing. The Tennessee-Tombigbee Waterway will connect the Tennessee River area with the gulf coast by a direct and more competitive water route. The distance via the Tennessee-Tombigbee project is substantially less than via the Mississippi River. This distance and time advantage, in addition to freight rate savings, is expected to be an important factor in future use of the waterway.

INVESTMENT IN INLAND NAVIGATION PROJECTS

Senator ELLENDER. The railroads state that, largely as a result of inadequate evaluation procedures, including artifically depressed interest rates, and the total absence of user charges, investments in in-

land navigation projects have been substantial. They contend that the magnitude of these expenditures requires that the Nation reassess current evaluation procedures for analyzing inland navigation projects and the urgent need to institute a system of waterway user charges.

Colonel EDELSTEIN. Mr. Chairman, as I have stated in the preceding comments, evaluation procedures and matters concerning user charges are national policies which are prescribed by Congress. It is the Corps of Engineers responsibility to determine whether proposed navigation projects are worthy of improvement according to standards and criteria developed in accordance with the Department of Transportation Act of 1966. The Water Resources Council is making studies on improving guidelines for evaluating benefits and costs in the formulation of Federal water resource projects. These studies have not been completed at this time. Until such time as the guidelines are revised, the corps will evaluate waterway projects under present criteria and standards.

IMPACT ON ENVIRONMENT

Senator ELLENDER. The committee has also received opposition to this project concerning the environmental problems. Has the corps made or does it intend to make a study of the effect of the Tennessee-Tombigbee Waterway on the environment?

Colonel EDELSTEIN. The detailed engineering for this project will be carried out in accordance with the requirements of the National Environmental Policy Act of 1969, Public Law 91–190. This act requires that for every major Federal action significantly affecting the quality of the human environment a detailed statement will be prepared by the responsible official on:

(*a*) the environmental impact of the proposed action,

(*b*) any adverse environmental effects which cannot be avoided should the proposal be implemented,

(*c*) alternatives to the proposed action,

(*d*) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and

(*e*) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

Prior to making any detailed statement, the responsible Federal official shall consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved. Copies of such statements and the comments and views of the appropriate Federal, State, and local agencies, which are authorized to develop and enforce environmental standards, shall be made available to the President, the Council on Environmental Quality, and to the public.

EVALUATION OF COMPLETED PROJECTS

Senator ELLENDER. Has the Congress ever directed an evaluation be made of completed water resource projects?

Colonel EDELSTEIN. There has been no comprehensive evaluation

of effectiveness or economic justification of completed projects directed by the Congress in recent years.

Senator ELLENDER. What procedures does the corps follow in evaluation of project effectiveness?

Colonel EDELSTEIN. While no comprehensive evaluation is made of completed projects, their effectiveness is reviewed annually. In connection with flood control projects, an assessment and analysis is made after each storm of the flood damages prevented. The 900 Corps projects of all categories, now effective for flood control, prevented in excess of $2¼ billion in damages in fiscal year 1969 alone. Total flood control damages prevented by the Corps program since 1918, the year of first Federal participation in flood control, amounts to $19 billion. The evaluation of all flood damages prevented, to date, indicates the savings to the Nation in damages prevented, far exceeds the cost of constructing the projects. Navigation project benefits are not determined annually for specific projects but actual harbor and inland waterway traffic has been found to historically exceed the potential projections used in the project authorization studies.

In connection with the recreational benefits claimed, studies made indicate that the visitation to civil works projects has far exceeded the projections made in the initial preauthorization studies. With continued population growth and increased leisure time, it is anticipated that Federal investment in recreational facilities will continue to be fully justified.

Reimbursable features such as water supply and power lend themselves to easier and more precise evaluation. This is possible since the income from these features can be readily determined and weighed against the specific costs allocated to those features.

Should it become apparent during any of these periodic evaluations that a project was failing to fulfill its authorized purpose and justify its continued operation, possible economies or abandonment would be recommended to the Congress. Examples of operating economies include the conversion of powerplants to permit the remote operation of one from another; also the transfer of operation and maintenance responsibility of recreational facilities to State or local agencies. Abandonment of navigation facilities on the Little Kanawha and Big Sandy Rivers in West Virginia resulted when the decrease in traffic would not support continued operation of the projects.

BRADLEY LAKE, ALASKA

Senator ELLENDER. There is nothing in the budget and local interests have requested $200,000. What is your capability on this project?

General KOISCH. Mr. Chairman, we do not have a capability on this project at this time. We have an economic analysis and a power market feasibility study underway. Until this work is completed, we are in no position to use additional funds on this project.

Senator ELLENDER. Would you submit a statement for the record describing the Bradley Lake project, and giving the status of planning?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $79,000,000
Total allocations to date (planning)	149,000
Balance to complete	78,851,000
Amount that could be utilized in fiscal year 1971	0

[1] Costs allocated to power generation, estimated at $79,000,000, are to be reimbursed to the Federal Government.

Authorization.—Flood Control Act of 1962.

***Location and Description.*—Bradley Lake is located about 25 miles northeast of the city of Homer and about 100 air miles south of Anchorage, Alaska. It is at elevation 1,000 feet about 4 miles southeast of the head of Kachemak Bay on the** Kenai Peninsula. Bradley Lake was authorized essentially as a hydroelectric project with some other minor related purposes. It would consist of a straight concrete gravity main dam at the outlet of the lake with an ungated free overflow spillway in the center. The dam would raise the lake level about 100 feet to create about 300,000 acre-feet of usable storage. Low dams would be constructed in two saddles to contain the higher pool level. In addition, North Fork of Bradley River would be diverted into the lake drainage; and the runoff from the glacier at the head of Bradley Lake, which is now flowing into Nuka River, would be diverted directly into the lake. The mean power flow of 475 cfs acting through this head would develop about 69,300 kilowatts of dependable capacity.

***Proposed Operations.*—An economic reappraisal and power marketing feasibility** study is currently underway with funds appropriated in FY 1969 and FY 1970. Until this study is completed no funds could be economically used on the Bradley Lake project. The study is scheduled for completion during the summer of 1970.

***Justification.*—The power now marketed in the Cook Inlet area is supplied by both hydro and fossil fuel plants. The existing hydroelectric plants, Eklutna** (APA) and Cooper Lake (Chugach Electric Association, an R.E.A.-financed Cooperative) have a combined installed capacity of 45,000 kilowatts. The combined steam and internal combustion plants excluding military have a total capacity of 131,200 kilowatts of which about 10,000 kilowatts are very high-cost diesel units. The total installed capacity of all units is 176,200 kilowatts. Current forecasts by the Federal Power Commission for the Anchorage-Kenai area indicated a peak load of 249,800 kilowatts in 1975, 410,000 kilowatts in 1980, and 689,500 kilowatts in 1985. Annual energy consumption during this period is estimated to be 1,138,000 MWH in 1975, 1,920,000 MWH in 1980, and 3,201,000 MWH in 1985. These forecasted peaking demands will exceed existing capacity in the Anchorage-Kenai area by 73,600 kilowatts in 1975, 233,800 kilowatts in 1980, and 513,300 kilowatts in 1985. There are no additional authorized Federal hydropower projects in the area. Annual benefits are estimated at $3,635,000; of which $3,368,000 would accrue from power production, and area redevelopment benefits total $276,000. The benefit-to-cost ratio is 1.1 to 1, based on 100-year project life.

Hoonah Harbor, Alaska

Senator Ellender. There is nothing in the budget, and local interests have requested $150,000. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized, if the project is authorized during the current session of Congress our capability would be $150,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$3,960,000
Total allocations to date	0
Balance to complete	3,960,000
Amount that could be utilized in fiscal year 1971	150,000

Authorization.—Not yet authorized.

Location and description.—The City of Hoonah is situated on the northeast shore of Chichagof Island in Southeastern Alaska. The city lies on the east shore of Port Frederick near its confluence with Icy Strait, 70 water-miles west of Juneau, 130 water-miles north of Sitka and 950 air-miles northwest of Seattle, Washington. The proposed improvement provides for the construction of: (1) two rubble-mound breakwaters totalling 1,290 feet in length, with crest elevation 24 feet above MLLW on the north (seaward) side of the harbor; (2) a continuous rubble-mound breakwater and diversion-dike, 3,625 feet long with a crest elevation of 24 feet above MLLW, on the south and west sides, which prevents fresh water and ice from entering the inclosure; (3) and a dredged entrance channel and access channel, 150 feet wide and 800 feet long, to a depth of 16 feet below MLLW.

Proposed operations.—Subject to authorization of the project by Congress, the sum of $150,000 could be used to initiate and complete preconstruction planning.

Justification.—The economy of Hoonah is based entirely on commercial fishing and associated services. The waterways around Hoonah, extending 50 miles to the west, northeast and south, are highly productive fishing grounds for salmon, shellfish, bottom fish and halibut. The present limited harbor facilities are often overcrowded with the local and transient fleets berthing several vessels abreast. There are no natural harbors in the area which provide full natural protection. Wave action created by storms from the northwest to the southwest causes considerable boat and harbor facility damage. In addition, the prevailing southeast winter winds drift large frozen blocks of stratified ice and silt from the flats, where they are formed, into Hoonah's waterfront causing further boat and harbor facility damage. A protected harbor would lend stability to Hoonah's economy through: reductions in boat damages and maintenance costs; increased operational efficiency; and promotion of economic growth. In addition, the harbor would provide safe haven as a harbor of refuge, promoting both a tangible economic benefit and the intangible, but important value, of reduction in risk to human lives. Estimated annual benefits total $379,200, and are tabulated below. The benefit-to-coast ratio is 1.6 to 1, based on 50-year project life.

Benefit	*Amount*
Reduction in damages	$34,400
Increased fish harvest	321,400
Harbor of refuge	9,500
Economic development	13,900
Total annual benefits	379,200

Humboldt Harbor, Alaska

Senator Ellender. There is nothing in the budget, and local interests have requested $120,000. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized, if the project is authorized during the current session of Congress our capability would be $120,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,300,000
Total allocations to date	0
Balance to complete	2,300,000
Amount that could be utilized in fiscal year 1971	120,000

Authorization.—Not yet authorized.

Location and description.—Humbolt Harbor is an indentation in the northwestern shore of Popof Island in the Shumagin Islands of Southwestern Alaska. The city of Sand Point lies north of the harbor. Sand Point is 1,600 air miles northwest of Seattle and 350 air miles southwest of Kodiak, the nearest port

offering comparable facilities and services. The proposed improvement provides for the construction of: (1) two rubble-mound breakwaters totaling 1650 feet in length with crest elevation 16 feet above MLLW; (2) a dredged entrance channel and access channel, 150 feet wide and 800 feet long, to a depth of 18 feet below MLLW; (3) and a rubble-mound diversion-dike, 1060 feet long, and diversion channel, 300 feet long, which prevents fresh water and ice from entering the enclosure.

Proposed Operations.—Subject to authorization of the project, the sum of $120,000 could be used to initiate and complete preconstruction planning.

Justification.—The economy of Sand Point is based entirely on commercial fishing and associated services. The community does not have a harbor area which provides full natural protection. The violent southwest to west storms, with winds in excess of 100 miles per hour, cause harbored vessels to drag anchor and ground on the rocky beach, resulting in hull damage or total loss. A protected harbor would lend stability to Sand Point's economy through: reductions in boat damages and maintenance costs; increased operational efficiency; and promotion of economic growth. In addition, the harbor would provide safe haven as a harbor of refuge, promoting both a tangible economic benefit and the intangible but important value of reduction in risk to human lives. Annual benefits are estimated at $265,000, and are tabulated below. The benefit-to-cost ration is 2.0 to 1, based on 50-year project life.

	Benefits
Reduction in damages	$21,000
Reduction in maintenance costs	4,000
Increased fish harvest	207,000
Harbor of refuge	23,000
Area redevelopment (EDA)	10,000
Total annual benefits	265,000

Kake Harbor, Alaska

Senator Ellender. The budget request was $50,000. The House has included $50,000, and local interests have requested $180,000. What is your capability on this project?

General Koisch. Our capability on this project is $180,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $130,000?

General Koisch. The additional amount would permit us to initiate and complete preconstruction planning in a single fiscal year, instead of in 2 years as now contemplated, sir.

King Cove Harbor, Alaska

Senator Ellender. There is nothing in the budget and the House allowed $100,000, exclusive of reserve and local interests have requested $100,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $100,000, which would enable us to initiate construction on the harbor improvement in fiscal year 1971.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated federal cost	$700,000
Allocations to date (planning)	60,000
Balance to complete	640,000
Amount that could be utilized in fiscal year 1971	100,000

Authorization.—River and Harbor Act of 1968

Location and description.—King Cove is located near the southwesterly tip of the Alaskan Penninsula. The nearest ports of principal importance are at Kodiak about 450 miles to the northeast, and at Dutch Harbor about 175 miles to the southwest. The project would provide an 11 acre anchorage basin with an entrance channel protected by a groin and a training dike.

Proposed operations.—The sum of $100,000 could be utilized to initiate construction of the project in FY 1971.

Justification.—The settlement of King Cove exists primarily because of the fishing resources of the area. The harvesting and processing of salmon, king crab, and halibut and the services of the people engaged in these occupations provide the major income of the area. At present, small boats in the King Cove area are subject to storm damage due to lack of sheltered anchorage. King Cove Lagoon, due to a shallow entrance, will only accommodate the smaller craft. The anchorage is exposed to storm from the south-southwest and vessels not underway before the severe and sudden winds reach high velocity are subject to damage or cause damage to the dock. Provision of the authorized harbor is justified by benefits in the form of reduced vessel damage, protection of shore facilities, increased fish catch and harbor of refuge. A protected swing-anchorage would be provided for 75 fishing craft and a harbor of refuge would be provided for transient craft. Annual benefits are estimated at $145,000, and would accrue to the commercial fishing fleets. The benefit-to-cost ratio is 3.5 to 1, based on 50-year project life.

	Annual benefit
Prevention of boat damage	$33,600
Increased fish harvest	91,800
Harbor of refuge	18,400
Area redevelopment	1,200
Total	145,000

Kodiak Harbor, Alaska

Senator Ellender. There is nothing in the budget, and local interests have requested $185,000. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized. We have an authorized study underway; however, we are encountering siting problems and the report is not yet ready for submission. Accordingly, we do not have a capability during fiscal year 1971.

Metlakatla Harbor, Alaska

Senator Ellender. There is nothing in the budget, and local interests have requested $120,000. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized. If the project is authorized during the current session of Congress our capability would be $120,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,163,000
Total allocations to date	0
Balance to complete	2,163,000
Amount that could be utilized in fiscal year 1971	120,000

Authorization.—Not yet authorized.

Location and description.—Metlakatla is located on Port Chester, an indentation in the west shore of Annette Island in Southeastern Alaska. Metlakatla is

650 air-miles northwest of Seattle and 16 water-miles south of Ketchikan, the nearest comparable port. The proposed improvement would provide for the construction of: (1) two rubble-mound breakwaters, one 2,160 feet long to elevation 25 feet above mean lower low water (MLLW) and the other 600 feet long to elevation 23.5 feet above MLLW; and (2) a dredged entrance channel 1,000 feet long and 100 feet wide to a depth of 15 feet below MLLW.

Proposed operations.—Subject to authorization of the project the sum of $120,000 could be used to initiate and complete preconstruction planning.

Justification.—The economy of Metlakatla is heavily dependent on commercial fishing and fish processing. The existing small-boat harbor is deficient in area and depth to serve all the fleet. Overcrowding in the harbor causes damage to the vessels and docks. The lack of space renders the harbor unavailable as a refuge as well as inhibits growth in the fleet and thus in the fisheries harvest. Additional harbor area would benefit the local economy by reducing damage to vessels and docks and by promoting expansion in the fisheries harvest and thus in the national food supply. In addition, increased harbor capacity would allow for the use of the facility as a harbor of refuge, producing both a tangible economic benefit and and an intangible benefit in the reduction of risk to life. Estimated annual benefits total $234,400, and are tabulated below. The benefit-to-cost ratio is 1.8 to 1, based on 50-year project life.

Benefit	*Amount*
Reduction in damages	$10,000
Expanded fisheries	213,000
Harbor of refuge	4,000
Area redevelopment	7,400
Total annual benefits	234,400

Gila River and Tributaries Downstream From Painted Rock Reservoir, Ariz.

Senator Ellender. There is nothing in the budget and the House allowed $1 million, exclusive of reserve, and local interests have requested $2 million. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $1 million to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$32,800,000
Allocations to date	2,991,000
Balance to complete	29,809,000
Amount that could be used in fiscal year 1971	1,000,000

Authorization.—Flood Control Acts of 1962 (SD 116/87/2) and 1968.

Location and description.—The project is located along the Gila River between Painted Rock Reservoir and the mouth in Yuma County, Arizona. The plan of improvement provides for construction of about 99 miles of levees and channel improvement from Texas Hill, Arizona, about 60 miles downstream from Painted Rock Reservoir, to Gila Siphon, about eight miles upstream from the mouth.

Proposed operations.—The amount of $1,000,000 could be used to initiate construction.

Justification.—The proposed project will provide protection to about 47,000 acres of irrigated lands adjacent to the Gila River, 200 acres of urban lands in the town of Dome, and 15,000 acres of presently unimproved lands. The value of lands and improvements in the area to be protected, based on July 1969 prices and conditions was estimated to be $80,000,000. In addition to the above, construction of the project would have a beneficial effect on the salinity problem currently being experienced in the project area. Construction of this project is essential to the proper operation of Painted Rock Reservoir for the rapid passage of floodflows through the USBR Wellton-Mohawk irrigation project. Rapid passage of floodflows is necessary to minimize percolation of water into the underground strata. Percolation must be minimized to reduce the pumping required to lower the water table to tolerable levels for crop production and to thereby

reduce the flow of highly saline waste water to the Gila River. Salty water in the Gila River flows into the Colorado River and across the Mexican border where it reduces the quality of water furnished to Mexico under the terms of the 1944 Water Treaty. The United States and Mexico consummated an agreement in March 1965 to achieve a solution to the Colorado River salinity problem which has caused strained international relations. It is estimated that construction of this project will reduce the saline water volume from floodflows to about five percent to 10 percent of that under existing conditions. The benefit-to-cost ratio is 3.2 to 1. Average annual benefits are listed below:

Current estimate July 1969 base (100-year life)

Flood control	$3,937,000
Area redevelopment	111,000
Average annual benefits	4,048,000

Arkansas River, Navigation Locks and Dams, Arkansas and Oklahoma

Senator Ellender. The budget request was $25,333,000. The House has allowed $25,333,000 and local interests have requested $33 million. What is your capability on this project?

General Koisch. Our capability on this project is $33 million, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $7,667,000?

General Koisch. The additional amount would be used to advance award of contracts on operating roads and facilities, provide recreation facilities to support anticipated public use of pools for all locks and dams and to complete other minor items. The additional amount would not affect completion of the overall project.

Gillham Reservoir, Ark.

OPPOSITION

Senator Ellender. The subcommittee is in receipt of a letter from Mr. Robert G. Heard, Jr., to Senator Howard Baker opposing construction of Gillham Reservoir, Ark. Mr. Heard questions the need for the reservoir and urges a restudy and additional public hearings. What is the status of construction of Gillham Reservoir?

Colonel Charles. Mr. Chairman, the Gillham Dam and Reservoir is 63 percent complete. The current working estimate of cost is $14,800,000 of which over $10 million has been appropriated. All land for construction of the dam and reservoir has been acquired. The design work for this project is essentially complete. Of the major contracts, the relocations are complete, the access road to the project is complete, and the outlet works is complete. The spillway and dikes contract is 98 percent complete and is scheduled to be finished in June 1970. The last major contract will be for construction of the embankment which is scheduled to be awarded this fall and completed in the summer of 1973, depending on the appropriation of funds by the Congress.

POOL FLUCTUATIONS

Senator ELLENDER. Mr. Heard expresses concern that mudflats will occur above the conservation pool, causing the project to be esthetically unacceptable. Would you please comment?

Colonel CHARLES. Sir, the top of the normal conservation pool will be at elevation 502 mean sea level and will have a surface area of about 1,400 acres. The top of flood control pool will be at elevation 569 mean sea level and will have a surface area of 4,700 acres, instead of 4,200 acres as stated in Mr. Heard's letter. The reservoir will reach the top of flood control pool elevation 569 mean sea level on the average of once in 25 years. The infrequent filling of the reservoir to the top of the flood control pool, the rugged terrain in that area, and low-sediment content of the Cossatot River will not limit the esthetic appeal and recreation potential of the area. There will be no mudflats surrounding the normal pool.

REQUEST FOR ADDITIONAL PUBLIC HEARINGS

Senator ELLENDER. Mr. Heard indicates that the project should be restudied and informed public hearings held. What are the Corps comments in this regard?

Colonel CHARLES. Mr. Chairman, public works such as Gillham Reservoir are undertaken at the direction of the Congress based upon an expressed interest by the people and officials of the area that would be affected. At several stages of development, the project formulation and planning are reviewed in progressively greater detail so that the desirability of proceeding with the project is affirmed or reaffirmed by the Congress. The Corps of Engineers policy is to enhance environmental values while developing the water resources to provide for the needs of people. This process considers the advantages and disadvantages of the project from every aspect, including environment. This procedure has been followed regarding the authorized plan of public works within the Little River system of which Gillham Reservoir is a unit.

The request for upstream reservoirs was made at a public hearing held at Ashdown, Ark., on March 28, 1947, and at a committee hearing of the Arkansas, Red, White Interagency Committee on August 29, 1950. Following those hearings, a plan to include upstream dams was investigated. That study showed the advantages of a higher degree of water resource development in the Little River system and was the plan which most nearly met the desires of all interests concerned. Notice of release of the survey report including the Gillham Reservoir was sent to local postmasters, mayors, and other officials in the general area in October 1955. Final public hearing was held in Washington, D.C., on April 25, 1956, by the Board of Engineers for Rivers and Harbors. By letter dated July 25, 1956, the survey report on Little River, Oklahoma and Arkansas, Red River Basin, was transmitted to the Department of the Interior and the Department of Agriculture. Comments were received from the Department of the Interior by letter dated November 15, 1956, and from the Department of Agriculture by letter dated December 20, 1956.

Subsequently, the Flood Control Act of July 3, 1958 authorized construction of the Little River system of seven reservoirs which in-

cludes Pine Creek, Lukfata, Broken Bow, DeQueen, Gillham, Dierks, and Millwood Reservoirs. Gillham Reservoir is needed to provide optimum water resource development of the Little River Basin for flood control, water supply, water quality, and fish and wildlife purposes. The benefit-to-cost ratio of Gillham Reservoir is estimated 2.2 to 1. From the conservation and environment viewpoint, Gillham Reservoir will be operated so that the public can enjoy the natural beauty of the area around the lake and will improve the quality of fish habitat along 49 downstream miles of the Cossatot River by control of floods, by control of water temperature and oxygen content, and by flow augmentation during dry periods.

Little Rock Levee, Ark. (East End-Fourche Bayou)

Senator Ellender. There is nothing in the budget. The House has included $433,000 and local interests have requested $433,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $433,000 to initiate and complete construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$433,000
Allocations to date	30,000
Balance to complete	433,000
Amount that could be utilized in fiscal year 1971	433,000

Authorization.—1965 Flood Control Act.

Location and description.—The proposed project is located in the southwestern part of the area protected by the existing Little Rock Levee, Arkansas (East End-Fourche Bayou) at Little Rock, Arkansas. The project consists of a 45,000 g.p.m. pumping station and a sump storage of 164 acre-feet at elevation 246 above mean sea level. The sump storage consists of 71 acre-feet of natural storage and 93 acre-feet of excavated storage below elevation 246 m.s.l.

Proposed operations.—The amount of $433,000 would be used to initiate and complete the construction.

Justification.—About 244 acres of urban property in the southwestern part of the area protected by the existing Little Rock Levee, Arkansas (East End-Fourche Bayou), project are subject to flooding by impounded runoff under existing conditions. Since 1927 there have been seven major floods in the project area. On the basis of present prices, these floods would have resulted in $750,000 in urban damages. If the pumping station had been operational, these damages would have been reduced to $28,000. With the expanded industrial development expected within the next 10 years, a total of about 319 acres would be subject to flooding. The project would provide a high degree of flood protection in this highly developed residential and industrial area. The benefit-to-cost ratio is 1.6 to 1. The average annual benefits for the project are $44,600, all flood control.

Ozark Lock and Dam, Ark.

Senator Ellender. The budget request was $11,700,000. The House has allowed $11,700,000 and local interests have requested $13,500,000. What is your capability on this project?

General Koisch. Our capability on this project is $13,500,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $1,800,000?

General KOISCH. The additional amount would be used to advance land acquisition and award contracts for operating roads and facilities and recreation facilities, however, it would not advance project completion.

PINE MOUNTAIN RESERVOIR, ARK.

Senator ELLENDER. There is nothing in the budget and local interests have requested $800,000. What is your capability on this project?

General KOISCH. Mr. Chairman, we have no capability on this project. A recent review of this project indicates that because of revised criteria, from the U.S. Public Health Service and the Arkansas Department of Health, for transmission of raw water the local interests are having difficulty in furnishing the full requirements of local cooperation.

RED RIVER LEVEES AND BANK STABILIZATION BELOW DENISON DAM, ARK., LA., AND TEX.

Senator ELLENDER. The budget request was $2,400,000. The House has allowed $2,400,000 exclusive of reserve and local interests have requested $3,400,000. What is your capability on this project?

General KOISCH. Our capability on this project is $3,400,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $1,000,000?

General KOISCH. The additional amount would be used to advance the bank stabilization and channel work and would advance project completion by 3 months.

ALHAMBRA CREEK, CALIF.

Senator ELLENDER. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $100,000 for initiation of preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$9,070,000
Total allocations to date	0
Balance to complete	9,070,000
Amount that could be used in FY 1971	100,000

Authorization.—Flood Control Act of 1968.

Location and description.—Alhambra Creek is located in Contra Costa County, California about 25 miles northeast of San Francisco. The proposed project provides for continuous channel improvements and diversion works along Alhambra Creek to prevent flood damages within the city of Martinez, California.

Proposed operations.—The amount of $100,000 could be used to initiate preconstruction planning.

Justification.—The Alhambra Creek basin is located in a region subject to intensive winter storms. Two deaths have been caused by flooding within the basin. The 1958 flood, the flood of record, caused damages estimated at $416,000. It is estimated that, in the event of a standard project flood, damages of about

$5,790,000 would occur based on 1969 prices and conditions, and 660 acres would be inundated. The benefit-to-cost ratio is estimated to be 1.2 to 1. Average annual benefits, all flood control, are estimated at $414,000.

Bodega Bay Harbor, Calif.

Senator Ellender. There is nothing in the budget and local interests have requested $175,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $75,000 for initiation of preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,120,000
Total allocations to date	0
Balance to complete	1,120,000
Amount that could be utilized in fiscal year 1971	75,000

Authorization.—Rivers and Harbors Act of 1965 (HD 106/89/1).

Location and description.—Bodega Bay is located on the California coast about 58 miles north of San Francisco Bay. The harbor is a triangular-shaped inner bay separated from Bodega Bay proper by Doran Beach sandspit. A jettied entrance channel 100 feet wide and 12 feet deep provides access to the harbor channels and turning basins. The proposed harbor modification provides for a 4,500-foot riprapped earth mole with a 60-foot top width, parallel to and 250 feet westerly of the innermost channel and turning basin, the fill material to be dredged from the area between the mole and the channel to create a sheltered basin; and for dredging a channel 100 feet wide and 10 feet deep from the existing Federal channel easterly along the north side of Doran Beach Spit for about 3,150 feet to a proposed small-craft harbor, to be constructed by local interests.

Proposed operations.—The amount of $75,000 could be used to initiate and complete preconstruction planning.

Justification.—Bodega Bay Harbor serves as an important fishing center and harbor of refuge on the northern California coast. It is the only improved harbor between San Francisco Bay and Noyo Harbor, a reach of about 143 miles. The average annual commercial fish catch at Bodega Bay during the past five years has exceeded 1,500 tons. Serious congestion exists in the harbor, due principally to lack of an adequate mooring area for the 100-vessel fishing fleet based at the harbor and the 40 to 50 additional fishing boats that regularly utilize the harbor and facilities. Vessels are forced to moor several abreast along the fish unloading piers where they intrude into the Federal channel. Mooring areas and piers are unprotected from local wind waves generated by storms from the south and southeast. Lack of an adequately protected harbor has resulted not only in damage to the commercial fishing fleet and shore fish-processing facilities, but has hampered the full development of Bodega Bay as a commercial fishing port and harbor for recreational vessels. The benefit-to-cost ratio is 2.4 to 1.

The average annual benefits are listed below:

Current estimate July 1969 base (50-year life)

Navigation	$57,000
Recreation	165,000
Area redevelopment	5,000
Average annual benefits	227,000

Buchanan Reservoir, Calif.

Senator Ellender. This project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use

in fiscal year 1971, and no additional funds are included in the fiscal year 1971 budget. Local interests have requested $1,200,000, and the House allowed $1,200,000, exclusive of reserve. What is your capability on this project?

General KOISCH. Our capability is $1,200,000, sir.

Senator ELLENDER. What would be accomplished with the additional funds?

General KOISCH. The additional amount would permit award of the main dam contract about 3 months earlier than currently scheduled. This would permit a longer leadtime for gate fabrication and give greater assurance of meeting presently scheduled completion dates.

CHESTER, CALIF.

Senator ELLENDER. There is nothing in the budget, the House has included $50,000, and local interests have requested $50,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $50,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,130,000
Total allocations to date	0
Balance to complete	1,130,000
Amount that could be utilized in fiscal year 1971	50,000

Authorization.—Flood Control Act of 1968 (HD 314/90/2).

Location and description.—The project will be located on the North Fork of the Feather River, immediately upstream from the town of Chester in Plumas County, California. The proposed plan of improvement provides for construction of a 45 foot high diversion dam on the North Fork of the Feather River, about one and one half miles upstream from Chester, which would divert flows, in excess of the dam's outlet capacity, into a partially leveed diversion channel for conveyance of flood flows around the town of Chester and into Lake Almanor.

Proposed operations.—The amount of $50,000 could be used to initiate preconstruction planning.

Justification.—The town of Chester (estimated 1969 population—1,800) is subject to frequent damaging floods. The value of lands and improvements within the flood plain in Chester is currently estimated at $13,300,000. The December 1964 flood washed out a bridge on State Highway 36 over the north Fork of the Feather River, damaged another bridge, deposited considerable debris in the flood plain and innundated portions of Chester to depths of up to 6 feet. Total damages were estimated at $275,000. The benefit-to-cost ratio is currently estimated at 1.2 to 1. Average annual benefits are listed below.

Current estimate July 1969 base (100-year life)

Average annual benefits	$102,000
Flood Control	98,100
Area Redevelopment	4,000

CUCAMONGA CREEK, CALIF.

Senator ELLENDER. The budget request was $30,000. The House has included $220.000, exclusive of reserve, and local interests have requested $400,000. What is your capability on this project?

General KOISCH. Our capability on this project is $220,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $190,000?

General KOISCH. The additional amount would be used to complete our general design memorandum but would not advance completion of the overall project, sir.

DAY, EAST ETIWANDA AND SAN SEVAINE CREEKS, CALIF.

Senator ELLENDER. There is nothing in the budget and local interests have requested $500,000. What is your capability?

General KOISCH. Mr. Chairman, this project is not yet authorized and the report of the district engineer has not yet been completed. In view of the status of the project the Corps of Engineers does not have a capability for fiscal year 1971.

FAIRFIELD VICINITY STREAMS, CALIF.

Senator ELLENDER. There is nothing in the budget, and local interests have requested $50,000. What is your capability on this project?

General KOISCH. Mr. Chairman, the project is not yet authorized. If the project is authorized during the current session of Congress, our capability would be $50,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,920,000
Total allocations to date	0
Balance to complete	2,920,000
Amount that could be used in fiscal year 1971	50,000

Authorization.—Not yet authorized.

Location and description.—The proposed project would be located in and in the vicinity of Fairfield, Solano County, California. The plan of improvement provides for channel improvements on Ledgewood, Laurel and McCoy Creeks; the diversion of Pennsylvania Avenue Creek into Ledgewood Creek, Union Avenue Creek into Laurel Creek and Laurel Creek into McCoy Creek; and a levee along McCoy Creek below State Highway No. 12.

Proposed operations.—If the project is authorized during the current session of Congress the amount of $50,000 could be used to initiate preconstruction planning.

Justification.—The proposed project would provide protection to about 4,700 acres of land in, and adjacent to, the city of Fairfield now subject to frequent flooding. The Fairfield area is rapidly developing, with a growth rate greatly exceeding that of the State of California or the United States. A recurrence of the 1955 flood under current prices and conditions would cause damages of about $562,000. It is estimated that the flood plain will be fully developed by 1982. The benefit-to-cost ratio is estimated at 1.5 to 1.

The average annual benefits are listed below:

Current benefits, July 1969 base (100-year life)

Flood control	$418,000
Recreation	59,000
Fish and wildlife	25,000
Average annual benefits	502,000

Goleta, Calif. and Vicinity

Senator Ellender. There is nothing in the budget, and local interests have requested $300,000. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized. If the project is authorized during the current session of Congress our capability would be $300,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$14,322,000
Total allocations to date	0
Balance to complete	14,322,000
Amount that could be used in fiscal year 1971	300,000

Authorization.—Not yet authorized.

Location and description.—The project will be located in the Goleta Valley area in Santa Barbara County, California. The plan of improvement provides for about 1.3 miles of channel clearing and 11.2 miles of channel improvements. Channel clearing would be accomplished on Maria Ygnacio, San Jose, San Pedro, Las Vegas, and Carneros Creeks. Construction of channel improvements would be accomplished on Atascadero, Maria Ygnacio, San Jose, Las Vegas, San Pedro, Carneros and Tecolotito Creeks.

Proposed operations.—If the project is authorized during the current session of Congress the amount of $300,000 could be used to initiate preconstruction planning.

Justification.—The Goleta area is rapidly urbanizing and is subject to frequent severe flooding. The flood of January 1967 caused damages of $760,000 in the project area. The floods of January and February 1969 caused damages of about $530,000 in the project area. Should a standard project flood occur prior to construction of the project it is estimated that damages of about $8,720,000 would result. The total value of lands and improvements in the area to be protected by the project is estimated at $53,000,000 (1969 prices). The benefit-to-cost ratio is presently estimated at 1.2 to 1. The average annual benefits, all flood control, are estimated to be $1,248,000.

Hidden Reservoir, Calif.

Senator Ellender. Congress added funds for the initiation of construction of this project in fiscal year 1970. The added funds were placed in budgetary reserve for use in fiscal year 1971 and there is nothing in the fiscal year 1971 budget for this project. Local interests have requested $1,800,000, and the House allowed $1,800,000, exclusive of reserve. What is your fiscal year 1971 capability?

General Koisch. Our capability is $1,800,000, sir.

Senator Ellender. What would be accomplished with the additional funds?

General Koisch. The additional amount would permit award of the main dam contract about 3 months earlier than currently scheduled. This, in turn, would permit a longer leadtime for gate fabrication and give added assurance of meeting presently scheduled completion dates.

Humboldt Harbor and Bay, Calif.

Senator Ellender. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $50,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?
General KOISCH. Yes, sir.
(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,930,000
Total allocations to date	0
Balance to complete	2,930,000
Amount that could be utilized in fiscal year 1971	50,000

Authorization.—River and Harbor Act of 1968 (HD 330/90/2).

Location and description.—Humboldt Bay is a landlocked harbor on the coast of California about 225 miles north of San Francisco Bay and about 70 miles south of Crescent City Harbor. The proposed modification provides for deepening to 35 feet the North Bay Channel, Samoa Channel and the outer reach of Eureka Channel, widening portions of channels and bends and dredging an anchorage area in the North Bay 35 feet deep, 1,200 feet wide and 1,200 feet long.

Proposed operations.—The amount of $50,000 could be used to initiate preconstruction planning.

Justification.—Humboldt Harbor and Bay is the only deep water port between San Francisco Bay and Coos Bay, Oregon, a distance of approximately 380 miles. Waterborne commerce through the harbor consists principally of lumber shipments and receipts of petroleum products. Total cargo movements in 1968 exceeded 1,715,000 tons. Commerce for the past five year period (exclusive of local and barge traffic) has averaged about 808,000 tons annually. As a result of inadequate channels, vessels which can only partially load at Humboldt Harbor must either double back to San Francisco or travel to deep-draft lumber ports in Oregon and Washington to complete loading. In addition, lack of an adequate anchorage area requires ships to anchor in main navigation channels when dockside space is not available or when awaiting favorable sailing conditions. These problems create hazards to navigation, prevent ships with drafts in excess of 27 feet from sailing fully loaded and result in frequent delays while entering or leaving the harbor. The benefit-to-cost ratio is 1.10 to 1. Average annual benefits, all commercial navigation, are estimated to be $180,000.

JACK AND SIMMERLY SLOUGHS, CALIF.

Senator ELLENDER. There is nothing in the budget, and local interests have requested $50,000. What is your capability on this project?
General KOISCH. Mr. Chairman, the project is not yet authorized. If the project is authorized during the current session of Congress our capability would be $50,000 to initiate preconstruction planning.
Senator ELLENDER. Would you submit a statement for the record?
General KOISCH. Yes, sir.
(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,680,000
Total allocations to date	0
Balance to complete	1,680,000
Amount that could be used in fiscal year 1971	50,000

Authorization.—Not yet authorized.

Location and description.—Jack and Simmerly Sloughs are tributaries of the Feather River in the vicinity of Marysville, in Yuba County, California. The proposed plan of improvement provides for construction of about seven miles of channels and levees to prevent backwater flooding of the area north of Marysville from the Feather River and to intercept and convey headwater flows from Jack and Simmerly Sloughs to the Feather River. Interior drainage, within the 5,300 acre protected area, would be pumped into the Feather River by a pumping plant near the mouth of Jack Slough.

Proposed operations.—If the project is authorized during the current session of Congress, the amount of $50,000 could be used to initiate preconstruction planning.

Justification.—The project would provide protection to 5,300 acres immediately adjacent to the city of Marysville that are now subject to frequent and sometimes prolonged inundation from the Feather River and Jack and Simmerly Sloughs. Flood protection for this area would make it available for urban development. Marysville has nearly reached complete areal saturation and the high cost of land within the city has limited economic growth. Business, industrial, and residential development in this area would promote favorable economic conditions within Marysville and the surrounding region. The benefit-to-cost ratio is currently estimated to be 1,1 to 1, The average annual benefits are listed below:

Current estimate July 1969 base (100-year life)

Flood control	$212,000
Area redevelopment	9,000
Average annual benefits	221,000

Klamath River, Calif.

OPPOSITION

Senator Ellender. The National Wildlife Federation has proposed that the Klamath River in California be preserved as a free-flowing stream as a part of the national wild rivers system. What is the Corps position on this proposal?

Colonel McIntyre. Sir, the Department of the Army and the Corps of Engineers fully support the concept of the national wild rivers system. However, prior to classifying any specific stream as a "wild river" we believe that it should be thoroughly studied in order to determine what benefits, if any, would be foregone by preserving it in an undeveloped state. As a general policy we believe that prior to making a decision regarding development or preservation of any stream the Congress should have available a complete analysis of the benefits to be gained or foregone by either course of action.

STUDIES UNDERWAY

Senator Ellender. What authorities and interests does the Corps have, at this time, in the Klamath River Basin?

Colonel McIntyre. Sir, the Corps of Engineers is constructing local protection works in the lower portion of the stream. A section at Klamath, Calif., was completed in October of 1968. The remaining portion, at Klamath Glen, will be started this year. We also have a study of the Klamath River Basin, "Klamath River and Tributaries, Oregon and California," which was initiated in fiscal year 1965 and is about 45 percent complete.

Senator Ellender. What water-related problems is the Corps studying in its Klamath River study?

Colonel McIntyre. Sir, the Corps is studying flood and erosion control; in coordination with the State and other Federal agencies it is also studying water supply and water quality control; it is studying power development in coordination with the Bureau of Reclamation; and it is also looking at fish and wildlife needs along with recreation potentials in coordination with the State and others.

Senator ELLENDER. What has been the flooding history in the Klamath River Basin?

Colonel MCINTYRE. Sir, the December 1964-January 1965 flood was a major disaster. Four lives were lost, 6,500 persons were displaced, and property damage reached $70 million. Another major flood occurred in December 1955 which took six lives and caused $10 million in damages.

LAKEPORT RESERVOIR, CALIF.

Senator ELLENDER. The budget request was $225,000. The House has included $225,000 and local interests have requested $895,000. What is your capability on this project?

General KOISCH. Our capability on this project is $895,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $670,000?

General KOISCH. The additional amount would be used to initiate and complete land acquisition, sir.

LOWER SAN JOAQUIN RIVER, CALIF.

Senator ELLENDER. There is nothing in the budget and local interests have requested $720,000, and the House has included $720,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $720,000 to initiate and complete construction of the levee for protection of Reclamation District 1602.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$720,000
Allocation to date	0
Balance to complete	720,000
Amount that could be used in fiscal year 1971	720,000

Authorization.—Flood Control Act of 1944 (H.R. FCC 2/78/2).

Location and description.—The project is located on the lower reaches of the San Joaquin, Stanislaus, and Tuolumne Rivers. The uncompleted work is located on the left bank of the Tuolumne-Merced River reach (mile 100–106) for protection of Reclamation District 1602. The plan of improvement for the overall project provided for Federal improvement of the existing channel and levee system by raising and strengthening existing levees, construction of new levees, revetment of river banks and removal of snags.

Proposed operations.—The amount of $720,000 could be used to initiate and complete the last remaining unit of work, the left bank levee (mile 100–106) for protection of Reclamation District 1602.

Justification.—The levee and channel improvements, together with upstream reservoir storage, provide urgently needed flood protection to about 136,000 acres of rich agricultural lands, residential and industrial areas adjacent to the city of Stockton, numerous commercial and public installations, railroad and highway facilities. Construction of the project was completed in November 1968 with the exception of the reach for protection of Reclamation District 1602. The January-February 1969 floods caused three breaks in the local levees protecting Reclamation District 1602 and caused serious damages estimated at $100,000. In addition about $120,000 of Public Law 99–84 funds were expended to repair these breaks. The benefit-to-cost ratio for the overall project is 1.7 to 1 and the benefit-to-cost

ratio for the left bank Tuolumne-Merced River reach alone is 1.1 to 1. Average annual benefits, all flood control, are estimated at $1,738,000 for the overall project, including $45,000 for the Tuolumne-Merced River reach.

Lytle and Warm Creeks, Calif.

Senator Ellender. There is nothing in the budget and local interests have requested $1,500,000 and the House has included $1,500,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $1,500,000 to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $13,000,000
Total allocations to date	887,000
Balance to complete	12,113,000
Amount that could be used in fiscal year 1971	1,500,000

[1] Design studies completed to date indicate that modification of authorized plan may be warranted. Federal and non-Federal cost may increase significantly.

Authorization.—Flood Control Act of 1965 (SD 53/89/1)

Location and description.—The project is located in the vicinity of the cities of San Bernardino and Colton in San Bernardino County, Calif. It provides for construction of a 3½ mile-long rectangular concrete channel along the East Branch of Lytle Creek from the existing Foothill Boulevard inlet structure to Warm Creek; continuous levees along 1.1 miles of Warm Creek from its confluence with the East Branch of Lytle Creek to the Santa Ana River; and a leveed channel about 1 mile long along the Santa Ana River from the mouth of East Twin and Warm Creeks channel to its confluence with Warm Creek at the San Bernardino Freeway.

Proposed operations.—The amount of $1,500,000 could be used to initiate construction.

Justification.—Construction of the project will alleviate a serious flood problem in the communities of San Bernardino, population about 133,200, and Colton, population about 24,000. About 14,000 persons live in the overflow areas that would be protected by the improvements. The present value of lands and improvements in the overflow areas is estimated to be $178,000,000 (1969 estimate). The existing channel along Lytle Creek provides protection against all but large floods. However, existing and forecasted development is so great that the overflow area along Lytle Creek is vulnerable to major floods which could occur at any time. Recurrence of the 1891 flood under present conditions of development would cause damages estimated at $4,880,000 (1969 prices), virtually all of which would be prevented by the project. The January and February 1969 floods caused damages of $471,000 in the project area all of which would have been prevented had the project been completed. The improvement would also serve as an outlet for storm drains to be constructed by local interests in the area. The benefit-to-cost ratio is estimated at 1.2 to 1. Average annual benefits, all flood control, are estimated to be $674,000.

Marysville Reservoir, Calif.

Senator Ellender. The budget request was $894,000. The House has included $894,000, and local interests have requested $1,500,000. Could you use the additional amount?

General Koisch. Yes; we could, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $606,000?

General KOISCH. The additional amount could be used to initiate land acquisition, sir.

MERCED COUNTY STREAMS, CALIF.

Senator ELLENDER. There is nothing in the budget, and local interests have requested $200,000. What is your capability on this project?

General KOISCH. Mr. Chairman, the project is not yet authorized, if the project is authorized during the current session of Congress our capability would be $200,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$33,490,000
Total allocations to date	0
Balance to complete	33,490,000
Amount that could be utilized in fiscal year 1971	200,000

Authorization.—Not yet authorized.

Location and description.—The project is located in and in the vicinity of the City of Merced, in Merced County, Calif. on right bank tributaries on the San Joaquin River located between the Chowchilla and Merced Rivers. The proposed plan of improvement provides for enlargement of the existing Burns, Bear, Owens and Mariposa Reservoirs; construction of three additional reservoirs, Castle Reservoirs on Canal Creek, Haystack Mountain Reservoir on Black Rascal Creek, and Marguerite Reservoir on Deadman-Dutchman Creeks; and construction of 52 miles of levee and channel improvements on lower Bear, Mariposa and Deadman Creeks. Reservoir storage capacity for the three new reservoirs and enlargement of the four existing reservoirs will total about 126,700 acre-feet for flood control, irrigation, recreation and fish and wildlife.

Proposed operations.—If the project is authorized during the current session of Congress the amount of $200,000 could be used to initiate preconstruction planning.

Justification.—A serious flood problem exists along the streams rising in the Sierra Nevada in Merced County. It is estimated that in the absence of additional protection measures flood damages will average $2,730,000 in the area that could be protected by the Merced County Streams project. The project will provide flood protection for the city of Merced and adjacent areas including the Castle Air Force Base. Due to the generally arid nature of the flood plain, the general lack of irrigation water, and the rapid depletion of ground water, conserved irrigation water would greatly improve the local economy. Substantial recreation and fish and wildlife will result from the proposed improvements since the area is generally deficient in facilities for water based recreation. The benefit-to-cost ratio is estimated at 1.8 to 1. Average annual benefits are listed below:

Current estimate, July 1969 base (100-year life)

Flood control	$2,310,000
Irrigation	143,000
Recreation and fish and wildlife	1,300,000
Area redevelopment	372,000
Average annual benefits	4,125,000

MOJAVE RIVER RESERVOIR, CALIF.

Senator ELLENDER. The budget request was $7,060,000. The House has included $7,060,000, and local interests have requested $9,020,000. What is your capability?

General KOISCH. Mr. Chairman, the capability for completion of the project furnished to local interests was $9,020,000. However, we have recently determined that the funds required to complete the project amount to $9,320,000 and this is now our capability for fiscal year 1971.

Senator ELLENDER. What would you accomplish with the additional $2,260,000?

General KOISCH The additional amount would be used to complete construction of the project, sir.

Senator ELLENDER. I understand that you recently discovered foundation problems at this project. Explain the nature of the foundation problems that you encountered.

General KOISCH. Yes, sir. We recently became aware of a zone of unstable rock in the left abutment that we had not discovered during our detailed design. We have determined that it will be necessary to excavate the unstable portions of the abutment, add a supporting berm against the left abutment ridge, flatten the existing rock slope above the berm and shift the axis of the dam a slight distance downstream.

Senator ELLENDER. What will this additional work cost?

General KOISCH. $800,000, sir. This, in addition to price level increases of $300,000 that we are now aware of, will increase the estimated Federal cost of the Mojave River Reservoir project to $16,900,000.

Senator ELLENDER. Will this solution to the foundation problems increase the contract cost for the main dam contractor—or will it be covered by a separate contract?

General KOISCH. This will increase the contract cost, sir, by the same amount, $800,000.

Senator ELLENDER. Is this work included in your capability amount of $9,320,000?

General KOISCH. Yes, sir. Our capability of $9,320,000 would permit completion of the entire project, including this additional work.

MONTEREY HARBOR, CALIF.

Senator ELLENDER. The budget request was $150,000. The House has included $150,000, and local interests have requested $650,000. What is your capability on this project?

General KOISCH. Our capability on this project is $650,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $500,000?

General KOISCH. The additional amount would be used to initiate construction.

NAPA RIVER, CALIF.

Senator ELLENDER. This is another project for which Congress added funds for initiation of construction in fiscal year 1970. The added funds were placed in budgetary reserve for use in fiscal year 1971 and there is nothing in the fiscal year 1971 budget. Local inter-

ests have requested $400,000 and the House has included $400,000. What is your capability?

General KOISCH. Our capability is $400,000, sir.

Senator ELLENDER. What could be done with the additional amount?

General KOISCH. The additional amount would permit us to provide flood protection to the city of Napa one flood season earlier than presently scheduled. However, the completion date of the overall project would not be advanced.

PORT HUENEME HARBOR, CALIF.

Senator ELLENDER. The budget request was $10,000. The House has included $10,000, exclusive of reserve, and local interests have requested $90,000. What is your capability on this project?

General KOISCH. Our capability on this project is $10,000, Mr. Chairman, the same as the budget amount.

PORT SAN LUIS, CALIF.

Senator ELLENDER. There is nothing in the budget and local interests have requested $150,000 to initiate construction. What is your capability on this project?

General KOISCH. Mr. Chairman, local interests are not yet able to finance their share of project costs and we, therefore, have no capability for initiation of construction in fiscal year 1971.

SAN DIEGO HARBOR, CALIF.

Senator ELLENDER. The budget request was $20,000. The House has included $50,000, exclusive of reserve, and local interests have requested $50,000. What is your capability on this project?

General KOISCH. Our capability on this project is $50,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $30,000?

General KOISCH. The additional amount would be used to complete preconstruction planning, sir.

SAN FRANCISCO BAY TO STOCKTON, CALIF. (JOHN F. BALDWIN AND STOCKTON SHIP CHANNELS)

Senator ELLENDER. The budget request was $750,000. The House has included $750,000, exclusive of reserve, and local interests have requested $1,900,000. What is your capability on this project?

General KOISCH. Our capability on this project is $1,900,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $1,150,000?

General KOISCH. The additional amount would permit completion of deepening of the San Francisco Bar Channel and the West Richmond Channel one year earlier than presently scheduled. Completion of the overall project would not be advanced, sir.

San Luis Rey River, Calif.

Senator Ellender. There is nothing in the budget, and local interests have requested $400,000. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized, if the project is authorized during the current session of Congress our capability would be $400,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$8,024,000
Total allocations to date	0
Balance to complete	8,024,000
Amount that could be used in fiscal year 1971	400,000

***Authorization.*—Not yet authorized.**

Location and description.—The project will be located on the San Luis Rey River in the vicinity of the City of Oceanside, San Diego County, California. The plan of improvement provides for about 7.2 miles of channel improvements along the San Luis Rey River from Murray Road to the ocean and about 800 feet of stone reveted levee on the south bank from the railroad to the ocean.

Proposed operations.—If the project is authorized during the current session of Congress the amount of $400,000 could be used to initiate preconstruction planning.

Justification.—The proposed project would alleviate serious flood problems in the lower San Luis Rey River Valley, including portions of the City of Oceanside. The total value of lands and improvements in the flood plain is estimated at $40,900,000 (July 1969). Construction of the proposed project would permit optimum development of the flood plain which cannot be developed to its full potential without flood protection. The benefit-to-cost ratio is currently estimated at 1.6 to 1. The average annual benefits, all flood control, are estimated to be $990,000.

Santa Paula Creek, Calif.

Senator Ellender. Local interests have requested $250,000 for this project. The project was added by Congress in fiscal year 1970, the added funds were placed in budgetary reserve for use in fiscal year 1971, and no additional funds are in the 1971 budget. The House has allowed $250,000, exclusive of reserve. What is your capability on this project?

General Koisch. Our capability is $250,000, sir.

Senator Ellender. What would be accomplished with the additional funds?

General Koisch. With the additional amount we would be able to award a contract for construction of the project in March 1971 instead of June 1971, the currently scheduled award date. Completion of the overall project would not be advanced.

Tahquitz Creek, Calif.

Senator Ellender. This is another project for which Congress added funds for initiation of construction in fiscal year 1970. These funds were subsequently placed in budgetary reserve for use in fiscal year 1971 and nothing is included in the fiscal year 1971 budget for Tahquitz Creek. Local interests have requested $2 million and the

House has allowed $250,000, exclusive of reserve. What is your capability?

General KOISCH. Our capability is $250,000, sir.

Senator ELLENDER. What could you accomplish with the additional funds?

General KOISCH. With the additional amount we could advance project completion 4 months and provide protection to the city of Palm Springs from flooding which could be caused by spring thunderstorms.

UNIVERSITY WASH AND SPRING BROOK, CALIF.

Senator ELLENDER. There is nothing in the budget, and local interests have requested $150,000. What is your capability on this project?

General KOISCH. Mr. Chairman, the project is not yet authorized. If the project is authorized during the current session of Congress our capability would be $150,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$5,278,000
Total allocations to date	0
Balance to complete	5,278,000
Amount that could be used in fiscal year 1971	150,000

Authorization.—Not yet authorized.

Location and description.—The project is located in, and in the vicinity of, the city of Riverside, Riverside County, California. The proposed plan of improvement would provide for construction of rectangular concrete channels along 2.5 miles of Spring Brook, from its mouth at Evans Lake to U.S. Highway 395 and along 2.7 miles of University Wash from its confluence with Spring Brook to U.S. Highway 60.

Proposed operations.—If the project is authorized during the current session of Congress the amount of $150,000 could be used to initiate preconstruction planning.

Justification.—The proposed project would provide protection to the rapidly urbanizing area in the flood plains of University Wash and Spring Brook. The January–February 1969 floods caused damages estimated at $340,000 in the area which could be completely protected by the project. The present value of lands and improvements in the flood plain is estimated at $29,000,000. The benefit-to-cost ratio is estimated at 1.1 to 1. Average annual benefits, all flood control, are estimated at $435,000.

VENTURA MARINA, CALIF.

Senator ELLENDER. There is nothing in the budget, and local interests have requested $60,000. What is your capability on this project?

General KOISCH. Mr. Chairman, this project will be constructed with funds which have been advanced by local interests. Federal funding will be for reimbursement to local interests for the Federal share of project costs. There will be no significant construction placement in fiscal year 1970 and, consequently, we do not have a capibility for reimbursement to local interests in fiscal year 1971.

WARM CREEK AND TRIBUTARIES, CALIF.

Senator ELLENDER. There is nothing in the budget, and local interests have requested $500,000. What is your capability on this project?

General KOISCH. Mr. Chairman, the project is not yet authorized, if the project is authorized during the current session of Congress our capability would be $500,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$9,020,000
Total allocations to date	0
Balance to complete	9,020,000
Amount that could be used in fiscal year 1971	500,000

Authorization.—Not yet authorized.

Location and description.—The project is located in San Bernardino County, in and adjacent to the city of San Bernardino, California. The proposed plan of improvement provides for construction of about 1.25 miles of diversion levee with entrenched channel on the upstream side, about 10 miles of reinforced-concrete channel, improvement or construction of nine debris basins, rebuilding or constructing 36 railroad and highway bridges, and relocation of necessary utilities.

Proposed operations.—If the project is authorized during the current session of Congress the amount of $500,000 could be used to initiate preconstruction planning.

Justification.—Construction of the proposed project would provide protection to a rapidly urbanizing area in, and adjacent to, the city of San Bernardino. Population in the flood plain area has doubled since 1950. Under present prices and conditions it is estimated that in the event of occurrence of a standard project flood damages would amount to about $21,500,000. The benefit-to-cost ratio is estimated to be 1.8 to 1.

The average annual benefits are listed below:

Current estimate, July 1969 base (100-year life)

Flood control	$1,218,000
Water conservation	26,000
Reduced maintenance costs	50,000
Average annual benefits	1,294,000

BOULDER, COLO.

Senator ELLENDER. There is nothing in the budget, and local interests have requested $100,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability would be $100,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $3,000,000
Total allocations to date	0
Balance to complete	3,000,000
Amount that could be used in fiscal year 1971	100,000

Authorization.—Flood Control Act of 1950 (HD 669/80/2).

Location and description.—The project will be located along Boulder and Sunshine Creeks within the confines of the city of Boulder, in Boulder County, Colorado. The proposed project consists of channel enlargement and bank protection on Sunshine Creek from its mouth upstream for about 1,500 feet and on Boulder Creek from the junction of Sunshine Creek downstream approximately 3.5 miles

to the Colorado and Southern Railway Bridge. The plan includes 1,000 feet of vertical concrete wall above Broadway, with the remainder of the channel riprapped, and alteration of three bridges.

Proposed operations.—The amount of $100,000 could be used to initiate preconstruction planning.

Justification.—The city of Boulder has been subjected to floods on Boulder Creek since 1844. The flood of record occurred in 1894. The plan of improvement will provide protection against flooding to business and residential areas and part of the campus of the University of Colorado. It is estimated that a recurrence of a flood of the 1894 magnitude would cause damages of over $10,000,000 to University facilities alone, under current price levels. Fortunately, there has been no loss of life due to floods on Boulder Creek; however, under present day development a repeat of the 1894 flood could very possibly result in considerable loss of life unless the area residents can be adequately alerted.

Average annual benefits (flood control)	[1] $586,000
Benefit-to-cost ratio	[1] 2.0 to 1

[1] Pending final approval.

Las Animas, Colo.

Senator Ellender. There is nothing in the budget and local interests have requested $400,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $400,000 to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,150,000
Allocations to date	220,000
Balance to complete	1,930,000
Amount that could be utilized in fiscal year 1971	400,000

Authorization.—1965 Flood Control Act.

Location and description.—The project is located at Las Animas, Bent County, Colorado, on the Arkansas River, just upstream of its confluence with the Purgatoire River, a major tributary that enters from the south. The plan of improvement consists of a 9.6 mile long levee on the south bank of the Arkansas and a levee about one mile long on the north bank. Appurtenant works include levee protection measures; an interior drainage system consisting of outlet structures, a ditch, and ponding areas and intake structures for irrigation canals.

Proposed operations.—The amount of $400,000 would be used to initiate construction.

Justification.—The project will provide flood protection for urban and suburban areas, irrigated lands, highways and railroads at and in vicinity of Las Animas, Colorado (1960 population—3,402), which are subject to frequent damaging floods on the Arkansas River and occasionally by floods on the Purgatoire River. Largest recorded floods occurred in 1921 and 1955 with estimated peak discharges of 187,000 c.f.s. and 44,000 c.f.s., respectively. Recurrence of the flood of 1921, under present conditions, and taking into consideration the regulatory effect of Barrier Dam near Pueblo, Colorado, now in operation which would reduce the peak discharge from 187,000 to 140,000 c.f.s., would cause damages estimated at $4,376,300 (July 1969 prices). (Barrier Dam was constructed soon after the 1921 flood.) The major flood of May 1955 with a peak discharge of 44,000 c.f.s. caused damages estimated at $203,500 which under present conditions would amount to $383,400 (July 1969 prices). A successful flood fight prevented major damages during a flood in 1965 when the peak discharge was about 30,000 c.f.s. The benefit-to-cost ratio is 1.09 to 1. The average annual benefits for the project are $94,000, all flood control.

TRINIDAD RESERVOIR, COLO.

Senator ELLENDER. The budget request was $3,150,000. The House has allowed $3,150,000, exclusive of reserve and local interests have requested $3,650,000. What is your capability on this project?

General KOISCH. Our capability on this project is $3,650,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $500,000?

General KOISCH. The additional amount would be used to advance completion of Colorado State Highway 12 by 3 months.

PARK RIVER, CONN.

Senator ELLENDER. There is nothing in the budget, local interests have requested $100,000 and the House has added $100,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $100,000 to initiate planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, Sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$37,300,000
Total allocations to date	0
Balance to complete	37,300,000
Amount that could be utilized in fiscal year 1971	100,000

Authorization.—1968 Flood Control Act.

Location and description.—The project is located on the Park River in the City of Hartford, Hartford County, Connecticut. The project consists of four sections of reinforced concrete conduit totaling about 3,700 feet and joining units previously constructed, a headwall, a reinforced concrete junction structure, and about 9,100 feet of auxiliary conduit and a pumping station.

Proposed operations.—The amount of $100,000 would be used to initiate planning and the preparation of design memoranda.

Justification.—The Park River Basin lies almost in the center of the City of Hartford. The basin has experienced five major floods since 1900, the most severe occurring in August 1955. In recent years, the area proposed for protection has experienced rapid growth and expansion. A recurrence of the record 1955 flood, under current economic conditions, would cause damages estimated at $8,200,000 in the project area. These losses would be prevented by the project. The proposed project supplements and extends protective structures previously completed by the Federal Government and the City of Hartford and will provide complete protection for this flood-prone area. The current benefit-to-cost ratio is 1.3 to 1. Total average annual flood control benefits are estimated at $1,800,000, as follows:

Flood control	$1,647,000
Advance replacement of bridges	13,000
Future parking area	140,000
Total	1,800,000

INLAND WATERWAY, DELAWARE RIVER TO CHESAPEAKE BAY, DEL. AND MD.

Senator ELLENDER. The budget request was $8,700,000. The House has allowed $8,700,000, exclusive of reserve, and local interests have requested $9,320,000. What is your capability on this report?

General KOISCH. Our capability on this project is $9,320,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $620,000?

General KOISCH. The additional amount would be used to advance completion of certain features of construction. However, project completion would not be advanced since it depends on the rate of remaining channel dredging and maximum utilization of available plant has already been assumed.

BROWARD COUNTY, HILLSBORO INLET, FLA.

Senator ELLENDER. There is nothing in the budget and local interests have requested $600,000. Can you use the requested amount?

General KOISCH. Yes, sir. We can use the $600,000 to reimburse local interests for the Federal share of the work to be accomplished in fiscal year 1970.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,620,000
Total allocations to date	0
Balance to complete	2,620,000
Amount that could be used in fiscal year 1971	600,000

Authorization.—1965 River and Harbor Act.

Location and description.—Broward County is on the lower east coast of Florida about 300 miles south of Jacksonville and about 30 miles north of Miami. Hillsboro Inlet is located in the northern part of the County.

The purpose of the project is to restore adequate recreational and protective beaches and to provide continued stability of ocean shore of Broward County and to stabilize Hillsboro Inlet and provide and maintain a channel adequate for small-craft navigation, together with features necessary to prevent deterioration of adjacent beaches. The navigation portion of the project is in an inactive status.

The beach erosion control plan provides for restoration of a protective beach to a general width of 100 feet with berm elevation of 10 feet above mean low water and periodic nourishment thereof. The plan also provides for sand transfer across Hillsboro Inlet for nourishment of the beach to the south.

The inactive navigation feature provides for a channel 8 feet deep and 100 feet wide from the Intracoastal Waterway to a point 1,500 feet oceanward in Hillsboro Inlet, thence 10 feet deep and 150 wide to deep water in the Atlantic Ocean; jetties on the north and south sides of the ocean entrance; and a permanently based floating dredge to maintain the navigation channel and to transfer sand across the inlet.

Proposed operations.—The $600,000 could be used to reimburse local interests for the Federal share of construction they expect to accomplish in 1970.

Justification.—Benefits to be derived from beach erosion control improvement consist of recreational benefits, enhanced land values, prevention of loss of land through erosion, reduction of seawall maintenance on existing seawalls (seawalls would be protected from severe wave attack), and reduction of repair of shorefront streets as a result of storm damage. The project is not located in a redevelopment area. The average annual benefits are $304,000 for beach erosion control and $1,600,000 for recreation. The benefit-cost ratio is 2.8 to 1.

CENTRAL AND SOUTHERN FLORIDA

Senator HOLLAND. Mr. Chairman, I have several questions.

As you know, the monetary authorization bill, H.R. 15166, the so-called river basin monetary authorization bill recently passed by the Congress, authorized an additional $5 million for the water control facilities for the Everglades National Park. Without jeopardizing the regular construction program, can the Corps of Engineers effectively use any of these additional $5 million of funds in fiscal year 1971 to expedite the construction of these facilities?

This is necessary, and it is a compromise settlement between those that are interested most in ecology and conservation and those that are mostly interested in the major purposes of the central and south Florida flood control program.

So, I am anxious that we begin work on it as quickly as possible.

General KOISCH. No, sir; we could not use any greater amount of funds than we now have in the budget.

Senator HOLLAND. You could not use any of the $5 million in planning?

General KOISCH. There is $240,000 for planning in the budget now.

Senator HOLLAND. For that particular purpose?

General KOISCH. Yes, sir.

Senator HOLLAND. And that is all you could use in this year?

General KOISCH. Yes.

ST. LUCIE-MARTIN COUNTY AREA

Senator HOLLAND. All right. My second question:

It is my understanding that in the recent 2 years there has been considerable volume of excess floodwaters of the central and south Florida flood control project discharged into the ocean and gulf, due in part to the present stage of construction in the St. Lucie-Martin Counties sector of the project. I understand that this year, while floodwaters were being discharged into the ocean the St. Lucie-Martin Counties section was dry and badly needed water. We had a large group of the citrus and vegetable people up here to report that.

Under the authorized project, there is an approved plan for backpumping to return the excess floodwaters from a 559 square mile area to Lake Okeechobee and to provide, in turn, for the irrigation of that area. House Document 369, 90th Congress, second session, and Senate Document 101, 90th Congress, both refer to these improvements.

Incidentally, the House document I have just mentioned, on page 66, contains this statement:

> The storage of floodwater in the lake by backpumping would offset the withdrawals proposed for irrigation in St. Lucie County.

In order to prevent the loss of floodwaters and to provide as soon as possible the necessary facilities for the St. Lucie-Martin Counties sector of the project, it is within the capability of the Corps of Engineers to start with the necessary preconstruction planning on this section of the project?

And if so, how much additional funds can you effectively use?

By way of explanation, this was not part of the original project, but was subsequently authorized as a part of the central and southern

Florida flood control project. It is my understanding that large amounts of fresh water were being discharged into the ocean during times of great rainfall and that in times of drought there was a great need in that growing agricultural area for water that could have been supplied from Lake Okeechobee had construction of certain facilities presently authorized been completed.

Now, can you start planning this year on those facilities that would prevent the loss of this great amount of fresh water into the ocean and provide much needed water to this growing agricultural area, and if so, what amount can you use for that purpose?

Colonel EDELSTEIN. We will have to provide that for the record, sir.

Senator HOLLAND. Please provide that for the record. I am very anxious that this be started, because I dislike to have water discharged and lost in the ocean when nearby areas that now constitute part of central and south Florida are undergoing drought. The project is a very large one in area, and you can easily understand that that can be the case.

(The information follows:)

The modification of the central and southern Florida flood control project authorized by the 1968 Flood Control Act provides for the raising of the levees encircling Lake Okeechobee to increase the water supply storage capacity and a system of pumps and canals to provide water for irrigation of the St. Lucie-Martin County area. The raising of the levee is described in House Document 369, 90th Congress, and the water distribution system is described in Senate Document 101, 90th Congress.

Currently the lack of sufficient water supply storage at times of heavy rainfall necessitates the discharge of excess water into the ocean. The completion of the above mentioned features of the central and southern Florida project will permit greater water supply storage and the ability to use the water for beneficial purposes.

No preconstruction planning or construction of these features of the project have been undertaken. The Corps has no capability for this work in Fiscal Year 1971, since available effort is being applied to planning for acceleration of works in the plan of improvement to meet the water requirements in the Everglades National Park.

CAPABILITY

Senator ELLENDER. The budget request was $8,900,000. The House has allowed $8,900,000 exclusive of reserve and local interests have requested $10 million. What is your capability on this project?

General KOISCH. Our capability on this project is $10 million, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $1,100,000?

General KOISCH. The additional amount would be used to award three contracts earlier in the year and to award six additional contracts during fiscal year 1971. No advance in total project completion can be determined at this time.

OPPOSITION

Senator ELLENDER. The committee has received opposition to this project. What is the situation concerning the drowning of deer in the Everglades? It seems just a short time ago there was a lack of sufficient water in the area.

Colonel EDELSTEIN. This project is a comprehensive plan of improvement for flood control drainage and water conservation. It covers about 16,000 square miles and includes all or part of 18 counties in central and southern Florida. The project works include construction of three conservation areas north of the park for storage and release of water for beneficial use. Conservation area 3A, directly north of the park, is the main storage facility designed to hold water which can be released into the park as well as for agricultural use, for prevention of salt-water intrusion, and for recharging the aquifer which serves the populous east coast.

The deer herd is located in the northwestern portion of water conservation area No. 3, the largest of the three water conservation areas. The herd has suffered during the last few years from periodic high water, disease, and harassment by sightseers and hunters. The problem which occurred in 1966, 1968, 1969, and early 1970 is one of unseasonably heavy rains in an area which has been established for water conservation for the benefit of south Florida and Everglades National Park.

Under normal conditons the deer feed in the higher marshlands of water conservation area No. 3A. When unseasonably heavy rains occur over that area, they concentrate on small islands which dot the area instead of ranging over the area for forage.

In order to provide better drainage of that area the Corps last year completed enlargement of Miami Canal, which runs through the deer area, and placed the excavated spoil in staggered islands along its banks for additional forage and shelter. Stages in the canal during the summer and fall of 1969 were consistently lower than in the adjacent deer area, which materially helped to drain that area.

Late this spring heavy rains raised the water level in the deer area and the levels in areas 1 and 2A dangerously high for this time of year, which is normally the dry season in south Florida. As a result, it was necessary to make regulatory releases from those areas into area 3A. At the same time the Central and Southern Florida Flood Control District cooperated by discharging as much water as is practicable to tidewater. They deliberately avoided pumping into the deer areas.

WATER SUPPLY DURING DRY CYCLES

Senator ELLENDER. What action has been taken in regard to the dry periods which occur in this area?

Colonel EDELSTEIN. In 1968 the Congress authorized an addition to the central and southern Florida project based on the survey-review report of the Chief of Engineers dated June 3, 1968, entitled "Water Resources for Central and Southern Florida." That report treated the matter of supplying the dry period water needs of south Florida including such users as agricultural interests, urban users, and the park. The authorized addition included works estimated to cost more than $70 million which, together with completed and previously authorized works, would be capable of furnishing all water needs in an acceptable manner to a point past the year 2000. Obviously, full realization of the ability to store, distribute, and otherwise increase the net effective water supply under that plan depends on constructing these newly authorized works and having them in operation. This will require some time in the planning, funding, and construction process.

Senator ELLENDER. Has the Department of the Army; Department of the Interior; the State of Florida; and the central and southern Florida Flood Control District reached an agreement as to the deliveries of water to the Everglades National Park?

WATER SUPPLY FOR EVERGLADES NATIONAL PARK

Colonel EDELSTEIN. Yes, sir. The Departments of the Army and Interior and the State of Florida have developed and reached agreement on a schedule of water releases to the park through the Tamiami Trail outlet that will meet the minimum annual requirement of 260,000 acre feet. The schedule calls for specified minimum monthly discharges to the park together with any surplus water that may be available when Lake Okeechobee levels are above regulation schedule. Proportionately reduced amounts would be delivered whenever the lake stages are below the regulation schedule.

The additional 55,000 acre feet needed to meet the minimum annual park requirements is required for the Taylor Slough and Panhandle areas of the park. These areas receive runoff from the general area just north and east of Homestead, Fla., and partially from the area directly south of Homestead. These areas are more remote from storage areas of the central and southern Florida project. They will be supplied more readily when conveyance canals along the east boundary of the park and L-31N are constructed. The River Basins Monetary Authorizations and Miscellaneous Civil Works Amendments Act of 1970. P.L. 91–282 approved by the President on June 19, 1970 authorizes appropriation of funds for accelerated construction of canals and structures necessary to meet the water requirements for these areas of the Everglades National Park and provide for delivery of a minimum 315,000 acre feet of water annually as set forth in H.Doc. 369, 91st Congress, or 16.5 percent, whichever is the lesser, of the total water supply released for all users.

CROSS FLORIDA BARGE CANAL

Senator HOLLAND. Now, on the cross-State barge canal, the House provided $6 million. I have heretofore understood that the total capability of the Engineers is $6,500,000. Will you please advise the committee what is the total capability for the cross-State barge canal in fiscal year 1971?

General KOISCH. Our capability is $6,500,000 of new appropriations; the House allowance of $6 million includes $1,500,000 in budgetary reserve. This means that we have a capability of $2 million above the House amount.

Senator HOLLAND. Thank you.

Senator ELLENDER. What would be accomplished with the additional $2 million?

General KOISCH. The additional amount would be used to award two contracts earlier in the year, and to award five additional contracts during fiscal year 1971. Included in these contracts are 28 miles of channel and two highway bridges.

Senator HOLLAND. Mr. Chairman, may I make one additional request?

Recently, Secretary Hickel of Interior filed a formal request with the Secretary of the Army for a 15-month moratorium on the cross-State barge canal, to which I replied at some length, resisting said request and sending a copy of my letter to Secretary Hickel and also to Secretary of the Army Resor.

I ask that a copy of my letter to Secretary Hickel be included in the record.

Senator ELLENDER. Without objection, that will be included in the record.

(The letter referred and attachments follow:)

U.S. SENATE,
COMMITTEE ON APPROPRIATIONS,
Washington, D.C., June 15, 1970.

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

DEAR MR. SECRETARY: On June 5, 1970, my office was advised by a telephone call from your department that you planned to make a press release on June 8 announcing that you had written the Secretary of the Army requesting a 15-month moratorium on construction of the Cross-Florida Barge Canal while a special task force composed of agencies of the Department of the Interior would study the ecological, hydrological and other problems involved.

Upon being informed of this press release, I requested your department to furnish me with a copy of your letter of June 5, 1970 to the Secretary of the Army, which I was furnished on June 8, as well as the accompanying report which I have read in detail.

At this time I will not go into the manifest advantages to the nation and the economics involved, including recreational benefits, that were completely omitted from the report. In linking up the 1,050-mile Intracoastal Waterway serving the East Coast to Trenton, New Jersey, with the 1,070-mile Gulf Intracoastal Waterway serving the Gulf and Mississippi River Basin area, as testified to by many recognized and authoritative groups, numerous benefits have been attested to. These are available should you desire to have them in order that you may make a more objective review of the merits of the Cross-Florida Barge Canal.

Let me say, Mr. Secretary, that I am unalterably opposed to any moratorium being placed on the construction of the Cross-Florida Barge Canal which has already been unduly delayed due to budgetary restrictions and placing of appropriated funds in budgetary reserve.

I have no objection, of course, to your department's making further studies concurrent with continued construction of the project that you feel may be warranted. However, as one member of the Senate Appropriations Committee and the Subcommittee on Public Works Appropriations, I do not look with favor on allocating for such studies any funds appropriated for the purpose of construction, supervision and administration of the project. I do not know of any project that has been studied and restudied more than this one. As a matter of interest, I am enclosing (Enclosure I) for your information a partial list of the various studies which have been conducted over the years. This list totals 74 studies, a number of which have been conducted by agencies of your department.

I note, also, from the report enclosed with your letter to the Secretary of the Army, that it quotes from a report prepared by the Florida Defenders of the Environment, entitled, "Environmental Impact of the Cross-Florida Barge Canal," dated March 1970. This report was made a part of the record of the hearings on the fiscal year 1971 public works appropriations bill. No mention was made in such report of the rebuttal testimony submitted to the subcommittee by Mr. W. A. McCree, Jr., President of the Florida Waterways Association, formerly the Chairman of the Canal Authority of the State of Florida. For your information I am enclosing (Enclosure II) a copy of his testimony which was made a part of the record of the hearings at my request. I believe you will also

be interested in reading a copy of Mr. McCree's letter of January 9, 1970 to the President and Editor-in-Chief of The Reader's Digest. I enclose a copy of this letter for your information. (Enclosure III)

There is no one man whom I know who possesses more background and factual information regarding the history of the Cross-Florida Barge Canal than does Mr. McCree, and I strongly recommend your reading his comments on the subject. Such information should enable anyone with an open mind to understand the actual facts regarding the canal project rather than to give credence to the great volume of oft-times unsubstantiated information put out by various organizations and the news media.

Let me further point out, Mr. Secretary, that the project is some 31 percent complete. The Congress has appropriated some $52.7 million of a total estimated federal cost of $169.2 million. Some $45.5 million has been expended as of the close of calendar year 1969. Out of the total nonfederal costs of $16 million, the State of Florida has expended about $11 million and the cost of work accomplished by local interests in the construction of six barge ports is estimated to be from $2 million to $3 million.

Important, also, is the fact that in addition to the above expenditures through calendar year 1969, plus the cost of the first six months of 1970, which is not currently available to me, an additional $5 million to $10 million would be required should the project be deferred, making a total sunken investment of between $65 million to $75 million.

The additional work still required to be constructed or modified in the event of such a deferral would be the Inglis spillway for flood control on the Withlacoochee River; plug the canal west of the Withlacoochee River and remove the barrier dam to restore river openings; provide bank protection from Inglis Lock to the Gulf of Mexico; provide channel in the Eureka Reservoir reach for flood control on the Oklawaha River portion of Four River Basins project; provide bypass at Rodman Dam and plug the canal west of St. Johns Lake.

Considering the work already done and that which must be done if a long deferral is ordered, it can be seen that while the construction of the project is only some 31% complete, the effect such construction would have on the environmental aspects would be 60% to 70%.

In this connection I might state that three of the five lock and dam structures are completed, one reservoir is full and two of the reservoirs remain to be cleared of timber. Extensive progress has been made on relocation of utilities, roads and bridges.

With reference to land acquisition, about 85% of the water storage lands and canal rights-of-way have been acquired by the State agency and those remaining are in process of acquisition.

During the course of consideration of the location of the canal, dating back to 1826, some 29 different routes were studied. Based upon those studies the present alignment was authorized in 1942. At the same time authorization was granted, construction of a pipeline across the State of Florida was undertaken to relieve the oil and fuel shortage on the eastern seaboard as a result of the wartime situation. I mention this since during the testimony of Major General Eugene Reybold, Chief of Engineers, War Department, before the Senate Committee on Commerce, June 30, 1942, he stated in testifying in regard to the canal:

> "The value in time of war of an improved through inland waterway from Port Isabel (Texas) to Trenton (New Jersey) with a minimum depth of 12 feet, is believed sufficient to warrant construction of these improvements."

I should add that the pipeline instead of the Canal was constructed at that time due mainly to priorities for war materials and the fact that the construction time of the pipeline was estimated to be three months as opposed to three years for the Canal.

Mr. Secretary, a great deal has been said with regard to the Oklawaha River. I believe it particularly important to point up the fact that the River and Harbor Acts between 1890 and 1916 authorized projects and funds were appropriated for navigation project works on the Oklawaha River which were completed in 1925. The project consists of a channel six feet deep from the mouth to the head of Silver Springs Run; clearing channel obstructions from Silver Springs Run to Lake Griffin, including certain artificial waterways and extensions thereof, and maintaining dikes to obtain a navigable depth of about four feet to Leesburg and Lake Griffin; and construction of a lock and dam at

Moss Bluff to maintain the water level on Lake Griffin. Thus, years ago the natural river was altered greatly by these improvements and by timber operations by private interests, especially the cutting of the cypress trees. Further, records of the Corps of Engineers reveal that there was not a year during the 10-year period from 1959 through 1968 in which snagging in the Oklawaha was not performed at an average annual cost of $4,209, the maximum being $9,268. Also, hyacinth control has been performed on a yearly basis, and during the same 10-year period the average annual expenditure on the Oklawaha watershed was $38,754, of which an estimated annual expenditure of $13,000 was for hyacinth control on the lower river.

I believe it also important to point out that on the Oklawaha and the Withlacoochee Rivers certain flood control work authorized by Congress and now under construction under the Four River Basins project is tied in with the Cross-Florida Barge Canal, to prevent flood damage, averaging some $9.12 million in the Oklawaha River basin and some $2.2 million in the Withlacoochee River Basin. The total cost of improvements in the Oklawaha River basin is estimated at $3.6 mililon and the Withlacoochee River Basin at some $2.8 million. The Moss Bluff Lock and Dam on the Oklawaha River was reconstructed as a part of the Four River Basins project and was completed in December 1969 at an estimated cost of $1.9 million.

The above facts, as well as the fact that the Withlacoochee River was altered by work accomplished under the River and Harbor Acts of 1881 and 1907, show conclusively that neither of these two river systems is in its natural state, and I am convinced that the work on the Cross-Florida Barge Canal, coupled with work to be accomplished under the Four River Basins project, will ultimately provide a better hydrological and ecological system for the benefit of all the people in that large area.

I realize that this letter is most lengthy; yet I feel it is of paramount importance for you to have all facts at hand in view of your recent request to the Secretary of the Army based on information which could only be oriented in one direction without due consideration to the many other aspects of the problem not fully within the purview of your Department. Should some problems of the nature indicated in the report accompanying your letter arise, they should be more appropriately taken care of during the course of construction.

Let me further say in closing that the report accompanying your letter contains many questionable facts; for example, the statement relative to the 1963 report of the Bureau of Sport Fisheries and Wildlife. If you will refer to the chart on Page 12 of the report, you will find that man days loss in hunting resulting from the project would be 18,150, while fishing would be improved by 78,200 man days. Further, other matters covered in the report such as recreation, pollution and weed control are being considered by the Corps of Engineers along with the planned program of construction as required under law.

I believe, Mr. Secretary, that careful consideration of all the voluminous information available on the construction of the Cross-Florida Barge Canal would convince anyone that the value of this project for the good of the nation as a whole, particularly in its present stage of construction, would far outweigh the questions raised within your single agency having only partial responsibility, and which by careful and fair evaluation and cooperation as the project moves forward can eliminate any fears of great damage to the ecology of the area traversed by the Canal.

By copy of this communication, I wish to indicate to the Secretary of the Army of my complete opposition to any moratorium on the construction of the Cross-Florida Barge Canal and to request that he expedite the completion of the project to the full capabilities of the Engineers and appropriations of the Congress.

With kind regards, I remain,

Yours faithfully,

SPESSARD L. HOLLAND.

Partial list of reports on Cross-Florida Barge Canal

Name of report	*Date*
First report authorized	Mar. 3, 1826.
Waterway across State of Florida	Feb. 19, 1829.
Do	Jan. 26 1830.
Do	Mar. 6, 1832.
Waterway across State of Florida (Sanford to Tampa, Fla.).	Dec. 6, 1838.
Waterway across State of Florida	May 1, 1855.
Waterway, Apalachicola Bay to Atlantic Ocean	Sept. 29, 1873.
Canal, St. Marys River (Ga. and Fla.) to Gulf of Mexico.	Apr. 6, 1880.
Waterway across State of Florida	Nov. 9, 1911.
Do	July 30, 1913.
Do	Oct. 10, 1924.
Atlantic-gulf ship canal, Florida (Cumberland Sound, Fla. to Mississippi River Waterway.	Dec. 1, 1931.
Atlantic-gulf ship canal, Florida (Florida ship canal) (Georgia-Florida Waterway) St. Marys River (Ga. and Fla.) to gulf.	Jan. 27, 1932.
Atlantic-gulf ship canal, Florida, geological and ground water conditions.	Dec. 16, 1935.
Atlantic-gulf ship canal, Florida	Nov. 1, 1936.
Cross-Florida Barge Canal	June 12, 1942.
Definite project report	December 1943.
Addendum No. 1 to definite project report	March 1945.
Economic restudy of Cross-Florida Barge Canal	Jan. 10, 1958.
Economic evaluation of Cross-Florida Barge Canal (Jacksonville District).	Mar. 13, 1962.
Potential traffic and transportation cost savings of Cross-Florida Barge Canal (A.D. Little, Inc.)	March 1962.
Traffic analysis and estimated tonnage prospectus of the CFBC (Gee & Jensen).	1956.
Chief of Engineers' evaluation (input)	June 1962.
U.S. Fish and Wildlife report (concurred in by State game and freshwater fish commission).	February 1963.
Supplement to economic restudy (supr.)	Aug. 16, 1963.
Detail design memo No. 1, St. Johns lock (input)	October 1963.
Detail design memo No. 2, relocation of U.S. Route 19.	April 1964.
Detail design memo No. 3, Inglis lock (input)	May 19, 1964.
Detail design memo No. 4, relocation of S.R. 316	June 19, 1964.
Detail design memo No. 5, project office building	August 1964.
Detail design memo No. 6, Rodman Dam (input)	November 1964.
Detail design memo No. 7, Eureka lock and dam (input).	February 1965.
Statement of endorsement, Florida Game and Fresh water Fish Commission.	1965.
Design memo No. 7A, preliminary master plan, part of the master plan (supr.).	Oct. 14, 1965.
Relocation studies—railroad crossings near Dunnellon	December 1965.
Detail design memo No. 8, clearing of Rodman Pool (Input)	January 1966.
Relocation study, Cross-Florida Barge Canal (supv.)	Do.
Detail design memo No. 9, relocation of S.R. 40 (revised January 1970)	May 1966.
Detail design memo No. 10, Inglis spillway and dam (input)	September 1966.
Dtail design memo No. 11, 65.5 to mile 70.6 job 12 (part), and job 14 (part), canal excavation and erosion control (input)	December 1966.
Detail design memo No. 12, St. Johns, Eureka, and Inglis locks, derricks and emergency bulkheads	June 1967.
Detail design memo No. 13, relocation of railroads near Dunnellon	May 1967.

Name of report	*Date*
Detail design memo No. 14, State road S–464 highway bridge	January 1968.
Detail design memo No. 15, State road 475 highway bridge	May 1967.
Detail design memo No. 16, clearing Eureka Pool (under preparation)	February 1987.
Design memo No. 7B (C–1), Rodman Reservoir construction design memo, public-use and administrative facilities, part of the master plan (supv.)	December 1, 1967.
An optimum land-use for a delimited area contiguous to the CFBC (Dr. Edward A. Fernald)	1967.
Detail design memo No. 17, mile 83.5 to mile 92.6, job 15, (part) Dunnellon to Inglis Lock (input)	August 1967.
Preimpoundment studies of the waters of CFBC (FWPCA)	December 1967.
Detail design memo No. 19, mile 20.8 to mile 35.9, job 10, (part) channel through Rodman Pool (input)	January 1968.
Detail design memo No. 3, supplement 1, Inglis lock by channel (supv.)	February 1968.
Real estate design memorandum No. 18, CFBC and recreational sites (input)	Feb. 19, 1968.
Design memo No. 7B (C–2), Inglis Reservoir, construction design memo, public use and administrative facilities, part of the master plan (supv.)	July 1968.
Detail design memo No. 21, Dunnellon lock (input)	November 1968.
Water quality data, CFBC, (updated annually) (supv.)	December 1967.
Detail design memo No. 22, mile 80.5 to mile 83.5, job 15, (part) Dunnellon lock to Dunnellon (input)	August 1969.
Report of State game and fresh water fish commision	November 1969.
Report of Corps of Engineers' biologist	January 1970
Geohydrology of the Cross-Florida Barge Canal area with special reference to the Ocala vicinity (by USGS) (supv.)	Do.

Reports on aquatic plant control

General design memorandum (supv.)	Jan. 12, 1959.
State design memorandum for Florida (supv.)	Nov. 6, 1959.
Supplement No. 1 to State design memorandum for Florida (No. 2–D) (supv.).	Aug. 1, 1960.
Research design memorandum (supv.)	May 1959.
Feature design memorandum No. 1, fiscal year 1960 program (supv.).	January 1960.
Feature design memorandum No. 2, fiscal year 1961 program (supv.).	December 1960.
Feature design memorandum No. 3, project work areas (hyacinths) (supv.).	July 1961.
Supplement 2 to State design memorandum for Florida (No. 2–D) (supv.).	Do.
Supplement 3 to State design memorandum for Florida (No. 2–D) (supv.).	July 1962 (R1–17–63).
Supplement 4 to State design memorandum for Florida (No. 2–D) (supv.).	July 1964.
Supplement 5 to State design memorandum for Florida (No. 2–D) (supv.).	July 1965.
Supplement 6 to State design memorandum for Florida (No. 2–D) (supv.).	July 1966.
Jacksonville district portion of summary report on expanded project (supv.) (printed as H. Doc. 251, 89th Cong., 1st sess.).	March 1964.
Aquatic plant control program (River and Harbor Act, 1965) (supv.): Preliminary reconnaissance survey report for Florida (supv.).	June 1967.
General design memorandum for Florida (supv.)	February 1969.

ENVIRONMENTAL IMPACT OF THE CROSS FLORIDA BARGE CANAL WITH SPECIAL EMPHASIS ON THE OKLAWAHA REGIONAL ECOSYSTEM BY FLORIDA DEFENDERS OF THE ENVIRONMENT AND REFUTATION BY W. A. MCCREE, JR., PRESIDENT, FLORIDA WATERWAYS ASSOCIATION

SUMMARY OF FINDINGS

Geology

1. The presence of solution holes and fracture zones near project structures makes it likely that there will be problems of porosity and leakage and that pollution of and hydrologic changes in the aquifer will occur.

Refutation: January 1970 Geohydrology of the Cross Florida Barge Canal Area with Special Reference to the Ocala Vicinity, Prepared by Glen L. Faulkner, United States Geological Survey in Co-operation with the Corps of Engineers U.S. Army, indicates that such leakage as will occur around locks and dams will not be a problem.

2. The location of the canal locks and the dams on or very near the Oklawaha River fracture zones introduces the risk of earthquake damage to these facilities. The history of Florida earthquakes is not reassuring in this respect.

Refutation: It is inappropriate to compare the shallow reservoirs of the Cross Florida Barge Canal with the Koyna Dam in India. Dr. Robert Vernon, State Geologist states that the Floridan Aquifer in the areas of Rodman and Eureka Pools now is exerting upward pressure on the acquiclude and that the impoundments would help to stabilize the conditions in that area. From a practical Standpoint. . . . The Inglis Pool has been in existence 50 years and Geological maps show fracture zones in this area also—no record of earthquakes. From a practical standpoint the Canal reservoirs would be less dangerous to the underground structure of Florida than the construction of tall buildings in the Orlando area.

3. Mineral resources in the vicinity of the barge canal are meager, being mostly bulk materials for local use. Therefore, it is unlikely that construction of the canal would result in greater utilization of these resources.

Refutation: Dr. Robert A. Vernon, State Geologist, who has spent a lifetime studying the geology and mineral resources of Florida, states that mineral resources in the vicinity of the Canal are plentiful. He cited one customer in North Carolina who could use an 8 million dollar quantity of Dolomite per year provided it could be delivered by barge. He has also pointed out that the hard rock phosphate available in Levy County, and the kaolin available in Putnam County could be marketed, when low cost transportation is available. Already, private interests are venturing capital for the purpose of mining and selling mineral resources along the Canal route.

Hydrology

1. Water supplies in drought periods may be inadequate for canal operation without extensive additional pumping facilities.

Refutation: Report of U.S. Geological Survey by Glen L. Faulkner, January 1970 concludes: "The geohydrologic investigation of the Cross Florida Barge Canal reveals that the design of the Canal and the plan of operation are consonant with the hydrologic regime". Pumping into the Summit section from the Eureka Reservoir near Silver Springs to replace lockage water losses has always been in the plans. Possible pumping from the Inglis Pool into the Summit section may also be necessary, but further pumping is not contemplated and studies of the Corps of Engineers indicate such will not be necessary.

2. Because the summit pool connects freely with the ground water of the Floridan Aquifer any pollution of the pool will enter the aquifer and flow to natural discharge points.

3. Some pollution of the summit pool and the Floridan Aquifer is inevitable because of nearby residential or industrial development, leakage from barges, and turbidity resulting from construction.

4. Major pollution from accidental spills of oil or toxic materials is predictable in the long run of barge operation. These pollutants in the Aquifer may damage water supplies of communities nearby and impair the unique recreational qualities of Silver Springs and of whatever sports fishing the canal impoundments might afford.

5. Oklawaha River water which will be back-pumped to the summit pool may accelerate solution of limestone in the summit reach because of its different chemical characteristics.

Refutation: The Corps of Engineers will take adequate steps during construction and operation of the Canal to protect the Summit pool from pollution which might affect Silver Springs or the Ocala water supply. Faulkner's report goes into the requirements thoroughly and recommends additional studies during construction. The Corps plans to follow his recommendations. They expect to control spillages by stringent inspection of barges and vessels below St. Johns Locks and Inglis Locks. In addition they will have portable equipment available to the Summit section for use in time of emergencies. The Faulkner report also states that the limestone and other material through which the small amount of flow from the Summit Pool to Silver Springs, is an excellent filter. Only 8% of the flow of Silver Springs is affected by the water in the Summit section with an estimated 140 days of travel from the Canal to the Springs. Drainage wells in the Ocala area have failed to contaminate the underground water supply of that same area. It is believed that the filtering action of the limestone underlying the area has prevented such contamination. This is a practical application.

The Corps of Engineers will not approve discharge of any water into the Summit section that in any way will pollute the water of this sector. No member of the Florida Waterways Association is willing for the slightest contamination of Silver Springs, and we have questioned the Corps of Engineers quite thoroughly on this point. We are satisfied that they can prevent any pollution of the Springs and we will diligently follow the plans of construction and operation on this important matter.

6. Excessive and possibly uncontrollable leakage of water from the summit pool to the lower pools is a distinct possibility.

Refutation: Neither the report of the U.S. Geological Survey of January 1970, nor the studies of the State Geologist will agree on this charge.

7. There is little doubt that the canal will result in an overall decline in the quality of surface water in the system.

Refutation: The decline or improvement of the surface water in the Oklawaha or Withlacoochee part of the Cross Florida Barge System depends entirely upon the management of that system during and after construction, just as our total environment depends upon management. Map studies indicate that the Ocala National Forest, prior to Cross-Florida Barge Canal construction, abutted the actual banks of the Oklawaha for about 2¾ miles between Sharpes Ferry and SR–316 (Eureka), about 3¾ miles between Eureka and the Rodman Dam Site, and about 11 miles extending from the Rodman Dam Site to the river mouth at the St. John's. Much of this river channel lay up to a half mile across the river swamp from the generally passable and useable higher ground making up the forest proper. With the completion of Rodman and Eureka Reservoirs, the Ocala National Forest will retain about the same amount of frontage on the Barge Canal Project, except that between Sharpes Ferry and Rodman Dam the frontage will be upon a well planned and managed reservoir, with a useable periphery for public access, rather than being featured by the previous swamp barrier. The site between Rodman Dam and the St. John's will remain unchanged.

8. Flood control benefits claimed for the canal project appear highly dubious.

Refutation: The 1960–61 floods which occured before the author of these charges arrived in Florida, clearly demonstrated the damages which could be wrought by uncontrolled flood water in the Oklawaha and Withlacoochee Basins. The upper Oklawaha Basin, including Lakes Apopka, Dora, Eustis, Harris and Griffin and various connecting lakes and tributaries, all join with the Silver River to flow down the portion of the Oklawaha through which the Cross Florida Barge Canal is being built. This is one of the four rivers in the Southwest Water Management District. Water management facilities required for the Oklawaha Basin entail canalization of the River from Lake Griffin to its juncture with the Cross-Florida Barge Canal Channel near SR–40. These facilities already are nearing completion. If the Canal is not completed, some arrangements must be made for carrying these waters to the St. Johns River. Canalizing the Oklawaha to handle flood waters would be just as detrimental to the esthetics of the meandering Oklawaha River as the Reservoirs created by the Canal. Controlling Florida floods is a fact of life which cannot be overlooked. All lakes in the upper Oklawaha basins have had to be retained at above the acceptable high water mark during January, February, March and April, 1970 because the Canal is not complete to Silver River.

Ecology

1. Most of the Oklawaha regional ecosystem is still unimproved, and it is the only large wild area remaining that supports the full spectrum of plant and animal life native to north-central Florida. Destruction of this unique natural region by the proposed canal is unjustified and hopelessly uneconomic in terms of long-run social needs.

Refutation: The principal reasons given by Florida Defenders of the Environment for stopping construction of the Cross Florida Barge Canal given in their funds raising literature are as follows: (1) Saving the Oklawaha ecosystem and (2) Setting a precedent for stopping a project already authorized and under construction.

We will agree that changes in plant life and animal life will occur upon the creation of the Reservoirs. We cannot understand, however, how Scientists and Historians can ignore destruction of the region which is known to have happened in the lifetime of many now living. We refer to the fact that "History of Man in the Oklawaha Region" by Gordon E. Bigelow, Professor of English, University of Florida, fails to mention the fact that man exploited the Oklawaha ecosystem when he cut the cypress trees from the River and the Valley. The cypress trees were resistant to fast flowing water and made the Oklawaha beautiful as well as usable for the steamers that plyed its crooks and turns at the turn of the Century. The trees which have grown back are shallow rooted and are continually being underminded by the swift water or blown down by storms; so if the river were left completely alone without any management it would become a morass of fallen trees.

In Ariel Lugo and Archie Carr's description of the "Vegetation of the Oklawaha" a bare mention is made of cypress which was one of the most important timber products in Florida until this slow growing species became practically extinct in the '30's.

These ecologists speak of an unimpaired ecosystem, when perhaps the most important plant life in that system "the cypress tree" was removed 50 to 60 years ago.

None of the "History of Man" mentions the fact that approximately 75% of the lands adjacent to the portion of the Oklawaha River that becomes a reservoir with construction of the Canal were in private ownership and the uncontrolled development along that portion was not conducive to a good environment for either humans or wild life.

2. Experience in Florida has proved conclusively that shallow bodies of impounded water (such as the Rodman and Eureka Pools) trap nutrients and hence are subject to rapid overenrichment and invasion of masses of water weeds which are difficult and costly to control. Crushing forests into the bottom, as was done in the Rodman Pool, merely speeds and compounds enrichment processes. These processes will quickly reduce, and ultimately destroy, most recreational and fisheries values of the impoundments.

Refutation: Experience in Florida, and throughout the Southeast has proven that fishing in Reservoirs immediately after impoundment has improved fantastically for the first five years. There is no reason to expect that this will not happen in the newly created Reservoirs. The Corps of Engineers expect that with proper management in the two Reservoirs of Eureka and Rodman, fishing will increase 100 fold and that with continued good management a high level of fish production will continue beyond, on a permanent basis. They are dedicated to employing the latest techniques known in ensuring continued good fishing.

Originally, the Corps planned on clearing all of the reservoir areas, but Fish and Wild Life experts persuaded them to plan to leave certain areas uncleared for the benefit of fish. This second plan was the one upon which the 1963 study of the U.S. Fish and Wild Life Service gave their approval, forecasting 78,200 man days of fishing upon completion of the Canal, to a loss of 18,150 man days of hunting.

The Florida Game and Fresh Water Fish Commission as late as 1965 were on record as endorsing the Construction of the Cross Florida Barge Canal, but within the last few months have reversed their recommendations and state flatly that they do not believe the 1963 report of the U. S. Fish and Wild Life report is correct. We are at a loss to know why such an important commission of State Government should change its mind in such a short space of time when it should have the records of Reservoirs of Florida for many years.

We acknowledge that aquatic weeds and water hyacinths are a problem in all Florida streams and lakes. We also acknowledge that the State of Florida has done very little to control them through their three State agencies which should be concerned: The Department of Natural Resources, The Game and Fresh Water Fish Commission, and the Department of Air and Water Pollution Control. Inquiries brought out the fact that none of the three Agencies have clear cut authority to perform the necessary research to solve the problem, nor have any of them been funded to perform such research. The State's neglect of this problem for all of Florida should not penalize the construction of the Cross Florida Barge Canal when the control of aquatic weeds and hyacinths in that project will be the responsibility of the Federal Government. Presently these plants are being controlled by the Corps of Engineers in the best acceptable manner known today.

The Corps of Engineers, in crushing the forests in the Rodman Pool, concede that they created a debris problem originally. They are currently removing those fallen trees and have 4 barges and draglines removing logs and snags. They have stated publicly that they will require removal of all downed trees in Eureka Pool clearing operation. However, fringes of trees along the Oklawaha River will be retained to the maximum extent possible in order to preserve the esthetic appeal of the original stream.

Recreation and fishing in the Pool areas are important benefits of the Cross Florida Barge Canal. The Corps of Engineers recognize this and are developing the Reservoirs with that in mind.

Land-use planning

1. Controversy about the proposed barge canal emphasizes the need for long range regional land-use planning. No such planning has yet been done in this region and no agency now exists to do it. To introduce major environmental changes (such as the barge canal) in the absence of an overall land-use plan is utter folly.

Refutation: We agree that plans should be prepared and put into action along the Canal. Existing legislation permits such action. Proposed legislation requires that action. We heartly support immediate action on this matter and as an Association are taking steps to implement present legislation.

Economies

1. The discount rate used in calculating the cost-benefit ratio of the canal is unrealistic. If realistic interest rates were applied, the supposed benfits of the canal would no longer exceed the cost.

Refutation: The discount rate on this project is the same that is used on all federal propects evaluated by the U. S. Army Corps of Engineers. Consultation with the Corps personnel indicated that for completion of the propect the discount rate currently being used could be applied without affecting the cost benefit ratio due to increase in benefits.

2. In calculating the benefits of the canal, both the amount of traffic which it was assumed that the canal would carry and the freight savings per ton mile appear to be unjustifiably inflated.

Refutation: A television debate on April 7, 1970 causes us to believe that the young economist who prepared this part of the report is known not to have seriously conferred with the Corps of Engineers on this project until April 2, 1970. How much a short period of study of the engineer's records could be used to make the above statement. We would suggest that a much greater in-depth study would have to be made to make the above accusation hold up. The Corps of Engineers have been making economic studies for well over a hundred years and are thoroughly experienced in the field. In addition the private consultant, A. D. Little Company's report of 1962 came up with a much higher benefit cost ratio.

3. Little Evidence exists to support the view that the canal will actually bring the enhancement of land values shown as one of its benefits.

Refutation: The land enhancement benefits required a thorough study of the lands adjoining the completed canal. Anyone who has been in Florida any length of time knows of the increased value of waterfront property.

4. Results in completed sections of the project suggest impairment rather than enhancment of potential recreational values in the region affected by construction of the canal. There is little evidence to support Corps of Engineers figures on recreational benefits claimed for the proposed canal.

Refutation: Recreational benefits were not included in the benefit cost ratio used when construction was begun. Subsequent federal laws allowed the inclusion of recreational benefits. The Corps has used the formula in computing this benefit as on other projects in the Southeast. There is no reason to believe that other than maximum recreational benefits will occur as do already occur on most of the lakes and rivers of Florida. The comparison of the pools with Lake Apopka is ridiculous. The change in water in Lake Apopka requires 950 days versus a total of 59 days for the two reservoirs along the Oklawaha.

5. If the canal did compete effectively with other forms of transportation, the resulting losses incurred by these transport agencies would necessarily be passed on to the public in higher rates. These represent an additional cost of the canal not considered in computing the cost-benefit ratio.

Refutation: Records throughout the Nation do not substantiate this statement. Freight rates have been traditionally lowered where water transportation is available.

6. Successful operation of the canal depends to a considerable degree upon the completion of the Intracoastal Waterway from St. Marks southward along the northwest coast of Florida. The need for, and cost of, this "missing link" waterway is not considered in calculating the costs of the proposed canal.

Refutation: Successful operation of the Canal *does not* depend upon the completion of any other waterway. It is true that completion of the St. Marks to Tampa Inland Waterway would make the Cross Florida Barge Canal more profitable, but the present benefit cost ratio was determined for its use without the completion of that waterway. Gulf river barges currently use the open Gulf in this area and would be used for transportation through the Cross Florida Barge Canal permanently unless the West Coast Waterway were completed.

7. In view of these and other facts reported in the economic section of this report, we believe that in spite of the amount already invested, an impartial economic restudy of the project would result in its rejection as unsound, on a purely economic basis, without any consideration of the environmental values to be lost.

Refutation: A new economic study would increase the benefit cost ratio of the Cross Florida Barge Canal due to the economic growth in the Southeastern part of the United States since the last study was made.

Existing conditions

1. The sections of the canal system already completed have seriously disrupted portions of the natural ecosystems of the lower Oklawaha River and the Withlacoochee River. The river courses and flow have been modified. Natural forests in the flood plains and vicinity have been destroyed over extensive areas. A debris-choked reservoir, heavily invaded by exotic water weeds, has been created in the Rodman Pool area of the Oklawaha system in particular. Fisheries values have been impaired. The wild quality of the environment in these areas has been drastically reduced. Nevertheless, much of the Oklawaha River and its valley still remain unimpaired.

Refutation: No construction project is pretty during construction. The Corps of Engineers are clearing the Rodman Reservoir and will continue to clear it until the waters are debris free except for those dead and fallen trees desired by the Fish and Wild Life Service. The approach to the water weed problem by "Defenders of the Environment" indicated they believe there can never be a solution to this all important problem. If the many biologists and botanists who are interested in our environment would turn their efforts toward solving the water weed problem instead of fighting a project already ⅓ complete perhaps a solution to the problems could be found. Sooner or later the problem must be solved and it will be solved.

2. With cessation of further construction and expenditure of funds to remove downed timber and other debris from the areas affected, and with proper pollution control measures in the watershed, it is expected that with time even in the damaged areas the natural environments would recover, the wild quality of the area could be regained, and the ability of the region to supply high quality outdoor recreation would be restored.

Refutation: The History of the Cross Florida Barge Canal by William M. Partington is similar to the History by Professor Gordon Bigelow in that it tells

only part of the truth. He failed to mention that during its 1961 session, the Florida Legislature created the "Florida Board of Conservation" consisting of the Florida Cabinet, and gave it quantitative control of all surface and underground water in Florida. It further directed that the Florida Board of Conservation would coordinate the request for Public Works funds into a unified program and present the program to the Congress of the United States. This unified Public Works program paid off. The Governor personally pleaded the case for Florida's Public Works program before the appropriate Committees of the Congress. With the support of the unified Water Program by the members of the Florida Delegation, Florida's appropriations for Public Works Projects rose from 14 million dollars annually in fiscal 1961 to 34 million dollars in fiscal 1965.

The same 1961 Florida Legislature endorsed the Cross Florida Barge Canal and created the Canal Authority of the State of Florida to work under the supervision of the Board of Conservation, and with authority to either build or furnish Right of Way for the Federal Government to build the Cross Florida Barge Canal. This project was, and continues to be, part of, the Florida unified Public Works Program. Right of Way funds have been appropriated by succeeding Legislatures on a matching basis with the Canal District consisting of the Counties along the route from Jacksonville to the Gulf. To date, Canal District taxpayers and the State have furnished over 10 million dollars for purchase of Rights of Way. Every Governor, including Farris Bryant, Hayden Burns and Claude Kirk, and the Cabinet, have each year continued to ask the Federal Government for construction funds along with the other Public Works projects. Construction was started in February 1964 by President Johnson in the presence of 13,000 rain soaked Floridians near Palatka. Appropriations have been slow because of the Vietnam war.

In order to get this construction start, the Canal Authority, whose members are chosen from the State at large, carried on a Statewide Public information program. We publicized the project as much as possible in order to let all the citizens of Florida know all about the project.

It's hard to understand why Mr. Partington left out this vital and important part of the Canal History, because without this Statewide effort, construction would not be underway today.

Newspaper publicity was plentiful and Editorial support was given by many Florida newspapers. The strongest newspaper supporter of the project was The Orlando Sentinel-Star, located in the same area with the Florida Audubon Society Headquarters.

When the Chairman of the Canal Authority learned of the opposition of the Florida Audubon Society to the Cross Florida Barge Canal, he personally contacted the President of the Society and asked for a conference in order to cooperate on having a project least objectionable to that group. The Society would not grant such a conference.

In Mr. Partington's history reference is made to the letter to the President of February 6, 1970, signed by 150 environmental specialists. This letter contained several incorrect statements which will be detected by the Staff of the various governmental agencies involved.

Finally, if the State of Florida requests the Congress or the President to STOP the Canal, not only will it have not kept faith with the people of Florida, but it will also not have kept faith with the Congressional Delegation; and the unified Public Works program of Florida will be known for the "State that doesn't know what it wants" so public works would be better off being built in other States. In addition, the flood waters of the upper Oklawaha Basin will have no place to go.

If the President or the Congress stops the project they will not have kept faith with all the people of Florida who have invested millions of dollars of tax funds as well as private funds, in anticipation of the completion of the Canal.

Operation of the canal

The three locks already built are of a size being criticized as antiquated in other barge canals which the Cross Florida Barge Canal is supposed to complement. To replace these locks with larger units in order to accommodate large, unbroken tows of barges would probably prove uneconomic. This barge canal will be too shallow for the newer trans-Gulf barges and for super-vessels carrying numbers of smaller barges.

Refutation: The Canal is designed to meet the known requirements of the Inland and Gulf River barges now in existence and expected to be built. The lock

sizes will accommodate the gulf river barges for transportation across the open Gulf between the Western end and Anclote Key on the South and Carrabelle on the North. The standard size of both Inland and Gulf River Barges is 195 x 35 feet (9'–0" draft when loaded) ; the difference between Gulf River and Inland Barges is in the construction and the covering—there is no difference in size.

Along the Mississippi and Intra-Coastal Waterways some tanker barges are 295 x 50 feet. These could also be accommodated in the locks of the Canal. It is not intended that the Canal will be used for any seagoing craft such as some of the large seagoing barges used for Oceangoing trade in the Caribbean.

These statistics can be verified with the Corps of Engineers or any reputable Barge Line.

McCree Design and Construction,
Orlando, Fla., January 9, 1970.

Mr. Hobart Lewis,
President and Editor in Chief, the Reader's Digest,
Pleasantville, N.Y.

Dear Mr. Lewis : As a long-time subscriber and reader of your magazine, I am shocked and severely disappointed at the irresponsible journalism and the half-truths and mis-information contained in the article "Rape of the Oklawaha" written by your Roving Editor, James Nathan Miller, and published in your January, 1970 issue. This kind of unfair and prejudiced reporting is partly responsible for the loss of faith of the American people in our established publications and news media. If you will carefully consider and investigate the following facts, I believe your great magazine will do something to correct the erroneous impressions created in the above article :

1. The Oklawaha River is *not* a primordial wild stream. It was destroyed in the first quarter of this century by the cutting of the majority of cypress trees from its banks for use as lumber. This fact was brought out by a long time resident of the Oklawaka Valley at the 1966 hearing in Tallahassee. The cypress is a very slow growing tree with large deep roots which grow in water and are able to withstand swift currents as well as the wind and thus protect the banks of a small river like the Oklawaha. We are told that before the cypress were cut, river boats made the trip from Palatka to Silver Springs. The trees which replaced the cypress are shallow-rooted fast-growing varieties which are continually falling across the river undermined by the currents and blown down by the storms. The Corps of Engineers continually removes the fallen trees to permit boating and fishing on the river ; if it were left alone, the river would become a morass of fallen trees not useful for anyone.

2. The reservoirs created by the Cross Florida Barge Canal will furnish many, many square miles of water properly controlled and suitable for recreation and fishing as well as navigation.

3. Mr. Miller would have the reader believe that the Corps of Engineers and local commercial interests were primarily responsible for getting the giant project underway. In the first place, the Corps never initiates a Public Works Project. Public works projects are initiated by local interests who convince their representatives in the Congress and State Legislatures that a given project should be studied and after many years and many studies and 13 long separate steps (including authorization and *finally funding* by the Congress) construction is initiated. If the people of the State of Florida are a local commercial interest, then the author was correct on the second part. Construction on this project was not begun until the whole State wanted the Canal. It is the key to the development of inland water transportation in Florida.

4. The article gives very little history of the project and lists several incorrect dates and facts. Briefly, the first study of a canal across Florida was directed by the Congress in 1826. In 1829, the first survey report by President John Quincy Adams was made to the Congress. Since that time, 29 different routes have been explored including several through Georgia. The route finally chosen was selected because of the natural valley that exists across Florida. This route was selected prior to 1935 when digging for a Sea Level Canal was begun by President Roosevelt as a WPA project. The project was abandoned because of the possibility of damage to Florida's underground water supply by a Sea Level Canal. A barge canal which would not adversely affect the water supply was authorized in 1942 as a defense project. This authorization was a result of the terrific losses sustained by our tankers, delivering oil from the Gulf Coast to the Eastern Seaboard. Approximately 40% of all American cargo shipping lost in World War II was sunk on this route.

The project was not built during World War II because the War Department believed that the War would be over before it could be completed.

Efforts of canal proponents continued but no serious headway was made until the 1961 session of the Florida Legislature reorganized the Board of Conservation (composed of the six elected Cabinet Officials of Florida and headed by the Governor) and created a Canal Authority to represent all of Florida. This authority, composed of five business and professional men appointed from the State-at-Large was charged with the responsibility of building canals as needed throughout Florida and with the promotion of the Cross Florida Barge Canal. It also was given the task of acquiring rights-of-way for use of the Federal Government in construction of the project. The members of the Authority traveled the entire State telling the benefits of inland waterways and informing the people about the Cross Florida project including the location and the reason for its selection. The people of Florida, being on the tip of the United States and saddled with high freight rates, quickly saw the economic benefits of cheap transportation for bulk products.

Opposition encountered by the Canal Authority prior to the beginning of construction of CFBC consisted principally of some railroads. In 1960 and 1961, the Atlantic Coast Line had a full time attorney on the civic club circuit in Florida speaking against the Canal. He was taken off that assignment in 1962. The Florida East Coast Railway has favored CFBC. It was not until 1964 that the opposition of the Audubon Society of Cainesville and later the Audubon Society of Florida became known. An immediate effort was made by the Canal Authority to meet with officials of the Audubon Society and explain the project, but the Audubon Society refused such a conference and attended the 1966 hearing in force without the benefit of such a conference.

Names of the members of the Canal Authority that successfully led in getting construction underway are:

Henry Toland, Senior Vice President (now President)
Exchange National Bank of Tampa
Harry Saunders (now deceased)
Retired General Manager of Port St. Joe Paper Company
Palmer Van Arsdale—Trucking Executive.
Pompano Beach, Florida
James E. Merrill, President
Jacksonville Shipyards, Inc.
and the writer, who was Chairman.

Mr. Miller states that there were at least 50 lobbyists in Tallahassee for pro-canal interests. Between 1961 and 1965, there were no paid lobbyists in Tallahassee and only one part time lobbyist in Washington. If he is talking about interested citizens who believe in something and let their desires be known to their representatives, I would say the number was more like 500. Would the "Reader's Digest" want our democratic system to work any other way?

The history of the Canal and the sudden and continued opposition to the project by groups primarily interested in preservation of natural wilderness (which the Oklawaha was not) leaves one to believe that the whole campaign to stop the canal is being sponsored by those who have a vested interest in preventing its construction.

Mr. Miller would have the public believe the Corps of Engineers has ruined our country. Yet our nation leads the world in development of its water resources. Together with the Bureau of Reclamation, the Corps has been responsible under the direction of the President and the authorization and funding of the Congress for developing most of these resources. Perhaps the Corps is not perfect, but of a necessity some federal agency must do the job. The Corps is best equipped by 200 years of experience to do the job.

In spite of what Mr. Miller says—The Corps does hold well advertised public hearings on every project. I have attended them. My observation is that very few people appear at these hearings. But a much better forum is that of the honest press, and in publicizing the Cross Florida Barge Canal during the years immediately prior to construction, we have the clippings to show that it was publicized. Where were the Preservationists then?

It is easy to attack the Corps because it cannot fight back, but we who are the private citizens can fight back and we will.

6. During the public information campaign being carried on by the Canal Authority, Governor Farris Bryant and his Cabinet working as the Florida Board of Conservation developed a unified approach to public works requests

for all of Florida. Inland Navigation Groups, Water Management Districts, Flood Control Districts and Port Authorities all joined together to present a statewide Public Works Program to the Congress. Governor Bryant personally led this group thus saving time for the Committees as well as the State Agencies. He was complimented on this action by the Congress and rewarded by having the Public Works Appropriations doubled during his term of office. This is the large delegation spoken of by Congressman Boland in Mr. Miller's article. Every representative of every Florida Project backed the program. Teamwork paid off for our rapidly growing State. Construction was started on the CFBC but the benefits to all other projects in the State were much greater. Would you condemn the statewide approach to Water Resource Development?

7. The aforementioned article attacks the Benefit Cost Ratio as a method of determining whether a project should be built or not. The B. C. ratio method is recognized in private industry as well as government. What other method could be used in a democratic society? In particular, the B. C. ratio of the Cross Florida Canal was attacked, and the method the Corps used in arriving at it. The Corps is actually very conservative.

The A. D. Little Company was asked to make a study for the Corps and for the Committees of Congress as to the B. C. ratio of the CFBC in 1962. Their report showed a ratio of 4.6 to 1. The Corps reduced it to 1.17 to 1. This was raised in 1968 to 1.5 to 1 when recreation benefits were permitted. Defense benefits have never been permitted as an economic benefit.

Mr. Miller makes much of the 1958 study versus the 1962 study. If he had investigated he would have found that the 1958 study was only an updating of old studies and the 1962 study was a complete new study using newer methods of construction and excavation.

He also states that costs could not have gone down in that period. A little investigation would have revealed that cutter dredges and modern earthmoving equipment developed after World War II greatly reduced the cost of excavation everywhere.

Mr. Miller advocates considering the loss of half the Oklawaha River when considering B. C. Ratio. I agree and it has been considered. The value of the Oklawaha as an already destroyed crooked narrow stream requiring constant maintenance to make it available to a very limited number of people versus the beautiful reservoirs to be enjoyed by thousands of people has enhanced the B. C. Ratio. We in Florida must prepare for the people who are coming here and we need the best recreational facilities possible.

8. The big benefits of CFBC, of course, are the savings in the cost of living afforded by low cost bulk transportation from the Midwest bread and chemical basket to the Eastern Seaboard and in and out of Florida. Here is where the average citizen shares in the benefits. Everywhere that water transportation has been made available, freight rates have dropped. Whole books can be written on the actual savings that have occurred. I will mention one! A barge operator planned to build some small barges (the limited Okeechobee Waterway cannot take standard barges) and ship sugar cane from Lake Okeechobee to Savannah and New Orleans. As a result of his inquiry, the freight rates on sugar cane dropped from 20% to 40%. Would the Reader's Digest deny the people of this nation the benefit of having their cost of living dropped by water transportation through the CFBC? You have gone a long way in this direction by printing "The Rape of the Oklawaha."

9. Mr. Miller said very little about the Flood Control benefits of the CFBC. Had he lived in Central Florida in 1960 during the floods that caused serious damage to thousands of homes in the area he would have appreciated this benefit. Senator Holland specifically asked that work on the two ends of the canal begin first so that flood control benefits could be realized first. The Oklawaha locks and dams are a definite part of the Flood Control system of all of Central Florida. The narrow stream with falling trees just could not handle the flood waters. Would you deny this benefit to our area?

10. Finally, no matter how we may wish for the old days, our total environment must be managed today. I believe even Mr. Miller would agree on this. Nothing can be left literally alone to let the public do with it as it will. Then the problem resolves itself: "Whatever is best for all our people should be done." But this cannot be determined without exhaustive studies and without the leadership of responsible citizens as well as governmental leadership. I submit this is the method that was followed in promoting the construction of the Cross-Florida Barge Canal. And I asked the question—"Why would a publication like

the Reader's Digest try to tear down a great economic and cultural development which had been dreamed of and worked for so hard by so many well-meaning citizens?"

I do not know how you can compensate for the irreparable damage your magazine has done in creating doubts in the eyes of the American public as to integrity of the Corps of Engineers or the well meaning of the many dedicated citizens who gave of themselves unselfishly to see this great project started, but I believe that if you will check my facts thoroughly you will find a way to correct the impressions given in "Rape of the Oklawaha."

In order that you might know me better, I am enclosing a very brief biography. I invite you to check my sincerity and my knowledge of the subject.

Sincerely,

W. A. McCree, Jr.

OPPOSITION

Senator Ellender. Organizations and citizens who oppose construction of the Cross-Florida Barge Canal have raised several questions concerning the effect of the project on the environment of the area which I would like to discuss. For instance, will solution holes and fracture zones near project structures make it likely that there will be problems of porosity and leakage, and that pollution of and hydrologic changes in the aquifer will occur?

Colonel Edelstein. At one time, it was thought that foundation treatment might be required at or in the vicinity of Inglis lock to prevent excessive leakage under the lock. This thinking was based primarily on the known geology of the area and the expected cavernous limestone with connected channel system. Pumping tests performed prior to construction dispelled this assumption. During excavation of the lock site some isolated cavities and poorly cemented channels were found. The excavated area was readily dewatered and indicated low transmissibility for the area. Studies will be made for each structure to determine the need for foundation treatment for expected seepage. The original or proposed foundation grout curtain for Inglis was eliminated as well as the grout curtain for Dunnellon lock. Each structure must be analyzed individually and any problems of excessive leakage will be isolated problems and treated individually if and when they occur.

RISK OF EARTHQUAKE DAMAGE

Senator Ellender. Does the location of the canal locks and the dams on or very near the Oklawaha River fracture zones introduce the risk of earthquake damage to these facilities?

Colonel Edelstein. The Florida area is not generally recognized as a region of earthquake activity. Faults and fractures in the area are thousands of years old and major patterns developed during the Ocla uplift. Technical design manuals indicate a seismic probability of zero for Florida. Structural designers do not consider seismic activity for the area and therefore do not design for earthquake activity.

Senator Ellender. Will the construction of the canal result in the greater utilization of mineral resources located in the vicinity of the project?

Colonel Edelstein. Economic studies for the barge canal did not include transportation savings resulting from barging mineral re-

sources from vicinity of canal. Any benefit from barging those resources would be in addition to the evaluated benefits.

ADEQUACY OF WATER SUPPLY

Senator ELLENDER. Is the water supply in drought periods adequate for canal operation without extensive additional pumping facilities?

Colonel EDELSTEIN. Except during extreme droughts, sufficient water supplies are available for operation of the canal (with pumping to the summit pool as planned) and still provide reasonably satisfactory low flows in the lower Withlacoochee and lower Oklawaha Rivers. During a dry season of about once in 30 years frequency, shortages would occur. Curtailing lockages or provision of additional pumping facilities is a solution for such periods.

EFFECT ON FLORIDIAN AQUIFER

Senator ELLENDER. The opponents contend that since the summit pool connects with the ground water of the Floridian aquifer, this could result in pollution from the pool entering the aquifer and flow to natural discharge points?

Colonel EDELSTEIN. In the construction and operation of any major project it is not possible to guarantee a completely pollution-free operation. In the case of the Cross Florida Barge Canal there are certain zones of outflow from the canal to the aquifer with possible ultimate discharge at natural discharge points. However, methods exist that can be implemented to prevent pollutants from entering the aquifer. If a pollutant should enter the summit pool, the means to remove it are available. Some liquids such as oil can be boomed off and removed by skimming or pumping. Heavier materials such as phosphate and sulfur could be removed by clamshell. Materials for which recovery measures have not yet been developed would be prohibited from the canal until recovery procedures are established.

Senator ELLENDER. What is the possibility of pollution of the Florida aquifer from the summit pool because of nearby residential or industrial development, leakage from barges, and dredging operations?

Colonel EDELSTEIN. Pollution from residential or industrial development can be better controlled in the case of this project than on most waterways since inflow into the summit pool from adjoining land will be strictly controlled under the permit procedure of the Corps of Engineers. Barges will be inspected at each end of the canal and those which are doubtful or show signs of leaking will not be locked through. Dredging of the canal will be in strict conformance with Public Law 91–190, National Environmental Policy Act of 1969, and with FWPCA requirements for dredging operations.

CONTROL OF POLLUTION

Senator ELLENDER. What pollution may occur from accidental spills of oil, herbicides or toxic materials in the long run as a result of barge operation?

Colonel EDELSTEIN. In the event that a spill does occur, equipment to take care of such emergency will be stationed along the canal. A new law requiring towboats to have radio equipment will permit early warning. Remedial action will be taken to prevent contamination of the aquifer by lowering the head in the canal and reversing the flow into the aquifer. Further, it is also proposed to set up a task force of experts to study the problem and design methods to prevent spillages and to develop the latest emergency plans to handle such spillages as might occur.

Senator ELLENDER. Will the back-pumping of water from the Oklawaha River to the summit pool accelerate solution of limestone in the summit reach because of its different chemical characteristics as feared by the opponents?

Colonel EDELSTEIN. The waters of the Oklawaha do vary in chemical characteristics with those of the water normally found in the groundwater or summit reach and may possibly affect solution rates of the limestone in the summit reach. While it is believed that the effect of back-pumped water would be slight, we are planning to pump from Silver Springs Run to relieve any effect of nutrient laden or different quality Oklawaha River waters on the groundwater in the summit reach.

POSSIBLE LEAKAGE FROM SUMMIT POOL

Senator ELLENDER. To what extent will leakage of water from the summit pool to the lower pools occur?

Colonel EDELSTEIN. The Dunnellon lock is located in a dolomitic limestone. Although this limestone has solution channels, it is unlikely that well-connected large diameter solution channels spanning the entire length of the lock will be encountered. R.N. Bert Dosh lock is located in a relatively impervious aquiclude overlying the Floridian aquifer. Leakage should not be of significance at either of the locks.

Senator ELLENDER. Will the canal produce an overall decline in the quality of surface water in the system as contended by the opponents of the project?

Colonel EDELSTEIN. Construction of the canal and reservoirs will in themselves not degrade the generally good quality of waters in the existing rivers. Federal control of a 300-foot-wide collar around the reservoirs will enable control over the inflow of pollutants more effectively than would have been possible without the project. Surveillance of water quality parameters—a continuing activity—will soon be implemented by installation of automatic monitoring devices.

FLOOD CONTROL BENEFITS

Senator ELLENDER. Are the flood control benefits claimed for the project considered to be realistic?

Colonel EDELSTEIN. The benefits are realistic and estimated to amount to $289,000 annually. They consist of prevention of recurring flood damages, and land enhancement due to the higher type development which would be stimulated by virtue of the elimination of the flood hazard. These benefits are in the Withlacoochee River Basin, predominantly in the reach of river between Inglis and Dunnellon

and in the Oklawaha River mainly in the stretch of river between proposed Silver Springs lock and the Eureka lock and dam. Urban or residential type development is affected on the Withlacoochee whereas the Oklawaha lands benefited are devoted to agriculture. In addition, there are flood-control benefits—and these are not included in the above-cited figure—accruing to the canal as a result of safely accommodating floodwaters from the developed upper reaches of both the Oklawaha and Withlacoochee River Basins.

ECOSYSTEM OF THE REGION

Senator ELLENDER. To what extent will the ecosystem of the Oklawaha region be affected by construction of the project?

Colonel EDELSTEIN. While it must be admitted that the barge canal will produce some major changes for parts of the Oklawaha Valley it is inaccurate to state that the river or the area will be destroyed. The scenic character of the original river will be retained in the upper portions of both Rodman and Eureka Reservoirs. Impounded water levels will be about the same at the extremities of those pools as originally prevailed. For several miles downstream from such points, water levels will be only slightly deeper than formerly. The natural characteristics in such reaches should be little affected. The valuable and interesting flora and fauna which some critics of the canal claim will be destroyed will be preserved to a considerable degree. The plant and animal community zones will migrate farther upland in many cases. In some cases some desirable species will be replaced by other species and other wildlife values. Turkey and bear will be reduced but wild animals such as the various waterfowl, herons, limpkins, egrets, gallinules, rails, turtles, and alligators will become much more numerous. Rodman now abounds with many species of wildlife which can be easily observed and enjoyed by the general public. Increased areas of fishing water and better fishing opportunities are examples of reasonable substitutions of wildlife values.

Senator ELLENDER. It has been contended by the opposition that experience in Florida has established that shallow bodies of impounded water—such as the Rodman and Eureka Pools—trap nutrients and hence are subject to rapid overenrichment and invasion by masses of water weeds which are difficult and costly to control. With such processes quickly reduce, and ultimately destroy, most recreational and fisheries values of the impoundments provided in connection with the barge canal?

Colonel EDELSTEIN. Three conservation areas which have been provided as a part of the central and southern Florida control are extremely shallow, yet provide what most knowledgeable persons consider the finest sport fishery in the State. Further, the relatively small storage capacity compared to inflow means that the new canal reservoirs will be in an entirely different category with respect to flow-through time than other lakes which have become problems in Florida. Nutrient enrichment of all bodies of water occurs naturally at varying rates. The impoundment of lands not previously under water will result in increases in nutrient levels due to organic decomposition. This took place in Rodman Reservoir following impoundment but is now steadily improving. If unnatural sources of nutrients such as

agricultural area runoff are effectively controlled, a balance of inflow and outflow will eventually occur and the reservoirs should maintain a reasonable balance. Dissolved oxygen levels which sagged somewhat following initial impoundment have now risen to satisfactory levels. Chemicals control of aquatic weeds which deposits the dead plants on the bottom does contribute to pollution as they decay. However, uncontrolled plants also die and greatly increase in number during the growing season. Also, dissolved oxygen under large hyacinth mats is virtually zero. Until efficient and economical mechanical removal methods are found, chemical control of hyacinths and other aquatic plants will be required in order to use the water resources. After initial eradication efforts are completed, maintenance patrol of hyacinths should suffice with relatively small plant kills involved. The Corps of Engineers is also engaged as a part of another project in research on biological controls and control of submerged aquatic weeds.

Senator ELLENDER. It has been stated by opponents of the project that sections of the canal system already completed have seriously disrupted portions of the natural ecosystems of the lower Oklawaha River and the Withlacoochee River as a result of debris problems already encountered, invasion of aquatic plants, reduction of fishing values, and in water quality. What is the Corps of Engineers' evaluation of these matters?

Colonel EDELSTEIN. Although construction of the barge canal has altered much of the Oklawaha River, where the river's natural environment is changed, efforts to enhance the quality of the altered environment will continue. As with many other water resource projects, however, the damage to the Oklawaha's natural environment may be less with the barge canal project than without it. Too often the public assumes what is seldom true—that areas of unique natural beauty will remain in their present state if only government agency proposals for development are set aside. This is not to say, of course, that development ought to go forward regardless of its effect on the environment, but rather that those who take positions for or against proposed projects need to assess what is likely to happen to the environment both if the project is constructed and if it is not.

The pecific subjects included in your question are addressed below in the order listed:

a. *Debris.*—The debris problem that occurred in Rodman Reservoir was the result of utilization in this pool of specialized equipment for crushing the trees, instead of the conventional methods in view of a possible savings of some $1.3 million. While the expenditure of some $400,000 will be necessary to remove some material that has since risen to the surface of the reservoir and additional work may be required, it is still probable that substantial saving will occur. Navigation in the reservoir is not now restricted in any way. Further complete removal of the logs is not desirable because of the habitat provided for aquatic organisms.

b. *Aquatic vegetation.*—According to a survey conducted between January and May 1969 by corps personnel, there are 41 different named aquatic plants in Rodman Reservoir. The water hyacinth is the major plant. It is, however, under reasonable control. There are several submersed weeds but no hydrilla. A small amount of Egeria densa (Brazilian elodea) has recently been found in the upper part

of Rodman Reservoir below Eureka lock and dam. It is at present not considered a problem plant. Southern naiad is the most prominent submersed weed in this reservoir. The Corps of Engineers for many years has treated hyacinth on the Oklawaha River. During the 10-year period through 1968 approximately $13,000 per year were expended on hyacinth control in that portion of the Oklawaha which has now become the Rodman Reservoir. When the reservoir was first flooded because of the increased water surface and climatological conditions the quantity of hyacinths multiplied and it was necessary to intensify control efforts. Since flooding of the reservoir and through March of 1970 a total of approximately $62,500 has been expended on hyacinth control. This control has now been achieved and our activities have been reduced to a patrol basis which will suffice to maintain a fully adequate degree of control for the benefit of navigation, fish and wildlife, and environmental conditions. It is admitted that many species of aquatic plants will flourish in the barge canal reservoirs, as they already do in most Florida waters. Two points seem pertinent in this regard. First, the sport fishery in Florida is intimately associated with aquatic vegetation, with a positive correlation between vegetation and fish production. Aquatic plants become undesirable only when they are so abundant as to preclude use of the water. Secondly, if we are unable to control these plants in these impoundments, then it follows that they cannot be controlled in other lakes and in a few years there will be little or no fresh water fishing in the entire State. We feel strongly that every effort must be expended to maintain Florida's enviable reputation for fine fishing, and are willing to support and conduct research toward this end.

Water hyacinths can be controlled with nontoxic chemicals at the present time, and by keeping them well under control in the barge canal reservoirs any adverse effects of decaying plants can be minimized. Drawdowns are an inexpensive and efficient method to control some other aquatics, and we will conduct experiments with this technique in connection with this and other projects. In summary, we feel that aquatic plants can and must be controlled if Florida is to remain a mecca for tourists and sportsmen. We also are optimistic that with our present technological capabilities a breakthrough in aquatic plant control will become a reality in the near future.

c. *Fisheries.*—Construction of the Rodman and Eureka Reservoirs will greatly increase fishing opportunities and harvest as compared to the undisturbed river. The reservoirs will provide habitat for a wide variety of desirable sport and commercial species, and fishing for game fishes such as large-mouth bass and several kinds of panfishes should be spectacular for the first 5 to 10 years. After this initial "boom" period fishing could normally be expected to level off, but in the barge canal reservoirs it should be possible to maintain excellent fishing through proven management techniques such as drawdowns. A rough estimate of fish production in the river as compared to the reservoirs is as follows: With a length of 50 miles of river from Rodman Dam to Silver Springs, and an average width of 100 feet, there were about 600 acres of river. Assuming an average standing crop of 100 pounds of fish per acre, the river would have supported about 60,000 pounds of fishes. Using national averages (20 percent harvest, 1.5 pounds

fish per man-fisherman-day), the river would provide about 8,000 man-fishing-days. The reservoirs, covering about 30,000 acres, with standing crops of 200 pounds per acre or more, would support more than 6 million pounds of fishes and provide nearly 1 million man-fishing-days. This represents at least a 100-fold increase.

d. *Dissolved oxygen.*—The dissolved oxygen has been checked bimonthly by U.S. Geological Survey personnel during 1969. Six out of seven samples are recorded as above 4 parts per million. The latest DO recorded was 6.5 parts per million on March 19, 1970. Samples collected during the week of March 16 by district office personnel at several sites in the reservoir ranged from 5.8 to 7.2 parts per million. When any impoundment is created, the inundation of oxidizable organic matter in soils and vegetation results in a dissolved oxygen (DO) sag. The severity and duration of this oxygen deficit will vary from each new reservoir, since it is a function of many variables such as depth, inflow characteristics, quantity of organic matter present, etc. Because much of Rodman pool occupies former swamps with large quantities of oxidizable organic material, and because the waters of the Oklawaha were often low in DO under natural conditions, it could only have been expected that the postimpoundment oxygen sag would be more severe than in many other new reservoirs. However, the periodic periods of low DO undoubtedly have conditioned aquatic animals of the Oklawaha to this stress, and recent fish samples indicate an abundance of game species. Studies by Corps biologists indicate that the growth rate of young largemouth bass was depressed but these fish are in good shape at the present and it appears no long-lasting ecological damage resulted. The DO in Rodman began rising in the fall of 1969 (1 year after impoundment) and by December 1969 exceeded the water quality control standards for dissolved oxygen in Florida waters. Since January 1970 the DO in Rodman has averaged 6 to 7 parts per million, and it is expected that it will remain at acceptable levels. A similar pattern can be expected for Eureka.

ADEQUACY OF PROPOSED LOCKS

Senator ELLENDER. Are the locks to be provided on the waterway large enough to provide for the needs of prospective navigation?

Colonel EDELSTEIN. Lock sizes are based on anticipated waterway traffic and are corps standard lock sizes for such traffic requirements. The 84- by 600-foot size is considered adequate to handle the projected 4.7 million tons of commerce on the CFBC. On waterways such as the Ohio River where annual barge commerce now exceeds 100 million tons, economic justification exists for replacement of smaller locks.

POLLUTION CONTROL

Senator ELLENDER. Critics have alleged that, with the impoundment of the Oklawaha River in Rodman and Eureka Reservoirs, nutrients and potential pollutants will be trapped causing rapid eutrophication and pollution of these reservoirs. What do you propose to do on these matters?

Colonel EDELSTEIN. The control of pollution of the waters of the cross-Florida barge canal will be primarily the responsibility of the

Florida Air and Water Pollution Control Administration and local governmental agencies. However, it will still be the responsibility of the corps to approve plans for structures and facilities to be placed on project lands and to enforce rules and regulations stipulated by the Secretary of the Army.

The corps, in cooperation with the Federal Water Quality Administration, has conducted preimpoundment water quality surveys to determine existing quality of the Oklawaha River and other waters of the barge canal. We plan to install automatic water quality monitoring equipment at Rodman Dam to maintain constant surveillance on water quality parameters and to periodically survey inflow points to detect any changes in quality in time to take appropriate action. We are concerned over the possible pollution by spillage of contaminants. We propose to form a panel of experts to study this problem, to design methods of prevention, and to develop emergency plans to handle such spillages should they occur.

CONTROL OF AQUATIC PLANTS

Senator ELLENDER. How do you propose to combat the weed problem?

Colonel EDELSTEIN. The aquatic weed control program on the reservoir will be similar to our weed control program in the remainder of the district. The corps uses an amine salt of 2,4-D, at the rate of 2 to 4 pounds per acre. This compound at this application rate is relatively nontoxic to fish. The use of 2,4-D on hyacinths will be continued until other feasible methods for hyacinth removal become available. Research in an effort to treat other aquatic plants will be continued and our operations on such plants will be governed thereby. Hyacinth control will be by a combination of spray boat and aerial spraying to achieve the best control. While it is true that there is no economical proven solution to control bottom-rooted plants such as elodea and milfoil at present, the corps is not satisfied that there isn't a solution to the problem. With this thought in mind, the corps is undertaking a testing program on about 200 acres of bottom-rooted plants in the backwaters of the Withlacoochee River (in Inglis Reservoir) to determine the effects of various chemicals and herbicides. The Chief of Engineers is funding research which is directly applicable to the future control of submersed weeds. Several areas of investigation include the work in the field of lasers and in the use of "carriers" to control the location and rate of herbicide application.

Senator ELLENDER. Some estimates by conservation interests on cost of weed control and debris removal have been estimated at $5 to $7 million annually, while the corps estimates weed control at only $150,000 a year. What is the basis of the corps low estimate? Is it realistic? Does it include weed control for the entire canal including submerged aquatic plants for which no one currently has a positive control?

Colonel EDELSTEIN. Current control operations are required only on hyacinths. A very liberal estimate of the potential infestation on the 35,000 acres of the canal would be 10,000 acres annually which could be treated at a cost of $15 per acre under the $150,000 estimate. Experience over the entire State has shown that the 17 percent of the

water surface which is normally infested each year can be treated for about $10 per acre. Concerning control of other aquatics such as the submerged weed hydrilla (or Florida clodea) the plant has not yet become a problem. Until further research has been made which provide conclusive evidence, the corps feels that any estimate of the cost of providing future control of "expected" infestations of other aquatics would be premature.

EFFECT OF PROJECT ON FISHERY RESOURCE

Senator ELLENDER. Florida Game and Freshwater Fish Commission has raised serious doubts about the barge canal in a recent report. Would you comment on claims by this State group that Asiatic clams will be introduced into the State waters by the canal. That undesirable fish will become a menace in the canal? That striped bass will be prevented from using the Oklawaha River for breeding and spawning purposes by the blockage effected by the Rodman Dam?

Colonel EDELSTEIN. Asiatic clams are worldwide in distribution and will likely be established in the Oklawaha Basin (if not already) long before the canal is completed.

Clams have been reported to be a nuisance to certain interests (such as sand and gravel plants), but are an important food item for many species of fishes and waterfowl, and the shells provide an extremely valuable substrate for organisms important to aquatic food chains.

Exotic and undesirable fish now occur in most Florida waters. The barge canal could conceivably aid in range extensions of some species of plants and animals but this is pure speculation. The spread of exotics has occurred without the canal and will continue to occur with or without the canal.

There was a small population of striped bass in the Oklawaha. We feel that a striped bass fishery can be created in the barge canal reservoirs by stocking hatchery-raised fish, as is now being done throughout the Southeast and Midwest States.

Senator ELLENDER. What effect will the canal have on the Silver Springs attraction?

Colonel EDELSTEIN. Competent studies by the Army Engineers and advice by consultants in the field of geohydrology have shown that the canal would have no ill effects on either Silver Springs or Rainbow Springs. The U.S. Geological Survey has recently completed a detailed study of the geohydrology of the canal and the Ocala area. The study indicates that construction and operation of the canal—as planned by the corps—would not adversely affect either the quantity or the quality of the water coming from Silver Springs. The spring is 4 miles from the closest point at which the aquifer would be opened.

PROJECT FEASIBILITY

Senator ELLENDER. The critics of the canal state that we know that costs have gone up and that when work was started there was a close margin between benefits and costs. They ask, How can we now justify the continuation of canal construction?

Colonel EDELSTEIN. Let me say first that through the 30th of June 1970 we will have expended over $47 million on the canal and had

obligated $1,316,000 in addition. These are Federal moneys and do not include costs of lands being acquired by the canal authority. Before the work was started, at the time of the 1962 economic restudy, the cost of the canal was estimated at $157.9 million and the benefit-to-cost ratio was 1.17 to 1. Let us remember too that benefits go up as well as costs. The costs now are estimated at $185.2 million. The annual benefits are $12,785,000 as compared to annual costs of $8,997,000, giving a benefit-to-cost ratio of 1.4 to 1.

BENEFICIARIES OF PROJECT

Senator ELLENDER. How can the Corps of Engineers assure the public that the public benefits from the canal, instead of 200 or so shippers who may or may not use the canal?

Colonel EDELSTEIN. The ultimate beneficiaries of low-cost water transportation are not the users of such facilities, but the public at large, since he must bear the cost of transportation in the price he pays for his food, clothing, appliances, automobiles, fuel, and his home. The manufacturer adds the cost of transporting his raw materials and delivering his finished product to the ultimate price the public pays for the goods he uses.

ECONOMIC ANALYSIS

Senator ELLENDER. The Florida Defenders of the Environment contends that the discount rate used in the benefit-cost analysis of the Cross Florida Barge Canal was unrealistic, and, had an appropriate rate been used, the benefits of the canal would no longer exceed the cost. What discount rate was used in calculating the benefit-cost ratio of the canal and how was that rate established?

Colonel EDELSTEIN. A rate of 2⅞ percent was used in evaluating the Cross Florida Barge Canal which was the rate established by the Treasury Department for use at that time. Congressional policy has been to fix the interest rate when the the project is initially funded for construction. Accordingly, the rate used for the canal is 2⅞ percent. Currently discount rates are established by the water resource council.

Senator ELLENDER. The opponents of the canal state that "in calculating the benefits of the canal, both the amount of traffic which it was assumed that the canal would carry and the freight savings per ton-mile appear to be unjustifiably inflated." How was traffic developed that would move over the canal and how were savings determined?

Colonel EDELSTEIN. Prospective traffic developed for possible movement on the canal was determined by personal interviewing and a detailed field canvass of over 200 shippers and receivers. Prospective traffic determined by the above method was estimated to be 980,000 net tons for 1962. Transportation costs over the canal were based on point-to-point movements, including combinations of modes; that is, land-water or water-land, and so forth. Such costs also include terminal charges such as transfer and loading and unloading costs. Savings were determined by comparing transportation costs over the canal with the cheapest alternative mode, normally an all-land route. Where

savings could be made using the canal such savings were applied against the appropriate tonnage estimated to be moved by barge.

Senator ELLENDER. The "Florida Defenders" contend that "little evidence exists to support the view that the canal will actually bring the enhancement of land values shown as one of its benefits." What benefits were claimed for land enhancement, and what is your evaluation of the effects of land values by the current construction of the canal?

Colonel EDELSTEIN. Benefits for land enhancement were based on properties abutting the reservoirs and the canal. Enhancement benefits were not claimed for land near the canal which will also be enhanced. Recent studies by certified realtors reveal that present land values based on actual sales in the area of the canal are about three times as large as the values used in the Corps of Engineers analysis.

RECREATION BENEFITS

Senator ELLENDER. The opponents suggest that results in completed sections of the project suggest impairment rather than enhancement of potential recreational values in the region affected by construction of the canal. Also, that there is little evidence to support the Corps of Engineers figures on recreational benefits claimed for the proposed canal. Do we now have evidence of impairment or enhancement in the region affected by the construction of the canal? Can the benefits claimed for recreation be supported?

Colonel EDELSTEIN. In evaluating the recreational benefits of the project, considerations were given to detrimental effects; for example, there was a net loss in hunting of about $36,000. However, there were net gains on fishing, boating, camping, swimming, picnicking, sightseeing, and so forth, for an overall annual estimated benefit of over $3 million. The visitors at Rodman Reservoir are indicative of recreation benefits that are currently accruing. For instance there were 57,000 visitors at Rodman Reservoir during a 5-month period in 1969. These visitations took place in spite of the fact that there are no planned recreation areas opened. Undoubtedly, with the provision of the planned recreation facilities the estimated benefits will be realized at the reservoirs, and along the entire canal.

Senator ELLENDER. The opponents claim that if the canal did compete effectively with other forms of transportation, the resulting losses incurred by these transport agencies would necessarily be passed on to the public in higher rates. Also that these represent an additional cost of the canal not considered in computing the cost-benefit ratio. What are the experiences of the effect of the existence of waterways and their relationship to alternative modes of transport?

Colonel EDELSTEIN. Experience indicates the presence of a waterway creates a competitive situation that often results in lower rates on competitive traffic. However, experience also indicates that movement of traffic by the most economical means produces national efficiency benefits and promotes economic development that in the long run is beneficial to the public. Economic development in turn generally results in added traffic and revenues for all modes.

DEPENDENCY ON OTHER IMPROVEMENTS FOR BENEFITS

Senator ELLENDER. The "Defenders" contend that "successful operation of the canal depends to a considerable degree upon the completion of the Intracoastal Waterway from St. Marks southward along the northwest coast of Florida," also "the need for, and the cost of, this 'missing link' waterway is not considered in calculating the costs of the proposed canal." Were the benefits claimed for the Cross Florida Barge Canal dependent upon the completion of the Waterway from St. Marks southward?

Colonel EDELSTEIN. The Cross Florida Barge Canal is not dependent upon the completion of the Intracoastal Waterway from St. Marks to Tampa Bay. Transportation savings were computed on the basis of barging in inland river-open gulf equipment. The completion of Intracoastal Waterway is a separate project with separate benefits.

Senator ELLENDER. The opponents to the canal in summary "believe in spite of the amount already invested, an impartial economic restudy of the project would result in its rejection as unsound, on an economic basis, without any consideration of the environment values to be lost." What comments do the corps have on the apparent contention?

Colonel EDELSTEIN. The Cross Florida Barge Canal project was developed by engineers, economists, and transportation specialists. The reports were subjected to the same scrutiny that other reports are given prior to and including approval of the Secretary of the Army, Bureau of the Budget, and the Congress. It is believed that the record on this project provided a satisfactory basis for the actions which were taken by higher authority to approve the Cross Florida Barge Canal.

Senator ELLENDER. What are your comments on the recommendation made by the Florida Defenders of the Environment that the lands along the canal right-of-way in the vicinity of the Oklawaha River to which the Federal Government or the State of Florida now hold title be deeded or leased to the U.S. Forest Service or other appropriate agency for recreation and other appropriate multiple-use management?

Colonel EDELSTEIN. The projected demands for recreational and managed wildlife areas on project lands were carefully evaluated in the preparation of a preliminary master plan for public use of these lands. The potential of these lands to meet these demands was fully developed in an approved plan for 36 recreation areas and four wildlife management areas. The Forest Service is already cooperating in these developments.

RESTORATION OF THE OKLAWAHA RIVER

Senator ELLENDER. What are your comments on the recommendation that the Rodman Reservoir be drained immediately, and that the Oklawaha River be returned to its natural free-flowing condition from Silver River to the St. Johns River?

Colonel EDELSTEIN. We recommend continued construction of the project. The Rodman Reservoir is an integral part of the project; it is required to maintain project depths and to realize the recreation potential; its drainage is not compatible with project purposes.

Senator ELLENDER. The Florida Defenders of the Environment also recommend that the hydric hammock and adjacent forest communities destroyed and flooded when the Rodman Pool was created be carefully tended back to their original composition, organization, and zonation. What are your comments on this recommendation?

Colonel EDELSTEIN. Operational planning for Rodman Reservoir is now being reviewed to explore the effect on all project functions of a periodic drawdown of Rodman Reservoir by about 2 feet in elevation. Corps and other forestry experts conclude that this will preserve at least 50 percent of uncleared portion of the hydric hammock. Part of this would have survived in any case at the higher upper end of the reservoir. If the reservoir were drained and those areas which have already been cleared were replanted, it would take many years to restore the area. The rotation cycle of the cypress, mixed hardwoods group which includes the tupelos is approximately 100 years. The practice of "high grading" in timber harvesting in the river basin successively removed the best trees some years ago. To restore the basin to its original composition would take much longer than is usually predicted.

REGIONAL ENVIRONMENTAL PLANNING COUNCIL

Senator ELLENDER. It has also been suggested that a regional environmental planning council, established in accordance with existing Florida statutes, consider the needs of conservation, enviromental protection, recreation, and development throughout the Oklawaha regional ecosystem. What are your comments on this recommendation?

Colonel EDELSTEIN. There would be no objection to the establishment of a regional environmental council and the corps would work with such a council. However, it should be noted that a similar council now exists at Federal level in the Council on Environmental Quality. This group was recently instructed by President Nixon to study the environmental impact of the construction of this project.

Senator ELLENDER. The Florida Defenders of the Environment have recommended that in future projects benefit-cost analyses be conducted by an impartial agency and that full consideration be given to ecology and environmental values.

Colonel EDELSTEIN. The congressional request for a specific study normally asks for a determination as to the advisability of improvement. An economic analysis is a necessary part of this determination and cannot be separated from the other aspects of the study. However, the economic analysis, as well as other parts of the study, undergoes extensive review by the Bureau of the Budget in its determination of the relationship of the report to the program of the President. Full consideration is being given to ecologic and environmental values in project evaluation in response to the National Environmental Policy Act of 1969, Executive Order No. 11514, and the Water Quality Improvement Act of April 1970.

TIME LIMITATION ON AUTHORIZATION

Senator ELLENDER. What are your comments on the recommendations of the Florida Defenders of the Environment that in future

projects all authorized public works be started within 5 years of their time of authorization and if not completed within 10 years of their original authorization date that a full restudy be accomplished?

Colonel EDELSTEIN. It would not be desirable to deauthorize a project if not started within 5 years or completed within 10 years of the authorization date. If such a restriction were established, it would in a sense put an added burden on the administration and Congress to appropriate funds within a limited time period rather than on other criteria established for a particular funding ability. The passage of time after authorization does not negate the need for the project. It can also be said that during the preconstruction planning stage and prior to actual construction consideration is always given to the requirement for the project and to its economic feasibility.

Senator ELLENDER. The Florida Defenders of the Environment recommend that official public hearings be held close to any proposed project within a year previous to authorization and within a year previous to funding to decide whether the project is in the public interest. They state that this is necessary in view of rapid environmental, economic, and social changes.

Colonel EDELSTEIN. District engineers normally hold public hearings in both the early and late stages of a study. The early hearings provide them with the views of interested parties for their guidance in planning and conducting the study. Late stage hearings provide the district engineer with the reaction of interested parties to the alternatives under consideration prior to his making his recommendation. Hearings may also be held at the request of interested parties by the Board of Engineers for Rivers and Harbors in connection with its action on reports. Although not held in the locality of a project, the hearings of the Public Works and Appropriations Committees shortly before authorization and appropriation actions provide opportunities for interested parties to express their views.

Senator ELLENDER. Would you care to give us a brief general observation on what would have been the long-range outlook for the Oklawaha River Valley if the cross-State canal had not been an actuality?

Colonel EDELSTEIN. It should be recognized that so much of the Oklawaha River flood plain is privately owned and can, of course, be developed or used as desired by landowners subject only to limited restrictions of State public health laws and local zoning regulations. There is, therefore, little or no assurance that the "wilderness values" associated with the flood plain will be preserved. For example, take the stretch of Oklawaha River located in the general area of Moss Bluff. There is considerable canalization and levees in this area to permit pursuit of agriculture. The importance of those values to private landowners is expected to decrease in proportion to rapidly increasing population and corresponding demand for waterfront property for private recreational residential, commercial, and industrial area. With the Cross-Florida Barge Canal project, however, preservation of scenic and wildlife values associated with the recreational and reservoir areas or in the marginal area between shoreline and project right-of-way, will be assured by Federal and State control. In addition, significant historical and archeological sites that are found will

be monumented and appropriately developed or protected for posterity.

Duval County, Fla.

Senator Ellender. There is nothing in the budget and local interests have requested $60,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $60,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$5,300,000
Total allocations to date	0
Balance to complete	5,300,000
Amount that could be used in fiscal year 1971	60,000

Authorization.—1965 River and Harbor Act

Location and Description.—Duval County is located on upper east coast of Florida within 20 miles of the Florida-Georgia state line. The beach area proposed for improvement lies between St. Johns River and the Duval-St. Johns County line. Work proposed provides for constructing with artificial fill, a beach 60 feet wide at elevation +11 feet m.l.w. with a natural slope seaward and for periodic nourishment with Federal participation in the initial construction and the periodic nourishment for a period of 10 years.

Proposed Operatons.—The $60,000 could be used to initiate preconstruction planning.

Justification.—The shore of Duval County within the project area has been eroded by wave action and ocean currents and severe damages sustained as a result of that erosion. Improvement is needed to provide adequate erosion control and to satisfy future recreational bathing needs. Average annual benefits are $338,400 for beach erosion control, $701,000 for recreation and $40,000 for navigation [1]. The benefit-cost ratio is 1.5 to 1.

Fort Pierce, Fla.

Senator Ellender. There is nothing in the budget and local interests have requested $300,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $300,000 to reimburse local interests for the Federal share of scheduled work.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$792,000
Total allocations to date	0
Balance to complete	792,000
Amount that could be used in fiscal year 1971	300,000

Authorization.—1965 River and Harbor Act.

Location and Description.—The project is located in St. Lucie County, Florida; it fronts the Atlantic Ocean on the coastal barrier island which separates Indian River from the ocean and extends from Fort Pierce Inlet south along the shoreline for 1.2 miles. The purpose of the project is to prevent further erosion and

[1] The use of shoals in Jacksonville Harbor for beach fill will provide navigation benefits.

to maintain and restore the ocean beaches where practicable along the publicly owned frontage of Fort Pierce and vicinity. Plan of improvement consists of artificial placement of a protective and recreational beach in the area specified and of maintaining the beach as required by periodic nourishment from Indian River.

Proposed Operations.—The $300,000 could be used to reimburse local interests for the Federal share of scheduled work.

Justification.—Large benefits would accrue from the plan of improvement in the form of recreational benefits, enhanced land value, prevention of loss of land through erosion, reduction or elimination of seawall maintenance on existing 110-foot section of concrete seawall (wall would be protected from severe wave attack if restoration is provided), and reduction of repair of shorefront streets as a result of storm damage. Average annual benefits are $61,200 for beach erosion control and $67,300 for recreation. The benefit-cost ratio is 1.08 to 1.

GIWW—Carrabelle To St. Marks River, Fla.

Senator Ellender. There is nothing in the budget and local interests have requested $110,000. What is the preconstruction planning cost on this project?

General Koisch. $115,000, Mr. Chairman.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,455,000
Total allocations to date	0
Balance to complete	2,455,000
Amount that could be used in fiscal year 1971	[1]115,000

[1] Subject to reclassification of the project from deferred to active. Reclassification is awaiting approval of a postauthorization change by B.O.B.

Authorization.—1937 River and Harbor Act.

Location and description.—The route of the proposed project, part of the Gulf Intracoastal Waterway, is along the coast of Franklin and Wakulla Counties, Fla. The project provides for a channel 12 feet deep, 150 feet wide and 36 miles long extending from the eastern terminus of the existing Gulf Intracoastal Waterway at the Carrabelle Harbor channel to St. Marks River.

Proposed operations.—The $115,000 could be used to initiate and complete preconstruction planning, subject to reclassification of the project.

Justification.—Under present conditions, waterway traffic between Carrabelle and St. Marks River must travel via the open-gulf route. Frequently unfavorable weather prevails in the Gulf and tows have to lay over at Carrabelle or St. Marks River awaiting conditions under which they may proceed safely. These delays result in considerable added operating costs to navigation. Also, prior to entering the open-gulf route, barges must be rearranged for towing astern of the towboat, since wave action in the Gulf renders it difficult and hazardous to push barges ahead of the towboat as is done in protected channels. Upon leaving the open water, barge tows are again made up on the usual formation. This operation of arranging and rearranging tows is time consuming and costly. In addition to delays awaiting favorable weather conditions and the time lost in arranging tows, open-water operations occasionally results in damages to barges and cargoes. The projected annual commerce for the waterway is 2,216,000 tons (year 2025). Average annual benefits are $416,000 all for navigation. The benefit-cost ratio is 1.4 to 1.

GIWW—St. Marks to Tampa Bay, Fla.

Senator Ellender. Local interests have requested $180,000 for this project. The project was added by the Congress in fiscal year 1970,

the added funds were put in budgetary reserve for use in fiscal year 1971, and no additional funds are in the 1971 budget. However, the House has included $180,000, exclusive of reserve. What is your capability on this project?

General KOISCH. Our capability is $180,000.

Senator ELLENDER. What would be accomplished with the additional funds?

General KOISCH. The additional amount would be used to continue the ecological study. Completion of this study will be advanced by 9 months.

JACKSONVILLE HARBOR, FLA.

Senator ELLENDER. The budget request was $1,800,000. The House has allowed $1,800,000, exclusive of reserve, and local interests have requested $3,000,000. What is your capability on this project?

General KOISCH. Our capability on this project is $2,800,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $1 million?

General KOISCH. The additional amount would be applied to the recently awarded dredging contract due to increased cost and to initiate the second dredging contract for mile 10.7 to mile 20. This would advance completion of the project by 6 months.

MIAMI HARBOR, FLA.

Senator ELLENDER. The budget request was $10,000. The House has allowed $70,000, exclusive of reserve, and local interests have requested $70,000. What is your capability on this project?

General KOISCH. Our capability on this project is $70,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $60,000?

General KOISCH. The additional amount would be used to complete preconstruction planning.

TAMPA HARBOR, FLA.

Senator ELLENDER. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $100,000 to initiate preconstruction planning, subject to authorization of the project.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$101,000,000
Total allocations to date	0
Balance to complete	101,000,000
Amount that could be used in fiscal year 1971	100,000

Authorization.—Not Authorized.

Location and Description.—Tampa Harbor is in Tampa Bay. Tampa Bay is located about midway along the west coast of Florida. The gulf entrance is about 330 miles southeast of Pensacola and 220 miles north of Key West. The plan of improvement provides for a channel 46 feet deep and 700 feet wide across Egmont Bar; channels 44 feet deep and in widths varying from 200 feet to 500 feet in main channels; a channel 42 feet deep and 400 feet wide in Hillsborough Cut "D" and Sparkman Channel; a channel 42 feet deep and 400 feet wide in Port Tampa Channel; a channel 40 feet deep and 300 feet wide in Ybor Channel; and turning basins of similar depths and maintenance of the Port Sutton Terminal Channel, provided it is improved to 44 feet deep and 200 feet wide by local interests.

Proposed Operations.—The $100,000 could be used to initiate preconstruction planning, subject to authorization of the project.

Justification.—Channels in Tampa Harbor are inadequate for the needs of deep draft traffic for such commodities as phosphate rock, petroleum, and sulphur. Also, the expanding commerce at Tampa and modernization of terminal handling in the harbor has brought about a shift in certain bulk handling operations to the East Bay area, which will require deep ship channels to serve the newer terminals. Average annual benefits are $14,000,000 all for navigation. The benefit-cost ratio is 2.1 to 1.

Senator HOLLAND. I have one question, and that relates to Tampa Harbor.

Some time ago, the Bureau of the Budget received a highly favorable report on the Tampa Harbor Study from the Engineers, and I understand that this report will shortly reach the Congress. Hopefully, this study will be among the projects considered as part of the omnibus public works authorization bill.

One of my colleagues in the House, Congressman Gibbons, reported that the Bureau of the Budget had stated to him that very, very shortly a favorable report would be submitted to Congress by the Bureau of the Budget.

You have no possible information on that?

General KOISCH. No, sir, I do not.

LOWER AUCHUMPKEE CREEK DAM, GA.

Senator ELLENDER. There is nothing in the budget and local interests have requested $200,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $200,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$61,700,000
Allocations to date	0
Balance to complete	61,700,000
Amount that could be used in fiscal year 1971	200,000

Authorization.—1965 Flood Control Act.

Location and description.—The project will be located on the Flint River in Taylor and Crawford Counties about 18 miles southeast of Thomaston, Georgia. The reservoir will extend 22.3 miles to the Lazer Creek Dam in Talbot and Upson Counties. The proposed improvements include a dam with a total length of 4,920 feet consisting of a concrete gated spillway with non-overflow abutments extending across the river channel that would be connected to high ground on the left

and right banks by earth dikes; and a power plant with two units of 40,500 kw. each.

Proposed Operations.—The amount of $200,000 will initiate preconstruction planning, including a reservoir survey, field topography and foundation investigations.

Justification.—Lower Auchumpkee Creek Dam is the lowermost of the three headwater dams proposed for the initial development of the Flint River for flood control, hydro-power and other purposes. The low-lying lands along the Flint River are subject to frequent and sometimes severe flooding. The flood plain area contains about 111,300 acres of which 107,506 are rural and 3,800 are urban. Based on 1969 prices and developments existing in the area in 1969, the average annual flood damages are $270,000. Lower Auchumpkee Creek Dam would provide partial protection for the entire area from its location to Bainbridge. It would produce 122,800,000 kw.-hrs. of electric energy annually in an area where there is an ever increasing need for power. There would be a ready market for the power. The reservoir would provide an attractive recreational site in an area where there are not readily available facilities.

The project (Dam and Powerhouse) will be located in Taylor and Crawford Counties, Georgia. Taylor County is designated a redevelopment area by the Economic Development Administration. Ten adjacent counties also are designated redevelopment areas.

Unskilled labor and some classes of skilled labor would be employed locally. Large quantities of fuel and materials would be procured locally. Therefore, construction of the project would afford substantial relief in unemployment and would aid the economy of the area materially.

Average annual benefits are $468,000 for flood control, $1,918,000 for power, $15,000 for navigation (reduces maintenance below Jim Woodruff L&D), $276,000 for fish & wildlife, $800,000 for recreation and $327,000 for area redevelopment. The benefit-cost ratio is 1.4 to 1.

Spewrell Bluff Dam, Ga.

Senator Ellender. Local interests have asked for an increased appropriation for this project. The project was added to the appropriation bill by the Congress in fiscal year 1970 in the amount of $750,000 to initiate land acquisition. These added funds were placed in budgetary reserve for use late in fiscal year 1971, and no funds are in the fiscal year 1971 budget. However, the House has included $250,000, exclusive of reserve. What is your capability?

General Koisch. Mr. Chairman, the fiscal year 1970 funds have now been scheduled for use early in fiscal year 1971 and our capability is $1,050,000, exclusive of reserve.

Senator Ellender. What would the additional funds be used for?

General Koisch. The additional amount, the $1,050,000, would be used to continue land acquisition and to initiate construction in the budget year.

Trotters Shoals Reservoir, Ga. and S.C.

Senator Ellender. There is nothing in the budget and local interests have requested $1 million. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $1 million to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$99,000,000
Total allocations to date	1,685,000
Balance to complete	97,315,000
Amount that could be used in fiscal year 1971	1,000,000

Authorization.—1966 Flood Control Act.

Location and description.—The project site is located on the Savannah River 275.1 miles above the mouth, about 16 miles southeast of Elberton, Georgia, about 29.9 miles below Hartwell Dam, and about 37.4 miles above Clark Hill Dam. The dam site is located in Elbert County, Georgia, and Abbeville County, S.C., and the reservoir will extend into Hart County, Georgia, and Anderson County, S.C. The project provides for a combination earthfill and gravity-type concrete dam, including a powerhouse, and a concrete spillway surmounted by ten tainter gates. At maximum power pool elevation 475 the reservoir will have a surface area of 26,653 acres and a storage capacity of 1,026,200 acre-feet. Flood storage has been allocated 140,000 acre-feet, surcharge storage 322,000 acre-feet and power storage, 126,800 acre-feet. The powerplant will contain four 75,000 kw units.

Proposed operations.—The $1,000,000 could be used to initiate construction of the project.

Justification.—The hydroelectric output for the Trotters Shoals Project will be used to help meet power loads in Federal Power Commission power supply areas 21, 22, and 23. These areas include all of South Carolina, most of North Carolina, Georgia, and Alabama, and parts of Mississippi and Florida. The Federal Power Commission considered that half the output would be marketed in power supply area 21 and half in areas 22 and 23. It is estimated that the output of the project could be fully utilized by the year 1980 in these areas.

It is estimated that the recreational facilities of the Trotters Shoals Reservoir will serve an area within the 50-mile zone of influence of the reservoir having an estimated 1977 population of 1,016,300. The normal water level fluctuation of generally less than one foot and a water area of approximately 26,650 acres at maximum power pool will contribute materially to the existing recreational resources of the area. It is estimated that the average annual attendance at Trotters Shoals Reservoir will be 1,734,000 visitor-days by 1980.

The Clark Hill Reservoir provides the 812 square miles of uncontrolled drainage area between the Clark Hill and Hartwell Projects virtually complete protection from flood runoff originating on this intermediate drainage area. However, some incidental flood control benefits would accrue to the Trotters Shoals Dam and Reservoir.

At this time there are no known substantial requirements for specific water supply storage in the Trotters Shoals Reservoir. However, the industrial and domestic water supply potential of this reach of the Savannah River is virtually unlimited.

There are eight counties within a 50-mile radius of the project that are classified as redevelopment areas under provisions of the Public Works and Economic Development Act of 1965. Five of these are in Georgia and three in South Carolina. In addition, Anderson County is included within the boundaries of the Appalachian Region.

The average annual benefits are $7,339,000 for power, $1,775,000 for recreation, $887,000 for fish and wildlife, $55,000 for flood control and $650,000 for area redevelopment. The benefit-cost ratio is 2.1 to 1.

Ala Wai Harbor, Hawaii

Senator Ellender. There is nothing in the budget and local interests have requested $45,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $45,000 to initiate and complete preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$616,000
Total allocations to date	0
Balance to complete	616,000
Amount that could be used in fiscal year 1971	45,000

Authorization.—River and Harbor Act of 1968 (HD 353/90/2).

Location and description.—Ala Wai Harbor is located on the south east coast of the island of Oahu, within the metropolitan area of Honolulu, and marks the western boundary of Waikiki Beach. The plan of improvement provides for modification of the existing light draft harbor to provide an additional 20 acres, protected by a revetted mole 1,400 feet long, two wave absorbers, and a 60 foot long stub breakwater on the proposed seaward mole.

Proposed Operations.—The amount of $45,000 could be used to initiate and complete preconstruction planning.

Justification.—The existing Ala Wai Harbor has a surface area of about 31 acres and capacity for about 515 boats. This facility is the largest and finest light-draft harbor in the Hawaiian Islands and no serious difficulties impede use of the harbor. However, the present capacity is inadequate for the needs of the area and there is a long waiting list for berthing spaces. The benefit-to-cost ratio for the proposed modification is estimated at 5.0 to 1. The average annual benefits are currently estimated to be $267,600, all from recreational boating.

Barbers Point Harbor, Hawaii

Senator Ellender. There is nothing in the budget and local interests have requested $2 million. What is your capability on this project?

General Koisch. Mr. Chairman, until very recently, we had a capability of $1,500,000 for initiation of construction. However, we understand that the State of Hawaii is considering a request to move the site of this harbor about 2,000 feet to the south of the authorized location. If the location is moved a substantial amount of redesign will be required at the new location and, consequently, we would not have a capability for construction for fiscal year 1971.

Senator Ellender. How much would the additional design cost?

General Koisch. We currently estimate that the additional design would cost $200,000, sir.

Senator Ellender. Do you have these funds available or do you have a planning capability for this project?

General Koisch. We do not have the funds available. A capability for planning on the project would depend upon the receipt of a formal request by the State to move the site and resolution of certain matters of cost sharing and local cooperation.

Hana Harbor, Hawaii

Senator Ellender. There is nothing in the budget and local interests have requested $78,000. Could you use this amount?

General Koisch. Mr. Chairman, we could use $78,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

\Summarized financial data

Total estimated Federal cost	$2,350,000
Total allocations to date	0
Balance to complete	2,350,000
Amount that could be utilized in fiscal year 1971	78,000

Authorization.—River and Harbor Act of 1965 (HD 353/88/2).

Location and description.—Hana Harbor is on the east coast of Maui, about 59 road miles from Wailuku. The proposed improvement consists of a breakwater 1,230 feet long, of which the landward 250 feet would be in the form of a revetted mole, and a turning area and a harbor basin of about 200,000 square feet.

Proposed operations.—The amount of $78,000 could be used to initiate preconstruction planning.

Justification.—There are no Federal navigation improvements in Hawaii exclusively for the use of light-draft vessels. The State of Hawaii desires to separate recreational boating and fishing activities from commercial shipping areas of the deepwater ports. Commercial boating activities include tuna fishing and charter boats for sport fishing, or pleasure cruises. Maui supports about 3.3 percent of the commercial fleet in the State. The proposed plan of improvement at Hana Harbor provides for a fishing in recreational boat harbor in combination with a commercial barge terminal and is intended to accommodate 70 based craft. The benefit-cost ratio is 1.1 to 1. Average annual benefits are listed below:

Current estimate, July 1969 base (50-year life)

Average annual benefits	$136,000
Recreation	22,600
Commercial fishing	3,400
Commercial navigation	110,000

Heeia-Kea Harbor, Hawaii

Senator Ellender. There is nothing in the budget and local interests have requested $49,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $49,000 to initiate and complete preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$560,000
Total allocations to date	0
Balance to complete	560,000
Amount that could be used in fiscal year 1971	49,000

Authorization.—River and Harbor Act of 1965 (HD 353/88/2).

Location and Description.—The project will be located in Kaneohe Bay, on the northeast coast of the Island of Oahu, about 15 miles north of Honolulu. The plan of improvement provides for construction of three revetted L-shaped moles and three access channels across the natural coral reefs into the basins formed by the moles.

Proposed Operations.—The amount of $49,000 could be used to initiate and complete preconstruction planning.

Justification.—Existing facilities are inadequate to handle present boating needs on the northeast coast of Oahu. The small existing facility at Heeia-Kea is inadequate to handle the present needs of recreational, commercial fishing and

charter craft based at Kaneohe Bay. The improved harbor will ultimately accommodate 1,600 boats. The benefit-to-cost ratio is 5.1 to 1.

Average annual benefits are listed below:

Current estimate July 1969 Base (50-year life)

Average annual benefits	$264,400
Recreation	261,200
Navigation	3,200

Honolulu Harbor, Hawaii

Senator Ellender. There is nothing in the budget, and local interests have requested $30,000. Could you use this amount?

General Koisch. Mr. Chairman, we could use $30,000 to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,930,000
Total allocations to date	75,000
Balance to complete	2,855,000
Amount that could be used in fiscal year 1971	30,000

Authorization.—River and Harbor Act of 1965 (H.D. 93/89/1).

Location and Description.—Honolulu Harbor is located on the south coast of the Island of Oahu, in the City of Honolulu. The proposed improvements provide for modification of the existing project to provide 45-foot depths in the Forst Armstrong channel, 40-foot depths in most of the main harbor basin and all of Kapalama Channel, and modification of project lines.

Proposed Operations.—The amount of $30,000 could be used to initiate construction.

Justification.—Modification of the existing project is urgently required so that modern vessels of deep draft can utilize the harbor. Very large bulk carriers are currently unable to use Honolulu Harbor, and these vessels are being used more and more frequently in world trade. The economy of the Island State is largely dependent upon shipping, and it is essential that Honolulu Harbor, the major port in the State, be able to accommodate these vessels. The benefit-to-cost ratio is 4.8 to 1. Average annual benefits, all navigation, are estimated at $1,165,000.

Iao Stream, Hawaii

Senator Ellender. There is nothing in the budget and local interests have requested $99,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $99,000 to initiate and complete preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, Sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,850,000
Total allocations to date	0
Balance to complete	1,850,000
Amount that could be used in fiscal year 1971	99,000

Authorization.—Flood Control Act of 1968 (HD 151/90/1).

Location and description.—The project will be located along the Iao Stream in and adjacent to the town of Wailuku on the Island of Maui, Hawaii. The proposed plan of improvement provides for construction of a debris basin about three miles upstream from the mouth of Iao Stream and for channel improvements from the vicinity of Market Street Bridge to the Ocean.

Proposed operations.—The amount of $99,000 could be used to initiate and complete preconstruction planning.

Justification.—Floods along Iao Stream are flashy in nature and occur with little or no warning. Fourteen lives have been lost due to floods along Iao Stream. The total value of lands and improvements in the flood plain is estimated at about $15,800,000. A recurrence of the 1916 flood of record could cause damages in excess of $2,200,000. Construction of this project would alleviate the serious flooding problems in Wailuku. The benefit-to-cost ratio is estimated to be 1.11 to 1. Average annual benefits, all from flood control, are estimated to be $113,000.

Kailua Harbor, Hawaii

Senator Ellender. There is nothing in the budget and local interests have requested $55,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $55,000 to initiate and complete preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$339,000
Total allocations to date	0
Balance to complete	339,000
Amount that could be used in fiscal year 1971	55,000

Authorization.—River and Harbor Act of 1965 (HD 353/88/2).

Location and Description.—Kailua Harbor will be located adjacent to Kailua Bay on the east shore of the Island of Oahu, about 12 miles from Honolulu. The plan of improvement provides for construction of a 120,000 square foot turning basin six feet deep and a main access channel 1,800 feet long, 100 to 150 feet wide and six feet deep in Kawainui Swamp on the landward side of the town of Kailua, with access to Kailua Bay through the 9,100 foot long Oneawa Channel, a portion of the complete Kawainui Swamp flood control project.

Proposed Operations.—The amount of $55,000 could be used to initiate and complete preconstruction planning.

Justification.—Existing facilities are inadequate to handle the present boating needs on the northeast coast of Oahu. The nearest harbor is Heeia-Kea Harbor, about eight miles northwest of Kailua, which is inadequate to accommodate the needs of its own tributary area. The present boat population of the Kailua area is about 120 boats. Construction of the small craft harbor at Kailua would accelerate the growth in boat population and accommodate the present fleet. The Kailua Harbor will ultimately accommodate 675 boats. The benefit-to-cost ratio is 1.7 to 1. Average annual benefits, all recreation, are estimated to be $77,000.

Kaneohe-Kailua Area, Hawaii

Senator Ellender. There is nothing in the budget, and local interests have requested $160,000. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized, if the project is authorized during the current session of Congress our capability would be $160,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$6,700,000
Total allocations to date	0
Balance to complete	6,700,000
Amount that could be utilized in fiscal year 1971	160,000

Authorization.—Not yet authorized.

Location and description.—The proposed project will be located in the Kamocalii-Kaneohe Stream drainage basin on the east coast of the Island of Oahu. The plan of improvement provides for construction of an earthfill dam in the upper basin and channel improvements in the lower basin for flood control, recreation and fish and wildlife purposes.

Proposed operations.—If the project is authorized during the current session of Congress, the amount of $160,000 could be used to initiate preconstruction planning.

Justification.—The rapidly urbanizing flood plain of the Kaneohe Stream is subject to frequent devastating floods. The value of property in the area to be protected by the project is estimated at $40,000,000. Three lives have been lost since 1965 due to flooding and the February 1969 flood caused damages estimated at $1,093,000. The February 1965 flood caused damages of $739,000 and resulted in the loss of two lives. The project will also provide substantial recreation and fish and wildlife benefits. The benefit-to-cost ratio is estimated at 1.6 to 1. Average annual benefits are listed below:

Current estimate, July 1969 base (100-year-life)

Average Annual Benefits	$656,000
Flood Control	318,000
Recreation	333,000
Fish and Wildlife	5,000

Kawaihae Harbor, Hawaii

Senator Ellender. Local interests have requested $1,102,000 for this project. The project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use in fiscal year 1971, and no additional funds are in the 1971 budget. The House has included $1,102,000, exclusive of reserve. What is your capability on this project?

General Koisch. Our capability is $1,102,000, sir.

Senator Ellender. What could you accomplish with the additional amount?

General Koisch. We could complete construction of the project with the additional amount, sir.

Port Allen Harbor Breakwater, Hawaii

Senator Ellender. There is nothing in the budget and local interests have requested funds for the initiation of construction. What is your capability for this project?

General Koisch. Mr. Chairman, the report of the district engineer has very recently been completed and submitted for review by higher authority. The district engineer has recommended in his report that no modification of the existing project at Port Allen be undertaken at this time. Consequently, the Corps of Engineers has no capability for the project modification desired by local interests.

Reeds Bay Harbor, Hawaii

Senator Ellender. There is nothing in the budget and local interests have requested $50,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $50,000 to initiate and complete preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$343,000
Total allocations to date	0
Balance to complete	343,000
Amount that could be used in fiscal year 1971	50,000

Authorization.—River and Harbor Act of 1965 (HD 353/88/2).

Location and description.—Reeds Bay is located on Hilo Bay on the northeast coast of the Island of Hawaii. The recommended improvements consist of a breakwater 870 feet long; and entrance channel 880 feet long, 120 feet wide and 12 feet deep.

Proposed operations.—The amount of $50,000 could be used to initiate and complete preconstruction planning.

Justification.—There are no Federal navigation improvements in Hawaii exclusively for the use of light-draft vessels. The State of Hawaii desires separate recreational boating and fishing activity from the commercial shipping areas of the deep-water ports. Projection of estimated future boat space requirements show approximately 80 spaces in the first year of service, 150 in the year 1980 and 270 spaces in 2010. The proposed harbor is adjacent to Hilo, the second largest city in the State with an estimated population of 26,000. The benefit-to-cost ratio is 2.0 to 1. Average annual benefits, all recreational boating, are $66,000.

Waianae Harbor, Hawaii

Senator Ellender. There is nothing in the budget and local interests have requested $118,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $118,000 to initiate and complete preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total Estimated Federal Cost	$1,330,000
Total Allocations to Date	0
Balance to Complete	1,330,000
Amount that could be used in fiscal year 1971	118,000

Authorization.—River and Harbor Act of 1965 (HD 353/88/2).

Location and Description.—The Waianae Harbor is on the west coast of the Island of Oahu, approximately 30 road miles from Honolulu. The recommended plan of improvement consists of a breakwater 1,350 feet long; a groin 175 feet long; and entrance channel 830 feet long, 150 feet wide, depth 15–17 feet, and a main access channel 870 feet long, 100 feet to 150 feet wide, 12 feet to 15 feet deep.

Proposed Operations.—The amount of $118,000 could be used to initiate and complete preconstruction planning.

Justification.—The offshore waters along the Waianae coast is one of the finest fishing grounds in the State of Hawaii. The present fleet operates out of

Pokai Bay, a state constructed harbor. This harbor is overcrowded and does not provide adequate protection from storm waves. The problem is further aggravated by sand filling portions of the harbor basin. In addition to high maintenance cost, the present harbor conflicts with the recreational use of the adjacent beach, the best local bathing beach. Construction of the new harbor at Waianae would serve the urgent immediate and long range needs of the State, and would also serve as a harbor of refuge in the event of storms. The present number of boats in the Waianae refuge in the event of storms. The present number of boats in the Waianae area is 172. The harbor will have an ultimate capacity for about 380 boats. The benefit-to-cost ratio is 1.16 to 1. Average annual benefits, all from light draft navigation, are estimated at $140,300.

Waikiki Beach, Hawaii

Senator Ellender. I note that the House has included $200,000, exclusive of reserve. Can you effectively utilize these funds?

General Koisch. Yes, sir.

Senator Ellender. What would you accomplish with these funds?

General Koisch. This amount would permit an earlier award of our construction contract but would not advance overall project completion.

Blackfoot Reservoir, Idaho

Senator Ellender. There is nothing in the budget and local interests have requested $600,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $600,000. This amount would permit initiating construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,240,000
Allocations to date (planning)	180,000
Balance to complete	2,060,000
Amount that could be utilized in fiscal year 1971	600,000

Authorization.—Flood Control Act of 1962.

Location and Description.—The Blackfoot Reservoir is located on the Blackfoot River in Caribou County, Idaho, about 40 miles southeast of the city of Blackfoot, and about 15 miles north of the town of Soda Springs. The project would consist of modifying the existing Blackfoot Dam, spillway, and outlet works, and raising the auxiliary China Hat Dam by 8 feet to provide added usable storage of 38,000 acre-feet for flood control. The existing Blackfoot Reservoir capacity would thus be increased to 451,000 acre-feet.

Proposed Operations.—The amount of $600,000 would be utilized to initiate construction. Preconstruction planning has been completed.

Justification.—The area subject to flooding consists of agricultural, residential, and commercial properties and includes transportation facilities and utilities. Property in the potential flood area is valued at over $10,000,000. Project benefits consist of flood damages prevented and are estimated at $162,000 annually. The benefit-to-cost ratio is 1.9 to 1, based on a 100-year project life.

Cottonwood Creek Reservoir, Idaho

Senator Ellender. There is nothing in the budget and local interests have requested $600,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $600,000, which would be used to start construction on the project.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,450,000
Total allocations to date (planning)	162,000
Balance to complete	2,288,000
Amount that could be utilized in fiscal year 1971	600,000

Authorization.—Flood Control Act of 1966.

Location and Description.—The project will be located on Cottonwood Creek at the north city limits of the city of Boise, in Ada County, Idaho. The project would consist of an earthfill dam 117 feet high with uncontrolled spillway and outlet works that would create a reservoir of 2,480 acre-feet of capacity. The reservoir would provide 410 acre-feet storage for sediment and 2,070 acre-feet storage for flood control.

Proposed Operations.—The amount of $600,000 could be used in FY 1971 to initiate construction of the project. Work would start on the outlet works structure and the dam embankment.

Justification.—Floods at Boise, Idaho result from local summer thunderstorms having high intensity precipitation over mountainous watersheds adjacent to the city. The proposed improvement would provide flood protection to residential, commercial, manufacturing, and municipal properties in addition to bridges, streets, and utilities. Three flash floods in August and September 1959 caused severe damages. The flood of 20 August 1959 inundated an area of 160 acres with property valued at $10,677,000. Damages were $162,000, all of which could have been prevented by the project. Estimated annual benefits are $121,000, all accruing from flood control. The benefit-to-cost ratio is 1.2 to 1, based on 100-year project life.

DWORSHAK RESERVOIR, IDAHO

Senator ELLENDER. The budget request was $55,750,000. The House has included $55,750,000, exclusive of reserve, and local interests have requested $60 million. What is your capability on this project?

General KOISCH. Our capability on this project is $60 million, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $4,250,000?

General KOISCH. The additional amount would be used to pay additional earnings of the main dam contractor which will accrue because of the addition of multilevel intake control works to the dam structure.

LUCKY PEAK POWERPLANT—TWIN SPRINGS RESERVOIR, IDAHO

Senator ELLENDER. There is nothing in the budget, and local interests have requested $250,000. What is your capability on this project?

General KOISCH. Mr. Chairman, the project is not yet authorized. If the project is authorized during the current session of Congress our capability would be $250,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

The statement follows:

Summarized financial data

Total estimated Federal cost	$91,800,000
Total allocations to date	[1] 0
Balance to complete	91,800,000
Amount that could be utilized in fiscal year 1971	250,000

[1] Costs allocable to power generation, estimated at $67,785,000, will be reimbursed to the Federal Government.

Authorization.—Not yet authorized.

Location and Description: The Lucky Peak-Twin Springs project would consist of two separate features, located on the Boise River, from 10 to 30 miles upstream and southeast of the state capitol city of Boise, Idaho.

a. *The Lucky Peak Powerplant* would consist of a powerhouse, penstocks, power tunnel, intake structure at the existing Lucky Peak Dam, and downstream reregulating dam. The powerplant would provide for installation of two conventional units, each with a capacity of 20,150 kw, installation of a reversible pump turbine motor generator having a continuous generating capacity of 66,000 kw units for an ultimate installation of 106,300 kw, and a pump discharge capacity of 4,250 cfs. Power discharge will be regulated by a 1,300-foot-long dam located ¼ mile downstream.

b. *The Twin Springs Dam and Reservoir* would be located on and would extend 14 miles upstream on the Middle Fork of the Boise River. It would provide a total storage capacity of 600,000 acre-feet. The project would include a powerhouse with an initial installation of two 17,250-kw units and two 34,500-kw units for a capacity of 103,500.

Proposed Operations.—Subject to authorization of the project, the sum of $250,000 could be used to initiate preconstruction planning. Reconstruction planning is estimated to cost a total of $1,400,000 and to require 3 years to accomplish.

Justification.—The proposed plan of improvement would reduce flood damage along the Boise and lower Columbia Rivers. The project would produce power which, according to projections by the Bonneville Power Administration, could be absorbed into the local load to serve domestic, commerical, industrial, and agricultural needs, or it could be marketed throughout the Pacific Northwest through the interconnected transmission grid. The proposed plan would provide flow supplements to help relieve the severe pollution problem in the Boise and Caldwell reaches of the Boise River. Maintenance of existing outlet facilities of Lucky Peak Dam requires complete closure for varying periods. The proposed plan would also provide this much needed additional outlet facility. Reservoir release through the existing outlet facilities results in a heavy spray which creates hazardous driving conditions on the adjacent highway. This problem would be substantially reduced by making principal storage releases through the proposed Lucky Peak powerplant. Estimated annual benefits total $6,662,000, and are tabulated below. The benefit-to-cost ratio is 1.2 to 1, based on 100-year project life.

Benefit:	*Amount*
Flood control	$105,000
Power	4,386,000
Recreation	43,000
Water quality	2,128,000
Total	6,662,000

Middle Snake River and Asotin Dam, Idaho and Wash.

OPPOSITION

Senator Ellender. The National Wildlife Federation has testified that it supports a declaration of a moratorium on dam construction in the Middle Snake River in general, and specifically it asks that

construction of the Asotin Dam be deferred indefinitely. What Corps of Engineers projects might be affected by such a moratorium?

Colonel McINTYRE. Sir, the only corps project which might be affected is the Asotin Dam and Reservoir project. This project which was authorized by Congress in the Flood Control Act of 1962, would be located at Asotin, Wash. Its pool would extend some 26 miles upstream on the Snake River and about 2 miles up the Grande Ronde River. The proposed dam would include a powerhouse with an initial installation of two 135,000-kilowatt units for an initial capacity of 270,000 kilowatts, with space for two additional units for an ultimate installation of 540,000 kilowatts. Provisions would be made for the future addition of a navigation lock. The project would include the necessary facilities and features to maintain existing fish runs and wildlife values similar to those provided at other projects downstream on the Snake River. No funds have been appropriated to initiate preconstruction planning.

Senator ELLENDER. What is the justification for the Asotin project?

Colonel McINTYRE. Sir, the latest resources studies prepared by the Bonneville Power Administration indicate that the power to be generated at Asotin, in addition to all other new scheduled power resources, will be required to meet Northwest power loads in the late 1970's. The Northwest firm peak loads for January 1978 are estimated to be 29 million kilowatts compared to 20 million in January 1970. Load growth of this magnitude can be met most economically by a combination of large base load thermal plants supplemented by hydroelectric plants for meeting the sustained daily peak loads. The Asotin project would generate about 1,800 million kilowatt-hours of energy annually. According to the Federal Power Commission's latest estimate of alternative sources of generation, the Asotin project will produce peaking power at about 34 percent plant factor for less than half the cost of a nuclear plant. The project would also generate benefits from use of the reservoir for recreation. The average annual benefits creditable to this project are power, $10,168,000; and recreation, $74,000; for a total of annual benefits of $10,242,000. The benefit-cost ratio is 1.9 to 1.

EFFECT OF PROJECT ON FISH AND WILDLIFE

Senator ELLENDER. What affect would the Asotin project have on fish and wildlife resources and how would any adverse effect on these resources be overcome or mitigated?

Colonel McINTYRE. Sir, fish passage facilities similar to those existing at the Lower Snake River Dams would be provided. Adult fish can be passed over a project of this type with little delay or loss. Downstream migrants passing through Kaplan type turbines may suffer minor losses but continuing research is being conducted to find safer methods for bypassing the juvenile fish around the danger areas. Initial results appear very promising. Any losses can be mitigated by artificial propagation.

Inundation of major natural spawning areas is not a problem at Asotin. Only sporadic spawning by fall Chinok occurs in the reservoir area. Losses, if any, could readily be replaced by artificial propagation. The corps is not alone in its opinion that the Asotin project would

have only minor affect on the anadromous fish populations. The U.S. Fish and Wildlife Service in its 1964 report commented that the Asotin Dam would be relatively low in height, and it expected that fish could be passed with minor losses.

Some inundation of riparian cover and food for upland birds and a limited number of deer could occur. Some alteration of existing habitat use by water fowl is also expected. While these changes are not expected to have a significant adverse impact on bird and animal populations, detailed studies would be made during preconstruction planning to properly assess the effects on these resources in order to undertake mitigation measures if they proved to be needed.

Placer Creek, Wallace, Idaho

Senator Ellender. There is nothing in the budget, and local interests have requested $125,000. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized. If the project is authorized during the current session of Congress our capability would be $125,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized Financial Data:	
Total Estimated Federal Cost	$1,660,000
Total Allocations to Date	0
Balance to Complete	1,660,000
Amount that could be utilized in fiscal year 1971	125,000

Authorization.—Not yet authorized.

Location and Description.—Placer Creek flows to the north through the city of Wallace, in northern Idaho. Wallace is approximately 50 miles east of the City of Coeur d'Alene, in Shoshone County. The project would provide for construction of a reinforced concrete channel in the lower 5,000-foot reach of Placer Creek, with a debris barrier upstream of the concrete channel.

Proposed Operations.—Subject to authorization of the project, the sum of $125,000 could be used to initiate preconstruction planning. The estimated total cost of preconstruction planning is $200,000, and will require two years to accomplish.

Justification.—The recommended improvement would provide protection for approximately 41 acres of highly developed urban property in the city of Wallace from floods having frequencies up to 200 years. The project could also provide partial protection for 14 acres of land in Wallace from floods of the South Fork Couer d'Alene Rived having flood flows of over 50-year frequencies. Estimated annual benefits total $142,400 and derived from flood damage prevention, the benefit-to-cost ratio is 1.3 to 1, based on 50-year project life.

Stuart Gulch Reservoir, Idaho

Senator Ellender. There is nothing in the budget and local interests have requested $145,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $145,000, which would be used to complete preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,680,000
Appropriations to date (planning)	1,108,000
Balance to complete	1,572,000
Amount that could be utilized in fiscal year 1971	145,000

Authorization.—Flood Control Act of 1966.

Location and Description.—The project would be located on Stuart Gulch, just northwest of the city of Boise, in Ada County, Idaho. The authorized project would consist of a dam and reservoir which will provide a gross storage of 510 acre-feet, of which 380 acre-feet would be flood control storage, and 130 acre-feet would be sediment storage.

Proposed Operations.—The sum of $145,000 could be utilized to complete preconstruction planning work in fiscal year 1971. (See remarks.)

Justification.—Flash floods occur at Boise, Idaho, due to local thunderstorms on the small streams that drain the nearby steep mountain slopes which lay to the north-northeast of the city and are known as the Boise Ridge. The proposed plan of improvement would provide protection to a suburban area just outside the city of Boise from floods originating in the Stuart Gulch drainage basin. The total area to be protected comprises of about 500 acres of residences, commercial and public facilities, including roads, streets, and highways. The area has a total current estimated value of about $26,000,000. The estimated annual benefits total $132,000, all due to damage prevention. The benefit-to-cost ratio is 1.9 to 1, based on 100-year project life.

Remarks.—Preconstruction planning was scheduled to be completed with funds appropriated in fiscal year 1969. Unforeseen unstable foundation conditions have necessitated additional and more complex foundations and materials studies requiring additional planning funds.

Freeport, Ill.

Senator Ellender. The budget request was $1,000,000. The House has included $300,000 and local interests have requested $1,000,000. What is your capability on this project?

General Koisch. Our capability on this project has been reduced from $1,000,000 to $300,000 since submission of the original budget request.

Senator Ellender. Please explain the reason for the $700,000 reduction in capability.

General Koisch. The city of Freeport has encountered great difficulty in getting rights-of-way for railroad crossings. The Corps has also undertaken negotiations with the Chicago & North Western and the Chicago, Milwaukee, St. Paul & Pacific Railroads with the idea of altering their rail facilities so that only one of two bridges would have to be built across the diversion channel that is part of the project. The railroads had been completely receptive to this plan. However, on January 2, 1970, the Chicago & North Western Railroad stated that they planned to petition the Interstate Commerce Commission for authority to abandon their line from Freeport to Winnebago. The city opposed this move and since the abandonment procedure which the railroad is now pursuing will be time consuming we reduced our capability to $300,000 for fiscal year 1971.

Helm Dam and Reservoir, Ill.

Senator Ellender. There is nothing in the budget and local interests have requested $75,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $75,000 to initiate preconstruction planninng.

Senator ELLENDER. Would you submit a statement for the record?
General KOISCH. Yes, sir.
(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $21,600,000
Allocations to date	0
Balance to complete	21,600,000
Amount that could be used in fiscal year 1971	75,000

[1] Estimated cost to include future recreational development is $24,240,000.

Authorization.—1968 Flood Control Act.

Location and description.—The proposed dam site is located in southeastern Illinois on Skillet Fork of the Little Wabash River, about 71.9 miles above the mouth of Skillet Fork. This site, in Marion County, is about 2 miles northwest of Helm and about 21 miles east of Centralia, Illinois. The proposed project consists of a rolled-earth dam with an uncontrolled open cut spillway through the right abutment, and a gate controlled outlet conduit through the base of the dam.

Proposed operations.—The amount of $75,000 would be utilized to initiate preconstruction planning of the project in FY 1971.

Justification.—Helm Reservoir will operate as a unit of the general compresive plan for flood control and related water resource development in the Wabash River Basin. The project, in combination with the fifteen other presently authorized reservoirs in the Wabash Basin, will aid in the reduction of flood flows along the Wabash River and, to a lesser degree, along the Ohio River below the Wabash River. The 210 square mile drainage area controlled by the reservoir is about 10 percent of the Skillet Fork Basin, which is tributary to the Little Wabash River. The project would provide for reduction in flood stages and flood damages in overflow areas along about 71.9 miles of the Skillet Fork below the proposed dam and, along the lower 40 miles of the Little Wabash River. The total value of all urban developments along Skillet Fork below the proposed dam are estimated at $2.26 million (1969 values). Recurrence, under present conditions, of May 1961 record flood heights along the affected reach of Skillet Fork would cause damages estimated at $2,509,000 (1969 values), of which about $511,200 would be prevented by the project. Operation of the project during flood conditions equivalent to those of May 1961, would reduce flood levels about 1.6 feet at Wayne City which is about 30 miles below the proposed dam. Damaging floods during the last five years occurred in January-February, April and May 1969; February, March and April 1968; March, May and December 1967; April 1966 and February and July 1965. In addition, the project would provide storage for low-flow augmentation in the interest of water quality control, for water supply and for general fish and wildlife recreational opportunities.

The benefit-cost ratio for this project is 1.6 to 1. The average annual benefits of $1,898,000 are broken down as follows:

Flood control	$432,000
Water supply	515,000
Water quality control	127,000
Recreation:	
General	781,000
Fish and wildlife	43,000
Total	1,898,000

KASKASKIA RIVER, ILL.

Senator ELLENDER. The budget request was $10,694,000. The House has allowed $10,694,000, exclusive of reserve, and local interests have requested $19,200,000. What is your capability on this project?

General KOISCH. Our capability on this project is $19,200,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $8,506,000?

General KOISCH. The additional amount would be used to advance construction of relocations, the lock, dam, and canal. The additional amount would advance the completion schedule of the project by 6 months.

LEVEE DISTRICT 21 (VANDALIA), KASKASKIA RIVER, ILL.

Senator ELLENDER. There is nothing in the budget and local interests have requested funds for the project. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $140,000 to initiate construction.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$6,750,000
Allocations to date	446,000
Balance to complete	6,304,000
Amount that could be utilized in fiscal year 1971	140,000

Authorization.—1958 and 1965 Flood Control Acts.

Location and Description.—The project site is on the left bank of the Kaskaskia River between miles 155.5 and 172.0 in Fayette County, Illinois. The project provides for the reconstruction of 20.9 miles of levees, construction of diversion and pilot channels and closure and drainage structures.

Proposed Operations.—The amount of $140,000 would be used to initiate construction.

Justification.—The existing levee offers only partial protection to 11,430 acres of which 9,530 acres are cleared. The improved levee would provide flood protection benefits consisting of flood damages prevented to crops and property and of changed land use on cleared and wooded lands. Improvement of this levee is an essential element in the comprehensive plan of development of the Kaskaskia River Basin. The benefit-cost ratio is 1.10 to 1. The average annual benefits, all flood control, are presently estimated at $323,400.

LEVEE DISTRICT 23 (DIVELY), KASKASKIA RIVER, ILL.

Senator ELLENDER. There is nothing in the budget, the House has included $60,000 and local interests have requested funds for the project. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $60,000 to initiate construction.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$846,000
Total appropriations to date	150,000
Balance to complete	696,000
Amount that could be utilized in fiscal year 1971	60,000

Authorization.—1958 and 1965 Flood Control Acts.

Location and Description.—The project site is on the left bank of the Kaskaskia River between 172.4 and 174.0 in Fayette County, Illinois. The project provides

for the reconstruction of 3.5 miles of levees and appurtenant drainage structures.

Proposed Operations.—The amount of $60,000 would be used to initiate construction.

Justification.—This existing levee offers only partial protection to 1,280 acres of which 970 acres are cleared. The improved levee would provide flood protection benefits consisting of flood damages prvented to crops and property and of changed land use on cleared and wooded lands. Improvement of this levee is an essential element in the comprehensive plan of development of the Kaskaskia River Basin. The benefit-cost ratio is 1.5 to 1. The average annual benefits, all flood control, are presently estimated at $52,200.

LINCOLN DAM AND RESERVOIR, ILL.

Senator ELLENDER. Local interests have requested $600,000 for this project. The project was added by the Congress in fiscal year 1970 for land acquisition, the added funds were put in budgetary reserve for use in fiscal year 1971, and no additional funds are in the 1971 budget. However, the House has included $600,000, exclusive of reserve for initiation of construction. What is your capability on this project?

General KOISCH. Our capability is $600,000.

Senator ELLENDER. What would be accomplished with the additional funds?

General KOISCH. The additional amount would be used to initiate construction of the project in the second half of fiscal year 1971.

LOCK AND DAM 26, MISSISSIPPI RIVER, ALTON, ILL.

Senator ELLENDER. The budget request was $200,000. The House has included $1 million and local interests have requested $1 million. What is your capability on this project?

General KOISCH. Our capability on this project is $1 million, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $800,000?

General KOISCH. The additional amount would be used to advance the preconstruction planning by 3 months.

LOUISVILLE DAM AND RESERVOIR, ILL.

Senator ELLENDER. The budget request was $15,000. The House has allowed $15,000, exclusive of reserve, and local interests have requested $75,000. What is your capability on this project?

General KOISCH. Our capability on this project is $15,000, Mr. Chairman.

MCGEE CREEK DRAINAGE AND LEVEE DISTRICT, ILL.

Senator ELLENDER. There is nothing in the budget and local interests have requested $200,000. What is your capability on the project?

General KOISCH. Mr. Chairman, our capability on this project is $200,000 to initiate construction.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $8,040,000
Allocations to date	217,000
Balance to complete	7,823,000
Amount that could be utilized in fiscal year 1971	200,000

Authorization.—1962 Flood Control Act.

Location and Description.—The McGee Creek Drainage and Levee District lies on the right bank of the Illinois River between miles 67.2 and 75.1 in Brown and Pike Counties, Illinois. The project provides for the reconstruction of 14.7 miles of levees, construction of a pumping station and appurtenant facilities.

Proposed Operations.—The amount of $200,000 would be used to initiate construction.

Justification.—The existing levee offers only partial protection to 12,080 acres, of which 11,200 acres are highly developed agricultural lands. The estimated population of the district is about 100 persons. The maximum flood of record, that of 1943, caused damages estimated at three-quarters of a million dollars. The benefit-to-cost ratio is 1.05 to 1. The average annual benefits, all flood control, are presently estimated at $337,700.[1]

[1] Pending final approval.

Mississippi River Between the Missouri River and Minneapolis, Minn., Guidewalls Locks 24 and 25 and Revetment and Dikes, Illinois and Missouri

Senator Ellender. There is nothing in the budget and local interests have requested $65,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $65,000 to initiate and complete preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$4,225,000
Total appropriations to date	0
Balance to complete	4,225,000
Amount that could be utilized in fiscal year 1971	65,000

Authorization.—1930 and 1935 River and Harbor Acts.

Location and description.—The project provides a 9-foot navigation channel between the mouth of the Missouri River and Minneapolis, Minnesota, by the construction of a series of locks and dams and by dredging and the construction of pile dikes and bank revetment. The locks and dams are completed, three of which are located in the St. Louis District. Uncompleted units of the St. Louis District portion of the project are stabilization of the right bank of the Mississippi River at the confluence of the Missouri River by means of revetment and of the opposite left bank by dikes, and the extension of guide walls and improvement of mooring facilities at locks 24 and 25.

Proposed operations.—The amount of $65,000 would be used to initiate and complete preconstruction planning.

Justification.—Stabilization of the right bank of the Mississippi River at its confluence with the Missouri River by means of revetment is necessary to assure a satisfactory entrance into the chain of Rocks Canal two miles downstream. Stabilization of the left bank of the Mississippi River opposite the revetment is necessary to insure a stable navigation channel with the proper alinement. During periods of open river condition, strong cross currents in the upper approaches of Locks 24 and 25 and strong cross winds cause delays from one to three hours for tows attempting to enter the locks. Numerous minor accidents have occurred causing damage to the lock structure and barge equipment. These damages could be avoided by extending the guide walls. The benefit-to-cost ratio is 1.8 to 1.

The average annual benefits, all navigation, applicable to the Mississippi River 9-foot channel project between the mouth of the Missouri and Minneapolis are

estimated at $4,543,300. Incremental benefits for the proposed extension of the guide walls, revetment and dikes have not been evaluated.

Mississippi River Between the Ohio and Missouri Rivers, Regulating Works, Illinois and Missouri

Senator Ellender. The budget request was $840,000. The House has allowed $840,000, exclusive of reserve, and local interests have requested $3,500,000. What is your capability on this project?

General Koisch. Our capability on this project is $3,500,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $2,660,000?

General Koisch. The additional amount would be used to advance construction of dikes and would advance completion of the project by 1 year.

Mound City Locks and Dam, Ohio River, Ill. and Ky.

Senator Ellender. There is nothing in the budget and local interests have requested $3 million. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $3 million to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$142,000,000
Allocations to date	1,640,000
Balance to complete	140,360,000
Amount that could be used in fiscal year 1971	3,000,000

Authorization.—1909 River and Harbor Act.

Location and description.—The proposed project is located in the southwest portion of Illinois and northwest portion of Kentucky on the Ohio River, 974.2 miles downstream from Pittsburgh, Pennsylvania. The lock and dam structure would be located in Pulaski County, Illinois and Ballard County, Kentucky. The project is a proposed replacement for existing Locks and Dams 52 and 53 on the Ohio River. The proposed project would include two parallel locks, 110 feet x 600 feet and 110 feet x 1200 feet, located on the Illinois side of the river, and a dam consisting of a gated section and a weir section.

Proposed operations.—The amount of $3 million would be utilized to initiate construction of the project in fiscal year 1971.

Justification.—In 1967, commercial navigation through the project area was 33,400,000 tons. Traffic is projected to reach 100,000,000 tons annually by 1972. The project will replace two existing Ohio River Locks and Dams (Nos. 52 and 53) incorporating modern lock facilities with two parallel chambers, 110 x 1200 foot and 110 x 600 foot in lieu of the single 110 x 600 foot obsolescent locks now in service at each of the existing structures to be eliminated. The existing structures Nos. 52 and 53 were completed in 1928 and 1929, respectively, and their physical condition together with obsolete design, results in high maintenance and operation costs and in inefficient handling of traffic. Traffic on the Ohio River has been increasing at a very rapid rate since completion of the present system, and all indications are that traffic will continue to increase for many years. Due to the rapid industrial expansion now taking place along the Ohio River, the old structures are not capable of efficiently handling the modern type tows and the large volume of traffic now using the river. This demand upon existing facilities is rapidly accelerating their deterioration, and any breakdown will create intolerable conditions. The efficient and uninterrupted river traffic is highly important in normal times, and the importance is greatly increased in time of national emer-

gencies. The objective of the current schedule is to complete Mound City and have it in operation in order to insure uninterrupted river traffic.

The benefit-cost ratio for the project is 4.3. The average annual benefits of $28,783,000 are broken down as follows:

Navigation	$27, 820, 000
Redevelopment	963, 000
Total	28, 783, 000

Oakley Reservoir Project, Illinois

OPPOSITION

Senator Ellender. Testimony opposing construction of the Oakley Reservoir project has been received with regard to the project plan further developed by the Corps of Engineers along lines originally suggested by State of Illinois officials. While this testimony dealt with several aspects of the plan, the most common objection concerned project destruction of natural areas within Allerton Park. Please explain how construction and operation in accordance with the project plan now recommended by the corps will alter present conditions within Allerton Park boundaries.

Colonel Anderson. Allerton Park is located astride the Sangamon River Valley, extending in a 3-mile wide belt from atop the bluff on one side, down the bluff slope, across a one-half mile wide flood plain that contains the meandering 100- to 200-foot wide Sangamon River, up the opposite slope and continuing for a distance atop the opposite bluff. The statuary, formal gardens, and Allerton House are well up the slope of or atop the north bluff; this is the portion of the park most frequented by the public. It will not be affected by the project. The bottom lands and slopes are natural areas with scenic trails for enjoyment of the public. The more remote portions are less visited by the public and provide an ecological laboratory for the University of Illinois. Any project effects will be limited to this portion of the park.

The Oakley Dam will be operated to maintain a conservation or permanent pool with surface elevation 623 feet. The upstream end of this permanent pool will be some 3 miles downstream of the lower Allerton Park boundary. The bottomland elevation at the downstream park boundary is approximately 627 feet. The project will not cause permanent flooding of any portion of Allerton Park. The conservation or permanent pool is expected to have no effect upon the park except for the possibility of still water below normal streamflow profile for a distance of less than 1 mile. This could occur only during a very rare instance of short duration, if the conservation pool surface exceeds elevation 621 feet coincidental with a very low stream flow.

The hydraulic effects of reservoir flood control operation as compared with natural valley flooding within Allerton Park can best be appreciated from the tabular listings of comparative flood elevations for various frequencies and durations at the downstream and upstream boundaries of the park, bearing in mind that the general elevation of the flood plain lands at each location being considered. I submit such listings for these two locations. The proposed reservoir will not alter natural conditions for floods of 30 days' duration or longer. The reservoir will have some effect only for infrequent floods of a short duration. Considering the wide flood plain and slope configuration

of the land, and considering that hydraulic changes of the project are limited to increased depth of flood over lands already flooded during flows expected to occur more rarely than once in 10 or 15 years, the effect of the project upon the valley ecology is expected to be a very gradual zonal shift of flora species primarily along the valley slopes above the general flood plain elevation. Practically, I do not expect any discernible change attributable to the project. Too much emphasis and reliance is being placed by ecologists upon the regularity of natural weather phenomena as portrayed by flood flow averages based upon a 58-year period of record. Although a particular flood flow is expected to occur once every 10 years, a capricious mother nature may provide that flow each year for 5 consecutive years within any 50-year period and still remain within the statistical average we have computed. Considering the limited period of record and the vagaries of nature, I believe it is inadvisable to attempt any further fine distinctions in project effects upon Allerton Park ecology in order to support a minor change in conservation or flood control pool surface elevation.

In summary, the conservation pool is expected to have no effect upon the park, and reservoir flood control operation is expected to cause no more than an indiscernible zonal shift of flora species within 1 or 2 feet of elevation over a period of many decades.

(The information follows:)

STAGE—FREQUENCY DATA AT LOWER END OF ALLERTON PARK SANGAMON RIVER, MILE 157.1

Recurrence interval in years	3 days duration		7 days duration		15 days duration		30 days duration	
	Natural	Oakley	Natural	Oakley	Natural	Oakley	Natural	Oakley
2	630.2	630.2	627.7	627.7	625.0	625.0		
5	631.8	631.8	628.9	629.1	627.0	627.0	625.8	625.8
10	632.6	632.9	629.5	631.0	627.9	628.5	626.2	626.2
20	633.2	636.2	630.0	635.3	628.7	631.6	626.6	626.6
50	633.7	640.8	630.5	640.4	629.6	634.6	626.9	626.9
100	634.0	642.5	630.8	642.0	630.2	635.8	627.1	627.1

NOTES

Stages at mile 157.1 were computed by superimposing the backwater effect of the inflow coincident with the corresponding pool stage. Daily reservoir pool stages were computed using the 56-year flow record of the Monticello Gage. Reservoir release rate of 5,000 c.f.s. was used.

That general flood plain elevation at mile 157.1 is 627 feet.

STAGE—FREQUENCY DATA AT ALLERTON PARK BRIDGE, SANGAMON RIVER, MILE 160.1

Recurrence interval in years	3 days duration		7 days duration		15 days duration		30 days duration	
	Natural	Oakley	Natural	Oakley	Natural	Oakley	Natural	Oakley
2	635.4	635.4	633.2	633.2	630.3	630.3		
5	636.8	636.8	634.3	634.3	632.3	632.3	630.9	630.9
10	637.6	637.6	634.8	634.8	633.3	633.3	631.4	631.4
20	638.1	638.7	635.2	636.5	634.2	634.4	631.8	631.8
50	638.6	640.9	635.6	640.4	635.1	635.8	632.3	632.3
100	638.8	642.8	635.9	642.7	635.6	636.8	632.8	632.6

NOTES

Stages at Allerton Park Bridge were computed by superimposing the backwater effect of the inflow coincident with the corresponding pool stage. Daily reservoir pool stages were computed using the 56-year flow record of the Monticello Gage. Reservoir release rate of 5,000 c.f.s. was used.

That general flood plain elevation at mile 160.1 is 631 feet.

MINOR CHANGES IN ECOLOGY

Senator ELLENDER. Some persons believe noticeable minor changes will occur. This situation appears to present an opportunity for study of the effects upon the valley ecological system from a controlled change in natural flooding pattern. Have you considered the possibility of studies of this type?

Colonel ANDERSON. Yes. University of Illinois officials have expressed interest in such a study, including a controlled year-to-year increase of the conservation pool surface from elevation 621 to 623 feet. We intend to have further discussion on this aspect. Assuming a program can be agreed upon, we intend to participate in and support such studies with funds appropriated for the project.

EFFECT OF FRIENDS CREEK IMPOUNDMENT ON DRAINAGE

Senator ELLENDER. Local interests in the Friends Creek area have expressed fear that the subimpoundment conservation and flood control pool elevations are so high that they will obstruct drainage tiles of agricultural lands and cause other difficulties to existing facilities.

Colonel ANDERSON. The Friends Creek subimpoundment as recommended provides storage to meet project purposes while holding the lowest feasible pool levels. The permanent pool level must be below elevation 653 feet and the flood control pool must be below 665 feet to prevent inundation of two cemeteries and a proposed interstate highway, and to allow continued operation of the Argenta sewage plant outlet and affected drainage tiles. The top of the recommended permanent pool is elevation 652 feet. This elevation is below the outlets of the drainage tiles and the Argenta sewage treatment plant whose functions must continue, and will not create problems for the proposed interstate highway. The two cemeteries will not be flooded. A relocated road serving also as a levee will protect the Argenta Cemetery; the smaller Dunbar Cemetery will be provided with a replacement access road. An estimated average drawdown of 2 feet during the recreation season will minimize the amount of unsightly land exposed during low-level periods. Such measures as selective plantings and bank shaping will further reduce any adverse effects on the shoreline.

Of eight known tiles which might be affected, only one tile is below the level of the permanent pool. It serves as a roadway culvert under a road which will be relocated. Three tile outlets are above the 664-foot elevation of the flood control pool. Four tiles which have outlets below the flood control pool, including the Argenta sewage outlet, will be provided with protective measures. Levees will be constructed around these outfalls. During normal periods the tiles will flow through a flap gate in the levees. When the flood pool fills, the gates will close and pumps will come on automatically which will pump the outfall water over the levee and into the reservoir. These pumps will have a capacity greater than the capacity of the outlets, and will therefore provide for adequate dewatering of the tiles outlets. These pumps will be maintained at Federal expense.

The Friends Creek dam is designed to provide a roadway across the top. This road will provide a crossing at the lower end of the reservoir to maintain local traffic patterns, including schoolbus and grain haul-

ing routes. This crossing will be near the interstate highway, but will be much more accessible for local traffic than the limited-access interstate highway.

ALTERNATE SOURCE OF WATER SUPPLY

Senator ELLENDER. On several occasions, we have heard testimony suggesting that a well system would be a more economical source of better quality water for the needs of the area, especially for Decatur.

Colonel ANDERSON. The use of ground water by the city of Decatur in lieu of water supply storage in the Oakley Reservoir has been the subject of many studies. The Illinois State water survey published a report on the Mahomet Valley as a ground water source in August 1968. The Corps of Engineers in the course of evaluating numerous alternatives to the Oakley project conducted an independent study of ground water. The feasibility of Decatur using ground water to supplement its water supply has also been studied by Harza Engineerin Co., under contract with the University of Illinois, and by Warren and Van Pragg Inc., under contract with the city of Decatur. All of the before-mentioned studies concluded that the underground Mahomet Valley could adequately supplement Decatur's existing water supply. The study undertaken by the Illinois state water survey did not include estimates of Decatur's cost of using the Mahomet Valley. However, the other studies mentioned did consider the cost of Deactur drilling a well field. From their independently performed studies, both Warren and Van Pragg and the corps concluded that Decatur's tapping of the underground Mahomet Valley would be more costly than the costs of the Oakley Reservoir allocated to water supply. The Harza Co.'s, cost estimates did not agree with those drawn up by Warren and Van Pragg, and the Corps of Engineers.

After evaluating the various studies and upon the advice of its consulting engineers, the city of Decatur concluded that it was not advantageous or desirable for the city to supplement its water supply by development in the Mahomet Valley. The city based its decision on a number of considerations. It was unable to accept the Harza conclusion that there is economy to be achieved by the use of well water instead of that which would be provided for in the Oakley Reservoir. The city said it would not be in control of the uses of water from the buried valley, other than from its own wells. Decatur theorized that it was very possible other communities might draw heavily upon the Mahomet Valley for water in the future. The city also cited that the history of well water supply in the State of Illinois is nonconductive to further development of well water supplies for larger cities such as Decatur. Decatur is presently dependent upon Lake Decatur for its water supply and contends that the introduction of well waters in combination with surface waters gives rise to water quality control problems. It was pointed out by the city of Decatur that its exceptional growth has been aided by its having the more desirable lake water supply. This lake supply has enabled a rapid and highly desirable economic development. The city feels that other than the water supply source, the Oakley Reservoir would provide a vast area and field of developments for a very large portion of central Illinois.

The State of Illinois states that it understands Decatur's position and feels the city has valid reasons for not desiring to supplement its surface water supply with ground water.

The study done by the Corps in 1968 considered providing an additional 16.8 m.g.d. for the city of Decatur. A well field which would supply that need could be developed at some distance from the city. The estimated annual cost of such a well field is $320,000. This is a cost of $19,000 per m.g.d. annually. This estimate does not include the cost of transporting water to the city's treatment plant. Transportation of water could be provided by a pipeline or by purchasing riparian rights and pumping the well water into a tributary to be allowed to flow into Lake Decatur. Adding costs for transportation would greatly increase this estimated cost. In the current study, an alternative single-purpose impoundment was developed which would yield 30.1 m.g.d. This increase was based on the increased demand estimated by the State of Illinois. The annual cost of such a single-purpose reservoir is estimated at $431,000. This is a cost of $14,400 per m.g.d. annually. This cost is considerably less than the cost of groundwater on a m.g.d. basis.

On the bases of unfavorable costs and of the views and desires of the city of Decatur, consideration of the use of groundwater sources in lieu of water supply storage in the Oakley Reservoir was discontinued.

WATER QUALITY

Senator ELLENDER. What about the quality of water? We have received testimony indicating that Sangamon River water is increasingly being contaminated by nitrates entering the stream with runoff from fertilized agricultural lands. Also, that fertilizer nutrients cause algal growth and offensive odors result.

Colonel ANDERSON. Excessive nitrate concentrations in water supply sources is a growing problem. Several Federal and State agencies, and universities are studying this problem. For the past several years Illinois waters have undergone extensive study and analysis for nitrates. The Illinois Department of Public Health has made several of these studies. This department has found no problem with public water supply in Illinois but rather with some private rural wells. Washington University has conducted some studies on nitrates in the Decatur area. They have also observed excessive nitrate concentrations in private wells in that vicinity.

Lake Decatur is the raw water supply source for the city of Decatur and has been under close surveillance by the city and the Illinois Department of Public Health for the past 3 years. Raw water samples have been periodically collected and analyzed for nitrates. Since 1967 none of these samples have exceeded the U.S. Public Health Service standard of 45 m.g./l for nitrates as NO_3. The Sangamon River is the source of water in Lake Decatur. This river will also supply the Oakley Reservoir. Therefore, nitrate concentrations in the Oakley Reservoir should be equally acceptable. The FWQA is also studying the nitrate problem. Studies indicate that excessive nitrate concentrations may be related to liquid fertilizers. On this basis, control of nitrate concentrations in surface waters will require local consideration of agricultural fertilizer application practices. The FWQA forecasts

that the Oakley impoundment will cause an averaging of the nitrate concentrations present in pollutants from land-based sources. This will dilute the maximum concentrations reaching the water users. The aforementioned agencies all agree that the nitrate problem does not warrant rejection of the Oakley project.

EXCESSIVE ALGAL GROWTH

Excessive algal growth is a problem being studied by many Federal and State agencies. Studies indicate that nutrient enrichment of surface waters is the major cause of this nuisance. Various land sources can produce pollutants rich in nitrates and phosphates. Under proper conditions these nutrients cause excessive algal growth. The primary sources of these nutrients include agricultural runoff, sewage, drainage from cattle feeding stations and certain industrial effluents (i.e., fertilizer plants). Efforts to prevent excessive algal growth should be aimed toward these land-based sources. The Illinois State Water Survey is studying this problem. This agency has made extensive studies on Lake Decatur. Presently, excessive algal growth is not a problem. This should be equally applicable to the Oakley Reservoir. Any potential algae problems would be properly attacked at the appropriate land-based nutrient sources.

ESTIMATES OF FLOOD CONTROL BENEFITS

Senator ELLENDER. Testimony has been received that the flood control benefits claimed for the project have been exaggerated. A Corps of Engineer news release of November 1969 has been used to illustrate such exaggeration. Average annual benefits to crops and farm property of $40 to $50 per acre are stated therein to have been computed by the Corps. How do you reconcile this figure with other independent authoritative references which state that grain farm earnings per acre in 1968 on the best types of farmland in the valley were $28.54?

Colonel ANDERSON. A per acre comparison of farm earnings and crop benefits has no meaning. Earnings, assuming there is a profit, would be the difference between sale price of a crop and the costs of labor, supplies, and all other items necessary to produce the crop. Crop benefits in this situation are crop damages that are prevented. Benefits are measured by the total of all expense incurred to produce the crop, up to the time the crop would be damaged if the project did not exist to protect it. Crop benefits are limited by the total value of the crop at harvest, and may or may not include a profit depending upon the agricultural marketplace.

ILLINOIS NATURE PRESERVES COMMISSION

Senator ELLENDER. The Illinois Nature Preserves Commission, represented by Professor S. C. Kendeigh, has testified in opposition to the project plan now recommended by the Corps. What is the position and function of the commission within local government?

Colonel ANDERSON. The Illinois Nature Preserves Commission is a permanent nondepartmental commission appointed by the Governor. The commission has the responsibility to promote by advice and other assistance, the protection of natural areas of vegetation and animal

life of scientific value in the State. This charge includes property owned by individuals or institutions even though not dedicated as a nature preserve. In this sense the commission wishes to preserve Allerton Park in its natural state.

Senator ELLENDER. Please explain how the commission has come to oppose the Corps-recommended plan.

Colonel ANDERSON. This commission has been actively opposing the Oakley project, with any permanent pool level above 621 feet, since 1967. The chairman of this commission first corresponded with the Chicago district in September 1967. Between that time and April 1968, there was active correspondence between this commission and the Chicago district; the Office, Chief of Engineers; and the Department of Interior. The commission is opposed to any manmade alterations of the flooding pattern in Allerton Park. The commission requested a restudy of the Oakley project as authorized to evaluate alternative means of providing the project purposes. The commission was in agreement with the State's waterway alternative as originally proposed in the memorandum of agreement. However, the commission is in opposition to the recommended plan, because of the 2-foot increase in permanent pool level of Oakley Reservoir from 621 to 623 feet, and the reduced discharge rate from 7,000 c.f.s. to 5,000 c.f.s. The commission charges that these changes would alter the natural flooding in Allerton Park to the point of destroying the present ecosystem. This commission wishes to preserve Allerton Park for its research and educational value.

STATE REPRESENTED BY DEPARTMENT OF PUBLIC WORKS

Senator ELLENDER. Does the commission speak for the State of Illinois regarding the Oakley Reservoir project?

Colonel ANDERSON. The Illinois Nature Preserves Commission in its correspondence with the corps has acted on its own behalf and does not seem to represent the feelings of the State of Illinois. The State of Illinois has been officially represented in this study by the division of waterways of the department of public works. This agency is in total agreement with the recommended plan.

Senator ELLENDER. Earlier project plans have been based upon a main stem reservoir extending upstream from Decatur and 98 miles of downstream channel improvements primarily to convey reservoir regulated flood releases without damage to adjacent lands. The plan now recommended provides for a main stem reservoir with a substantial tributary subimpoundment, and, in lieu of the channel improvements, provides for acquisition of downstream lands that would be inundated by the reservoir releases. In view of these physical modifications of earlier plans, it has been suggested that the project should be reconsidered for reauthorization by the Congress before further funds are appropriated. Please briefly explain why a new authorization appears unnecessary in this instance.

Colonel ANDERSON. The purposes of the project when originally authorized in 1962, were flood protection, water supply, and recreation. The project authorization included delegation of discretionary authority for the Chief of Engineers to approve such modifications of the project plan as he deems advisable to accomplish the authorized purposes. The purposes of the project remain the same and affect the

same approximate lands as contemplated at the time of authorization. The scope of recreational development now proposed is considerably larger in view of the acquisition of downstream floodway lands that would be made available with certain recreational improvements for management by the State of Illinois as a public park and in view of low streamflow augmentation for specific recreational use along the downstream parkland. This portion of increased recreational development is a major new planning concept of the last 2 years, interrelated but distinct from reservoir shoreline recreation facilities of the original authorization. Accordingly, recreation cost-sharing principles of recent legislation will be applied to this increment of recreation development. The State of Illinois has urged adoption of the new plan by volunteering both to share in the separable cost of recreational developments associated with the downstream lands and to assume operational responsibility for the resultant public park and canoe trail. The floodway-greenbelt concept contained in the recommended plan replaces a previously conceived dredged channel and is a dramatic and imaginative example of the nonstructural approach to flood control. Accordingly, the physical changes incorporated by the recommended plan are merely a more feasible technical alternative of accomplishing the same project purposes relative to the same general land areas as original authorized. The modifications reflect excellent use of the discretionary authority provided to the Chief of Engineers, enabling him to incorporate the most recent congressional statements of Federal policy.

INTEREST RATE USED

Senator ELLENDER. I understand that an interest rate of 3¼ percent is being used in the project economic formulation submitted in support of budget requests regarding this project. Please explain why this particular interest rate is being used.

Colonel ANDERSON. The interest rate for the Oakley Reservoir project was determined by long standing Department of the Army criteria, under which the interest rate for an authorized project is fixed at the rate in effect at the time of and used in the preparation of the justification analysis presented to the Congress in support of the initial appropriation of construction funds. Congress first appropriated funds to be used in advance land acquisition for the Oakley project in fiscal year 1968. The interest rate in effect and use for justification of this appropriation was 3¼ percent. Advance land acquisition is considered part of the construction phase of a project. The appropriations committees appear to acknowledge this classification by initially and subsequently listing project funds for land acquisition in their reports under the construction rather than under the advance design phase of project status.

Senator ELLENDER. Is this long standing criteria or procedure applied uniformly to all Corps public works projects and how long has it been in use?

Colonel ANDERSON. Yes sir, it is uniformly applied to all Corps public works projects. The procedure of fixing interest rates when construction funds are first appropriated is known to be in continuous use since about 1960. Determination of the date when this procedure was adopted would require considerable research among old and retired records.

Rend Lake Reservoir, Ill.

Senator Ellender. The budget request was $9,825,000. The House has allowed $9,825,000 and local interests have requested $10,400,000. What is your capability on this project?

General Koisch. Our capability on this project is $10,400,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $575,000?

General Koisch. The additional amount would be used to advance construction of the dam and recreation facilities and would advance completion of the project by 3 months.

Shelbyville Reservoir, Ill.

Senator Ellender. The budget request was $3,550,000. The House has allowed $3,550,000, exclusive of reserve and local interests have requested $4 million. What is your capability on this project?

General Koisch. Our capability on this project is $4 million, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $450,000?

General Koisch. The additional amount would be used to advance reservoir clearing and construction of recreation facilities but would have no effect on the completion schedule of the project.

Big Blue Dam and Reservoir, Ind.

Senator Ellender. There is nothing in the budget and local interests have requested $50,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $50,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, Sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $26,200,000
Allocations to date	0
Balance to complete	26,200,000
Amount that could be used in fiscal year 1971	50,000

[1] Estimated Federal cost to include future recreational development is $28,907,000.

Authorization.—1968 Flood Control Act.

Location and Description.—The proposed dam site is in east-central Indiana on the Big Blue River about 42.1 miles above its confluence with Sugar Creek to form Driftwood River, a tributary of East Fork White River. The site is in Hancock County about 3 miles north of Morristown and about 26 miles east of Indianapolis, Indiana. The project will consist of a rolled earth and concrete gravity type dam with a gate controlled overflow spillway and three gate controlled sluices in the base of the dam. The reservoir would have a storage capacity of 120,100 acre-feet.

Proposed Operations.—The amount of $50,000 would be used to initiate preconstruction planning of the project in FY 1971.

Justification.—Big Blue Reservoir will be operated as a unit of the general comprehensive plan for flood control and related water resource development in the Wabash River Basin. The project, in combination with the fifteen other presently authorized reservoirs in the Wabash Basin, will aid in the reduction

of flood flows along the Wabash River and, to a lesser degree, along the Ohio River below the Wabash River. The 269-square-mile drainage area controlled by the reservoir is about 45 percent of the Big Blue Basin which is tributary, in turn, to Driftwood, East Fork White, White, and Wabash Rivers. The project would provide for reductions in flood stages and flood damages in overflow areas along about 42 miles of the Big Blue, 15 miles of the Driftwood, and 192 miles of the East Fork White Rivers below the proposed dam and, to a lesser extent, along downstream reaches of the White and Wabash Rivers. The total values of all urban developments along the reaches of the Big Blue and East Fork White Rivers below the proposed dam are estimated at $78,140,000 and $100,790,000, respectively (1969 values). Recurrence, under present conditions, of March 1913 record flood heights along affected reaches of the Big Blue, Driftwood and East Fork White Rivers would cause damages estimated at $11,475,000 (1969 values), of which $5,849,000 would be prevented by the project.

Operation of the project during flood conditions equivalent to those of March 1913 would reduce flood levels about 1.7 feet at Shelbyville, which is about 19.6 miles below the proposed dam, and 0.3 foot at Columbus, which is about 57.1 miles below the proposed dam. Other damaging floods during the last five years occurred in February and April 1969, February, May and August 1968, March and May 1967, February and December 1966 and February 1965. In addition, the project would provide storage for low-flow augmentation in the interest of water quality control, for water supply and for general and fish and wildlife recreational opportunities. The benefit-cost ratio is 1.8 to 1. The total annual benefits of $3,025,000 are broken down as follows:

Flood control	$1,416,000
Water supply	202,000
Water quality control	313,000
Recreation:	
General	1,005,000
Fish and wildlife	89,000
Total	3,025,000

Big Pine Dam and Reservoir, Ind.

Senator Ellender. There is nothing in the budget and local interests have requested $1,500,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $100,000 to initiate land acquisition.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized Financial Data

Total estimated Federal cost	[1] $21,400,000
Allocations to date	513,000
Balance to complete	20,887,000
Amount that can be used in fiscal year 1971	100,000

[1] Estimated cost to include future recreation development is $22,814,000.

Authorization.—1965 Flood Control Act.

Location and Description.—The proposed dam site is in the west central portion of Indiana on Big Pine Creek, about 2.5 miles above its confluence with the Wabash River at Attica. This site in Warren County, is about 23 miles west of Lafayette and about 68 miles northwest of Indianapolis. The proposed project will control a drainage area of approximately 331 square miles and consists of an earth and gravity type dam about 4,620 feet long and 132 feet high, with a gate controlled overflow spillway in the concrete section of the dam and four gate controlled sluices in the base of the dam.

Proposed Operations.—The amount of $100,000 would be utilized to initiate land acquisition for the project in fiscal year 1971.

Justification.—This reservoir, in combination with the other fifteen presently authorized reservoirs in the Wabash Basin, will aid in the reduction of flood

flows along the Wabash River and, to a lesser degree, to the reduction of major flood flows on the Ohio River below the Wabash River. Flood flows arising in the Big Pine Creek Basin contribute to flood damages in the downstream flood plain of the Wabash River. A number of urban areas, located in the flood plains have inadequate or no local flood protection. Many business and industrial concerns, public buildings, residences, and other improvements are in these high damage areas. Extensive railroad, highway, and utility systems are also situated in the flood area. Large agricultural areas in the flood plain are subject to frequent flooding, resulting in damages to crops and livestock, and soil erosion and other losses common to rural areas. Flood damages are reduced, to some extent, by the operation of completed projects and will be further reduced upon completion of reservoirs and local protection projects now under construction. However, recurrence of major floods would continue to cause widespread damages in the Wabash River Basin.

Rural, urban, transportation and levee developments along the Wabash River below Big Pine Creek, excluding the property protected by local protection projects now under construction or completed, are evaluated at about $269.0 million dollars (1969 values). The record flood of 1913 caused damages amounting to about $3,130,000 along the reaches of the Wabash River affected by the project, excluding the local protection projects as previously noted. A recurrence of this flood under present conditions of development would cause damages estimated at $23,410,000, of which $917,000 would be prevented by the project (both 1969 values). Damaging floods along the Wabash River below Big Pine Creek during the last five years occurred in January-February 1969; February, April and May-June 1968; May and December 1967; December 1966; and April 1965.

The benefit-cost ratio for this project is 1.8 to 1. The average annual benefits of $1,889,000 are broken down as follows:

Flood control	$1,056,000
Recreation:	
General	787,000
Fish and wildlife	46,000
Total	1,889,000

Big Walnut Dam and Reservoir, Ind.

OPPOSITION

Senator Ellender. The National Wildlife Federation recommends tha a maximum pool level be stipulated that would prevent flooding of the portion of the Big Walnut Valley that is of concern to conservationists. Are you going to investigate a modified or alternative project that would meet this criteria?

Colonel Anderson. The Corps of Engineers is very much interested in preserving the ecological values of the Big Walnut Valley. Project modifications and alternative sites will be considered that would prevent flooding of the portion of the valley that is of special concern.

Clifty Creek Dam and Resevoir, Ind.

Senator Ellender. There is nothing in the budget and local interests have requested $150,000. The House has included $150,000 for initiation of land acquisition. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $150,000 to initiate land acquisition.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $18,300,000
Allocations to date	438,000
Balance to complete	17,862,000
Amount that could be utilized in fiscal year 1971	150,000

[1] Estimated Federal cost to include future recreational development is $19,800,000.

Authorization.—1965 Flood Control Act.

Location and Description.—The proposed dam site is in south Indiana, on Clifty Creek, about 18.4 miles upstream from its confluence with the East Fork White River. This site in Bartholemew County, is about 12 miles northeast of Columbus and 37 miles southeast of Indianapolis, Indiana. The proposed project would control a drainage area of approximately 140 square miles and consist of a rolled earth-fill and concrete gravity type dam and 7,000 feet long and 88 feet maximum height, with a gate controlled overflow spillway in the concrete section of the dam and two gate controlled sluices in the base of the dam. A detached rolled earth-fill dike will be required at a low point in the valley run about 4 miles south of the dam. In addition, a rolled earth-fill levee about 3,500 feet long and 33 feet maximum height will be required for the protection of the town of Hartsville, about 1½ miles northeast of the dam.

Proposed Operations.—The amount of $150,000 would be utilized to initiate land acquisition for the project in Fiscal Year 1971.

Justification.—This reservoir, in combination with the other fifteen presently authorized reservoirs in the Wabash Basin, will aid in the reduction of flood flows along the Wabash River and, to a lesser degree, to the reduction of major flood flows on the Ohio River below the Wabash River. Flood flows arising in the Clifty Creek Basin contribute to flood damages in the downstream flood plains of the East Fork White River, White River, and Wabash River.

The flood plain area of Clifty Creek, East Fork White River and White River below the proposed reservoir consists of about 154,000 acres of agricultural lands. Along Clifty Creek, the only developments in the overflow area are a suburban residential subdivision of about 110 units near Columbus, rural fences and outbuildings and several road crossings. Along the East Fork White River and White River, there are many farm improvements, including fences and barns, portions of seven urban areas, numerous highways and roads and nine railroad crossings. The estimated value of property in the flood plain between the proposed dam site and Wabash River is about $88.2 million (1969 values). The record flood of 1913 caused damages amounting to about $699,000 along the reaches of the White and East Fork White Rivers and Clifty Creek affected by the project, excluding the local protection projects now under construction. A recurrence of this flood under present conditions of development would cause damages estimated at $3,640,000 (1969 values) of which $299,000 would be prevented by the project. Damaging floods along the aforesaid streams below the project during the last five years occurred in January-February, April-May 1969; February, April-May, August 1968; May and December 1967, January-February, December 1966 and February 1965.

The benefit-cost ratio for the project is 1.4 to 1. The average annual benefits of $1,308,000 are broken down as follows:

Flood control	$769,000
Recreation:	
General	513,000
Fish and Wildlife	26,000
Total	1,308,000

Downeyville Dam and Reservoir, Ind.

Senator Ellender. There is nothing in the budget and local interests have requested $50,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $50,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Summarized financial data

Total estimated Federal cost	[1] $19,700,000
Allocations to date	0
Balance to complete	19,700,000
Amount that could be used in fiscal year 1971	50,000

[1] Estimated Federal cost to include recreational development is $22,365,000.

Authorization.—1968 Flood Control Act.

Location and Description.—The proposed dam site is located in southeastern Indiana at the juncture of the Little Flatrock and Flatrock Rivers, about 41 miles above the confluence of the Flatrock River with the East Fork White River. This site in Decatur County, is about 1½ miles south of the Decatur-Rush County line and about 40 miles southeast of Indianapolis. The proposed project consists of a rolled earth and concrete gravity type dam with a gate controlled overflow spillway in the concrete section of the dam and two gate controlled sluices in the base of the dam. An equalization channel will be excavated upstream from the dam through the divide between the Flatrock and Little Flatrock valleys.

Proposed Operations.—The amount of $50,000 would be utilized to initiate preconstruction planning of the project in FY 1971.

Justification.—Downeyville Reservoir will be operated as a unit of the general comprehensive plan for flood control and related water resource development in the Wabash River Basin. The project, in combination with the fifteen other presently authorized reservoirs in the Wabash Basin, will aid in the reduction of flood flows along the Wabash River and, to a lesser degree, along the Ohio River below the Wabash River.

The 276 square mile drainage area controlled by the reservoir is about 51 percent of the Flatrock River Basin which is tributary to the East Fork White, White and Wabash Rivers. The project would provide for reductions in flood stages and flood damages in overflow areas along about 41 miles of the Flatrock River and 192 miles of the East Fork White River below the proposed dam and, to a lesser extent, along downstream reaches of the White and Wabash Rivers. The total values of all urban developments along the reaches of the Flatrock and East Fork White Rivers below the proposed dam are estimated at $1.33 million and $100.8 million, respectively. (1969 values). Recurrence, under present conditions, of March 1913 record flood heights along affected reaches of the Flatrock and East Fork White Rivers would cause damages estimated at $5,284,000 (1969 values), of which $1,272,000 would be prevented by the project. Operation of the project during flood levels about 2.9 feet at St. Paul which is about 6.4 miles below the proposed dam and 0.4 feet at Columbus which is at the mouth of Flatrock River. Other damaging floods during the last five years occurred in January, February, April and May 1969; February, May and August 1968, May 1967, December 1966 and February and April 1965. In addition, the project would provide storage for water supply and for general and fish and wildlife recreational opportunities.

The benefit-cost ratio for this project is 1.5 to 1. The average annual benefits of $2,653,000 are broken down as follows:

Flood Control	$835,000
Water Supply	830,000
Recreation:	
General	941,000
Fish & Wildlife	47,000
Total	2,653,000

Greenfield Bayou Levee, Ind.

Senator Ellender. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $100,000 to initiate construction.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, Sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,570,000
Allocations to date	130,000
Balance to complete	2,440,000
Amount that could be utilized in fiscal year 1971	100,000

Authorization.—1946 Flood Control Act.

Location and Description.—The project is located in Vigo County, Indiana on the left bank of the Wabash River above its confluence with the Ohio River between river miles 188 and 200. The project consists of an earth levee and other necessary appurtenances. The protection grade of the levee is proposed one-foot above a flow equal to that expected to occur on an average of once every 14 years, assuming other authorized or existing levees in the area are effective. This grade is considered adequate for protection against most floods occurring during the growing season.

Proposed Operations.—The amount of $100,000 would be utilized to initiate construction of the levee in fiscal year 1971.

Justification.—Flooding along the Wabash River occurs almost every year and often several times a year. At the stream gaging station in Terre Haute, Indiana, approximately 15 miles upstream from the proposed project, damage stage for the Greenfield Bayou area has been exceeded 174 times in the 56 year period of record, from 1905 to 1961 or an average of about 3 occurrences per year. These rises have occurred in every month of the year. The record flood occurred in March 1913, inundated portions of the area to maximum depths of about 17 feet, and remained above damage stage for 26 days. Recently, damaging floods have occurred in February 1969, February and May 1968, May and December 1967, December 1966 and April 1965. The existing levee is of the spur type with no closure being made to high ground at the downstream end and, consequently, provides protection for only low and medium stage rises. The February 1969 and February and May 1968 floods overtopped the existing levee and caused damages estimated at $123,000, $118,000 and $214,000, respectively, which would be entirely prevented by the project. Since 1943, the Federal Government has repaired the existing Greenfield Bayou Levee three times at an approximate cost of $33,600.

The proposed project would provide protection for about 11,400 acres of land, of which about 82 percent in under cultivation. The overflow area to be protected has a total value of about $5,020,000 (1969 values) for lands and improvements and a population of 200.

The benefit-to-cost ratio for the project is 1.4 to 1.

The average annual flood control benefits for the project are $193,700.

LAFAYETTE DAM AND RESERVOIR, IND.

Senator ELLENDER. Local interests have requested $1,500,000 for this project. The project was added by the Congress in fiscal year 1970 for land acquisition, the added funds were put in budgetary reserve for use in fiscal year 1971, and no additional funds are in the 1971 budget. However, the House has included $400,000, exclusive of reserve, for initiation of construction. What is your capability on this project?

General KOISCH. Our capability is $400,000.

Senator ELLENDER. What would be accomplished with the additional funds?

General KOISCH. The additional amount would be used to initiate construction of the project in the second half of fiscal year 1971.

MARION, IND.

Senator ELLENDER. There is nothing in the budget and local interests have requested $30,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $30,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,580,000
Allocations to date	0
Balance to complete	1,580,000
Amount that could be used in fiscal year 1971	30,000

Authorization.—1968 Flood Control Act.

Location and Description.—The City of Marion, Indiana, is located in Grant County, on the Mississinewa River about 30 miles upstream from the nearly completed Mississinewa Dam. This location is in northeastern Indiana, about 60 miles northeast of Indianapolis. The proposed project consists of construction of earth levee and floodwall, five gravity outlets and one pumping plant.

Proposed Operations.—The amount of $30,000 would be utilized to initiate preconstruction planning of the project in FY 1971.

Justification.—Marion has a population of about 37,800 persons (1960 census) and a total area of about 7,300 acres. Of this, about 7 percent or 500 acres lies in the flood plain and is subjected to periodic flooding from high stages on the Mississinewa River. The flood of record occurred in March 1913 and remained above flood stage for about 4 days. Other damaging floods occurred in 1927, 1930, 1933, 1937, 1943, 1957, 1958 and 1964. The proposed project would provide protection to an urban area of 107 acres, known locally as the Johnstown Area, against a flood 3 feet higher than the March 1913 flood. Protection for the remaining areas of Marion in the flood plain (Boots Creek and Massey Creek) is infeasible by a large margin. Recurrence of the March 1913 flood of record, under current conditions of development, would cause damages estimated at $1,788,700 for the entire city and $585,000 for the Johnstown Area (both 1968 values). The proposed project would eliminate flood damages in the Johnstown Area. The benefit-cost ratio for this project is 1.3 to 1. The average annual benefits of $98,600 are broken down as follows:

Flood control	$49,900
Land enhancement	48,700
Total	98,600

MASON J. NIBLACK LEVEE (PUMPING FACILITIES), IND.

Senator ELLENDER. The budget request was $10,000. The House has allowed $10,000, exclusive of reserve, and local interests have requested $40,000. What is your capability on this project?

General KOISCH. Our capability on this project is $10,000, Mr. Chairman, the same as the budget amount.

PATOKA DAM AND RESERVOIR, IND.

Senator ELLENDER. The budget request was $525,000. The House has included $525,000 and local interests have requested $925,000. What is your capability on this project?

General KOISCH. Our capability on this project is $625,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $100,000?

General KOISCH. The additional amount would be used to initiate construction.

AMES RESERVOIR, IOWA

Senator ELLENDER. The project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use in fiscal year 1971, and no additional funds are in the 1971 budget. The House has included $200,000, exclusive of reserve to initiate construction. What is your capability on this project?

General KOISCH. Our capability is $200,000.

Senator ELLENDER. What would be accomplished with the additional funds?

General KOISCH. The additional amount would be used to continue land acquisition and initiate construction.

BIG SIOUX RIVER AT SIOUX CITY, IOWA

Senator ELLENDER. The budget request was $10,000. The House has allowed $80,000, exclusive of reserve, and local interests have requested $80,000. What is your capability on this project?

General KOISCH. Our capability on this project is $80,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $70,000?

General KOISCH. The additional amount would be used to advance the general design memorandum.

OPPOSITION

Senator ELLENDER. The National Wildlife Federation has opposed appropriation of funds for this project and recommended deauthorization. What is the current status of planning in the Big Sioux River Basin as it relates to this project?

Colonel CHARLES. Mr. Chairman, the project was authorized by Congress in the Flood Control Act of 1965. Subsequently, the Flood Control Act of 1968 authorized a flood control and bank erosion control project for the lowermost 5½ miles of the Big Sioux River and deauthorized the lowermost 5½ miles of the channel improvement previously authorized by the 1965 act. This reach of the Big Sioux River is being handled as a separate project.

Mr. Chairman, with respect to the portion of the river above Sioux City, the 1968 act stated that agreement between Iowa and South Dakota on a flood-control plan and a plan for mitigation of fish and wildlife losses shall be reached within 6 months following completion of an upper basin reservoir study, which is now underway. If mutual agreement is not reached during the 6-month period, the 1968 act provides that the flood-control plan and the plan for mitigation of fish and wildlife losses shall be approved by a committee consisting of one representative each appointed by the Chief of Engineers, the Secretary of the Interior, and the Secretary of Agriculture. However, the action of this committee would in no way force construction of the channel project.

Local interests would still have to provide the necessary lands, easement, and rights-of-way for construction as a part of required local participation in the Federal project before any construction would be undertaken. It is not expected that the Corps will have a capability to initiate planning of this portion of the project until all matters concerning the plans for flood control and fish and wildlife mitigation are resolved following submission of the survey report of the upper basin. A study of the upper basin of the Big Sioux River and the Rock River is now underway. Five potential multiple-purpose reservoirs are being considered which would provide, in addition to flood control, additional storage to meet much of the basin's future water resources needs, including recreation and fish and wildlife conservation.

Mr. Chairman, appropriate agencies of the States of Iowa and South Dakota have supported the project for protection on the lower 5½ miles of the Big Sioux River. The U.S. Fish and Wildlife Service, the Iowa Conservation Commission, and the South Dakota Department of Game, Fish, and Parks have found that protection for this reach will not have a significant adverse effect on fish and wildlife.

All Federal, State, and local agencies, including the Corps, Mr. Chairman, are in agreement that mitigation measures are necessary for the reach of the project above Sioux City. It is anticipated that a plan for mitigation, acceptable to all agencies, will be developed after completion of the survey of the upper basin. It is also anticipated that appropriate mitigation measures, such as development of oxbows formed by channel cutoffs, will largely offset any adverse effect which the channel improvements may have on fish and wildlife resources.

The portion of the project above Sioux City was supported by the State of South Dakota, and this support reflects the views of affected local interests in that State. The State of Iowa, despite the support of local interests directly affected by the project, has withheld endorsement of the project pending development of a fish and wildlife mitigation plan acceptable to the Iowa Conservation Commission. It is anticipated that an acceptable plan will be developed subsequent to completion of the survey of the upper basin.

Guttenberg, Iowa

Senator Ellender. The budget request was $700,000. The House has included $1 million, exclusive of reserve, and local interests have requested $1 million. What is your capability on this project?

General Koisch. Our capability on this project is $1 million, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $300,000?

General Koisch. The additional amount would be used to advance the award and completion of the contracts for raising railroad tracks and extension of powerlines but would have no effect on overall project completion.

Missouri River, Sioux City, Iowa to the Mouth

Senator Ellender. The budget request was $4,250,000. The House has included $4,250,000, exclusive of reserve, and local interests have requested $9 million. What is your capability on this project?

General KOISCH. Our capability on this project is $9 million, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $4,750,000?

General KOISCH. The additional amount would be used to accelerate construction and for land acquisition for the Blackbird-Tieville Oxbow Lake complex. In addition, completion of bank stabilization could be advanced from December 1976 to June 1976, providing a high level of future appropriations could be maintained.

WATERLOO, IOWA

Senator ELLENDER. The project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use in fiscal year 1971, and no additional funds are in the 1971 budget. Local interests have requested $300,000 for this project and the House has included $300,000, exclusive of reserve. What is your capability on this project?

General KOISCH. Our capability is $300,000.

Senator ELLENDER. What would be accomplished with the additional funds?

General KOISCH. The additional $300,000 would advance award of contracts for the project and advance completion of the project by 1 year.

BIG HILL RESERVOIR, KANS.

Senator ELLENDER. There is nothing in the budget and local interests have requested $1 million. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $500,000 to initiate construction.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $5,450,000
Allocations to date	290,000
Balance to complete	5,160,000
Amount that could be utilized in fiscal year 1971	500,000

[1] Local interests are required to pay the portion of project costs allocated to water sunpply, currently estimated at $518,000 for initial use storage and $1,607,000 for future use storage.

Authorization.—1962 Flood Control Act.

Location and Description.—The damsite is on Big Hill Creek in Labette County about 4 miles east of Cherryvale, Kansas. The plan of improvement consists of an earthfill dam, with an uncontrolled concrete lined saddle spillway. Initially the dam would be 4,375 feet long, including the spillway, with a maximum height of about 75 feet above the stream bed. The capacity of the reservoir would be 23,900 acre-feet for initial stage, of which 12,300 acre-feet would be for flood control, 9,400 acre-feet for water supply and 2,200 acre-feet for sedimentation storage. The conservation storage for initial development will result in a dependable yield of 4.5 million gallons per day and for ultimate development the dependable yield would be 8.5 million gallons per day.

Proposed Operations.—The amount of $500,000 would be used to initiate construction.

Justification.—The Big Hill Reservoir would provide a high degree of flood protection for 4,510 acres of land in the upper reaches and a moderate degree of protection for 6,030 acres of land in the flood plain common to Big Hill Creek

& the Verdigris River. The area under consideration has experienced several major floods since 1930 (1933, 1943, 1945, 1948, 1955, 1957, 1959, and 1961), with the 1948 flood considered to be the maximum flood of record. A recurrence of the 1948 flood would cause flood damages estimated to be $339,000. In 1957, flood damages were estimated to be $294,000 and in 1961, two floods caused an estimated $313,000 damage. This project would develop the yield of the stream into a positive resource through storage & regulation, provide urgently needed water supply storage for municipal and industrial use, outdoor recreation, sport fishing & hunting to help meet the regional demands. Benefit-to-cost ratio is 1.2 to 1.

The average annual benefits for the project are broken down as follows:

Flood control	$123,000
Water supply	145,000
Recreation	74,000
Redevelopment	8,000
Total	350,000

Cedar Point Reservoir, Kans.

Senator Ellender. The budget request was $15,000. The House has included $50,000, exclusive of reserve, and local interests have requested $50,000. What is your capability on this project?

General Koisch. Our capability on this project is $50,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $35,000?

General Koisch. The additional amount would be used to advance completion of preconstruction planning by 4 months.

Clinton Reservoir, Kans. (Land Acquisition)

Senator Ellender. The budget request was $1,960,000. The House has included $1,960,000, and local interests have requested $4,500,000. What is your capability on this project?

General Koisch. Our capability on this project is $4,500,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $2,540,000?

General Koisch. The additional amount would be used to continue land acquisition and to initiate construction of administrative facilities, access roads, embankment, spillway, and outlet works.

Dodge City, Kans.

Senator Ellender. There is nothing in the budget and local interests have requested $500,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $500,000 to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$3,300,000
Allocations to date	375,000
Balance to complete	2,925,000
Amount that could be utilized in fiscal year 1971	500,000

Authorization.—1962 Flood Control Act.

Location and Description.—The project is on the Arkansas River at Dodge City, Ford County, Kansas. The project consists of 6.9 miles of levees on both banks of the river and enlargement of the channel between the levees to form a floodway to convey flows of 40,000 c.f.s. through the city. Short sections of floodwalls would be constructed where rights-of-way are restricted. Appurtenant works would include levee protective measures, interior drainage structures, a pumping plant for disposal of sanitary sewage during high-water periods, a railroad bridge relocation and minor modification of two local roads and a sanitary sewerline.

Proposed Operations.—The amount of $500,000 would be used to initiate construction.

Justification.—Dodge City, Kansas, is situated on both banks of the Arkansas River and although the greater portion of the city is on the left bank above the elevation of major floods, development in the flood plain on both banks has created a flood problem. The flood plain consists of moderately developed residential, commercial, and industrial areas with adjacent suburban areas made up of 1 to 3-acre plots and large farms in the outskirts. The overflow area consists of about 1,150 acres of which 610 acres are urban and suburban lands, 420 acres are in agricultural use, and 120 acres are undeveloped. The total property valuation in the area amounts to $33,750,000. Local interests have constructed levees on both banks for the protection of the highly developed areas, but these levees cannot be considered dependable against flows on the Arkansas River in excess of 10,000 c.f.s. and protection from flows of much greater magnitude is needed. The largest floods that have occurred since completion of John Martin Dam, 188 miles upstream from Dodge City, were in 1949, 1951 and 1965 when peak discharges of 16,200, 19,700, and 82,000 c.f.s., respectively, were reached. A recurrence of the floods of 1949 and 1951 at the present time would cause damages estimated at $811,900 and $1,185,000 respectively. The flood of June 1965 which had a peak discharge of 82,000 c.f.s. caused estimated damages of $4,390,000. While the peak discharge of the flood of June 1965 exceeded the design flood (40,000 c.f.s.) of the authorized project, it nevertheless is estimated that with the project in full operation damages amounting to $1,405,000 would have been prevented. The benefit-cost ratio is 1.7 to 1. The average annual benefits are estimated to be $265,000, all flood control.

Douglass Reservoir, Kans.

Senator Ellender. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $100,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $23,600,000
Allocations to date	0
Balance to complete	23,600,000
Amount that could be utilized in fiscal year 1971	100,000

[1] Local interests are required to pay the portion of project costs allocated to water supply and a portion of the costs of recreation. These costs are presently estimated to be $7,442,000 and $378,000 respectively.

Authorization.—1965 Flood Control Act.

Location and Description.—The dam would be located in Butler County, Kansas, on Little Walnut Creek, about 6 miles northeast of Douglass, Kansas. The plan of improvement consists of a rolled-earth embankment and a controlled spillway. The dam would be 11,640 feet in length including the spillway, with a maximum height of 89 feet above the stream bed. The total reservoir storage would be 171,900 acre-feet, of which 76,400 acre-feet would be for flood control, 77,300 acre-feet for water conservation and 18,200 acre-feet for sedimentation.

Proposed Operations.—The amount of $100,000 would be used to initiate preconstruction planning.

Justification.—The Douglass Reservoir is a unit in the plan for the control of flood in the Walnut River Basin. In the flood plain below El Dorado, Towanda, and Douglass Dam sites, there are about 6,900 residents and 2,400 employees. Floods average about 1 each year on the main stem and major tributaries. The maximum flood of record at the Winfield gage occurred in 1944 when the peak stage was 8.3 feet above flood stage, and 5.8 feet above flood stage at Douglass. Other major floods occurred in 1923, 1928, 1951, 1964, and 1965(2). Because of the nature of the overflow land, even minor floods cover much of the flood plain along the main stem. Moderate floods cover almost all of it. Major floods pose extreme threats to the cities of El Dorado, Augusta, Winfield and smaller communities. Lands subject to flooding in the headwaters are primarily rural. Other properties subject to flooding within the system area include oil installations and related equipment, county roads, highways, railroads, and utilities. The estimated value of the properties, including proven and unproven minerals, is over $109 million. About 42,000 acres of rural land are in cultivation below the dams in this system, with an estimated crop value of $2 million. The average annual flood losses are estimated at $924,000. Construction of this project would provide a high degree of flood protection for 2,010 acres and would assist in the protection of 49,050 acres in the basin; develop the optimum yield of the stream into a positive resource through storage and regulation; provide dilution water to help solve the water quality problem in the lower basin; provide outdoor recreation and sport fishing and hunting to help meet the regional demands. The benefit-to-cost ratio is 1.16 to 1.

The average annual benefits for the project are broken down as follows:

Flood control	$425,000
Water supply	374,000
Recreation	334,000
Total	1,133,000

El Dorado, Kans.

Senator Ellender. There is nothing in the budget and local interests have requested $50,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $50,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,510,000
Allocations to date	0
Balance to complete	1,510,000
Amount that could be utilized in fiscal year 1971	50,000

Authorization.—1965 Flood Control Act.

Location and Description.—The proposed project is located in Butler County, Kansas, on the west branch of Walnut River. The plan of improvement consists of 1.6 miles of channel straightening, enlargement, new channel and training levee. Alteration of highway, streets and utilities and the construction of a bridge would be required.

Proposed Operations.—The amount of $50,000 would be used to initiate the preconstruction planning.

Justification.—The El Dorado protection project is a unit in the plan for the control of floods in Walnut River Basin. This project, operating in conjunction with the authorized El Dorado Reservoir, would control the standard project flood and provide essentially complete protection from the Walnut River for urban and rural areas in the town of El Dorado, Kansas. Floods average about 1 each year on the main stem and major tributaries. The maximum flood of record at the Winfield gage occurred in 1944 when the peak stage was 8.3 feet

above flood stage, and 7.3 feet above flood stage at El Dorado. Other major floods occurred in 1923, 1928, 1951, 1964, and 1965(2). Because of the nature of the overflow land, even minor floods cover much of the flood plain along the main stem. Moderate floods cover almost all of it. Major floods pose extreme threats to the cities of El Dorado, Augusta, Winfield and smaller communities. The flood problem at El Dorado is due principally to lack of protection works against flooding of the West Branch of Walnut River. The urban property subject to flood damages is valued at $9,454,000. The benefit-to-cost ratio is 1.5 to 1. The average annual benefits, all flood control, are estimated at $121,000.

El Dorado Reservoir, Kans.

Senator Ellender. For this project local interests have requested $1,100,000. Congress added this project in fiscal year 1970 and the added funds were placed in budgetary reserve for use in fiscal year 1971, and no funds are requested in the fiscal year 1971 budget. The House has included $400,000, exclusive of reserve. What is your capability on this project?

General Koisch. Our capability is $400,000?

Senator Ellender. What would be accomplished with the $400,000?

General Koisch. That amount would be used to initiate construction.

Fort Scott Reservoir, Kans.

Senator Ellender. There is nothing in the budget and local interests have requested $1 million. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $1 million to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$25,900,000
Total allocations to date	734,000
Balance to complete	25,166,000
Amount that could be used in fiscal year 1971	1,000,000

Authorization.—Flood Control Act of 1954 (HD 549/81/2).

Location and Description.—The project is located on the Marmaton River, about 5 miles west of Fort Scott, in Bourbon County, Kans. The plan of improvement provides for construction of an earthfill dam about 75 feet high and 7,200 feet long to create a reservoir with a gross storage capacity of 235,500 acre-feet.

Proposed operations.—The amount of $1 million could be used to initiate construction.

Justification.—The Fort Scott Reservoir would control the runoff from 279 square miles of land in the Osage River Basin. The project would provide flood protection to about 37,500 acres along the Marmaton above the headwaters of Kaysinger Bluff Reservoir. Large annual benefits will also accrue from recreation, water quality control and water supply. The benefit-to-cost ratio is 1.02 to 1.

The average annual benefits are listed below:

Current estimate July 1969 base (100-year life)

Average annual benefits	$1,174,700
Flood control	551,000
Water quality control	124,000
Water supply	28,700
Recreation	423,000
Fish and wildlife	48,000

Grove Reservoir, Kansas River Basin, Kans.

Senator Ellender. There is nothing in the budget and local interests have requested $275,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $275,000 to continue preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $39,700,000
Total allocations to date	575,000
Balance to complete	39,125,000
Amount that could be used in fiscal year 1971	275,000

[1] Pending final approval.

Authorization.—Flood Control Act of 1962.

Location and description.—The proposed project is located on Soldier Creek, 7 miles northwest of Topeka in Shawnee County, with the reservoir extending upstream into Jackson County, Kansas. Preliminary plans provide for an earthfill dam about 12,000 feet long and 90 feet high to create a reservoir with a gross storage capacity of 342,420 acre-feet for flood control, water supply, recreation and sediment reserve.

Proposed Operations.—The amount of $275,000 could be used to continue preconstruction planning.

Justification.—The Grove Reservoir in combination with existing and other authorized reservoirs in the Kansas River basin would provide the major cities along the Kansas River protection against a flood of the 1951 magnitude. The Grove Reservoir would reduce flood crests along the Kansas River from Topeka to the mouth, at the Kansas Citys, and its effectiveness would extend along the Missouri and Mississippi Rivers. The City of Topeka, Kansas, has requested all of the water supply storage and stated that the initial use thereof is required by 1980. The benefit-to-cost ratio is 1.4 to 1. The average annual benefits are listed below:

Current estimate, July 1969 base (100-year life)

Average annual benefits	[1] $2,398,700
Flood control	1,442,000
Water supply	392,700
Recreation	252,000
Fish and wildlife	312,000

[1] Pending final approval.

Hays, Kans.

Senator Ellender. The budget request was $200,000. The House has included $200,000, and local interests have requested $300,000. What is your capability on this project?

General Koisch. Our capability on this project is $300,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $100,000?

General Koisch. The additional amount would be applied to the construction of the Lincoln draw conduit, but would not advance completion of the project.

HILLSDALE RESERVOIR, KANS.

Senator ELLENDER. The budget request was $225,000. The House has included $225,000, and local interests have requested $1,300,000. What is your capability on this project?

General KOISCH. Our capability on this project is $1,300,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $1,075,000?

General KOISCH. An additional amount of $75,000 would be used to advance preconstruction planning and an additional amount of $1,000,000 would be used to initiate land acquisition.

OPPOSITION

Senator ELLENDER. The subcommittee received testimony and a prepared statement from Mr. E. Raymond Hall in opposition to development and construction of Hillsdale Reservoir, Kans. Would you comment on the principal points raised by Mr. Hall?

Colonel CHARLES. The comments by Dr. Hall on the Hillsdale Reservoir are essentially the same as those submitted to the Senate Committee on Appropriations in October 1969 for fiscal year 1970. The one major change in Dr. Hall's statement is the additional discussion under the heading "Wildlife." All other major questions raised by Dr. Hall were answered in response to his statement last October. Dr. Hall contends that in the intervening years since authorization of the project the needs to be served have been met. Actually, the needs have expanded and are becoming more critical. This was pointed out in detail last year and has been reinforced by events since that time. In the course of our general project development studies over the past 6 months, we have contacted numerous Federal and non-Federal agencies regarding special areas of interest at Hillsdale Reservoir. Results of this coordination are indicated below.

(*a*) *Water supply.*—Rural Water District No. 2, Miami County, has declared its desire to purchase storage in the reservoir for the first time. The Kansas Water Resources Board has furnished a resolution stating that there is an expanded need for the anticipated municipal and industrial water supply and water quality control. The resolutions by the rural water district and the State board are indicative of the increasing pressure for a source of water supply in the area as the region begins to feel the pressure of growth caused by the Kansas City metropolitan area and the access provided by U.S. Highway No. 169 and Interstate Highway No. 35, both of which border the reservoir area. A comparison of 1969 population data with 1964 indicates a slight gain in total population in the immediate surrounding area. Information available points out that this increase would be very substantial currently if water supply were available.

(*b*) *Alternate small detention structures.*—The known needs of the area indicate that a system of small headwater impoundments would not displace the need for the Hillsdale Reservoir, but could complement it. However, in March 1970, the Soil Conservation Service stated there was no known proposal to organize a watershed district on Bull Creek or any expression of interest to organize a project under the provisions of Public Law 566. It is doubtful if any watershed

district organization will be forthcoming because the headwater areas of the Hillsdale Reservoir are closer to the rapidly expanding Kansas City metropolitan area and are affected by the pressures for suburban development. Consequently, interest in agricultural improvements is diminishing.

(*c*) *Recreation.*—The director of the Kansas State Park and Resources Authority has recently expressed a desire for the agency to participate in the recreation development at Hillsdale subject to approval by the State Park Authority. The city of Paola has also expressed a willingness to share in recreation development under the provisions of the Federal Water Project Recreation Act. The Bureau of Outdoor Recreation has been asked to review the evaluation of the recreation potential of the project. Because of the backlog of requests for similar reviews, BOR has stated its comments will be forthcoming some time in the future.

(*d*) *Fish and wildlife.*—The Bureau of Sport Fisheries and Wildlife recently confirmed previous information that the net fishery benefit at Hillsdale Reservoir would be 484,000 fisherman-days annually evaluated at $1 per day. The Bureau also notes that there would be a loss of 525 hunter-days annually. Dr. Hall points out that numerous species of fish, mammals, birds, and trees have been identified in the reservoir area. Contra to his claim that the loss of natural resources would be as great as the $621,000 recreation and fish and wildlife benefit, the evaluation furnished by the Fish and Wildlife Service shows a large net gain for fishery and only a minimal loss for hunter-days. That loss will be offset, as has been done at other projects, by management practices on reservoir lands which should actually result in a public gain since public access will be assured. In view of the comments furnished by the Bureau of Sport Fisheries and Wildlife, it appears that fish, mammals, birds, and timber habitat native to the area is not of unique significance. This aspect of the project will be given more detailed attention and study in conformance with the National Environmental Policy Act of 1969. A separate report responsive to the points set out in the act will be submitted in the future.

(*e*) *Archeologic and historic considerations.*—The National Park Service, at the request of the Kansas City district, has contracted with the University of Kansas to conduct a program of archeological and historical study in the Hillsdale Reservoir area. Maps have been furnished the university so that their study could proceed during the coming summer months.

(*f*) *Summary.*—Most of the information presented in Dr. Hall's statement is a repetition of his statement submitted to the Senate Committee in October 1969. The statement by the Corps at that time addressed the questions Dr. Hall raised. In his most recent statement, Dr. Hall was concerned with the number of species of fish, mammals, birds, and trees in the reservoir area. Dr. Hall provides little information regarding the uniqueness of any of these species to the reservoir area. Our coordination efforts with other Federal and State agencies with expertise in these sectors have not demonstrated a concern similar to Dr. Hall's. Additional study will be given these aspects in due course in response to the stipulations of the Environmental Quality Policy Act. Other questions raised by Dr. Hall regarding the need for water supply, recreation, and local support are in direct

conflict with information available to the Corps. This fact is substantiated by the recent correspondence the Kansas City district has had with interested Federal, State, and municipal agencies as discussed above.

INDIAN CREEK RESERVOIR, KANS.

Senator ELLENDER. There is nothing in the budget, and local interests have requested $500,000. What is your capability on this project?

General KOISCH. Mr. Chairman, the project is not yet authorized, if the project is authorized during the current session of Congress our capability would be $500,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$17,500,000
Total allocations to date	0
Balance to complete	17,500,000
Amount that could be used in fiscal year 1971	500,000

Authorization.—Not yet authorized.

Location and Description.—The proposed damsite is located on Indian Creek in Johnson County, Kansas, about 14 miles above the confluence of Indian Creek with the Blue River. Preliminary plans provide for construction of an earth-fill dam about 80 feet high and 5,000 feet long to create a reservoir with a gross storage capacity of 19,880 acre-feet for flood control, possible water supply, water quality control, recreation, and sediment reserve.

Proposed Operations.—Subject to authorization of the project, the amount of $500,000 could be used to initiate preconstruction planning.

Justification.—The Indian Creek Reservoir will control the runoff from about 15 square miles of land in the Indian Creek basin. Operated as a unit in the Blue River basin, Indian Creek Reservoir, together with three other reservoirs and downstream Blue River Channel Improvement, would provide a substantial degree of protection to important urban developments in the Kansas City, including the Leeds industrial area, the Blue Valley Industrial District, small business, and residential areas, as well as railroad and highway transportation routes. The benefit-to-cost ratio is estimated to be 1.3 to 1.

The average annual benefits are listed below:

Current estimate, July 1969 base (100-year life)

Average annual benefits	$1,210,600
Flood control	784,600
Water quality	106,000
Fish and wildlife	64,500
Recreation	255,500

JOHN REDMOND RESERVATION, KANS. (NATIONAL WILDLIFE REFUGE)

Senator ELLENDER. There is nothing in the budget and local interests have requested $500,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $500,000 to initiate purchase of land for fish and wildlife purposes.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes sir.

(The statement follows:)

Summarized financial data

Total estimated federal cost	$1,090,000
Allocations to date	0
Balance to complete	1,090,000
Amount that could be utilized in fiscal year 1971	500,000

Authorization.—1965 Flood Control Act.

Location and Description.—Located in Coffey County, Kansas, on the Grand (Neosho) River, 2 miles northwest of Burlington, Kansas. The plan of improvement consists of a national wildlife refuge in the completed John Redmond Reservoir. The total acreage of the proposed refuge including land and water is 24,020 acres. Of this total, 20,300 acres have been acquired by the Corps of Engineers for the completed flood control project. Acquisition of additional lands required for the refuge would involve conversion from flowage easement to fee purchase of about 3,400 acres within the reservoir area, and aquisition of an additional 320 acres in fee adjoining the reservoir.

Proposed Operations.—The amount of $500,000 would be used to initiate purchase of land for fish and wildlife purposes.

Justification.—The wildlife refuge would provide benefits to the national waterfowl management program and hunting in the local area, and lands adjacent to the refuge whould have high potential if developed for private waterfowl hunting. The recreation benefits would increase as a result of the increase in annual visitation and it would have an important impact on the local economy by hiring of permanent and seasonal employees. The receipts from economic uses of the refuge that would be returned to the county could exceed what the county formerly received from taxes on the land. The benefit-to-cost ratio is 1.4 to 1.

The average annual benefits for the project are broken down as follows:

Fish and wildlife	$151,000
Recreation	25,000
Total	176,000

Kansas City, Kans.

Senator Ellender. The budget request was $1,225,000. The House has included $1,225,000, exclusive of reserve, and local interests have requested $1,425,000. What is your capability on this project?

General Koisch. Our capability on this project is $1,425,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $200,000?

General Koisch. The additional amount would be used to initiate construction of the Armourdale unit.

Tomahawk Creek Reservoir, Kans.

Senator Ellender. There is nothing in the budget, and local interests have requested $500,000. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized, if the project is authorized during the current session of Congress our capability would be $500,000 to initiate preconstruction planning, and to initiate land acquisition.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Estimated Federal cost	$21,000,000
Allocations to date	0
Balance to complete	21,000,000
Amount that could be used in fiscal year 1971	500,000

Authorization.—Not yet authorized.

Location and description.—The proposed reservoir would be located on Tomahawk Creek in Johnson County, Kansas, in the communities of Leawood and Overland Park. Preliminary plans provide for construction of an earthfill dam about 79 feet high and 2,900 feet long to create a reservoir with a gross storage capacity of about 32,110 acre-feet for flood control, possible water supply, water quality control, recreation, and sediment reserve.

Proposed operations.—Subject to authorization of the project, the amount of $500,000 could be used to initiate preconstruction planning and to initiate land acquisition.

Justification.—The Tomahawk Creek Reservoir will control the runoff from about 24 square miles of land in the Tomahawk Creek Basin. Operated as a unit in the Blue River Basin, Tomahawk Creek Reservoir, together with three other reservoirs, and downstream Blue River Channel Improvement, would provide a substantial degree of protection to important urban developments in the Kansas Citys, including the Leeds industrial area, the Blue Valley Industrial District, small business, and residential areas, as well as railroad and highway transportation routes. The benefit-to-cost ratio is estimated to be 1.5 to 1.

The average annual benefits are listed below:

Current estimate July 1969 base (100-year life)

Average annual benefits	$1,770,200
Flood control	1,128,200
Water quality	162,000
Fish and wildlife	96,000
Recreation	384,000

Towanda Reservoir, Kans.

Senator Ellender. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $100,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] 29,700,000
Allocations to date	0
Balance to complete	29,700,000
Amount that could be utilized in fiscal year 1971	100,000

[1] Local interests will be required to pay the portion of project costs allocated to water supply and a portion of the costs allocated to recreation. These costs are presently estimated to be $584,000 and $383,000 respectively.

Authorization.—1965 Flood Control Act.

Location and description.—The project is located in Butler County, Kansas, on Whitewater River, about ¾ mile northwest of Towanda, Kansas. The plan of improvement consists of a rolled-earth embankment, and a controlled spillway. The embankment would be 11,460 feet in length, including the spillway, with a height of 82 feet above the stream bed. Total storage of the reservoir would be 208,000 acre-feet, of which 133,500 acre-feet would be for flood control, 46,500 acre-feet for conservation, and 28,000 acre-feet for sedimentation.

Proposed operations.—The amount of $100,000 would be used to initiate preconstruction planning.

Justification.—The Towanda Reservoir is a unit in the plan for the control of floods in the Walnut River Basin. Floods average about 1 each year on the main stem and major tributaries. The maximum flood of record at the Winfield gage occurred in 1944 when the peak stage was 8.3 feet above flood stage, and 8.0 feet above flood stage at Towanda. Other major floods occurred in 1923, 1928, 1951, 1964 and 1965(2). Because of the nature of the overflow land, even minor floods cover much of the flood plain along the main stem. Moderate floods cover almost all of it. Major floods pose extreme threats to the cities of El Dorado, Augusta, Winfield, and smaller communities. The urban and rural properties subject to flood damage within the system area include oil installations and related equipment, county roads, highways, railroads, and utilities. The estimated value of the properties, including proven and unproven minerals, is over $109 million. About 42,000 acres of land are in cultivation below the dams in this system, with an estimated crop value of $2 million. The average annual flood losses are estimated at $924,400. Construction of this project would provide a high degree of flood protection for 5,610 acres and would assist in the protection of 49,050 acres in the basin; develop the optimum yield of the stream into a positive resource through storage and regulation; provide dilution water to help solve the water quality problem in the lower basin; and provide outdoor recreation and sport fishing and hunting to help meet the regional demands. The benefit-to-cost ratio is 1.12 to 1.

The average annual benefits for the project are broken down as follows:

Flood control	$510,000
Water supply	30,000
Water quality control	486,000
Recreation	382,000
Total	1,408,000

Winfield, Kans.

Senator Ellender. There is nothing in the budget and local interests have requested $40,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $40,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$370,000
Allocations to date	0
Balance to complete	370,000
Amount that could be utilized in fiscal year 1971	40,000

Authorization.—1965 Flood Control Act.

Location and description.—The improvement would be located in Cowley County, Kansas, on the Walnut River and consists of raising 2.8 miles of existing levee, construction of 1.6 miles of new levee and alteration of several utility lines.

Proposed operations.—The amount of $40,000 would be used to initiate the preconstruction planning.

Justification.—The Winfield protection project is a unit in the plan for the control of floods in the Walnut River Basin. This project, operating in conjunction with the authorized El Dorado, Towanda, and Douglass Reservoirs, would control the standard project flood (which is greater than the maximum flood of record) and would provide essentially complete protection from Walnut River for the town of Winfield, Kansas. Without the upstream reservoirs it would provide protection against a flood occurrence averaging once in 100 years. Floods average about 1 each year on the main stem and major tributaries. The maximum flood of record at the Winfield gage occurred in 1944 when the peak stage was 8.3 feet above flood stage. Other major floods occurred in 1923, 1928, 1951, 1964 and 1965(2). Because of the nature of the overflow land, even minor floods cover much of the flood plain along the main stem. Moderate floods cover almost all of

it. The value of property subject to inundation is $30,331,000. The benefit-cost ratio is 1.2 to 1. The average annual benefits, all flood control, are estimated at $42,000.

Wolf-Coffee Creek Reservoir, Kans.

Senator Ellender. There is nothing in the budget, and local interests have requested $100,000. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized, if the project is authorized during the current session of Congress our capability would be $100,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Estimated Federal cost	$22,300,000
Allocations to date	0
Balance to complete	22,300,000
Amount that could be used in fiscal year 1971	100,000

Authorization.—Not yet authorized.

Location and description.—The proposed damsite would be located at the junction of Wolf and Coffee Creeks, the head of the Blue River, about three miles south of Stanley, in Johnson County, Kansas. Preliminary plans provide for construction of an earthfill dam about 100 feet high and 4,800 feet long to create a reservoir with a gross storage capacity of about 61,650 acre-feeet for flood control, possible water supply, water quality control, recreation, and sediment reserve.

Proposed operations.—Subject to authorization of the project, the amount of $100,000 could be used to initiate preconstruction planning.

Justification.—The Wolf-Coffee Creek Reservoir will control the runoff from about 46 square miles of land in the Wolf-Coffee Creek basin. Operated as a unit in the Blue River basin, Wolf-Coffee Creek Reservoir, together with three other reservoirs and downstream Blue River Channel Improvement, would provide a substantial degree of protection to important urban developments in the Kansas Citys, including the Leeds industrial area, the Blue Valley Industrial District, small business, and residential areas, as well as railroad and highway transportation routes. The benefit-to-cost ratio is estimated to be 2.5 to 1.

The average annual benefits are listed below:

Current estimate, July 1969 base (100-year life)

Average annual benefits	$3,120,900
Flood control	2,015,900
Water quality	355,000
Fish and wildlife	150,000
Recreation	600,000

Booneville Reservoir, Ky.

Senator Ellender. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $100,000 to initiate land acquisition.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$31,400,000
Allocations to date	580,000
Balance to complete	30,820,000
Amount that could be used in fiscal year 1971	100,000

Authorization.—1938 Flood Control Act.

Location and Description.—The authorized dam site is in southeastern Kentucky on the South Fork, Kentucky River, about 16 miles above its confluence with North Fork, Kentucky River. This site is in Owsley County, about 5 miles south of Booneville. The project would control a drainage area of 686 square miles and consists of an earth and rock fill dam, 1,200 feet long and 160 feet high, with a gated controlled spillway through the left abutment and a gate controlled outlet conduit through the base of the dam. The reservoir would have a total storage capacity of 318,000 acre-feet.

Proposed operations.—The amount of $100,000 would be utilized to initiate land acquisition for the project in FY 1971.

Justification.—The project will function as a unit of the general comprehensive plan for flood control and allied purposes in the Ohio River Basin and would provide substantial reductions in flood damages along about 17 miles of the South Fork, Kentucky River, below the dam and the reach of the main stem of the Kentucky River and would, along with other reservoirs in the system, contribute to a reduction of flood flows along the Ohio River below the mouth of the Kentucky River. The most damaging flood for reaches of the South Fork and Kentucky River affected by the Booneville Reservoir occurred in March 1962 and caused damages estimated at $4,802,000 at that time. A recurrence of this flood under current conditions of development and values would cause damages of about $7,033,700 (1969 values), of which $3,722,000 (1969 values) would be prevented by the project. Damaging floods during the last five years occurred in March 1968, March and May 1967, December 1966, and March-April 1965.

The benefit-cost ratio for this project is 1.3 to 1. The average annual benefits of $1,662,000 are broken down as follows:

Flood Control	$1,448,000
General Recreation	115,000
Redevelopment	99,000
Total	$1,662,000

Celina Dam, Ky. (Restudy)

Senator Ellender. There is nothing in the budget and local interests have requested $170,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $170,000 to restudy the project.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	(1)
Allocations to date	208,000
Balance to complete	-------
Amount that could be utilized in fiscal year 1971	170,000

[1] Cost estimate to be determined by restudy report.

Authorization.—1946 River and Harbor Act.

Location and Description.—The proposed dam site is on the Cumberland River at mile 385.4 just at the Kentucky-Tennessee state line, in Clay County, Tennessee and Monroe County, Kentucky. The present plan for development proposes the construction of a combination earth and concrete dam 2,820 feet long including a navigation lock and a hydroelectric power generating plant with three generating units of 36,000 kilowatts each for a total plant capacity of 108,000 kw.

Proposed Operations.—The amount of $170,000 would be utilized to restudy the project in Fiscal Year 1971.

Justification.—The project is an approved unit in the comprehensive plan for the development of the Cumberland River and as presently planned will add a net of 115,000 kw dependable capacity and 231,000,000 kwh of hydroelectric power to the system in an area where the power demands are continuing to expand rapidly. The addition of Celina Project would enhance the dependability of the

system output of the Cumberland, which includes Dale Hollow, Wolf Creek, Center Hill, Old Hickory, Cheatham, Barkley, J. Percy Priest, and Cordell Hull, completed or under construction. Moreover, the value of the increased flows from the upstream completed projects would be wasted without the main river power dams. The navigation facilities will provide transportation for the natural resources of the area and should provide the impetus needed for new industries. Average annual benefits will be determined as part of the proposed restudy.

Dayton, Ky.

Senator Ellender. There is nothing in the budget and local interests have requested construction funds. What is your capability on this project?

General Koisch. Mr. Chairman, funds for completion of preconstruction planning were appropriated in fiscal year 1970. However, we do not have a capability to initiate construction in view of the status of preconstruction planning and the time required by local interests to acquire rights-of-way.

Eagle Creek Reservoir, Ky.

Senator Ellender. There is nothing in the budget and local interests have requested construction funds. What is you capability on this project?

General Koisch. Mr. Chairman, we do not have a capability on this project. Funds for completion of preconstruction planning were appropriated in fiscal year 1970. However, preconstruction planning will not be completed in time to initiate construction in fiscal year 1971.

Falmouth Reservoir, Ky.

OPPOSITION

Senator Ellender. The committee has received opposition to this project. One of the objections is that the proposed dam will destroy some of the most valuable agricultural capacities in the eastern half of the State. Would you comment on land requirements of the project and the type of land involved?

Colonel Anderson. The land that would need to be acquired for the project, as presently considered, consists of about 36,000 acres of which about one-third is cropland with the remaining two-thirds being pasture, woodland, or wasteland. The land available for crops that would be affected is considered to be somewhat more productive than the average cropland for eastern Kentucky but less productive than the average cropland for the Commonwealth as a whole. There is no available evidence to indicate that the Nation's food and fiber production capability would be jeopardized due to Falmouth's construction. The increased production on downstream croplands resulting from a reduced flood hazard would offset the production lost on reservoir lands to be taken for construction of the project.

WATER SUPPLY

Senator Ellender. The opposition contends that the need for the reservoir to supply future water, particularly for the metropolitan area of Cincinnati, is not necessary in the near future since the Ohio

River and underground flow is three to four times their need. Would you comment on this contention?

Colonel ANDERSON. The water supply requirements for areas that could be served by the Falmouth Reservoir is rapidly increasing as the population and industry necessary to support that population increases. The Cincinnati metropolitan area is interested in Falmouth as a water supply source since the cost of treating Ohio River waters to a desirable quality is considerably greater than the cost would be for treating Licking River water to a desirable quality. This situation is expected to become somewhat more pressing as upstream communities grow and more and more water is withdrawn from the Ohio River for municipal and industrial uses. In providing for the future water supply requirements for the area, there is no realistic alternative except to store in reservoirs excess water for release and use in time of low flows or in times of adverse quality.

AREA PROTECTED

Senator ELLENDER. What areas would be protected by the construction of the proposed Falmouth Reservoir and would the city of Falmouth be protected?

Colonel ANDERSON. The Falmouth Reservoir, if constructed, would be quite effective in reducing flood damages along the lower Licking River and the lower Ohio River. The total flood control benefits that would be occasioned by the Falmouth project amount to about $1,600,000 annually. Of this amount, approximately 90 percent would accrue to the lower Ohio River. The Falmouth Reservoir is an integral element of the overall plan for the Ohio River, which plan would provide for significant flood reductions all along the Ohio River, an improvement in the quantity and quality of Ohio River flows and the opportunity for industrial development in an attractive setting to assure the productive employment of an expanding population. The Falmouth Reservoir would provide an extremely high degree of protection to the city of Falmouth. In the March 1964 flood, the city of Falmouth experienced a flood loss of approximately $1,700,000. Had the Falmouth Reservoir been constructed and operating, the damages at Falmouth would have been negligible. During this flood the peak discharges at Falmouth were approximately 95,000 cubic feet per second of which about one-third was contributed by the south fork of the Licking River. Flood damages at Falmouth begin when the flows approach 43,000 cubic feet per second. Had the main stem of the Licking River been protected by the Falmouth Reservoir there would have been no damaging flood at Falmouth. A flood wall at Falmouth would technically solve Falmouth's flood problem but would contribute nothing to reducing the flood problem along the Ohio River. Channel improvement would tend to reduce the stages of smaller floods at Falmouth but would effect negligible stage reductions in larger floods.

RECREATIONAL BENEFITS

Senator ELLENDER. The opposition believes there is too much emphasis placed on recreation at this project. What is your comment on the need for recreation?

Colonel ANDERSON. Based on the high degree of attendance being experienced at other reservoirs in the Ohio River Division, and considering that this project site is only 35 miles from the approximately 1.5 million residents of Metropolitan Cincinnati, it is anticipated that recreation use of Falmouth Reservoir will be a major item of benefits. Details on recreation use, benefits, and costs will be investigated as a part of preconstruction planning of the project. Additional information will be obtained from the Bureau of Outdoor Recreation of the Department of the Interior on recreation needs and how the project could fulfill them.

Senator ELLENDER. The use of redevelopment benefits for this project has been questioned. Why have these been included with the project benefits?

Colonel ANDERSON. The authority for including redevelopment benefits is the Public Works and Economic Development Act of 1965 (Public Law 89–136). This provides that for water resources projects in counties designated by this act as areas with low family income and chronic and persistent unemployment and underemployment, redevelopment benefits will be used in the project analysis. In connection with this project statistics indicate that there is sufficient unemployed labor of the required types within commuting distance of Falmouth Reservoir to supply the locally hired labor used to compute the construction and operation and maintenance redevelopment benefits as indicated. The Government construction contracts for this project, since it is in Appalachia, will require that a "Local Labor Preference Clause" be included in all invitations for bids for civil works construction contracts to be performed in the counties of Appalachia.

LAND PRODUCTIVITY

Senator ELLENDER. The opposition considers the loss of some $204,000 per year that the corps evaluates as the loss of productivity of the land is not sufficient and that it should be several million. Would you comment on this?

Colonel ANDERSON. The $204,000 per year represents the loss in net land productivity rather than the loss in gross land productivity. We estimate the average annual net land return, after taking out planting, growing, harvesting, and associated costs, to approximate 5 percent of the market value of the land. In this case, we will be acquiring some productive agricultural land for the project at the estimated fair market value. Assuming the proceeds from the land purchase are invested at an interest rate of 3 percent, the rate used to evaluate the project at the time the $204,000 was developed, the annual interest return would be $306,000. However, if the land were left in production, it could earn a net annual return of 5 percent, or $510,000 per year. The difference between the net returns is $510,000 less $306,000, or $204,000. This represents a loss to the national economy and, as such, is chargeable against the project.

LOCAL PROTECTION

Senator ELLENDER. Has the use of floodwalls for protection of Falmouth or other possible sites for location of the dam and reservoir been considered?

Colonel ANDERSON. The conference report for the fiscal year 1970 Public Works Appropriation Act directs that a study of alternatives, including local protection for the cities of Falmouth, Covington, and Newport be conducted concurrently with the resumption of preconstruction planning. This will be initiated and accomplished as soon as planning is underway.

PROTECTION AFFORDED BY CAVE RUN RESERVOIR

Senator ELLENDER. The Cave Run project is being constructed upstream from the Falmouth Reservoir. The opposition thinks this project should be completed before starting the Falmouth project. What are your views on this?

Colonel ANDERSON. The Cave Run Reservoir on the upper Licking River is presently scheduled to be operable in December 1972. Construction is proceeding based on that schedule. Cave Run will reduce the flood hazard of the lower Licking River but will not eliminate the flood hazard simply because it does not control a sufficient percent of the drainage area of the lower Licking River. The Falmouth Reservoir will control almost 60 percent more drainage area of the Licking River than Cave Run Reservoir.

MARTIN, KY.

Senator ELLENDER. Local interests have requested $150,000 for this project. The project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use in fiscal year 1971, and no additional funds are in the 1971 budget. However, the House has included $150,000, exclusive of reserve. What is your capability on this project?

General KOISCH. Our capability is $150,000.

Senator ELLENDER. What would be accomplished with the additional funds?

General KOISCH. The additional amount would be used to advance award of the construction contract 4 months.

MARTINS FORK RESERVOIR, KY.

Senator ELLENDER. Local interests have requested $400,000 for this project. The project was added to the appropriation bill by the Congress in fiscal year 1970 in the amount of $300,000 to initiate land acquisition. These added funds were placed in budgetary reserve for use late in fiscal year 1971, and no funds are included in the fiscal year 1971 budget. However, the House has included $400,000, exclusive of reserve, for initiation of construction. Could you use the additional funds requested by local interests?

General KOISCH. Yes, Mr. Chairman; we could. The fiscal year 1970 funds have now been scheduled for use early in fiscal year 1971.

Senator ELLENDER. What would the additional funds be used for?

General KOISCH. Sir, we would use the additional funds to initiate construction of the project.

PAINTSVILLE RESERVOIR, KY.

Senator ELLENDER. There is nothing in the budget and local interests have requested $900,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $900,000 to initiate construction.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $22,700,000
Allocations to date	788,000
Balance to complete	21,912,000
Amount that could be used in fiscal year 1971	900,000

[1] Estimated cost to include future recreational development is $23,350,000..

Authorization.—1965 Flood Control Act.

Location and Description.—The project is located in Johnson and Morgan Counties, Kentucky, on Paint Creek, a tributary of Levisa Fork of Big Sandy River, about 8 miles above the mouth of Paint Creek. The reservoir, controlling a drainage area of 92 square miles, would be formed by an earth dam with an uncontrolled spillway. Total crest length of the dam is 850 feet and the maximum height is 160 feet. The uncontrolled spillway, lined and with an ogee weir, would be located 500 feet from the right abutement. The reservoir would have a storage capacity of 76,400 acre-feet of which 4,500 acre-feet would be permanent storage.

Proposed Operations.—The amount of $900,000 would be utilized to initiate construction of the project in fiscal year 1971.

Justification.—The project will supplement other reservoirs, completed and under construction, in reducing flood flows along Levisa Fork and the Big Sandy and Ohio Rivers and will protect the City of Paintsville, Kentucky, from Paint Creek floods. The affected areas ar trans-shipping points and supply, administrative, and residential centers for a large surrounding area that is a major coal production center and a minor center for oil and gas production. The greater floods also result in extended interruptions of arterial traffic between the Midwest and Southwest on U.S. Highway 23, and of railroad freight transfers between these regions by flooding of the Chesapeake and Ohio Railway. The severe floods of January 1957 and March 1963 inflicted damages amounting to $32,707,000 and $17,761,000, respectively, on the Levisa Fork. The project will also assist in meeting the need evaluated in a February 1962 report by U.S. Public Health Service for low flow augmentation in the interests of water quality control for the industrialized portion of the Big Sandy River Valley.

The benefit to cost ratio for this project is 1.3 to 1. The average annual benefits of $1,381,000 are broken down as follows:

Big Sandy River flood control benefits	$73,200
Ohio River flood controls benefits	149,200
Recreation	523,000
Water Quality Control	491,000
Redevelopment	145,500
Total	$1,381,900

RED RIVER RESERVOIR, KY.

Senator ELLENDER. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $100,000 to initiate land acquisition.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $19,100,000
Allocations to date	1,399,000
Balance to complete	17,701,000
Amount that could be used in fiscal year 1971	100,000

[1] Estimated Federal cost to include future recreation development is $20,635,000.

Authorization.—1962 Flood Control Act.

Location and Description.—The proposed dam site is located on the Red River, about 42.3 miles upstream from its confluence with the Kentucky River. This location is about 4.3 miles northwest of Slade in Powell County, Kentucky. The proposed project, as described in the Reconnaissance Study, dated March 1968, River Reservoir, will control a drainage are of about 235 square miles and consists of an earth and rock fill dam, 1,850 feet long and 150 feet high, with an open cut spillway through the left abutment, and a gate controlled outlet conduit through the base of the dam.

Proposed Operations.—The amount of $100,000 would be used to initiate land acquisition at the downstream site.

Justification.—The project will function as a unit of the general comprehensive plan for flood control and allied purposes in the Ohio River Basin and would provide substantial reduction in flood damages along about 42 miles of Red River below the dam and the reach of the main stem of the Kentucky River between Miles 42 and 192 and would, along with other reservoirs in the system, contribute to a reduction of flood flows along the Ohio River below the mouth of the Kentucky River.

The July 1938 flood (maximum of record) on Red River was limited to the tributary stream and had little effect on the main stem of the Kentucky River. Operation of the project during this flood would have reduced the crest of the Red River at Clay City (Mile 22) by 5.4 feet. The 1957 flood was the most damaging flood of record for the entire Kentucky River basin, causing damages evaluated at $15,268,000 at that time and resulting in six lives lost. The most damaging flood for reaches of the Red and Kentucky Rivers affected by the Red River Reservoir occurred in March 1962 and caused damages estimated at $4,767,000. A recurrence of this flood under current conditions of development would cause damages of about $6,621,000, of which about $2,322,000 (both 1969 values) would be prevented by the project. Other damaging floods along reaches of the Red and Kentucky Rivers, affected by the project, occurred in March and April 1968; March and May 1967; February, May and December 1966; March and April 1965; and March 1964. The March 1964 major flood caused damages along the said reaches estimated at about $3,280,000 at that time. A recurrence of this flood under present conditions of development and values would cause damages of about $4,471,000, of which $1,684,000 would be prevented by the project (both 1969 values). The benefit-cost ratio for this project is 1.8 to 1. The average annual benefits of $1,589,000 are broken down as follows:

Flood control	$552,000
Water supply	157,000
Water quality	102,000
Recreation:	
General and fish and wildlife	708,000
Redevelopment	70,000
Total	1,589,000

Taylorsville Reservoir, Ky.

Senator Ellender. The budget request was $90,000. The House has allowed $390,000 to complete planning and initiate construction, and local interests have requested $390,000. What is your capability on this project?

General Koisch. Our capability on this project is $390,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $300,000?

General Koisch. The additional amount would be used to initiate construction.

YATESVILLE RESERVOIR, KY.

Senator ELLENDER. The budget request was $75,000. The House has included $75,000 and local interests have requested $1 million. What is your capability on this project?

General KOISCH. Our capability on this project is $75,000, Mr. Chairman, for completion of preconstruction planning.

ATCHAFALAYA RIVER AND BAYOUS CHENE, BOEUF AND BLACK, LA.

Senator ELLENDER. The budget request was $10,000. The House has included $70,000 and local interests have requested $70,000. What is your capability on this project?

General KOISCH. Our capability on this project is $70,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $60,000?

General KOISCH. The additional amount would be used to advance the preconstruction planning and would advance completion of this planning by 1 year.

BAYOU BODCAU AND TRIBUTARIES, LA.

Senator ELLENDER. Local interests have requested $150,000 for this project. The project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use in fiscal year 1971, and there are no additional funds in the 1971 budget. The House has included $50,000, exclusive of reserve. What is your capability on this project?

General KOISCH. Our capability is $50,000.

Senator ELLENDER. What would be accomplished with the additional funds?

General KOISCH. The additional funds would be used to advance the construction of levees but would not affect project completion.

LAKE PONTCHARTRAIN AND VICINITY, LOUISIANA

Senator ELLENDER. The budget request was $8,250,000. The House has allowed $8,250,000, exclusive of reserve, and local interests have requested $10,750,000. What is your capability on this project?

General KOISCH. The additional funds would be used to advance the construction of levees but would not affect project completion. awards our capability is $12 million.

Senator ELLENDER. What would be accomplished with the additional $3,750,000?

General KOISCH. The additional amount would permit earlier award and advance completion of some levee contracts by 3 months. This would also advance completion of the overall project by 3 months.

MERMENTAU RIVER, LA.

Senator ELLENDER. This project was added by the Congress in fiscal year 1970 for initiation of construction of Lake Arthur Bridge and the added funds were put in budgetary reserve for use in fiscal year 1971. There are no additional funds in the 1971 budget. The House has included $500,000, exclusive of reserve. Local interests have

requested $500,000 for this project. Do you have a capability on this project?

General KOISCH. Our capability is $500,000.

Senator ELLENDER. What would be accomplished with the additional funds?

General KOISCH. $260,000 would be used to advance the construction of Lake Arthur Bridge and the remaining $240,000 would be used to initiate channel excavation.

MICHOUD CANAL, LA.

Senator ELLENDER. There is nothing in the budget and local interests have requested $1,560,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $50,000 to initiate construction.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,540,000
Allocations to date	50,000
Balance to complete	1,490,000
Amount that could be utilized in fiscal year 1971	50,000

Authorization.—1968 River and Harbor Act.

Location and description.—The project area is located adjacent to Lake Borgne and within the corporate limits of the city of New Orleans in Orleans Parish. The project extends from the Mississippi River-Gulf Outlet at its intersection with the Gulf Intracoastal Waterway along the present alignment of the GIWW and the Michoud Canal. The recommended plan of improvement provides for the construction of a 36- by 250-foot ship channel ending with a turning basin 800 feet square.

Proposed operations.—The amount of $50,000 would be used to initiate construction.

Justification.—An investigation of the transportation savings which might accrue from the improvement revealed that two existing industries would derive benefits. One of these industries is a firm importing foreign automobiles and the other is a manufacturer of fertilizers. Other existing industries on the Michoud Canal are serviced by barge transportation which is adequate for their needs and would not be benefited by the proposed ship channel. Space is available for additional industrial development which may or may not benefit from the ship channel. In view of the uncertainties of the future developments, no benefits have been estimated for the additional industrial development.

Importation of foreign automobiles: These vehicles are presently unloaded at another site remote to the operation which results in additional handling and movement costs. This cost is estimated to be $3.25 per vehicle. The operation involved approximately 20,000 vehicles in 1965 and it is estimated that this facility will reach its capacity of 73,000 vehicles per year in 1985. The average annual benefits on the importation of automobiles for the 50-year project life (1970–2020) are estimated at $206,800.

Fertilizers: Currently about 45,000 tons of anhydrous amonia are being produced for export; however, since shipping cannot reach this plant, this amount is being shipped from another site through a transfer agreement with another producer at an additional cost of $1.20 per ton. It is estimated that such export will increase from 45,000 tons to 329,000 tons in year 2020. The estimated average annual benefits (savings) over the 50-year project life is $193,600.

The fertilizer firm contemplates production of other chemical fertilizers such as phosphate, potash, and other nitrogen-based fertilizers. It was estimated that in 1970, assuming project completion, that an additional 96,400 tons will be exported and this will increase to 323,600 tons by 2020. The savings are estimated to 76 cents per ton. The estimated average annual benefits are $144,000.

The total average annual benefit, all navigation, are $544,500. The benefit-cost ratio is 6.6 to 1.

Monroe Floodwall, La.

Senator Ellender. There is nothing in the budget, the House has included $30,000, and local interests have requested $30,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $30,000 to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,970,000
Total allocations to date	350,000
Balance to complete	1,620,000
Amount that could be utilized in fiscal year 1971	30,000

Authorization.—1965 and 1966 Flood Control Acts.

Location and description.—The project area is located on the west edge of the central business district of Monroe, Louisiana, in Ouachita Parish. The proposed improvement consists of the closure of a gap of 1,750 feet which was left in the Monroe Floodway at the time of its construction in the mid-1930's.

Proposed operations.—The amount of $30,000 would be used to initiate construction.

Justification.—The gap in the floodwall is a continuous threat to a substantial part of the central business district of Monroe, Louisiana and adjacent residential areas. When river stages approach the project design elevation, it is necessary to utilize expensive, expedient measures (sandbags and "mud Box" wall) to close the gap. The flood threat is a matter of growing concern to local interests because of the growth of business and increasing land values in the area. Under design flood conditions, there is a possibility that an adequate emergency closure could not be constructed in time, or would fail, leaving a highly developed urban area subject to flood damages. The benefit-to-cost ratio is 1.7 to 1. The average annual benefits are estimated at $126,600 for flood control and $2,200 for area redevelopment.

New Orleans to Venice, La.

Senator Ellender. The budget request was $2,600,000. The House has included $3,500,000, exclusive of reserve and local interests have requested $3,500,000. What is your capability on this project?

General Koisch. Our capability on this project is $3,500,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $900,000?

General Koisch. The additional amount would be used to advance construction of the levees and would provide protection to a unit of the project 6 months earlier but would have no effect on the overall completion of the project.

Ouachita River Levees, La.

Senator Ellender. There is nothing in the budget and local interests have requested $80,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $80,000 to initiate and complete preconstruction planning and initiate construction.

Senator Ellender. Would you submit a statement for the record?

General KOISCH. Yes, sir.
(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,100,000
Allocations to date	0
Balance to complete	2,100,000
Amount that could be utilized in fiscal year 1971	80,000

Authorization.—1928 Flood Control Act and 1950 River and Harbor Act.

Location and Description.—The Ouachita River Levees extend from Bastrop, Louisiana, along the south bank of Bayou Bartholomew and the east bank of the Ouachita River to Sandy Bayou, about 74 miles below the city of Monroe, Louisiana. There are also loop levees on the west bank of Ouachita River at West Monroe, Bawcomville and Columbia. The improvement consists of raising 40.4 miles of levees, gravel surfacing on 38.7 miles of levees and extension of the levee for 5.7 miles to Sandy Bayou.

Proposed Operations.—The amount of $80,000 would be used to initiate and complete preconstruction planning and initiate construction.

Justification.—Hydraulic studies and observations, made after construction of the present levee system, indicate that in some reaches the levees are deficient in grade and do not provide the degree of protection intended in the original project. Also, access to and along the levee crown, for inspection and flood fighting during highwater has not been provided. This access is essential to insure the safety and proper functioning of the levee system. Flood damages prevented by the Ouachita River Levees through 1969 are estimated to amount to $16,860,000. In addition to the urban areas, some 185,000 acres, principally highly developed farmland, are protected by the east bank levee from overflow of the Ouachita River. The benefit-cost ratio is 2.3 to 1. The average annual benefits for the entire project are estimated at $460,000 for flood control and $3,900 for area redevelopment.

OVERTON-RED RIVER WATERWAY, LOUISIANA-LOWER 31 MILES

Senator ELLENDER. The budget request was $600,000. The House has allowed $600,000, exclusive of reserve and local interests have requested $1,700,000. What is your capability on this project?

General KOISCH. Our capability on this project is $1,700,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $1,100,000?

General KOISCH. The additional amount would be used to advance construction of bank stabilization and would advance project completion by 9 months.

RED RIVER WATERWAY, LOUISIANA, ARKANSAS, OKLAHOMA, AND TEXAS

Senator ELLENDER. There is nothing in the budget and local interests have requested $600,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $600,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.
(The statement follows:)

Summarized financial data

Total Estimated Federal Cost	$625,000,000
Allocations to Date	0
Balance to Complete	625,000,000
Amount that could be utilized in fiscal year 1971	600,000

Authorization.—1968 River and Harbor Act.

Location and Description.—The project area is northwest Louisiana, southwest Arkansas, northeast Texas and southeast Oklahoma along the Red River between the mouth of Old River, La., and Denison Dam, Texas. The improvement of Red River consists essentially of two separate elements, one for navigation and the other for bank stabilization. The navigation element provides a route from the Mississippi River at its junction with Old River in Old and Red Rivers to Shreveport, Louisiana, thence via Twelvemile and Cypress Bayous to the vicinity of Daingerfield, Texas. The navigation improvement includes development of a channel 294 miles long, 9 feet deep, and 200 feet wide. Nine locks and dams, including the two existing dams at Caddo Lake and Lake O' The Pines (Ferrells Bridge Dam) will furnish the lift of approximately 225 feet. The locks will have clear dimensions of 84 feet by 600 feet. Existing channels of Red River, Twelvemile Bayou, and Cypress Bayou will be realigned as necessary to develop an efficient, navigable channel. Bank revetment and other training works will be constructed to hold the newly developed channel in position. The bank stabilization element of the plan provides for construction of channel realignment and bank stabilization on Red River from the vicinity of Mississippi River to Denison Dam.

Proposed Operations.—The amount of $600,000 would be used to initiate preconstruction planning.

Justification.—Red River is characterized by wide fluctuations in stage as well as by caving banks and unpredictable shoaling, conditions adverse to the interests of navigation. Commercial traffic on Red River is negligible above the mouth of Black River. The navigation tributary area is endowed with abundant natural resources and other advantages that indicate a promising future. A need for low-cost bulk transportation is indicated at the present time. This need is expected to increase with the economic growth of the area.

Thousands of acres of productive land are lost to the river each year as improvements, including the 400-mile levee system below Index, must be either relocated or abandoned. Efforts at bank stabilization to date have been limited to isolated locations for protection on an emergency basis. These uncoordinated efforts by local and Federal interests have failed to provide an efficient or economical approach to the problem.

Development of public access areas will assure public use of the navigation channel and cut-off bendways for recreational purposes. The improved channel realignment will result in lowering of moderate flood heights and reduction in flood damage.

Maintenance will be reduced on existing bank stabilization works, or parts thereof, to be incorporated into the proposed project and will be eliminated entirely on those works which will be abandoned. Benefits will result from security against levee crevasses occurring during a major flood. Provision of navigable pools will provide benefits to irrigation interests in the form of reduced pumping lifts. The navigation pools will improve quality and availability of water for muncipal and industrial purposes, thereby effecting savings in the cost of treatment and procurement. Channel stabilization would provide benefits by the reduced sedimentation in the Atchafalaya Basin. Benefits would result from the contribtuion that the project would make toward alleviating unemployment in certain counties in the region now designated by the Economic Development Administration as areas of substantial and persistent unemployment. The benefit-cost ratio is 1.15 to 1. The average annual benefits are listed below:

Navigation	$20,713,500
Flood control	10,548,700
Recreation and Fish and Wildlife	3,689,000
Area Redevelopment	5,338,700
Other (Reduced maintenance of revetments, water quality control, irrigation and reduced sedimentation)	966,700
Total	$41,256,600

Red River Emergency Bank Protection, La.

Senator Ellender. The funds added by Congress for this project in fiscal year 1970 were put in budgetary reserve for use in fiscal year 1971. No additional funds are in the 1971 budget. Local interests have

requested $3,500,000. Do you have a capability on this project in fiscal year 1971?

General Koisch. Sir, we have no additional capability. The $1,900,000 in budgetary reserve is all that we can economically use in fiscal year 1971.

Dickey-Lincoln School Reservoirs, Maine

Senator Ellender. I note that the House has deleted all funds for planning on this project. Is there any justification for this committee including funds for continuation of planning?

Colonel Edelstein. It remains our view that the project is well justified economically, is financially feasible, and would provide benefits which without construction of the project might not otherwise be obtained. In view of these factors it is considered highly desirable to complete planning on the project so that all factors which affect justification and serve as the basis for opposition to or support for the project can be fully explored and developed. The restoration of funds for continuation of planning would permit an evaluation of the possibilities of providing irrigation benefits estimated by the Department of Agriculture at up to $20,000,000 per year. Any justified irrigation benefits could significantly enhance project justification in addition to providing economic viability to an area classified as an economic development region by the Secretary of Commerce.

OPPOSITION

Senator Ellender. Testimony in opposition to this project indicates that the additional power requirements in Maine and the Boston area could be statisfied at less cost by construction of thermal and pumped-storage alternatives. Have these alternatives been considered in your evaluation of the project?

Colonel Edelstein. Yes, sir, they have. Our analysis of project power and alternatives to that power indicates that the most economic and likely alternatives would be a thermal plant in Maine and a pumped-storage plant in Massachusetts.

The economic analysis is based on data furnished by the Federal Power Commission for these alternatives. The results indicate that while initial construction costs of the combination alternative are substantially less than the project power facility costs the costs of operation, maintenance and replacements are substantially higher. When all costs of providing benefits equivalent to the project benefits are considered in a comparative analysis, power from the Dickey-Lincoln School project is 17 percent less costly than power from the alternatives.

COST OF ALTERNATIVE POWER

Senator Ellender. It has been stated by the opponents of the project that the actual cost of power from the project over the required 50-year repayment period would be $35 million dollars whereas power from the alternatives would be only $22 million. How does this come about?

Colonel Edelstein. The derivation of these figures is based on different assumptions. The $35 million figure is developed by escalating

the Corps project cost estimate at 5 percent per year over the project construction period and then determining interest during construction and annual costs on this escalated cost. The alternative costs, however, were not escalated. Since the project's economic life is so much longer and the operation and maintenance costs so much lower than those of the alternatives, escalation of costs on both sides of the equation would favor the project. I might add, however, that Federal standards for economic analyses prohibit escalation of costs.

Separate analyses by the Department of the Interior and the Corps indicate that power rates for project power would be less than those from the alternatives.

CONSTRUCTION PERIOD

Senator ELLENDER. Opponents contend that project power could not be available before 1980 and would not contribute significantly to area power resources. Is this correct?

Colonel EDELSTEIN. No, sir, it is not. Project power could be available to the region within 5–6 years of a construction start. Therefore, assuming a start in 1972, power would be contributing to the regional load in the 1977–78 period. It is correct, of course, that the project contribution in itself would be a relatively small amount of the total regional load. However, this can be said of any single addition to the areas power resources. As an example utility publications indicate that about 8 million kilowatts of new power will be added to the regional load by 1976. This capacity will be provided in 15 plants which averages out to about 530,000 kilowatts per plant. The publication also indicates that about 25 percent of the new capacity will be in peaking capacity.

Since there is a need for the project power and it is less costly than the most economical and likely alternatives it is considered a desirable and necessary addition to the areas resources.

EFFECT OF PROJECT ON ENVIRONMENT

Senator ELLENDER. The committee has also received opposition to this project from the Massachusetts Audubon Society, which contends that 150 square miles will be placed under water, creating a huge, ugly basin where the regular rise and fall of water will be 40 feet; and they describe the reservoir as a warm, stagnant pool which will replace one of the best trout streams in the Northeast. Would you comment on this allegation?

Colonel EDELSTEIN. The impoundment, at maximum power pool elevation, would inundate approximately 86,000 acres or 135 square miles using a conversion factor of 640 acres per square mile. A lake this size with water-filled valleys and precipitous slopes rising above the water level is not easily pictured as an ugly basin.

The maximum drawdown would be 40 feet. However, the average annual drawdown between April 15 and October 15 would be 10 feet. The heaviest drawdown period would be in the winter months, due to the larger power demands. Due to the precipitous shore areas, the graphic features of mudflats are not expected to be visible during drawdown periods.

Study and concern for the conservation aspects of the area are not new. The U.S. Fish and Wildlife Service in a report dated October 1,

1959, assessed the St. John and its tributaries as having excellent trout habitat with brook trout well dispersed and active. The report stated however, "In comparison to the St. John's River and its tributaries, trout habitat in the Allagash drainage area is superior in both quality and quantity. Water levels are far more stable and the stream channel, in general, is deeper."

Current studies of the U.S. Fish and Wildlife Service consider the Dickey impoundment as a two-level lake. They expect warm water fish habitat to be formed in the upper level and cold water fish habitat including trout, to be found in the lower level. The St. John's River at present is a seasonal trout stream and during periods of low flows the fish are forced to migrate into tributary streams. Releases from the Dickey impoundment will be from the cold water level and the volume and regularity of releases should eliminate drought conditions or periods of low flow downstream of the dam. It would appear that the trout habitat will not be replaced but will be enhanced.

Senator ELLENDER. They also question whether the Dickey-Lincoln School project has been studied from a full resource point of view. Would you comment on that?

Colonel EDELSTEIN. Yes, Mr. Chairman. In the normal process of project formulation and evaluation, close coordination is maintained with all appropriate Federal and State agencies involved in water resource planning. In the case of Dickey-Lincoln full coordination and cooperation was had with these agencies and this coordination will continue upon resumption of detailed design with the view to provide balanced resource development which is most responsive to area needs as well as to the increasing awareness of the public to the value of conservation and preservation.

ANACOSTIA RIVER, MD.

(SECTION 205 PROJECT)

Senator ELLENDER. There is nothing in the budget, and the House has included $450,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project would be $450,000 to initiate and complete construction.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal construction cost	$450,000
Total allocations to date	0
Balance to complete	450,000
Amount that could be used in fiscal year 1971	450,000

Authorization.—Section 205 of 1948 FCA, as amended.

Location and Description.—The project is located in Prince Georges County, Maryland. The purpose of the project is to lessen flood damages along portions of Northwest Branch, Paint Branch, Northeast Branch and Indian Creek; all tributaries of the Anacostia River. Plan of improvement consists of channel widening, deepening, straightening and realigning.

Proposed Operations.—The $450,000 could be used for the Federal share of the project cost to initiate and complete construction.

Justification.—Large benefits would accrue from the plan of improvement in the form of prevention of flood damages. Average annual benefits are $64,600 and the benefit-cost ratio is 1.8 to 1.

BLOOMINGTON RESERVOIR, MARYLAND AND WEST VIRGINIA

Senator ELLENDER. The budget request was $4,700,000. The House has allowed $4,700,000, exclusive of reserve, and local interests have requested $7,300,000. What is your capability on this project?

General KOISCH. Our capability on this project is $7,300,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $2,600,000?

General KOISCH. The additional amount would be used to improve rate of construction on phase I railroad relocation and to advance the start of phase II railroad relocation.

FALL RIVER HARBOR, MASS.

Senator ELLENDER. The budget request was $75,000. The House has allowed $400,000 for completion of planning and initiation of construction and local interests have requested $400,000. What is your capability on this project?

General KOISCH. Our capability on this project is $400,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $325,000?

General KOISCH. The additional amount would be used to initiate construction. It would provide for award in April 1971 of a continuing contract for dredging.

SAXONVILLE, MASS.

Senator ELLENDER. There is nothing in the budget and local interests have requested $50,000. The House has included $50,000 for initiation of planning. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $50,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,750,000
Total allocations to date	0
Balance to complete	1,750,000
Amount that could be utilized in fiscal year 1971	50,000

Authorization.—1966 Flood Control Act.

Location and Description.—The project is located on the Sudbury River in the village of Saxonville in the northeasterly part of the town of Framingham, Middlesex County, Mass. Flood protection consists of floodwalls, levees, a vehicular flood gate, a railroad stoplog structure, channel straightening, and a pumping station.

Proposed Operations.—The amount of $50,000 would be used to initiate preconstruction planning.

Justification.—Protection from floods is required to prevent damages to existing industrial, commercial, and public facilities in the project area. Major floods

were experienced in the years of 1936, 1938, 1954, and 1955. A recurrence of the record 1955 flood would cause damages of $1,190,000 in Saxonville under current economic conditions; $1,030,000 of these damages would be prevented by the project. The benefit-to-cost ratio for the project is 1.5 to 1.

The average annual flood control benefits for the project are $111,300—$105,700 for flood control and $5,600 for redevelopment.

Cedar River Harbor, Mich.

Senator Ellender. There is nothing in the budget and local interests have requested $664,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $200,000 to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$692,000
Allocations to date	58,000
Balance to complete	634,000
Amount that could be utilized in fiscal year 1971	200,000

Authorization.—1965 River and Harbor Act.

Location and description.—Cedar River Harbor adjoins the village of Cedar River, Michigan. It is located at the mouth of the Cedar River on the west shore of Green Bay, an arm of northern Lake Michigan, and is about 68 miles north of the city of Green Bay, Wisconsin. Nearest harbors are at Menominee, Michigan, 27 miles southwest and at Escanaba, Michigan, 29 miles northeast. The proposed improvement provides for a new rubble mound east pier, an entrance channel 100 feet wide and 10 feet deep in Green Bay, and an inner channel 80 feet wide and 8 feet deep in Cedar River.

Proposed operations.—The $200,000 would be used to initiate construction.

Justification.—The proposed improvement will benefit recreational and light-draft commercial fishing through improvement of navigation facilities. Construction of adequate entrance and inner channels will greatly increase the value of the harbor for refuge by providing temporary anchorage and shelter to small recreational and commercial fishing boats on Green Bay during periods of storms. Additional benefits will accrue to sport fishing enthusiasts who will be able to fish from the new east pier. The benefit-to-cost ratio is 1.8 to 1. The average annual benefits for the project are broken down as follows:

Navigation	$64,400
Recreation	14,000
Total	78,400

Cross Village Harbor, Mich.

Senator Ellender. There is nothing in the budget and local interests have requested $60,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $40,000 to initiate planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$960,000
Allocations to date	0
Balance to complete	960,000
Amount that could be utilized in fiscal year 1971	40,000

Authorization.—1966 River and Harbor Act

Location and Description.—Cross Village, Michigan, located in Emmet County is situated on the northeasterly shore of Lake Michigan, about 23 miles east of St. James Harbor (Beaver Island) and approximately 26 miles northeasterly from Charlevoix Harbor, Michigan. The project provides for improvement of the harbor for light-draft craft by constructing general navigation facilities consisting of breakwaters having an aggregate length of about 2,300 feet with recreational fishing facilities on the main breakwater; an anchorage and maneuver area of about 8 acres and 10 feet deep, and a flared entrance channel 12 feet deep decreasing in width to 140 feet through the breakwater.

Proposed Operations.—The $40,000 would be used to initiate preconstruction planning.

Justification.—Northeastern Lake Michigan is reputed to be one of the roughest sections of water on the Great Lakes. Navigation for small craft in these waters is hazardous with the nearest harbors Charlevoix, 26 miles southwest of Cross Village and Mackinaw City, 35 miles to the northeast. Construction of the harbor will provide a harbor of refuge for the recreational and small commercial craft which cannot, with an acceptable degree of safety, traverse the area between Charlevoix and the Straits of Mackinac. Development of an adequate harbor at Cross Village will serve area fishermen who will benefit from a harbor closer to fishing grounds; and in addition, will furnish a base from which the Beaver Island ferry can operate in order to provide a shorter safer trip at a lower operating cost than is possible with the mainland base presently located at Charlevoix. The benefit-to-cost ratio is 1.16 to 1.

The average annual benefits for the project are estimated at and are broken down as follows:

Navigation	$53,100
Recreation	14,600
Area redevelopment	7,600
Total	75,300

Grand Marais Harbor, Mich. (Dike Rehabilitation)

Senator Ellender. There is nothing in the budget and local interests have requested $750,000 for dike rehabilitation. What is your capability on this project?

General Koisch. Mr. Chairman, as stated last year we will not have a capability for rehabilitation of the dike until a study within the authority of the Chief of Engineers to determine the feasibility and scope of the rehabilitation is initiated and completed. No funds have been allocated for this study to date.

Lexington Harbor, Mich.

Senator Ellender. The project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use in fiscal year 1971, and $10,000 are included in the 1971 budget. Local interests have requested $10,000 for this project and the House has allowed $25,000 exclusive of reserve. What is you capability on this project?

General Koisch. Our capability is $25,000.

Senator Ellender. What would be accomplished with the additional $15,000 over the budget request?

General Koisch. The additional amount would be used to complete the preconstruction planning.

Platte River Harbor, Mich.

(Sec. 107 Project)

Senator Ellender. There is nothing in the budget and local interests have requested $500,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability is $500,000 for initiation and completion of this project which is authorized by section 107 of the 1960 River and Harbor Act.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated federal construction cost	$500,000
Total allocations to date	0
Balance to complete	500,000
Amount that could be used in fiscal year 1971	500,000

Authorization.—Section 107 of the 1960 River and Harbor Act.

Location and Description.—The project is located on the east shore of Lake Michigan, about 14 miles north of Frankfort Harbor and about 32 miles south of Leland Harbor. The purpose of the project is to provide a small boat harbor of refuge for the increasing number of persons involved in recreational boating and sport fishing in the area. The plan of improvement consists of construction of a 950 foot long rubble mound breakwater extending into Lake Michigan, dredging a 10 foot deep entrance channel varying in width from 150 feet in Lake Michigan to 100 feet within the breakwater and dredging of the river channel varying in depth from 8 feet near the river mouth to 6 feet at the proposed boat launching ramp.

Proposed Operations.—The $500,000 could be used to initiate and complete construction of the project.

Justification.—This site is in the area where a large number of Coho salmon fishermen suffered storm damage in the fall of 1967. During the storm on 23 September 1967, seven persons drowned when their boats capsized, fifteen more were hospitalized, at least 150 persons and 75 boats were assisted from conditions of distress, and numerous other boats were damaged in making beach landings. Development of a small craft harbor at Platte River will provide a much needed supplement for the existing network of recreational boating facilities in this increasingly popular boating and fishing area in Lake Michigan. Average annual benefits are $116,000 for general navigation and recreational fishing from the breakwater. The benefit-cost ratio is 1.7 to 1.

Big Stone Lake-Whetstone River, Minn.

Senator Ellender. The budget request was $485,000. The House has allowed $485,000, exclusive of reserve and local interests have requested $2,330,000. What is your capability on this project?

General Koisch. Our capability on this project is $700,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $215,000?

General Koisch. The additional amount would be used to continue land acquisition and initiate construction.

Roseau River, Minn.

Senator Ellender. There is nothing in the budget. The House has included $150,000 and local interests have requested $150,000 for this project. What is your capability on this project?

General Koisch. Our capability is $150,000.

Senator ELLENDER. What would be accomplished with the additional funds?

General KOISCH. The additional amount would be used to advance award of the levees and channel contract in the U.S. portion of the project by about 3 months. The additional amount would have no appreciable effect on the project completion.

ZUMBRO RIVER, MINN.

Senator ELLENDER. There is nothing in the budget. The House has included $50,000. What is your capability on this project?

General KOISCH. Our capability on this project is $50,000, Mr. Chairman, to initiate construction.

Senator ELLENDER. Would you submit a statement for the record.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,510,000
Allocations to date	84,000
Balance to complete	1,426,000
Amount that could be utilized in fiscal year 1971	50,000

Authorization.—1965 Flood Control Act.

Location and Description.—The project is located in Wabasha County in southeastern Minnesota along Zumbro River between Kellogg, Minnesota, and its mouth at the Mississippi River. The plan of improvement provides for construction of a system of continuous set-back levees totaling about 23,260 feet, the construction of two channel cutoffs totaling 7,000 feet, and the protection of about 3,300 feet of river-bank in areas susceptible to bank erosion.

Proposed Operations.—The $50,000 would be used to intiate construction.

Justification.—For many years floods on the Zumbro River have overflowed agricultural lands in the reach between Kellogg and the mouth. Spring and summer floods occur almost annually. The flood plain below Kellogg includes about 6,400 acres of farmland of which 83% is under cultivation. High flood flows have caused extensive crop losses, have damaged roads and farm equipment and have had a depressing effect on the economy of the region. The most flood damage occurred in 1951 at an estimated amount of $324,700. Under current conditions and at present prices, damages from a recurrence of the flood would amount to about $401,000 substantially all of which would be prevented by the improvements to be provided by this project. After the 1951 flood, local interests constructed at their own expense a system of low levees which served to protect the area from the more frequent smaller floods. The levees were breached by the April 1965 flood, the flood of record and again by a lesser flood in 1966. Damages by the 1965 flood were less than the previous flood of record in 1951, because flooding occurred prior to the crop growing season. The benefit-to-cost ratio is 1.2 to 1. The average annual benefits, all flood control, are estimated at $83,700.

TALLAHALA RESERVOIR, MISS.

Senator ELLENDER. The budget request was $40,000. The House has included $100,000 exclusive of reserve. Local interests have requested $100,000. What is your capability on this project?

General KOISCH. Our capability on this project is $100,000 exclusive of reserve, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $60,000?

General KOISCH. The additional amount would be used to complete the reservoir survey and to initiate design of relocations.

Yazoo River, Miss.

Senator Ellender. There is nothing in the budget and local interests have requested $275,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $300,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$62,900,000
Allocations to date	0
Balance to complete	62,900,000
Amount that could be utilized in fiscal year 1971	300,000

Authorization.—1968 River and Harbor Act

Location and Description.—The Yazoo River is formed by the junction of the Tallahatchie and Yalobusha Rivers at Greenwood, Mississippi. It flows in a generally southwesterly direction 169 miles to a junction with the Mississippi River at Vicksburg, Mississippi. The plan of improvement provides for a dependable 9-foot navigation channel from the mouth of the Yazoo River to Greenwood, Mississippi, by construction of a lock and dam, near the mouth of the river; channel realignment and dredging; addition of 600,000 acre-feet of storage in the existing Sardis Reservoir; and revision of regulation schedules for the flood control storage in the existing Sardis, Enid and Grenada Reservoirs.

Proposed Operations.—The amount of $300,000 would be used to initiate preconstruction planning.

Justification.—Yazoo River channel widths vary from 300 feet to 500 feet. Under existing conditions, 9-foot depth is available about 46 percent of the time, with controlling depths over the bars of about 4 feet during low water periods. The low water periods are affected by rainfall and thus are unpredictable. Numerous sharp bends restrict the movement of tows of even one or two barges and the fixed highway bridge at Belzoni (mile 116.1) restricts traffic upstream from that point during high river stages. The river is navigable only in daylight because of its tortuous course which is further compounded by overhanging timber and snags. The proposed one-lock plan will provide a 9-foot navigation channel from the mouth of the Yazoo River to Greenwood, Mississippi, 97 percent of the time. The benefit-cost ratio is 1.5 to 1. The average annual benefits are estimated as follows:

Breakdown of benefits:	*Amount*
Navigation	$3,748,000
Recreation	1,036,000
Fish and wildlife	57,000
Area redevelopment	424,000
Total	5,265,000

Braymer Reservoir, Mo. (Restudy)

Senator Ellender. There is nothing in the budget, and local interests have requested $10,000. What is your capability?

General Koisch. Mr. Chairman, this project has been deferred for restudy because of doubtful economic feasibility. The feasibility of this project will be reexamined in connection with the Grand River project feasibility review study which is presently underway. In view of the fact that the project is being restudied under the review report on the Grand River, the Corps of Engineers does not have a capability for fiscal year 1971.

Brookfield Reservoir, Mo.

Senator Ellender. The budget request was $10,000. The House has included $100,000, exclusive of reserve, and local interests have requested $100,000. What is your capability on this project?

General Koisch. Our capability on this project is $100,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $90,000?

General Koisch. The additional amount would be used to advance the general design memorandum.

Chariton-Little Chariton Basins, Mo.

Senator Ellender. There is nothing in the budget and local interests have requested $400,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $400,000 to initiate construction of the Shoal Creek unit channel cutoff and the Mussel Fork unit channel improvement and to continue planning of the remaining work.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$6,500,000
Total allocations to date	209,000
Balance to complete	6,291,000
Amount that could be used in fiscal year 1971	400,000

Authorization.—Flood Control Act of 1965.

Location and description.—The project is located in the Chariton and Little Chariton River Basins in north central Missouri. The channel of Mussel Fork, located in Chariton County, would be straightened and improved for a distance of about 26 miles; the Middle and East Forks on the Little Chariton River and the lower two miles of Silver Creek in Chariton and Randolph Counties, would be improved by realigning and enlarging existing channels for about 51 miles and the lower five miles of Shoal Creek in Putnam County would be realigned and shortened to about two miles by construction of a cutoff to the new Chariton River channel constructed under a previous project.

Proposed operations.—The amount of $400,000 could be used to initiate construction of the Shoal Creek Unit channel cutoff and the Mussel Fork Unit channel improvement and continue planning for remaining work.

Justification.—The project is located in an area subject to intense rainfall creating numerous severe floods. Existing channels are not adequate to carry even annual floods. Although there are no reliable records of stream flows in Mussel Fork or in the Middle and East Forks of the Little Chariton River the lower basins experienced at least 51 floods in the period from 1915 to 1960 severe enough to warrant newspaper coverage. The proposed channel improvements, operating in conjunction with authorized upstream reservoirs, will provide protection to 42,450 acres in the Chariton and Little Chariton Basins. The benefit-to-cost ratio is currently estimated at 1.3 to 1. The average annual benefits, all flood control, are estimated to be $361,900.

Clarence Cannon Dam and Reservoir, Mo.

Senator Ellender. The budget request was $5,225,000. The House has allowed $5,225,000, exclusive of reserve and local interests have requested $6,500,000. What is your capability on this project?

General KOISCH. Our capability on this project is $6,500,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $1,275,000?

General KOISCH. The additional amount would be used to advance land acquisition, relocations, and construction of the dam but would have no effect on the completion schedule of the project.

DRY FORK AND EAST RESERVOIRS, MO. (DEFERRED FOR RESTUDY)

Senator ELLENDER. There is nothing in the budget, the House has included $50,000 and local interests have requested $50,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $50,000 to initiate and complete a restudy of the feasibility of the authorized project.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$20,900,000
Total allocations to date	0
Balance to complete	20,900,000
Amount that could be used in fiscal year 1971	50,000

Authorization.—Flood Control Act of 1965 (HUD 160/89/1)

Location and Description.—The project will be located in the Fishing River Basin about one mile upstream from Excelsior Springs, Missouri. The Dry Fork Reservoir site is located in Clay County and the East Fork Reservoir site is in Ray County. The plan of improvement provides for construction of two earth-fill dams. The Dry Fork Dam will be about 95 feet high and 940 feet long and will create a reservoir with a gross storage capacity of about 3,670 acre-feet. The East Fork Dam will be about 135 feet high and 1,900 feet long and will create a reservoir with a gross storage capacity of about 27,000 acre-feet.

Proposed Operations.—The amount of $50,000 could be used to initiate and complete a restudy of the economic feasibility of the authorized project.

Justification.—The fishing River Basin is subject to sever flooding. The town of Excelsior Springs suffered damages of about $1,100,000 in the 1947 flood of record. Other major floods occured in 1941, 1943, 1951 and 1965. The floods at Excelsior Springs are flashy in nature and afford little warning time. Although no loss of life has been officially reported, the hazard is ever present. The Dry Fork and East Fork Reservoirs will control floods on the Fishing River.

The economic justification of the authorized Dry Fork and East Fork Reservoirs will be determined during the course of the restudy investigations.

EAST MUDDY CREEK, MO.

Senator ELLENDER. There is nothing in the budget and local interests have requested $214,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $214,000 to initiate and complete preconstruction planning and to construct the channel realinement.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, Sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$214,000
Total allocations to date	0
Balance to complete	214,000
Amount that could be used in fiscal year 1971	214,000

Authorization.—Flood Control Act of 1965 (HD 241/81/1)

Location and Description.—The proposed project is located along East Muddy Creek, a tributary of the Thompson River, in north central Missouri—about two miles east of Spickardsville in Grundy County. The plan of improvement provides for about 3.2 miles of channel realignment.

Proposed Operations.—The amount of $214,000 could be used to initiate and complete preconstruction planning and to construct the channel realinement.

Justification.—There are no stream gaging records on East Muddy Creek but records at gaging stations on nearby streams indicate floods occur in the project area on the average of about once every two years. The project would provide protection to 1,760 acres, of which nearly all are devoted to crops. Annual benefits creditable to the East Muddy Creek project amount to about $6.50 per acre. This project is a unit of the authorized reservoir and levee system in the Grand River basin for the control of floods. The benefit-to-cost ratio is 1.2 to 1. Average annual benefits, all flood control, are currently estimated at $11,400.

Harry S. Truman Reservoir, Mo. (Formerly Kaysinger Bluff Reservoir, Mo.)

Senator Ellender. The budget request was $10 million. The House has included $10 million exclusive of reserve, and local interests have requested $17 million. What is your capability on this project?

General Koisch. Our capability on this project is $17 million, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $7 million?

General Koisch. The additional amount would be used to advance land acquisition and to provide for earlier initiation of highway and utility relocations, but would not advance project completion.

I–38 Reservoir, Mo.

Senator Ellender. There is nothing in the budget and local interests have requested $200,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $200,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $8,800,000
Allocations to date	0
Balance to complete	8,800,000
Amount that could be utilized in fiscal year 1971	200,000

[1] Local interests are required to pay one-half the portion of project costs allocated to recreation, currently estimated at $685,000.

Authorization.—1966 Flood Control Act.

Location and Description.—The site of the proposed I–38 Reservoir is in Phelps and Maries Counties, Missouri, about 90 miles southwest of St. Louis. The proposed damsite is on the Bourbeuse River, about 127 miles above its confluence with the Meramec River. The earth dam will be approximately 75

feet high and 3,000 feet long. A concrete spillway will be located on the left abutment. The reservoir would provide a storage capacity sufficient to provide for flood control, recreation, water quality control, and fish and wildlife conservation.

Proposed Operations.—The amount of $200,000 would be used to initiate preconstruction planning.

Justification.—The project is an essential unit in the development of the Meramec River Basin. It would provide 50-year frequency flood protection to the 50 miles of Bourbeuse River Valley above the Union Reservoir. Increased low flows below the damsite would provide for downstream water quality control. The normal pool area of 850 acres would be available for recreational use. The benefit-cost ratio 1.12 to 1. The average annual benefits are listed below:

Flood control	$109,000
Water quality	228,400
Navigation	300
Recreation	188,700
Fish and wildlife	27,700
Area redevelopment	24,200
Increased transportation costs	—100
Total	579,100

Irondale Reservoir, Mo.

Senator Ellender. There is nothing in the budget and local interests have requested $200,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $200,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $19,100,000
Allocations to date	0
Balance to complete	19,100,000
Amount that could be utilized in fiscal year 1971	200,000

[1] Local interests are required to pay the costs allocated to water supply and one-half the costs allocated to recreation, currently estimated at $204,000 and $2,504,000 respectively.

Authorization.—1966 Flood Control Act.

Location and description.—The site of the proposed Irondale Reservoir is in Washington County, Missouri, about 70 miles southwest of St. Louis. The proposed damsite is on the Big River, about 117 miles above its confluence with the Meramec River. The earth dam will be approximately 127 feet high and 4,050 feet long. The reservoir would provide a storage capacity sufficient to provide for flood control, recreation, water supply, water quality control, and fish and wildlife conservation.

Proposed operations.—The amount of $200,000 would be used to initiate preconstruction planning.

Justification.—The project is an essential unit in the development of the Meramec River Basin. It would provide 10 years flood frequency protection to the 42 miles of Big River Valley above the Pine Ford reservoir. The normal pool of 4,600 acres with 65 miles of shoreline would be available for recreational use. Releases from the reservoir during low flow periods would provide for stream regulation and future downstream water supply. The benefit-cost ratio is 1.08 to 1. The average annual benefits are listed below:

Flood control	$80,500
Water supply	9,900
Water quality	416,000
Recreation	234,600
Fish and wildlife	204,900
Navigation	5,200
Area redevelopment	42,200
Increased transportation costs	—800
Total	1,004,700

LINNEUS AND ST. CATHERINE RESERVOIRS, MO.

Senator ELLENDER. There is nothing in the budget, and local interests have requested $10,000. What is your capability?

General KOISCH. Mr. Chairman, this project is not yet authorized and is being studied under the Grand River project feasibility review. The report of the district engineer has not yet been completed. In view of the status of the project, the Corps of Engineers does not have a capability for fiscal year 1971.

LITTLE BLUE RIVER CHANNEL, MO.

Senator ELLENDER. The budget request was $50,000. The House has included $50,000, and local interests have requested $100,000. What is your capability on this project?

General KOISCH. Our capability on this project is $100,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $50,000?

General KOISCH. The additional amount would be used to complete the general design memorandum.

LITTLE BLUE RIVER RESERVOIRS, MO.

(Land Acquisition)

Senator ELLENDER. The budget request was $2,030,000. The House has included $2,030,000, exclusive of reserve, and local interests have requested $7,500,000. What is your capability on this project?

General KOISCH. Our capability on this project is $7,500,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $5,470,000?

General KOISCH. The additional amount would be used to advance land acquisition.

LONG BRANCH RESERVOIR, MO.

Senator ELLENDER. There is nothing in the budget and local interests have requested $300,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $300,000 to initiate construction.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $7,300,000
Total allocations to date	300,000
Balance to complete	7,000,000
Amount that could be used in fiscal year 1971	300,000

[1] Design studies now underway indicate that modification of authorized plan may be warranted. Federal and non-Federal costs may increase significantly.

Authorization.—Flood Control Act of 1965.

Location and description.—The project is located on the East Fork of Little Chariton River near Macon County, Mo. The plan of improvement provides for construction of an earthfill dam about 74 feet high and 3,550 feet long to create a reservoir with a gross storage capacity of 67,900 acre-feet for flood control, recreation, fish and wildlife and sediment reserve.

Proposed operations.—The amount of $300,000 could be used to initiate conconstruction.

Justification.—Damaging floods in the Chariton-Little Chariton River Basin in Missouri have occurred more than once every year on the average for the past 50 years. The estimated average annual flood damage in the Little Chariton River Basin amounts to approximately $300,000. The Long Branch Reservoir will control the runoff from 110 square miles of drainage area. This reservoir, operating in conjunction with other units of the authorized program, will provide a desirable degree of protection to 37,000 acres in the Little Chariton River Basin. The multipurpose pool will include storage for enhancement of fish and wildlife, water quality control and a water surface of 2,500 acres for water-based recreation activities in an area devoid of any substantial impoundments, and supplement water supply for Macon, Missouri. The benefit-to-cost ratio is 1.3 to 1.

The average annual benefits are listed below:

Current estimate, July 1969 base (100-year life)

Average annual benefits	$485,000
Flood control	113,800
Water quality	85,400
Fish and wildlife	31,800
Recreation	60,000
Water supply	194,000

Lower Grand River, Mo.

Senator Ellender. There is nothing in the budget and local interests have requested $60,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $60,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$28,300,000
Allocations to date	0
Balance to complete	28,300,000
Amount that could be used in fiscal year 1971	60,000

Authorization.—Flood Control Act of 1965.

Location and Description.—The project will be located in north central Missouri along both banks of the Grand River and its major tributaries in Livingston, Linn, Carroll and Chariton Counties. The proposed plan of improvement provides for about 25 miles of channel improvements and 113 miles of levees along both banks of the lower Grand River, 12 miles of channel improvements and 34 miles of levees along Medicine and Muddy Creeks, and 10 miles of channel improvements along Big Creek.

Proposed Operations.—The amount of $60,000 could be used to initiate preconstruction planning.

Justification.—The Grand River is a frequent and major contributor to floods along the lower Missouri and the Mississippi Rivers. From 1941 to 1969 a total of 71 floods occurred in the Grand River Basin, causing damages in excess of $74,500,000. A recurrence of these floods under current prices and conditions would cause about $116,000,000 in damage. The Lower Grand River project, operating in conjunction with other authorized projects in the Grand River Basin, will provide a high degree of protection to about 111,000 acres in the Grand River Basin. The benefit-to-cost ratio is 2.3 to 1. Average annual benefits, all flood control, are estimated to be $2,579,100.

Meramec Park Reservoir, Mo.

Senator Ellender. The budget request was $1,450,000. The House has allowed $1,450,000 and local interests have requested $3,100,000. What is your capability on this project?

General Koisch. Our capabability on this project is $3,100,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $1,650,000?

General Koisch. The additional amount would be used to advance land acquisition and initiate construction and would advance project completion by 1 year.

OPPOSITION

Senator Ellender. This committee heard opposition testimony concerning the Meramec Park Reservoir project. Several points were raised, including the challenge of the legality of the project. As I understand it, this challenge was based on a change in the location of the dam site and on the National Environmental Policy Act of 1969 and Executive Order 11514. I would like to hear your comments on this challenge.

Colonel McKinney. Mr. Chairman, the Meramec Park Reservoir on the Meramec River, Mo., was authorized by the Flood Control Act of June 28, 1938, as a unit of the Upper Mississippi River Basin comprehensive plan for flood control and other purposes. The pertinent excerpts from the authorizing act (Public Law 761, chapter 795, 75th Cong., third sess., H.R. 10618) read as follows:

"Section 4. That the following works of improvement for the benefit of navigation and the control of destructive floodwaters and other purposes are hereby adopted and authorized to be prosecuted under the direction of the Secretary of War and supervision of the Chief of Engineers in accordance with the plans in the respective reports hereinafter designated . . .

Upper Mississippi River Basin

"The general comprehensive plan for flood control and other purposes in the Upper Mississippi River Basin, described in Flood Control Committee Document 1, 75th Congress, first session, with such modifications thereof as in the discretion of the Secretary of War and the Chief of Engineers may be advisable, is approved and there is hereby authorized $6,600,000 for reservoirs and $2,700,000 for local flood protection works on the Upper Mississippi and Illinois Rivers;

the reservoirs and local protection projects to be selected and approved by the Chief of Engineers . . ."

The plan for flood control and other purposes in the Upper Mississippi River Basin, as outlined in Flood Control Committee Document 1, included a reservoir on the Meramec River at river mile 63.4 and a reservoir on Big River at river mile 0.5. The location of the Meramec Park project was subsequently moved to river mile 108.7 under the authority granted in section 4 cited above.

Sir, as to the second part, that pertaining to compliance with the National Environmental Policy Act of 1969 and Executive Order 11514, the provisions and guidelines set forth in the cited act and order, while not effective at the time of the Meramec Park Reservoir study and report, were anticipated in the project's formulation. The impact of mans' activity on the natural environment and the influences of population growth, urbanization, industrial expansion, resource use, and the necessity of maintaining environmental quality were all recognized in the plan for the construction of the reservoir. We believe that the Meramec Park project adheres to both the letter and the spirit of the law. The comprehensive study of the Meramec Basin included several appendices, which incorporated the findings of report of the Meramec Basin research project, prepared for the Meramec Basin Corporation, Soil Conservation Service, Forest Service, Economic Research Service, Bureau of Outdoor Recreation, National Park Service, and Bureau of Sport Fisheries and Wildlife. All of these reports gave consideration to the effect of Meramec Park Reservoir on the ecology and environment in the vicinity of the project.

Senator ELLENDER. Do you believe that the change in the location of the dam site is within the scope of the authority granted to the Chief of Engineers?

Colonel MCKINNEY. Yes sir.

POSSIBLE ENVIRONMENTAL DAMAGE

Senator ELLENDER. Very well. We also heard testimony that the construction of this project is not in the public interest; it will cause environmental damage, and that the river area should be preserved as a National Park. What do you have to say about this testimony.

Colonel MCKINNEY. Sir, we believe the public interest is clearly demonstrated by the strong support this project has received in Missouri. Statements of both public and quasi-public organizations indicate this to be the case. The Comprehensive Basin Study was coordinated with 30 Federal, State, and semi-public agencies. The fact that the proposed development of the Meramec Basin is in the public interest has been affirmed by the heads of many Government units. Many of these endorsements are included in House Document No. 525 which was made part of Public Law 89–789, by reference.

Mr. Chairman, concerning the environmental damage charge, we believe that not only will this project not harm the environment, but it will enhance the environment to a considerable degree. This is clearly indicated by major Federal, State and local agencies with which we have coordinated our planning. Meramec Park Reservoir is planned to allow beneficial uses of the environment without degradation. The people of eastern Missouri will enjoy increased standards of living and a wider sharing of life's amenities. Sir, it is the considered judg-

ment of many governmental and community leaders that the Meramec Park Reservoir project will bring many economic and sociologic benefits to the basin inhabitants by increasing recreational opportunities, protecting against flooding, improving fish and wildlife habitat, adding to the water supply, and reducing pollution.

As to the preservation of the river area as a national park, our studies have determined that the dominant Meramec Basin needs were flood control, water supply, water quality (anti-pollution), and recreation. These needs could not be satisfied by preservation of the Meramec River in its natural state under the Scenic River bill. The Bureau of Outdoor Recreation and the National Park Service have proposed a plan for the establishment of a National Recreation Area along the Meramec River from its mouth to Meramec Spring Park. The area would include the river and adjacent lands, as well as Meramec State Park, Huzzah Wildlife Area, and the proposed Corps of Engineers Meramec Park and Union Reservoir projects. The Bureau of Outdoor Recreation and the National Park Service have approved the plans for the construction of Meramec Park Reservoir. The national recreation plan is still under consideration.

LAND ACQUISITION PROCEDURES

Senator ELLENDER. Local interests have also testified that the present plan was economically repudiated by investigations of the House Committee on Appropriations. Are you familiar with such an investigation?

Colonel MCKINNEY. Yes, sir. The committee directive of 29 July 1968 requested that an inquiry be made into the land acquisition plans and procedures of the Corps of Engineers in connection with the Meramec Park and Kaysinger Bluff Reservoir projects in Missouri. The staff inquiry was directed to land acquisition, only, and the economic feasibility of the project was not questioned.

EFFECT OF PROJECT ON ECOLOGY OF THE AREA

Senator ELLENDER. We further heard testimony which indicated concern that the reservoir would become badly polluted and that the ecological balance would be disturbed by the cutting of large numbers of trees. Would you comment on this testimony?

Colonel MCKINNEY. Mr. Chairman, the Federal Water Quality Administration has control over all streamflow and, through grants in aid to the respective States for water quality control, exercises control over reservoir waters. The Missouri Water Pollution Board will also have control of pollution sources which may affect the reservoirs. The State of Missouri, as project sponsor, will purchase and exercise control over the water supply storage in Meramec Park Reservoir. As to the matter of timber cutting, the area in which we plan to remove timber embraces some 13,300 areas. Most of this land, which includes existing streams and watercourses, is cleared land. Analysis of the topographic maps reveals that at least one-half of the 13,300 acres are either cleared or in the watercourses. The balance is cut-over, second growth brush and timber. The timber is usually hardwood of the type used for mine props, railroad ties, and the production of charcoal.

The timber above the clearing contour will be preserved and managed by professional foresters. The design of recreational facilities will be developed in the interest of preserving the environment. As stated in the report on the Meramec River Basin by the U.S. Forest Service, "Timber resources will benefit from a comprehensive forest management and protection program."

The State of Missouri, under a long-term lease, proposes to develop and operate certain recreation areas at the Meramec Park Reservoir. A suggested plan of development has been proposed for one of the areas by a planning group, Economic Research Associates of Los Angeles. A recreation resort complex is one of the proposed facilities. Developments of this type will contribute to the economic development of the project area. This is especially important to Crawford County, in which 90 percent of the reservoir is located. Crawford County, Mo., is in need of an improved economic base as the per capita income in 1960 was less than $1,200. All of the project lands will be retained in public ownership and will be managed to provide the optimum economic and sociological benefits to the project environment. Approximately 9,840 acres of land will be available for public recreation activities. In addition, approximately 13,600 acres between the normal pool and the landward project boundary will be available for public use. These lands at Meramec Park Reservoir, only, will be in addition to the acreage in the widely dispersed angler-use sites.

Mercer Reservoir, Mo. and Iowa

Senator Ellender. There is nothing in the budget and the House has allowed $150,000, and local interests have requested $150,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $150,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$29,200,000
Total allocations to date	0
Balance to complete	29,200,000
Amount that could be used in fiscal year 1971	150,000

Authorization.—Flood Control Act of 1965 (HD 241/89/1)

Location and description.—The site of the proposed dam is located on the Weldon River in north central Missouri about three miles southwest of Mercer, in Mercer County, Missouri. The reservoir will extend upstream into Decatur and Wayne Counties, Iowa. The plan of improvement provides for construction of an earthfill dam about 6,700 feet long and 90 feet high to create a reservoir with a gross storage capacity of 625,700 acre-feet for flood control, water quality control, fish and wildlife, recreation, and sediment reserve.

Proposed operations.—The amount of $150,000 could be used to initiate preconstruction planning.

Justification.—The Grand River is a frequent and major contributor to floods on the lower Missouri and the Mississippi Rivers. During the period from 1941 to 1969 a total of 71 floods, causing damages estimated to be in excess of $74,500,000 occurred in the Grand River Basin. A recurrence of these floods would cause damages estimated at $116,000,000 based on current prices and conditions. The Mercer Reservoir will control the runoff from 427 square miles of drainage area. This project, operating in conjunction with other authorized projects in the Grand River Basin, will provide a high degree of protection to 155,100

acres in the Grand River Basin as well as reducing flood crests along the lower Missouri and the Mississippi Rivers. The benefit-to-cost ratio is 1.2 to 1.

The average annual benefits are listed below:

Current estimate, July 1969 base (100-year life)

Flood control	$1,145,200
Water quality	10,000
Fish and wildlife	28,000
Recreation	357,000
Average annual benefits	1,540,200

Mississippi River Agricultural Area No. 8, Missouri

Senator Ellender. There is nothing in the budget and local interests have requested $120,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $120,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$5,260,000
Allocations to date	0
Balance to complete	5,260,000
Amount that could be utilized in fiscal year 1971	120,000

Authorization.—1966 Flood Control Act.

Location and description.—Agricultural Area No. 8 is located on the right bank of the Mississippi River from mile 249 to 261 in Pike and Lincoln Counties, Missouri. The project consists of raising and enlarging 24.4 miles of existing levee and constructing one new drainage structure, one new pump station, and one closure structure.

Proposed operation.—The amount of $120,000 would be used to initiate preconstruction planning.

Justification.—This project is an integral unit in the development of agricultural levees above the mouth of the Missouri River. During high stages of the Mississippi River this area is subject to flooding with resultant damage to crops, buildings, and livestock. The project fill afford protection to the 19,900 acres of the Elsberry Drainage District. The benefit-cost ratio is 1.8 to 1. The average annual benefits, all flood control, are estimated presently at $410,800.

Pattonsburg Reservoir, Mo.

Senator Ellender. There is nothing in the budget and local interests have requested $325,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $275,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $118,500,000
Total allocations to date	0
Balance to complete	118,500,000
Amount that could be utilized in fiscal year 1971	[1] 275,000

[1] Does not include funds for advance participation with State of Missouri for relocation of Interstate Highway I–35 which is budgeted as a separate project. Excludes provisions to permit the future installation of power estimated at approximately $2,000,000.

Authorization.—Flood Control Act of 1965 (HD 241/89/1).

Location and description.—The dam will be located on the Grand River, about five miles upstream from Gallatin, in Daviess County, Missouri. The plan of improvement provides for construction of a dam about 103 feet high and 6,500 feet long to create a reservoir with a total capacity of 2,720,000 acre-feet for flood control, water quality control, water supply and recreation. The feasibility of including power as a project purpose is currently under study.

Proposed operations.—The amount of $275,000 could be used to initiate preconstruction planning.

Justification.—The Grand River is a frequent and major contributor to floods on the lower Missouri and the Mississippi Rivers. During the period from 1941 to 1969 total actual damages experienced in the basin amounted to $73,322,000. It is estimated that a recurrence of these floods under current prices and conditions would cause damages estimated at $114,300,000. The Pattonsburg Reservoir will control the runoff from 2,232 square miles of drainage area and operating in conjunction with other authorized reservoirs in the Grand River Basin will provide protection to 133,200 acres within the basin. Pattonsburg Reservoir wil also reduce flood crests on the lower Missouri and the Mississippi Rivers. The large conservation pool will make the project very attractive for outdoor recreation. The benefit-to-cost ratio is currently estimated to be 1.4 to 1.

The average annual benefits are listed below:

Current estimate July 1969 base (100-year life)

Flood control	$3,899,000
Water quality	71,000
Water supply	368,000
Fish and wildlife	130,000
Recreation	3,447,000
Average annual benefits	7,915,000

Remarks: The above data were developed by the District Engineer at Omaha, Nebraska in connection with the Review Report on the feasibility of installing power facilities in the Pattonsburg Reservoir project. The data are subject to review and approval by reviewing authorities, including the Chief of Engineers. The report will be forwarded to the Bureau of the Budget and the appropriate Congressional Committees, upon completion of review and processing. The installation of power at the Pattonsburg project appears well justified on the basis of the economics developed by the District Engineer, however, power marketing studies have not yet been completed.

I–35 CROSSING, ADVANCE PARTICIPATION

Senator ELLENDER. There is nothing in the budget, and local interests have requested $2 million. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $2 million to continue construction. I should mention, sir, that we have submitted to the House and Senate Subcommittees on Public Works Appropriations, letters furnishing up-to-date cost and economic data concerning the highway crossing. In those letters, we have requested the approval of the House and Senate committees to authorize the Missouri State Highway Commission to initiate rights-of-way acquisition, and, subsequently, to proceed with construction of the high level crossing.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$17,500,000
Total allocations to date	1,000,000
Balance to complete	16,500,000
Amount that could be used in fiscal year 1971	2,000,000

Authorization.—Flood Control Act of 1965.

Location and description.—The proposed highway would be located on the Grand River about five miles upstream from Gallatin, Missouri in Daviess County. The plan provides for construction of a high level crossing for highway I–35 across the Grand River in the Pattonsburg Reservoir area. The crossing would consist of a divided four-lane highway on a high level embankment with twin bridges across the river channel for a distance of 3.7 miles.

Proposed operations.—The amount of $2,000,000 could be used to continue construction.

Justification.—The Missouri State Highway Department has substantially completed construction of the Missouri segment of Interstate highway No. 35 except for a short section in the vicinity of the site of the authorized Pattonsburg Reservoir on the Grand River in northern Missouri. The State originally planned a low level crossing of the Grand River but deferred work thereon in 1965 pending redesign to permit construction of a higher level crossing that would eliminate need for raising of the highway during reservoir construction. A savings in Federal costs of $6,900,000 can be realized if the crossing is initially constructed to meet reservoir pool requirements. The Bureau of Public Roads has authorized the State to acquire rights-of-way in the vicinity of the reservoir.

Pine Ford Reservoir, Mo.

Senator Ellender. There is nothing in the budget and local interests have requested $350,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $350,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $38,400,000
Allocations to date	0
Balance to complete	38,400,000
Amount that could be utilized in fiscal year 1971	350,000

[1] Local interests are required to pay the costs allocated to water supply and one-half the costs allocated to recreation, currently estimated at $2,120,000 and $5,950,000, respectively.

Authorization.—1966 Flood Control Act.

Location and description.—The site of the proposed Pine Ford Reservoir is in Jefferson, Washington, and St. Francois Counties, Missouri, about 45 miles southwest of St. Louis. The proposed damsite is on the Big River, about 44 miles above its confluence with the Meramec River. The earth dam will be approximately 141 feet high and 2,070 feet along. The reservoir would have a storage capacity of 285,000 acre-feet to provide for flood control, recreation, water supply, water quality control, and fish and wildlife conservation.

Proposed operations.—The amount of $350,000 would be used to initiate preconstruction planning.

Justification.—The project is an essential unit in the development of the Meramec River Basin. It would contain a 100-year-frequency flood at Pine Ford damsite to non-damaging stages in the 43 miles of Big River Valley below the damsite. Together with the Union and Meramec Park reservoirs, it would contain a 200-year-frequency flood in Meramec River above Pacific to non-damaging stages and would provide increased flows in the interest of future water

supply and water quality control. The normal pool area of 3,700 acres would be available for recreational use. The benefit-cost ratio is 1.13 to 1. The average annual benefits are listed below:

Flood control	$752,300
Water supply	105,800
Water quality	96,500
Recreation	876,500
Fish and wildlife	228,800
Navigation	2,500
Area redevelopment	56,500
Increased transportation costs	−6,000
Total	2,112,900

SMITHVILLE RESERVOIR, MO.

Senator ELLENDER. The budget request was $396,000. The House has included a $396,000 and local interests have requested $1,696,000. What is your capability on this project?

General KOISCH. Our capability on this project is $1,696,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $1,300,000?

General KOISCH. The additional amount would be used to initiate land acquisition.

TRENTON RESERVOIR, MO.

Senator ELLENDER. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $100,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$59,800,000
Allocations to date	0
Balance to complete	59,800,000
Amount that could be used in fiscal year 1971	100,000

Authorization.—Flood Control Act of 1965 (HR 241/89/1)

Location and description.—The dam will be located on the Thompson River, a tributary of the Grand, about 5 miles northwest of Trenton, Missouri, in Grundy County, Missouri. The plan of improvement provides for an earthfill dam about 97 feet high and 2,650 feet long to create a reservoir with a gross storage capacity of 1,675,000 acre-feet for flood control, water quality control, recreation, fish and wildlife and sediment reserve.

Proposed operation.—The amount of $100,000 could be used to initiate preconstruction planning.

Justification.—The Grand River Basin is a frequent and major contributor to floods on the lower Missouri and the Mississippi Rivers. In the period from 1941 to 1969 a total of 71 damaging floods have occurred causing damages in excess of $74,500,000. A recurrence of these floods under current prices and conditions would cause damages of about $116,000,000. The Trenton Reservoir, operating in conjunction with other authorized projects in the Grand River Basin, will provide a high degree of protection to 126,700 acres in the Grand River Basin, as well as reducing flood crests along the lower Missouri and the Mississippi Rivers. The benefit-to-cost ratio is currently estimated to be 1.00 to 1.

The average annual benefits are listed below:

Current estimate July 1969 base (100-year life)

Flood control	$1,648,600
Water quality	63,000
Fish and wildlife	48,000
Recreation	921,000
Average annual benefits	2,680,600

UNION RESERVOIR, MO.

Senator ELLENDER. The budget request was $422,000. The House has allowed $422,000 and local interests have requested $622,000. What is your capability on this project?

General KOISCH. Our capability on this project is $622,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $200,000?

General KOISCH. The additional amount would be used to advance the preconstruction planning and would advance completion of this planning by 4 months.

UNION RESERVOIR, MO. (STATE HIGHWAY 185 RELOCATION) (ADVANCE PARTICIPATION)

Senator ELLENDER. The House has included $300,000 exclusive of reserve. Local interests have requested $300,000 for this project. The project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use in fiscal year 1971, and no additional funds are in the 1971 budget. What is your capability on this project?

General KOISCH. Our capability is $300,000.

Senator ELLENDER. What would be accomplished with the additional funds?

General KOISCH. The additional funds would be used to continue advance participation by the United States with the State highway department in the relocation of State Highway 185.

UPPER GRAND RIVER, MO.

Senator ELLENDER. There is nothing in the budget and local interests have requested $75,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $75,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$7,100,000
Total allocations to date	0
Balance to complete	7,100,000
Amount that could be used in fiscal year 1971	75,000

Authorization.—Flood Control Act of 1965 (HD 241/89/1).

Location and description.—The project will be located along both banks of the Grand River and its tributaries in the vicinity of Albany, in Gentry County, Mis-

souri. The plan of improvement provides for excavating and improving about 38 miles of channels, alteration of two railroad bridges and constructing about 62 miles of levees.

Proposed operations.—The amount of $75,000 could be used to initiate preconstruction planning.

Justification.—Floods have occurred in the project area on the average of more than once a year. The channel improvements and levees to be constructed will provide protection against floods of 50 year magnitude to an area of 23,300 acres, of which over 20,000 acres are fertile crop land. The benefit-to-cost ratio is 2.3 to 1. Average annual benefits, all from flood control, are currently estimated at $751,200.

Great Falls, Mont.

STATUS OF COURT HEARINGS—ASSESSMENT OF COSTS

Senator Ellender. With respect to the Great Falls, Mont., project, do you have additional information on the court decision relating to the assessment of costs to finance local cooperation?

General Koisch. Yes, sir; the court case involving the West Great Falls Flood Control and Drainage District assessment of approximately $200,000 against the State highway department was concluded with a decision in favor of the district on April 10, 1970 (Montana State Supreme Court). All hearings on other assessments have now been tried. Final action of the court on assessments is imminent. However, as a result of this delay contract award dates have been rescheduled, but no change is expected in the project completion date. Our revised fiscal year 1971 requirement and capability for this project is now $500,000, a reduction of $300,000 from the approved fiscal year 1971 budget request of $800,000.

Senator Ellender. Will this reduction for fiscal year 1971 change your overall project cost?

General Koisch. No, sir; it will remain the same.

Libby Reservoir, Mont.

Senator Ellender. The budget request was $55 million. The House has included $55 million, and local interests have requested $62 million. What is your capability on this project?

General Koisch. Our capability on this project is $62 million, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $7 million?

General Koisch. The additional amount would be applied to the contract for the main dam, where it is currently estimated that earnings will exceed funds available for payment at the present rate of work placement.

Papillion Creek and Tributaries, Nebraska

Senator Ellender. The budget request was $290,000. The House has included $1,290,000, exclusive of reserve, and local interests have requested $3 million. What is your capability on this project?

General Koisch. Our capability on this project is $3 million, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $2,710,000?

General KOISCH. The additional amount would be used for land acquisition in addition to that which is now scheduled to be initiated in fiscal year 1971 with funds which were scheduled to be advanced by local interests in fiscal year 1970.

DELAWARE RIVER, N.J., PA., AND DEL., PHILADELPHIA TO THE SEA, ANCHORAGES

Senator ELLENDER. There is nothing in the budget, and local interests have requested $1,500,000. What is your capability on this project?

General KOISCH. Mr. Chairman, no funds could be utilized on this project pending completion of studies to determine if the improvements authorized should be made in view of changing shipping and anchoring methods, and limited use of present anchorages.

NEWARK BAY, HACKENSACK AND PASSAIC RIVERS, N.J.

Senator ELLENDER. The budget request was $1,050,000. The House has allowed $2 million, exclusive of reserve, and local interests have requested $2 million. What is your capability on this project?

General KOISCH. Our capability on this project is $2 million, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $950,000?

General KOISCH. The additional amount would be used to advance the date of award of the contract for main channel widening, from the Central Railroad of N.J. bridge to the Port Elizabeth Branch Channel, by 3 months with corresponding advancement of project completion.

SOUTH ORANGE, N.J.

Senator ELLENDER. The project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use in fiscal year 1970. No additional funds are in the 1971 budget; however, the House has added $170,000. What is your capability on this project?

General KOISCH. Our capability is $170,000.

Senator ELLENDER. What would be accomplished with the additional funds?

General KOISCH. The additional amount would permit earlier award of the contract and result in an advance in completion of the project from the currently scheduled date of September 1973 to June 1973.

ALBUQUERQUE, N.M.

Senator ELLENDER. The budget request was $200,000. The House has allowed $200,000 and local interests have requested $700,000. What is your capability on this project?

General KOISCH. Our capability on this subject is $700,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $500,000?

General KOISCH. The additional amount would be used to advance completion of South Diversion Channel and the project by 3 months.

Allegany, N.Y.

Senator Ellender. There is nothing in the budget and local interests have requested $40,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $40,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$607,000
Allocations to date	3,000
Balance to complete	604,000
Amount that could be utilized in fiscal year 1971	40,000

Authorization.—1946 Flood Control Act.

Location and description.—The village of Allegany is located in Cattaraugus County, New York, on the right bank of the Allegheny River, approximately four miles west of Olean, New York. The project would provide a high degree of flood protection for that portion of the community along Fivemile Creek by: the construction of an earth dike along Fivemile Creek; relocation of part of the channel in Lippert Run tributary of Fivemile Creek; and a deflection dike along the Lippert Run relocation, together with appurtenant drainage facilities.

Proposed operations.—The amount of $40,000 would be utilized to initiate preconstruction planning of the project in FY 1971.

Justification.—The community has a flood problem as evidenced by the flood records and attendant damages. The flood of record at Allegany occurred in July 1942, causing direct damages to the village estimated at $227,000, of which damages to the area along Fivemile Creek amounted to $95,400. (September 1963 degree of development and July 1969 price level.) The most recent major flood occurred in September 1967. Flooding of lesser intensity occurred in 1956, 1959, 1960 and 1961. The flood zone along Fivemile Creek, as delineated by the flood of July 1942, consists of about 44 acres of a total of 341 acres contained in the village. This acreage is comprised of a partially developed residential area. The project would provide protection against a flood about 3 feet higher than the maximum of record. The benefit-cost ratio for the project is 1.4 to 1.

The average annual benefits for the project are $36,700 all of which are flood control.

Cattaraugus Harbor, N.Y.

Senator Ellender. There is nothing in the budget and local interests have requested $30,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $30,000 to initiate planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,690,000
Allocations to date	0
Balance to complete	1,690,000
Amount that could be utilized in fiscal year 1971	30,000

Authorization.—1968 River and Harbor Act.

Location and description.—Cattaraugus Harbor, New York, is located on the south shore of Lake Erie about 12 miles northeasterly from Dunkirk Harbor and 24 miles southwesterly from Buffalo Harbor. The southerly side of the creek is in the Town of Hanover, Chautauqua County and the northerly side is in the

Town of Brant, Erie County. The project would provide for navigation, flood control and recreational breakwater fishing by constructing: breakwaters in Lake Erie at the mouth of Cattaraugus Creek, an entrance channel, widened at the lakeward end, 100 feet wide and eight feet deep from that depth in the lake to a maneuvering area; an irregular-shaped maneuvering area about 300 feet by 600 feet, six feet deep; a channel, 100 feet wide, six feet deep, from the maneuvering area upstream about 1,900 feet; a riprapped friction section extending about 750 feet upstream from the navigation channel through the New York Central Railroad bridge; levees on the left bank with a total length of about 770 feet; and, recreational facilities at the mouth for breakwater fishing.

Proposed operations.—The $30,000 would be used for initiation of preconstruction planning.

Justification.—Cattaraugus Creek is ideally located for a small-boat harbor and when improved would be an integral part of a chain of harbors along the coast of Lake Erie for the benefit of small-boat traffic, especially as a harbor of refuge in the event of sudden storms. The creek in its existing condition is inadequate to accommodate the present and prospective small-boat traffic along the reach of the shore. The mouth of the creek is exposed to storms and heavy wave action prohibits boats from entering inside the sheltered creek mouth during periods of storms. The area near the mouth of the creek experiences serious flooding nearly every year. Flooding results from ice jams at the river-mouth bar and in other shallow areas in the lower reach of the creek. Windrowed lake ice and ice from the creek itself contributes to the formation of ice jams. Overbank flooding of residential areas on each side of the creek resulting from the ice jam obstruction frequently occurs during late winter and early spring when the creek is swollen with melting snow and rain. The project will provide 15,000 user days of launched recreation boating, berth 900 boats, provide 11,000 user days of fish and wildlife and reduce flood damage to 800 acres.

The benefit-to-cost ratio is 1.4 to 1. The estimated average annual benefits are broken down as follows:

Navigation	$109,000
Flood control	69,000
Recreation	16,500
Area development	19,700
Total	214,200

Fire Island Inlet to Jones Inlet, N.Y.

Senator Ellender. The project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use in fiscal year 1971. No additional funds are in the 1971 budget; however, local interests have requested $50,000 and the House has added $50,000. What is your capability on this project?

General Koisch. Our capability is $50,000.

Senator Ellender. What would be accomplished with the additional funds?

General Koisch. The additional amount would permit an earlier award of the contract for construction of the deposition basin, a useful increment of the project, for an advance in completion of about 1 month. No change in total project completion will result.

Irondequoit Bay, N.Y.

Senator Ellender. The project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use in fiscal year 1971, and no additional funds are in the 1971 budget. Local interests have requested $100,000 for this project and the House has included $100,000, exclusive of reserve. What is your capability on this project?

General KOISCH. Our capability is $100,000.

Senator ELLENDER. What would be accomplished with the additional funds?

General KOISCH. The additional $100,000 would be used to advance award of the Penn Central Railroad bridge and advance completion of the plans and specifications for other features of the project. There would be no advance in project completion.

OAK ORCHARD HARBOR, N.Y.

Senator ELLENDER. There is nothing in the budget, the House has included $200,000 and local interests have requested $200,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $200,000 to initiate construction.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $990,000
Allocations to date	108,000
Balance to complete	882,000
Amount that could be utilized in fiscal year 1971	200,000

Authorization.—1945 River and Harbor Act.

Location and description.—Oak Orchard Harbor is located in Orleans County, New York. The harbor is on the south shore of Lake Ontario at the mouth of Oak Orchard Creek, 33 miles west of Rochester Harbor, New York. The project provides for establishment of a small-boat harbor by construction of a cellular steel sheet pile detached breakwater 550 feet long, about 1000 feet lakeward of and parallel to shore; two parallel stone rubblemond jetties about 220 feet apart, the west jetty 900 feet long and the east jetty 670 feet long; a concrete walkway and guard railing on top of each jetty; a 10-foot deep lake approach channel from the 10-foot contour near each end of the breakwater to the outer ends of the jetties, including removal of outer ends of remains of the old jetties; a 10-foot deep entrance channel 1,175 feet long; and an 8-foot deep basin 675 feet long.

Proposed operations.—The $200,000 would be used to initiate construction.

Justification.—The project was authorized in 1945 as one of the 21 harbors of refuge for light-draft craft for the purpose of creating a chain of refuge harbors along the United States shores of the Great Lakes. The principal difficulties attending navigation on the Great Lakes by light-draft vessels arise from the severe storms and squalls which may be encountered at any time, and from the absence of adequately protected harbors of refuge in certain sections. For this reason Oak Orchard was selected for establishment of a harbor of refuge being 28 water-miles easterly of the established Federal harbor area at Olcott, N.Y. and 33 water-miles westerly of the Federal harbor area at Rochester, N.Y. The improvements recommended at Oak Orchard will establish a harbor of refuge in this portion of Lake Ontario which is considered satisfactory for reasonable safety of cruising small craft. The benefit-to-cost ratio is 2.6 to 1.

The average annual benefits for the project are broken down as follows:

Navigation	$126,000
Fish and wildlife	21,000
Area redevelopment	4,700
Total	[1] 151,700

[1] Pending final approval.

Port Jefferson Harbor, N.Y.

Senator Ellender. There is nothing in the budget and local interests have requested $250,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $50,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$3,720,000
Total allocations to date	0
Balance to complete	3,720,000
Amount that could be utilized in fiscal year 1971	50,000

Authorization.—1968 River and Harbor Act.

Location and description.—Port Jefferson Harbor is an indentation in the north shore of Long Island on Long Island Sound, about 56 miles by water east of the Battery, New York City, and 13.5 miles southeast of Bridgeport Harbor, Connecticut. The project modification provides for deepening the present channel to 40 feet for a 350 foot width from deep water in Long Island Sound to the head of the harbor, a distance of about 2.3 miles, and a turning basin near the inshore end of the channel 30 feet deep, 700 feet wide and 1,400 feet long.

Proposed operations.—The amount of $50,000 would be used to start preconstruction planning. The work will consist of studies involving the development of alternative facilities for transporting petroleum.

Justification.—The waterborne commerce of Port Jefferson Harbor is made up of sand and gravel, shellfish and products, coal and petroleum products. All commodities, except petroleum products, arrive in shallow-draft vessels and would not be affected by improvement of the channel. Petroleum products, which constitute the major commerce of the harbor are transported generally in small ocean-going tankers. Deepening of the channel would enable tankers up to the 60,000 deadweight-ton class to navigate it. The reduced cost of transporting petroleum products in supertankers would accrue as benefits to those companies utilizing the harbor facilities for the receipt of petroleum products. The benefit-to-cost ratio is 5.0 to 1. Annual benefits (transportation savings) are $790,000.

OPPOSITION

Senator Ellender. Opponents to the construction of this project state that the benefits to be derived will accrue to only one user. Is this true?

Colonel Edelstein. The economic justification upon which the congressional authorization was based does not support this allegation. The project evaluation contemplates that two of the present users of the waterway receiving shipments of petroleum products will, upon completion of the deeper channel use larger tankers with resultant lower transportation costs. In addition, it is anticipated that the lower transportation costs would attract other distributors of petroleum products to the area and thus augment the overall prosperity of the region.

Senator Ellender. I have also heard testimony to the effect that the project would adversely affect the ecology of the area and that it would ruin fishing and shell fish as well as swimming and other water recreation. Would you comment on this?

Colonel Edelstein. Yes, Mr. Chairman. The question of good conservation practice was considered prior to project authorization. The Fish and Wildlife Service in reviewing the corps survey report indi-

cated that the recommended plan of improvement would not cause significant adverse effects on fish and wildlife, provided that the dredging is accomplished between April 1 and August 31 and spoil is not placed on wetlands, mudflats, or in shoal water areas adjacent to upland spoil sites. The possibility of oil pollution of the harbor, risk from fires and interference with pleasure boating would be reduced since the same quantity of inbound petroleum products would be handled with fewer but larger tankers.

Port Ontario Harbor, N.Y.

Senator Ellender. There is nothing in the budget and local interests have requested $30,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $30,000 to initiate planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,080,000
Allocations to date	7,000
Balance to complete	2,073,000
Amount that could be utilized in fiscal year 1971	30,000

Authorization.—1945 River and Harbor Act.

Location and description.—Port Ontario Harbor, N.Y., is located on the southeasterly shore of Lake Ontario at the mouth of Salmon River 19 miles northeasterly of Oswego Harbor, N.Y. The project provides for establishment of a small-boat harbor of refuge for light-draft vessels and it includes dredging an entrance channel, 100 feet wide, 10 feet deep, and approximately 1,300 feet in length; an inner channel, 100 feet wide, 8 feet deep and approximately 1,800 feet in length; a harbor basin 8 feet deep, 400 feet wide varying in length from 900 feet along its northerly limit to 600 feet along its southerly limit; and construction of related protective structures. A public wharf is to be constructed by local interests on the south side of the harbor basin in the vicinity of Pine Grove, Selkirk Shore State Park.

Proposed operations.—The $30,000 would be used to resume preconstruction planning.

Justification.—The project for Port Ontario Harbor, N.Y., was authorized as one of 21 harbors of refuge for light draft craft for the purpose of creating a chain of refuge harbors along the United States shores of the Great Lakes. The principal difficulties attending navigation on the Great Lakes by light-draft vessels arise from the severe storms and squalls which may be encountered at any time and from the absence of adequately protected harbors of refuge in certain sections. Port Ontario Harbor was selected for establishment of a harbor of refuge for small craft at the easterly end of Lake Ontario to increase safety to small craft navigating between Oswego Harbor, N.Y., 19 miles southwesterly and Sackets Harbor, N.Y., 32 miles northeasterly of Port Ontario. Since benefits for a harbor of refuge are based on consideration of safety for navigation, a benefit-to-cost ratio is not applicable.

Sandridge Reservoir, Ellicott Creek, N.Y.

Senator Ellender. There is nothing in the budget, and local interests have requested $500,000. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized. If the project is authorized during the current session of Congress our capability would be $60,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?
General KOISCH. Yes, sir.
(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $18,510,000
Allocations to date	0
Balance to complete	18,510,000
Amount that could be utilized in fiscal year 1971	60,000

[1] Local interests are required to pay the portion of the project costs allocated to water supply and one-half the costs allocated to recreation and fish and wildlife facilities.

Authorization.—Not authorized.

Location and description.—Sandridge Dam and Reservoir would be located in the town of Alden and Darien on Ellicott Creek for flood control, water supply, water quality, recreation and fish and wildlife. The project also provides for channel enlargement and appurtenant works for flood control in the towns of Tonawanda and Amherst.

Proposed operations.—The $60,000 would be used to initiate preconstruction planning.

Justification.—The flood plain in the lower reaches of Ellicott Creek in the town of Amherst is developing into a densely populated urban area. Floods have occurred in 1916, 1929, 1936, and 1960. A recurrence of the 1960 flood would cause damages estimated at $2,027,000, based on March 1969 price levels and current conditions of development between the mouth of the creek and Alden. It is estimated that annual damages to the existing development below the proposed Sandridge Reservoir would be reduced by 92 percent.

Municipalities in the upper reaches of the creek have a need for future water supply. During the summer the downstream reaches of the creek channel become stagnant, thus water quality improvements are needed. In addition there is a growing need for more outdoor receration and fish and wildlife facilities for the residents of the Buffalo Metropolitan area.

The proposed improvements are considered the most suitable plan to meet the water oriented needs of the Ellicott Creek Basin. The benefit-to-cost ratio is 1.3 to 1.

The average annual benefits for the project are broken down as follows:

Flood control	$673,000
Water supply	103,000
Water quality	32,000
Recreation	925,000
Fish and wildlife	206,000
Total	1,939,000

WILSON HARBOR, N.Y.

Senator ELLENDER. There is nothing in the budget and local interests have requested $260,000. What is your capability on this project?

General KOISCH. Mr. Chairman, we have no capability on this project. The Public Works Appropriation Act, 1970, provided that this project should be constructed with funds available under the lump-sum appropriation for small authorized projects.

YONKERS, N.Y.

Senator ELLENDER. The budget request was $10,000. The House has allowed $65,000, exclusive of reserve, and local interests have requested $65,000. What is your capability on this project?

General KOISCH. Our capability on this project is $65,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $55,000.

General KOISCH. The additional amount would be used to advance preliminary planning, foundation investigations, surveys, and design studies. Completion of plans and specifications would be advanced by 6 months.

AIWW—REPLACEMENT OF BRIDGE IN NORTH CAROLINA, (WILMINGTON DISTRICT)

Senator ELLENDER. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $100,000 to initiate preconstruction planning; subject to authorization of the project.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$13,000,000
Total allocations to date	0
Balance to complete	13,000,000
Amount that could be used in fiscal year 1971	100,000

Authorization.—Not Authorized.

Location and description.—The project is located along the AIWW in Eastern North Carolina, in Carteret, Pamlico, Hyde, and Currituck Counties. It provides for replacement of existing bridges at Core Creek, Hobucken, Wilkerson Creek, and Fairfield with two-lane fixed bridges having a 65-foot-vertical clearance, and Coinjock Bridge with a four-lane fixed bridge having a 65-foot-vertical clearance.

Proposed operations.—The $100,000 could be used to initiate preconstruction planning, subject to authorization of the project.

Justification.—All five bridges are substandard in accordance with criteria recommended by the United States Bureau of Public Roads, North Carolina Highway Commission, and American Association of State Highway officials. These substandard conditions, together with the physical condition of the bridges, present potential and growing traffic hazards. During peak traffic-flow conditions, serious vehicle accidents are becoming more and more imminent. School busses often scrape the bridge sides when passing commercial and log trucks, and such trucks are often carrying loads in excess of the bridges' safe-load-carrying capacity. These bridges are a public menace, especially to bus and heavy traffic. These conditions, together with the economics of operation and maintenance, indicate an urgent need for the immediate replacement of four of the bridges and the subsequent replacement of Coinjock Bridge.

BODIE ISLAND, N.C.

Senator ELLENDER. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $100,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$9,600,000
Total allocations to date	0
Balance to complete	9,600,000
Amount that could be used in fiscal year 1971	100,000

Authorization.—1966 Flood Control Act.

Location and description.—The project is located in Dare County, on the Bodie Island portion of the Outer Banks of North Carolina. It provides for construction of a dune with crown width of 25 feet at elevation 14 feet above m.s.l., together with integral construction of a 50-foot-beach berm at elevation 11 feet. extending about 18 miles, from a point 3 miles north of Wright Memorial Bridge Road junction to the north to a point about two-thirds of a mile south of Whalebone Junction on the south; initial deposition of approximately 550,000 cubic yards of sand in the northern portion of the project area to serve as advance beach nourishment; and Federal participation in the cost of beach nourishment for a period not to exceed 10 years from completion of the original placement.

Proposed operations.—The $100,000 could be used to initiate preconstruction planning.

Justification.—Damages resulting from hurricane winds, storm tides, and wave action have been particularly severe in the towns of Nags Head, Kill Devil Hills, and Kitty Hawk, which are vulnerable to ocean storm surge and wave action. In addition to damages inflicted upon ocean-front structures, the erosive action of hurricane tides and waves has caused a considerable loss of beach and dune material. Along the highly developed ocean shoreline between Nags Head and Kitty Hawk, erosion has rendered some sections extremely vulnerable to future storms and has reduced the area of usable beach upon which the economy of this resort area is highly dependent. The improvement will prevent or reduce damages to the beach and property along the beach by providing full shore protection and partial hurricane flood protection, provide an increased area for recreational use and increase value and earning power for shore-front and other property in the affected communities. Dare County is currently eligible for 50 percent Public Works Grant Assistance under Title I and the Manteo area is classified as a Title IV (1) Redevelopment Area under the Public Works and Economic Development Act of 1965. Average annual benefits are $388,000 for flood control, $37,000 for beach erosion control, and $1,112,000 for recreation. The benefit-cost ratio is 1.4 to 1.

Brunswick Co. Beaches, N.C.

Senator Ellender. There is nothing in the budget and local interests have requested $110,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $110,000 to continue preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$15,400,000
Allocations to date	[1] 0
Balance to complete	15,400,000
Amount that could be used in fiscal year 1971	110,000

[1] State of North Carolina has advanced $100,000 to begin preconstruction planning in FY 1970.

Authorization.—1966 Flood Control Act.

Location and description.—In Brunswick County on South Atlantic coast of North Carolina between the mouth of Cape Fear and North Carolina-South Carolina State line. Plan of improvement provides for construction of a levee consisting of a continuous dune and high beach berm at Yaupon Beach, Long Beach, Holden Beach, Ocean Isle Beach, and Sunset Beach for hurricane-flood protection and beach erosion control.

Proposed operations.—The $110,000 could be used to continue preconstruction planning.

Justification.—The project would provide both shore protection and hurricane-flood protection. Brunswick County beaches have suffered heavy losses in property and shoreline from past storms and hurricanes. The improvement will prevent or reduce damages to the beaches and property along the beaches by providing full shore protection and partial hurricane-flood protection from

hurricanes of equal or less intensity than that of Hurricane Hazel, and provide increased areas for recreational use.

Average annual benefits are $1,871,700 for prevention of damages, $439,200 for recreation, and $43,000 for area redevelopment. The benefit-cost ratio is 1.7 to 1.

Cape Lookout, N.C.

Senator Ellender. There is nothing in the budget and local interests have requested $70,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $70,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$7,800,000
Allocations to date	0
Balance to complete	7,800,000
Amount that could be used in fiscal year 1971	70,000

Authorization.—1966 River & Harbor Act.

Location and description.—The project is located on the Cape Lookout National Seashore on that part of the Outer Banks of North Carolina in Carteret County, extending from Ocracoke Inlet to Beaufort Inlet.

It will consist of an integrally constructed sandfill dune and berm structure, and appurtenant work, extending approximately 51.4 miles from Ocracoke Inlet to Beaufort Inlet. The entire project area is located within the Cape Lookout National Seashore administered by the National Park Service.

Proposed operation.—The $70,000 could be used to initiate preconstruction planning.

Justification.—The project is located in one of the most exposed storm areas on the eastern coast of the United States. High tides and wind-generated waves produced by storms wash over this area, thereby causing sand to be carried into the sounds and the ocean. Construction of the project would stabilize the ocean shoreline between Ocracoke Inlet and Beaufort Inlet, reduce storm damages, and provide for increased utilization of the area for recreational purposes. Carteret County is designated a Title IV (1) Redevelopment Area under the Public Works and Economic Development Act of 1965 (P.L. 89–136), and the project would provide a stimulus to the local economy through the increased recreational use of the area.

Average annual benefits are $3,329,000 for recreation, $5,000 for structural damages prevented and $27,200 for area redevelopment. The benefit-cost ratio is 3.8 to 1.

Drum Inlet, N.C.

(Section 107 project)

Senator Ellender. There is nothing in the budget, and the House has included $90,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project would be $90,000 to initiate and complete construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal construction cost	$90,000
Total allocations to date	0
Balance to complete	90,000
Amount that could be used in fiscal year 1971	90,000

Authorization.—Section 107 of the 1970 River and Harbor Act, as amended.

Location and descripition.—This inlet is an opening through the barrier reef along the North Carolina coast which, in this section, separates Core Sound and the Atlantic Ocean. The inlet is about 20 miles southwest of Ocracoke Inlet and is about 25 miles north east of Cape Lookout. The town of Atlantic, N.C., is on the mainland about 3 miles due west of the inlet. The purpose of the project is to provide a channel through Drum Inlet for commercial fishing and recreational boats. The plan of improvement consists of a navigation channel 150 feet wide and 9 feet deep below mean low water from the gorge in the inlet to deep water in the Atlantic Ocean.

Proposed operations.—The $90,000 could be used for the Federal share of scheduled work to initiate and complete construction.

Justification.—Large benefits would accrue from the plan of improvement to the commercial fishing industry and to those participating in recreational boating. Average annual benefits are $113,600 for commercial fishing and $37,600 for recreational boating. The benefit-cost ratio is 1.6 to 1.

Fort Fisher, N.C.

Senator Ellender. There is nothing in the budget and local interests have requested $50,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $50,000 to initiate preconstruction planning, subject to authorization of the project.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,530,000
Allocations to date	----------
Balance to complete	1,530,000
Amount that could be used in fiscal year 1971	50,000

Authorization.—Not authorized.

Location and description.—The project is located in New Hanover County about 20 miles south of Wilmington, North Carolina, on the peninsula which separates the lower Cape Fear River from the Atlantic Ocean. It will consist of a rubble revetment constructed between the northern limits of the Historic Site and the northern terminus of the existing emergency revetment; reinforcement of the existing emergency revetment with adequate armor stone; placement of an artificial beach between the northern limit and a point about 2,900 feet south of the southern limits of the Historic Site; and the construction of four groins.

Proposed operations.—The $50,000 could be used to initiate preconstruction planning, including surveys and mapping, materials and foundation investigations and design and cost estimates, subject to project authorization.

Justification.—Erosion of the shoreline fronting the Fort Fisher Historic Site has been progressing at a rate of approximately 14.5 feet per year since 1931 and is the highest retrogradation of the ocean shoreline documented for the North Carolina coast. If erosion is allowed to continue at its present rate, important historic landmarks in the form of earthen-mound fortifications would be destroyed and an area rich in historic heritage of the American people would be lost forever to the ravages of the sea. The improvement will prevent or reduce erosion due to normal and storm-generated forces for that portion of the shoreline fronting the Fort Fisher Historic Site, prevent the eventual undermining of U.S. Highway 421 and provide an increased area for recreational use. Average

annual benefits are $583,900 for recreation and $8,800 for road use (U.S. Highway 421). The benefit-cost ratio is 3.5 to 1.

Howards Mill Reservoir, N.C.

Senator Ellender. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $100,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$13,500,000
Allocations to date	0
Balance to complete	13,500,000
Amount that could be used in fiscal year 1971	100,000

Authorization.—1968 Flood Control Act.

Location and description.—The project is located on Deep River, N.C., about 35 miles south of Greensboro, N.C., and about 15 miles southeast of Asheboro, N.C. The damsite is in Moore County about 1 mile below the Randolph County line, and the main body of the reservoir would lie mostly in Randolph County. Deep River joins the Haw River to form the Cape Fear River. The drainage area of the Deep River above the damsite is about 626 square miles.

The dam would have an overall length of about 2,765 feet and a maximum height of 106 feet above the streambed elevation. The reservoir would have an area of approximately 6,300 acres at the top of the flood control pool, and would provide 193,000 acre-feet of storage. Flood control storage would be 170,000 acre-feet.

Proposed operations.—The $100,000 could be used to initiate preconstruction planning, including reservoir mapping, detailed survey of damsite, hydrologic and hydraulic design analysis and subsurface investigations.

Justification.—There is an immediate need for improvements to provide flood protection and recreation in the Deep River Basin, North Carolina. Average annual flood damage along the main stem of the Deep and Cape Fear Rivers with the New Hope project in operation is estimated at $817,000 over the next 100 years if no additional flood control facilities are provided.

Construction of the Howards Mill Reservoir would be the third water-resource-improvement project for the Cape Fear River Basin. This project would (1) reduce average annual remaining flood damages (after New Hope and Randleman) in the basin by about 51 percent and (2) partially alleviate the immediate recreational needs in the upper Cape Fear River Basin.

Average annual benefits are $335,000 for flood control and $518,000 for recreation. The benefit-cost ratio is 1.2 to 1.

Hyde County Dike, N.C.

Senator Ellender. There is nothing in the budget and local interests have requested $60,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $60,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,290,000
Allocations to date	0
Balance to complete	2,290,000
Amount that could be used in fiscal year 1971	60,000

Authorization.—1966 Flood Control Act.

Location and description.—The project is located along the southern shoreline of Hyde County, N.C., extending from a point about 1.5 miles northwest of Sladesville to a point nearly 2 miles northeast of Engelhard.

The plan of improvement provides for construction of an earth dike approximately 48 miles long, with drainage openings, navigation openings and canal gates, and a sheet-pile bulkhead along the waterfront at Engelhard. The dike would have an elevation varying from 7.0 to 12.1 feet above m.s.l., a top width of 10 feet, and inner side slope of 3 horizontal to 1 vertical and outer side slope of 6 horizontal to 1 vertical.

Proposed operations.—The $60,000 would be used to initiate preconstruction planning.

Justification.—The project would provide protection against hurricane tidal flooding to the towns of Engelhard and Swanquarter and for more than 25,000 acres of cropland and 17,000 acres of forest land in Hyde County. The area suffered heavy losses from three hurricanes in 1955 and one in 1960. The improvement would reduce annual flood damages and reduce or eliminate the necessity for temporary damage preventative measures as a result of hurricane warnings. Hyde County has been designated under Title IV, Section 2 of the Public Works and Economic Development Act of 1965 as a redevelopment area. The average annual benefits are $201,200 for flood damage prevention and $4,800 for scare-cost reduction. The benefit-to-cost ratio is 1.2 to 1.

Manteo (Shallowbag) Bay, N.C.

Senator Ellender. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $100,000 to initiate a model study, subject to authorization of the project.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$10, 800, 000
Allocations to date	0
Balance to complete	10, 800, 000
Amount that could be utilized in fiscal year 1971	100, 000

Authorization.—Not authorized.

Location and description.—The project is located along the outer banks portion of Dare County, N.C., between Oregon Inlet, Roanoke Island, and Albemarle Sound. The proposed modification provides for stabilization of Oregon Inlet with a duel rubble-mound jetty system, including means for sand transfer to the downdrift beach and bottom protection for the highway bridge over Oregon Inlet; a channel 20 feet deep and 400 feet wide through the ocean bar at Oregon Inlet; a channel 14 feet deep and 120 feet wide from the gorge in Oregon Inlet to and through Roanoke Sound to and including a 15-acre basin of the same depth at Wanchese; and a channel 10 feet deep and 100 feet wide from 12-foot-deep channel in Manteo (Shallowbag) Bay through Roanoke Sound to and through Albemarle Sound to deep water near the northern end of Croatan Sound.

Proposed operations.—The $100,000 could be used to initiate the model study, subject to authorization of the project.

Justification.—Oregon Inlet is the only navigation opening through the barrier reef between Cape Hatteras, North Carolina, and Cape Henry, Virginia, that affords access to inside protected waters and to nearby markets and supplies for commercial fishing vessels. A large commercial fishing fleet, including vessels from as far north as Canada, concentrates its operations seasonally in the waters of the Atlantic Ocean over the continental shelf between Cape Hatteras and Cape Henry. Currently, shallow depths, unstable channels, and hazardous wave action prohibit all except a relatively small percentage of the seafood taken off the North Carolina Coast above Cape Hatteras from being landed at Wanchese via Oregon Inlet. During inclement weather, the fishing vessels seek a harbor of refuge at Wanchese; but because of the small size of the existing basin, many operators

are forced to make long runs either north to Hampton or Norfolk, Virginia, or south around Diamond Shoals at Cape Hatteras to Beaufort, N.C. Petroleum products are currently delivered to Manteo in partially loaded tankers and barges via the existing 6-foot approach channel from Albemarle Sound.

The project would provide for safer navigating conditions through Oregon Inlet and for increased efficiency of Wanchese Harbor as a market for seafood, a port of supply, and a harbor of refuge. Benefits would accrue from reduced vessel-operating costs, reduction in vessel delays and damages, increased catches of seafood, and from utilizing a harbor of refuge relatively close to the ocean fishing grounds.

The project would also permit tankers and barges transporting petroleum products to Manteo to be fully loaded, thereby decreasing the unit cost of the commodity transported and resulting in savings in operating costs. The benefit-to-cost ratio is 1.15 to 1. Average annual benefits are $969,700 for all navigation.

Masonboro Inlet Jetties, N.C.

Senator Ellender. There is nothing in the budget and local interests have requested $50,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $50,000 to initiate and complete a model study of the jetty.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statment follows:)

Summarized financial data

Total estimated Federal cost	$2,920,000
Total allocations to date	1,690,000
Balance to complete	1,230,000
Amount that could be used in fiscal year 1971	50,000

Authorization.—1950 River and Harbor Act

Location and Description: Masonboro Inlet is a natural opening through the barrier beach along the Atlantic Coast of North Carolina, in New Hanover County, about 10 miles southeast of Wilmington, N.C. The authorized project provides for: (a) a channel 14 feet deep and 400 feet wide across the ocean bar at Masonboro Inlet, thence 12 feet deep and 90 feet wide to the channel of the Intracoastal Waterway at Wrightsville by way of Banks and Motte Channels; (b) a turning basin, 15 feet deep, having a maximum width of 300 feet and length of 700 feet on the east side of Banks Channel near Masonboro Inlet, with three 15-pile dolphins therein; and (c) a jetty on each side of the inlet, extending to the 14-foot depth in the ocean. Dredging of the channels was completed in June 1959 at a total Federal cost of $487,000; construction of the north jetty and deposition basin was completed 24 June 1966 and 7 July 1966, respectively, at a total cost of $1,203,000. The south jetty and dolphins are yet to be constructed. The jetty on the south side would be about 3,300 feet long.

Proposed operation.—The $50,000 could be used to initiate and complete a model study of the jetty.

Justification.—Operation of the Masonboro Inlet project during the two years since construction of the north jetty has shown that the jetty is effective in preventing shoaling due to the predominant north-to-south littoral drift. However, Masonboro Inlet is in the area where frequent and extended reversals in the direction of littoral drift occur during which time material is free to move into the inlet from Masonboro Beach. Also, since the north jetty incorporates facilities to bypass material from Wrightsville Beach to Masonboro Beach, under present conditions there is nothing to prevent the return of this material to Masonboro Inlet. Therefore, it is evident that the south jetty should be constructed so as to prevent the littoral drift from Masonboro Beach moving into the inlet and to provide an adequate channel for the users of the project. The average annual benefits are $223,500 all for navigation. The benefit-cost ratio is 1.13 to 1.

Morehead City, N.C.

Senator Ellender. There is nothing in the budget and local interests have requested $17,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $17,000 to initiate and complete preconstruction planning, subject to authorization of the project.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,642,000
Total allocations to date	0
Balance to complete	2,642,000
Amount that could be used in fiscal year 1971	17,000

Authorized.—Not Authorized.

Location and description.—Morehead City, N.C., is located on a peninsula of the mainland about 3 miles northwest of Beaufort Inlet and 80 miles northeast of Wilmington, N.C. The Morehead City Harbor area is at the confluence of Newport River and Bogue Sound adjacent to Beaufort Harbor. The proposed plan of improvement modifies the existing project to provide for an ocean bar channel 42 feet deep and 450 feet wide, to the bend; thence a channel in the bend 40 feet deep and 600 feet wide; thence an inner channel 40 feet deep and 400 feet wide to the turning basin, thence increasing the depth in the east leg of the turning basin to 40 feet.

Proposed operations.—The $17,000 could be used to initiate and complete preconstruction planning, subject to authorization of the project.

Justification.—Morehead City Harbor, a deep-water port serving Morehead City, N.C., is developing into an important outlet for phosphate ore mined in southeastern North Carolina and also the importation of petroleum products. The benefit that would accrue from the 40-foot depth improvement is the difference in the cost per ton of transporting petroleum products, phosphate rock and sulphur in vessels of 21,000 to 25,000 deadweight tons compared to the cost per ton of transporting those same commodities in vessels of 35,000 to 50,000 deadweight tons. The plan of improvement is considered adequate for existing and prospective commerce. Average annual benefits are $1,477,000 all for navigation. The benefit-cost ratio is 2.3 to 1.

NEUSE RIVER BARRIER, N.C.

Senator ELLENDER. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $100,000 to initiate a model study of the project.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, Sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost (Corps of Engineers)	[1] $12,500,000
Allocations to date	0
Balance to complete	12,500,000
Amount that could be used in fiscal year 1971	100,000

[1] $56,000 additional cost to U.S. Coast Guard.

Authorization.—1965 Flood Control Act.

Location and description.—The project is located in North Carolina across the Neuse River estuary between Wilkinson Point and Cheery Point about 18 miles below New Bern. The north end of the barrier would be in Pamlico County and the south end in Craven County. The barrier, about 10,400 feet long, would be a dredged-fill structure, with a crest elevation of 16 feet above mean sea level and a crest width of 50 feet. It would have an ungated opening armored with rock with a bottom 18 feet below mean sea level, and a 350-foot bottom width, for passage of riverflows and shallow-draft vessels.

Proposed operations.—The $100,000 could be used to initiate a model study of the project.

Justification.—The project would provide protection against hurricane flooding in the area contiguous to the Neuse River estuary above Cherry Point and Wilkinson Point. New Bern and vicinity experienced heavy losses in the hurricanes of 1954 and 1955. It is estimated that recurrence of those hurricanes would cause damages of $12,036,000 based on 1963 price levels. Average annual hurricane-flood damages in the flooded area are estimated at $621,000 over the next 50 years if no hurricane-flood control facilities are provided. The improvement would reduce average annual flood damages by about 98 percent, reduce or eliminate the necessity for constructing temporary damage-preventative measures as a result of hurricane warnings, provide increased area for recreational use, and provide a more economical means for construction of a highway bridge across the river.

Average annual benefits are $797,700 for flood damage prevention, $3,900 for scare cost prevention, $24,200 for recreation and $27,500 to highway users. The benefit-cost ratio is 1.11 to 1.

North River Dike, N.C.

Senator Ellender. There is nothing in the budget and local interests have requested $60,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $60,000 to initiate and complete preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$407,000
Total allocations to date	0
Balance to complete	407,000
Amount that could be used in fiscal year 1971	60,000

Authorization.—1966 Flood Control Act.

Location and description.—The project is located in Carteret County, in east-central North Carolina, on the west shore of North River approximately 2.5 miles northeast of Beaufort. The improvement consists of a dike along the western shore of North River, approximately 36,500 feet along, from Newby Creek, to approximately 1 mile north of Feltons Creek, at an elevation varying from 8.5 to 5.5 feet above m.s.l. Drainage would be by means of culverts, with flap gates, at major natural drainage outlets to North River.

Proposed operations.—The $60,000 will initiate and complete preconstruction planning.

Justification.—The area contiguous to the North River estuary has experienced particularly heavy losses in past hurricanes. Damages have been caused by flooding of residences, roads, and croplands by hurricane-driven salt-water tides. Construction of the authorized project would protect 3,200 acres of agricultural land, 125 residences, barns, roads, and a major area school. The average annual benefits are $40,000 all for flood control. The benefit-cost ratio is 1.3 to 1.

Ocracoke Island, N.C.

Senator Ellender. There is nothing in the budget and local interests have requested $500,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $500,000 to initiate construction of the project.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$3,033,000
Allocations to date	109,000
Balance to complete	2,924,000
Amount that could be used in fiscal year 1971	500,000

Authorization.—1965 Flood Control Act.

Location and description.—The project includes the Outer Banks portion of Hyde County, N.C. Recommended improvements provide for an ocean front beach fill and dike, a feeder beach near the north end of the island, periodic nourishment for an initial period of 10 years, sand fences and vegetation. Ocracoke Village frontage on the south will be protected by a beach fill, vegetation, drainage facilities, and periodic nourishment for 10 years.

Proposed operations.—The $500,000 wouldbe utilized to initiate construction of the project.

Justification.—Ocracoke Island is located in one of the most exposed storm areas on the eastern coast of the United States and has suffered heavy losses in property and shoreline from past hurricanes. Construction of the recommended project would stabilize the ocean shoreline of Ocracoke Island and the Pamlico Sound shoreline in front of Ocracoke Village, prevent damage to the National Park Service property and State highway and provide for increased utilization of the area (National Park Service area) for recreational purposes (campers, sports fishermen, bathers and others). Hyde County is designated as a Title IV (2) county under the Public Works and Economic Development Act of 1965. Construction of the project would stimulate the local economy.

Average annual benefits are $47,500 for prevention of damages to the National Park and State Highway, $497,200 for increased utilization of the park area, and $6,000 for area redevelopment. The benefit-cost ratio is 1.5 to 1.

Randleman Reservoir, N.C.

Senator Ellender. The budget request was $25,000, and the House has included $110,000, exclusive of reserve. What is your capability on this project?

General Koisch. Our capability on this project is $110,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $85,000?

General Koisch. The additional amount would provide for additional planning, principally foundation explorations and the general design memorandum.

Topsail Beach and Surf City, N.C.

Senator Ellender. There is nothing in the budget and local interests have requested $50,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capabiltiy on this project is $50,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,590,000
Total allocations to date	0
Balance to complete	1,590,000
Amount that could be used in fiscal year 1971	50,000

Authorization.—1966 Flood Control Act.

Location and description.—The project is located in the southeast coastal area of North Carolina, in Pender County, immediately north of New Topsail Inlet.

The authorized improvement provides for hurricane-wave protection and beach stabilization for approximately 23,700 feet of shore at Topsail Beach and 31,700 feet of shore at Surf City, North Carolina, by the following works: An artificial dune with a crown width of 25 feet and a base generally at or near the building line, constructed to an elevation of 14 feet above m.s.l.; a beach berm with a top width of 50 feet and top elevation of 10 feet above m.s.l., constructed integrally with the dune; feeder beaches consisting of 60,000 and 70,000 cubic yards of material at the northern limits of Topsail Beach and Surf City, respectively; and periodic beach nourishment with Federal participation of 50 percent of its cost for beach stabilization for an initial period of 10 years after completion of the initial beach fill.

Proposed operations.—The $50,000 can be used to initiate preconstruction planning.

Justification.—The communities of Topsail Beach and Surf City have suffered heavy losses in property and shoreline from past storms and hurricanes. The authorized improvement will prevent or reduce damages to the beaches and property along the beaches at the two communities by providing full shore protection and partial hurricane-flood protection from hurricanes of equal or less than that of Hurricane Hazel, increase the earning power of property, and provide increased areas for recreational use. Average annual benefits are $183,500 for flood control, $5,500 for beach erosion control and $135,000 for recreation. The benefit-cost ratio is 1.7 to 1.

KINDRED DAM, N. DAK.

Senator YOUNG. If the authorization that is now being considered by the Senate Public Works Committee for the Kindred Dam project is approved what would your capability be?

General KOISCH. I would have to supply that for the record. We have not looked at Kindred in that respect, because of its current status.

Senator YOUNG. You have completed all of your investigations?

General KOISCH. Yes, sir.

Senator YOUNG. How much money has been spent so far?

Colonel ANDERSON. On the survey report, sir?

Senator YOUNG. Yes, up to this time.

You have spent money on the survey, and you have recommended the project which is now awaiting authorization.

How much money have you spent on the study?

General KOISCH. I would also have to furnish that for the record, sir.

(The information follows:)

Summarized financial data

Total estimated Federal cost	$19,318,000
Allocations to date	0
Balance to complete	19,318,000
Amount that could be utilized in fiscal year 1971	50,000

Authorization.—Not authorized.

Location and description.—The project would be located on the Sheyenne River near Kindred, North Dakota for flood control, water quality control, recreation and fish and wildlife. The reservoir would have a tsorage capacity of 412,000 acre feet, of which 330,000 acre feet would be reserved for flood control, 22,000 acre feet for sedimentation, and 60,000 acre feet for water quality control, recreation and fish and wildlife.

Proposed operations.—If the project is authorized during the current session of Congress the $50,000 would be used to initiate the preconstruction planning.

Justification.—Flooding in the Sheyenne River basin has been frequent and damaging and has aggravated flood conditions along the Red River of the North. It is estimated that a flood of the magnitude of the 1969 flood would cause

damage, under assumed conditions of 1975, of about $7,500,000 in the Sheyenne River basin. The proposed Kindred Reservoir would provide near complete protection along the lower Sheyenne River through West Fargo. In addition, it would produce flood damage reduction on the Red River of the North below the existing Baldhill Dam, which would be operated more effectively for flood control. The benefit to cost ratio is 1.2 to 1.

The average annual benefits are broken down as follows:

Flood control	$726,600
Water quality control	425,400
General recreation	244,800
Fish and wildlife	73,400
Total	1,470,200

EXPENDITURES FOR KINDRED DAM AND RESERVOIR STUDY

A total of $171,000 has been expended on the study which resulted in the recommendation for construction of Kindred Dam and Reservoir.

Minot, N. Dak.

Senator Ellender. The project was added by the Congress in fiscal year 1970 and the added funds were put in budgetary reserve pending project authorization. There are no additional funds in the 1971 budget. Local interests have requested construction funds for this project and the House has included $225,000, exclusive of reserve. What is your capability on this project?

General Koisch. Assuming that the project is authorized early in fiscal year 1971, our capability is $225,000.

Senator Ellender. What would be accomplished with the additional funds?

General Koisch. The $225,000 would be used to complete the preconstruction planning, thus making the project eligible for a new construction start in fiscal year 1972.

Senator Young. Since you appeared here last, the Senate Public Works Committee has approved a section 201 project, which would authorize the Minot portion of the Souris plan.

General Koisch. Yes, sir; the resolution was adopted by the Senate committee and when a similar resolution is adopted by the House Committee on Public Works it will authorize the Minot Channel.

Senator Young. That is an urgent part of the Souris project.

Mr. Chairman, I was disappointed that in response to your questions the corps indicated their total capability, including the $75,000 in budgetary reserve would be only $300,000 for fiscal year 1971. As you brought out, the House has already included the $225,000, and this was done prior to the time the Senate had approved the project as a section 201 project.

The city of Minot has suffered two very severe floods in the past 2 years. In order to minimize the damage, the Corps of Engineers, as an emergency measure, widened the channel through the town. While this has prevented extensive damage, it has also disrupted normal communications as bridges and other utilities were severed. The community is reluctant to restore these facilities on a temporary basis prior to completion of the Engineers' design and assurance that no change in the temporary channel will be required for the permanent project.

In view of the circumstances, Mr. Chairman, I hope that the Corps of Engineers would find it possible not only to complete their design

in fiscal year 1971 but be prepared to accomplish whatever work in the vicinity which might be required in order that the city can reestablish their bridges and utility facilities.

General KOISCH. Senator, the capability we have indicated is based on an expedited projection based on the timing of our appropriations. However, in view of the critical situation which you have clearly outlined, we will do everything possible to start some construction in fiscal year 1971, and we believe that a $100,000 total would be the maximum which we could consider using. If the funds are appropriated, we will do everything we can to alleviate the problems which the city of Minot is now facing.

MISSOURI RIVER, GARRISON DAM TO LAKE OAHE, N. DAK.

Senator YOUNG. What about the bank stabilization on the Missouri River below the Garrison Dam and above Lake Oahe?

General KOISCH. With regard to the Garrison Dam to Oahe Reservoir on the Missouri River, we have a budget of $1,200,000, and we have no capability beyond that.

PEMBINA RIVER, N. DAK. (Section 205 Project)

Senator ELLENDER. There is nothing in the budget and local interests have requested $300,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $360,000 to initiate construction of this project which is authorized by section 205 of the 1948 Flood Control Act, as amended.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,000,000
Total allocations to date	108,000
Balance to complete	892,000
Amount that could be used in fiscal year 1971	300,000

Authorization.—Small project program under Section 205 of the 1948 Flood Control Act, as amended.

Location and Description.—The project is located in the City of Pembina in extreme north east corner of North Dakota. It is in Pembina County at the junction of Pembina River and Red River of the North about 2.5 miles south of the international boundary. The project purpose is to provide a permanent solution for alleviating the flood problems at Pembina. The plan of improvement consists of 2.8 miles of levee, 1009 feet of floodwall and related works at Pembina in combination with appropriate flood plain management measures at South Pembina. The recommended plan would improve and supplement the incomplete and inadequate existing city levee system and provide a high degree of flood protection and reduce future damages at South Pembina though adoption and implementation of sound flood plain management measures.

Proposed Operations.—The $300,000 could be used to initiate construction of the project.

Justification.—The project would provide a high degree of flood protection for the City of Pembina. The 1950 flood inundated the entire city causing extensive damages. The 1966 and 1969 flood would have both heavily damaged the community had emergency flood protective measure not been provided. The average annual benefit for flood control is estimated at $200,000. The benefit cost ratio is estimated at 3.0 to 1.

Survey Pembina River, N. Dak.

Senator Young. As you know, there has been considerable interest in the Pembina River flood control project in northeastern North Dakota.

This area has suffered immeasurably from floods. Unfortunately, the project approved by the International Joint Commission seems to be marking time due to the lack of interest on the part of the Canadians in proceeding with the project and bearing their fair share of the costs.

Recently, it has been proposed that the Corps of Engineers proceed with the survey report on the United States portion of hist project. I understand, in fact, that this has been suggested by your St. Paul district engineer.

Do you have sufficient funds in your budget for fiscal 1971 to reopen this study? If not, what is your capability for fiscal 1971?

General Koisch. Senator, there are no funds included in the fiscal year 1971 budget. We do have a capability to use $25,000.

Pipestem Dam and Reservoir, N. Dak.

Senator Ellender. The budget request was $450,000. The House has allowed $1 million or $550,000 additional. Can you effectively utilize these additional funds?

General Koisch. Yes, sir. Mr. Chairman, that is our capability on this project.

Senator Young. Is that your total capability, General?

General Koisch. Yes sir, it is.

Senator Ellender. What would be accomplished with the additional $550,000?

General Koisch. The additional amount would be used to advance land acquisition and to initiate construction.

Senator Ellender. At the time the division engineer appeared before this committee in support of the fiscal year 1971 budget, he stated that we would be notified of any change in the corps' estimate for the land acquisition program. Has there been any change, and would you discuss this matter?

General Koisch. Mr. Chairman, there has been a change. You may recall that you were informed during the earlier hearings that the Chief of Engineers had not yet approved the proposed program of the division engineer for acquisition of land for enhancement of fish and wildlife. At that time there was a question as to whether certain lands would be acquired in fee or in easement. I can now inform you that these lands will be acquired partially in fee and partially in easement. There is also some adjustment in the number of acres to be acquired. Present plans provide for acquiring 4,064 acres in fee and 5,103 acres in flowage easements for the entire project. This reflects a reduction of around 300 acres overall. These changes will result in a revised estimated project cost of $6,560,000, a reduction of $720,000 from the estimate presented in our justification sheet.

Senator Ellender. Does this affect your budget request?

General Koisch. No, sir; this will have no effect on the budget request.

Senator ELLENDER. Does it change your B/C ratio?

General KOISCH. Yes, sir; the benefit-to-cost ratio would be raised from 1.4 to 1.5.

Senator ELLENDER. Very well.

ALUM CREEK RESERVOIR, OHIO

Senator ELLENDER. The budget request was $3 million. The House has allowed $4,300,000, exclusive of reserve, and local interests have requested $4,300,000. What is your capability on this project?

General KOISCH. Our capability on this project is $4,300,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $1,300,000?

General KOISCH. The additional amount would be used for land acquisition to insure the current construction schedule.

ATHENS, OHIO

Senator ELLENDER. The budget request was $2,078,000. The House has included $2,078,000, and local interests have requested $2,800,000. What is your capability on this project?

General KOISCH. Our capability on this project is $2,078,000, for completion of construction, Mr. Chairman.

BIG DARBY RESERVOIR, OHIO

Senator ELLENDER. There is nothing in the budget and local interests have requested $500,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $500,000 to continue construction.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $49,900,000
Allocations to date	3,354,000
Balance to complete	46,546,000
Amount that could be utilized in fiscal year 1971	500,000

[1] Estimated Federal cost to include future recreational development is $50,800,000.

Authorization.—1938 Flood Control Act.

Location and Description.—The proposed dam site is in Franklin and Madison Counties on Big Darby Creek, about 29 miles above its confluence with the Scioto River. The reservoir would be formed by a rolled earth fill dam with a gated spillway on the left abutment and with an upstream blanket for seepage control. It would control a drainage area of 446 square miles and would have a total storage capability of 126,130 acre-feet.

Proposed Operations.—The amount of $500,000 would be used to continue construction of the project in FY 1971 and would be applied to an architect-engineer contract to advance the specific design of the dam.

Justification.—Big Darby Reservoir is one of seven authorized reservoirs in the Scioto River Basin and is a unit of the general comprehensive plan for flood control and allied purposes for the Ohio River Basin. In conjunction with the other reservoirs, Big Darby will alleviate flood hazards along the Scioto and Ohio Rivers. The project will provide flood protection to the predominantly agricultural Big Darby Creek Basin and is the most important element in the system offering protection to the industrial and population center of Chillicothe.

Total Scioto Basin damages in the 1959 flood were approximately $11,948,000 which, under present conditions of development, would amount to more than $25,300,000. Had all reservoirs of the system been in operation at that time, $5,000,000 of the damages would have been prevented. A recurrence of the flood of record (March 1913) under present conditions would result in an industrial disaster and tragedy for thousands of persons. The benefit-cost ratio is 1.03 to 1.

The total annual benefits of $2,031,000 are broken down as follows:

Scioto River flood control benefits	$853,300
Ohio River flood control benefits	668,700
Recreation:	
General	445,000
Fish and wildlife	64,000
Total	2,031,000

Chillicothe, Ohio

Senator Ellender. There is nothing in the budget and local interests have requested $75,000. The House has included $75,000 for initiation of planning. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $75,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$3,750,000
Allocations to date	0
Balance to complete	3,750,000
Amount that could be utilized in fiscal year 1971	75,000

Authorization.—1962 Flood Control Act.

Location and Description.—Chillicothe, the county seat of Ross County, Ohio, is located along the right descending bank of the Scioto River 69 miles upstream from its mouth. The project consists of a concrete wall, an earth levee, necessary gate openings, and pumping stations.

Proposed Operations.—The amount of $75,000 would be utilized to initiate preconstruction planning of the project in Fiscal Year 1971.

Justification.—The City of Chillicothe is the second major damage center in the Scioto Basin and has an excellent balance between industry within the city and agricultural activity in the surrounding area. The record flood of March 1913 inundated 75% of the city and caused damages in excess of $1,000,000. It is estimated that a flood of equivalent magnitude, under today's conditoins, would cause damages in excess of $37,500,000. The January 1959 flood resulted in the flooding of 779 houses, 3 small plants, 2 schools, and 7 churches, caused damages in excess of $2,800,000. Full benefits of the project could not be realized until the 4 upstream reservoirs are constructed, and local interests meet all preconstruction requirements. The benefit-cost ratio for the project is 1.4 to 1.

The average annual benefits for the project are $262,900 broken down as follows:

Flood Control	$229,500
Redevelopment	33,400
Total	262,900

Eastlake, Chagrin River, Ohio

Senaor Ellender. There is nothing in the budget, the House has included $60,000 and local interests have requested $60,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $60,000 to complete planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,960,000
Allocations to date	200,000
Balance to complete	2,760,000
Amount that could be utilized in fiscal year 1971	60,000

Authorization.—1965 Flood Control Act.

Location and Description.—The city of Eastlake, Ohio, is located on the Chagrin River in northeastern Ohio about 15 miles east of Cleveland. The plan of flood protection for Eastlake consists of realinement and enlargement of the Chagrin River Channel from deep water in Lake Erie through part of the City of Eastlake, a total distance of 10,400 feet; constructing arrowhead breakwaters in Lake Erie at mouth of Chagrin River, aggregating about 2,360 feet in length; constructing a total length of 7,000 feet of levees; providing a 1,500-foot long spur channel and a 400-foot long access channel for navigation; and development of recreational facilities at the river mouth.

Proposed Operations.—The $60,000 would be used to complete planning.

Justification.—The improvement will provide a project of multiple benefits for the lower 2-mile reach of Chagrin River. The improvements are primarily designed to provide protection to the city of Eastlake from damages resulting from floods and secondarily to provide a small-boat recreational harbor adequate to meet the needs of existing and prospective navigation.

The maximum discharge of record, which occurred during the March 1948 flood was estimated at 21,400 cubic feet per second, with a recurrence interval of about 35 years. During the January 1959 flood, which was the most damaging of record due to accompanying ice jams, damages in Eastlake were estimated at $206,000 on price levels at the time of the flood.

During summer months local interests in the city of Eastlake have intermittently dredged a navigation channel through the sand bar at the river mouth. The effectiveness of these local improvements is generally lost in subsequent major storms. Most of the major floods in the basin result from rain on frozen ground. In the lower most reaches of the river, flooding is aggravated by the sand bar in Lake Erie at the mouth of the river. The restrictive sand bar causes ice jams from river ice which, when combined with windrowed lake ice, results in significantly higher stages and damages that would otherwise occur considering only the discharge.

There is no commercial navigation in the Chagrin River, but over 800 recreational craft are based in the lower 1.5 miles of the river and side channels at Eastlake. Several yacht clubs and marinas have been built along the river bank and in the meandering channels near the mouth. The uncertainty as to entrance conditions is a deterrent to navigation and prevents realization of the full potential of the river mouth as a small-boat harbor.

The benefit-to-cost ratio is 2.0 to 1. Average annual benefits are broken down as follows:

Flood control	$136,400
Navigation	141,900
Fish and wildlife	103,400
Total	381,700

EMPIRE AND STRATTON, OHIO

Senator ELLENDER. There is nothing in the budget and local interests have requested $52,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $52,000 to initiate and complete preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?
General KOISCH. Yes, sir.
(The statement follows:)

Summarized financial data

Total estimated Federal cost	$430,000
Allocations to date	33,000
Balance to complete	397,000
Amount that could be utilized in fiscal year 1971	52,000

Authorization.—1938 Flood Control Act.

Location and Description.—The villages of Empire and Stratton are located in Jefferson County, Ohio, on the right bank of the Ohio River, about 55 miles below the head of the river at Pittsburgh, Pennsylvania. The project would provide a high degree of flood protection to these villages by utilizing Ohio State Routes 7 and 152 in Empire and Ohio Route 7 in Stratton as dikes and providing structures for internal drainage of the area which would be protected by the raised highways.

Proposed Operations.—The amount of $52,000 would be utilized to initiate and complete presconstruction planning of the project in FY 1971.

Justification.—The villages of Stratton and Empire had a population of 311 and 551, respectively, in the 1960 census. Development in the flood zones is principally residential and commercial with a smaller amount municipal. These developments are accompanied by such accessory improvements as railroads, highways and utilities. The flood areas within the villages of Empire and Stratton are 87 acres and 54 acres, respectively. The December 1942 flood, after complete reduction by the existing reservoir system, was the highest reduced flood of record. The damages to properties at Empire and Stratton, that would result from a recurrence of the highest reduced flood, are estimated at $464,000, August 1965 degree of development adjusted to July 1969 values. The most recent major flood occurred in March 1964. The project would provide protection against all floods as great as the maximum flood of record as modified by the existing reservoir system.

The project would provide flood damage reduction to a total of 141 acres within the villages of Empire and Stratton which are currently not protected along the Ohio River. The benefits would serve to satisfy a part of the projected 1975 basin needs.

The benefit-cost ratio is 1.2 to 1. The total annual benefits for the project are $24,300, all of which are flood control.

FREMONT, OHIO

OPPOSITION

Senator ELLENDER. A letter has been received opposing the appropriation of funds to construct the local flood protection project at Fremont, Ohio. It is charged that the project will serve no useful purpose and is a complete waste of taxpayer money. It is also charged that the public has had no opportunity to express itself on this project, in spite of two referendum and one initiative petitions seeking to place the project on a local ballot. Please comment upon these aspects of the project.

Colonel ANDERSON. Construction and operation of the project will substantially eliminate an existing flood hazard to lives and property at Fremont, Ohio. Based upon estimated costs and benefits, the project is economically sound. In this sense, the project is necessary and will serve a useful purpose.

Opposition to this project by certain local interests has existed for several years. During this time, officials of the city of Fremont have continued to support the project. Assurances of local cooperation were furnished by the city of Fremont on 30 September 1965. On 13

June 1968, funds were appropriated by the city for land acquisitions necessary for project construction. The city is now acquiring rights-of-way and performing street and utility alterations necessary for the start of Federal contract construction. The several petitions have been the subject of local judicial proceedings in which the Government is not a participant. The proceedings have not prevented the city from providing requisite local cooperation for the project. In situations of this type, the views of the majority of Fremont citizens must be presumed to be represented by the actions of the elected officials of the city of Fremont. With regard to legal actions undertaken against the city by the opposition minority, resolution of such matters is properly the responsibility of the city of Fremont.

Gallipolis Locks and Dam, Ohio and W. Va.

Senator Ellender. There is nothing in the budget and local interests have requested planning funds. What is your capability on this project?

General Koisch. Mr. Chairman, this project is being considered in a study to determine the need for and feasibility of replacement of the existing structure on the Ohio River. Since a project for replacement is not yet authorized, we have no capability for preconstruction planning in fiscal year 1971.

Mill Creek Reservoir, Ohio

Senator Ellender. The budget request was $288,000. The House has included $288,000 and local interests have requested $1,300,000. What is your capability on this project?

General Koisch. Our capability on this project is $1,300,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $1,012,000?

General Koisch. The additional amount would be used to initiate land acquisition of the dam construction area.

Salt Creek Reservoir, Ohio

Senator Ellender. There is nothing in the budget and local interests have requested $900,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $900,000 to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $20,700,000
Allocations to date	703,000
Balance to complete	19,997,000
Amount that can be used in fiscal year 1971	900,000

[1] Estimated Federal cost to include future recreational development is $22,720,000.

Authorization.—1962 Flood Control Act.

Location and Description.—The proposed dam site is located in Ross County, on Salt Creek, a tributary of the Scioto River about 15 miles above the mouth of Salt Creek and 12 miles southeast of Chillicothe. The proposed project will consist of a

rolled earth fill dam 1,490 feet long and 96 feet high, with an uncontrolled spillway located in a saddle near the left abutment. The reservoir would control a drainage area of 285 square miles and have a total storage capacity of 114,000 acre feet.

Proposed Operations.—The amount of $900,000 would be utilized to initiate construction of the project in FY 1971.

Justification.—The project is one of seven reservoirs authorized for construction in the Scioto Basin and is a unit of the general plan for flood control and allied purposes for the Ohio Basin. This project would provide flood protection to the Salt Creek below the dam site and, along with the completed Delaware and Deer Creek and other authorized reservoirs, would contribute to the reduction of flooding in the Lower Scioto River Valley. It would also contribute to the reduction of flood flows on the main stem of the Ohio River.

The benefit-cost ratio for this project is 1.8 to 1. The average annual benefits of $1,978,900 are broken down as follows:

Scioto River flood control benefits	$23,000
Ohio River flood control benefits	590,800
Recreation	1,181,000
Fish and wildlife	68,000
Redevelopment	116,100
Total	1,978,900

Arcadia Reservoir, Okla.

Senator Ellender. There is nothing in the budget, and local interests have requested planning funds. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized, if the project is authorized during the current session of Congress our capability would be $75,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$27,100,000
Allocations to date	0
Balance to complete	27,100,000
Amount that could be utilized in fiscal year 1971	75,000

Authorization.—Not yet authorized.

Location and Description.—The dam would be located on Deep Fork River, 1½ miles west of Arcadia, Oklahoma, in Oklahoma County. The plan of improvement consists of an earth fill dam and gated concrete spillway and an outlet works for flood control. The dam would be 4,300 feet in length excluding the spillway, with a maximum height of 72 feet above stream bed. The length of the spillway would be 160 feet with four 40′ x 35′ tainter gates. The outlet works would consist of one 4′ x 4′ sluice and 1–24″ pipe for future water supply. The total storage of the reservoir would be 73,200 acre-feet, of which 24,100 acre-feet would be for flood control, 42,100 acre-feet for conservation, and 7,000 acre-feet for sediment.

Proposed Operations.—The $75,000 would be used to initiate preconstruction planning.

Justification.—The Arcadia Reservoir is a unit of the extensive study called Central Oklahomia Project. Construction of the Arcadia Reservoir would provide a high degree of flood protection to about 66,800 acres of rural development in the Deep Fork River Basin. The value of the properties subject to flooding is estimated to be over $35 million, including minerals. The 1908 and 1935 floods are considered to be the maximum floods of record. A recurrence of either flood would cause losses estimated to be $2,142,000 (Jan. 1968 prices).

The city of Edmond, Oklahoma, has an immediate need for additional water supply to supplement its present groundwater source. Water quality control re-

leases are needed in the Deep Fork River to dilute secondary treatment wastes so that quality of the water may be preserved. There is a growing demand for outdoor recreation facilities near the major population centers in the area. The benefiit-to-cost ratio is 1.4 to 1.

The average annual benefits for the project are broken down as follows:

Flood control	$274,000
Water supply	200,000
Water quality control	1,193,000
Recreation	411,000
Redevelopment	146,000
Total	2,224,000

Birch Reservoir, Okla.

Senator Ellender. There is nothing in the budget and local interests have requested $500,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $500,000 to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data:

Total estimated Federal cost	[1] $7,000,000
Allocations to date	303,000
Balance to complete	6,697,000
Amount that could be utilized in fiscal year 1971	500,000

[1] Local interests are required to pay the portion of project costs allocated to water supply, presently estimated to be $981,000.

Authorization. 1962 Flood Control Act.

Location and Description.—The Birch Dam site is located in Osage County, Oklahoma on Birch Creek, a tributary of Bird Creek, about 1½ miles south of Barnsdall, Oklahoma. The plan of improvement consists of a rolled earth embankment about 3,200 feet in length with an uncontrolled spillway and flood control and water supply outlet works. Maximum height of dam would be 97 feet above stream bed. Total capacity of reservoir would be 58,180 acre-feet, of which 39,000 acre-feet would be for flood control, 15,820 acre-feet for conservation, and 3,360 acre-feet for sediment. The conservation storage will result in a dependable yield of 6 m.g.d. for water supply and water quality control.

Proposed Operations.—The $500,000 would be used to initiate construction.

Justification.—The Birch Reservoir is a unit in the plan for the control of floods in the Caney River-Bird Creek Basins. Construction of this project would provide a high degree of flood protection for 1,350 acres and would assist in the protection of 180,520 acres in the Caney River-Bird Creek Basins. The area under study has experienced many major floods in the past. The floods of record on Bird Creek, of which Birch Creek is a tributary, occurred in 1943 and 1959. These floods inundated 11,466 acres and damages were estimated at $492,000. The system would prevent approximately 65% of the average annual flood losses; develop the optimum yield of the stream into a positive resource through storage & regulation; provide dilution water to help solve the water quality problem in the basins; provide water for future municipal and industrial use, outdoor recreation and fishing and hunting to help meet the regional demands. The benefit-to-cost ratio is 3.0 to 1.

The average annual benefits for the project are broken down as follows:

Flood control	$661,000
Water supply	102,000
Water quality control	153,000
Recreation	188,000
Fish and wildlife	2,000
Redevelopment	8,000
Total	1,114,000

Boswell Reservoir, Okla.

Senator Ellender. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $100,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost (initial development)	[1] $48,900,000
Allocations to date	129,000
Balance to complete	48,771,000
Amount that could be utilized in fiscal year 1971	100,000

[1] The second stage construction would increase cost to $59,800,000.

Authorization.—1946 Flood Control Act.

Location and Description.—The dam would be located on Boggy Creek, 3 miles west of Soper, Oklahoma, in Choctaw County. The plan of improvement for first stage construction consists of an earth-fill dam and a gated concrete spillway and an outlet works for flood control. The dam would be 12,320 feet in length including the spillway, with a maximum height of 93 feet above stream bed. The ultimate plan of improvement would increase height of dam to 111 feet above stream bed and would increase crest length of 19,950 feet including the spillway.

Proposed Operations.—The amount of $100,000 would be used to initiate preconstruction planning.

Justification.—The Boswell Reservoir is a unit in the comprehensive plan for the control of floods below the Denison Dam. Floods occur on Boggy Creek approximately nine times per year. The maximum peak discharge occurred in April 1942, and the maximum volume of runoff occurred in February–May 1945. Other major floods occurred in 1925, 1927, 1932, 1935, 1938, 1946, and 1957. The average annual flood losses on Boggy Creek below Boswell Dam site are estimated to be $53,000. Flood damage along this same reach from the flood of record was $549,000. Flood losses on Red River below the confluence of Boggy Creek are estimated to be $3,826,000 annually. Construction of this project would provide a high degree of flood protection for land along Boggy Creek & in the Red River basin; develop the optimum yield of the stream into a positive resource through storage and regulation; provide outdoor recreation, fishing & hunting to help meet the regional demands. The benefit-cost ratio is 1.04 to 1.

The average annual benefits for the project are broken down as follows:

Flood control	$1,810,000
Recreation	259,000
Fish and wildlife	8,000
Redevelopment	74,000
Total	2,151,000

Candy Reservoir, Okla.

Senator Ellender. There is nothing in the budget and local interests have requested $450,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $450,000 to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $6,680,000
Allocations to date	390,000
Balance to complete	6,290,000
Amount that could be utilized in fiscal year 1971	450,000

[1] Local interests are required to pay the portion of project costs allocated to water supply, currently estimated at $855,000.

Authorization.—1962 Flood Control Act.

Location and Description.—The dam would be located in Osage County, Oklahoma, on Candy Creek, a tributary of Bird Creek, about one mile northeast of Avant, Oklahoma. The plan of improvement consists of an earthfill dam 3,885 feet in length, including an uncontrolled spillway, with a maximum height of 105 feet above the streambed. Total capacity of the reservoir would be 36,500 acre-feet, of which 23,100 acre-feet would be for flood control, 12,000 acre-feet for conservation, and 1,400 acre-feet for sedimentation.

Proposed Operations.—The amount of $450,000 would be used to initiate construction.

Justification.—The Candy Reservoir is a unit in the plan for the control of floods in the Caney River-Bird Creek Basins. There have been 57 floods on Candy Creek during the 32 years of computed record and 53 floods on Bird Creek in the vicinity of the Sperry gage. The maximum flood of computed record occurred in September-October 1959, when the peak stage at the dam site reached 22.5 feet above flood stage, and 11.6 feet above flood stage on Bird Creek at the Sperry gage. This flood inundated 7,652 acres and damages were estimated at $302,000. The 10 most damaging floods were recorded in 1941(2), 1943(2), 1950, 1957(2), 1959, and 1961(2). The peak stages of these floods at the dam site ranged from 22.5 feet to 8.8 feet above flood stage. Construction of this project would also develop the optimum yield of the stream into a positive resource through storage and regulation; provide dilution water to help solve the water quality problem in the basins; provide water for future municipal and industrial use, outdoor recreation and fishing and hunting to help meet the regional demands. The benefit-to-cost ratio is 1.81. The average annual benefits are broken down as follows:

Flood control	$448,000
Water supply	53,000
Water quality control	53,000
Recreation	84,000
Fish and wildlife	4,000
Redevelopment	8,000
Total	650,000

Copan Reservoir, Okla.

Senator Ellender. The request by local interests for this project is $900,000. While the project was added by Congress in fiscal year 1970 and the added funds were placed in budgetary reserve for use in fiscal year 1971, there are no additional funds requested in the fiscal year 1971 budget. The House has included $900,000, exclusive of reserve. What is your capabiilty on this project?

General Koisch. Our capability is $900,000.

Senator Ellender. What would be accomplished with the $900,000?

General Koisch. That amount would be used to initiate construction.

Joe Creek, Okla. (Sec. 205 Project)

Senator Ellender. Local interests have requested $300,000 for this project. Can you use these funds?

General Koisch. Mr. Chairman, this project is authorized under section 205 of the 1948 Flood Control Act, as amended, and funds in the amount of $300,000 to initiate construction of the project are in-

cluded in the budget request and the House allowance for the line item "Flood control projects not requiring specific legislation."

LUKFATA RESERVOIR, OKLA.

Senator ELLENDER. Local interests have requested construction funds for this project. The project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use in fiscal year 1971, and no additional funds are in the 1971 budget. What is your capability on this project?

General KOISCH. Our capability is $0. The funds to be released which are in budgetary reserve are considered sufficient for needs of the project in fiscal year 1971.

OPPOSITION

Senator ELLENDER. The National Wildlife Federation has submitted a resolution to this subcommittee opposing the construction of Lukfata Reservoir on Glover Creek, Okla., on the grounds that this stream has unique aesthetic qualities, is the last undeveloped mountain stream in Oklahoma, is the last significant smallmouth bass stream in the State, that the reservoir would destroy this smallmouth bass and other wildlife habitat, that the project B/C ratio is very low, and that the flood control and conservation storage is not essential. The National Wildlife Federation further recommends restudy of Glover Creek for possible inclusion in a State scenic rivers system or in the National wild and scenic rivers system. Would you please comment upon the points presented in the National Wildlife Federation resolution?

UNIQUE ESTHETIC QUALITIES

Colonel CHARLES. Mr. Chairman, the corps recognizes that Glover Creek has significant esthetic values. Glover Creek has its source in the rugged forested Kiamichi Mountains of southeast Oklahoma in the vicinity of the McCurtain-Leflore County line. The basin is about 35 miles in length, with a maximum width of about 20 miles, and its total area is about 338 square miles. The terrain is hilly to mountainous with steep slopes and is heavily timbered. The primary use of the sparsely populated basin is for timber production from pine and hardwoods, with secondary use for livestock raising. The valley is narrow and deeply cut, with high ridges extending to the river. The average slope of the stream is about 40 feet per mile, varying from about 100 feet per mile in the upper reaches to about 5 feet per mile near the mouth. The stream and its tributaries produce much good quality water. Recreational resources are the scenic, forested valley and hills, the stream, and the opportunities for hunting and fishing.

LAST UNDEVELOPED STREAM IN OKLAHOMA

Glover Creek is one of several streams in Oklahoma that could be considered as not ecologically disturbed with respect to significant manmade changes to water quality and stream-fllow characteristics. Other such streams are Barren Fork, a tributary of the Illinois River; Black Fork, a tributary of the Poteau River; Cedar Creek, a tribu-

tary of the Kiamichi River; and the Blue River, to name a few. The total river mileage in Oklahoma for watersheds equal to or larger than the Glover Creek Basin is in excess of 5,000 miles. The 60 miles total length of Glover Creek is slightly more than 1 percent of this total. It is recognized that any change in the physical characteristics of a river basin, whether natural or manmade, will alter the ecosystems to some extent. Lukfata Reservoir would convert 17 miles of Glover Creek open stream to a reservoir, would improve the quality of fish habitat along 17 downstream miles by control of floods, by control of water temperature and oxygen content, and by flow augmentation during drier periods, and would not physically affect the remaining 25 miles of stream above the reservoir.

SMALLMOUTH BASS AND WILDLIFE HABITAT

There is insufficient research to support the position that reservoirs in eastern Oklahoma are causing a decline in smallmouth bass populations. The Oklahoma Fish and Game Council, composed of representatives of the Oklahoma Department of Wildlife Conservation; Oklahoma State University; Oklahoma University; Fish and Wildlife Service; and the Tulsa district, Corps of Engineers, was established to pool certain resources to develop sound fishery and wildlife management practices for reservoir impoundments and corresponding watersheds. In a recent meeting of this council, a proposal was made to do research on fishery resources in reservoirs in southeast Oklahoma, because there is not sufficient factual information available to form sound conclusions pertaining to the effects of reservoirs on the fishery resource, such as the effect on smallmouth bass population. The following sources of information, however, indicate that the Glover Creek is not the only stream where the smallmouth bass can survive.

1. Information bulletin, "Know Your Oklahoma Fishes," Oklahoma Department of Wildlife Conservation, 1963, page 30, the smallmouth bass is restricted to certain areas of eastern Oklahoma, namely, Mountain Fork River and tributaries of the Grand and Illinois Rivers. The smallmouth bass is quite abundant in the Illinois and its tributaries. The smallmouth bass prefers cool, clear streams and lakes.

2. The Fishery Resources of the Little River System," McCurtain County, Okla., Oklahoma Fisheries Research Laboratory, report No. 55, February 1956, Norman, Okla., page 30. Smallmouth bass dominated the sport fishes category of the upper reaches of Montain Fork River, comprising 93.2 percent decreasing to 91.4 and 15.2 percent in the middle and lower reaches. Page 44, "The distribution of sport fishes throughout the Little River and its tributaries showed the largemouth bass (35.1 percent) to be the most abundant, followed closely by the spotted bass (31.6 percent). White crappie (16.6 percent), channel catfish (10.1 percent) and smallmouth bass (6.6 percent) constituted the remaining sport fishes within the drainage area.

3. "The Fishes of the Illinois River in Oklahoma and Arkansas," George A. Moore and John M. Paden, reprinted from the American Midland Naturalist, volume 44, No. 1, pages 76–95, 1950. Page 90, The above distributional notes indicate that the smallmouth bass enter all noteworthy tributaries of the river, showing a preference for the upper, swifter, and cooler waters.

The U.S. Fish and Wildlife Service in a report dated August 18, 1961, on the Lukfata Reservoir stated with the project over 3,000 acres of wildlife habitat and associated wildlife resources within the reservoir would be lost through inundation. This area, however, is significant when compared with the remaining wildlife habitat in southeast Oklahoma.

NEED FOR LUKFATA RESERVOIR

The Lukfata Dam and Reservoir on Glover Creek is needed for flood control. This authorized project is a part of the Little River system and would be operated for maximum flood control benefits on Glover Creek and the Little River. Operation of the authorized seven-reservoir system which includes Pine Creek, Lukfata, Broken Bow, DeQueen, Gillham, Dierks, and Millwood Reservoirs would provide estimated average annual flood control benefits of $3,614,000 at 1969 price levels in the Little River Basin. The Little River system would also provide an additional $2,116,000 in average annual flood control benefits along that part of the Red River Basin below Fulton, Ark., and and additional $60,000 annually as a result of reducing flood stages of the Mississippi River. Of these total annual benefits, those attributed to the Lukfata Reservoir would amount to $404,000, $21,000, and $1,000, respectively. Lukfata Reservoir would have prevented 102 floods on Glover Creek in 31 years from 1937 through 1968. Also, 30 percent of all benefits from the control of floods on the Little River between the mouth of Glover Creek and Mountain Fork River would be attributed to the Lukfata Reservoir. Flows in Glover Creek can support hydropower. It was found that the most favorable plan was a 135,000 kw. plant. However, under present criteria, this plant is not feasible. Construction of the project as presently planned does not physically preclude adding power at some future time. The Lukfata Reservoir, as a part of the Little River system, is needed to meet present and future water supply needs in Oklahoma. The Mountain Lakes Water District of Oklahoma, has promised that the district will pay for storage yielding 42 m.g.d. in Lukfata Reservoir, and the Oklahoma Water Resources Board has promised to pay for the remaining 42 m.g.d. The Lukfata Reservoir will include recreational facilities that will utilize the recreational potential of the lake area and provide opportunities for such activities as camping, picnicking, boating, fishing, hunting, and hiking. The project will increase the annual recreational visitation to the general area and be a valuable input into the recreational economy of the region.

The zone of influence of the expected visitation would be primarily within a 35-mile radius of the project. Population of this zone is 50,500 and is the principal source for visits of 1 day. The estimated optimum annual capacity of the project is 250,000. The annual visitation is expected to reach this number within the first 3 years of useful operation and remain at this level throughout the 100-year life of the project. The Lukfata Reservoir is economically well justified with the present benefit-cost ratio of 1.6 based on 1969 price levels.

PRESERVATION AS WILD AND SCENIC RIVER

Lukfata Dam and Reservoir was authorized for construction by the Flood Control Act, approved July 3, 1958, before it became national

policy to consider preservation of some free-flowing rivers. Senate Document 97, 87th Congress, "Policies, Standards, and Procedures in the Formulation, Evaluation, and Review of Plans for Use and Development of Water and Related Land Resources," May 29, 1962, however, includes as one of the objectives for water resources planning the preservation of open space, green space, wild areas of rivers, lakes, beaches, mountains, and related land areas and areas of unique natural beauty, historical and scientific interest for the inspiration, enjoyment, and education of the people. The "Wild and Scenic Rivers Act," Public Law 90–542, approved October 2, 1968, established policy in which planning for the use and development of water and related land resources will consider, and all river basin and project planning reports submitted to the Congress will specifically discuss potential national wild, scenic and recreation river values. Proposals to designate Glover Creek as a scenic river by legislation are not new. Recently, the Governor's Scenic River Committee held hearings for the purpose of develveloping recommendations concerning State legislation to designate selected streams as scenic rivers. Glover Creek, a tributary of Little River in McCurtain County, was one of the streams being considered. The committee members included State legislators; landowners; representatives from the academic community; a representative of the Oklahoma State Water Resources Board; and others. The committee held hearings at several locations, including one at Tulsa, Okla. Legislation, subsequently enacted and signed into law by Governor Bartlett on March 17, 1970, specifically omitted Glover Creek from the "Scenic Rivers" designation in apparent response to demands of the local interest who would be primarily affected.

Sand Reservoir, Okla.

Senator Ellender. There is nothing in the budget and local interests have requested $50,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $50,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $8,050,000
Allocations to date	0
Balance to complete	8,050,000
Amount that could be utilized in fiscal year 1971	50,000

[1] Local interests are required to pay the portion of project costs allocated to water supply, currently estimated to be $3,178,000.

Authorization.—1962 Flood Control Act.

Location and description.—The dam would be located on Sand Creek, about 8½ miles west and 1½ miles south of Bartlesville, Oklahoma, in Osage County. The plan of improvement consists of an earth-fill dam and an uncontrolled spillway, with a maximum height of about 114 feet above the streambed. An 8-foot diameter conduit, a gated intake structure and stilling basin provides the outlet works. A low-flow pipe and a water-supply pipe will be located adjacent to the intake structure. Total capacity of the reservoir would be 91,000 acre-feet, of which 51,700 would be for flood control, 35,000 for conservation and 4,300 for sedimentation.

Proposed Operations.—The amount of $50,000 would be used to initiate preconstruction planning.

Justification.—The Sand Reservoir is a unit in the plan for the control of floods in the Caney River-Bird Creek Basins. Construction of this project would provide a high degree of flood protection for 4,640 acres and would assist in the protection of 180,520 acres in the Caney River-Bird Creek basins. The area under study has experienced many major floods in the past. The flood of record on Sand Creek occurred in 1943. This flood inundated 4,640 acres and caused damages estimated to be $341,000. Construction of this system would prevent approximately 65% of the average annual flood losses; develop the optimum yield of the stream into a positive resource through storage and regulation; provide dilution water to help solve the water quality problem in the basins; provide water for future municipal and industrial use, outdoor recreation and fishing and hunting to help meet the regional demands. The benefit-cost ratio is 2.1 to 1.

The average annual benefits for the project are broken down as follows:

Flood control	$501,000
Water supply	126,000
Water quality control	68,000
Recreation	140,000
Fish and wildlife	6,000
Redevelopment	9,000
Total	850,000

Shidler Reservoir, Okla.

Senator Ellender. There is nothing in the budget and local interests have requested $300,000. What is your capability on this project?

General Koish. Mr. Chairman, our capability on this project is $300,000 to initiate land acquisition.

Senator Ellender. Would you submit a statement for the record?

General Koish. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $7,830,000
Total appropriations to date	322,000
Balance to complete	7,508,000
Amount that could be utilized in fiscal year 1971	300,000

[1] Local interests are required to pay the portion of project costs allocated to water supply, and a portion of the costs allocated to recreation. These costs are presently estimated to be $1,237,000 and $196,000, respectively.

Authorization.—1963 Flood Control Act.

Location and description.—The dam would be located on Salt Creek, a tributary of the Arkansas River, one mile east of Shidler in Osage County, Oklahoma. The plan of improvement consists of an earthfill dam 3,000 feet in length with an uncontrolled off-channel spillway and a maximum height of 106 feet above the streambed. Total storage of the reservoir would be 45,500 acre-feet, of which 29,500 acre-feet would be for flood control, 11,000 acre-feet for conservation, and 5,000 acre-feet of inactive storage.

Proposed Operations.—The amount of $300,000 would be used to initiate land acquisition.

Justification.—The Shidler Reservoir would control all floods of record at the dam site and provide a high degree of flood protection for 5,670 acres of rural and 60 acres of urban development downstream to the approximate backwater limits of the Arkansas River. Floods have occurred on Salt Creek on an average of about 2 times per year. The maximum flood of record occurred in 1945, and caused damages estimated at $546,000, when the peak stage was 8.8 feet above flood stage. Other damaging floods occurred in 1943, 1950, 1957, 1961, 1964, and 1965. The floods on Salt Creek have caused extensive damages and retarded agricultural use of the valley lands, and have to a minor degree, contributed to flooding and damages on the Arkansas River. These floods also have often

retarded or completely halted oilfield operations, upon which a portion of the income of the area depends. Physical properties succeptible to flood damage include crops, farm units, utilities, highways, bridges, railroads, oil properties, residential and commercial properties. The value of these properties is estimated to be $17,975,000. Construction of this project would also develop the optimum yield of the stream into a positive resource through storage and regulation; provide urgently needed water supply storage for municipal and industrial use; provide dilution water to help solve the water quality problem in the lower reaches; and provide outdoor recreation, sport fishing and hunting to help meet the regional demands. The benefit-to-cost ratio is 1.03 to 1. The average annual benefits for the project are broken down as follows:

Flood control	$180,000
Water supply	76,000
Water quality control	42,000
Recreation	116,000
Redevelopment	9,000
Total	423,000

Skiatook Reservoir, Okla.

Senator Ellender. There is nothing in the budget and local interests have requested $3,300,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $3,300,000 to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $34,400,000
Allocations to date	605,000
Balance to complete	33,795,000
Amount that could be utilized in fiscal year 1971	3,300,000

[1] Local interests are required to pay the portion of project costs allocated to water supply, currently estimated to be $4,838,000.

Authorization.—1962 Flood Control Act

Location and Description.—Located on Hominy Creek, about 5 miles west of Skiatook, Oklahoma in Osage County. The plan of improvement consists of an earthfill embankment with a total length of 3,590 feet and a maximum height of 143 feet above the stream bed. An uncontrolled spillway 100 feet in width would be located in the right abutment. The total reservoir storage would be 513,500 acre-feet, of which 182,300 acre-feet would be for flood control, 319,400 acre-feet for conservation, and 11,800 acre-feet for sediment reserve.

Proposed Operations.—The amount of $3,300,000 would be used to initiate construction.

Justification.—The Skiatook Reservoir is a unit in the plan for the control of floods in the Caney River-Bird Creek Basins. Construction of this project would provide a high degree of flood protection for 5,060 acres and would assist in the protection of 180,520 acres in the basin. The area under consideration has experienced many major floods in the past such as 1926, 1927, 1941 (2), 1943, 1944, 1945 (2), 1957, 1959, and 1961 (4). The flood of record on Hominy Creek occurred in 1959. This flood inundated 5,060 acres and damages were estimated at $263,000. Construction of this system would prevent approximately 65% average annual flood losses; develop the optimum yield of the stream into a positive resource through storage and regulation; provide dilution water to help solve the water quality problem in the basins; provide water for future municipal and industrial use, outdoor recreation, fishing and hunting to help meet the regional demands. The benefit-cost ratio is 2.5 to 1.

The average annual benefits for the project are broken down as follows:

Flood control	$1,167,000
Water supply	353,000
Water quality control	956,000
Recreation	1,001,000
Fish and wildlife	10,000
Redevelopment	31,000
Total	3,518,000

Tuskahoma Reservoir, Okla.

Senator Ellender. There is nothing in the budget and local interests have requested $50,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $50,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $22,300,000
Allocations to date	0
Balance to complete	22,300,000
Amount that could be utilized in fiscal year 1971	50,000

[1] Local interests are required to pay the portion of project costs allocated to water supply, currently estimated to be $10,802,000.

Authorization.—1962 Flood Control Act.

Location and Description.—The dam would be located on Kiamichi River at mile 118.5, about 2 miles south of Albion, Oklahoma, in Pushmataha County. The plan of improvement consists of a rolled earth embankment 6,770 feet in length, and an uncontrolled chute spillway 200 feet in width with sill and apron. The outlet works would be located in the valley on the north side of the river. The intake structure woud be provided with two tractor gates with provision for emergency gates and stop logs. A water supply outlet would also be provided. Total capacity of the Reservoir would be 374,000 acre-feet, of which 138,600 acre-feet would be for flood control, 231,000 acre-feet for conservation and 4,400 acre-feet for sedimentation.

Proposed Operations.—The amount of $50,000 would be used to initiate preconstruction planning.

Justification.—The Tuskahoma Reservoir is a unit in the plan for the control of floods in the Kiamichi River Basin. The area under consideration has experienced several major floods since 1930, of which the 1938, 1943, and 1949 floods had maximum stages at one or more keypoints in the area. The 1949 flood was the maximum flood of record at the Tuskahoma Dam site. A recurrence of this flood would cause structural losses estimated to be $580,000, but would cause only minor crop losses (due to the season of occurrence). Had this flood occurred during the summer months, the crop losses would have been about $148,000. The properties susceptible to flooding include agricultural properties, highways and bridges, railroads, utilities, sawmills and the water supply pumping plant for Antlers, Oklahoma. The total value of the property, including proven and unproven minerals, is estimated to exceed $9 million. Construction of this project would provide a high degree of flood protection for 4,100 acres and would assist in the protection of 20,460 acres in the basin; develop the optimum yield of the stream into a positive resource through storage and regulation; provide urgently needed water supply storage for municipal and industrial use, outdoor recreation, fishing and hunting to help meet the regional demands. The benefit-cost ratio is 1.2 to 1. The average annual benefits for the project are broken down as follows:

Flood control	$289,000
Water supply	612,000
Recreation	286,000
Fish and wildlife	17,000
Redevelopment	46,000
Total	$1,250,000

APPLEGATE RESERVOIR, OREG.

Senator ELLENDER. There is nothing in the budget, and local interests have requested $1,800,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this projcet is $1,800,000, which would be used to initiate project construction and land acquisition.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$29,000,000
Allocations to date (planning)	730,000
Balance to complete	28,230,000
Amount that could be utilized in fiscal year 1971	1,800,000

Authorization.—Flood Control Act of 1962.

Location and Description.—The Applegate Reservoir would be located on the Applegate River, a tributary of the Rogue River, in Jackson County about 23 miles southwest of Medford, Oregon. The project would consist of a rock-fill dam with appurtenant gate-controlled spillway and multi-level outlet works. The reservoir capacity would be 75,000 acre-feet, all useable storage.

Proposed Operations.—The amount of $1,800,000 would be used to initiate project construction and initial acquisition of project lands. Preconstruction planning has been fully funded and is nearing completion.

Justification.—Applegate Reservoir, a part of an overall recommended plan for Rogue River Basin, would be operated in the interest of flood control, irrigation, fish and wildlife enhancement, water quality control and recreation for Applegate Valley. Runoff would be controlled from about 223 square miles upstream from the site and a total of about 75,000 acre-feet of useable storage would provide for flood control jointly with conservation of water for fish enhancement, future irrigation and other uses. Increased flows of adequate quality and quantity would be provided for fish enhancement in Applegate River and Rogue River, and peak stages of floods would be reduced. During the December 1964 flood, the most severe flood recorded on Applegate River, damages to the area downstream from Applegate Reservoir amounted to $1,730,000 on Applegate River and $4,521,000 on Rogue River of which about $1,987,000 would have been prevented by Applegate Reservoir. The peak stage of that flood would have been reduced 4.5 feet at Applegate. Jackson County is listed as a labor surplus area, as is adjacent Josephine County, located just below the damsite.

Estimated annual benefits total	$2,197,000

Annual benefits:	*Amount*
Flood control	$917,000
Irrigation	39,000
Fish and wildlife enhancement	494,000
Recreation	377,000
Water quality	192,000
Area redevelopment	178,000
Total	2,072,000

The benefit-to-cost ratio is 1.5 to 1, based on 100-year project life.

Cascadia Reservoir, Oreg.

Senator Ellender. There is nothing in the budget, and local interests have requested $600,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $600,000, which could be used to initiate construction of the project.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$54,800,000
Allocations to date (planning)	1,005,000
Balance to complete	53,795,000
Amount that could be utilized in fiscal year 1971	600,000

Authorization.—Flood Control Act of 1962.

Location and Description.—Cascadia Reservoir will be located at river miles 48.3 on the South Santiam River at the head of the Foster Reregulating Dam pool about 38 miles southeast of the town of Albany in Linn County, Oregon. The project would consist of a rockfill dam with ungated spillway and controlled outlet works.

Proposed Operations.—The sum of $600,000 could be utilized to initiate construction of Cascadia Reservoir in Fiscal Year 1971. Preconstruction planning has been fully funded and is nearing completion.

Justification.—The reservoir will provide 145,000 acre-feet of usable flood control storage and will be operated as a unit of the coordinated reservoir system planned for the Willamette Basin in the interest of flood control jointly with conservation of water for navigation, future irrigation and other uses. Cascadia Reservoir will regulate flood flows from 179 square miles of mountainous area in the South Santiam River Basin and complement Green Peter and Foster Reservoirs in regulating floods in the lower South Santiam River, the lower Santiam River and the Willamette River below the mouth of the Santiam River. It is a vital unit to the system of reservoirs proposed for the Santiam River Basin. During the December 1964 flood, Cascadia Reservoir would have reduced the peak flow near Lebanon by 20,000 cubic feet per second, corresponding to a stage reduction of 3.4 feet. At points such as the mouth of the Santiam River and at Salem on the Willamette River, the reduction in stage would be 0.5 feet and 0.8 feet, respectively. Other benefits will accrue to the project from release of stored water. Total average annual benefits creditable to Cascadia Reservoir are estimated at $6,118,000, excluding irrigation benefits and are tabulated below:

Annual benefit:	*Amount*
Flood control	$6,041,000
Downstream power	5,000
Recreation	56,000
Navigation	16,000
Irrigation (under study)	
Total	6,118,000

The benefit-to-cost ratio is 2.9 to 1, based on 100-year project life.

Columbia and Lower Willamette River, Oreg. and Wash. (35-to-40-Foot Project)

Senator Ellender. The budget request was $3 million. The House has included $3 million, and local interests have requested $3,900,000. What is your capability on this project?

General Koisch. Our capability on this project is $3,900,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $900,000?

General KOISCH. The additional amount would permit construction of the Slaughters Bar improvement in one construction season. The entire project completion schedule would thus be advanced by 6 months; from June 1973 to December 1972.

COOS BAY (DEEP DRAFT PROJECT), OREG.

Senator ELLENDER. There is nothing in the budget, and local interests haev requested $50,000. What is your capability on this project?

General KOISCH. Mr. Chairman, the project is not yet authorized. If the project is authorized during the current session of Congress our capability would be $50,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$10,800,000
Total allocations to date	0
Balance to complete	10,800,000
Amount that could be utilized in fiscal year 1971	50,000

Authorization.—Not yet authorized.

Location and Description.—Coos Bay discharges into the Pacific Ocean near Charleston in Coos County, Oregon, about 200 miles south of the Columbia River. The plan of improvement includes modification of the existing channel to provide for: a channel across the outer bar 45 feet deep and 700 feet wide, reducing gradually to 35 feet deep and 300 feet wide near mile 1.0; an inner channel 35 feet deep and 300 feet wide to about mile 9.0; thence, a channel 35 feet deep and generally 400 feet wide to mile 15.0; deepening and widening existing turning basins to 35 feet deep and 650 feet wide; an anchorage near mile 6, 35 feet deep, 1200 feet wide and 2000 feet long; and abandonment of two existing anchorages.

Proposed Operation.—The sum of $50,000 could be used to initiate preconstruction planning. Preconstruction planning is estimated to cost $260,000 and would require two years to accomplish.

Justification.—Increased depth and width in the navigation channel and turning basins and an anchorage area are needed for existing and prospective commerce. The improvement would benefit users of the project by reducing delay time and enabling deep-draft vessels to load to capacity. Average annual waterborne commerce in the five-year period 1964 to 1968, inclusive, totals 1,748,545 tons of forest products shipped from the area and 262,892 tons of petroleum products shipped to the area, as well as 94,384 tons of other products. By the year 2020 annual commerce in the forest products and petroleum is estimated at 3,050,000 tons and 1,710,000 tons, respectively. Benefits would be due to reduction in transportation cost and are estimated to be $940,000 annually. Coos County, Oregon, is designated as a labor surplus area rated IV (1). The benefit-to-cost is 1.6 to 1, based on 50-year project life.

ELK CREEK RESERVOIR, OREG.

Senator ELLENDER. The budget request was $400,000. The House has included $400,000 coupled with the proviso that the Elk Creek project not be operated for irrigation purposes until such time as the Secretary of the Interior makes the necessary arrangements with the non-Federal interests to recover the costs which are allocated to irrigation purposes, and local interests have requested $1,600,000. What is your capability on this project?

General KOISCH. Our capabilitiy on this project is $1,600,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $1,200,000?

General KOISCH. The additional amount would permit construction operations to proceed at a rate which would advance the scheduled flood control date by 12 months; from October 1976 to October 1975.

REPAYMENT OF COSTS ALLOCATED TO IRRIGATION

Senator ELLENDER. Would you comment on the proviso included in the House version of the bill?

General KOISCH. Mr. Chairman, the authorization for the Rogue River Basin plan, which consists of the Lost Creek project, now underway, and the Elk Creek and Applegate Reservoirs which have been funded for planning, provides that prior to construction of these projects, necessary arrangements must be made for repayment of irrigation storage. Local interests are apparently concerned that construction for the Elk Creek project might be deferred until those arrangements can be completed and at the expense of providing urgently needed flood control. You may recall that this committee inserted a similar proviso into the fiscal year 1967 bill, with respect to the Lost Creek and Wynoochee Reservoir projects. This proviso has enabled us to proceed with construction of these projects prior to finalizing the repayment agreements on irrigation.

Senator ELLENDER. With respect to the Elk Creek project, just what progress has been made toward securing the necessary repayment agreements?

General KOISCH. The Bureau of Reclamation has completed a feasibility study for irrigation of the Medford division from Lost Creek and Elk Creek Reservoirs, and will determine repayment requirements. Responsible officials of three irrigation districts, Sams Valley, Eagle Point, and Rogue River Valley, have furnished preliminary assurances that it is the intention of each individual district to enter into a contract with the Secretary of the Interior to provide reimbursement of irrigation costs within each district's ability to repay such costs pursuant to reclamation law. It cannot be anticipated, however, that we will receive entirely satisfactory assurances, pursuant to the authorization, prior to the time when we will be ready to start construction on the project.

Senator ELLENDER. Is the project justified without irrigation benefits?

General KOISCH. Yes, sir. The benefit-to-cost ratio is 1.8 to 1, with irrigation benefits, and the elimination of the irrigation benefits would not change the benefit-to-cost ratio since these benefits amount to only $93,000 out of a total of $2,103,000 estimated for the total project. Flood control benefits alone amount to $988,000.

GATE CREEK RESERVOIR, OREG.

Senator ELLENDER. There is nothing in the budget and local interests have requested $1,600,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $1,600,000, which would permit starting project construction and acquisition of project lands.

Senator ELLENDER. Would you submit a statement for the record?
General KOISCH. Yes, sir.
(The statement follows:)

Summarized financial data

Total estimated Federal cost	$38,300,000
Allocations to date (planning)	800,000
Balance to complete	37,500,000
Amount that could be utilized in fiscal year 1971	1,600,000

Authorization.—Flood Control Act of 1962.

Location and Description.—Gate Creek Reservoir will be located at stream mile 2.0 on Gate Creek, a tributary of the McKenzie River, in Lane County about 27 miles east of the city of Eugene, Oregon. The project would consist of an earth and gravel embankment dam, gated spillway, and outlet control works. The reservoir will have a capacity for 50,000 acre-feet of usable flood control storage.

Proposed Operations.—The sum of $1,600,000 could be used to initiate project construction and the acquisition of project lands. Preconstruction planning has been fully funded and is nearing completion.

Justification.—The Gate Creek Reservoir will provide 50,000 acre-feet of usable flood control storage and will be operated as a unit of the coordinated reservoir system planned for the Willamette Basin in the interest of flood control jointly with conservation of water for navigation, future irrigation and other uses. Gate Creek Reservoir is an essential unit of three multiple purpose reservoirs authorized for the McKenzie River Basin. The project will regulate flood flows from a tributary drainage area of 46 square miles which is so oriented that its flood contribution to McKenzie River floods is greater than the area indicates. This regulation will complement that to be accomplished by Cougar Reservoir and Blue River Reservoir in reduction of flood flows in the lower McKenzie River and on Willamette River downstream of the mouth of the McKenzie River. During the December 1964 flood, Gate Creek Reservoir would have reduced the peak flow at Coburg by 11,000 cubic feet per second, corresponding to a stage reduction of 1.4 feet. The effect of this reduction would have been evident in the Willamette River from Harrisburg to Portland and would have amounted to about 0.7 feet at Harrisburg and 0.5 feet in the Albany and Salem areas. Other benefits will accrue to the project from release of stored water. The estimated annual benefits total $3,387,000, and are tabulated below.

Annual benefits:	*Amount*
Flood control	$2,900,000
Power (downstream)	9,000
Recreation	108,000
Fish enhancement	365,000
Navigation	5,000
Total	3,387,000

[1] The possibility of using some joint use storage for irrigation is being studied.

The benefit-to-cost ratio is 2.1 to 1, based on 100-year project life.

JOHN DAY LOCK AND DAM, OREG. AND WASH.

Senator ELLENDER. The budget request was $7,200,000. The House has included $7,200,000, and local interests have requested $10,200,000. What is your capability on this project?

General KOISCH. Our capability on this project is $10,200,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $3,000,000?

General KOISCH. The additional amount would be used to advance the construction of both north and south shores recreational facilities ($1,900,000) and the Spring Creek Fish Hatchery ($1,000,000), and $100,000 would be used for necessary supervision and administration of the above additional work.

Lost Creek Reservoir, Oreg.

Senator Ellender. The budget request was $6,100,000. The House has included $6,100,000, and local interests have requested $7,100,000. What is your capability on this project?

General Koisch. Our capability on this project is $7,100,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $1,000,000.

General Koisch. The additional amount would be used to complete acquisition of construction area lands and major portions of rights-of-way for relocations ($500,000); and $500,000 would be applied to the fish hatchery construction in order to assure meeting the river diversion schedule of April 1972.

Lower Columbia River Bank Protection, Oreg. and Wash.

Senator Ellender. The budget request was $225,000. The House has included $225,000, exclusive of reserve, and local interests have requested $325,000. What is your capability on this project?

General Koisch. Our capability on this project is $325,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $100,000.

General Koisch. The additional amount would be used to initiate construction on one additional location (Lower Fisher location) during fiscal year 1971, sir.

Lower Grande Ronde Reservoir, Oreg.

Senator Ellender. There is nothing in the budget and local interests have requested $330,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $330,000. This sum would be used to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$16,900,000
Allocations to date	0
Balance to complete	16,900,000
Amount that could be utilized in fiscal year 1971	330,000

Authorization.—Flood Control Act of 1965.

Location and Description.—The project will be located on the Grande Ronde River approximately 11.0 miles upstream from the city of LaGrande. Union County, Oregon. The reservoir will provide multi-purpose storage on Grande Ronde River of 160,000 acre-feet, of which 152,000 acre-feet will be usable. Provision will also be made for the inclusion of additional fish facilities and recreation facilities at a future date.

Proposed Operations.—The sum of $330,000 could be utilized in FY 1971 to initiate preconstruction planning work on this project. The estimated total cost of preconstruction planning is $960,000.

Justification.—The Lower Grande Ronde Reservoir would provide protection against rainfall and snowmelt type floods in the Grande Ronde River Basin, particularly at the city of LaGrande and in the Grande Ronde Valley between LaGrande and Elgin, Oregon. In addition to providing flood control, the reservoir storage will provide water for irrigation, municipal and industrial water supply, receration, and maintenance of resident and anadromous fisheries. Estimated annual benefits total $800,000 and are listed in the tabulation below. The benefit-to-cost ratio is 1.2 to 1, based on 100-year project life.

Annual benefits:	*Amount*
Flood control	$203,000
Irrigation	218,000
Downstream power	13,000
Sports fishery	93,000
Recreation	237,000
Water supply	36,000
Total	800,000

Local Cooperation.—Local interests are required to repay the construction costs allocated to irrigation, water supply, and recreation. These repayments are presently estimated at $7,184,000, of which $6,120,000 is allocated to irrigation, $800,000 to water supply, and $264,000 to recreation.

McNary Lock and Dam, Oreg. and Wash. (Modification of Railroad Bridges)

Senator Ellender. The budget request was $1,420,000. The House has included $1,420,000, and local interests have requested $1,770,000. What is your capability on this project?

General Koisch. Our capability on this project is $1,770,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $350,000?

General Koisch. The additional amount would be used to complete funding of the modifications to the Northern Pacific Railway bridge. It is estimated that the completion date for this bridge would be advanced by about 3 months; from September 1971 to June 1971.

Scappoose Drainage District, Oreg.

Senator Ellender. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $100,000, which would be used to initiate construction of the project.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,000,000
Total allocations to date	95,000
Balance to complete	1,905,000
Amount that could be utilized in fiscal year 1971	100,000

Authorization.—Flood Control Act of 1950.

Location and description.—The Scappoose Drainage District is located east of the town of Scappoose, in Columbia County, Oregon along the left bank of Multnomah Channel opposite Columbia River Miles 90.3 and 97.0. The improvement would provide for strengthening parts of the 10 mile Levee system, construction of 5,200 feet of new levee, additional pumping capacity, modifications to existing discharge pipes, and other appurtenant improvements.

Proposed operations.—The sum of $100,000 could be used to initiate construction of the project.

Justification.—The authorized improvement would provide additional protection of 5,490 acres of suburban and agricultural lands located adjacent to the town of Scappoose, Oregon. The district has a population of 1,100 residing in 95 residential properties, 2 trailer parks, and 15 sets of farm buildings. The land is used principally for the production of nursery and two crops; and dairy, stock, and turkey farming. The project would reduce damages due to levee failure and seepage. Serious seepage occurred during the 1948 flood and inundation was prevented only by emergency flood fighting operations. Average annual flood control benefits amount to $252,000. The benefit-to-cost ratio is 2.7 to 1, based on 50-year project life.

Tillamook Bay and Bar, Oreg.

Senator Ellender. The budget request was $1,700,000. The House has included $1,700,000, and local interests have requested $2,100,000. What is your capability on this project?

General Koisch. Our capability on this project is $2,100,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $400,000?

General Koisch. The additional amount would be used to pay contractor's earnings on first phase construction contract which are now expected to exceed the amount presently scheduled. The completion date for the first phase contract would be advanced by about 4 months.

Willow Creek Reservoir, Oreg.

Senator Ellender. There is nothing in the budget and local interests have requested $250,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $250,000, to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$9,610,000
Allocations to date	0
Balance to complete	9,610,000
Amount that could be utilized in fiscal year 1971	250,000

Authorization.—Flood Control Act of 1965.

Location and Description.—The project will be located on Willow Creek just below the confluence of Balm Fork, immediately upstream from the city of Heppner, in Morrow County, Oreg. The plan of improvement will provide a multi-purpose reservoir on Willow Creek, together with an improved channel through the city of Heppner. The reservoir would have a total capacity of 11,500 acre-feet.

Proposed Operations.—The amount of $250,000 could be used in fiscal year 1971 to initiate preconstruction planning. The estimated total cost of preconstruction planning is $650,000.

Justification.—The proposed plan of improvement would provide protection against heavy rainfall, snowmelt, and cloudburst-type floods in the Willow Creek Basin, particularly at the city of Heppner, Oregon, where serious loss of life is a potential. In 1903 a cloudburst, centering on the watershed above the proposed dam, produced a flood without warning, resulting in the loss of 247 lives, one of the worst natural disasters of its kind in the history of the Nation. The reservoir would have fully controlled that flood. The reservoir, while it will be operated primarily for flood control, will store water that will be used for other purposes, including irrigation, sports fishing and wildlife, recreation, municipal and indus-

trial water supply, and water quality control. Estimated annual benefits amount to $474,000, of which $276,000 would accrue to flood control, $107,000 to irrigation, $14,000 to water supply and water quality control, and $76,000 would be derived from recreation, sports fishing and wildlife benefits. The benefit-to-cost ratio is 1.3 to 1, based on 100-year project life.

Local Cooperation.—Local interests are required to repay the construction costs allocated to irrigation and water supply, and one-half the cost allocated recreation. These repayments are currently estimated at $3,160,000 for irrigation, $103,000 for water supply, and $82,000 for recreation, for a total repayment of $3,345,000.

DuBois, Pa.

Senator Ellender. Local interests have requested $200,000 for this project. The project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use in fiscal year 1971, and no additional funds are in the 1971 budget. However, the House has included $100,000, exclusive of reserve. What is your capability on this project?

General Koisch. Our capability is $100,000.

Senator Ellender. What would be accomplished with the additional funds?

General Koisch. The additional amount would be used to advance the initiation of construction 2 months and complete the project prior to the flood season of 1973.

Grays Landing Lock and Dam, Monongahela River, Pa.

Senator Ellender. There is nothing in the budget and local interests have requested planning funds. What is your capability on this project?

General Koisch. Mr. Chairman, this project is being considered in a study to determine the need for and feasibility of replacement of the existing structure on the Monongahela River. Since a project for replacement is not yet authorized, we have no capability for preconstruction planning in fiscal year 1971.

Lock 8, Monongahela River, Pa.

Senator Ellender. There is nothing in the budget and local interests have requested planning funds. What is your capability on this project?

General Koisch. Mr. Chairman, this project is being considered in a study to determine the need for and feasibility of replacement of the existing structure on the Monongahela River. Since a project for replacement is not yet authorized, we have no capability for preconstruction planning in fiscal year 1971.

Muddy Creek Reservoir, Pa.

Senator Ellender. There is nothing in the budget and local interests have requested $500,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $500,000 to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$13,300,000
Allocations to date	325,000
Balance to complete	12,975,000
Amount that can be used in fiscal year 1971	500,000

Authorization.—1962 Flood Control Act.

Location and Description.—The proposed dam site is located in Crawford County, northwestern Pennsylvania, on Muddy Creek, a tributary of French Creek, about 9 miles above the mouth of Muddy Creek. The proposed project consists of an earth embankment type dam with uncontrolled outlet works and spillway. The Reservoir will have a capacity of 19,400 acre-feet for flood control and control a drainage area of about 61 square miles.

Proposed Operations.—The amount of $500,000 would be utilized to initiate construction of the project in FY 1971.

Justification.—The French Creek Basin, located in the southwestern part of New York and the northwestern part of Pennsylvania, drains an area of 1,235 square miles into the Allegheny River at Franklin, Pennsylvania. The population of the basin is approximately 86,000. Principal population centers which are subject to flood damages are Meadville, Franklin, Sugar Creek Township, Union City and Cambridge Springs. Industries include farming, manufacture of metal products, textiles, chemicals, furniture, flood processing, petroleum refining and repair shops. Since 1942, eleven major floods have been experienced in the basin. The flood of April 1947, the maximum natural flood condition, resulted in the highest stages attained in the upper French Creek Basin, with moderate stages experienced in the lower portion of the basin. An estimated 7,600 acres of developed rural and urban land were affected. Primary flood damages in the amount of $4,730,000 would result from a recurrence of the April 1947 flood. Of this amount $3,391,000 would be prevented by operation of the French Creek Reservoir system, July 1969 values.

The authorized system of three reservoirs (Union City, Woodcock Creek and Muddy Creek) would afford an effective and economical measure of flood protection to the principal damage centers in the French Creek Basin, and would supplement the protection afforded by other flood control resevoirs in the valleys below the basin. Muddy Creek Reservoir would provide about 22 percent of the annual flood control benefits creditable to the system.

The benefit-cost ratio for this project is 1.06 to 1. The average annual benefits are broken down as follows:

Flood control:	
Elimination of primary flood damages	$388,200
Future development	143,600
Total	531,800

Tocks Island Reservoir, Pa., N.J., N.Y.

Senator Ellender. The budget request was $8,250,000. The House has included $11,850,000 and local interests have requested $15 million. What is your capability on this project?

General Koisch. Our capability on this project is $13 million, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $4,750,000?

General Koisch. The additional amount would be used to advance land acquisition, power line relocation, and foundation preparation. However, at this time, no advance in project completion can be determined.

EVALUATION OF ALTERNATIVE PLAN

Senator Ellender. The committee heard testimony in opposition to the Tocks Island project. Among the points raised was the recommendation that no funds be provided for the project until a review has

been made of alternative ways of providing for authorized project purposes, of the effects of reservoir fluctuations on recreation and the effect and status of the pumped-storage power proposal of the private utilities. It was also suggested that an alternative plan of development referred to as the Minisink national historic landmark plan could more adequately provide for project purposes and with less effect on the environment.

I requested the staff to obtain the views of the Corps of Engineers and of the Delaware River Basin Commission. I will insert at this point in the record the comments received in response to that request.

(The letters follow:)

DEPARTMENT OF THE ARMY,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, D.C., June 29, 1970.

MR. KENNETH J. BOUSQUET,
Staff Assistant,
Subcommittee on Public Works,
U.S. Senate,
Washington, D.C.

DEAR MR. BOUSQUET: This is in further reply to your letter of May 14, 1970 requesting an evaluation of an alternate plan to the Tocks Island Dam and Delaware Water Gap National Recreation Area.

Unfortunately an analysis of the relative economic merits of the proposed alternate plan, referred to as the Minisink Plan, is not possible since the plan is only in general outline form and, apparently, has not been developed in any detail. However, based on a review of the plan as presented it is our view that it is undesirable as an alternative means of providing for the benefits to be realized through development of the combined Tocks Island-Delaware Water Gap National Recreation Area Project.

The economic advantages of the combined authorized projects have been presented in some detail and coordinated fully with appropriate Federal and non-federal interests to obtain their views and input accomplishments and effects of the projects. In addition, the Tocks Island Project has been evaluated to insure that the project and each separable increment is fully justified economically. No comparable analysis or coordination with affected interests is possible with the Minisink Plan because it is only conceptual. Its development to a degree which would permit a meaningful economic analysis and solicitation of views and inputs of the other affected interests would, in our opinion, prevent its implementation in a time period shorter than that estimated for the authorized projects.

The plan does not provide for the most efficient use of the area's resources to meet existing and growing needs. It would contribute to only the recreation and flood control needs of the area. The plan has no capabilities for meeting water supply or power needs. Therefore, the proposed plan is not consonant with Federal planning objectives in that it proposes the dedication of resources for development which benefits a lesser number of people and purposes than possible and, therefore, does not maximize net benefits.

With regard to flood control our previous studies indicate that tributary dams controlling small drainage areas would provide effective flood protection locally but normally would have only minor effects on main stem flooding. I would like to point out in this connection that 386 potential small dams for flood control were evaluated and 39 recommended by the Corps for inclusion in the plan for the comprehensive development of the Delaware River Basin. These preauthorization studies clearly show that the construction of a single project at Tocks Island is the most economical overall solution to the problems of the regions.

Other studies by the Corps and other Federal and non-federal agencies indicate that demands for recreation and power in the area are increasing, that a market exists for such services and that the Tocks Island Project could very effectively contribute to the satisfaction of these demands. With regard to recreation it should be noted that the proposed development is located within easy access of an estimated 14% of the Nation's population. It is our view that satisfaction of the recreation needs of this population will require many facilities and developments additional to those to be provided at Tocks Island. The evaluation has been confirmed by independent studies of the National Park Service, Bureau of Outdoor Recreation and joint studies by the States of New Jersey

and Pennsylvania. From the information presented, it does not appear that the proposed Minisink Plan could provide for visitations anywhere near comparable to those to be accommodated at the combined Federal project.

In addition, power studies by the Federal Power Commission, Department of Interior, and utilities in the area indicate that power from the project could easily be absorbed in the regional load. Our studies indicate that authorized conventional hydro-power is well justified economically and would have no significant adverse effect on the environment or quality of recreation experience due to power induced reservoir fluctuations. Therefore, in view of the absence of any more economical alternative sources power should be included in the project construction.

Implementation of the plan would preclude development of the least costly means for providing the benefits of the combined reservoir—national recreation area projects which, incidentally, requires the use of less than 10% of the area proposed for historic preservation in the Minisink Plan.

In summary, the plan violates basic formulation principles by minimizing rather than maximizing beneficiaries and use of the area's resources. The plan would provide benefits to less than 1% of the basin's population while using almost 10% of the basin's drainage area and over 25% of the under developed portion of the basin's major resource—the Delaware River. It makes no provision for meeting short- or long-term basin needs for power and water supply either within the area selected for preservation or for the remaining basin area. Although the plan may provide for protection against some tributary flooding it ignores main stem flood protection.

Sincerely yours,

F. P. KOISCH,
Major General, USA,
Director of Civil Works.

DELAWARE RIVER BASIN COMMISSION,
OFFICE OF THE U.S. COMMISSIONER,
Washington, D.C., June 4, 1970.

Mr. KENNETH J. BOUSQUET,
Staff Assistant, Subcommittee on Public Works,
Committee on Appropriations,
U.S. Senate, Washington, D.C.

DEAR MR. BOUSQUET: I have your letter of May 14 requesting the Commission's comments on a proposed alternate plan to the Tocks Island Dam and National Recreation Area. Enclosed is a detailed response to the alternate plan, which has been prepared by the Commission's staff. However, I would like to take this opportunity to give you my personal views with regard to the alternate plan.

I am a preservationist by nature and am quite familiar with the lovely area which the Tocks Island reservoir will inundate. However, I cannot endorse the alternate plan because it completely ignores the very critical needs for water supply and electric power in the area. Also, I am not an engineer but must support finding of the Corps of Engineers and the Commission's own engineering staff that the Tocks Island Dam is the most effective and economical means of reducing major flood threats downstream from the Delaware Water Gap.

I realize there is concern about the ever-increasing percentage of project benefits being attributed to recreation at Tocks Island. It would be my hope that one would not lose sight of the importance of the other needs this project will meet, which remain unchanged even though they now constitute a smaller percentage of the benefits attributable to the project. I would hate to think it would take another devastating flood similar to the one in 1955, a prolonged black-out, or another severe drought similar to the one of the mid-1960's to hit home the truth of this statement. Failure to meet these threats could only be looked upon as overt negligence on the part of government, and time is our worst enemy.

Sincerely yours,

PAUL M. VANWEGEN,
U.S. Commissioner.

Enclosure.

DELAWARE RIVER BASIN COMMISSION,
Trenton, N.J., June 2, 1970.

To: Senate Appropriations Committee, Subcommittee on Public Works.
From: Delaware River Basin Commission Staff.
Subject: Comments on suggestion of Mrs. Matheson concerning alternative to Tocks Island Reservoir Project.

The suggestion of the witness for de-authorization of the Tocks Island dam and Delaware Water Gap National Recreation Area projects in favor of establishment of Minisink National Historic Landmark would provide a weak substitute. The proposal would do away with facilities for which there is a demonstrable need and provides no alternatives of any kind for water supply, main stem flood protection and hydroelectric power and an entirely inadequate substitution for recreation.

WATER SUPPLY

Water supply has been from the beginning one of the central purposes of the Tocks Island reservoir project and has assumed importance even beyond that provided in the authorization of 1962.

New Jersey has already formally notified the Delaware River Basin Commission of its intention to seek 300 MGD from the Tocks Island project after 1978 to serve the expanding domestic needs of the northeastern counties that comprise the most heavily urbanized section of the United States.

For the Philadelphia suburbs in Bucks and Montgomery Counties, additional water supply needs of nearly 25 MGD in the mid-1970's will grow to an estimated 100 MGD in 25 years.

To meet the region's mushrooming electrical power demands, utility companies are planning generating stations for the immediate future with cooling needs of about 150 MGD.

These do not include supplies for augmenting minimum flows in the downstream Delaware for salinity control and protection of the oyster beds. The above needs could not be provided with the alternative suggested, nor as economically with any other alternative to Tocks Island.

Had the Tocks Island reservoir been on the line during the severe drought of the 1960s, the region would not have had to resort to emergency measures such as curtailing New York City's diversion entitlement and the compromised use of flood control-only reservoir for water supply purposes.

FLOOD CONTROL

The Basin Commission, like the Corps of Engineers, sees the necessity for construction of a series of large dams in the Basin for flood control. In its Delaware River Basin Survey, the Corps did investigate the potential of a series of small dams as an alternative and concluded that major impoundments offered the most optimum multiple benefits.

Whereas the 17,000 acres that would be inundated by the Tocks Island project would provide 845,000 acre-feet of storage, the group of small reservoirs studied as a partial alternative would require inundation of 12,700 acres to produce 312,000 acre-feet.

In terms of flood control, no physically feasible number of small watershed sites could match the protection to be given the main stem of the Delaware River by the Tocks Island reservoir. The preponderance of property damage in the Delaware Basin from the 1955 flood occurred on the mainstem of the river between the Delaware Water Gap and Burlington, the stretch to be protected by Tocks. The large loss of life in that flood occurred in tributary areas, and in response to this the Corps' report and the Basin Commission's Comprehensive Plan carried a heavy concentration on tributary area flood protection.

The witness does not mention that between the Delaware Water Gap to Trenton, the total flood damage along the Delaware River exceeded 85 per cent of the total damage for the entire mainstem of the Delaware River and amounted to approximately 40 million dollars (1955 price level).

RECREATION

The witness's suggested approach has not been neglected on the Delaware. A portion of the river upstream—between Port Jervis and Hancock—is under study for inclusion in the National Scenic River System, encompassing a similar

type of arrangement to that suggested for the Tocks area. Her proposal would not begin to accommodate the recreation uses foreseen under the authorized plan, which the National Park Service says will attract more than 10 million day-visits annually as the only National Recreation Area in the heavily populated Northeast.

HYDROPOWER

While the witness was not specific, presumably her plan would eliminate any hydroelectric development in the Tocks area. The utilities in the region see an urgent need for the peaking power to be produced by the arrangement currently under consideration at Tocks Island. As in the case of water supply, main stem flood protection, and heavy-use recreation, the witness offers no reasonable alternative.

Senator ELLENDER. Would you discuss the principal features of the alternative plan as it relates to the authorized project?

Colonel EDELSTEIN. Mr. Chairman, it is our view that the Minisink plan is undesirable as an alternative means of providing for the benefits from the combined Tocks Island-Delaware Water Gap Recreation Area for a number of reasons.

First, the economic advantages of the combined authorized projects have been presented in some detail in their authorizing documents and subsequent reports. The Minisink plan is conceptural only and does not present any economic analysis nor are the views of affected interests known. Development of the plan to a degree which permits economic analysis and solicitation of views of other interested parties would, in our view, prevent its implementation in a time period shorter than that estimated for the authorized projects.

Second, the plan violates Federal planning objectives in that it proposes resource use and development for the benefit of a few to the disadvantage of many.

Third, the plan serves only the recreation and flood control needs and does not provide for water supply or power benefits.

Fourth, the plan does not provide for a more efficient use of the available resources to meet existing needs.

Fifth, the plan does not provide for a comparable combination of uses and does not maximize net benefits.

In summary the plan violates basic formulation principles by minimizing rather than maximizing beneficiaries and use of the area's resources. The plan would provide benefits to less than 1 percent of the basin's population while using almost 10 percent of the basin's drainage area and over 25 percent of the under developed portion of the basin's major resource—the Delaware River. It makes no provision for meeting short- or long-term basin needs for power and water supply either within the area selected for preservation or for the remaining basin area. Although the plan may provide for protection against some tributary flooding it ignores main stem flood protection.

Implementation of the plan would preclude development of the least costly means for providing the benefits of the reservoir-national recreation area project which, incidentally, requires the use of less than 10 percent of the area proposed for historic preservation in the Minisink plan.

WATERSHED TREATMENT

Senator ELLENDER. Although you minimize the effectiveness of the plan for flood control is it not possible that main stem flood protec-

tion could be provided by more Soil Conservation Service type tributary flood control dams?

Colonel EDELSTEIN. Our studies indicate that tributary dams controlling small drainage areas would provide effective flood protection locally but normally would have only minor effects on main stem flooding. I would like to point out in this connection that 386 potential small dams for flood control were evaluated and 39 recommended for inclusion in the plan for the comprehensive development of the Delaware River Basin. These preauthorization studies clearly show that the construction of a single project at Tocks Island is the most economical overall solution to the problem of the region.

RECREATION ALTERNATIVES

Senator ELLENDER. What are your views on the contentions that more economical alternatives are available for meeting the recreation and power functions of the projects?

Colonel EDELSTEIN. Studies by the corps and other Federal and non-Federal agencies indicate that demands for recreation and power in the area are increasing, that a market exists for such services and that the Tocks Island project could very effectively contribute to the satisfaction of these demands. With regard to recreation it should be noted that the proposed development is located within easy access of an estimated 14 percent of the Nation's population. It is our view that satisfaction of the recreation needs of this population will require many facilities and developments additional to those to be provided at Tocks Island. This evaluation has been confirmed by independent studies of the National Park Service, Bureau of Outdoor Recreation, and joint studies by the States of New Jersey and Pennsylvania.

With regard to power, studies by the Federal Power Commission, Department of Interior, and utilities in the area indicate that power from the project could easily be absorbed in the regional load. Our studies indicate that authorized conventional hydropower is well justified economically and would hove no significant adverse effect on the environment or quality of recreation experience due to power induced reservoir fluctuations. Therefore, in view of the absence of any more economical alternatives, power should be included in the project construction.

STATUS OF AUTHORIZATION FOR PUMPED STORAGE

Senator ELLENDER. What is the status of the utilities pumped-storage proposal?

Colonel EDELSTEIN. As you know, our studies and previous testimony indicate that optimum utilization of the power potentials of the project site is accomplished with the addition of a pumped-storage generating facility. The River Basin Monetary Authorizations and Miscellaneous Civil Works Amendments Acts of 1970, Public Law 91–282, signed June 19, 1970, modifies the projects authorization to the extent that a non-Federal pumped-storage proposal may be substituted for the currently authorized power facility if licensed by the Federal Power Commission. We do not know how soon the plan would be sufficiently detailed to allow an application for license to the Federal Power Commission. In the interim, however, we are proceeding with design and

construction of the project based on the authorized purposes including conventional hydropower but in such a manner as to permit the future addition of the utility power proposal.

ALTERNATIVE SOURCES OF WATER SUPPLY

Senator ELLENDER. Other testimony has indicated that water supplied from desalinization plants or other existing sources is cheaper than that from the project. What is your view on this testimony?

Colonel EDELSTEIN. We recognize that ultimately water supply needs may be met by desalting and purification of sea water. However, present processes are not sufficiently advanced to be economically competitive with conventional water supply sources. It is estimated that current desalting techniques can produce water at costs of about $1/1,000 gallons. We have also seen newspaper articles which state that water supplies in the project area can be obtained for about $152/1 million gallons or 15.2 cents/1,000 gallons. Cost of water from Tocks Island on the other hand is about 2 cents/1,000 gallons.

TREXLER RESERVOIR, PA.

Senator ELLENDER. There is nothing in the budget and local interests have requested Planning Funds. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $240,000 to advance preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$16,500,000
Total allocations to date	561,000
Balance to complete	15,939,000
Amount that could be utilized in fiscal year 1971	240,000

Authorization.—1962 Flood Control Act

Location and Description.—The project is located on Jordan Creek, a tributary of Lehigh River in the Trexler, Pennsylvania State Game Preserve in Lehigh County, about eight miles northwest of Allentown. The project contemplates a multiple-purpose development to provide water supply, flood control and recreation consisting of a concrete gravity-type dam about 800 feet long, and 120 feet high with a reservoir extending about eight miles up Jordan Greek and providing 39,830 acre-feet of storage, including 24,570 acre-feet for water supply, 14,250 acre-feet for flood control and 1020 acre-feet for sediment reserve.

Proposed Operations.—The amount of $240,000 would be utilized to resume subsurface exploration and materials investigation. Work would be initiated on the Land Requirements—Public Use and the Real Estate design memoranda, which could be completed during FY 1971. Work would also be initiated on the necessary feature design memoranda.

Justification.—The project will provide benefits for flood control, water supply and recreation. The reservoir will control the run-off from a drainage area of fifty-one square miles. The flood control storage will contribute to flood stage reductions at the principal damage centers of Allentown, Bethlehem, and Easton, Pennsylvania. Use of 24,570 acre-feet of storage will provide increased stream flow which will contribute to the water supply needs of the Bethlehem and Trenton-Philadelphia areas. The project will provide a recreation capacity to accommodate a total of 312,500 visitors annually. The benefit-cost ratio is 1.4 to 1. Average annual benefits are as follows:

Reduction of flood damages	$166,000
Supplies of water	753,000
Recreation	315,000
Total	1,234,000

WOODCOCK CREEK RESERVOIR, PA.

Senator ELLENDER. The budget request was $4,750,000. The House has included $4,750,000 and local interests have requested $4,900,000. What is your capability on this project?

General KOISCH. Our capability on this project is $4,900,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $150,000?

General KOISCH. The additional amount would advance completion of recreation and project 6 months.

COOPER RIVER, CHARLESTON HARBOR, S.C.

Senator ELLENDER. The budget request was $25,000 and the House has included $150,000 for this project. What is your capability?

General KOISCH. Mr. Chairman, since we testified on this project in March of this year, the fiscal year 1970 appropriation of $200,000 was released from budgetary reserve for immediate use. Consequently with the earlier start of work on this project we now can state a capability of $150,000.

Senator ELLENDER. What would be accomplished with the additional $125,000?

General KOISCH. The additional amount would be used to advance work on planning relocations, subsurface explorations, a wildlife refuge study and the general design memorandum.

J. PERCY PRIEST RESERVOIR, TENN.

Senator ELLENDER. The House has added $839,000 to complete construction of the Nashville-Davidson County Bridge. Would you desecribe what is involved and whether you can do the work?

General KOISCH. Mr. Chairman, the work consists of construction of a 1,920-foot-long bridge over the reservoir at Stones River mile 16.3. The bridge piers have been installed by the metropolitan government of Nashville and Davidson County. A contract for the superstructure could be awarded in the fiscal year.

AQUILLA RESERVOIR, TEX.

Senator ELLENDER. There is nothing in the budget, the House has included $100,000 and local interests have requested $100,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $100,000 to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $29,600,000
Allocations to date	0
Balance to complete	29,600,000
Amount that could be utilized in fiscal year 1971	100,000

[1] Local interests are required to pay the portion of project costs allocated to water supply, and a portion of the costs allocated to recreation. These costs are estimated to be $4,367,000 and $523,000 respectively.

Authorization.—1968 Flood Control Act.

Location and Description.—The damsite would be located on Aquilla Creek about 10.2 miles southwest of Hillsboro, Texas in Hill County. The plan of improvement provides for a main earth dam about 10,600 feet long with an uncontrolled concrete spillway 1,200 feet long on the left abutment, and an earth-fill dike 700 feet long on the right abutment to create a reservoir with a total storage capacity of 199,300 acre-feet for flood control and water supply storage.

Proposed Operations.—The amount of $100,000 would be used to initiate the preconstruction planning.

Justification.—The reservoir is urgently needed as a source of water supply for the cities of Hillsboro and West, Texas, to replace deteriorated ground-water well system. The Aquilla Reservoir will control 50-yr. frequency floods originating upstream of Aquilla Dam and will afford reduction in flood damages to the downstream flood-plain areas, including 6,208 acres along Aquilla Creek and 958,280 acres along the Brazos River. The project is an important unit in the system of reservoirs already planned, authorized, under construction, and in operation on the Brazos River and Tributaries. The total value of physical property within this area is estimated at $581,478,000 under 1965 development conditions and July 1969 price levels. The total damages that would be caused by a recurrence of the maximum flood of record, based on July 1969 price levels and 1964 conditions of development, is $68,500,000. The benefit-to-cost ratio is 1.4 to 1.

The average annual benefits for the project are broken down as follows:

Flood control	$801,400
Water supply	210,100
Recreation	467,200
Area redevelopment	246,200
Total	1,724,900

Ark-Red Chloride Control, Supplemental Studies, Tex., Okla., and Kans.

Senator Ellender. There is nothing in the budget and local interests have requested $410,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $410,000, which would complete the supplemental studies project.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,910,000
Allocations to date	2,500,000
Balance to complete	410,000
Amount that could be utilized in fiscal year 1971	410,000

Authorization.—1966 Flood Control Act.

Location and Description.—Located in Area I, Great Salt Plains, and Area VI, Elm Fork Red River. The project consists of: (1) a fresh water impoundment dike at Great Salt Lake Plains on Salt Fork (Area I); (2) a collection system, evaporation pond, and deep well injection test on Elm Fork (Area VI); and (3) additional water quality monitoring stations in the two basins.

Proposed Operations.—The amount of $410,000 would be used to complete the supplemental studies.

Justification.—During survey studies, several potential control plans were discarded because of high construction costs and others were eliminated because they included untested theories. Investigation of the untested theories may reduce the costs of, or fully substantiate the effectiveness of the proposed plans. Before construction of some chloride control structures is begun, extensive investigations of ground water hydrology and sub-surface conditions would be required. This would consist of conducting field tests to assist in developing the data for designing more efficient control plans. Each field test would investigate a separate principle of brine control which might be used in one or more of the areas.

Aubrey Reservoir, Tex.

Senator Ellender. The budget request was $25,000. The House has allowed $25,000, exclusive of reserve, and local interests have requested $150,000. What is your capability on this project?

General Koisch. Our capability on this project is $150,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $125,000?

General Koisch. The additional amount would be used to advance completion of preconstruction planning by 4 months.

Big Pine Reservoir, Tex.

Senator Ellender. There is nothing in the budget and local interests have requested $40,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $40,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $12,200,000
Allocations to date	0
Balance to complete	12,200,000
Amount that could be utilized in fiscal year 1971	40,000

[1] Local interests are required to pay the portion of project costs allocated to water supply, currently estimated at $5,894,000.

Authorization.—1962 Flood Control Act.

Location and Description.—The dam would be located on Big Pine Creek, approximately 22 miles northwest of Clarksville, Texas, in Red River County. The Plan of improvement consists of a rolled earth embankment with a total length of 5,390 feet and a maximum height of 77 feet above the stream bed. Total capacity of the reservoir would be 138,600 acre-feet, of which 53,600 acre-feet is for flood control, 79,300 acre-feet for water supply, 4,600 acre-feet for sediment, and 1,100 acre-feet for inactive storage.

Proposed Operations.—The amount of $40,000 would be used to initiate preconstruction planning.

Justification.—The Big Pine Reservoir would provide a high degree of flood protection for 4,100 acres of land along Big Pine Creek. The area under consideration has experienced several major floods since 1934. The maximum flood of record on Big Pine Creek occurred in January 1949, causing damage estimated to be $36,000. The crop losses would have been considerably greater had this flood occurred during the summer months. Construction of this project would prevent approximately 90% of the average annual flood losses; develop the optimum yield of the stream into a positive resource through storage and regulation; provide urgently-needed water supply storage for municipal and industrial use, outdoor recreation and fishing and hunting to help meet the regional demands. The benefit-to-cost ratio is 1.4 to 1. The average annual benefits for the project are broken down as follows:

Flood control	$147,000
Water supply	399,000
Recreation	215,000
Fish and wildlife	2,000
Redevelopment	23,000
Total	786,000

Cedar Bayou, Tex.

Senator Ellender. There is nothing in the budget, the House has included $45,000, exclusive of reserve and local interests have requested $50,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $45,000, and this is dependent upon the restudy showing economic justification for the project.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated federal cost	[1] $450,000
Allocations to date	[2] 15,000
Balance to complete	435,000
Amount that could be utilized in FY 1971	[3] 45,000

[1] For uncompleted portion only.
[2] Appropriated in Fiscal Year 1970 for economic restudy. These funds placed in budgetary reserve and will be allocated in Fiscal Year 1971.
[3] Dependent upon the restudy showing economic justification for the project.

Authorization.—1930 River and Harbor Act.

Location and description.—The project is located about 30 miles from the center of Houston, Texas, and extends from the Houston Ship Channel to a point on Cedar Bayou about 11 miles above its mouth. The bayou forms the boundary between Harris and Chambers Counties. The project provides for a channel 10 feet deep and 100 feet wide from the Houston Ship Channel to Mile 11.0 on Cedar Bayou. In 1931, the portion of the project between the Houston Ship Channel and the Atlantic Pipe Line Company terminal at the mouth of Cedar Bayou was completed at a cost of $25,151, of which, local interests contributed the sum of $12,576.

Proposed operations.—The $45,000 would be used to complete preconstruction planning provided the project is found economically justified.

Justification.—Recent industrial development along Cedar Bayou by U.S. Steel Corporation and others now indicates considerable prospective commerce and traffic for the navigation project in the immediate future. By letter 16 April 1969, the Chambers-Liberty Counties Navigation District requested that the undredged portion of Cedar Bayou from the mouth to a point where the Houston Lighting and Power Company's intake channel from Galveston Bay intersects Cedar Bayou at about Mile 5.0 be reactivated. Construction of this portion of the channel, together with the 20 feet by 100 feet intake channel to be constructed by Houston Lighting and Power Company, will provide an improved channel varying in depth from 10 feet to 20 feet to about Mile 9.0. It is considered that recent commercial developments above this point, including location of a large ready-mix concrete operation, will generate sufficient commerce ot warrant construction of the entire authorized channel to Mile 11.0. The benefit-to-cost ratio is not available pending completion of economic feasibility study to be included in preconstruction planning activities.

Cooper Reservoir Channels, Tex.

Senator Ellender. The budget request was $1,420,000. The House has included $1,820,000, exclusive of reserve, and local interests have requested $1,820,000. What is your capability on this project?

General KOISCH. Our capability on this project is $1,820,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $400,000?

General KOISCH. The additional amount would be used to advance land acquisition and construction of channels and levees but would have no effect on the completion schedule of the project.

CORPUS CHRISTI SHIP CHANNEL, TEX. (45-FOOT)

Senator ELLENDER. There is nothing in the budget, the House has included $350,000 exclusive of reserve, and local interests have requested $350,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $350,000, to initiate construction.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

	Amount
Total estimated Federal cost (C of E)	$19,900,000
Allocations to date	[1] 35,000
Balance to complete	19,865,000
Amount that could be utilized in fiscal year 1971	350,000

[1] Placed in budgetary reserve and will be allocated in fiscal year 1971.

Authorization.—1968 River and Harbor Act.

Location and description.—The project is located in Nueces County on the southern portion of the coast of Texas, 180 miles southwest of Galveston. The plan of improvement provides for deepening the outer bar channel to 47 feet; deepening the remaining deep-draft portion of the waterway to 45 feet, including the La Quinta Channel and turning basin; widening the main, Tule Lake, Viola and La Quinta Channels; widening the Chemical, Tule Lake, Viola and La Quinta turning basins; enlarging the entrance to the Inner Basin; realigning the Industrial Canal to a location 25 feet northerly from its present position; and widening the Avery Point turning basin at the head of the Industrial Canal; constructing a turning point with turning area at the La Quinta Channel junction; constructing mooring areas and dolphins at Port Ingleside; and easing of certain bends.

Proposed operations.—The amount of $350,000 would be used to initiate construction.

Justification.—All the channels are frequently used by vessels larger than those for which the channels were designed. The larger vessels can be maneuvered in the existing turning basins only with extreme care and caution. Enlargement of the basins is needed to reduce the difficulty attendant to existing traffic. The inner basin area is subject to very strong ebb and flood tides causing vessels to experience difficulty in maneuvering from the jetty channel through the inner basin into the main channel. An inshore anchorage or mooring area is needed to permit safe deep draft anchorage for ships awaiting berthing areas along the waterways. Vessels now have to anchor in the Gulf of Mexico which creates difficulties during adverse weather.

Completion of the project would satisfy an annual need for 15,000,000 tons of commerce for the Texas Gulf Region. The benefit-to-cost ratio is 5.1 to 1. The estimated annual benefits, all navigation, are $5,382,800.

GULF INTRACOASTAL WATERWAY, LA. AND TEX. (16-FT. CHANNEL)

Senator ELLENDER. There is nothing in the budget and local interests have requested $200,000. Could you use this amount?

General KOISCH. Mr. Chairman, our capability on the Corpus Christi Bay reach of this project is $200,000 for planning and to initiate and

complete construction on the channel relocation in Corpus Christi Bay.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data:

Total estimated Federal cost	$27,600,000
Allocations to date	0
Balance to complete	37,600,000
Amount that could be utilized in fiscal year 1971	200,000

Authorization.—1962 River and Harbor Act.

Location and Description.—The existing 12 x 125-foot Gulf Intracoastal Waterway project in the States of Louisiana and Texas will be improved to provide a 16 x 150-foot channel from the Mississippi River to the Atchafalaya River, a 16 x 200-foot channel from the Atchafalaya River to the Sabine River, a 16 x 150-foot channel from the Sabine River to the Houston Ship Channel, and relocation of the main channel at present dimensions (12 x 125 feet) in Matagorda and Corpus Christi Bays.

Proposed Operations.—The amount of $200,000 would be used to initiate and complete both preconstruction planning and construction on the channel relocation in Corpus Christi Bay.

Justification.—The relocation in Corpus Christi Bay would produce savings in transportation cost and reduction in navigation hazards. The present rapid expansion of the oil industry and of allied industries which is expected to continue for an indefinite period, indicates that tonnages of crude oil, petroleum products, petrochemical products, materials used in those industries, and miscellaneous cargo will increase throughout the life of the project. Completion of the relocation in Corpus Christi Bay will help fulfill a need of 50,000,000 ton miles of commerce for the period 1974–1978. The benefit-to-cost ratio for Corpus Christi Bay portion is 3.8 to 1. The average annual benefits, all navigation, for relocation of the channel in Corpus Christi Bay is $49,100.

LAKE BROWNWOOD DAM MODIFICATION, TEX.

Senator ELLENDER. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $100,000, to initiate preconstruction planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$4,710,000
Allocations to date	0
Balance to complete	4,710,000
Amount that could be utilized in fiscal year 1971	100,000

Authorization.—1968 Flood Control Act.

Location and Description.—The improvement will be located in Brown County on the Pecan Bayou, approximately 10 miles north of Brownwood, Texas, at the existing Lake Brownwood. The plan of improvement provides for construction of Lake Brownwood protective measures consisting of a new earth embankment 1,870 feet long, new outlet works and spillway erosion control measures. The total reservoir storage will be 124,600 acre-feet including 91,600 acre-feet for water conservation and 33,000 acre-feet for sediment reserve.

Proposed Operations.—The amount of $100,000 would be used to initiate the preconstruction planning.

Justification.—The project will provide flood protection to suburban and urban lands along Pecan Bayou. The existing Lake Brownwood Dam is not considered adequate for safe operation, and there is no assurance that the dam would not fail on recurrence of the flood of record. Sudden release of impounded flood

waters would inundate business and residential areas of Brownwood and substantial agricultural lands causing an estimated $40,000,000 damages and probable loss of life. It would result in the loss of about 95% of water supply now available in the Pecan Bayou watershed. The protective measures would extend the useful life of Lake Brownwood Dam and insure its continued operation as an effective means of reducing flood peaks and damages within the downstream area. The benefit-to-cost-ratio is 2.3 to 1. The average annual benefits for the project are broken down as follows:

Flood control	$ 792,800
Water supply	264,700
Total	1,057,500

Lakeview Reservoir, Tex.

Senator Ellender. The budget request was $112,000. The House has allowed $112,000 and local interests have requested $2,612,000. What is your capability on this project?

General Koisch. Our capability on this project is $2,612,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $2,500,000?

General Koisch. The additional amount would be used to initiate land acquisition.

Millican Reservoir, Tex.

Senator Ellender. The budget request was $50,000. The House has allowed $50,000 and local interests have requested $200,000. What is your capability on this project?

General Koisch. Our capability on this project is $200,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $150,000?

General Koisch. The additional amount would be used to advance completion of preconstruction planning by 3 months.

OPPOSITION

Senator Ellender. The subcommittee has heard testimony by the Navasota River Improvement Association opposing the construction of the Millican Reservoir as the first unit in the authorized plan of improvement and supporting, rather, the Navasota 2 Reservoir. They have stated that the cost of land for acquisition of the Millican Reservoir site has been grossly underestimated by the corps. What is the corps current cost estimate for lands at this site?

Colonel Charles. Mr. Chairman, the present July 1969 estimate is based on a gross appraisal made in January 1969. Exclusive of the corps cost of acquisition, this estimate contained $36,391,000 for land payments and resettlement for 86,980 acres. This is about $418/acre. The acreage is different from that in the opposition statement because they have only included the dam and reservoir lands. The lands involved are shown on page 48 (table 3) of the authorizing document and are tabulated as follows:

	Acres
Dam and reservoir:	
Fee	80,800
Easement	3,000
Channel:	
Fee	260
Easement	1,100
Recreation:	
Fee	1,820
Total	86,980

The 4,100 acres of easement have been changed to fee simple. Land estimates are based on all fee simple during planning stages until completion of the "General Design" memorandum. Lands must meet the following criteria to qualify for easement taking:

(*a*) Must be above conservation storage pool.

(*b*) Must be remote to the main body of the reservoir.

(*c*) Must be of no value to the corps or State and Federal Fish and Wildlife Agencies for the purpose of recreation or fish and wildlife enhancement.

(*d*) Must be financially advantageous to the Government to acquire by easement.

Most of the qualifying criteria cannot be determined until completion of the "General Design" memorandum. Therefore, we use all fee simple during advance planning so we will have a basis for economic comparison later.

INCREASE IN LAND VALUES

Senator ELLENDER. The Navasota River Improvement Association further points out that constant escalation of lands at the Millican Reservoir site are not related to possible future impoundment in the area but primarily influenced by its proximity to the expanding Bryan-College Station community. What is your comment concerning this observation?

Colonel CHARLES. The Corps recognizes that some increase in the value of land in Millican would occur even if the reservoir were not going to be constructed. The annual increase is estimated to be about 18–22 percent and is due primarily to its location near the large Houston financial center. This increase is taken into account in our annual revision of cost estimates. The Navasota River Improvement Association land estimate may include an additional increase caused by speculative buying due solely to the anticipated reservoir. It is not proper to include the increase brought about by the project.

Senator ELLENDER. The Navasota River Improvement Association notes that the cost of land for Millican Reservoir exceeds by more than 50 percent the total reservoir cost and maintains that, under these conditions, the B/C ratio would change so drastically as to demonstrate the project no longer economically justified. Would you comment upon the percentage of total cost represented by costs of land and furnish the current B/C ratio for Millican Reservoir?

Colonel CHARLES. Sir, the cost of land on Millican has been a large percentage of the total cost since the survey report. Page 92 (table 4) of the authorizing document contains a total lands and damages estimate of $25,955,000. This represented about 44 percent of the total estimated project cost at that time which was $58,620,000. Although the corps recognizes that the land values are increasing at a rapid rate, the

fact that the July 1, 1969 land estimate represents 47.85 percent of the project cost does not necessarily have a bearing on the project evaluation. The increase in value of land increases the value of damageable property and therefore increases flood control benefits. The benefit-to-cost ratio is computed annually on the basis of the then current project cost estimate and the current estimated benefits that will accrue to the project. The current July 1, 1969 benefits and charges are as follows:

Benefits	July 1, 1969	Percent
Flood control	$3,364,500	42.7
Water supply	1,754,900	22.3
Recreation	2,255,800	28.7
Redevelopment	498,100	6.3
Total	7,873,300	100.0
Charges	3,310,800	

Note: B/C ratio 2.4 to 1.

ECONOMIC VALUE OF DEER HERD

Senator ELLENDER. The Navasota River Improvement Association emphasized to the subcommittee the economic value of the great white-tailed deer herd residing in the habitat which will be taken by Millican Reservoir and maintains that this has not been adequately taken into account in arriving at recreational benefits. Please comment upon how the loss of wildlife habitat and loss in revenue for deer leases is reflected in the project economics or recreational benefits.

Colonel CHARLES. Mr. Chairman, we recognize that there will be a loss of wildlife habitat and a corresponding loss of hunting opportunity resulting from the construction of Millican Reservoir. We also recognize that this same loss will occur, to a lesser degree, on Navasota Reservoir. However, we do not concur in the estimated $9 million value of the deer herd. This is an expanded economic value that takes into account the amount of hunter expenditures, which cannot be compared with primary benefits used in corps reports.

Losses in revenue for deer leases are taken into account in our estimated land values. Revenue from this source is currently about $1 to $2.50 per acre annually. Other fish and wildlife losses are evaluated by the State Parks and Wildlife Commission and the U.S. Fish and Wildlife Service. These losses have been taken into account in the economic evaluation of the project. It is still possible to alleviate some or all of the losses by improving adjoining lands to increase the carrying capacity to take care of the displaced animals.

Recreation benefits are a function of estimated visitation and the land and water area that will be available to the public. A price per visitor is determined from standard criteria for different types of recreation such as boating, hunting, and so forth. The estimated visitors multiplied by the benefits per visitor in each category determines the total benefits. Any estimated losses are then subtracted to determine the net recreation benefits accruing to the project. These are on a project basis and could not be properly assigned on a per acre basis. Current criteria for evaluating benefits are contained in supplement No. 1 to Senate Document No. 97, 87th Congress, second session.

STAGE DEVELOPMENT

Senator ELLENDER. The President's budget for fiscal year 1971 contains a request for appropriation of preconstruction planning funds for both Millican and Navasota 2 Reservoirs. What is the reason for this when the authorizing document recommends construction of Millican Reservoir initially with Navasota 2 to follow later when the basin water needs more fully develop?

Colonel CHARLES. Sir, since these reservoirs are recommended as a stage development, it is proper to study them together, so that, data gathered on one reservoir can be used on the other. Over the next few years, there may be changes in the economy or other factors which could affect the sequence of development in the Navasota River Basin. Accordingly, it is considered appropriate to accomplish planning concurently on the two projects in order to properly appraise the engineering and economic advantages of each, and to obtain a better evaluation of which should be constructed first.

Senator ELLENDER. Senator Yarborough has requested that I ask you the following questions: Are your recommendations to the Congress now different from your recommendations as set forth in House Document No. 341, 90th Congress, on which congressional authorization of Millican and Navasota No. 2 Reservoirs was based and if so what caused you to change those recommendations?

General KOISCH. We have not changed our recommendations as set forth in House Document No. 341.

Senator ELLENDER. You have indicated a capability of utilizing $200,000 for preconstruction planning and design of Millican Reservoir in fiscal year 1971. Can the congressional authorization of Millican and Navasota No. 2 Reservoirs (based on your recommendations in House Document No. 341) be properly implemented if the total amount of $150,000, requested for both Millican and Navasota No. 2 Reservoirs, is appropriated for preconstruction planning and design of Millican Reservoir only?

General KOISCH. Yes, sir.

MILLICAN AND NAVASOTA 2 RESERVOIRS, TEX.

OPPOSITION

Senator ELLENDER. Dr. Baldauf appeared as a representative of the Friends of the Navasota River in opposition to appropriation of funds for Millican and Navasota 2 Reservoirs on the Navasota River, Tex. He maintains that the Navasota River is unique in that it is little encroached upon by man and has reached a state of stabilization affording a unique natural laboratory for research programs in all phases of water resources. Would you please comment upon these aspects of the project?

Colonel CHARLES. Mr. Chairman, the natural features of the Navasota River Basin will provide a desirable setting for the proposed reservoirs. The lakes, surrounding areas, and valley should complement each other and provide a pleasing combination of land and water which will not only provide for needed water supply and flood water

storage, and opportunities for a variety of outdoor recreation experiences, but also an enhancement to the total environment of the area. While the Navasota River Basin has mature characteristics, river basins like mountains and seashores are ever changing under natural influences and the desires of individual landowners.

The Navasota River Basin is serving now as a natural laboratory for certain departments of Texas A. & M. University but it will serve the interests of many more departments during and after development. Personnel in our Fort Worth district and southwestern division have been working closely with Texas A. & M. University as well as other colleges and universities in study proposals, scientific study areas, and outdoor laboratory needs. We will continue to support this important laboratory work and the Navasota Basin will continue to be an important laboratory for the many needs of the university.

Senator ELLENDER. Dr. Baldauf also commented on the value of the deer herd which he feels will be lost through construction of the reservoirs. Was the value of this resource considered in the economics of the proposed projects?

Colonel CHARLES. Yes, sir; it was. As described in more detail to this subcommittee in response to the recent statement by Mr. Coulter Hoppess of the Navasota River Improvement Association, the value of the deer herd was fully taken into account in the study of the economics of the projects.

Senator ELLENDER. Finally, Dr. Baldauf believes that proceeding with the projects is in violation of the National Environmental Policy Act of 1969. What are the corps plans for compliance with provisions of that act?

Colonel CHARLES. Mr. Chairman, the Corps of Engineers will be responsive to the requirements of the National Environmental Policy Act of 1969. In the advanced planning stage of the projects, the corps will continue to be responsible and responsive to the Federal laws enacted for the specific purpose to protect and care for the natural resources, conservation, fish and wildlife, endangered species, and the long-range environmental objectives. We will also act and react with the desires and concerns of local interests, both public and private.

The environmental and natural features of the Navasota River Basin will involve studies in more detail in the advance planning stage which will be coordinated at the local, regional, and national levels. The studies will include the specific features with which Dr. Baldauf and his committee are concerned, along with other features of the basin. The evaluations of the effects that alternative actions would have on the environment and the reasons for selecting the recommended plan will be contained in the environmental statement required by the National Environmental Policy Act.

Senator ELLENDER. Would you submit for the record a comparison of the costs and benefits for both Millican and Navasota No. 2 Reservoirs at the time of authorization and currently and giving the general reasons for the changes. Will you also include the effect on the benefits if the sequence of construction is reversed?

Colonel CHARLES. Yes, sir.

(The information follows:)

COMPARISON OF COSTS AND BENEFITS

	At time of authorization	Current
Millican Reservoir:		
1st cost	$58,620,000	$79,000,000
Annual charges	2,404,500	3,310,800
Annual benefits	6,648,400	7,873,300
Navasota No. 2 Reservoir:		
1st cost	61,087,000	83,400,000
Annual charges	2,484,200	3,451,300
Annual benefits	3,648,000	5,019,000

Costs have been increased to reflect price level changes from January 1965 to July 1969, a gross appraisal of land in January 1969 and reduced to provide for initial recreation development only.

Benefits have been adjusted for increased value of damageable property, increased cost of providing substitute water supply, re-evaluation of recreation benefits and the inclusion of redevelopment benefits.

EFFECT ON BENEFITS BY CHANGING SEQUENCE OF CONSTRUCTION

If the sequence of the projects was changed the benefits would be as follows:

	Navasota	Millican
Benefit:		
Flood control	$2,195,700	$2,127,300
Water supply	1,204,200	3,666,400
Recreation	2,255,800	1,610,900
Redevelopment	771,000	555,000
Total	6,426,700	7,959,600

Since the evaluation and operation periods of the first and second reservoirs are not in the same time frame, the benefits identified with the second dams in the system have not been brought to present worth in either of the alternatives.

MOUTH OF COLORADO RIVER, TEX.

Senator ELLENDER. The budget request was $15,000. The House has included $110,000, exclusive of reserve. What is your capability on this project?

General KOISCH. Our capability on this project is $110,000.

Senator ELLENDER. What would be accomplished with the additional $95,000?

General KOISCH. The additional amount would be used to improve the preconstruction planning schedule.

PORT ARANSAS, TEX. (SECTION 107 PROJECT)

Senator ELLENDER. Local interests have requested $365,000. What is your capability?

General KOISCH. Mr. Chairman, our capability is $365,000 to initiate and complete construction of this project which is authorized under section 107 of the 1960 River and Harbor Act, as amended. Funds in the amount of $365,000 are included in the budget request and the House allowance for the line item "Flood Control Projects Not Requiring Specific Legislation."

PORT ISABEL SIDE CHANNEL, TEX., (SECTION 107 PROJECT)

Senator ELLENDER. Local interests have requested $15,000. What is your capability?

General KOISCH. Mr. Chairman, our capability is $15,000 to initiate and complete this project which is authorized by section 107 of the 1960 River and Harbor Act. This amount is included in the budget request and the House allowance for the line item "Navigation projects not requiring specific legislation."

SABINE-NECHES WATERWAY, TEX. (40-FOOT) AND CHANNEL TO ECHO

Senator ELLENDER. The budget request was $5,100,000. The House has allowed $5,100,000, exclusive of reserve and local interests have requested $8,500,000. What is your capability on this project?

General KOISCH. Our capability on this project is $8,500,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $3,400,000?

General KOISCH. The additional amount would be used to advance completion of 40-foot channel by 9 months.

SAN GABRIEL RIVER, TEX.

Senator ELLENDER. The budget request was $1,850,000. The House has included $3,850,000, exclusive of reserve and local interests have requested $5,850,000. What is your capability on this project?

General KOISCH. Our capability on this project is $5,850,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $4 million?

General KOISCH. The additional amount would be used to allow land to be acquired at a rate greater than price escalation and also would allow initiation of construction in fiscal year 1971.

TAYLORS BAYOU, TEX.

Senator ELLENDER. Local interests have requested $500,000 for this project. The project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use in fiscal year 1971, and no additional funds are in the 1971 budget. What is your capability on this project?

General KOISCH. Our capability is zero dollars. The funds to be released which are in the budgetary reserve are considered sufficient for needs of the project in fiscal year 1971.

TEXARKANA RESERVOIR, TEX. (CONVERSION OF STORAGE SPACE)

Senator ELLENDER. There is nothing in the budget and local interests have requested $100,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $100,000 to initiate land acquisition for conversion of flood control space to water supply.

Senator ELLENDER. Would you submit a statement for the record?
General KOISCH. Yes, sir.
(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $38,555,000
Allocations to date	33,990,000
Balance to complete	4,565,000
Amount that could be utilized in fiscal year 1971	100,000

[1] Local interests are required to pay the portion of project costs allocated to water supply. This amount is presently estimated to be $6,532,804.

Authorization.—1946 Flood Control Act and Public Law 84–218 approved 3 August 1955.

Location and Description.—Texarkana Dam is located in Bowie and Cass Counties, northeastern Texas, on the Sulphur River at mile 44.5 above its mouth, about 9 miles southwest of Texarkana, Arkansas-Texas. The reservoir area extends throughout portions of Bowie, Cass, Morris, Titus, and Red River Counties. Upon completion of Cooper Reservoir, 120,000 acre-feet of flood control storage space in Texarkana Reservoir, plus space previously reserved for water quality control in an earlier plan, will be converted to use for municipal and industrial water supply. The conversion of the flood control storage will require the purchase of additional lands now held in easement in Texarkana Reservoir and additional protection to the St. Louis Southwestern Railroad, county roads, state highways and recreation facilities all in the Texarkana Reservoir because of the increased frequency of flooding.

Proposed Operations.—The amount of $100,000 would be used to prepare a real estate design memorandum and initiate land acquisition for conversion of flood control space to municipal and industrial water supply use.

Justification.—The conversion of flood control storage space in Texarkana Reservoir to municipal and industrial water supply purposes will provide much needed water for the Texarkana area. Besides municipal water for the city of Texarkana and surrounding small towns, the space will provide industrial water for a paper mill planned by the International Paper Company. The conversion of water supply space in Texarkana Reservoir is a feature of the Cooper Reservoir and Channels, Texas project and benefits have not been evaluated for the proposed conversion.

TRINITY RIVER PROJECT

Senator ELLENDER. The budget request was $500,000. The House has allowed $500,000 and local interests have requested $1,500,000. What is your capability on this project?

General KOISCH. Our capability on this project is $1,500,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $1 million?

General KOISCH. The additional amount would be used to advance completion of preconstruction planning by 3 months.

OPPOSITION

Senator ELLENDER. The subcommittee heard testimony by Mr. Edward C. Fritz, Chairman, Texas Committee on Natural Resources opposing the Trinity River project. He contends that the project will result in irreparable damage to a large and priceless natural region, the Trinity River bottomland, by destroying millions of trees through the construction of levees and channelization works and through flooding due to the impoundments at the reservoirs. Would you please comment on his testimony?

Colonel CHARLES. Sir, Mr. Fritz represents the Texas Committee on Natural Resources, a private organization of individuals interested in conservation matters. The Trinity River Basin is rapidly changing, probably more so than any other in this area. Many of the natural features with which Mr. Fritz is concerned are presently being subjected to a wide variance of changes brought about by the natural characteristics of an active river and man-made modifications within and adjacent to the flood plain. The stream is continuously undercutting bank-lined trees, creating and filling ox-bows and sloughs, and changing ecosystems. Areas along the stream and in the big thicket area are changing from natural conditions to home sites, and large areas of bottomland hardwoods are being converted to pastureland.

Some trees would be destroyed by construction activities. However, construction scars would be replanted and vegetated. Trees growing in bends of the river that will be cut off will be preserved. The ox-bows will afford an opportunity to preserve the natural ecology and recreational opportunities. The Trinity River corridor can serve as a corridor of open space, green and attractive, with many important and interesting features. Our forests and wildlife have the means of replacing themselves if provided the opportunity. We do not believe that trees will be lost by lack of moisture in this situation.

LAKE LIBERTY NOT INCLUDED IN PLAN

The existing and proposed reservoirs involve a very small portion of the 17,000 square miles of basin area. The reservoirs are important to the water resource needs throughout the basin and to store storm floodwaters. Also, the authorized Trinity River project does not provide for construction of a Lake Liberty Reservoir mentioned by Mr. Fritz, though a reservoir of this name located about 17 miles above Liberty, was studied in the survey report studies.

EFFECT OF PROJECT ON NATURAL AREAS

Senator ELLENDER. Mr. Fritz additionally states that many natural areas such as Parson's Slough Area, riverside tree rows in Ellis and Kaufman Counties, oak-pecan floodplain in Navarro and Henderson Counties, hardwood forests in Freestone and Anderson Counties, cypress-hardwood forests in Liberty County, and so forth, would be ruined along with Tanner Bayou unit of a National Park Service recommended Big Thicket National Area. What is the corps' viewpoints on this contention?

Colonel CHARLES. Mr. Chairman, many of the natural areas are currently undergoing change. Without the project these areas will not remain in their present condition. Biologists and ecologists will be working closely with the engineers to preserve and enhance important natural areas. The Fish and Wildlife Service concluded that the project would result in "attractive fishing in the multiple-purpose channel and cutoff sections of the Trinity River." Logging practices and land use changes appear to be more significant than the effects of the project on the remaining bottomland hardwoods. The project will afford an opportunity to protect and improve the more important stands.

In the Liberty County and Hanner Bayou area the authorized project channel will be confined within the channel banks and will not flood

any bottomlands. Inquiry of the Forestry Service in Lufkin, Tex., elicited the response that bald cypress trees can survive high water rises and that a rise of 4 feet would not affect the trees. The navigation project will create a number of cutoff channels similar to oxbow lakes that will be improved and maintained for recreational purposes.

The project should help to preserve and complement the Tanner Bayou area. The Corps of Engineers will be working closely with the Department of the Interior and local interests in this area.

EFFECT OF PROJECT ON GULF FISHERIES

Senator ELLENDER. Mr. Fritz continued to point out that the Trinity River is the principal source of fresh water for Trinity Bay, East Bay and Galveston Bay, comprising 80 percent of the commercial fisheries of the Texas Gulf coast and that the oysters, shrimp, and finfish which are spawned in this large estuary depend for their survival upon supplies of fresh water, because periodic floods of fresh water into the estuary cause the principal predators to swim out into the Gulf of Mexico, enabling the young marine life to thrive by the trillions. The navigation water requirement, he contends, will result in a reduced volume of fresh water discharge into the bay areas causing unknown damages to the estuarine ecosystem. Please comment upon this aspect of the project.

Colonel CHARLES. Mr. Chairman, the initial statement appears to be based on a report of the Texas Water Development Board in 1969 that the Galveston Bay system is the nursery grounds for over 80 percent of the poundage of fishery products caught in the Gulf of Mexico adjacent to the Texas coast. Reports of the Texas Parks and Wildlife Department show that from 30 to 50 percent of the catch in fishing areas off the Texas coast, however, is menhaden, a small low-value fish processed for fertilizer, which is all caught in the Galveston area. Even so, a considerable portion of the seafood catch is from the Galveston Bay nursery area. The principal species, shrimp and menhaden, however, are not spawned in the bay as stated by Mr. Fritz but in the Gulf and the young shrimp and fish move into the bay nursery grounds during their growth period. The statement that floods on the Trinity River cause the predator fish to swim out into the Gulf and thus enable the young marine life to thrive is without foundation. Research has found that high discharge of the Trinity River lowers the shrimp population in the nursery grounds at the mouth of the Trinity River. This would indicate that the small fish and shrimp move to sea as the salinity is reduced the same as the predators and would still be prey to the larger fish.

The Trinity River project would reduce the volume of discharge of fresh water into Galveston Bay area; this reduction, however, would result from use of water controlled in the major reservoirs of the project and the Livingston Reservoir of the city of Houston and would not be caused by navigation. The water used in lockages flows downstream for reuse in lower locks and eventually is discharged into the bay. The losses from evaporation in the channel and possibly seepage from the channel are insignificant. It is estimated that the discharge from the lowest lock of the Trinity River navigation project into the channel would amount to about 63,000 acre-feet a year, which would be the demand of navigation for water. The existing and proposed

improvements on the Trinity River for control and development of the water resources of the river basin, will affect the fresh water discharge into the Galveston Bay estuary and alter the salinity requirement of the bay. The flood flows, however, would be regulated so that during years of normal flow there would be uniform discharge without extreme flood peaks and low flows. The effect of the change in the salinity environment is believed by some marine biologists to be detrimental to estuarine-dependent species. The Corps of Engineers is participating in salinity studies and research pertaining to the effects of water development projects in the estuarine areas, the results of which will provide a sound basis for developing reservoir operation criteria.

NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

Senator ELLENDER. As pointed out by Mr. Fritz, Congress has passed the National Environmental Policy Act of 1969, since authorization of this project and it requires a study of the impact of each Federal project upon our environment and a consideration of alternatives. This act applies to ongoing as well as new projects. What are the corps plans for this project?

Colonel CHARLES. Mr. Chairman, the Corps of Engineers will be responsive to the requirements of the National Environmental Policy Act of 1969.

There is a tremendous interest in the Trinity River Basin. There are a number of special studies being initiated by the academic community and others throughout the State that include the natural resources and the environmental features of the basin. These studies are supported by the Trinity River Authority, the Trinity Improvement Association, and other State and Federal agencies and local governmental entities. The Corps of Engineers, in the advance planning stage of the project, will continue to be responsible and responsive to the Federal laws enacted for the specific purpose to protect and care for the natural resources, conservation, fish and wildlife, endangered species and the long-range environmental objectives. The Corps of Engineers also will act and react with the desires and concerns of local interests, both public and private. The environmental and natural features of the Trinity River corridor will involve studies in more detail in the advance planning stage which will be coordinated at the local, regional and national levels. The studies will include the specific features with which Mr. Fritz and his committee are concerned, along with other features of the basin. The overall considerations will be reported in statements of the environmental impacts of the project.

Flood plain management per se and in combination with structural measures is an important feature where practical and feasible. Alternatives were considered in the comprehensive study and will be further considered in the advance planning stage.

ECONOMIC JUSTIFICATION

Senator ELLENDER. Finally Mr. Fritz challenges the economical justification of the Trinity River project from the standpoint that the project is unfeasible without its flood-control features, that flood plain management is a more economical solution, and that the improper interest rate has been used in economical evaluations. You may comment on these points.

Colonel CHARLES. Sir, studies made in connection with the survey report on the Trinity River showed definitely that the benefits from a single-purpose navigation project would exceed the costs of such a project. Reservoirs for flood control storage would regulate the river flow and be beneficial to navigation but would not be essential for economic justification.

The Corps of Engineers strongly endorses flood plain management. However, it must be recogized that extensive economic production and other beneficial uses may be foregone when development in flood plains is precluded by flood plain zoning and preservation. Such considerations are as relevant in land use and flood control planning studies as are the environmental considerations involved.

Interest rates used in Corps studies are in accordance with Water Resources Council directives, and are based upon the average yield during the preceding fiscal year on interest-bearing marketable securities of the United States which, at the time the computation is made, have terms of 15 years or more remaining to maturity. This project is eligible for evaluation at 3¼ percent rate. Satisfactory assurances regarding local cooperation have been received.

REEVALUATION OF NAVIGATION FEATURES

Senator ELLENDER. The Association of American Railroads in introducing their reasons for opposing the Trinity River project state that the Secretary of the Army did not recommend authorization of the navigation features of the multiple-purpose project because the benefit-cost ratio was only 0.74 to 1 and that the Director of the Bureau of the Budget also did not recommend authorization of the navigation features. Would you comment on this contention?

Colonel CHARLES. Mr. Chairman, the benefit-cost ratio of the navigation features of the multiple-purpose project as reported by the District Engineer in June 1962 was 1.4 to 1, based on an economic life analysis period of 100 years. The Secretary of the Army noted that using a 50-year period of analysis, but retaining the interest rate and criteria and policies applicable at the time of the study and applied to the navigation features only, resulted in a benefit-cost ratio of 0.74. The Secretary of the Army and the Bureau of the Budget recommended a restudy prior to authorization of the navigation features. Congress, in authorizing the project in the River and Harbor Act of 1965, directed that a reevaluation based upon current criteria be submitted to Congress by the Chief of Engineers, prior to expenditure of any funds for construction of the navigation features. Taken in context of the full report, it appears the Secretary of the Army and the Bureau of the Budget were not solely concerned with the benefit-cost ratio. It was stated there was need for further study because of the use of the 100-year period of analysis and because of changes made in the criteria for evaluating data on inland waterway projects since the report of the Board of Engineers and the original studies on the project. Also, it was suggested by the Bureau of the Budget that more recent information on the growth of industry and freight traffic in the area suggests significant changes in the benefits originally assigned to the project.

Senator ELLENDER. The Association of American Railroads further opposes the navigation features of the multipurpose project on the grounds that it is not needed and lacks Federal interest, that the evaluation procedures were erroneous, that it subsidizes barge transportation, that an inadequate interest rate has been used in computations, and that the public has had no opportunity to review relevant information which the corps has concerning the project. Would you please comment on each of these points?

Colonel CHARLES. Mr. Chairman, taking the points in order.

NEED FOR THE PROJECT AND LACK OF FEDERAL INTEREST

The Association of American Railroads contends that the Trinity River tributary area is adequately served by all modes of transportation, 71 percent of the traffic is sand and gravel which will originate and terminate in Texas, and there is no Federal interest in the project. The traffic study completed by the Corps of Engineers in 1968 does not support the railroads contention that the Trinity River tributary area is adequately served by all modes of transportation. In both the grain and sand and gravel commerce, lack of rail cars has at times forced shippers to use alternate and more costly, transportation modes at the 1966 and earlier levels of traffic. An examination of the transportation economics of the Trinity River tributary area reveals an economic need for improvement of all existing transportation modes in addition to a well defined requirement for low cost water transportation. According to the railroads, 71 percent of the traffic on the waterway will be sand and gravel. The pertinence of this statement relative to justification or lack of justification of the navigation project is not apparent; however, the stated percentage is based on the projected traffic in 2035, the last year of the 50-year project life. The projected waterway commerce in that year represents only 19 percent of the projected total market demand for sand, gravel, stone, and shell in the Dallas-Fort Worth and Houston-Galveston market areas. A more meaningful assessment of the comparative worth of waterway traffic is in the average annual level of dollar benefits generated by each major commodity. On this basis, sand and gravel represent about 46 percent; iron and steel 25 percent; grain 2 percent; and all other commodities represent about 27 percent of the average annual transportation benefits credited to the project.

The statement is made that there is no Federal interest in the project based on the fact that the sand and gravel is intrastate traffic. The Congress has neither used a breakdown of interstate or intrastate traffic as a criterion of Federal interest in waterway projects in the past nor given any indication that such a criterion should be applied to any navigation study now in progress or proposed. The traffic analysis methods used in the 1968 Trinity River navigation restudy were in compliance with congressional policies concerning Federal interest in the Nation's waterways. The statement is made that construction of the project would result in the transfer of income from the Nation's taxpayers to a limited number of Texas sand and gravel producers and thusly from lower income groups to higher income groups. Along with many shippers of other commodities, the project will serve all

the major sand and gravel shippers in the Fort Worth-Dallas and the gulf coast areas. Because of the highly competitive nature of the market in these materials, transportation savings would be passed on to the ultimate consumer in the lower delivered costs of the materials.

EVALUATION PROCEDURES

The reevaluation of the navigation features was completed in accordance with the criteria provided by section 7 of the Department of Transportation Act, Public Law 89–670, approved October 15, 1966. The question is not whether the procedures set forth in the act can measure national income gains or social savings in terms of resource requirements, but whether or not the procedures specified in legislation enacted by the Congress were followed. They were followed as stated in the report. Waterway projects have often enhanced and stimulated spectacular growth of the general economy of localities, regions, and the Nation. There is no reason to believe that, in the dynamic Southwest region, similar results could not be expected from the Trinity River project. If so, national gains and social savings would certainly occur.

SUBSIDIES TO BARGE TRANSPORTATION

Subsidies to barge transportation in the form of construction and maintenance of waterways at no cost to water user is an inherent part of national policy to make inland water transportation publicly available. The criteria and standards for measuring savings for navigation projects are prescribed by Congress and no provision is made for considering the cost of constructing and maintaining the project in developing the estimated barge rates.

PROJECT EVALUATION: INTEREST RATE

Under the Water Resources Council regulation published in the Federal Register the project is eligible for evaluation at 3¼ percent rate. Satisfactory assurances regarding local cooperation have been received.

PUBLIC REVIEW OF CORPS ANALYSES

The Corps of Engineers endeavors to make available all information that can be supplied under the provisions of Public Law 89–487. The complete appendix on navigation benefits for the Trinity River reevaluation, which was over 450 pages in length, was released. However, there are certain details on operation, production and marketing patterns which are obtained on a privileged or confidential basis and which cannot be identified or released.

TRAFFIC AND TRANSPORTATION SAVINGS

Senator ELLENDER. The Association of American Railroads state, in summary, of their previous statements filed upon completion of the reevaluation study by the Corps of Engineers, that sand and gravel traffic and transportation savings were overstated; that the Galveston District's failure to recognize reduced rail rates on grain resulted in overstatement of grain traffic and benefits; and that both savings and

the amount of scrap iron and steel traffic had been overstated. Would you please address this contention?

Colonel CHARLES. Mr. Chairman, the principal commodities accepted as prospective waterway commerce in the restudy were sand and gravel, grain, iron and steel products, and scrap iron. The analysis of the sand and gravel industry and estimates of prospective commerce contained in the study represent the most comprehensive and detailed in depth study of resource-supply and market-demand of these materials ever accomplished in this area. The results are based on facts and information supplied by producers, consumers, traffic analysts, rate consultants, market analysts and industry institutional sources. It does not represent the unilateral position of one producer, group of consumers or one transportation mode.

With respect to grain, the analyses were based on rates in effect at the time of the study. All of the prospective commerce in grain claimed for the waterway was based on grain moving by truck in the base year 1965 and none was claimed from grain moving by rail.

The study of iron and steel as contained in the report was as comprehensive and detailed as the sand and gravel study and results are considered to be valid. Since the Association of American Railroad's statement contains no information as to the source of data used and depth of analysis made concerning iron and steel products, no comments can be made concerning comparative results.

A more detailed statement regarding these questions was presented in testimony before this subcommittee in July 1959.

INVESTMENT IN INLAND NAVIGATION PROJECTS

Senator ELLENDER. The Association of American Railroads maintain that the costs of navigation projects under construction and in the planning stage are unrealistically high in contrast to investments in railroads' rights-of-way and related properties and that the investment per ton-mile of barge traffic is substantially greater than for the railroads based on investment in rights-of-way. Would you please comment?

Colonel CHARLES. Yes, sir. The investment cost of inland navigation projects through June 30, 1969, was $2,925 million. It appears, therefore, that the investment per ton-mile of barge traffic is not substantially greater than that for the railroads. In fact as of June 1969, the investment per ton-mile of barge traffic was slightly less than for railroads based on investments in rights-of-way. With regard to a comparison of investment per ton-mile for barge and rail traffic upon completion of the navigation projects now under construction and in the planning stage, it is not possible to even estimate what the ton-mile freight for either mode will be when these proposed navigation projects are completed some 10 or more years in the future.

LOCAL COOPERATION

Senator ELLENDER. The Association of American Railroads question the ability of the Trinity River Authority to provide the required local cooperation and that no meaningful assurances can be offered until an election is held. Please comment for the subcommittee on this point.

Colonel CHARLES. Mr. Chairman, as stated in testimony before this subcommittee last year, the Trinity River Authority is considered to have all the necessary legal authority for furnishing local cooperation and has expressed its willingness to do so. As with other waterway projects, the assurance is deemed satisfactory for the Trinity River project at this stage. We will not proceed with construction until adequate assurances are provided.

LITTLE DELL RESERVOIR, UTAH

Senator ELLENDER. The budget request was $25,000. The House has included $150,000, and local interests have requested $150,000. What is your capability on this project?

General KOISCH. Our capability on this project is $150,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $125,000?

General KOISCH. The additional amount would be used to advance completion of preconstruction planning by 3 months, sir.

FOUR MILE RUN, VA.

Senator ELLENDER. There is nothing in the budget and local interests have requested funds to initiate planning. What is your capability on this project?

General KOISCH. Mr. Chairman, the project is not yet fully authorized. The Senate committee has approved the project, but the House has not yet acted. If the project is authorized during the current session of Congress, our capability on this project would be $175,000 to initiate planning.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$10,980,000
Total allocations to date	0
Balance to complete	10,980,000
Amount that could be utilized in fiscal year 1971	175,000

Authorization.—Not authorized.

Location and Description.—The project is located in the City of Alexandria and in Arlington County, Virginia, on Fourmile Run, immediately above its confluence with the Potomac River at Washington, D.C. The plan of improvement provides for a levee and floodwall protection system with associated interior drainage facilities, an improved channel, and replacement of two highway and four railroad bridges.

Proposed Operations.—If the project is authorized during the current session of Congress, the amount of $175,000 could be used to initiate preconstruction planning.

Justification.—The project is needed to protect areas along Fourmile Run in the City of Alexandria and in Arlington County, Virginia, which have experienced flood damages to residential, commercial and industrial properties. Major floods have occurred along Fourmile Run in August 1963, August 1967, July 1969, and August 1969. The July 1969 flood of record caused over $4,000,000 in flood damage. The project would reduce flood losses by 90 percent. The current benefit-cost ratio is 1.11 to 1. Average annual benefits are as follow:

Flood control	$882,000
Land enhancement	54,000
Advanced replacement	110,000
Total	1,046,000

Gathright Reservoir, Va.

OPPOSITION

Senator Ellender. This committee has received some opposition to the Gathright Reservoir project. One of the objections raised is that as a flood control measure it is not justified. Have you any comments on this matter?

Colonel Edelstein. This project when completed will eliminate about 95 percent of the average annual flood control damages to industrial, commercial, and residential properties at Covington, Va., which is about 19 miles below the dam on the Jackson River. Between Covington and Buchanan on the upper James River, this project would reduce the average annual future flood damage 60 percent at such urban areas as Clifton Forge, Iron Gate, Eagle Rock, and Buchanan and also in the rural areas in this general vicinity. The reduction in damages below Buchanan at Lynchburg, Scottsville, and Richmond would be about 35, 20, and 7 percent, respectively. Average annual flood damage along the Jackson and James Rivers from the dam downstream to Richmond is estimated at $2,500,000.

Senator Ellender. What effect would this project have had if it had been completed at the time Hurricane Camille occurred last August?

Colonel Edelstein. From our study of the reports of damages it is estimated that the Gathright Reservoir would have eliminated about $2.2 million of the approximately $34.4 million damage sustained along the main streams of the Jackson and the James Rivers. The above damages prevented are considerable when it is realized the Gathright Dam was not in the main path of the hurricane. The flood reached a stage of 13.4 feet on the Falling Springs, Va., gage or about 1½ feet below the flood of March 1936, the largest of recent record.

ESTIMATED COST

Senator Ellender. What is the current estimated cost of this project?

Colonel Edelstein. Our recent information shows that the total estimated Federal cost of this project is $25 million. This is as of July 1, 1969.

PROJECT BENEFICIARIES

Senator Ellender. The opposition contends that this project will benefit only the West Virginia Pulp and Paper Co. with a constant flow of water at their plantsite. What are your comments on this?

Colonel Edelstein. Generally, the increase in low water discharge to be afforded by the project would be an important part of a program for water quality control in the Jackson and James Rivers. It would not eliminate the necessity for industrial complexes and communities located along the rivers from complying with the required State and

Federal pollution laws. In connection with a program of secondary waste treatment and other measures aimed at reducing the large pollution load present in the streams, the flow regulation by Gathright Reservoir would increase the usefulness of the Jackson and James Rivers to many counties and communities. The benefits from the increase in low water discharges would be exceptionally widespread, affecting some one-half million persons, with greater benefits occurring near population or industrial centers. Flow regulation would be the most practical method of improving water quality beyond the level expected to be achieved by adequate treatment of wastes.

EFFECT ON ENVIRONMENT

Senator ELLENDER. The opposition contends that this project will deface the countryside. Do you have any comments on this?

Colonel EDELSTEIN. In this connection the project will be carried out in accordance with the requirements of the National Environmental Policy Act of 1969 (Public Law 91–190). Further actions proposed to improve the environment under this act will be taken as soon as plans have become firm. It is contemplated that plans will be formulated which will encourage and promote "enjoyable harmony between man and his environment." The project is located in the rugged and forested Appalachian Mountains with extremely scenic topography. It is anticipated that with careful, thorough planning and without despoiling the natural environment it will be possible to provide for water sports, fishing, swimming, camping, and picnicking.

HAMPTON ROADS, VA.

Senator ELLENDER. The budget request was $4,900,000. The House has allowed $4,900,000, exclusive of reserve, and local interests have requested $6,380,000. What is your capability on this project?

General KOISCH. Our capability on this project is $6,380,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $1,480,000?

General KOISCH. The additional amount would be used to advance completion of the Newport News anchorages 4 months, from October 1971 to June 1971.

SALEM CHURCH RESERVOIR, VA.

OPPOSITION

RESTUDY OF PROJECT

Senator ELLENDER. The Conservation Council of Virginia has questioned the need for additional funds for advanced planning of the authorized Salem Church Reservoir in view of the numerous restudies of this project which are currently underway. Last year this committee restored funds deleted by the other body in order that preconstruction planning of the project could be initiated. Why are additional planning funds required this year?

Colonel EDELSTEIN. Mr. Chairman, a large share of the requested funds will be devoted to the very restudies which you mentioned. Based upon results of these analyses, including project formulation and economics, general design of the project could be initiated. Last year's appropriation was received late in the year, and was not adequate to permit meaningful reanalysis of the project in compliance with the committee's directive that preconstruction planning include studies and coordination to define such modification of the project plan as may be desirable to minimize adverse effects on natural values in the area.

Senator ELLENDER. Will the funds requested for this year enable you to complete these studies of possible modifications of the authorized project in the interest of natural values?

Colonel EDELSTEIN. Yes, sir. If these funds are made available we expect to advise the committee of our recommendations at the time of testimony on appropriations for fiscal year 1972.

OBJECTIVITY OF THE RESTUDY

Senator ELLENDER. This committee has received some opposition to the Salem Church Reservoir project. The opposition contends that the "restudy" ordered by the Senate Appropriations Committee last year seems to be going forward on the basic assumption that a project will be built as soon as possible, somewhere between 205 and 240 feet elevation. What are your comments on this matter?

Colonel EDELSTEIN. At a conference in February 1970, which the Corps arranged, numerous Federal and State agencies attended to discuss the course of action to be pursued. As a result of this meeting, the agencies involved are reviewing their previous studies and assembling information to be furnished the Corps in order that we may formulate a project at Salem Church that will be responsive to the comments of the congressional committees. For example, the Federal Water Quality Administration of the Department of Interior is making field checks with the assistance of the State Water Control Board to establish the extent of stream pollution and the various alternative means of abating this pollution either by advanced waste treatment, by a long pipeline down the Rappahannock estuary, or by other means, including dilution. The Virginia Institute of Marine Science is reviewing its technical report, included in the project document on which the Congress authorized the Salem Church project, which stated that as a result of regulation of fresh water flow by the reservoir, a change in the salinity of the estuary could be produced which would result in increased oyster production. The U.S. Fish and Wildlife Service of the Department of the Interior is reviewing the wildlife and fishery aspects of the project. The Corps of Engineers is checking with the local governing bodies in the area on the water supply needs that they believe should be supplied by Salem Church. The hydro power aspects and alternatives thereto are being reevaluated by the Federal Power Commission.

Some of the agency representatives made a field inspection of the project area later on in April. A study of the river profiles indicated that the rapids at Kelly's Fork, which are prized for white water canoeing, could be preserved by limiting the conservation pool to elevation 205. A larger project, however, would enhance other project pur-

poses, such as water quality control, salinity control, hydro power, and general recreation. Therefore, projects with conservation pools in the range of 205 to 240 are being considered.

RECREATIONAL BENEFITS

Senator ELLENDER. With regard to recreation, the opposition questions whether Salem Church is the best recreation use of the Rappahannock River and whether there are not alternative means of meeting other needs. Have you any comment on this?

Colonel EDELSTEIN. Because of the environmental factors associated with the Rappahannock, we believed that there was a need for establishment of a special recreation committee to carefully review these aspects. This was particularly important because of (a) the recently issued preliminary report of the Bureau of Outdoor Recreation on the natural values of the area and (b) the report in 1969 by the Virginia Commission of Outdoor Recreation which stated that preservation of the Rappahannock River as a free flowing stream would be desirable. The first meeting of the recreation committee was held in Richmond on May 18, 1970. A report outline was prepared by the Bureau of Outdoor Recreation for the study of the recreational aspects of this project. The report to be issued would be an interagency effort, however, individual agencies would be afforded the opportunity to express their views. Included as matters to be studied are the project formulation for the Salem Church Reservoir as well as other alternatives to the project such as Wild Scenic Rivers and the Potomac Estuary by the Bureau of Outdoor Recreation and the Virginia Commission of Outdoor Recreation. The National Recreation Area aspect will be looked into by the BOR and National Park Service. The input for the report is due this fall and we expect to complete project formulation studies in time for the fiscal year 1972 budget hearings.

ASOTIN DAM, IDAHO AND WASH.

Senator ELLENDER. There is nothing in the budget and local interests have requested $360,000. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability on this project is $360,000. This amount would be used to start preconstruction planning during fiscal year 1971.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $123,000,000
Allocations to date	0
Balance to complete	123,000,000
Amount that could be utilized in fiscal year 1971	360,000

[1] Costs allocable to power, presently estimated at $119,008,000 are reimbursable.

Authorization.—Flood Control Act of 1962.

Location and Description.—This project is located in Nez Perce County, Idaho and Asotin County, Washington, at mile 146.5 on Snake River at the upstream limits of the town of Asotin, Washington. The Asotin Reservoir, with pool elevation 842.5 would extend 26 miles upstream on the Snake River, and about two miles up the Grande Ronde River. The proposed dam would include a powerhouse with

an initial installation of two 135,000 kilowatt units for an initial capacity of 270,000 kilowatts, with space for two additional units for an ultimate installation of 540,000 kilowatts; a gated spillway of six 50-foot bays; a rockfill embankment section; provision for future addition of a navigation lock; and facilities to maintain existing fish runs and wildlife values as have been provided for downstream projects.

Proposed Operations.—The amount of $360,000 could be utilized in Fiscal Year 1971 to initiate preconstruction planning. The total cost of preconstruction planning is estimated at $1,900,000.

Justification.—To maintain an economic balance of regional power requirements and hydropower development in the Pacific Northwest region, close coordination of construction scheduling with load projections is needed. The latest resources studies prepared by the Bonneville Power Administration reveal that power generated at Asotin, in addition to all other new scheduled resources, will be required to meet loads in the late 1970's. The Northwest's firm peak loads for January 1978 are estimated to be 29 million kilowatts compared to 20 million kilowatts in January 1970. Load growth of this magnitude can be met most economically by a combination of large base load thermal plants supplemented by hydroelectric plants for meeting the sustained daily peak loads. The Asotin Dam would generate about 1,804,600,000 kwh of energy annually. The project would also accrue benefits from use of the reservoir for recreation. Annual benefits creditable to this project are as follows:

Item:	*Amount*
Power	$10,168,000
Recreation	74,000
Total	10,242,000

The benefit-to-cost ratio is 1.9 to 1, based on 100-year project life.

Note.—Studies are also underway to determine the feasibility of including a navigation lock in this project. Necessary funds for completion of the study are available and the study is nearing completion.

(For response to opposition, see page 85, part V.)

Canyons 1 and 2, Wenatchee, Wash.

Senator Ellender. There is nothing in the budget, and local interests have requested $75,000. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized. If the project is authorized during the current session of Congress our capability would be $75,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$9,240,000
Total allocations to date	0
Balance to complete	9,240,000
Amount that could be utilized in fiscal year 1971	75,000

Authorization.—Not yet authorized.

Location and Description.—Canyons 1 and 2 are situated west of and adjacent to the city of Wenatchee, in Chelan County, in central Washington. The plan of improvement would provide for 4.6 miles of partially covered, high-velocity reinforced-concrete channels and appurtenances. Individual channels would begin at debris basins and inlets near the mouth of each canyon, extending northeasterly to a combined channel at a confluence structure. From the confluence structure, a single channel would carry flows to an outlet structure and stilling basin on the Columbia River.

Proposed Operations.—Subject to authorization of the project, the amount of $75,000 could be used to initiate preconstruction planning. All preconstruction planning is estimated to cost $450,000, and will require 3 years to complete.

Justification.—There is a pressing need in the Canyons 1 and 2 basins for

flood protection for the developing Wenatchee area. The recommended improvement would eliminate virtually all flooding and debris deposition from Canyons 1 and 2, providing a high degree of protection to the downstream 2,870-acre urban and agricultural flood plains. The improvement would protect many residential, public, commercial, and industrial buildings; hospitals, churches, parks, playfields, and orchards; and roads, streets, railroads, and utilities. The area, which is located in Chelan County, has been designated by the Economic Development Administration as a Title IV area. An appreciable portion of the labor force required for the proposed project construction would be local residents. Alleviation of local unemployment would constitute a benefit to the local and national economies during project construction and in maintaining the project. Estimated annual benefits total $1,651,000, and are tabulated below. The benefit-to-cost ratio is 2.7 to 1, based on a 50-year project life.

Annual benefits:	*Amount*
Damages prevented to existing development	$462,000
Damages prevented to future growth	1,115,000
Area redevelopment benefits	74,000
Total annual benefits	1,651,000

Chief Joseph Dam, Wash. (Additional Power Units)

Senator Ellender. There is nothing in the budget and the House has included $650,000 to continue planning. Local interests have requested $1,300,000 to initiate construction. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $1,300,000, which would permit initiating construction. We could award a contract for supplying hydraulic turbines.

Senator Ellender. Local interests indicated that there is an urgency to the construction of the additional power units at Chief Joseph, it being one of the high priority items for the Pacific Northwest. Would you comment as to your priority for proceeding with work on this project at this time?

General Koisch. Yes, sir. It is a very high priority item. The present powerplant hydraulic capacity at the Chief Joseph project is 114,000 cubic feet per second. Upstream of Chief Joseph, the Bureau of Reclamation now has the Grand Coulee third powerplant under construction. The schedule for the Grand Coulee third powerplant calls for power-on-line of three additional 600-megawatt units in 1974 and another three 600-megawatt units in 1978. These added units will increase the hydraulic capacity at Grand Coulee to 170,000 cubic feet per second in 1974 and 255,000 cubic feet per second in 1978. Thus the present 114,000 cubic feet per second capacity at Chief Joseph is entirely inadequate for the high peaking flows which will result from operations of the third powerplant at Grand Coulee scheduled in the near future.

Senator Ellender. Are you planning to raise the dam at Chief Joseph to take care of these additional flows, or would you simply install additional units.

General Koisch. Sir, our plan contemplates extending the powerhouse to house 11 additional generating units for a total of 27 units, and to modify the present structure at Chief Joseph to permit raising the normal full pool elevation by 10 feet. The dam itself will not be raised but we will modify the spillway gates and strengthen their anchorage to permit the raising of the pool.

Senator Ellender. I see. What about the power demand? Is all this additional power generation needed?

General KOISCH. Yes, sir. All of this generation is needed to meet the future forecasts for power in the Pacific Northwest. There is certainly a demand for the provision of this additional peaking capacity as soon as it can be furnished.

Senator ELLENDER. Well, what is the cost of the proposed work at Chief Joseph?

General KOISCH. The estimate cost, sir, is $137 million.

Senator ELLENDER. Well, General, that is a rather large cost item and as you know, we have some heavy demands being made for Federal funds for other programs of the Government. Now, I am wondering that if this committee finds that we are not in a position to recommend construction funds, would an appropriation to keep your planning in an active and continuing status in fiscal year 1971 be of any benefit from the standpoint of perhaps getting construction off to a good start the following fiscal year?

General KOISCH. Yes, sir. There definitely would be some advantage to that approach from the standpoint of placing us in a position to move ahead on a somewhat faster schedule than we could otherwise. I mean by this that the discontinuance of planning in fiscal year 1971 without an appropriation and subsequent resumption of activity under a plan involving a construction appropriation, say in fiscal year 1972, will certainly not provide for efficient use of personnel now engaged in the planning effort, and would mean some delay in the provision of power compared to the program you suggest. As you know, we have a very significant and talented group of engineers now engaged in the design of this project.

Senator ELLENDER. What would be your schedule for power under a plan involving no appropriation at all for fiscal year 1971?

General KOISCH. Under such a plan, Mr. Chairman, and assuming a construction appropriation for fiscal year 1972, power-on-line could be provided by July 1976, with raising of the pool in May 1977.

Senator ELLENDER. Now, with a further planning appropriation in fiscal year 1971, what would your schedule be?

General KOISCH. This continuity in planning, Mr. Chairman, would permit the first power unit to be advanced from July 1976 to November 1975 and possibly permit a much needed second unit to be on the line before the winter of 1975–76. The pool raise would be advanced 1 full year, from May 1977 to May 1976.

Senator ELLENDER. What would be the cost in fiscal year 1971 of the additional planning under this approach?

General KOISCH. We would require an appropriation for planning of $650,000, sir.

Senator ELLENDER. All right. Will you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

Summarized financial data

Total Estimated Federal Cost	[1] $137,000,000
Total Allocations to Date (Planning)	1,500,000
Balance to Complete	135,500,000
Amount that could be utilized in fiscal year 1971	1,300,000

[1] The cost allocated to power generation, $137 million, will be reimbursed to the Federal Government.

Authorization.—1946 River and Harbor Act.

Location and Description.—Chief Joseph Dam is located on the Columbia River, 545 miles above the mouth, 51 miles below the Grand Coulee Dam, and 1.5 miles upstream from the town of Bridgeport, Washington, between Douglas and Okanogan Counties. The project provides for extending the existing powerhouse to house 11 additional generating units, for a total of 27 units, and structural modifications for increasing the normal full pool elevation from 946 to 956. The additional units will increase the installed nameplate capacity from 1,024,000 kilowatts to 2,069,000 kilowatts.

Proposed Operations.—The sum of $1,300,000 could be used in Fiscal Year 1971 to initiate construction of the additional hydro-power installation by awarding a procurement contract for hydraulic turbines.

Justification.—Additional units will be required at Corps of Engineers projects throughout the Columbia River basin because of the effects of the Canadian treaty and the Pacific Northwest-Pacific Southwest Intertie. Development of Canadian storage will increase the dependable capacity and the average annual usable energy on the Federal system. The Canadian entitlement power purchased from Canada by the Columbia Storage Power Exchange will be assigned in California during the initial years. This delivery outside the Pacific Northwest increases the peak requirements of the Federal system. The installation of the 11 additional units at Chief Joseph Dam has been tentatively scheduled for November 1974 through November 1976. The Grand Coulee Dam project's present powerplant hydraulic capacity is 90,000 c.f.s. compared with 114,000 c.f.s. at the Chief Joseph Dam project. The Grand Coulee Third Powerplant, now under construction, is scheduled for power-on-line for three 600-megawatt units in 1974 and three additional 600-megawatt units in 1978. These added units will increase the powerplant hydraulic capacity to 170,000 c.f.s. in 1974 and 255,000 c.f.s. in 1978. The high peaking flows from Grand Coulee will change the Chief Joseph operating conditions and result in a loss of power due to fluctuating pool level and/or discharges over the spillway until units 17–27 are installed. The estimated annual benefits total $22,652,000 and accrue from power generation. The benefit-to-cost ratio is 4.0 to 1, based on 100-year project life.

Remarks.—The entire Federal cost of the additional hydro-power units for the Chief Joseph Dam, currently estimated at $137,000,000, is allocated to power and will be reimbursed to the Federal government.

Everett Harbor and Snohomish River, Wash.

Senator Ellender. There is nothing in the budget and local interests have requested $700,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $700,000. These funds would be used to start construction of the project.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financinal data

Total estimated Federal cost	$1,360,000
Allocations to date (planning)	52,000
Balance to complete	1,308,000
Amount that could be utilized in fiscal year 1970	700,000

Authorization.—River and Harbor Act of 1968.

Location and Description.—Everett Harbor is located on the northwestern coast of Washington, about 30 miles north of Seattle, where the Snohomish River discharges into Puget Sound. The plan of improvement provides for the raising and extension of the existing training dike, and construction of a breakwater on the western and southern sides of the 14th Street small-boat basin.

Proposed Operations.—The sum of $700,000 could be utilized in FY 1971 to initiate construction of the project. Preconstruction planning is underway and will be completed with available funds.

Justification.—The authorized improvement would provide protection in the navigation channel and boat basin from waves when high tides are accompanied by brisk onshore winds. Extensive damage and recurring losses are suffered by

industry, navigation, and recreation interests in Everett Harbor because of these waves. The wave conditions also prevent commercial and recreation craft from utilizing all of the mooring spaces available in the existing small-boat basin. The estimated annual benefits are all based on prevention of damages to vessels and total $407,000.

Breakdown of benefits:	*Amount*
General Navigation	$209,000
Recreation Boating	198,000
Total	407,000

The benefit-to-cost ratio is 4.3 to 1, based on 50-year project life.

Non-Federal Costs and Local Cooperation.—The cost to the local sponsor of complying with the requirements of local cooperation for construction of the 1968 Modification is $405,000. This consists of $1,000 for lands, easements, and rights-of-way, and $404,000 cash contribution (9.6 percent of cost of training dike modification and extension, presently estimated at $104,000; and 44.5 percent of cost of the boat basin breakwater, presently estimated at $300,000). Local interests are also required to provide and maintain an adequate public landing or wharf, with provisions for sale of motor fuel, lubricants, and potable water, access roads, parking areas, and other necessary public-use shore facilities; and make utility and other relocations or alterations as required for project purposes.

Little Goose Lock and Dam, Wash. (Additional Power Units)

Senator Ellender. There is nothing in the budget and local interests have requested $270,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $270,000, which would permit us to initiate and complete preconstruction planning for the additional units.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $25,000,000
Allocations to date	0
Balance to complete	25,000,000
Amount that could be utilized in fiscal year 1971	270,000

[1] Estimated cost of 3 additional power units, which is allocable to power, is entirely reimbursable.

Authorization.—River and Harbor Act of 1945

Location and Description.—Little Goose Lock and Dam is located on the Snake River about 70.3 miles upstream from its confluence with the Columbia River, approximately 85 miles east of the tri-cities of Kennewick, Pasco and Richland, Washington. The existing project, which will be completed in FY 1971, includes a power-plant consisting of three 90,000 kw generating units with space for the three additional units described here. The recommended project would provide the three additonal units, thus completing the ultimate development of the authorized project.

Proposed Operations.—The amount of $270,000 would be used to prepare plans and specifications for the three additional generators and turbines.

Justification.—Additional units will be required at Corps projects throughout the Columbia Basin because of the effects of the Canadian Treaty and the Pacific Northwest-Pacific Southwest Intertie. The development of the Canadian storage will increase the dependable capacities and the average annual useable energy of the Federal System. The Canadian entitlement power purchased from Canada by the Columbia Storage Power Exchange will be assigned in California during the intitial years. This delivery outside the Pacific Northwest increases the peak requirements of the Federal System. Addition of units at Little Goose will provide part of the generation required by the Federal System to meet area firm and secondary demands and provide the necessary capacity to deliver

the Canadian entitlement under the intertie to the California purchasers. The Federal System secondary energy has been committed to serve the interruptible industrial loads during all years with better than critical stream flow conditions. Without the Little Goose additional installation, service to the interruptible industrial loads would have to be curtailed during the peak load periods. Benefits accrue as power-at-site and total $5,861,000 annually. The benefit-to-cost ratio is 4.7 to 1, based on a 100-year project life.

Lower Granite Lock and Dam, Wash.

Senator Ellender. The budget request was $19,150,000. The House has included $19,150,000, exclusive of reserve, and local interests have requested $22 million. What is your capability on this project?

General Koisch. Our capability on this project is $22 million, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $2,850,000?

General Koisch. The additional amount would be applied to the recently awarded main dam contract where earnings very probably will exceed available funds in fiscal year 1971.

Lower Monumental Lock and Dam, Wash.

Senator Ellender. The budget request was $2,250,000. The House has included $2,250,000, and local interests have requested $4,250,000. What is your capability on this project?

General Koisch. Our capability on this project is $4,250,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $2 million?

General Koisch. Mr. Chairman, it is now estimated that an additional $2 million in fiscal year 1971 would permit completion of the Lower Monumental project during fiscal year 1971. All hydropower units are now on-the-line. The major work remaining involves relocations and recreational facilities.

Lower Monumental Lock and Dam, Wash. (Additional Power Units)

Senator Ellender. There is nothing in the budget and local interests have requested $270,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $270,000, which would permit us to initiate and complete preconstruction planning on the additional units.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $25,000,000
Allocations to date	0
Balance to complete	25,000,000
Amount that could be utilized in fiscal year 1971	270,000

[1] Estimated cost of three additional power units, which is allocable to power, is entirely reimbursable.

Authorization.—River and Harbor Act of 1945.

Location and Description.—Lower Monumental Lock and Dam is located on the Snake River about 41.6 miles upstream from its confluence with the Columbia River, approximately 55 miles east of the tri-cities of Kennewick, Pasco and Richland, Washington. The existing project, which will be completed in fiscal year 1972, includes a powerplant consisting of three 90,000 kw generating units with space for three additional units. The recommended project would provide the three additional units described here, thus completing the ultimate development of the authorized project.

Proposed Operations.—The amount of $270,000 would be used to prepare plans and specifications for the three additional generators and turbines.

Justification.—Additional units will be required at Corps projects throughout the Columbia Basin because of the effects of the Canadian Treaty and the Pacific Northwest-Pacific Southwest Intertie. The development of the Canadian storage will increase the dependable capacities and the average annual usable energy of the Federal System. The Canadian entitlement power purchased from Canada by the Columbia Storage Power Exchange will be assigned in California during the initial years. This delivery outside the Pacific Northwest increases the peak requirements of the Federal System. Addition of units at Lower Monumental will provide part of the generation required by the Federal System to meet area firm and secondary demands and provide the necessary capacity to deliver the Canadian entitlement under the intertie to the California purchasers. The Federal System secondary energy has been committed to serve the interruptible industrial loads during all years with better than critical stream flow conditions. Without the Lower Monumental additional installation, service to the interruptible industrial loads would have to be curtailed during the peak load periods. Benefits accrue as power-at-site and total $5,842,000 annually. The benefit-to-cost ratio is 4.7 to 1, based on a 100-year project life.

Middle Fork Reservoir, Wash.

Senator Ellender. There is nothing in the budget, and local interests have requested $300,000. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized. If the project is authorized during the current session of Congress our capability would be $300,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$45, 500, 000
Total allocations to date	0
Balance to complete	45, 500, 000
Amount that could be utilized in fiscal year 1971	300, 000

Authorization.—Not yet authorized.

Location and Description.—The project would be located on the Middle Fork of Snoqualmie River, a tributary of Snohomish River, at river mile 10, about 6 miles east of North Bend in King County, in northwestern Washington. The plan of improvement provides for construction of a rockfill storage dam about 190 feet high and 1,350 feet long; creating a reservoir with a capacity of 129,000 acre-feet. Recreation and fish propagation facilities would be constructed over about a 40-year period to meet public demand.

Proposed Operations.—Subject to authorization of the project, the sum of $300,000 could be used to initiate preconstruction planning. Preconstruction planning is estimated to cost a total of $3,400,000, and will require a minimum of 3 years to complete.

Justification.—The Middle Fork Reservoir project would reduce flooding of urban development and agricultural lands and developments along the Snoqualmie River, and permit optimum agricultural returns. The project would have 120,000 acre-feet of flood storage. Flood damages would also be reduced in the urban,

agricultural, and industrial developments along the Snohomish River. In addition to reducing flood damages, prevention of flooding would permit higher land use. Development of recreational areas on the reservoir would materially add to the welfare and enjoyment of the public. Benefits would be realized from the enhancement of sport and commercial fisheries by augmentation of low flows and reservoir stocking. The evaluation of the fishery benefits was made by the U.S. Fish and Wildlife Service, in cooperation with fishery agencies of the State of Washington. The plan of improvement is compatible with plans being formulated for the Snohomish River basin under the comprehensive water resource study of Puget Sound and Adjacent Waters. Estimated annual benefits total $5,156,000, and are tabulated below. The benefit-to-cost ratio is 1.8 to 1, based on 100-year project life.

Benefit:	*Amount*
Flood control	$3,988,000
Recreation	955,000
Low-flow augmentation for fishery enhancement	68,000
Reservoir fishery enhancement	105,000
Total	5,156,000

Upper Columbia River Navigation, Wash.

Senator Ellender. There is nothing in the budget, and local interests have requested $600,000. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized. If the project is authorized during the current session of Congress our capability would be $600,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$106,000,000
Total allocations to date	0
Balance to complete	106,000,000
Amount that could be utilized in fiscal year 1971	600,000

Authorization.—Not yet authorized.

Location and description.—The project would extend from the McNary Dam pool near Pasco to Wenatchee, in south-central Washington, a distance of 125 miles, in the following counties: Benton, Chelan, Douglas, Franklin, Grant, Kittitas, and Yakima. The proposed project is based on the assumption that the Ben Franklin Dam will be constructed either by Federal or private resources. Navigation improvements will consist of a channel 14 feet deep and 250 feet wide from the McNary Dam pool (River Mile 340) to the proposed Ben Franklin Dam (river mile 348), and the provision of locks 86 feet wide, 675 feet long, with 15 feet of depth over the sills at Ben Franklin, Priest Rapids, Wanapum, and Rock Island Dams; navigation aids along the river reach from the McNary Dam pool to Wenatchee; modifications to the highway bridge at Vernita and the railroad bridge at Beverly; and fishery mitigation features.

Proposed operations.—Subject to authorization of the project, the sum of $600,000 could be used to initiate preconstruction planning. Preconstruction planning costs are estimated at $1,700,000, and will require about 6 years to complete.

Justification.—The project will extend navigation 125 miles from the McNary Dam pool to Wenatchee. Average annual physical output over the first five years of project operation is estimated to be 268 million ton-miles of shallow-draft navigation and 1,454,000 user days annually of boats launched. The project is expected to satisfy all navigation needs on the Upper Columbia to 2020 and contribute substantially to the boat-launched need of the Upper Columbia basin. Secondary benefits resulting from these economic improvements have not been evaluated. The project is located near or within five counties—Yakima, Chelan, Douglas, Ferry, and Okanogan, which are designated as Title IV areas by the Economic Development Administration. The labor force is experienced in heavy

construction, and 50 percent of the labor force required for construction, operation, and maintenance of the project is available in the five-county area. Estimated annual benefits total $6,944,000, and are tabulated below. The benefit-to-cost ratio is 1.09 to 1, based 50-year project life.

Annual benefits:	*Amount*
Transportation	$5, 620, 000
Recreational boating	154, 000
Area redevelopment	1, 170, 000
Total annual benefits	6, 944, 000

OPPOSITION

Senator ELLENDER. The National Wildlife Federation has testified that it is opposed to the extension of navigation on the Columbia River to Wenatchee, Wash. What is the status of the corps survey report on this project?

Colonel MCINTYRE. Sir, the report is with the Bureau of the Budget for clearance as to its relationship to the program of the President prior to its submission to Congress by the Secretary of the Army.

RECOMMENDED IMPROVEMENT

Senator ELLENDER. In general, what does this report recommend?

Colonel MCINTYRE. The report recommends a 125-mile extension of the navigation channel from McNary Dam pool through Rock Island pool to Wenatchee, Wash., by means of a channel 14 feet deep and 250 feet wide from the McNary pool to Priest Rapids Dam, and locks 86 feet wide and 675 feet long with 15 feet of depth over the sills at Priest Rapids, Wanapum, and Rock Island Dams. In the event construction of Ben Franklin Dam now under study is authorized, the channel would extend from McNary pool to Ben Franklin Dam with locks in Ben Franklin, Priest Rapids, Wanapum and Rock Island Dams.

EFFECT ON ECOLOGY AND ENVIRONMENT

Senator ELLENDER. What would be the effect of this project should it be authorized and constructed on fish spawning areas, archeological sites, and the riparian habitat?

Colonel MCINTYRE. The only really significant environmental aspect of the Upper Columbia River navigation project would be its effect on anadromous fish. About 15 percent of the area to be dredged is presently used for spawning by 6,000 to 7,000 fall chinook salmon and a lesser but unknown number of steelhead trout. Channel dredging may disturb fish spawning and rearing for a limited time and will permanently eliminate some spawning areas.

Senator ELLENDER. How do you propose to overcome or mitigate these adverse effects on anadromous fish?

Colonel MCINTYRE. Based upon experience at other locations, it is believed that fish will utilize suitable gravel adjacent to the channel for spawning. The project plan also proposes to deposit dredged gravel at carefully selected areas which are believed to have characteristics suitable for spawning salmon. In addition, artificial propagation facilities will be provided to supplement natural spawning to assure no reduction in total numbers of anadromous fish. The sizing of those

facilities will be based upon detailed data obtained from post authorization Fish and Wildlife Coordination Act fish studies.

VANCOUVER LAKE AREA, WASH.

Senator ELLENDER. The budget request was $15,000. The House has included $100,000, exclusive of reserve, and local interests have requested $100,000. What is your capability on this project?

General KOISCH. Our capability on this project is $100,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $85,000?

General KOISCH. The additional amount would reduce the planning period from 3 to 2 years, sir.

WYNOOCHEE RESERVOIR, WASH.

Senator ELLENDER. The budget request was $5 million. The House has allowed $6,900,000, exclusive of reserve, and local interests have requested $8,800,000. What is your capability on this project?

General KOISCH. Our capability on this project is $8,800,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $3,800,000?

General KOISCH. The additional amount would be used to pay the main dam contractor for earnings above the scheduled amount during the last half of fiscal year 1970 ($2,100,000), and for anticipated earnings over and above the scheduled amount in fiscal year 1971 ($1,300,000), and $200,000 would be used for additional land acquisition.

ALLOCATIONS TO CONTRACTOR, FISCAL YEAR 1970 AND FISCAL YEAR 1971

Senator ELLENDER. Mr. C. O. Faris, Seattle district manager of Dravo Corp., appeared before this committee and reported that the funds allocated by the Corps of Engineers for fiscal year 1970 and 1971 for construction of Wynoochee Dam in the State of Washington were insufficient to meet his construction progress and that he has continued work with his own financing. Would you comment on the fund situation at this project?

General KOISCH. Yes, sir. The contract for construction of Wynoochee Dam which was awarded in August 1969, specified that $1,400,000 would be available for payment of contractor earnings in fiscal year 1970 and further, that amount was the total that could be expected that fiscal year. The contractor's mobilization costs and preparatory work exhausted the available funds before the end of November 1969. This contract, as in the case of all our continuing contracts, contained the provision that upon exhaustion of funds, the contractor could elect to suspend work but that if he elected to continue work, no payment would be made for such work unless additional funds should become available. He elected to continue work by making his own financial arrangements.

Senator ELLENDER. It would seem to me that if a contractor were willing to continue work at his own expense to meet a completion

schedule, that the Corps would make an effort to obtain some financial relief. Did the Corps make an effort to provide some financial relief?

General KOISCH. Sir, we did provide him additional funds in the amount of $220,000 by exercising the Chief of Engineers transfer authority. I might also point out, sir, that Congress appropriated $1,250,000 in excess of the budget request for fiscal year 1970, which could have been applied to this contract, but that amount was placed in budgetary reserve by Presidential directive. Under these circumstances we did not consider it appropriate to request transfer of funds in excess of the 15 percent transfer authority.

Senator ELLENDER. To what extent has the contractor had to finance himself?

General KOISCH. Through April 30, the contractor has earned $3,272,000 for which he has been paid $1,620,000. This would mean he has unpaid earnings of about $1,650,000 and by the end of the fiscal year, his unpaid earnings could approximate $2,600,000.

WORK REQUIRED TO MEET COMPLETION SCHEDULE

Senator ELLENDER. The project manager indicated that the amount allocated for fiscal year 1970 was extremely limited in consideration of the amount of work necessary to meet the completion schedule established under the contract. What is your comment with respect to the fiscal year 1970 allocation?

General KOISCH. In this instance, sir, the allocation was held to an amount which would provide minimum construction progress and still retain completion schedules. The minimum allocation was necessary because of the amended budget reductions and curtailment in Federal expenditures announced by the President for fiscal year 1970. We recognize that the $1,400,000 allocated for this contract was less than a desirable amount, but we believe that the contractor could have geared his operations to this amount and still met the completion schedules established by the contract. It is our position that the contractor proceeded at his own risk with full knowledge of the available funds.

CONTRACTORS ESTIMATE OF FUNDS REQUIRED

Senator ELLENDER. In his testimony the contractor's representative stated that he would require a minimum total allocation of $10,200,000 through fiscal year 1971. What is the fund situation at this project insofar as fiscal year 1971 is concerned?

General KOISCH. The budget request for the Wynoochee project for fiscal year 1971 is $5 million, and with release of the $1,250,000 in budgetary reserve would permit a fiscal year 1971 allocation of $5,200,000 for this contract. This amount added to his previous fiscal year 1970 allocation of $1,620,000 would make available a total of $6,820,000 through June 30, 1971. We feel that this amount is the minimum required to meet project completion schedules.

Senator ELLENDER. In event the contractor continues to make progress at the rate he has indicated, do you have a capability to use additional funds?

General KOISCH. Yes, sir; we have.

Senator ELLENDER. And what is that capability?

General Koisch. Sir, subject to the usual qualifications, we have a capability for an additional $3,800,000, or a total of $8,800,000. Of this amount, $3,400,000 would be available for allocation to the main contract and would provide a total of $10,200,000 through June 30, 1971. This amount would meet the fund requirements indicated by the contractor.

ANADROMOUS FISH PASSAGE FACILITIES

Senator Ellender. Mr. Faris, the Dravo firm's representative indicated that one of the major problems encountered in the construction operations at the Wynoochee project is the construction of fish passage facilities within the time schedule called for by the contract specifications. He also stated that the facilities are complex and require considerable attention. Would you describe the fish passage facilities and discuss the basis for the precise time schedule you require for its construction?

General Koisch. Mr. Chairman, Wynoochee River supports important annual runs of salmon and steelhead that migrate upstream past the project site during the 9-month period from September through May of each year. Fish passage during construction of a project like this one is commonly accomplished by the construction of a costly temporary facility for the bypassing of fish when construction work blocks the river. In the case of Wynoochee, however, we were able to eliminate the need for such an expensive temporary fish passage facility by scheduling early completion of the permanent fish passage facility. To insure uninterrupted migration during and after construction, permanent facilities consisting of a barrier dam, fish collection system, and loading facilites downstream of the main dam are being constructed. The fish will be collected, loaded into a special tank truck and transported upstream of the Wynoochee Reservoir and then released into the river to continue their upstream migration. Downstream migration will be accomplished by providing a continuous flow through the dam at all times. The permanent facilities for upstream migration are separated from the main structure because of physical limitations. The contract provides that the permanent upstream passage facility be usably complete by September 1970, if the river is to be completely blocked after that time. Early site preparation work could be done with the restriction that the river not be blocked longer than 48 hours at one time, then followed by an open period of at least 144 hours during the period from September through May. Therefore, timely completion of the permanent fish passage facility prior to the September 1970 to May 1971 fish runs is imperative in order to allow construction of the main dam project to proceed on schedule.

ZINTEL CANYON, WASH.

Senator Ellender. There is nothing in the budget, and local interests have requested $150,000. What is your capability on this project?

General Koisch. Mr. Chairman, the project is not yet authorized. If the project is authorized during the current session of Congress our capability would be $150,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial cost

Total estimated Federal cost	$1,860,000
Total allocations to date	0
Balance to complete	1,860,000
Amount that could be utilized in fiscal year 1971	150,000

Authorized.—Not yet authorized.

Location and Description.—Zintell Canyon runs north to the Columbia River, in and adjacent to the City of Kennewick, Benton County, Washington. The project would consist of a rock fill dam—113 feet high—with uncontrolled spillway and outlet works that would create a reservoir of 2,560 acre-feet of capacity. The storage comprises 2,160 acre-feet for flood control and 400 acre-feet for sediment. In addition, the project would include a channel with a capacity of 400 cfs.

Proposed Operations.—Subject to authorization of the project, the sum of $150,000 could be used to initiate preconstruction planning. All preconstruction planning is estimated to cost $250,000 and will require two years to complete.

Justification.—The plan of improvement would provide protection against heavy rainfall, snowmelt, and thunderstorm floods to the City of Kennewick, Washington. Floods have occurred eleven times since 1907 with the latest flood having occurred in 1964. Benefits consist of prevention of flood damages and are estimated at $107,500, annually. The benefit-to-cost ratio is 1.4 to 1, based on 100-year project life.

Burnsville Lake, W. Va.

Senator Ellender. The budget request was $420,000. The House has allowed $420,000, exclusive of reserve, and local interests have requested $900,000. What is your capability on this project?

General Koisch. Our capability on this project is $900,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $480,000?

General Koisch. The additional amount would be used to initiate construction of the access and bypass road in the second half of the fiscal year.

Leading Creek Lake, W. Va.

Senator Ellender. There is nothing in the budget and local interests have requested $150,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $150,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $25,000,000
Allocations to date	[2] 15,000
Balance to complete	24,985,000
Amount that could be used in fiscal year 1971	150,000

[1] Ultimate total cost $26,090,000.
[2] Cost of feasibility report.

Authorization.—1938 Flood Control Act.

Proposed Operations.—The amount of $150,000 would be utilized to initiate preconstruction planning in FY 1971.

Justification.—The Leading Creek project is a substitute for the authorized Steer Creek Reservoir project. Studies of the Steer Creek project revealed that the present cost of real estate and relocations exceeded the total cost of the

Leading Creek project. Since the two projects produced essentially equivalent benefits, the Leading Creek was selected.

The Leading Creek project would be a unit of the authorized reservoir system for reduction of flood damages in the Little Kanawha Basin, and of the Comprehensive Plan for Flood Control in the Ohio River Basin. The Little Kanawha Basin, because of its rugged topography, is subject to flash-type floods, which preclude adequate warning to permit flood plain evacuations. The Basin experiences frequent minor floods and periodic major floods which inundate considerable areas in the Basin and contribute materially to floods on the Ohio River.

The topography of the Leading Creek Reservoir is conducive to development for recreation purposes. Considerable recreational development is proposed. The State of West Virginia has expressed an interest in the project as part of its plan for recreation development.

The Federal Water Pollution Control Administration has recommended that storage be provided in the Little Kanawha Basin to maintain a flow of 330 cfs at the head of the slack water pool that will be provided by the Belleville Locks and Dam Project for the months of June through November in the interest of water quality control. Leading Creek includes 20,000 acre-feet of storage to be used for this purpose. Storage will be provided in the other authorized reservoirs to satisfy the water quality needs.

The benefit-cost ratio for this project is 1.4 to 1. The average annual benefits of $1,524,700 are broken down as follows:

Flood control	$475,300
Recreation:	
General	595,500
Fish and wildlife	31,000
Water quality control	298,500
Redevelopment	124,400
Total	1,524,700

Panther Creek Lake, W. Va.

Senator Ellender. There is nothing in the budget and local interests have requested $150,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $150,000 to initiate preconstruction planning.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	[1] $15,000,000
Allocations to date	0
Balance to complete	15,000,000
Amount that can be used in fiscal year 1971	150,000

[1] Estimated Federal cost to include future recreational development is $15,320,000.

Authorization.—1965 Flood Control Act.

Location and Description.—The proposed dam site is located in McDowell County, West Virginia, on Panther Creek, a tributary of the Tug Fork of the Big Sandy River, approximately 6.1 miles above the mouth of Panther Creek. The reservoir would be formed by a rolled rock embankment with an uncontrolled spillway located in the right enbankment. The reservoir would control a drainage area of 23.7 square miles.

Proposed Operations.—The amount of $150,000 would be used to initiate preconstruction planning.

Justification.—The Panther Creek Reservoir would give appreciable flood protection to the Matewan-Williamson-Kermit area along Tug Fork, and decrease the possibility of overtopping of the Williamson Local Protection Project which was designed only for partial protection. It would also be operated for Service for Ohio River flood control. The project will assist in meeting the need eval-

uated by U.S. Public Health Service for low flow augmentation in the interests of water quality control for the industrialized portion of the Big Sandy River Valley and will provide water recreation facilities in an area deficient in such opportunities.

Improving the flood protection and the stream quality aspects of Tug Fork and Big Sandy River will be of significant value for residential and industrial growth in the area. Recreational development is expected to assist in attracting an equitable portion of tourism into an area where such activity is presently underdeveloped.

The benefit-cost ratio for this project is 1.09 to 1. The average annual benefits of $707,200 are broken down as follows:

Big Sandy River flood control benefits	$136,900
Ohio River flood control benefits	41,100
Recreation	279,100
Water quality control	145,000
Redevelopment	105,100
Total	707,200

Rowlesburg Lake, W. Va.

Senator Ellender. Local interests have requested $900,000 for this project. The project was added by the Congress in fiscal year 1970 for land acquisition, the added funds were put in budgetary reserve for use in fiscal year 1971, and no additional funds are in the 1971 budget. However, the House has included $350,000, exclusive of reserve. What is your capability on this project?

General Koisch. Our capability is $900,000.

Senator Ellender. What would be accomplished with the additional funds?

General Koisch. The additional amount would be used to continue land acquisition and to initiate construction of the project.

Stonewall Jackson Lake, W. Va.

Senator Ellender. The budget request was $450,000. The House has allowed $1,100,000, exclusive of reserve, and local interests have requested $1,100,000. What is your capability on this project?

General Koisch. Our capability on this project is $1,100,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $650,000?

General Koisch. The additional amount would be used to acquire hardship case properties and to acquire land susceptible to escalation in cost, especially oil, gas, and mineral properties.

Small Navigation Projects

Senator Ellender. Next we take up the program for small navigation projects not specifically authorized by Congress. This committee has received requests amounting to $3,500,000 for this program. The budget called for $3 million. The House voted $3,090,000. How big is your backlog of approved projects under this program? Do you have many potential projects being developed under this program? What is your capability?

General Koisch. Senator, the backlog currently is 37 projects totaling $6 million Federal cost. This backlog is increasing as new projects

are developed and approved. We now have 110 studies underway of potential projects that are prospective additions to the backlog. We have a capability of $4 million for these projects.

Senator ELLENDER. Would you submit for the record a list of approved projects on your backlog for which funds are not included in the fiscal year 1971 budget?

General KOISCH. Yes.

(The information follows:)

Additional approved section 107 projects not included in the fiscal year 1971 budget request

Project location:	Federal cost
Lewis and Clark River, Oreg	$150,000
Adams Creek, Charleston, S.C	70,000
Drum Inlet, N.C	90,000
Bayport, Fla.	150,000
Black River, Port Huron, Mich	195,000
Port Sanilac Harbor, Mich	120,000
Oak Harbor, Wash	450,000
Huron River, Mich	360,000
Brownsville, Wash.	200,000
Delaware River, Bristol Marina, Pa	300,000
Taskinas Creek, Va	70,000
Great South Bay, N.Y	400,000
Valcour Harbor, N.Y	350,000

SMALL FLOOD CONTROL PROJECTS

Senator ELLENDER. The program for small flood control projects was budgeted for $10 million. This committee has received requests for $10,300,000. The House allowance was $10,450,000. How big is your backlog of approved projects? Do you have many potential projects being developed under this program? What is your capability?

General KOISCH. There are 45 projects on the backlog list of approved projects with a total Federal cost of over $20 million. We have 250 studies underway of potential projects. Our fiscal year 1971 capability for this program is $15 million.

Senator ELLENDER. Would you submit for the record a list of approved projects under section 205 on your backlog for which no funds are included in the fiscal year 1971 budget?

General KOISCH. Yes.

(The information follows:)

Additional approved section 205 projects not included in the fiscal year 1971 budget request

Project location:	Federal cost
Scuppernong River, N.C	$190,000
Six Runs Creek, N.C	300,000
Moccasin Swamp, N.C	125,000
Anacostia River, Prince Georges County, Md	450,000
Stillwater, Okla	850,000
Flat Rock Creek, Tulsa, Okla	870,000
Baldwin and Hannon Slough, Montgomery, Ala	330,000
Buffalo Creek, Meadow Grove, Nebr	200,000
Willsey Brook, Wurtsboro, N.Y	750,000
Churn Creek, Shasta County, Calif	725,000
Evansdale, Ind	960,000

RECREATION FACILITIES AT COMPLETED PROJECTS

Senator ELLENDER. The budget estimate for fiscal year 1971, exclusive of the 1970 budgetary reserve, is $6,452,000. The House has added $692,000 more for facilities at the Center Hill Reservoir in Tennessee and an additional $50,000 for a boat ramp at the Enid Reservoir in Mississippi. This committee also has had a number of local requests for recreational facilities in addition to the budgeted amounts. The projects and the additional amounts requested are:

	Additional amount
Arkansas:	
Blakely Mountain Reservoir	$25,000
Bull Shoals Reservoir, Ark., and Mo	349,000
Millwood Reservoir	75,000
Norfork Reservoir	298,000
Idaho: Albeni Falls	73,000
Illinois:	
Upper Mississippi River Pool 24, Illinois and Missouri	185,000
Upper Mississippi River Pool 25, Illinois and Missouri	10,000
Upper Mississippi River Pool 26, Illinois and Missouri	10,000
Kansas:	
Council Grove Reservoir	48,000
John Redmond Reservoir	30,000
Missouri:	
Clearwater Reservoir	75,000
Pomme de Terre Reservoir	170,000
Table Rock Reservoir, Mo. and Ark	457,000
Oklahoma:	
Eufaula Reservoir	64,000
Fort Gibson Reservoir	70,000
Fort Supply	68,000
Hulah Reservoir	26,000
Keystone Reservoir	209,000
Tenkiller Ferry Reservoir	35,000
Oregon:	
Columbia River at Bonneville Dam	175,000
Cottage Grove Reservoir	28,000
Dorena Reservoir	9,000
Fall Creek Reservoir	77,000
Fern Ridge Reservoir	444,000
Lookout Point Reservoir	36,000
McNary lock and dam, Oregon and Washington	483,000
Texas:	
Denison Dam, Texas and Oklahoma	350,000
Ferrells Bridge Reservoir	690,000
Texarkana Reservoir	90,000
Washington:	
Chief Joseph Dam	250,000
Columbia River at the mouth (Fort Canby)	32,000
Ice Harbor lock and dam	693,000
Mud Mountain	2,000
The Dalles lock and dam, Washington and Oregon	359,000
Total	5,995,000

Can the Corps use the additional amounts requested by local interests?

General KOISCH. Yes, sir.

MISSISSIPPI RIVER AND TRIBUTARIES

Senator ELLENDER. The House made some changes in the allocation of funds for the Mississippi River and tributaries project. Would you tell us about those changes and their effect on the program?

General KOISCH. With respect to construction and planning for the Mississippi River and tributaries project, the House added funds for four units of the overall project and increased the amount for one other unit. In addition, $40,000 was added under examinations and surveys for the Vicksburg Harbor study. These additions amounted to $740,000. However, the House then increased the item "Reduction for savings and slippages and carryover balances" by $740,000. As a result, the overall amount for construction and planning has not been increased despite the addition of $700,000 in work not contemplated in the fiscal year 1971 budget and was further reduced to provide the $40,000 allowed for the Vicksburg Harbor study.

The Mississippi River and tributaries project is essential for the control of floods in the alluvial valley. In recent years it has been funded at a minimum rate. The action of the House will necessitate application of a greater slippage to continuing units of the project and further delay the benefits that would accrue as construction of those units progress. It is requested that the line item "Reduction for anticipated savings and slippages and carryover balances" be reduced from $2,190,000 back to the budgeted amount of $1,450,000.

Senator ELLENDER. Can you also effectively accomplish the work for which the House reallocated funds?

General KOISCH. Yes, sir.

MISSISSIPPI RIVER EXAMINATIONS AND SURVEYS

Senator ELLENDER. For examinations and surveys the budget estimate is $1,148,000. The House has included $1,188,000 and local interest have requested $1,454,000. What is your capability for surveys in the Mississippi River and tributaries project?

General KOISCH. Our capability for surveys for fiscal year 1971 is $1,504,000, Mr. Chairman.

Senator ELLENDER. Would you furnish your capability for each of the surveys for which requests were made as shown on this table, and then also include your capability on any study not listed which makes up your stated capability of $1,504,000?

General KOISCH. Yes, sir; I will.

(The table follows:)

Name and location of study	Budget estimate	Request	Capability, fiscal year 1971
Catahoula-Charenton area, Louisiana	15.0		40.0
Tensas Basin levee district, p. 47		15.0	
Mississippi River at Memphis, Tenn	36.0		65.0
Tensas Basin levee district, p. 47		65.0	
Harry Woodbury, p. 79		65.0	
Senator Howard H. Baker, Jr., p. 2267		65.0	
Bayou Du Chien, Ky	0		15.0
Tensas Basin levee district, p. 47		15.0	
Bayous Rapides Boeuf Cocodrie and outlets, Louisiana	15.0		15.0
Tensas Basin levee district, p. 47		15.0	
Greenville Harbor, Miss	75.0		75.0
Tensas Basin levee district, p. 47		75.0	
Hatchie River, Tenn. and Miss	9.0		9.0
Tensas Basin levee district, p. 47		9.0	
Obion and Forked Deer Rivers and tributaries, Tennessee	70.0		130.0
Tensas Basin levee district, p. 47		130.0	
Old and Atchafalaya Rivers control, Louisiana	53.0		150.0
Tensas Basin levee district, p. 47		150.0	
St. Francis River Basin below Wappapello Reservoir, Mo. and Ark	60.0		70.0
Tensas Basin levee district, p. 47		60.0	
St. John's Bayou and New Madrid Floodway, Mo	45.0		90.0
Tensas Basin levee district, p. 47		90.0	
Senator Stuart Symington, p. 49		90.0	
A. C. Riley, p. 80		90.0	
Vicksburg Harbor, Miss	0		40.0
Tensas Basin levee district, p. 47		40.0	
B. F. Smith, p. 60		40.0	
Senator John C. Stennis, p. 65		40.0	
West Texas and eastern New Mexico water import	700.0		700.0
Tensas Basin levee district, p. 47		700.0	
Gov. David F. Cargo, p. 1973		700.0	
Wolf and Loosahatchie Rivers, Tenn	0		20.0
Tensas Basin levee district, p. 47		20.0	
Yazoo Basin delta area, Miss	70.0		70.0
Tensas Basin levee district, p. 47		70.0	
Walnut-Roundaway Bayou, La	0	0	15.0

Mississippi River Levees

Senator Ellender. The budget request was $2,450,000. The House has allowed $2,450,000, exclusive of reserve and local interests have requested $6,300,000. What is your capability on this project?

General Koisch. Our capability on this project is $6,300,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $3,850,000?

General Koisch. The additional amount would be used to advance construction of seepage berms and levee enlargements. The additional amount would advance completion of the project by 1 year.

Channel Improvement

Senator Ellender. The budget request was $31,639,000. The House has allowed $31,639,000, exclusive of reserve and local interests have requested $40,922,000. What is your capability on this project?

General Koisch. Our capability on this project is $40,922,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $9,283,000?

General Koisch. The additional amount would be used to advance revetment, dike, and dredging construction in certain areas but would have no effect on the project completion schedule.

Old River

Senator Ellender. The budget request was $200,000. The House has allowed $200,000 and local interests have requested $1,300,000. Can you use this amount?

General Koisch. Yes, sir.

Senator Ellender. What would be accomplished with the additional $1,100,000?

General Koisch. The additional amount would be used to initiate and complete an essential part of Coville Bayou revetment but would have no effect on the project completion schedule.

St. Francis Basin

Senator Ellender. The budget request was $4,300,000. The House has allowed $4,300,000, exclusive of reserve, and local interests have requested $9,450,000. Can you use this amount?

General Koisch. Our capability on this project is $9,450,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $5,150,000?

General Koisch. The additional amount would be used to advance land acquisition and construction of relocations, channel work and the W. G. Huxtable Pumping Plant. The additional amount would advance completion of the project by 10 months.

Lower White River, Big Creek, and Tributaries, Ark.

Senator Ellender. The budget request was $70,000. The House has allowed $70,000 and local interests have requested $140,000. What is your capability on this project?

General Koisch. Our capability on this project is $140,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $70,000?

General Koisch. The additional amount would be used to advance the preconstruction planning and would complete this planning one year earlier.

Cache Basin, Ark.

Senator Ellender. Local interests have requested $100,000 for this project. The project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use in fiscal year 1971 and there are no additional funds in the 1971 budget. The House has included $100,000, exclusive of reserve. What is your capability on this project?

General Koisch. Our capability is $100,000, sir.

Senator Ellender. What would be accomplished with the additional funds?

General Koisch. The additional funds would be used to advance the construction of channel improvements, but would have no effect on project completion.

West Tennessee Tributaries

Senator Ellender. The budget request was $500,000. The House has allowed $500,000 and local interests have requested $800,000. Can you use this amount?

General Koisch. Yes, sir.

Senator Ellender. What would be accomplished with the additional $300,000?

General Koisch. The additional amount would be used to advance relocations and construction of certain channel work. The additional amount would advance completion of the project by about 6 months.

Lower Arkansas River

Senator Ellender. There is nothing in the budget and local interests have requested $50,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $50,000 to continue construction of levee improvements along the south bank of the lower Arkansas River. Work has been continuing with funds which were last appropriated for this project in fiscal year 1968.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$26,500,000
Allocations to date	22,691,000
Balance to complete	3,809,000
Amount that could be utilized in fiscal year 1971	50,000

Authorization.—1928, 1936, 1938, 1941, 1946, 1950, 1962, and 1965 Flood Control Acts.

Location and Description.—Flood protection works along the north and south banks of the Arkansas River below Pine Bluff, Arkansas. The north bank levee will extend from the vicinity of Tucker, Arkansas, down Plum Bayou to the Arkansas River, thence down the Arkansas River to opposite Gillett, and thence to high ground in the vicinity of Gillett. The south bank levee extends from high ground at Pine Bluff to join with the west bank Mississippi River levee system about 12 miles above Arkansas City, Arkansas. The project includes approximately 85 miles of levees and flood walls on the South Bank and 61 miles of levees and flood walls on the North Bank.

Proposed Operations.—The amount of $50,000 would be used to initiate and complete gravel road on levee at Sta 2745 to 2895 and Cummins Stability Berm and to initiate Belsoe Stability Berm.

Justification.—This project is comprised of two separable units, namely, North Bank and South Bank. The North Bank Levee, when completed, will benefit 342,000 acres of a total 568,000 acres subject to flooding. The 1943 highwater would have caused damages estimated at $4,161,000, had no protection existed. Under present conditions of development in the flood plain it is estimated that these damages would amount to $18,000,000. Annual flood control benefits are estimated at $3,324,000. The South Bank Levee is an integral part of the mainline Mississippi River levee system which affords protection to approximately 3,770,000 acres of highly productive farm lands, numerous cities and towns, highways, railroads, oil and gas fields, and other developments in Arkansas and Louisiana.

The South Bank Levee joins with the west bank Mississippi River Levee to form a component of the plan for control of floods of the Mississippi River and its tributaries. The contribution of each component of the overall plan is inseparably related to that made by the others. Therefore, their benefits are inseparable and a composite B/C ratio for the Main Stem components is necessary. The com-

ponents are: Mississippi River Levees, Channel Improvement, South Bank Arkansas and South Bank Red River Levees, the Atchafalaya Basin, Old River, and a few miscellaneous items. The benefit-cost ratio was derived by measuring the total benefits credited to these Main Stem components against their total cost. Average annual benefits for the composite of Main Stem features and the North Bank Arkansas River feature follow:

BREAKDOWN OF BENEFITS (COMPOSITE FOR MAIN STEM FEATURES)

	South bank	North bank
Flood control	[1] $952,030,000	$2,324,000
Navigation	[1] 332,410,000	
Area redevelopment	[1] 7,000,000	21,000
Less benefits creditable to upstream reservoirs	−5,674,000	
Total	[1] 1,285,766,000	2,345,000
Benefit-to-cost ratio	16.4 to 1	9.4 to 1

[1] Pending final approval.

Tensas Basin, Boeuf and Tensas Rivers, Et Cetera

Senator Ellender. The budget request was $950,000. The House has allowed $950,000 and local interests have requested $1,475,000. What is your capability on this project?

General Koisch. Our capability on this project is $1,475,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $525,000?

General Koisch. The additional amount would be used to advance construction of channel improvement and the additional amount would advance completion of the project by 6 months.

Tensas Basin, Red River Backwater Area

Senator Ellender. The budget request was $850,000. The House has allowed $850,000 and local interests have requested $1,165,000. What is your capability on this project?

General Koisch. Our capability on this project is $1,165,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $315,000?

General Koisch. The additional amount would be used to advance construction of channel improvement and the additional amount would advance completion of the project by about 6 months.

Yazoo Basin, Big Sunflower River Et Cetera

Senator Ellender. The budget request was $550,000. The House has allowed $550,000 and local interests have requested $700,000. What is your capability on this project?

General Koisch. Our capability on this project is $700,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $150,000?

General Koisch. The additional amount would be used to advance relocations and construction of certain channel items.

Yazoo Basin, Greenwood

Senator Ellender. The budget request was $25,000. The House has included $225,000 and local interests have requested $220,000. Can you use the House amount?

General Koisch. Yes, sir.

Senator Ellender. What would be accomplished with the additional $200,000?

General Koisch. The additional amount would be used to advance construction of certain channel items and drainage structures.

Yazoo Basin, Main Stem

Senator Ellender. The budget request was $110,000. The House has allowed $110,000 and local interests have requested $180,000. What is your capability on this project?

General Koisch. Our capability on this project is $180,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $70,000?

General Koisch. The additional amount would be used to advance construction of certain drainage structures.

Yazoo Basin Tributaries and Ascalmore-Tippo and Opossum Bayou

Senator Ellender. The budget request was $1,220,000. The House has allowed $1,220,000, exclusive of reserve, and local interests have requested $1,850,000. What is your capability on this project?

General Koisch. Our capability on this project is $1,675,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $455,000?

General Koisch. The additional amount would be used to advance relocations and construction of certain channel improvements.

Yazoo Basin, Upper Auxiliary Channels

Senator Ellendér. The project was added by the Congress in fiscal year 1970, the added funds were put in budgetary reserve for use in fiscal year 1971, and the House has included $200,000. What is your capability on this project?

General Koisch. Our capability is $200,000.

Senator Ellender. What would be accomplished with these additional funds?

General Koisch. The additional funds would be used to continue planning.

Opposition

plan of improvement

Senator Ellender. I understand that the board of supervisors and a large number of citizens of Leflore County, Miss., are opposed to the construction of the upper auxiliary channel project. Would you describe this project and tell us what it will provide?

Colonel McKINNEY. Yes, sir. Mr. Chairman, the upper auxiliary project is an integral feature of the plan for providing flood protection in the Yazoo River headwater area. It is, in effect, an extension of the completed Will M. Whittington Auxiliary Channel. The plan includes further improvements northward through Cassidy Bayou to Old Coldwater River and White Oak Bayou. It will provide dual channel systems for floodflows throughout the length of the headwater area and greatly improve drainage.

Under present conditions, flood waters on the Tallahatchie River in the latitude of Swan Lake overflow to the east through deficient local levees and to the west through Cassidy Bayou, contributing to the inundation of many thousands of acres of land in Tallahatchie, Leflore, Grenada, and Sunflower Counties. The upper auxiliary channel, by expediting the passage of floodwaters to the south, would lower the project design flood stage by about 5.5 feet at Swan Lake and 3 feet at Greenwood. This lowering of stages and shortening of duration of flooding would provide flood control and drainage benefits to about 450,000 acres in Tallahatchie, Quitman, Grenada, Sunflower, Leflore, Holmes, and Humphreys Counties. Indirect benefits will accrue to another 150,000 acres in Quitman, Moahoma, Tunica, and Panola Counties, which would be provided better outlets for their drainage. The upper auxiliary project will also enhance the water supply, irrigation, and recreation resources of the area.

The upper auxiliary channel, by lowering flood stages, will permit the construction of lower levees along the main stem rivers, and eliminate the need for levees along some reaches of streams. Lower levees will require much less land for levee construction. Our preliminary estimates are that 2,700 acres would be required for those levees with the upper auxiliary channel in effect, and 6,000 acres without the channel. Of course, the levee construction costs would be comparably lower.

Enlarging the main stem channels, as an alternative, would dangerously upset the existing regimen of each stream; it would require the taking of better lands and improvements along top bank; and it would require additional lands for wasting spoil. The discharge of flood waters through the main stem streams without auxiliary channel relief would maintain higher stages and would inhibit the desired drainage of lands toward the main rivers.

EFFECT OF PROJECT ON LEFLORE COUNTY

Senator ELLENDER. Local interests appeared before this committee and stated that the 38.5 miles of channel which would run through Leflore County would cut the county into two parts, and that this would work an incalculable damage to the farms and their owners, since it would be necessary for them to move labor and machinery 8 to 10 miles from one side of the farming operation to the other side. They also stated that the channel would be economically disastrous to Greenwood and Leflore County, as persons living west of the channel, who have made Greenwood their business headquarters, would tend to patronize towns of the west side of the channel. What do the engineers have to say about this?

Colonel McKINNEY. Sir, the channel would cause some inconvenience to owners of large farms whose property is severed by the

channel. Bridges across the channel would limit this inconvenience. This will be considered very carefully during planning, to further minimize the problem of severance. Bridges would span the channel at all major east-west roads. Where a crossing is not provided, the project will include road construction along the channel to link with the nearest bridge. In general, the travel distance to Greenwood would not be extended. The 38.5 miles of channel in Leflore County would be spanned by approximately 19 bridges. The authorized plan for the upper auxiliary channel as presented at the public hearing in December 1963, and presented to Congress in fiscal year 1971 justification data includes 63 miles of channel and 8,900 acres of right-of-way requirements, including 38.7 miles of channel and 5,618 acres right-of-way in Leflore County. The testimony is based on a preliminary route for the channel considered by the Vicksburg District in 1969. This route locates the channel west of Itta Bena to avoid Roebuck Lake, minimizes property severances to the extent practicable, and incorporates some suggestions of local landowners.

LANDS REMOVED FROM TAX ROLLS

Senator ELLENDER. We also heard testimony stating that this project would take 5,600 acres of the most highly developed farmlands of the county, plus additional acreage for flowage easements, all of which would be lost from the tax rolls. What comment do you have on this statement?

Colonel MCKINNEY. Mr. Chairman, the channel route under consideration includes an estimated 5,600-acre right-of-way requirement in Leflore County. Of the 5,600 acres, about 4,100 acres are in cultivation, with the remainder consisting of low areas, brakes, and woodlands. No requirements for flowage easements have been determined, but such easements, if required, would be limited to existing channels and low-lying wetlands.

PROJECT BASED ON OLD REPORT

Senator ELLENDER. I understand that the farmers in Leflore County feel that they already have ample drainage and there is a feeling that the acreage, some 194,000 acres, to be benefited should bear the total cost of any benefits. I further understand that this project is, for the most part, based on a report made by the Chief of Engineers in 1935. Would you comment on these matters?

Colonel MCKINNEY. Mr. Chairman, the Chief of Engineers report in February 1935 formed the basis for the Yazoo Basin flood control project authorized by the Flood Control Act of June 15, 1936. The plan did not specifically include any auxiliary channels. However, the authorizing act granted the Chief of Engineers the authority to substitute levees, floodways, and/or auxiliary channels for any or all of the seven reservoirs included in the plan. Subsequent to the authorizing act, a number of studies were made which included auxiliary channels for flood control. The Chief of Engineers approved a Vicksburg district report submitted in 1951 authorizing the upper auxiliary channel for planning. Studies completed in 1959 in connection with the "Mississippi River and Tributaries Review" report and approved

by the Flood Control Act of October 27, 1965, authorized construction of the upper auxiliary channel.

A review of the upper auxiliary channel in 1963 indicated that the channel would provide flood control benefits to 95,000 acres in Tallahatchie and Quitman Counties and drainage benefits and some flood control benefits to 355,000 acres in six counties, including 161,900 acres in Leflore County. Much of the land along the route through Leflore County is not subject to flooding from the Tallahatchie-Yazoo River except at extreme high stages. Project benefits will be developed during detailed planning.

ADEQUACY OF COST ESTIMATE

Snator ELLENDER. There seems to be some question about the cost of this project, and doubts as to whether it can be built for $30 million, considering the cost of the Fort Pemberton cutoff, a much smaller project. What do you have to say about these questions?

Colonel MCKINNEY. The physical data and estimated costs for this project are based on brief, informal studies, Mr. Chairman. The current estimated cost is $30 million, but no detailed studies have been made to develop firm information. The Fort Pemberton cutoff was constructed in Leflore County near Greenwood in 1963 connecting the Tallahatchie and Yazoo Rivers. The total cost of construction was about $1,450,000, including $800,000 for relocation. The cutoff is 0.4 miles long. The cost of this cutoff gives no comparable basis for estimating the cost of the upper auxiliary channel.

ADDITIONAL FLOOD CONTROL NOT JUSTIFIED

Senator ELLENDER. Local interests also stated that they did not doubt that the flood control plan for the Yazoo Basin, Yazoo headwater area, originally authorized in 1936, was justified by the conditions of flooding in the basin that then prevailed—but with construction of the four major reservoirs, and many small dams in the hill area to the east of the basin, the construction of levees and main stream channel improvements, the overflow and drainage problems in the basin have, to a large extent, been solved; and the construction of an auxiliary channel costing in excess of $30 million, extending 61 miles in length, requiring for rights-of-way 9,065 acres of land, and other land acreage for flowage easements, is not needed, is not feasible, and would result in the loss of navigation possibilities of the Yazoo River. Please comment on this position.

Colonel MCKINNEY. Sir, the original report of flood control needs in the Yazoo Basin recommended seven reservoirs supplemented by levee and drainage works as the best plan of flood protection for the basin. The Flood Control Act of 1936 authorized this work. Later studies determined that approximately the same degree of protection to be provided by the seven authorized reservoirs could be provided at a lower cost by four reservoirs. A majority of the studies of flood control needs in the Yazoo Basin have considered plans that included the use of auxiliary channels.

During the 1940's the rapid development of the delta characterized by extensive land clearing and the construction of local drainage proj-

ects changed the floodflow characteristics of the main streams, increasing stages and flows. A study completed by the Vicksburg District in 1949 determined that auxiliary channels were the most feasible means of providing the necessary degree of flood protection. This plan would lower the design water surface elevation and provide better drainage for lands protected by levees, reduce backwater flooding along tributaries, and hold levee grades to a minimum. This concept has been a basic part of our planning since that time. Flood problems in the Yazoo headwater area have by no means been solved. The project works already constructed have accomplished outstanding reductions in the flood hazard. This reduction, coupled with the absence of a major storm over the delta since reservoir construction, has given many people the impression that the works now completed are more effective than long-range studies indicate, and has caused complacency in some areas. However, much of the delta is still subject to damaging flows that destroy crops and damage other improvements. For example, if the recent local storms in the hill area of the basin had been located about 25 miles to the west, downstream from the reservoirs, flooding along the Tallahatchie and Yazoo Rivers in the vicinity of Greenwood would have inundated approximately the same amount of land as the 1932 flood. The main stem channel above Greenwood is not capable of handling design flows and at high stages a large percentage of the flows go overland through deficient local levees. The small dams being constructed by the Soil Conservation Service in the hill area of smaller tributary streams reduce peak flows and sediment transport of these streams so that improvements in the delta can be constructed more economically.

Our work on these streams is closely coordinated with the Soil Conservation Service plans and status. About 30 percent of our authorized channel work and 60 percent of our levee work remain to be accomplished in the Yazoo headwater area (including the upper auxiliary channel).

As to navigation, sir, any upper auxiliary channel plan would not adversely affect the Yazoo navigation project since control structures would confine low flows to the main river channel.

ALTERNATIVE SOLUTION

Senator ELLENDER. Local interests also suggested an interesting alternative to the solution of the flooding and drainage problems of the low areas in Tallahatchie and Quitman Counties. They proposed that these lands be purchased and converted into a recreational area. Has this been considered by the Corps of Engineers?

Colonel MCKINNEY. Mr. Chairman, the purchase of low lying lands in Tallahatchie and Quitman Counties would not be a satisfactory alternative to the auxiliary channel. It would not provide the lower flowline necessary for improved drainage to more than 200,000 acres in several counties along the Tallahatchie and Yazoo Rivers and major tributaries and would prevent construction of additional drainage improvements to some 150,000 acres along Cassidy Bayou, Old Coldwater River, and Whiteoak Bayou. Levees along the main stem rivers would have to be constructed at higher grades and increased costs. We would also expect that there would be extensive local opposition in Tallahatchie and Quitman Counties to the purchase of a large amount of land for recreational uses.

STATUS OF UPPER AUXILIARY CHANNELS

Senator ELLENDER. What is the status of the upper auxiliary channel project now? Are you considering other solutions or other locations for the channel? Do you feel that new studies should be made as to the feasibility of the project, based on any recent studies made on the Yazoo River?

Colonel MCKINNEY. Sir, at the present time, no recent detailed planning has been done on this project. Congressional authorities for the Yazoo Basin project do not specify the exact location of auxiliary channels. The Chief of Engineers has the authority to select the most feasible route for flood control needs. The fiscal year 1970 appropriations included $60,000 to initiate work on the upper auxiliary channel. These funds were placed in budgetary reserve. The Vicksburg district will start planning on the project as soon as these funds are available. It is anticipated that this will be early in fiscal year 1971. The initial phase of the study will be to find a suitable route for the channel. The studies will consider enlargement of the Tallahatchie and Yazoo Rivers as an alternative to an auxiliary channel. Studies will also consider the feasibility of routes east of the Tallahatchie River above Greenwood.

As to the feasibility of the project, Mr. Chairman, no recent studies have been made regarding the location, cost, or benefits of the proposed upper auxiliary channel. Such studies will be made during the advance planning period and results of these studies will be presented in general and detailed design memorandums. Plans for the auxiliary channel will be developed to insure that the work will not be detrimental to the Yazoo navigation project, and will provide flood protection and improved drainage to this area. We intend to work very closely with local interests in order to have the best overall plan possible.

YAZOO BACKWATER AND MUDDY BAYOU (EAGLE LAKE)

Senator ELLENDER. The budget request was $1,687,000. The House has included $1,787,000 which includes $100,000 for planning on the control structure in Muddy Bayou (Eagle Lake). Local interests have requested $2,490,000. Can you use the additional amount included by the House for the Muddy Bayou control structure?

General KOISCH. Yes, sir.

Senator ELLENDER. What is your capability for the overall Yazoo backwater project?

General KOISCH. Our capability on this project is $2,317,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional capability of $630,000.

General KOISCH. In addition to planning on Muddy Bayou, the additional amount would be used to advance relocations and construction of certain channel units.

LOWER RED RIVER, SOUTH BANK LEVEES

Senator ELLENDER. The budget request was $120,000. The House has allowed $120,000 and local interests have requested $2,300,000. What is your capability on this project?

General KOISCH. Our capability on this project is $2,300,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $2,180,000?

General KOISCH. The additional amount would be used to advance levee construction and would advance project completion by 6 months.

ATCHAFALAYA BASIN

Senator ELLENDER. The budget request was $5,109,000. The House has allowed $5,109,000, exclusive of reserve, and local interests have requested $13 million. What is your capability on this project?

General KOISCH. Our capability on this project is $12,183,000, Mr. Chairman.

Senator ELLENDER. What would be accomplished with the additional $7,074,000?

General KOISCH. The additional amount would be used to advance work on channel dredging and enlargement, levee enlargement with landside and floodwayside berms and revetment. The additional amount would advance completion of the project by 6 months.

UPPER POINT COUPEE LOOP AREA, ATCHAFALAYA BASIN, LA.

Senator ELLENDER. There is nothing in the budget and local interests have requested funds for this project. What is your capability on this project?

General KOISCH. Mr. Chairman, our capability is $100,000 to initiate planning on this work which is an item of the Atchafalaya Basin project.

Senator ELLENDER. Would you submit a statement for the record?

General KOISCH. Yes, sir.

(The statement follows:)

FLOOD CONTROL, MISSISSIPPI RIVER AND TRIBUTARIES

Summarized financial data

Total estimated Federal cost	$1,980,000
Allocations to date	0
Balance to complete	1,980,000
Amount that could be utilized in fiscal year 1971	100,000

Authorization.—Approved by Chief of Engineers under authority of Section 6 of 1936 Flood Control Act.

Location and description.—The project area is that part of Pointe Coupee Parish, Louisiana bounded by the Mississippi, Old, and Atchafalaya Rivers and the Morganza Floodway. The project will provide for the enlargement of Bayou Latenache from the Pointe Coupee drainage structure to Alabama Bayou. Local interests are required to provide an adequate interior drainage system.

Proposed operations.—The amount of $100,000 would be used to initiate planning.

Justification.—The entire economy of the Upper Pointe Coupee Loop area is dependent on agricultural production. Principal crops are soybeans, cotton, corn, sugarcane, and cattle. Lands are being cleared for additional agricultural use. It is anticipated that this trend will continue. The maximum flood of record inundated about 45,000 acres, of which 16,600 acres are now cleared (1968). Such a flood would cause drainage problems on an additional 30,000 acres, of which about 23,900 acres are cleared. The present estimated value of lands and farm improvements in the overflow area is about $7,700,000, and annual agricultural production based on adjusted normalized crop prices is slightly over $1 million.

In order to make the land suitable for more intensified agricultural use, it is necessary to construct an extensive lateral canal and on-the-farm drainage system. However, before such a drainage system will operate effectively, it is necessary to increase the rate of outflow from the upper Pointe Coupee area. This evaluation contemplates that the outflow from the area through the existing structure, will be improved by lowering the tailwater and establishing an effective interior drainage system to bring the runoff to the structure. Under the improved conditions, farmers will be justified in converting land to more productive type crops and more intensive cultivation and fertilization measures. The average annual benefits of $729,000 are broken down as follows: flood control $681,000 and Area Redevelopment $48,000. The benefit to cost ratio of the Upper Point Coupee Loop Area items of the Atchafalaya Basin project is 2.3 to 1.

West Kentucky Tributaries, Ky.

Senator Ellender. There is nothing in the budget, the House has included $100,000 and local interests have requested $100,000. What is your capability on this project?

General Koisch. Mr. Chairman, our capability on this project is $100,000 to initiate construction.

Senator Ellender. Would you submit a statement for the record?

General Koisch. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,670,000
Allocations to date	175,000
Balance to complete	2,495,000
Amount that could be utilized in fiscal year 1971	100,000

Authorization.—1965 Flood Control Act.

Location and Description.—Obion Creek, which is about 59 miles long, rises in the southcentral part of Graves County, Kentucky, flows generally northwesterward across the northeast corner of Hickman County into southern Carlisle County; thence, southwestward through Hickman County and enters the Mississippi River about 922 miles above the Head of Passes, immediately upstream from the town of Hickman in Fulton County, Kentucky. Plans consist of channel enlargement from the Illinois Central Railroad bridge at Pryorsburg (mile 47) downstream to mile 35, enlargement and realignment below this point to mile 8, and enlargement of the existing channel between mile 8 and the Mississippi River. The plan will require the alteration or construction of two railroad bridges, two state highway bridges, four county bridges, and one pipeline.

Proposed Operations.—The amount of $100,000 would be used to initiate construction.

Justification.—The project would provide partial flood protection to 29,520 acres. Railroads cross the flood plains on embankments constructed above the flood of record. Highways are subject to infrequent flooding during extreme floods but are generally safe from inundation during ordinary flood periods. With the exception of a fertilizer manufacturing plant near Pryorsburg, houses and farm buildings are located generally outside the flood plain. Land values range from $50 to $100 per acre for woodland and $200 to $350 per acre for cleared land. Principal crops are corn, soybeans, and hay with a large part of the open land being devoted to pasture. In the flood plain the estimated total value of lands and improvements is $5,470,000, with farm prdoucts valued at $451,000. Channel improvements by the Corps of Engineers, below Pryorsburg, combined with inseparable features of the Soil Conservation Service authorized plan in the headwater area will produce average annual benefits estimated at $255,500. The SCS has virtually completed all the portions of their work which are not totally dependent on the Corps project, but the remainder of the works cannot be built until the Corps provides an adequate primary outlet. This headwater control project is vitaly needed in the area as flood damages are occurring nearly every year. Average annual benefits are estimated at $235,100 for flood control and $20,400 for area redevelopment. The benefit-cost ratio is 1.8 to 1.

Maintenance

Senator Ellender. For "maintenance" the budget request was $29,790,000. The House has allowed $29,790,000, exclusive of reserve and local interests have requested $35 million. Can you use this amount?

General Koisch. Our capability for maintenance is $35,575,000, Mr. Chairman.

Operation and Maintenance

Reductions Made by House Committee

Senator Ellender. The House reduced by $2.6 million the operation and maintenance, general appropriation request for fiscal year 1971. What effect would the $2.6 million reduction have on your fiscal year 1971 program?

General Koisch. Mr. Chairman, the reduction of $2.6 million included in the House bill anticipates the availability of a larger carryover of funds into fiscal year 1971 than the $4.5 million reflected in the budget estimate. A detailed evaluation of the unobligated balance expected to remain on June 30, 1970, now indicates that it will be only about 1½ percent of the $261.3 million total operation and maintenance funds which were available for obligation in fiscal year 1970. This is less than the amount of $4.5 million reflected in the budget estimate. The nominal amount expected to remain unobligated on June 30, 1970, resulted generally from temporary deferment of work programed for the latter part of fiscal year 1970. These delays in programed work resulted from circumstances beyond our control, such as unacceptable bids, temporary problems concerning local cooperation, coordination with concerned agencies, and so forth. However, these deferred items are presently scheduled for accomplishment with the carryover funds early in the first quarter of fiscal year 1971. The reduction of $2.6 million made by the House will have a serious impact on the work scheduled to be accomplished in fiscal year 1971 as contemplated by the funds in the budget request. It would lead to the curtailment or elimination of essential operations and maintenance activities, resulting in accelerated deterioration and more expensive maintenance costs in the future.

Senator Ellender. Would you furnish for the record the May unobligated balance and advise the committee of the June unobligated balance as soon as that becomes available?

General Koisch. Yes, sir; I will do that.

(The information follows:)

The unobligated balance at the end of May is $44,589,941.

Hyacinth Control

Senator Ellender. I have received requests for increased appropriations for the control of water hyacinths in the Atchafalaya Basin. Are you aware of this problem?

General Koisch. Yes, Mr. Chairman, we are aware of the problems and are doing all we can to keep the hyacinth growth under control.

Senator Ellender. Do you have an additional capability in the New Orleans district to help combat this infestation?

General Koisch. We do, Mr. Chairman. We could use an additional $85,000 over the amount in the budget.

General Expenses

Senator Ellender. For general expenses, the House has reduced the budget request by $450,000. Would you comment on this?

General Koisch. Mr. Chairman, the 32 positions and the $450,000 cut in our request made by the House will severely hamper the effectiveness of our operation. In the House report, reference is made to full utilization of current vacancies, totaling 54 positions, as a means of improving our staffing. In recent years, continuing efforts have been made to reduce vacancies with varying degrees of success; but, particularly in the current environment of encouragement of retirement of Federal employees, no sooner do we hire an employee into one job than another employee vacates another job. This tends to hold our vacancies at a relatively high level. In recognition of this, our "General expenses" request provided for funding for 54 man-years less than the total spaces requested. This means that we do not have funds to fill the 54 vacancies and cannot follow the suggestion made by the House. Unless the 32 positions and the $450,000 cut are reinstated, we shall be forced to take not only the 32-position cut but also the 54-position lapse which is contained in the budget request. All of the 37 new positions which we requested are urgently needed. We recognize the extreme pressures for new economies in the Federal Government and it was with this recognition that our request was prepared and our urgent requirements were pared to the minimum. I strongly urge reinstatement of the full "General expenses" budget estimate.

Flood Control and Coastal Emergencies

Senator Ellender. The House committee has reduced from $7 million to $3 million the appropriation item required to finance flood emergency preparation, flood fighting and rescue operations, and repair of flood control and Federal hurricane and shore protection works. Will this be adequate to replenish the emergency fund based on foreseeable requirements?

General Koisch. Mr. Chairman, obligation of funds at field level mainly for repair and restoration of protective works damaged by flooding was not accomplished as rapidly as planned. There will be a $16 million unobligated carryover into fiscal year 1971. Of that amount, $8 million is committed to known requirements. There is no presently known requirement for the remaining $8 million. This latter amount is larger than had been anticipated at the time of the earlier hearings. The $3 million appropriation and the $8 million unobligated carryover should provide sufficient funds to carry on the emergency flood and coastal activities program, provided fiscal year 1971 has only the average scope of emergency requirements.

Corpus of Revolving Fund

Senator Ellender. The House committee has approved an increase in the corpus of the revolving fund from $176.5 million to $178.8 mil-

lion, which is $4.2 million less than requested. Will this be adequate?

General KOISCH. Mr. Chairman, the corpus consists of the net current assets and the value of all plant and equipment owned by the fund which includes the income derived from rentals. Rental charges are based on the replacement charge procedure, made necessary by the continuing escalation of all plant acquisition costs during recent years, which results in an annual increase in the total capital value, or corpus, of the revolving fund. In addition, an increased corpus is needed to provide for income peaking which occurs during each fiscal year due to the heavy workload requirements which must be performed on a seasonal basis during favorable construction periods. Currently, the corpus is approximately $168.3 million and is expected to increase at a rate of $1.5 million each month until late fall. At this rate $176.5 million, the present limitation, will be reached in November 1970. Since the income of the fund continues to accumulate without regard to fiscal year, an increase in the corpus to $183 million, as requested, would permit optimum flexibility in management of the funds; however, the fund will reach a level of at least $181 million during fiscal year 1971 operations and the first half of fiscal year 1972 unless procedures are adopted which would severely hamper operations. In the event the ceiling is reached, rental charges will have to be reduced with the effect that we would not have sufficient capital available for replacement of plant.

NORTH ATLANTIC DIVISION LABORATORY

Senator ELLENDER. It is noted that the construction of the North Atlantic Division Laboratory has been deferred. What effect will this have?

General KOISCH. Mr. Chairman, because of a previous delay in this construction, the site intended for utilization by the North Atlantic Division Laboratory has been preempted by other activities and is no longer available for our use. Accordingly, a new site must be selected and construction would need to be deferred until fiscal year 1972.

Senator ELLENDER. Any further questions?

If not, this concludes the Corps of Engineers portion of the Public Works appropriation bill for fiscal 1971.

General, I want to thank you for the cooperation which you and the members of your staff have given the committee during these hearings.

And I particularly want to thank Mr. Cohen and his staff for their assistance.

General KOISCH. Thank you very much.

Senator ELLENDER. I have received a letter Maj. Gen. W. P. Leber, Governor of the Canal Zone and President of the Panama Canal Company appealing the reductions made in the bill by the House of Representatives. Without objection his letter will be placed in the record.

(The letter follows:)

CANAL ZONE GOVERNMENT,
OFFICE OF THE GOVERNOR,
Balboa Heights, Canal Zone, June 29, 1970.

Hon. ALLEN J. ELLENDER,
Chairman, Subcommittee on Public Works, Committee on Appropriations, U.S. Senate, Washington, D.C.

DEAR SENATOR ELLENDER: Adverse action by the House Appropriations Committee on the 1971 budget estimates of the Panama Canal necessitates the attached appeal for full restoration of the reductions applied.

The impact of the House reductions on the programs and projects of the Panama Canal has been carefully evaluated. I believe that the restorations requested are fully justified in light of the agency's demonstrated needs and urge that this request be given favorable consideration.

Sincerely yours,

W. P. LEBER,
Governor of the Canal Zone,
President, Panama Canal Company.

Enclosures.

THE PANAMA CANAL—CANAL ZONE GOVERNMENT

Operating expenses

H.R. 18127, Report No. 91–1219:	
Appropriation, 1970	$41,663,000
Budget estimate, 1971	44,235,000
Recommended, 1971	43,800,000
Comparison:	
Appropriation, 1970	+2,137,000
Budget estimate, 1971	−435,000
Restoration requested	+435,000

AMENDMENT REQUESTED

On page 11, line 17, strike out $43,800,000 and insert: *$44,235,000.*

The House has recommended a reduction of $435,000 ". . . based on anticipated slippages in the obligation program planned for fiscal year 1971." Over the past four years, the annual appropriation lapsing has averaged approximately 1% or some $435,000. However, such a situation requiring deliberate program curtailment arises from agency enforcement of administrative fund control procedures designed to preclude violations of section 3679 of the Revised Statutes, as amended.

Within the Canal Zone Government there are nine heads of bureaus and independent units to whom funds are allotted. Each of the allottees must assure that obligations for activities under his responsibility do not exceed his allotment. Although individual allotments are revised during the year in recognition of varying fund requirements, each allottee of necessity witholds funds late in the fiscal year as a contingency to cover obligations over which little or no administrative control can be exercised. Among these are lump sum leave payments and repatriation costs arising from unanticipated employee terminations, extraordinary overtime resulting from unforeseen workload surges, unanticipated maintenance and repair requirements, settlement of claims, etc.

To the extent that obligations of the nature described above fall short of contingency provisions, that technique of guarding against allotment violations may contribute to an underrun of the appropriation but is not indicative of reduced needs. Accordingly, restoration of the reduction recommended by the House is strongly urged because:

(1) A requirement for contingencies exists in order to preclude violations of Section 3679, Revised Statutes, as amended.

(2) Contingencies of the nature described are not covered in the appropriation estimates. Financing capability is therefore accomplished only by program curtailment.

(3) Nonrestoration of the recommendad reduction would require still further program curtailment.

Additionally, a comprehensive reevaluation of 1971 programs recently completed disclosed costs amounting to $329,000 beyond those included in the 1971 budget estimates being considered by the Congress. Such costs, identifiable at this time, are:

1. Escalation in cost of services performed by the Panama Canal Company in excess of previous estimates	$179,000
2. Added rate increases applicable to travel and transportation	82,000
3. Increased scope of youth activities program	58,000
4. Added supply and material cost escalation	10,000
Total unbudgeted additional costs	329,000

Late in fiscal year 1970 a Youth Council was formed to promote better understanding between the Panama Canal administration and the Canal Zone youth. Problems such as the need for recreational facilities, work opportunities, and other matters are being taken up by the council. The council is made up of young people in the Canal Zone schools and a cross section of Canal Zone communities. A previously unbudgeted administrative unit estimated to cost $58,000 in fiscal year 1971, headed by a Youth Activities Advisor, has been established in the Office of the Governor to coordinate the program.

Attention is directed to the fact that the 1971 appropriation request as submitted already provides for savings of $500,000 which the agency expects to generate through restructuring services in the general hospitals (a major cost area). A savings goal of that magnitude considerably restricts the agency's capability of accomplishing addtional fund reductions or absorption of costs. In order that vital Canal Zone Government programs, in which the hospitals, schools, police, fire, postal, immigration, and other services participate, can be performed adequately during 1971, there is no alternative but to urge that the $435,000 House reduction be fully restored.

Capital outlay

H.R. 18127, Report No. 91–1219:

Appropriation, 1970	$2,000,000
Budget estimate, 1971	2,163,000
Recommended, 1971	1,500,000
Comparison:	
Appropriation, 1970	−500,000
Budget estimate, 1971	−663,000
Restoration requested	+663,000

AMENDMENT REQUESTED

Page 12, line 4, strike out $1,500,000 and insert: *$2,163,000.*

In explaining its reduction of the Canal Zone Government 1971 capital outlay appropriation request, the House Committee stated that ". . . the Committee reduction is based primarily on the availability of carryover balances anticipated at the end of the current fiscal year in addition to those reflected in the budget estimate and expected slippages in the construction programs pending studies of military staffing in the area and restructuring of the hospitals."

It should be understood that with minor unique exceptions, this agency has routinely sought full financing for projects at the time of their initial presentation. The advantages of this, both to the Committee and for the efficient administration of this agency's funds and projects, are clear. The Committees, in recommending current appropriations, are in no way implying that future appropriations will be made available for project completion. The agency, on the other hand, is under severe pressure to control funds in order to accomplish its program within the amount appropriated. The assured availability of required funds enables the agency to plan and carry projects to completion in the most effective manner. Under the long-accepted concept of full financing, carry-over balances, though technically unobligated, are committed to program completion in a succeeding year and one should not consider such balances as evidence of a reduced appropriation requirement.

Studies on military staffing are continuing, and, as of this date, this agency has not been advised of any military reductions which would make the agency's fiscal year 1971 capital requirements less important. Due to the gravity and scope of this study it is dubious if any pertinent changes in military commitments to the area will materialize before the end of fiscal year 1971. In respect to restructuring hospital services it is not expected that savings beyond those already identified in the budget estimates will be realized.

In view of the foregoing information and the recognized need for capital funds for the Canal Zone Government, it is urged that the $663,000 reduction by the House be fully restored to provide the necessary continued financing of the capital program.

THE PANAMA CANAL—CANAL ZONE GOVERNMENT

CAPITAL OUTLAY

H.R. 18127, Report No. 91–1219.

AMENDMENT REQUESTED

Page 11, lines 23 and 24 should be amended to read:

23 chase of not to exceed sixteen passenger motor vehicles, *of which fourteen are* for

24 replacement only, *including* thirteen for policy-type use *which* may

PANAMA CANAL COMPANY

LIMITATION ON GENERAL AND ADMINISTRATIVE EXPENSES

Page 13, line 1 should be amended to read:

1 *twenty-five* are for replacement only including *twenty-four*

At the hearings on the 1971 Budget, the Panama Canal requested a change from the President's Budget in respect to the authorization for purchase of passenger motor vehicles. Although that change substantively is reflected in the House Report, the detail is not wholly in line with that intended by the agency. It is probable that the testimony seeking that change was not entirely clear. However, a more complete statement relating thereto appears on page 8 of the prepared statement filed with the Committees and reads as follows:

"The appropriation language proposed for 1971 provides for the Panama Canal to purchase 53 passenger motor vehicles of which 39 are to be for replacement only. As presented in the budget, 39 of these 53 vehicles are for purchase by the Panama Canal Company (including 25 for replacement only) while 14 (all for replacement) are for purchase by the Canal Zone Government. To accommodate the additional transportation requirements inherent in the realignment of workload between Gorgas and Coco Solo Hospitals, which I mentioned earlier, and with clearance from the Director of the Bureau of the Budget, we now ask that the 1971 passenger vehicle authorization for the Canal Zone Government be increased from 14 to 16 (including 14 for replacement only) with an offsetting reduction in the Panama Canal Company from 39 to 37 (including 25 for replacement only). The foregoing changes will be absorbed within the existing appropriation request."

The amendments to H.R. 18127, Report No. 91–1219 requested above are to bring the detail authorizing language for purchase of passenger motor vehicles in line with that intended by the agency.

SUBCOMMITTEE RECESS

Senator ELLENDER. The committee will be in recess until 10 a.m. tomorrow, June 30.

(Whereupon, at 10:20 a.m., Monday, June 29, the subcommittee was recessed to reconvene at 10 a.m., Tuesday, June 30.)

PUBLIC WORKS APPROPRIATIONS FOR FISCAL YEAR 1971

TUESDAY, JUNE 30, 1970

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, D.C.

The subcommittee met, at 10:05 a.m., in room S–126, the Capitol, Hon. Allen J. Ellender (chairman) presiding.

Present: Senators Ellender, Bible, Pastore, Young, Allott, Case, and Gore; also present: Senator Gravel.

ATOMIC ENERGY COMMISSION

STATEMENT OF GLENN T. SEABORG, CHAIRMAN

ACCOMPANIED BY:

JAMES T. RAMEY, COMMISSIONER
CLARENCE E. LARSON, COMMISSIONER
ROBERT E. HOLLINGSWORTH, GENERAL MANAGER
HAROLD L. PRICE, DIRECTOR OF REGULATION
SPOFFORD G. ENGLISH, ASSISTANT GENERAL MANAGER FOR RESEARCH AND DEVELOPMENT
JOHN A. ERLEWINE, ASSISTANT GENERAL MANAGER FOR OPERATIONS
GEORGE M. KAVANAGH, ASSISTANT GENERAL MANAGER FOR REACTORS
JOHN V. VINCIGUERRA, ASSISTANT GENERAL MANAGER FOR ADMINISTRATION
JOSEPH F. HENNESSEY, GENERAL COUNSEL
MAJ. GEN. E. B. GILLER, USAF, ASSISTANT GENERAL MANAGER FOR MILITARY APPLICATION
ABRAHAM FRIEDMAN, DEPUTY DIRECTOR, DIVISION OF INTERNATIONAL AFFAIRS
CHRISTOPHER L. HENDERSON, ASSISTANT DIRECTOR OF REGULATION FOR ADMINISTRATION
ARTHUR SCHOENHAUT, DEPUTY CONTROLLER
F. P. BARANOWSKI, DIRECTOR, DIVISION OF PRODUCTION
MILTON SHAW, DIRECTOR, DIVISION OF REACTOR DEVELOPMENT AND TECHNOLOGY
ROBERT D. THORNE, ASSISTANT TO ASSISTANT GENERAL MANAGER FOR PLANS AND PRODUCTION
ROBERT D. O'NEILL, DIRECTOR, OFFICE OF CONGRESSIONAL RELATIONS

VICTOR CORSO, ASSISTANT CONTROLLER FOR BUDGETS, OFFICE OF THE CONTROLLER
ROBERT H. BAUER, DEPUTY ASSISTANT CONTROLLER FOR BUDGETS, OFFICE OF THE CONTROLLER
THOMAS R. CLARK, ASSISTANT DIRECTOR FOR PRODUCTION AND PLANNING, DIVISION OF MILITARY APPLICATION
DR. CARL WALSKE, DEPARTMENT OF DEFENSE
DR. ROLAND HERBST, DEPARTMENT OF DEFENSE

BUDGET REQUEST, HOUSE ACTION, AND WEAPONS PROGRAM DETERMINATIONS

Senator ELLENDER. The committee will please come to order.

Dr. Seaborg, I notice you have a short statement. You might proceed to read it, sir.

Dr. SEABORG. All right.

Mr. Chairman and members of the committee, my fellow commissioners and I are pleased to appear before you once more to discuss our fiscal year 1971 budget, and more particularly the recent action of the House of Representatives on our fiscal year 1971 appropriation bill. Also, as you have no doubt noticed, Mr. Chairman, Dr. Carl Walske, from the Department of Defense is present in order that we may be responsive to the desires you expressed during the course of our earlier hearings for further information on weapons program determinations within the executive branch.

HOUSE ACTION

With respect to the House action on the Atomic Energy Commission's fiscal year 1971 appropriation request, as you know, our budget was reduced $37,400,000 by that body. We have carefully reviewed the effects on our programs of the individual reductions which total to that amount. While we believe the total budget we presented to the Congress is fully supportable, we also recognize that the basis upon which the House effected reductions on certain of our items was not without merit. This circumstance, in conjunction with the minimal adverse programatic effects which will result from the House reductions, and the very stringent budget climate we find ourselves in these days, has led us to the conclusion that we should not appeal to your committee for restoration of these reductions. I am sure you appreciate the underlying spirit of our strong desire to be responsive to the intent of Congress which motivates us in forgoing an appeal of the House reductions. We are hopeful your committee will keep this in mind in its deliberations of our budget.

That is all I have to say Mr. Chairman, and unless the committee has some questions at this point, I believe General Giller and Dr. Walske have some comments they wish to make with respect to the process used in determining the composition of our weapons program.

Senator ELLENDER. All right, you may proceed.

WEAPONS PROGRAM

General GILLER. Mr. Chairman, you may recall our previous testimony in the weapons program. I would like to take a moment to describe again our procedure.

As you undoubtedly are aware the Atomic Energy Act requires that the AEC manufacture the atomic warheads for the Department of Defense to their requirements and to provide them for their stockpiling and use. Therefore, we have a Government-owned plant system of eight plants that is operated by contractors to the AEC. All these plants are required to manufacture one weapon as well as, say [deleted] weapons because each plant specializes in certain materials.

Now, the weapons that we manufacture are made up of essentially two kinds of things. One is the fissionable material, especially expensive material, that is provided by the other side of the house of the AEC, to the weapons side, for use in a weapon. By "use" we mean we machine it, manufacture it, and put it into a weapon in certain form.

When the weapon becomes obsolete—that is, it is no longer required by the Department of Defense because the aircraft to which it fits has been taken out of the inventory or the missile to which it has been mated, is taken out of the inventory—they return it to us. We take it apart, save all this expensive material, and we destroy the electronics and the high explosives because they are not useful anyplace else.

Senator ELLENDER. How much loss or deterioration is there in this material?

General GILLER. In the case of the fissionable material, none.

Senator ELLENDER. None.

General GILLER. It is quite——

Senator ELLENDER. As I understood Dr. Seaborg when he testified some time ago, the amount of fissionable material that you now have on hand is sufficient for an indefinite period; therefore, I am just wondering why you want to manufacture more.

NUCLEAR MATERIALS FOR WEAPONS

General GILLER. The materials from which we make the weapon are plutonium and uranium and tritium. In the case of uranium we have sufficient material on hand for the weapons program. Uranium is also used in the power reactor program, and has many other uses. The plutonium that we have on hand [deleted]. I will talk in a moment about what the crystal ball says for the future and in regard to that.

Tritium has a unique property in that it deteriorates with time. It is the one material which does run down with time, and we have to remanufacture that at a steady rate in order to replenish what is in the stockpile.

So the fissionable material portion is fairly well in hand. But the weapons, that is each warhead for a missile or a bomb, are rebuilt because the carrier on which they are put is different, and an old bomb doesn't fit on a new carrier, so to speak. For instance, a warhead that may have been on Minuteman will not necessarily go to Minuteman III unless we remanufacture it again. We use the same material.

Senator PASTORE. Does that come under the special nuclear materials program or under the weapons program?

General GILLER. The manufacture of the materials, plutonium, tritium, and uranium, is under the special nuclear materials program. The manufacture of weapons is under the weapons program.

Senator PASTORE. Therefore when you talk about adjusting the warhead to the carrier you are talking about the weapons program.

General GILLER. The weapons program.

NUCLEAR MATERIALS PROGRAM

Senator PASTORE. The Senator's question was directed toward the nuclear materials program. I am very sympathetic to the position that you are taking. The trouble that we have in the past is the difficulty of explaining it so that the Members of Congress can understand it. The thing that bothers the Congress is that every year when you pick up the AEC budget you find that although we are preserving this special nuclear material for new and improved bombs we find the requested level of funding remains about the same, and I think that is what Mr. Ellender is concerned about. I think the time has come when you should explain this in clear language so that everybody can understand it.

General GILLER. Fine.

Senator PASTORE. Now, under the sepcial nuclear materials program, your appropriation for fiscal year 1970 was $321,360,000. Now your budget estimate for fiscal year 1971 is above that. It was $348,518,000 and it was cut $3 million by the House committee to $345,518,000, and I understand from Dr. Seaborg that he is willing to accept that cut. That is, you are making no reclama.

Now the question arises in everybody's mind, and I think you ought to be explicit about this because I would like to be a protagonist about all this. I think you understand now that the question arises in everybody's mind is, since we are preserving this special nuclear material and we are not losing it, why do we need an additional $345 million for this purpose? That is the question you have got to answer.

Senator ELLENDER. That is what concerns me. Dr. Seaborg testified here the other day that we have enough of the special nuclear material for an indefinite period. If that is the case we don't need any more, so why continue to produce? I can't understand that, particularly when we are going to have to use some money to do things elsewhere that ought to be done and for which we don't have the funds provided for in the budget.

General GILLER. Yes, sir.

Senator ELLENDER. That is what has concerned me, nothing else, and as I said, if you have enough of that material on hand, it does not deteriorate, and you can keep it, it strikes me that the more you manufacture the more costly it is for you to store and preserve it, protect it, and that is another problem that concerns me, and that is why I asked that the Defense Department be present to go into this matter a little bit before we mark up the bill.

Senator PASTORE. Will the Senator further yield to me on that subject?

Senator ELLENDER. Yes.

REQUIREMENTS FOR NUCLEAR WEAPONS

Senator PASTORE You see, the situation here is that the AEC is actually the agent and the broker for the Defense Department when it comes to the military aspect of this budget; am I right or wrong?

Dr. SEABORG. That is right.

Senator PASTORE. You get a request from the Joint Chiefs of Staff. They tell the AEC what they want. The AEC has no way of disputing it, it has no right to dispute it. They go ahead and carry out the man-

date of the Joint Chiefs of Staff and the Defense Department. Now it is up to the Defense Department to show why this is necessary. There is no need of beating on Glenn Seaborg or the members of the Commission. The question here is that it is up to the Defense Department to show why they are making these requests upon the AEC and why this is necessary for the defense of the country, and I think that is your responsibility.

I am one of those who has felt for a long time that whatever you charge up to the AEC for the military ought to be funded in the defense budget. I think then you would get the kind of restraint that you actually need. But this idea that, because it is being charged up to the AEC, it is always constantly and consistently the same thing, I have been looking at this weapons program now for the last 10 years, and I will tell you very frankly the last time we cut it we cut it in the authorization bill at my request before the joint committee, and we made a very very slight cut, I don't think it is going to hurt anybody, but any time you look at it the total is over $800 million.

Now the fact is that we have got these bombs and we have got thousands and thousands of bombs and all we are doing is improving these bombs. Now if we are improving these bombs, why does this program constantly stay at something over $800 million and why is this burden put on the back of the AEC? I think it is up to the Defense Department to justify the request.

Senator BIBLE. Very good.

Senator ELLENDER. It is an incredible amount. The thing that concerns me, as I said a while ago, and I don't suppose it has been brought to the surface heretofore, is that we have evidence in this record to indicate that we have enough material now for an indefinite period.

Senator BIBLE. I heard the testimony.

Senator ELLENDER. I simply ask, why produce more?

CIVILIAN NUCLEAR POWER

Senator PASTORE. I will tell you why, and it has not been said explicitly. The purpose here is we are in a very competitive business. I don't care how you look at this, whether you look 5 years down the road or 50 years down the road, I would hope that the survival of this Nation is for all eternity, a hundred years from today. You know it is a funny thing, you chop down a tree and you can plant a new one but if you take the oil out of the ground there is no way of putting it back. Someday, somehow we are going to exhaust our oil supply and we will need a new source of energy, and what we are trying to do is to maintain the primacy of the American industrial peaceful complex so we will retain that primacy and we need the plutonium and other special material for peaceful purposes too, and I think that ought to be brought out here, and I think it ought to be explained here, because I am telling you very frankly if we don't do something about it, America is going to be left holding the bag.

This is going to be a big field, and 50 years from today or a hundred years from today 75 percent of your electricity in this country and in the world will be generated by atomic energy, whether you like it or not. If you wait for a thousand years there won't be any oil except in the little bit of gasoline that you are going to use to run an automobile. You just can't keep pumping this oil out of the ground—I know

we found some in Alaska—but 50 years or 100 or 200 or 1,000 years from today that oil is going to be gone, it is going to be gone, and there is only so much of it under the ground and you can't discover anything that isn't there, and somehow we are going to get into atomic energy, and the thing is that you can't let go of it now.

That is why we need this material.

Senator ELLENDER. Nobody is suggesting that, Senator Pastore. I am not. But it strikes me that to make this material, it is very expensive, and if we are to produce materials to produce steam, in turn to run generators, we ought to be able to find a cheaper process than using a byproduct of the processing of this material for warheads, particularly when we have got enough of it already. That is the point that concerns me.

Senator PASTORE. U^{235} is U^{235} no matter how you view it. There is the man right there who received the Nobel prize to tell you why; he will tell you why.

Senator ELLENDER. I found out the other day I made a faux pas in asking about plutonium when he was the one who discovered it, so I am told.

Senator PASTORE. That is right. One of the biggest discoveries of our time.

Senator ELLENDER. It was discovered by chance by him the same as this new element that was announced the other day. I understand plutonium is a byproduct of some of our reactors.

Dr. SEABORG. Nuclear power reactors produce plutonium which can however be used to fuel more nuclear power reactors.

Senator ELLENDER. That is right. But you have to develop the technology and find a way to use it.

Dr. SEABORG. That is the breeder program.

Senator ELLENDER. You have 47 percent, as I understand, of your budget for that purpose.

Dr. SEABORG. And other civilian uses.

Senator ELLENDER. Yes, for all civilian uses, and the remaining 53 is for the other.

Dr. SEABORG. That is right.

Senator ELLENDER. For the war part.

Dr. SEABORG. That is right.

Senator ELLENDER. What I am saying we ought to provide a little more for civilian use and reduce the war part a little bit. That is what I am saying.

Senator PASTORE. There is an argument that can be made there and it is a very good argument. The only thing I have against the chairman is he shouldn't have called it plutonium but Seaborgium, then we would have had better luck before the Appropriations Committee.

Dr. SEABORG. I object to that because, Senator Pastore, elements are named only after dead scientists. [Laughter.]

BREEDER REACTORS

Senator ELLENDER. Now, I don't claim to know a thing about this at all, except what I have learned from examining some of the witnesses here. As I understand it, the material that will be used to generate steam under this new concept is the tailings or material produced

by the present reactors. You are trying to develop a machine that will produce more power from the uranium. That is going to be a very costly program. I understand it will take you from 10 to 15 years to demonstrate the commercial feasibility of using these tailings.

Dr. SEABORG. The breeder reactor.

Senator ELLENDER. That is what I am talking about, the breeder reactor.

Dr. SEABORG. We will use the nonfissionable part of the uranium.

Senator ELLENDER. It will take you 10 to 15 years to perfect that program. Why can't you find more of that now instead of getting more for the Defense Department when they have got enough?

Dr. SEABORG. You mean speed up the program on the breeder.

Senator ELLENDER. Well, no, can't you use more effectively the original material you get that is the uranium and not use the tailings because it is going to be very expensive to develop that process? As I understand, you spent, I don't know how much, and several years in trying to develop a method of using those tailings.

Dr. SEABORG. I see what you are saying. Basically the problem with the breeder is building the complicated machinery.

Senator ELLENDER. Yes.

Dr. SEABORG. And that is what requires the funds and the time to develop.

Senator ELLENDER. But what you are trying to do is to take the tailings from the original material that you used to make war material, and obtain power out of that material.

Dr. SEABORG. Yes.

Senator ELLENDER. Why can't you get the heat more directly from the uranium at less cost for the purpose of producing steam and then to generate the electricity?

Dr. SEABORG. We can use either natural uranium, undisturbed, or the tailings. That does not change the cost very much. The advantage of the breeder is that in addition to using natural uranium it can use these otherwise worthless tailings. But the big cost in developing the breeder is in building the machine itself.

Senator ELLENDER. I understand. But why is it necessary for you to use the process you now know of in order to manufacture more material to produce steam so that in turn you can generate electricity?

Senator PASTORE. In other words, what Mr. Ellender is saying is why don't you borrow some of the U^{235} that you have in the stockpile for weapons or some of the plutonium you have for weapons instead of developing your breeder reactor concept? That is his point. Tell us if it can be or can't be done. That is the point he is making. If you have this material coming out of your ears over there and you are not using it, why don't you use that material for generating power rather than developing this new technique, that is his point.

You can answer that.

TIME REQUIRED FOR DEVELOPMENT OF THE BREEDER REACTOR

Senator ELLENDER. If you can do that the other program can go on at a slower pace particularly when the record shows, as I understand, it will take you about 12 years before you can demonstrate that the large size central stations are economically feasible.

Dr. SEABORG. I think I understand the question and I will try to answer it. I will do my best to answer it.

This is not the bottleneck in developing the breeder. We have enough fissionable material for the development of the breeder program. The bottleneck is to develop and build through research and engineering the complicated machine that is involved in the breeder reactor. The reactor itself is the bottleneck.

Senator ELLENDER. Doctor, I understand that. But why is it necessary to do that when you can use the machines you have now to use materials you have on hand?

Dr. SEABORG. The machines we have now, the nuclear power reactors we have now, to produce electricity, and which are being relied on more and more by the utilities and the electric power industry in this country, will not serve the purpose in the long run. We need to build machines that will use the uranium more efficiently. The uranium won't last if we use only these water-cooled reactors that we have now.

Senator ELLENDER. Let me ask you this. Is there a method you can use so that you can utilize more of the uranium fuel and not depend on getting power out of these tailings?

Dr. SEABORG. We can——

Senator ELLENDER. Why don't you go along that line instead of experimenting for the next 12 or 15 years to find out whether or not you can produce power economically from the breeder reactor? It strikes me that with the raw material you are getting that you ought to be able to improve your present machine so as to extract most of the fissionable material out of the original uranium.

Dr. SEABORG. Well—yes.

Senator ELLENDER. That is what I am saying.

Dr. SEABORG. Yes.

EFFICIENCY OF PRESENT REACTORS

The utilities, the manufacturers are improving the present nuclear power reactors, the present machines, as much as they can. There is an inherent limitation on the present machines. They can't just do very much better than they do with respect to the efficiency with which they burn fissionable material.

This is a limitation set by nature, and we need to make this quantum jump, you might say, to the breeder reactor to get a large increase in the efficiency.

The present machines utilize only 1 or 2 percent of the inherent energy in the uranium. The breeders will use 50 percent or more. It is a quantum jump, and to produce the breeder requires the development of the machine itself. It isn't connected very much to the way in which we use natural uranium as against the tailings.

WEAPONS REQUIREMENTS

General GILLER. We provided the committee with a short note on the mechanism by which the requirements for weapons are determined between the DOD and the AEC. What happens is that every year the Department of Defense writes what they call a draft memorandum for the President, which contains recommended nuclear weapons stockpile for the next 2 years. So in 1970 they write one for what they

want in stockpile, meaning physically in their igloos, in their bunkers around the United States and the world, they want so many of these and so many of those, and it is for the next 2 years. So in 1970 we know what they want in 1971 and 1972. And every year it is rewritten so it always jumps ahead 1 year each time we write it.

Senator ELLENDER. You mean you ask for more no matter what you have on hand?

General GILLER. No, sir. At the same time this document says which weapons they want retired, our word for taking out of the stockpile and destroyed, that is the nonnuclear parts are destroyed. So the memorandum describes new ones and what to do with some of the old ones.

Senator ELLENDER. Well, I understand that insofar as the machines are concerned, that is the bombs or whatever you have it in.

General GILLER. This is the bombs.

Senator ELLENDER. The fissionable material really is the most important part of the bomb and you still have it and can rework it. It is this material that I understand you have in great quantities.

General GILLER. The material is used to make a new one. The same material which came out of the old one is used to make a new one.

Senator ELLENDER. That is what I understand.

Well, now, do you take into account the vast amount of this material that you have on hand before ordering more?

General GILLER. Yes, sir. The weapons stockpile reuses only what it needs for its own weapons stockpile and all other material is returned to the so-called national stockpile, you might say. In other words, the weapons people use only what they require for the weapons which the Department of Defense has ordered. All other is returned back to the reservoir, if you like, to be used in the peaceful power reactor program.

So the weapons people are using material and they are returning it constantly, and as we become more efficient in the design of weapons we are actually returning to the stockpile, to the national stockpile, uranium which we had locked up in the weapons stockpile.

NUCLEAR MATERIALS

Senator ELLENDER. Dr. Seaborg stated some time ago that we have enough of the war material on hand now for an indefinite period; if that is true, why do you ask for more?

General GILLER. We don't ask for more materials, sir.

Senator ELLENDER. Who is responsible for the production of more of this material if it is not needed by the Defense Department?

General GILLER. The special material, that is uranium we are talking about, goes to the power reactor program, it does not go to the weapons program.

Mr. RAMEY. I think the reason the figures may be giving a little different view is that the great cost in the weapons program is this fabrication and development expense, Senator, it is not the cost of the material.

General GILLER. The $800 million contains no money for the manufacture of new material. That money is for the reworking of old material, and the research and development that goes with it to make a new weapon. It does not contain any money for getting from Mother Nature new fresh material.

Senator ELLENDER. How much of your budget goes toward making new material?

Mr. RAMEY. A small proportion now for some plutonium is my understanding.

Dr. SEABORG. And tritium.

Mr. RAMEY. And tritium.

Dr. SEABORG. For weapons.

Senator ELLENDER. Can you make that material directly or is it a byproduct from the use of the original material for other purposes? I understood it was a byproduct.

Mr. RAMEY. It is a byproduct in civilian reactors. The material that is used for weapons is made in reactors at Savannah River and Hanford, and it is the primary product of those plants. The plants, except for the dual reactor at Hanford, that do make plutonium, won't make electricity. But as you may know the number of production reactors has been cut back rather significantly over the years at Hanford and Savannah River, and we are running at a very low capacity. We have to produce some tritium to make up the amount that decays over the years.

WEAPONS PROGRAM

Senator ELLENDER. Now, of this $800-odd million that you mentioned as the total budget for the weapons program, how much is devoted exclusively to the manufacture of new weapons?

General GILLER. Three things are included in that amount. The research and development on how to build it, how to make a new weapon for a new carrier, the testing of that weapon, and the manufacture of that weapon. That is a single package, research, development, test and manufacture is about, in the budget it is about, $930 million and there is no——

Senator ELLENDER. You have a research request here, I think, for the Navy of over $2 billion. Is any of that used for new weapons?

General GILLER. No, sir; the weapons research is contained completely within this $930 million, this total package. The weapons program is a self-contained entity of research, development, test, and production.

Senator ELLENDER. And you get all of that from AEC?

General GILLER. Everything is in the AEC budget. The operating budget is $800 some million.

WEAPONS PRODUCTION AND SURVEILLANCE

Senator ELLENDER. How much of that amount of nearly $800 million is to manufacture or produce weapons?

General GILLER. The manufacturing part of that is about $360 million?

Senator ELLENDER. For the——

General GILLER. For the manufacture of new weapons, not fissionable material, but to pay for machinists, electricians and things, people who build a weapon and then they put in this uranium they had from an old weapon, put it back in again, they remachine it, and that $360 million goes to the manufacture of new weapons, plus associated activities such as maintenance and reliability on the stockpile.

Senator ELLENDER. Now what is the remaining $500 million plus used for?

General GILLER. The other, the rest of it, is for research, development, and test.

Senator ELLENDER. Research and development of what?

General GILLER. Of weapons, of how to build new weapons.

Senator ELLENDER. You mean of the weapons you finally build?

General GILLER. Yes, sir.

Senator ELLENDER. Aside from this $360 million for the manufacture of the weapons.

General GILLER. For instance, if you go back, a few years ago the weapon research budget of the AEC sent money to Los Alamos where they invented a new weapon. They took it to Nevada where is was tested in the ground. That took test money and this year we are manufacturing [deleted] these weapons, I am using it in round figures as an example, in the production system, and this $359 million then is to manufacture that weapon based on something that was tested 2 years ago, and it was an idea 5 years ago.

The fissionable material is old fissionable material that we keep reusing, we melt it down and cast it just like an ingot, and we machine it. It is an expensive thing to machine because it is radioactive and we have to be careful nobody gets hurt.

WEAPONS RESEARCH AND DEVELOPMENT

Senator PASTORE. As a matter of fact, the research element of this funding is a continuing responsibility and it is very competitive with our adversaries.

General GILLER. Yes, sir.

Senator PASTORE. They are doing it and we are doing it and the point is we want to perfect the ultimate weapon, as they want to do, and, of course, we never know what the answer is going to be so we keep on going. It is like everything else. It is a continuing security. God help the security of the country if we let down on that.

NUCLEAR MATERIALS PRODUCTION

Senator ELLENDER. I understand that, Senator, but I am trying to find out what this $900 odd million in the budget will be used for and how much of it will be used to manufacture more fissionable material.

General GILLER. None of this money.

Senator ELLENDER. But aside from the budget for weapons how much more is included in the AEC budget for that purpose?

Dr. SEABORG. That is the question; let's answer that question.

REACTOR PRODUCTS

Mr. CORSO. We have $139,170,000 to manufacture reactor products. [Deleted] sir.

Senator ELLENDER. Is that apart from——

Mr. CORSO. Yes, sir, that is over and above the weapons program. This is under the special nuclear materials program and the material budgeted under that program is used for two broad purposes. For

civilian programs, mostly the civilian power program, and for the weapons program.

Senator ELLENDER. How much of that total is for weapons and how much for civilian use? Would you repeat what you said?

Mr. CORSO. $139,170,000, and about, I would have to go in round numbers on this, roughly about [deleted] of that would be for weapons.

Senator YOUNG. Would you yield for a question at that point? What use does plutonium and tritium have in a weapon, what do they do?

Dr. SEABORG. It is the explosive ingredient of the weapon.

Senator YOUNG. We didn't have that before? In what way does it make a better weapon?

Dr. SEABORG. We have had plutonium right along. We have had it since the first weapon was exploded. The first weapon that was exploded on the Alamogordo Desert in New Mexico on July 16, 1945—by the way, we are just coming around to within a couple of weeks of the 25th anniversary—used plutonium as the explosive ingredient.

Senator YOUNG. Did you have tritium?

Dr. SEABORG. Not that one.

Senator YOUNG. What does that do?

Dr. SEABORG. [Deleted.]

Senator YOUNG. Thank you.

Senator ELLENDER. Is that used for weapons?

Dr. SEABORG. Yes, tritium is used in weapons.

Senator ELLENDER. What about plutonium?

Dr. SEABORG. Plutonium is used as an explosive ingredient in nearly all the weapons.

Senator ELLENDER. As you said, this is a byproduct that you get from the power reactors.

Dr. SEABORG. Yes, I did say that and could I expand on that, Senator Ellender?

Senator ELLENDER. Surely.

Dr. SEABORG. Plutonium is produced as a byproduct when civilian nuclear power reactors produce electricity. That is a true statement. This is not the source of our plutonium for weapons. This is a source of plutonium potentially for another country to divert to weapons and, therefore, it is a problem and that is why we are so interested in the nonproliferation treaty.

[Deleted.]

Senator ELLENDER. You produce it directly from what material?

Dr. SEABORG. Directly from uranium.

Senator ELLENDER. From the same fissionable material.

Dr. SEABORG. The same fissionable material in a sense that you use in the civilian power reactors producing electricity, but plutonium is produced in reactors that are built and operated specifically to produce the particular grade of plutonium that is best for weapons and that is done at Hanford and at Savannah River. The budget for that is [deleted] of the $139 million that Mr. Corso identified.

Senator ELLENDER. And what is the durability of that material?

Dr. SEABORG. Indefinitely.

Senator ELLENDER. It does not deteriorate. You can preserve it.

Dr. SEABORG. The plutonium, again if I can be entirely specific, is radioactive but it disappears at a rate so that one-half of it decays every 24,000 years, so you see there is no—so its durability is——

Senator PASTORE. Quite permanent.

TRITIUM

Dr. SEABORG. Quite permanent. But a certain amount of the production of these reactors, particularly at Savannah River, goes into producing tritium, and that is another story. It disappears——

Senator ELLENDER. Tell us about it.

Dr. SEABORG. It disappears at a rate that unfortunately places a limit on its, a serious limit on its life, a half life of about 12 years, and this means that every 12 years half of any particular stock of tritium disappears through decay. Tritium disappears, and this means that we have to continually produce it, and that is part of that [deleted] of the $139 million.

Senator ELLENDER. All right.

Now you have given an account of the $139 million under reactor products, what about the eight, almost nine, hundred million in the budget for weaponry.

Dr. SEABORG. Yes; the reactor products is outside of that.

Senator ELLENDER. Yes; outside. How much more are you spending to manufacture this material?

Dr. SEABORG. Fissionable material?

Senator ELLENDER. Fissionable material.

URANIUM PRODUCTION FOR CIVILIAN NUCLEAR POWER

Dr. SEABORG. Nothing more. The other material, uranium-235, that is produced, which could be used in weapons, is now being manufactured as fuel for our civilian nuclear power program because, as I indicated, and as you quoted me as saying, we have produced enough of that to supply our nuclear weapons for the indefinite future.

General GILLER. We have been returning uranium.

Dr. SEABORG. In fact we have even been returning some.

Senator PASTORE. What item would that come under?

Dr. SEABORG. That is the item here: special nuclear materials $132,787,000.

Senator ELLENDER. That is in addition to the $139 million.

Dr. SEABORG. That is in addition but not related to weapons any longer. It used to be.

Senator PASTORE. Do these two figures together make the $345 million?

Mr. CORSO. Miscellaneous elements, but those are the major elements in the $345 million.

Senator PASTORE. Those we produce for power reactors, we sell that——

Dr. SEABORG. We sell that and that will be on a full cost recovery basis.

Senator PASTORE. Without a loss?

Dr. SEABORG. Without a loss.

Mr. LARSON. I believe it was a hundred million.

Mr. CORSO. $126 million was the budget amount for toll-enriching revenues.

Senator ELLENDER. As was brought out here you spend in research and in working this up about $800 million, as I remember, and you get $267 million or some such amount for it.

Mr. CORSO. $227 million.

Senator ELLENDER. How much?

Mr. CORSO. $227 million.

Senator ELLENDER. In other words, you spend over $800 million and

you sell $227 million of your product, so it is not profitable by any means. In view of those figures I can't see how you can say that you get all your expenses back.

Senator PASTORE. Let's put it in proper context. You mean to tell me you have conveyed the impression here that in order to sell $227 some odd million of this material it costs you over $800 million to manufacture?

Mr. CORSO. No, sir; I would like to correct that.

Senator PASTORE. You had better correct it.

Mr. CORSO. We stated that the costs that we incur to generate the products for which we receive these revenues are less than the $227 million of revenues that we receive.

Senator ELLENDER. What about your research? You don't put that in there; that is the most important part of your costs.

Mr. CORSO. The research, process development, that is attributable to the particular product is allocated to its cost. Now it is quite true we do not charge the product with our basic research programs or the programs to develop civilian nuclear power or the programs to develop our military reactors.

Dr. SEABORG. Or the high-energy physics, that is not charged.

Mr. CORSO. High-energy physics, also.

Senator ELLENDER. So when you say you get all your money back that is not correct.

Mr. CORSO. It is true in the sense that we get the money back from those activities that are directly responsible for those revenues.

Senator ELLENDER. You get your money back on an actual cost basis exclusive of research.

Mr. CORSO. That is a close approximation; yes, sir.

Senator PASTORE. But the research Mr. Ellender is talking about was the research that was related to the manufacture of this product originally for weapons.

Senator ELLENDER. No, no. You keep on with your researching.

Mr. CORSO. All research conducted——

Senator PASTORE. In other words, when you improve the product you are now manufacturing by way of research for civilian uses, that part of the research is attributable to the costs, isn't it. You add that to the costs, don't you?

Mr. CORSO. No, sir.

Senator PASTORE. Now wait a minute, the man in the back said yes.

Mr. BARANOWSKI. The process development costs that lead to the improvement of the enriching process for enriching uranium are included in the cost of the product. It is shown on that page, total costs [deleted] we spend for process development for enriching uranium. That cost is in the costs that we charge people for enriching services so we do get back our operating costs, our process development costs, and depreciation on plants built during and shortly after World War II; we get all that back. We sell this material to both foreign and domestic people.

Mr. CORSO. I am sorry, I interpreted your question as being related to research for nuclear power development.

Senator PASTORE. No, no; we are talking about research on the material that we sell.

Mr. RAMEY. Our basic research for accelerator and physics and so on, that is separate.

Mr. BARANOWSKI. Of interest the total revenues, we will be getting between now and 1980 amount to about four and a half billion dollars. So the Government will be receiving from enriching services between now and 1980 about four and a half billion dollars.

Senator ELLENDER. How much would we spend?

Mr. BARANOWSKI. The cost, actual out of pocket costs, between now and then is about half of that. The rest of the revenues are based on depreciation of plants, added factor, overheads and the like most of which is sunk costs; so out of the total of $4 billion about $2 billion are associated with out-of-pocket costs.

Dr. SEABORG. This will all be reflected in future budgets.

Senator PASTORE. There is a movement on, isn't there, to turn this over to private industry?

Dr. SEABORG. This is being investigated.

Senator PASTORE. That is what I talked about.

Dr. SEABORG. But this would only be on the basis of recovering the cost of the plants themselves.

Senator ELLENDER. Any questions?

NUCLEAR MATERIALS FOR WEAPONS

Senator BIBLE. Yes, Mr. Chairman. When you have these charges attributable to Defense do you charge Defense for them?

For example, you say that of the $139 million in the special nuclear materials program [deleted] percent of it is directly chargeable to Defense. Do you charge any of that to Defense.

Mr. CORSO. No, sir; it is the responsibility of the Atomic Energy Commission to produce this material.

Senator BIBLE. I understand, but it is directly defense related.

Mr. CORSO. Right, but we do not charge it.

Senator BIBLE. Right, but it is not charged back.

Mr. CORSO. There is one qualification to that answer, sir. We also produce fissionable material to put power on nuclear submarines and surface ships. Now the material that is actually consumed in the operation of these vessels is paid for by the Department of Defense, the material burned up in the operation of the ships is paid for by the Department of Defense. But the material in the weapons is not paid for since that material is available to us, it is still in our stockpile.

Senator BIBLE. Yes; but you use [deleted] percent of the $139 million is for defense, as I understand, but it is not charged to Defense.

Mr. CORSO. Yes.

Senator BIBLE. Thank you, Mr. Chairman.

Mr. RAMEY. AEC is responsible as the civilian agency, for the development of atomic weapons.

Senator BIBLE. I understand.

Senator GRAVEL. Mr. Chairman, could I ask one question in light of the questions you put?

Senator ELLENDER. Is there objection to letting the Senator from Alaska ask a question?

Senator GRAVEL. It is on, the statement that was made that we are now returning, as we are retiring archaic weapons and going into the new weapons, we are returning fissionable material to the stockpile, but

I don't reconcile that with the figure of [deleted] percent of $139 million or the breakdown of the $345 million, which is also adding considerable materials to our stockpile, and the point you are trying to make was why we are increasing our defense stockpile for weapons when Dr. Seaborg had earlier said we have enough for the foreseeable future. I still have not reconciled in my mind where the money is going for increase to the stockpile.

Dr. SEABORG. The question is the difference between the enriched uranium-235, on the one hand, and plutonium, on the other. I think General Giller can answer that question.

General GILLER. What we are doing, newer weapons are being made with [deleted]. Last year we returned a [deleted] worth of previously manufactured uranium to the stockpile so we are using the plutonium we are generating for the new weapons and returning a different kind of material which is useful in the power program, and so you have, you see, one kind of material coming in and a different kind going out. That is why the books don't appear to balance.

Dr. SEABORG. Weapons use three kinds of explosive materials, enriched uranium–235, plutonium, and tritium.

We have enough enriched uranium–235 for the weapons program, in fact more than enough, and some of that is being returned to the civilian nuclear power program where it can be used.

In the case of plutonium or tritium, however, there is still a small manufacturing requirement, in the Hanford and Savannah River production plants, for use in weapons.

Senator GRAVEL. That is in excess of [deleted].

Dr. SEABORG. That is the [deleted] of the $139 million, so I am roughly using——

Senator GRAVEL. In excess of [deleted].

Dr. SEABORG. That is right.

Senator GRAVEL. I don't know what the money represents in quantity but it does represent a large sum.

Dr. SEABORG. Yes, I am only trying to explain.

[Deleted.]

REVENUES

Senator ELLENDER. I think when you were here last I asked for a detailed accounting to show the cost of the material you sell. You say you receive everything else fully recover all costs. Have you furnished that?

Mr. CORSO. Yes, sir, we have.

Senator ELLENDER. You have got all that in the record?

Mr. CORSO. Yes, sir.

Senator ELLENDER. I don't think you are making any money on it. I am sure you are not receiving all your costs, at least that is my impression. So I would like to analyze that information, as I have said before.

CIVILIAN NUCLEAR POWER FUEL REQUIREMENTS

Now, how much material do you have on hand, for the purpose of creating steam to develop electricity? How much of it do you have on hand that you can dispose of?

Senator PASTORE. You mean in dollars.

Senator ELLENDER. Any way.

In other words, for how long will your present stockpile last? Do you know?

Mr. CORSO. I don't have that.

Dr. SEABORG. Just a couple of years.

Mr. BARANOWSKI. We do have material on hand now which is probably around a 2½-year stockpile of enriched uranium. We are preproducing enriched uranium in anticipation of future large increases in nuclear power demands since we find economically it is cheaper to do some preproduction of material in anticipation of growth of nuclear power; sometime in the late 1970's we will get to essentially a zero stockpile inventory. We find that preproducing material is a far cheaper way of meeting the large growth in nuclear power.

Senator ELLENDER. Well, now, is that why you are advocating this new method of extracting more of the fuel out of the tailings?

Dr. SEABORG. The Cascade improvement program, yes, sir.

Mr. BARANOWSKI. The Cascade Improvement Program improves the plant to produce more material as well as more efficiently.

Senator ELLENDER. Is that the machine that you say will require about 12 to 15 years before you can demonstrate economic feasibility?

Mr. BARANOWSKI. No, sir. The budget now contains in the House appropriations bill the Cascade Improvement Program for $21 million to improve the plants at Oak Ridge, Paducah, and Portsmouth, for separation of enriched uranium.

BREEDER REACTOR PROGRAM

Senator ELLENDER. What program is it that you are working on now which will take from 12 to 15 years before it will be generally accepted by the utilities.

Mr. BARANOWSKI. That is the breeder program. It is a completely separate program.

Senator ELLENDER. That program is to get more of the fuel out of the fissionable material that is from the tailings from your original stockpile.

Dr. SEABORG. That can use the tailings, yes. The breeder can use the tailings that would otherwise be useless to the nuclear power program. That is one of the advantages of the breeder.

Senator ELLENDER. Are there any further questions? If not, I have got some I would like to ask of Mr. Baranowski. You represent the Army——

Dr. SEABORG. No; he is in our AEC Division of Production.

Senator ELLENDER. I am informed that Dr. Walske is here from the Army.

Dr. SEABORG. Yes; Dr. Walske is Assistant to the Secretary of Defense for Atomic Energy.

Senator ELLENDER. You are with whom?

Dr. WALSKE. Two of us here are from Defense and everybody else is from the AEC.

Senator ELLENDER. What have you to say about the discussion that has gone on now about this?

DEPARTMENT OF DEFENSE WEAPON REQUIREMENTS

Dr. WALSKE. Could I move up here? I would like to leave you with the impression that the AEC, in its military program, is responsive to

requirements that originate with the Department of Defense, are approved by the President, and approved by the Congress, too, because that, in fact, is the way it is done. General Giller has told you that the stockpile is reviewed each year and our needs are projected for the future. It is reviewed by the Joint Chiefs of Staff and by the Secretary of Defense in coordination with the Atomic Energy Commission and we do prepare a paper, for the President's approval, which is the level of stockpile in all categories for the next 2 years. This is not just new production, and it is not just retirements; it is the total stockpile.

I think you should have the impression that the stockpile is basically a static stockpile.

What we are talking about here today, of course, is new production, research and development, and testing. However, what we have this year in the stockpile is largely what we had last year and what we had the year before that. A small percentage of the stockpile changes each year with some new production coming in, and some retirements being made.

Actually, I think——

Senator ELLENDER. When you speak of retirements you mean for use by the Defense or by selling it to develop electricity.

Dr. WALSKE. By a retirement I mean a completed weapon which we have decided we do not need in the stockpile, that is war reserve stockpile, any longer. It is returned to the Atomic Energy Commission and taken apart by them with the salvageable material being reused either for new weapons or for peaceful purposes depending upon what the needs may be at the moment.

Senator ELLENDER. Who reviews your weapons stockpile; that is, the stockpile of fissionable material?

Dr. WALSKE. Well, the weapons stockpile is extensively reviewed. In the first place, it is formulated as a proposal, but not in final form, by the Joint Chiefs of Staff. Then it is reviewed by the Secretary of Defense and his staff and generally whittled down to some lower level, and it is then coordinated with the Atomic Energy Commission in order to see that they have the capacity to either perform the research and development of new weapons and the production of new weapons and finally——

Senator PASTORE. But the AEC has no jurisdiction at all or any part in this coordination as to the requirements. The requirements are stated by the Defense Department.

AEC INTERACTION WITH DOD ON WEAPON REQUIREMENTS

Dr. WALSKE. They originate with the Defense Department, but we have always interpreted the Commission's responsibility, and I believe the Commission has also interpreted their responsibility and duty, to make it known to the President if they feel that the Defense Department is asking for something which is unreasonable. So they are not completely passive on this matter of building whatever is ordered by the Defense Department.

Senator PASTORE. Can you name one instance where they have ever done that?

Dr. WALSKE. Well, in particular where there is an interaction with their production capacity.

Senator PASTORE. I am not being critical. The point I am making here is that this is chiefly the responsibility of the defense establishment, and it should be.

Dr. WALSKE. Yes; I don't want to——

Senator PASTORE. It should be.

Dr. WALSKE. I don't want to change that impression.

Senator PASTORE. But we live under the policy today that after all we have got to have civilian control, and that was the reason for the creation of the AEC. There are a lot of people who think this function ought to be turned over to the Defense Department, I don't agree. I think there still ought to be some jurisdiction in civilian control but what I am saying is the Joint Chiefs of Staff, together with the President, and the President and the Secretary of Defense, determine the requirements and ordinarily, of course, they are accepted by the AEC.

Dr. WALSKE. I think that is exactly correct.

Senator PASTORE. If you ask for more than they have the capacity to produce it is understandable that they will tell you that.

Dr. WALSKE. On the other hand, one example is we were ready to go ahead with the production [deleted] last year and due to the stringency of the budget there was actually an AEC recommendation last year that lead to postponement of [deleted] production. That is a specific example which wasn't a question of production capacity but really a question of dollars. In that case, to hold the dollars down, it was an AEC initiated change.

Senator ELLENDER. As you heard a while ago of the almost $900 million in the weapons program, $360 million of that is used to make new weapons.

Dr. WALSKE. Fabrication of weapons, yes, sir.

Senator ELLENDER. All right. Is that a yearly expenditure?

Dr. WALSKE. That is for 1 year.

Senator ELLENDER. What did you spend last year, do you know?

Dr. WALSKE. It would have been approximately the same.

Senator ELLENDER. How about the year before that?

Dr. WALSKE. It goes on at about the same level, and the reason——

Senator ELLENDER. Well, how many of these weapons have you used, have any become obsolete, that you have to change them every so often?

Dr. WALSKE. We have used them in the sense we have retired them because they have become obsolete. As Senator Pastore pointed out the competition here for having something which deters the other side is such that you can't stand still. You have to keep going. That is basically the problem.

Senator ELLENDER. Well, most of the weapons that you are now saying are obsolete were built when?

Dr. WALSKE. I would say that something like [deleted] is the stockpile life of weapon.

Senator ELLENDER. How long ago?

Dr. WALSKE. Approximately [deleted], which means that with a stockpile level which is more or less constant, that we are retiring and rebuilding something of that order.

Senator ELLENDER. What is the value of your stockpile now, do you know?

Dr. WALSKE. General Giller has a better figure here [deleted] retired in fiscal year 1970.

VALUE OF NUCLEAR WEAPON STOCKPILE

Dr. SEABORG. What is the value, though, of the stockpile. The Senator wants to know the value, the monetary value.

Senator ELLENDER. The whole monetary value.

General GILLER. At the present time.

Senator PASTORE. Are they classified or unclassified.

Dr. SEABORG. The figures are classified but the record will be gone over.

Senator PASTORE. I know. How about this room.

Senator ELLENDER. The room was checked out this morning.

General GILLER. Your question is the total, the price of the total present stockpile including the cost of the fissionable material and the allocated research, development, and testing is about [deleted].

Senator BIBLE. What?

General GILLER. [Deleted.]

Senator ELLENDER. That is your total stockpile of nuclear weapons. Does that cover all your weapons including those used on Polaris?

General GILLER. That is all weapons in the stockpile [deleted] in the stockpile.

Senator ELLENDER. Now how much of that stockpile do you find, becomes obsolete each year?

General GILLER. Between [deleted]. It is not the same every year, let's say [deleted] up and down [deleted].

Senator ELLENDER. About a [deleted].

General GILLER. Roughly that, including the values of the nuclear materials being reworked.

Senator ELLENDER. Those are all weapons that you intended to use but never did use and they became obsolete while you had them in your possession.

DETERRENT VALUE OF NUCLEAR WEAPONS STOCKPILE

Dr. WALSKE. We didn't use them in the sense we exploded them but we used them in the sense we had [deleted] years worth of deterrent value from them.

Senator ELLENDER. Forget about that.

Senator PASTORE. But the fact remains we didn't use them because we had them. If we didn't have them God knows what would happen to us. I mean let's look at the defense and security of this country if we are going to chuck all atomic weaponry out. I think myself the Defense Department ought to be brought to account. Defense should have everything it needs and not more than it needs, I don't think there is any question about that.

Senator ELLENDER. But it is all left in the hands of the Defense Department, Senator Pastore.

Senator PASTORE. It is like crying about paying a premium because your house didn't burn down; just blame God for that.

Senator ELLENDER. I always contended a lot of these weapons are manufactured on the assumption the enemy had this or that and we want to have a better one.

Senator PASTORE. [Deleted]they have the SS–9 and other weapons.

Senator ELLENDER. Then there must be something in communism.

Senator PASTORE. They are spending all their money on weapons.

Senator ELLENDER. I would like to believe that.

Senator PASTORE. If we didn't have them they would have burned ours up, they have been trying to do that for years.

Senator ELLENDER. Anyhow what you are doing, for years to come now your [deleted] stockpile, you changed that to the point where it is costing about a [deleted] per year.

General GILLER. About a [deleted] per year, sir.

Senator ELLENDER. About a [deleted] per year because it becomes obsolete.

General GILLER. We are replacing [deleted] of the stockpile per year and the weapons have a [deleted] life, so every [deleted] there are all new weapons in the stockpile.

IMPROVEMENTS IN NUCLEAR WEAPON STOCKPILE

Senator PASTORE. Do we do this for the kicks of it or because there are fundamental improvements that must be made?

General GILLER. There are fundamental improvements.

Senator PASTORE. I mean do you keep on asking for money in the Defense Department just for the sake of making something one-hundredth or one-thousandth of a percent better or do you do it because there is an improvement that is worthwhile and justifies the investment?

Dr. WALSKE. Let's look at the production. For example, the production that the AEC will have for this year is mainly driven, almost entirely driven, by strategic force requirements, which in this case means the new warheads for the Minuteman III and the Poseidon missiles, and I think that is almost entirely the case at this time. Those are new missiles which, in essence, require new warheads because, as General Giller said, the old ones are of a different variety and don't do the same job. Basically when you make the decision to go ahead with the force structure of Poseidon and Minuteman III missiles, you need the warheads to go with them in order to carry out the program.

Senator ELLENDER. Who makes that decision?

STOCKPILE AUTHORIZATION DECISIONS

Dr. WALSKE. It is a national decision in the sense that the Defense Department originates the studies and the President approves and proposes to the Congress, and the Congress, including this committee, has a look at the decision to go ahead with a new force structure.

Senator ELLENDER. And the Defense Department bases its decision on what?

BASES FOR STOCKPILE REQUIREMENTS

Dr. WALSKE. Well, I think that these things must start, first of all, with the capabilities of the potential enemies of our country.

Senator ELLENDER. And that potential enemy, of course, is Russia, nobody else.

Senator PASTORE. And Red China.

Senator ELLENDER. No, sir.

Dr. WALSKE. And China.

Senator PASTORE. That is right.

Dr. WALSKE. The capabilities that I am talking about are observable things, facts of life, that is what they have in the way of forces, not what their intentions are. How peaceful they may be we don't know,

but we do know what their capabilities are, and based on their capabilities we have to have enough to deter what they could do with those capabilities if their intentions should turn out to be bad.

Let's hope their intentions are good but we can't plan on that.

Senator ELLENDER. Well, I don't want to fill this record with my views again, I have done that two or three times, but it is all based on suppositions, and I only wish that a little money would be spent in order to try to formulate better relations with our potential enemy rather than to keep on, in the dark more or less, spending all of this money in a race that will break both us and Russia.

Dr. SEABORG. I just want to say I agree with that, Senator Ellender.

Senator ELLENDER. What is that?

Dr. SEABORG. I agree with that.

Senator PASTORE. They all agree with that.

Senator ELLENDER. Yes; I do, too.

Senator PASTORE. I understand this room is secured.

Mr. CORSO. Yes.

MIRV'S

Senator PASTORE. How many MIRV's have we placed in operation?

Dr. WALSKE. Just about a week or so ago we went operational with the first flight, that is [deleted] Minuteman III missiles which we put in operation with [deleted] warheads on each missile. They will now come on line in a steady stream, Minuteman III. The Poseidon MIRV's, which is the other program, [deleted].

Senator PASTORE. Do we have an actual operation MIRV today?

Dr. WALSKE. Yes, sir.

Senator PASTORE In emplacement.

Dr. WALSKE. Yes, sir [deleted].

Senator PASTORE. That is all right. But we have got the weapon.

Dr. WALSKE. Yes, sir; the warheads came from the AEC.

Senator PASTORE. From your intelligence, have the Russians got the weapon?

Dr. WALSKE. Got the weapon?

Senator PASTORE. Yes; the MIRV?

Dr. WALSKE. [Deleted.]

Senator PASTORE. I am not saying that. I just want to know whether or not we are a little ahead on this question of who should give up what?

Dr. WALSKE. In that area [deleted].

Incidentally, Dr. Herbst, who is from the Defense Department and is Dr. Foster's deputy for strategic systems, might want to add something to that point. This is really his field and that is why he is here in case there was an interest in it.

Senator PASTORE. All right. Can you answer that question, sir.

Dr. HERBST. The Soviets [deleted].

Senator PASTORE. Now we are talking MIRV; aren't we.

Dr. HERBST. Yes.

Senator PASTORE. And not MRV.

Dr. HERBST. [Deleted.]

Senator PASTORE. What you are saying now is insofar as what we know from our intelligence of the Russians [deleted].

Dr. HERBST. That is exactly correct.

Senator PASTORE. But we know they [deleted].

Dr. HERBST. Yes. [Deleted.]
Senator PASTORE. And we [deleted].
Dr. HERBST. Exactly.
Mr. RAMEY. [Deleted.]
Senator PASTORE. That is what I want to know [deleted].
Senator ELLENDER. Any further questions.
Senator CASE. I had a couple of questions, Mr. Chairman. I don't want to interrupt this recital.
Senator PASTORE. You are not interrupting.

TESTING AT AMCHITKA

Senator CASE. These questions relate, Mr. Chairman, to the question of the environmental effect of the activities of the Commission particularly up at Amchitka. We have, Mr. Chairman, you sent to Chairman Ellender on the 17th, a copy of a draft statement that you had submitted to the Environmental Quality Council, I have a copy here, and you note that comments and views are being sought also from the Federal, State, and local agencies which are authorized to develop and enforce environmental standards, and that you will send us copies when you have the final and detailed statement. That is your final detailed statements you are talking about to the Environmental Council.
Dr. SEABORG. Yes.
Senator CASE. And that will not be ready until the fall.
In connection with this there are just a couple of matters that I would like to have you comment on if you would. It is my understanding that no previous test of a nuclear device was classified, is that correct, and if so or if not why was this information classified?

CLASSIFICATION OF NUCLEAR TEST YIELD

Dr. SEABORG. The part that is classified is the actual yield.
Senator CASE. Why?
Dr. SEABORG. The warhead that is being tested here is the [deleted] and that yield is being protected as classified information.
Senator CASE. That is what I understand. Why?
Dr. SEABORG. It would provide the enemy——
Dr. WALSKE. As a matter of fact, the yield is classified at our request. [Deleted.]
Senator CASE. You mean before the test occurred.
Dr. WALSKE. Well, before or after the test.
Senator CASE. What do you mean ahead of time?
Dr. WALSKE. Ahead of time is now; when discussions of the safety of the test are going on.
Senator CASE. They will know after the test, won't they?
Dr. WALSKE. After the test they will have only the seismic signals from that event and that will provide them some information but will leave them with some uncertainty if we can protect the yield of the warhead. If we give it to them exactly by a public announcement that would be handing them something useful free.
Senator CASE. I am not pressing it for the exclusion of this, I want to know whether it is really important or if it is just convenient.
Dr. WALSKE. We thought it was important and, of course, it is the

Commission that must explain that its testing is safe, and yet at our request they have been withholding yield information.

SEISMIC EFFECTS

Senator CASE. I am not interested in the size of the weapon, not at all. I am interested in the possible seismic effects and environmental effects. We are going to know what the environmental effects and the seismic size is just as soon as it happens. Why don't we, can we not, know now what that can be, forget the weapon, but talk about this.

Dr. WALSKE. Seismic effects have been explained publicly in enough detail so that this is well known, that is how much the earth is going to shake. The precise Richter magnitude has not been given but the effects have been bracketed by the discussions of the safety.

Senator CASE. Well, thank you very much.

Now, could you give us the estimate of the size of the explosion and its seismic effects.

Dr. SEABORG. You mean, could I for the record. It is classified. Well, the seismic effect we will delineate to the best of our ability.

General GILLER. The yield is [deleted].

Senator CASE. That does not appear here in the statement.

Senator PASTORE. What does that mean?

General GILLER. To seismologists that is how much his instrument reads, from earthquakes. The one in Chile was 7.8.

Senator BIBLE. Can you relate that to the San Francisco quake.

General GILLER. That was 8.3. When you get over 8, in earthquake magnitude, damage, depends whether you are on top of it or not, so if you have a Richter 8 and are over in the wilds nobody is hurt. If it is under a city it is a different matter.

Dr. SEABORG. This is a logarithmic scale, the difference between [deleted].

General GILLER. [Deleted] in the Aleutians is not very much, the Milrow event fired last year was [deleted].

Senator ELLENDER. What area does that cover.

General GILLER. That is the size of the magnitude right under the island where we fired and whoever measured it, whether he measured it a mile away or 10,000 miles away he gets the same number. His instrument tells him that thing there was a [deleted] earthquake, [deleted].

FLORIDA POWER AND LIGHT REACTOR

Senator ELLENDER. In connection with the peaceful use of atomic energy, as I told you Dr. Seaborg, I am interested in the current situation in Florida with respect to the reactor that is being built under an AEC permit. Have you settled with the Interior Department.

Dr. SEABORG. We are——

Senator ELLENDER. Because a number of problems are developing now, a lot of problems are developing among the departments and the utility.

Dr. SEABORG. You mean in Florida?

Senator ELLENDER. Yes. The utility is almost through building their plant under an AEC permit, and I understand they are having trouble getting an operating license for the production of electricity.

Dr. SEABORG. Jim, would you respond to that.

Mr. RAMEY. Yes, sir.

This is the reactor station at Turkey Point below Miami. The Florida Power and Light Co. is building nuclear powerplants at the same site where they have two oil fired plants. The AEC is responsible for licensing nuclear plants from a radiological safety standpoint, and they reecived an AEC construction permit to build the nuclear plant. In parallel with that they were getting permission from the Dade County water pollution people, the water quality people, on a permit for disposal of their condenser cooling water, as to how their cooling water would be handled going from the nuclear powerplant.

THERMAL POLLUTION

The courts have held that the Commission, does not have licensing authority over the water quality, the thermal effluent effects from a nuclear plant. So what happened early this year was the State, with the cooperation and perhaps at the suggestion of the Interior Department, recommended a more stringent water quality standard than Dade County had proposed. The power company had originally proposed that the condenser cooling water go directly into Biscayne Bay where the oil fired plants are discharging their cooling water now.

The power company later then changed its position and decided to build a canal that would run about 8 miles down below and discharge the warm cooling water down into a sound called Card Sound. I believe it would take the water both from the nuclear plant and the oil fired plants down there. They had this under construction, and so the Interior Department, with the State people, made a judgment that the water effluent down below would probably be too warm for this area to receive it, and so they held a public conference, and then the Interior Department decided to get an injunction under an 1899 law, not under the Water Pollution Act. They sought this injunction, and the court denied the injunction against the Florida Power and Light people, so the Florida people are continuing to build the canal. They claim that it will meet the Dade County water quality standards, and the Interior Department claims that it won't be satisfactory.

The Atomic Energy Commission is in the situation that we believe the plant is safe from the reactor safety standpoint and from the radioactive effluent standpoint, so this dispute is essentially between the Interior Department and the utility.

Now, when it comes time to get an operating permit for this plant under the Muskie bill, as enacted, the Atomic Energy Commission cannot issue an operating license without first receiving a water quality certificate. So by that time, by the time they get an operating permit, the power company will have had to make its peace with the Interior Department and with the State people. Now that won't happen for a couple of years. I am sorry I am so long winded on it but that is the situation.

Senator ALLOTT. That is all right. Mr. Chairman, can I interpose a question on this at this time?

Senator ELLENDER. Surely.

Senator ALLOTT. For the sake of anyone reading the record it could be very much misconstrued from what you said. When you are talking about water quality here, you are only talking about heat.

Mr. RAMEY. Yes, sir.

Senator ALLOTT. You are not talking about any radioactive particles or anything of that sort.

Mr. RAMEY. No, sir.

Senator ALLOTT. You are only talking about the element of heat in the water as it is used to cool the reactors.

Mr. RAMEY. That is right.

Senator ELLENDER. I simply wanted to ask this. Somebody is going to have to make a decision in the future if we are to expand these plants, and I am just wondering why it is that the Atomic Energy Commission can't get together with the Interior Department before any of these permits are issued because it will be a sad day if one department said "all right go on and build it," and some other department says "you can't use it."

Mr. RAMEY. I believe you are right, Senator.

Senator ELLENDER. That is why I raised the question.

NEW LEGISLATIVE REQUIREMENTS

Mr. RAMEY. Yes, sir. Under the National Environmental Policy Act of 1969, and under the Muskie bill that was enacted this spring, we will be getting even more detailed comments than we have been getting from the Interior Department. Actually in the past we have gotten together with the Interior Department, with their Fish and Wildlife Service, and gotten their comments which we have passed on to the utilities and the States.

Senator ELLENDER. That is what I thought but I found out though that there was some new requirement that may prevent the operation of this facility by the target date. Now I hope you don't have any other cases like this; or do you?

Mr. RAMEY. Well, there are some problems during this interim period between the way the AEC and the Interior Department operated in the past, and now under these two new laws, and we will have some what we would call transition problems on a few plants. But we have quite sincerely and in good faith obtained the comments of the Interior Department on plants for the last 10 years, and on the radioactive aspects, we incorporate that under our licenses. Before these new laws were passed we informally transmitted the comments of the Interior Department to the utility and we suggested that they be sure that they comply with the State law and with the advice of the Interior Department on the thermal effects of the warm water.

Senator BIBLE. With the permission of the Senator from New Jersey, I don't think he finished his questions, I just have two quick questions, here.

Senator CASE. I am glad to have it established that this is on my time and I yield to the Chairman and now I yield to you with great pleasure.

Senator ELLENDER. I thought you were through.

Senator BIBLE. I appreciate your yielding. I wanted to ask two questions of Commissioner Ramey. Did the Department of Interior appeal the order of the Florida court denying the injunction?

Mr. RAMEY. Presently before the court, Senator, is the application for a permanent injunction and a motion to dismiss. I assume that the Interior Department will appeal any adverse rulings.

Senator BIBLE. Then that matter is not completely disposed of legally.

Mr. RAMEY. No, sir. I think now, the question is they had asked for a preliminary injunction. Now they are asking for an injunction on the merits permanently.

Senator BIBLE. They denied the temporary injunction?

Mr. RAMEY. Yes, sir.

Senator BIBLE. But you are not out of court yet?

Mr. RAMEY. That is correct.

THERMAL POLLUTION

Senator BIBLE. Senator Allott asked a question that caused another. He said the pollution you are referring to here is only due to heat. But, as I understood the problem, the thermal plants in the Biscayne Bay area also had the problem of polluting the stream and killing the fish.

Mr. RAMEY. The question was whether an increase in temperature to 94 degrees or 95 degrees would kill the fish or plankton, the marine vegetables, and crustaceans and this sort of thing, and whether it will, in effect, cut down on the production of fish and affect the whole ecology of the area.

Senator BIBLE. Has or has not that question been resolved?

Mr. LARSON. If I might interrupt here, by coincidence I was there 6 days ago, and actually had my scuba outfit and I dived in among these various places——

Senator BIBLE. You look healthy.

Mr. LARSON. To ascertain firsthand these effects, and indeed I must say at the outset this hot water or warm water has a higher temperature than any other stream in the whole United States will be because of its location at the southern part of Florida. There has been no authenticated instance of fish being killed here. I think that is important. In fact I don't believe there has been any authenticated instance of any fish ever being killed by thermal effects at the outlet of a nuclear plant.

We do have a contract with the University of Miami to study all of these effects, in cooperation with the Florida Power & Light Co., and the Department of Interior. I think we have a very good program, it is being very carefully studied, and I am convined that the situation will be very much under control.

The problem of the warm water from the fossil plant was because it was discharged into a very shallow bay. The bay there is only 3 or 4 feet deep which accentuated the problem, whereas Card Sound will be 8 to 10 feet deep. I want to assure you that all interested parties are cooperating with the best experts to resolve this problem, and everyone, every expert, that I have talked to in Miami, is confident that it can be solved without any damage certainly to fish and minimal damage to anything else.

Senator BIBLE. I certainly appreciate the Commissioner's assurance. But you are still in court, and the reason I am concerned about it is because I happened to handle the Biscayne National Park. I think we put $8 million into the appropriations bill, and it doesn't seem to

make much sense to appropriate that amount of money in a national park where it is all mixed up in court. That is all I am thinking about.

It has this on the thermal powerplant and discharging into Biscayne Bay, it is all tied up together. Thank you, Mr. Chairman and thank you Senator Case.

Senator CASE. It is a pleasure to yield to such an erudite and gracious colleague.

DISCHARGE OF WATER FROM PLANT

What is the actual amount of water discharged and how hot is it?

Mr. LARSON. The temperature is 10 degrees warmer than what comes in so if the temperature—the day I was down there, it happened that the water at Biscayne Bay was very hot because of a very warm spell, it was, I think 91, and it was being discharged at 101.

Senator CASE. You mean the water in Biscayne Bay was 91°?

Mr. LARSON. The water in Biscayne Bay was 91° on that day.

Senator CASE. People don't go swimming in there?

Mr. LARSON. You don't stay in for pleasure or stay in very long. I was in for 20 minutes.

Senator CASE. And the water that goes back is 101°?

Mr. LARSON. 101° on that day.

Senator CASE. That is the volume?

Mr. LARSON. The volume—I think we have an expert here.

Senator CASE. I just want to get some kind of a picture here.

Mr. LARSON. Of how many millions of gallons.

Mr. SHAW. The discharge would be about 400,000 or 500,000 gallons per minute normally run through a condenser.

Senator CASE. This is quite a big operation, isn't it?

Mr. LARSON. Yes.

Senator CASE. It is not like pulling the plug in one of these things up on the hills and running water through, it is like a big toilet, it come out that fast.

Mr. LARSON. It is like a big irrigation system.

Senator CASE. Yes, but I mean this is a violent thing.

Mr. LARSON. It is a very large volume of water.

Senator CASE. It isn't just a trickle.

Mr. LARSON. No; it is a very large volume of water.

Senator CASE. How big is the pipe and how fast does the water go.

Mr. SHAW. Sir, normally a pipe would be 20 feet in diameter.

Senator CASE. That is a big thing too.

Mr. SHAW. Yes.

Mr. RAMEY. In this case it will be a canal.

Mr. LARSON. Some of them have pipes that size.

Mr. SHAW. It will have a 40-foot-wide trench.

Senator CASE. Does that take care of the two steamplants.

Mr. SHAW. Well, such a canal would be set up for handling a number of plants.

Mr. RAMEY. In the case of Florida Power & Light; yes, sir.

Senator CASE. This is something to go into a park, I think.

Senator BIBLE. It has given us concern and that is why I queried it to this extent. Thank you, Mr. Chairman.

Senator CASE. We are all in the same boat. We have got to have power and we have to take care of the heat.

Senator YOUNG. If you established a reservoir for the special purpose of supporting a nuclear powerplant how much capacity would it have to have?

Mr. RAMEY. You mean a cooling——

Dr. SEABORG. A holding pond.

Mr. RAMEY. It would have to be several thousand acres usually, Senator.

Senator CASE. For a plant of what size?

Senator ALLOTT. You mean several thousand acre-feet.

Mr. RAMEY. And the depth would be, I would imagine at least 10 feet deep. So, for example, Dresden No. 3, that reactor plant in Illinois, has an acreage, I believe, of more than 1,000 acres is my recollection, in that range.

Senator ELLENDER. Is that fresh water?

Senator CASE. Is that just for the reactor?

Mr. LARSON. Just for this one.

Senator ELLENDER. What effect has that salt water on the cooling system?

Mr. LARSON It is constructed of materials that resist the corrosion of that. It has to do that.

Senator ELLENDER. I understand.

Mr. RAMEY. In a number of cases you can use cooling towers for dissipating the heat, and where you use salt water you get a salt water spray. The technology of building that type of cooling tower is not entirely developed, and the spray also might have an effect on truck farm crops nearby. That complicates the problem.

Senator ELLENDER. That is the complaint I received, and I simply wanted to go into it because it all came to my attention after the hearings, and I think I wrote you about that, Doctor, or telephoned somebody about it, I don't recall which.

Senator CASE. A cooling tower still uses water to cool.

Mr. RAMEY. Yes, sir. They run it over a baffle.

Mr. LARSON. This is only one-tenth of the amount of water roughly, isn't that about it.

Senator CASE. You have to pump the water up.

Mr. SHAW. Sir, there are a number of different types of cooling towers which can be used today. Many of the utilities are now installing cooling towers which will be in closed cycle with the powerplant and not discharge any water during the very warm time of the year. They would, in a sense, be completely recirculating and evaporating. However, during the cooler season of the year the cooling tower could be bypassed and cooling could be accomplished by withdrawing water from natural bodies. The heated condenser discharged water would be returned to the natural water body as long as water quality temperature limits wouldn't be exceeded. We know that sooner or later, that is, looking years ahead, there will not be sufficient water to allow disposal of waste heat to natural water bodies for the number of powerplants that will be constructed. There is a great deal of interest in completely dry cooling towers which reject waste heat directly to the atmosphere.

Senator CASE. So that none of the present big plants like American Electric Power are just plain air cooled.

Mr. SHAW. No, sir. About 30 percent of the plants being built today have some sort of cooling towers.

Senator CASE. Thank you very much, Senator.

Are you finished? I just have about half a dozen questions that I want to ask.

Senator ELLENDER. I am not through.

TESTING AT AMCHITKA

Senator CASE. Then I will finish my questions about the Alaskan testing.

Donald Tucker said he thought it was unsafe to increase the explosion by more than 1 megaton at the time, as I understand. I think the previous test at Amchitka was about a megaton and now within this room we are talking about [deleted]. Is this a safe procedure?

General GILLER. The Milrow shot up there was about a megaton and we are going to [deleted].

Senator CASE. I don't know anything about it but this is what was said and I just want your comment on it on the record.

General GILLER. Yes, sir.

The consultants and the experts to which we turned outside the AEC, university folks and people in science, tell us based on all our experience in Nevada where we have fired lots of shots, plus the one we fired up there, plus the understanding of the area, is that this is a safe test. They do not make a flat statement that it is impossible or that there is zero probability that we will trigger an earthquake, but the document points out that in that part of Amchitka, earthquakes do not create tidal waves. They point out that earthquakes up there bigger than what we have fired do not trigger subsequent earthquakes; therefore, we have no reason to believe that there is much probability of triggering an earthquake which then in turn makes a tidal wave. The tidal wave, not the earthquake, is the important effect. The Cannikin test is [deleted] larger than Milrow. So we, in weighing everything, feel we are not lowering the safety standards we had previously used.

The one megaton step is one man's opinion.

Senator CASE. Yes; I know that. I just wanted to have this comment on the record.

General GILLER. Yes, sir.

Senator CASE. I understood this test was going to be a [deleted].

General GILLER. No, sir; [deleted].

Senator CASE. You heard that gossiped about.

General GILLER. To me it was a new idea; I heard it for the first time this morning.

Senator CASE. Did you?

General GILLER. I do not know where it came from.

PRIOR GEOLOGICAL INVESTIGATIONS

Senator CASE. Well, that makes irrelevant, I guess, the next question because it related to the proximity of faults.

General GILLER. We know where the faults are up there.

Senator CASE. We do know.

General GILLER. From drilling small exploratory holes. We locate the main hole far enough away from any fault so as not to cause us any trouble and we have done so here.

Senator CASE. So that your comments and opinions are based upon that?

RELEASE OF RADIONUCLIDES

General GILLER. We feel we are not——

Senator CASE. Your statement mentions finding tritium in three small ponds several months after the Long Shot test in October of 1965. What volume and what other kinds of radionuclides are expected from this test?

General GILLER. This Long Shot event in 1965 produced in the ponds on the top of the ground, above it, a very small amount of tritium, well below the level that is safe to drink.

That water which to the best of our ability to understand, came up from the hole we drilled in order to get the weapon down. It seeped up, however, a year later. The event we are talking about now is much different. Our technique for stuffing stuff in the hole so it doesn't leak is much better than it was before. We do not expect any tritium to appear at the top of Milrow or at the top of Cannikin, all other nuclides, esentially all of the nuclides, are trapped at the detonation point and they can remain there forever and are absorbed in the rock. There are a couple of other gases that can get up, like tritium can get up. Much of the radioactivity, 99 percent of it, is trapped in the local rocks and trapped there forever like it does in our other shots.

Senator CASE. Forever.

General GILLER. Well, actually what happens, that is not quite true because all radioactivity dies away slowly, so at sometime in the future all radioactivity will be gone down there but that is a very long time, in thousands of years and would be unmeasurable.

Senator CASE. Will this mean confined safely?

General GILLER. It will remain confined safely.

SEISMIC SIGNAL

Senator CASE. One question and then I want to go back to the matter of seismic yield. Is that a matter that is classified, the expected seismic yield?

General GILLER. The yield and the seismic signal, since we gave them the approximate yield and seismic signal at Milrow you can get the yield from the seismic signal so it is the same as yield.

Senator CASE. And this is classified now?

General GILLER. At the moment it is.

Senator CASE. And you are going to keep it that way until after the event?

Dr. SEABORG. Well, even after the event.

Senator CASE. How can you keep the seismic yield?

Dr. WALSKE. The yield.

General GILLER. We never can confirm the relationship of the seismic signal to the yield. [Deleted.] That would leave it up in the air.

Senator CASE. Is that generally known?

General GILLER. They certainly will be able to bracket it, they can get maybe within [deleted] so far as it goes.

Senator CASE. Thank you, Mr. Chairman. That is all I have on this.

UNDERGROUND TESTING

Senator BIBLE. May I have one more question, following up what Senator Case has asked? I don't think any State has had more experience in underground tests than the State of Nevada, and we have gone through the earthquake scares and the fears of escaping radioactive material from underground, and we have people who burned midnight oil under protest to try to stop shots. Dr. Seaborg, as nobody else, is well familiar with that, and I want to say with complete honesty and fairness, and having spent a lot of time on it, I have never yet had the AEC mislead me. They have told me exactly what they thought would happen and they get remarkably close, I don't know how they do it but they do do it. They were shaking some of the buildings in Las Vegas and they said "well, these won't shake down." I always woke up feeling much better the next morning when my phone didn't jingle to say "well, we are in ruins, here," but they called it remarkably accurately.

I just have one question. What was the biggest megaton shot, and it was a big one, that you had both at the test site at Mercury and then in the central Nevada test site? What was the biggest seismic Richter reading that you had? I think it was in the range of 6.2 or 6.3 but I could be wrong. It was about the same as the Alaska one.

General GILLER. It was a [deleted].

Senator BIBLE. It was a [deleted] and that is a fairly good sized quake and we are surviving and healthy, and they had people who were going to keel over from these explosions from the fissures and it was going to poison the water. None of this has ever happened. It is a troublesome problem, and there is a lot of unknown in nuclear power but I have great confidence in the AEC and its very able chairman. I am happy to note he has been reappointed and I am delighted. With that, Mr. Chairman, I should go to the floor and leave it to you.

Senator CASE. We will be desolate.

Thank you. [Laughter.]

LABOR RELATIONS

Senator ELLENDER. I would like to ask you a few questions in regard to labor relations. I understand about 4,200 of your employees at Oak Ridge were out on strike about 2 months this year. Is that correct?

Dr. SEABORG. Yes. I think Commissioner Larson is the expert on that.

Mr. LARSON. Yes; I negotiated the contract when I was in charge at Oak Ridge which expired and led to this other negotiation.

Senator ELLENDER. Would you discuss the effect of this strike on your weapons production schedule.

Mr. LARSON. The weapons production schedule [deleted].

General GILLER. It has no impact on our ability to meet our final production of weapons because we have scheduled production of parts down there in anticipation that we would need some slack in the sys-

tem. Obviously if we have another strike or if we had technical failures we would have been in a mess but we were able to absorb that strike without impact on our final production.

Senator ELLENDER. What effect did it have on your expenditures?

Mr. CORSO. Sir, perhaps I can answer that. As a result of the strike there were approximately 5.6 million payroll dollars that we did not spend. But in order to minimize the disruptive effect on the program we reallocated the timing of our subcontract work with our in-house work and about $3.1 million of the $5.6 million we placed in different offices primarily to get subcontracts out for material that we would need for the weapons anyway. Of the remaining $2.5 million, we reallocated it within the Oak Ridge complex to advance certain of our procurements and minimize the disruptive effect of the strike. When the people come back to work, and I understand they are just about to come back now, we will have materials on hand to meet their productive employment.

ROCKY FLATS STRIKE

Senator ELLENDER. Now, I also understand that your employees at Rocky Flats are currently out on strike.

General GILLER. As of yesterday morning.

Senator ELLENDER. How many employees are involved in that strike?

General GILLER. Roughly 1,400 of a total 2,000 employees.

Senator ELLENDER. To what extent will a strike at one plant affect production at other plants involved in the weapons program.

General GILLER. In the particular case of the plant at Rocky [deleted].

[Deleted] because we have continued to produce parts there, and the system is such that we will be able to meet our commitments up to about [deleted].

Senator ELLENDER. What is the daily fiscal impact of this strike on your program?

General GILLER. I would have to furnish that number for the record. I don't know this morning.

(The information follows:)

About $60,000 per day.

Mr. LARSON. Primarily salaries.

General GILLER. It will be for salaries and wages.

Senator ELLENDER. That $5 million at Oak Ridge was also for wages, I suppose.

Mr. CORSO. Yes, sir; I don't have the figures on Rocky Flats.

Senator ELLENDER. But it would be for wages.

Mr. CORSO. Yes.

General GILLER. Most of our costs at Oak Ridge were wages.

REACTOR DEVELOPMENT PROGRAM

Senator ELLENDER. Now on reactors, AEC is giving top priority to the liquid metal fast breeder reactor; is that correct?

Dr. SEABORG. That is right.

Senator ELLENDER. Last year we discussed the accident at the Fermi plant near Monroe, Mich. I understand that during preparations to

reactivate that plant there was a sodium fire. Would you discuss this latest problem at the Fermi plant?

Dr. SEABORG. Yes; a sodium-water reaction occurred on May 20 in the cold trap system which is connected to the fuel transport facility.

This was in the Fermi fuel and repair building. This was not in the main building where the reactor itself is located. It is an independent and separate facility from the reactor containment building. It wasn't a very serious occurrence. It is the sort of occurrence that has given us information with respect to design that should make it possible to prevent a reoccurrence in plants of this type.

Senator ELLENDER. Well, are there any other liquid metal fast breeder reactors operating in this country?

Dr. SEABORG. Yes; the experimental breeder reactor No. 2 at Idaho is operating and it has operated successfully and essentially without any accidents.

COST SHARING ON DEMONSTRATION PLANT

Senator ELLENDER. When you were before us in April, I referred to an article in Nucleonics indicating that the electric power industry and equipment manufacturers would not be willing to underwrite the cost of the proposed demonstration plants. Can you bring the committee up to date on the progress of your negotiations during the past few months?

Dr. SEABORG. Mr. Shaw.

Mr. SHAW. Yes, sir. We have three companies at the present time, General Electric, Westinghouse, and Atomics International that are working on the project definition phase of the demonstration plant program which would eventually lead to an agreement between the Government, the utility industry and the reactor manufacturer to proceed to build the first demonstration reactor.

That decision to build was not planned to be reached until the first part of next year. So the announcement that was made about General Electric, and the utility organizations getting together was somewhat premature and did not take into account the work that we are supporting and that is going on at this time.

We believe there is a better realization today of the overall cost of this project, when it will be eventually entered into, and we believe that the work going on now; namely, the examination of the technical, economic and management factors relating to this contract, will permit a decision to be made roughly about the first of the year.

FUNDING DIFFICULTIES

Senator ELLENDER. You are not expecting difficulties.

Mr. SHAW. We are expecting funding difficulties; yes, sir, but we are not at this time willing to accept the fact that over 100 public utilities in this country cannot pull together to permit a project like this to proceed with sufficient funds. It will take an effort in order to get this money together.

Senator ELLENDER. All right.

NUCLEAR PLANT SHUT DOWN FOR NEW YORK

Now I heard a report last night that a nuclear powerplant in the New York area had encountered difficulty and would be shut down all summer. Could you identify that plant, discuss any previous problems and delays in getting power on the line.

Mr. SHAW. The Indian Point reactor was shut down in May. The difficulty was due to a mechanical failure of a thermal sleeve, that is a piece of metal in a pipe, and this thin piece of metal had been carried away, so to speak, broken loose and gone through the piping system and pieces of it lodged in the steam generator inlet. In examination of the pipe to determine why this piece of metal failed they have discovered some cracks in the pipe. It is because of the cracks that the announcement has been made. The chances are very good that the principal factor causing the cracks that cold water enters the pipe in this location and has thermally shocked that piece of pipe and caused cracks. It is a type of design problem that we are concerned about. We run many tests in order to minimize this possibility. When they occur the best thing to do is redesign it and replace the pipe.

Mr. RAMEY. This plant has run quite well over the last 8 years.

Senator ELLENDER. What type of plant is it?

Mr. SHAW. This is a pressurized water reactor and, as Mr. Ramey says, it has been running 8 years.

Senator CASE. What is the capacity?

Mr. SHAW. About 265 megawatts net.

Senator CASE. It isn't going to be serious.

Mr. SHAW. 265 megawatts during the summer is significant in itself.

Senator CASE. Yes.

RELATIONSHIP OF TESTING TO SAFEGUARD

Senator ELLENDER. Are there any further questions.

Senator CASE. Suppose we stalled or in some other way or just by sheer persuasion knocked out Safeguard [deleted].

General GILLER. If a decision was made that there would be no Safeguard program, cancelled it all including the research and development [deleted].

Senator CASE. And these are weapons, these are the weapons for the [deleted].

General GILLER. [Deleted.]

Senator CASE. Thank you.

PLOWSHARE PROGRAM

Senator ELLENDER. There is one thing I would like to ask about your Plowshare program in Colorado particularly the program to find gas there.

Dr. SEABORG. Yes, sir.

Senator ELLENDER. How long will it take you to find out whether or not this gas can be used. In other words, as I understood the methods used to increase the production——

Dr. SEABORG. Yes.

Senator ELLENDER (continuing). Resulted in some radioactivity in the gas.

Dr. SEABORG. Yes. We believe small amounts of radioactivity. It will——

Dr. ENGLISH. Senator Ellender, the drilling back operation is taking place now and reentry, or recommunication with the cavity is expected sometime in July or perhaps in August. Then, of course, as the gas begins to come out we will begin to make measurements, flow tests will begin to take place, and I believe we will probably want to look at the data from flow and other tests over a period of months, so I would guess the answer to your question is probably sometime next year.

Senator ELLENDER. How deep is that cavity?

Dr. ENGLISH. It is over 7,000 feet.

Senator ELLENDER. Seven thousand feet. Thank you.

Any further questions, if not we are through with you. We have several other groups coming in so you may depart.

DEPARTMENT OF THE INTERIOR

Bureau of Reclamation

STATEMENT OF ELLIS L. ARMSTRONG, COMMISSIONER

ACCOMPANIED BY:

W. P. KANE, ASSISTANT COMMISSIONER FOR ADMINISTRATION
G. G. STAMM, ASSISTANT COMMISSIONER FOR PLANNING AND IRRIGATION
W. H. KEATING, ACTING ASSISTANT COMMISSIONER FOR POWER AND ENGINEERING
D. D. ANDERSON, CHIEF, DIVISION OF PROGRAM COORDINATION AND FINANCE
HOWARD R. KNOX, CHIEF, BUDGET AND STATISTICS BRANCH
JAMES R. SMITH, ASSISTANT SECRETARY—WATER AND POWER
RICHARD R. HITE, DIRECTOR OF BUDGET, OFFICE OF THE SECRETARY

HOUSE INCREASES

Senator Ellender. The subcommittee will come to order.

Will you tell me what you think of the House bill?

Mr. Armstrong. Mr. Chairman, the 1971 fiscal year budget for the Bureau of Reclamation was formulated by the President within an overall economic climate of budgetary stringency to combat inflationary trends. This was particularly so with construction appropriations.

Although it was recognized on a number of the projects that the Bureau, had capability above the budget figure, the proposed program was balanced and designed to accommodate the most urgent Bureau priorities within the framework of a reasonable allocation of funding.

As you will recall, during our regular hearings before this committee, in answer to specific questions by you and other members of the committee, we did indicate whether or not we had capability in these specific areas where we were questioned.

Planning, Construction, and Loan Programs

The action of the House, on the fiscal year 1971 appropriation bill, gave recognition to our capability to proceed at a faster pace on certain planning, construction, and loan programs, and has provided funds to start a new planning program, for instance, on the California undersea aqueduct, two new construction starts (central Arizona and Savery-Pot Hook), and three new loans.

In addition, the House bill will allow faster progress on several advance planning programs (Palmetto Bend, Nebraska mid-State, Dallas Creek, Animas-La Plata, Dolores); on two construction projects, the Westlands distribution and drainage system of the Central Valley San Luis unit and the Manson unit of the Chief Joseph Dam project, Washington; and on five going loans.

To be honest and candid with the committee, we can proceed with the increases allowed by the House. In the main, these increases will permit a more economic rate of progress, and quite likely will result in lesser total project costs.

CAPABILITY

Senator ELLENDER. To what extent does this increase the overall appropriation over the amount recommended by the Budget Bureau?

Mr. ARMSTRONG. The increase is $14,347,000.

Senator ELLENDER. Over and above the budget estimate?

Mr. ARMSTRONG. Yes, sir.

Senator ELLENDER. You say that if the money is made available to you you have the capability to spend it?

Mr. ARMSTRONG. We have the capability to efficiently and effectively utilize it.

Senator ELLENDER. That I presume will result in bringing the projects to fruition quicker, of course?

Mr. ARMSTRONG. Yes. We could move them along in a more economical fashion.

Senator ELLENDER. I presume that, since this is above the budget, you do not like to say yes or no.

Mr. ARMSTRONG. Well, we have the capability.

Senator ELLENDER. Of course, we will have to decide that. We have a little say in that, too, you know.

Mr. ARMSTRONG. Yes, we agree.

Senator ELLENDER. I hope that the budget examiners that consider the public works program do not get too great a shock, since we may very well increase the amount approved by the House. I believe that Congress ought to be in a position to make additions, the same as the President. We are charged with the responsibility of providing the funds, and our considerations in that capacity, the wisdom of increasing the funds for certain projects is manifested. We are hopeful of increasing to some extent the figures furnished us by the President, through the Budget Bureau. It is not an unusual process, is it?

Mr. ARMSTRONG. No, sir.

AMENDMENTS REQUESTED

Senator ELLENDER. Before going into your capabilities on the various requests made to this committee, I will insert in the record the amendments requested by the Department of the Interior. I understand that these amendments ask the Senate to deny all House increases and restore only the House cut under "Construction and rehabilitation for allocation to National Park Service for Steamboat *Bertrand* salvage. In other words the Congress should not exercise any judgment on the requests made by the Department of the Interior.

(The amendments follow:)

BUREAU OF RECLAMATION

GENERAL INVESTIGATIONS

Appropriation, 1970	$16,930,000
Estimate, 1971	19,100,000
House allowance	19,000,000
Decrease requested	—200,000

Amendment requested:

Page 15, line 1, strike out "19,000,000" and insert in lieu thereof *$18,800,000*—a decrease of $200,000.

House report

GENERAL INVESTIGATIONS

"Appropriation, 1970	$16,930,000
Budget estimate, 1971	19,100,000
Recommended, 1971	19,000,000
Comparison:	
Appropriation, 1970	+2,070,000
Budget estimate, 1971	—100,000

"The committee's net reduction consists of an increase of $200,000 to initiate the first phase of the California Undersea Aqueduct study and a decrease of $300,000 made in the Atmospheric Water Resources Research Program. The allowance of $6,500,000, an increase of $1,467,000 over the 1970 program level, should provide for adequate expansion of the program in fiscal year 1971."

JUSTIFICATION

The reduction of $200,000 is requested in order that appropriations for plan formulation investigations may conform with the President's Budget as submitted. The reduction will eliminate the House proposal to initiate the first phase of the California Undersea Aqueduct study. The amount included in the Budget will allow for carrying out a balanced program of general investigations.

The President's fiscal year 1971 proposed program was carefully formulated within an overall climate of budgetary stringency to combat inflationary trends. Although important programs will be operating below desirable levels, the proposed overall program is well-balanced, and is designed to accommodate the most urgent Bureau priorities within a framework of reasonable allocation of resources.

BUREAU OF RECLAMATION

CONSTRUCTION AND REHABILITATION

Appropriation, 1970 (as amended)	$142,818,500
Budget estimate, 1971	171,678,000
House allowance	181,810,000
Reduction requested	—10,670,000

Amendments requested:

(1) Page 15, line 18, strike out "$181,810,000" and insert in lieu thereof *$171,140,000*—a decrease of $10,670,000.

(2) Page 16, lines 17 through 23, strike out the last proviso.

(3) Page 16, line 17, in lieu of present proviso, insert the following:

"*: Provided further, that of the amount herein appropriated not to exceed $140,000 may be used for archeological salvage of the cargo of the steamboat Bertrand in the Missouri River Basin.*"

House report

CONSTRUCTION AND REHABILITATION

"Appropriation, 1970 (as amended)	$142,818,500
Budget estimate, 1971 (as amended)	171,678,000
Recommended, 1971	181,810,000
Comparison:	
Appropriation, 1970	+38,991,500
Budget estimate, 1971	+10,132,000

"*Columbia Basin project, Washington.*—The committee has made a $300,000 reduction in the budget request of $500,000 to initiate designs and specifications for visitor facilities at the Grand Coulee Dam-Third Powerplant. The committee believes the present estimated cost of $6.7 million is excessive and requests that prior to the initiation of detailed design that the requirements for such a facility be restudied and a revised plan be submitted to the committee for its consideration in connection with next year's estimates.

"*Missouri River Basin project, transfer to the National Park Service.*—The committee has deleted the budget request to utilize $140,000 of the investigations funds for the Missouri River Basin to continue the salvage of the cargo of the steamboat *Bertrand.* Funds provided are restricted in the bill language to archeological work in the reservoir areas under study or development for water resources projects of the Missouri River Basin and, therefore, are not available for the proposed salvage work. The committee believes that such work should be budgeted under the appropriate appropriation item for the Bureau of Sport Fisheries and Wildlife or the National Park Service.

"In connection with any proposed transfers in fiscal year 1971 to other agencies of the Department of the Interior under the Missouri River Basin investigations program, the committee directs that the Bureau of Reclamation approve in advance any expenditure plans to assure the work is directly related and required in connection with its project investigations. The committee also directs that hereafter the various agencies in the Department make provision for their Missouri River Basin requirements in their regular budget estimates, in lieu of transfers from the Bureau of Reclamation, as the basic studies directly related to the projects in the Basin plan have been largely completed."

JUSTIFICATION

The proposed amendments:

(1) *Eliminate the increases over the President's Budget and the proviso on page 16 beginning with line 17 pertaining to Tumalo Irrigation District and the Westland Irrigation District.* The elimination of the increases are requested in order that appropriations may conform with the President's Budget as submitted. The amount included in the Budget will allow for carrying out a balanced program. The President's F. Y. 1971 proposed program was carefully formulated within an overall climate of budgetary stringency to combat inflationary trends. Although important programs will be operating below desirable levels, the proposed overall program is well-balanced, and is designed to accommodate the most urgent Bureau priorities within a framework of reasonable allocation of resources.

(2) *Restore the $140,000 reduction made by the House in the budget estimate for the Missouri River Basin Project, transfer to the National Park Service, for preservation of the cargo of the steamboat Bertrand and add language which will permit the use of funds for the preservation of the steamboat Bertrand cargo.* Preservation of the cargo of steamboat Bertrand is a joint project with the Bureau of Sport Fisheries and Wildlife and the National Park Service. The cargo from the steamboat Bertrand constitutes a unique national treasure. It was found to contain one of the most important collections ever to be excavated from a historic site. In April 1969, the Secretary of the Interior's Advisory Board on National Parks, Historic Sites, Buildings, and Monuments recognized the boat as having national historical significance. With this recognition, in conformance with the Historic Sites Act of 1935, every effort is being expended to insure that the historic value of the boat and its cargo is preserved for the benefit and enjoyment of the American public. Over two million items of textiles, fabrics, wood, leather, glass, iron and other metal objects, as well as bitters and canned or bottled food stuffs need cleaning and preservation.

The amount of $140,000 is needed for the Park Service in fiscal year 1971 to complete the cleaning and preservation of the remaining two-thirds of the textiles and fabrics while continuing to carry out experimental tests on the best methods of preserving the leather goods and some of the ferrous objects.

The Historic Sites Act of 1935 directs the Secretary of the Interior to "restore, reconstruct, rehabilitate, preserve and maintain historic or prehistoric sites, buildings, objects, and properties of national historical or archeological significance . . ." Since the Bertrand and its cargo have been declared to be of national significance by the Secretary of the Interior, and since it is the Secretary's responsibility under the terms of the Historic Sites Act to preserve such materials, work must continue on the artifacts.

Funds appropriated to the National Park Service in its Management and Protection appropriation for salvage projects outside the Missouri River Basin are not available for use in the Missouri River Basin because of language in the appropriation act which specifically excludes this work in the basin. Further, it is too late for consideration of this fund requirement in the Department of the Interior and Related Agencies Appropriation Bill for 1971.

According to the House Committee report on the Public Works Appropriation Bill, funds available to the Bureau of Reclamation and transferred to the National Park Service are not available for preserving artifacts from the Bertrand since the Bertrand is not a part of or a result of a reservoir activity.

In order that the responsibilities of the Secretary of the Interior and the National Park Service for this work may be met, an amendment is proposed to the language of the Bureau of Reclamation Construction and Rehabilitation appropriation to provide that within the total amount appropriated, $140,000 may be used for archeological salvage of the cargo of the steamboat Bertrand.

The restoration of the $140,000 requested and the language change will permit continuing in fiscal 1971 the preservation of these nationally significant historic objects.

All the changes requested by the foregoing amendments are listed below:

Item	Amended budget estimate, 1971	House allowance, 1971	Change requested	Appropriation requested, 1971
Chief Joseph Dam, Manson unit		$500,000	−$500,000	
Central Valley project, Westlands distribution system	$2,729,000	12,729,000	−10,000,000	$2,729,000
Rehabilitation and betterment:				
Tumalo Irrigation District		5,000	−5,000	
Westland Irrigation District		5,000	−5,000	
Palmetto Bend, advance planning		100,000	−100,000	
Missouri River Basin project:				
Nebraska midstate division, advance planning	200,000	400,000	−200,000	200,000
Other agencies: National Park Service	398,000	258,000	+140,000	398,000
All other items unchanged	168,351,000	167,813,000		167,813,000
Total	171,678,000	181,810,000	−10,670,000	171,140,000

Bureau of Reclamation

Upper Colorado River Storage Project

Appropriation, 1970	$28,240,000
Estimate, 1971	20,695,000
House allowance	21,260,000
Reduction requested	−565,000

Amendment requested:

Page 17, line 1, strike out "$21,260,000" and insert in lieu thereof *$20,695,000.*

Page 17, line 2, strike out "$20,455,000" and insert in lieu thereof *$19,890,000.*

House report

Appropriation, 1970	$28,240,000
Budget estimate, 1971 (as amended)	20,695,000
Recommended, 1971	21,260,000
Comparison:	
Appropriation, 1970	−6,980,000
Budget estimate, 1971	+565,000

JUSTIFICATION

The reduction of $635,000 is requested in order that appropriations may conform with the President's Budget as submitted. The amount included in the Budget will allow for carrying out a balanced program.

The President's fiscal year 1971 proposed program was carefully formulated within an overall climate of budgetary stringency to combat inflationary trends. Although important programs will be operating below desirable levels, the proposed overall program is well-balanced, and is designed to accommodate the most urgent Bureau priorities within a framework of reasonable allocation of resources.

Therefore, it is requested that the program be restored to the level proposed in the President's Budget for fiscal year 1971.

The changes requested are listed below:

Item	Amended budget estimate, 1971	House allowance, 1971	Change requested	Appropriation requested, 1971
Participating projects:				
Animas-LaPlata		$125,000	−$125,000	
Dallas Creek		100,000	−100,000	
Dolores		90,000	−90,000	
Savery-Pot Hook	$50,000	300,000	−250,000	$50,000
All other items unchanged	20,645,000	20,645,000		20,645,000
Total, UCRSP	20,695,000	21,260,000	−565,000	20,695,000

Bureau of Reclamation

COLORADO RIVER BASIN PROJECT

Appropriation, 1970 (including supplemental)	$7,763,000
Estimate, 1971	6,498,000
House allowance	7,698,000
Reduction requested	−1,200,000

Amendment requested:

Page 17, line 18 and 19, strike out "$7,698,000" and insert in lieu thereof the amended budget estimate, *$6,498,000*.

House report

Appropriation, 1970 (including supplemental)	$7,763,000
Budget estimate, 1971 (as amended)	6,498,000
Recommended, 1971	7,698,000
Comparison:	
Appropriation, 1970	−65,000
Budget estimate, 1971	+1,200,000

JUSTIFICATION

The reduction of $1,200,000 is requested in order that appropriations may conform with the President's Budget as submitted. The amount included in the Budget will allow for carrying out a balanced program.

The President's fiscal year 1971 proposed program was carefully formulated within an overall climate of budgetary stringency to combat inflationary trends. Although important programs will be operating below desirable levels, the proposed overall program is well-balanced, and is designed to accommodate the most urgent Bureau priorities within a framework of reasonable allocation of resources.

Therefore, it is requested that the program be restored to the level proposed in the President's budget for fiscal year 1971.

Bureau of Reclamation

LOAN PROGRAM

Appropriation, 1970	$5,650,000
Estimate, 1971	4,400,000
House allowance	8,550,000
Reduction requested	—4,150,000

Amendment requested:

Page 18, line 20, strike out "$8,550,000" and insert in lieu thereof *$4,400,000*, the budget estimate.

House report

"Appropriation, 1970	$5,650,000
Budget estimate, 1971	4,400,000
Recommended, 1971	8,550,000
Comparison:	
Appropriation, 1970	+2,900,000
Budget estimate, 1971	+4,150,000

"This appropriation provides for loans to non-Federal organizations for construction and rehabilitation of distribution systems and for loans and grants to construct small irrigation projects.

"The amount provided is required for continuation of loans on projects under construction and for the initiation of loans on six projects including three reflected in the budget estimate."

JUSTIFICATION

The reduction of $4,150,000 is requested in order that appropriations may conform with the President's budget as submitted. The amount included in the budget will allow for carrying out a balanced program.

The President's fiscal year 1971 proposed program was carefully formulated within an overall climate of budgetary stringency to combat inflationary trends. Although important programs will be operating below desirable levels, the proposed overall program is well-balanced, and is designed to accommodate the most urgent Bureau priorities within a framework of reasonable allocation of resources.

Therefore, it is requested that the program be restored to the level proposed in the President's budget for fiscal year 1971.

The amendment requested eliminates all the increases in the amount of $4,150,000 in the House allowance. The changes requested are listed below:

Item	Amended budget estimate, 1971	House allowance, 1971	Change requested	Appropriation requested, 1971
Buttonwillow Improvement District		$1,000,000	—$1,000,000	
Valley Center Municipal Water District		1,500,000	—1,500,000	
Arvin-Edison Water Storage District	$700,000	1,000,000	—300,000	$700,000
Feather Water District		200,000	—200,000	
Pioneer Water Co.		50,000	—50,000	
Haights Creek Irrigation Co., No. 2		500,000	—500,000	
Hidalgo and Willacy Counties Water Control and Improvement District		600,000	—600,000	
Santa Maria Water Control and Improvement District		200,000	—200,000	
Underfinancing		—200,000	+200,000	
All other items unchanged	3,700,000	3,700,000		3,700,000
Total, loan program	4,400,000	8,550,000	—4,150,000	4,400,000

CENTRAL VALLEY PROJECT, SACRAMENTO RIVER DIVISION—TEHAMA-COLUSA CANAL, RELATED FISH FACILITIES, AND DISTRIBUTION SYSTEMS

Senator ELLENDER. The budget request is $7,040,000 and the House allowance is the same. Local interests have requested $8,540,000 which is an increase of $1,500,000. What is your capability on this project?

Mr. ARMSTRONG. Mr. Chairman, we could use a total of $9,884,000 for this work, an increase of $2,844,000 above the budget.

Senator ELLENDER. What would be accomplished with the additional $2,844,000?

Mr. ARMSTRONG. The local interests have requested an increase of $1,500,000 to start construction on Thomes Creek siphon. We could also use an additional $1,344,000 to start reach 3 of the Tehama-Colusa Canal. Reach 2 is completed and reach 1 is under construction. After Thomes Creek siphon is completed, reaches 1 and 2 can be operational. The first delivery of canal water to irrigation customers is possible only upon completion of reach 3.

TEHAMA-COLUSA CANAL, OPPOSITION STATEMENT

Senator ELLENDER. Mr. Armstrong, Mrs. Thelma King has sent us a telegram which urged no appropriations for the Tehama-Colusa Canal. Have you had an opportunity to review the data she presented in the telegram?

Mr. ARMSTRONG. Yes, sir; we have read the telegram. The Bureau of Reclamation prepared a report in 1969 on the proposed Orland-Artois distribution system which would deliver water from the Tehama-Colusa Canal to the lands in the Orland-Artois Water District. This report showed a lack of repayment capability in certain areas of the district. Landowners within the district have been given the opportunity to request exclusion of their lands from the district.

As of this date, we have not received requests for deferment of distribution system repayment from the Proberta Water District and the Corning Water District.

CENTRAL VALLEY PROJECT, SAN LUIS UNIT—WESTLANDS DISTRIBUTION AND DRAINAGE SYSTEM

Senator ELLENDER. The budget request is $6,840,000, including the funds placed in budgetary reserve which have been released for work in fiscal year 1971, and the House allowance totaled $16,840,000. Local interests have requested $20,750,000 to allow a total program of $27,590,000. Your earlier testimony indicated a total capability of $20,040,000. Has this changed?

Mr. ARMSTRONG. Yes, Mr. Chairman, our capability has been reduced somewhat. We now find that a total of $18,925,000 for this work is more in line with the situation. This would be an increase of $12,085,000 above the budget.

Senator ELLENDER. What would be accomplished with the additional $12,085,000?

Mr. ARMSTRONG. The additional amount would be used to initiate additional construction contracts on the distribution and drainage system and procure water measuring devices. The request by the local interests would require a more aggressive program than we now find possible of achievement.

CENTRAL VALLEY PROJECT, SAN LUIS UNIT, PLEASANT VALLEY CANAL AND PUMPING PLANT (COALINGA)

Senator ELLENDER. The budget request for the San Luis Unit is $13,828,000, and the House has increased this to $23,828,000 to allow an additional $10 million for the Westlands Distribution and Drainage System. Local interests have requested $36,078,000 which includes a further increase of $1,500,000 for the Pleasant Valley Canal. Your earlier testimony agreed with this capability of $1,500,000. Has this changed?

Mr. ARMSTRONG. Yes, Mr. Chairman, we find it would not be possible to accomplish a $1,500,000 program and our capability is reduced to an increase of $900,000 above the budget.

Senator ELLENDER. What would be accomplished with the additional $900,000?

Mr. ARMSTRONG. The additional amount would be used to initiate the construction on the second and final section of the canal.

Senator ELLENDER. Could you initiate construction on the second and final section of the canal within the amount allowed by the House?

Mr. ARMSTRONG. Yes, Mr. Chairman, if the committee so directs. It would, of course, reduce the funding available for Westlands distribution system.

CENTRAL VALLEY PROJECT, CALIFORNIA, AUBURN-FOLSOM SOUTH UNIT, FOLSOM SOUTH CANAL

Senator ELLENDER. The budget request is $21,200,000 and the House allowance is the same. Local interests have requested $24,200,000. This includes $2 million additional for the Folsom South Canal and $1 million for Sugar Pine Dam and Reservoir. What is your capability on this project?

Mr. ARMSTRONG. Mr. Chairman, our capability in fiscal year 1971 on the Folsom South Canal is the amount provided in the budget. There is concern among the local interests that the bids will exceed the estimates on the canal. We understand that their request for an additional $2 million is to cover the possibilities of high bids. We expect to receive bids for the construction of the first section of the canal on July 9, 1970, and at that time we will have a better idea of the fund needs.

Senator ELLENDER. Will you advise the committee of the results of the bid opening?

Mr. ARMSTRONG. Yes, we will be glad to do that. Our capability on Sugar Pine Dam and Reservoir is $530,000 to complete acquisition of right-of-way, initiate construction of an access road to the damsite, and collect field data for the construction contract. There is nothing in the budget for this item.

Senator ELLENDER. Will you please submit a statement for the record?

(The statement follows).

Summarized Financial Data

Total estimated Federal cost	$5,674,000
Allocations to date	55,083
Balance to complete	5,619,000
Amount that could be utilized in fiscal year 1971	530,000

Authorization: September 2, 1965.

Location and Description: The Central Valley Project, Auburn-Folsom South Unit, Sugar Pine Reservoir, is located in the northeast central part of the Sacramento-San Joaquin Valley, state of California and will provide storage for 16,500 acre-feet.

Proposed Operations: The $530,000 could be effectively used to complete acquisition of right-of-way, initiate construction of an access road to the damsite and collect field data for construction of Sugar Pine dam and reservoir.

Justification: Construction of the Auburn Folsom South Unit, Sugar Pine Dam and Reservoir was authorized by P.L. 89–161 on September 2, 1965. The first contract for water was entered into with the Forest-Hill Divide, Public Utility District in February 1968. The District would obtain water deliveries from the Sugar Pine Dam and Reservoir which is to be constructed on North Shirt Tail Canyon Creek Approximately two years have elapsed since the District planned their water service contracts and no progress has been made to date. Local water users have shown disgust and have asked for congressional action. The District has agreed to purchase 4,400 acre-feet of water of which 2,000 acre-feet will be for municipal and industrial use, valued at $85.00 per acre-foot.

Central Valley Project, California—Contra Costa Canal Shortcut Pipeline and El Dorado Distribution System

Senator Ellender. The budget request for the other Central Valley project facilities is $2,020,000 which includes $850,000 placed in budgetary reserve to be released and made available for use in fiscal year 1971. The House allowance is the same as the budget. Local interests have requested an additional $850,000 for the shortcut pipeline and $230,000 for the El Dorado distribution system. What is your capability on this project?

Mr. Armstrong. Mr. Chairman, additional design studies are now underway on the shortcut pipeline to establish structure sizes. We anticipate that because of the time required to make this analysis it would not be possible to accelerate this work over the budget. A repayment contract is anticipated in November 1970. The local interests had hoped for an earlier construction start which is not now possible.

We could use a total of $200,000 for the El Dorado distribution system, an increase of $180,000 above the budget. The additional amount would be used for the design of a lateral system to be located in the Pleasant Oaks area. This would require an additional $116,000. An additional $64,000 would be for minor laterals extensions in the Diamond Spring area as requested by the irrigation district. The local interests assumed construction could be started in fiscal year 1971 on the Pleasant Oaks lateral system and they included an additional $50,000 in their capability for this purpose. We find that this is not possible and we have reduced the capability to $180,000.

Tualatin Project, Oreg. (Land Acquisition)

Senator Ellender. The budget is $1 million, and the House allowance is the same. Local interests have requested $2,100,000. What is your capability on this project?

Mr. ARMSTRONG. Mr. Chairman, we could use a total of $2,100,000 for this work, an increase of $1,100,000 above the budget.

Senator ELLENDER. What would be accomplished with the additional $1,100,000?

Mr. ARMSTRONG. The additional amount would provide $600,000 to acquire additional land and rights required for the dam and borrow area including improvements. The remaining $500,000 would complete the designs, issue specifications, and advance award of the contract for the construction of Scoggins Dam to May 1971.

PALMETTO BEND PROJECT, TEX.

Senator ELLENDER. The budget for fiscal year 1971 is limited to $200,000 placed in budgetary reserve to be released and made available in fiscal year 1971. Local interests have requested an additional $600,000 to allow a total program of $800,000. The House has increased the budget $100,000 to allow a total of $300,000. Your earlier testimony indicated a capability of $800,000. What would be done under the House allowance of $300,000, and what additional would you do with your total capability of $800,000?

Mr. ARMSTRONG. Mr. Chairman, $300,000 would be used to continue advance planning work and prepare construction designs and specifications for the Palmetto Dam. The additional $500,000 would allow the start of acquisition of right-of-way. Also, contracts would be executed for relocation of utilities in the reservoir area.

CHIEF JOSEPH DAM PROJECT, MANSON UNIT, WASH.

Senator ELLENDER. The budget for fiscal year 1971 is limited to $62,500 placed in budgetary reserve to be released and made available in fiscal year 1971. Local interests have requested an additional $500,000 and the House has included $500,000 to supplement the amount in budgetary reserve. What is your capability on this project?

Mr. ARMSTRONG. Mr. Chairman, our additional capability on the project is $500,000. This amount, together with the $62,500 available from fiscal year 1970 appropriations will provide a total program of $562,500, to initiate construction of the pumping plant and expedite preparation of design data for lateral system. This will allow the award of the contract for construction of the pumping plant to be advanced two months, to April 1971.

CHIEF JOSEPH DAM PROJECT, WHITESTONE COULEE UNIT, WASH.

Senator ELLENDER. The budget request is $370,000, and the House allowance is the same. Local interests have requested $870,000. What is your capability on this project?

Mr. ARMSTRONG. Mr. Chairman, we could use a total of $870,000 for this work, an increase of $500,000 above the budget.

Senator ELLENDER. What would be accomplished with the additional $500,000?

Mr. ARMSTRONG. The additional amount would be used for an award of the construction contract for the lateral system which would advance completion of the work and the availability of a dependable water

supply by 1 year. The project is essentially complete except for the distribution system.

Columbia Basin Project, Washington, Irrigation Facilities

Senator Ellender. The budget request is $78 million. The House allowance totaled $77,700,000 which includes a $300,000 reduction on the third powerplant tour center. Local interests have requested that $1,500,000 be added for additional work on the irrigation facilities. Your earlier testimony indicated a capability of $2,300,000 over the budget request. Has this changed?

Mr. Armstrong. No, sir, Mr. Chairman; our additional capability is still $2,300,000.

Senator Ellender. What would be accomplished with the additional $2,300,000?

Mr. Armstrong. The $1,500,000 total presented by the local interests includes $300,000 to advance the award of the contract on block 251 laterals from February 1971 to September 1970; $200,000 to complete designs and specifications in time to permit award of contract for construction of enlargement of the fourth section of East Low Canal area late in fiscal year 1971; and $1 million to expedite construction on drainage facilities. In addition, we could use $650,000 for acquisition of essential right-of-way required for disposal of excess water down Lower Crab Creek and controlling the level of Potholes reservoirs and $150,000 for preparation of designs and specifications and initiation of acquisition of rights-of-way for Esquatzel channel improvement.

Yakima Project, Kennewick Division Extension, Washington

Senator Ellender. There is nothing in the budget, local interests have requested $100,000, and the House included nothing.

What is your capability on this project.

Mr. Armstrong. Mr. Chairman, our capability on this project is $100,000 to initiate advance planning studies and collect final design data leading to preparation of the definite plan report. There is a need for about 2 years of advance planning at the $100,000 level before we could utilize a larger amount to initiate construction.

Senator Ellender. Would you submit a statement for the record?

Mr. Armstrong. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$6,735,000
Allocations to date	0
Balance to complete	6,735,000
Amount that could be utilized in fiscal year 1971	100,000

Authorization: August 25, 1969

Location and Description: The Yakima Project, Kennewick Division Extension, is located in the Lower Yakima Valley near the confluence of the Yakima and Columbia Rivers and provides for the addition of 6,300 irrigable acres to the Kennewick Division of the Yakima Project.

Proposed Operations: The $100,000 will initiate advance planning studies to refine the finding of the feasibility report and collect final design data leading to preparation of the definite plan report.

Justification: The plan of development provides for the addition of 6,300 acres to the Kennewick Division of the Yakima Project. This addition would involve

joint use of the Division's Chandler Power and Pumping Plant on the Yakima River and the main canal. Such use would fully utilize the extra capacity of these existing facilities that were authorized and constructed with the development of the Extension area mind.

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 are based on irrigated agriculture. The Kennewick Irrigation District has long been interested in full development of these lands as nearly all the Extension area has been in the District for many years.

The benefit-to-cost ratio for this project is 2.8

Middle Rio Grande Project

OPPOSITION STATEMENT

Senator Ellender. Mr. Armstrong, we have a statement from Mrs. Berna Johnston discussing the effects of the Middle Rio Grande water salvage program on the bee industry. Would you comment on this matter please.

Mr. Armstrong. Yes, sir; we have recently become aware of the situation and would like to put a statement in the record.

Middle Rio Grande Project

The United States Water Resources Council in its 1968 national assessment listed the Rio Grande as one of the most serious water short regions in the United States. The available water in the Rio Grande is not of sufficient quantity to meet the needs. Salt cedar consumptively uses a considerable amount of water that can be made available for other uses.

Public Law 858, 80th Congress, 2d Session, authorized construction of the Middle Rio Grande Project. This law directed the Bureau of Reclamation in conjunction with other interested Federal agencies to make studies to determine feasible ways and means of reducing nonbeneficial consumptive use of water by phreatophytes in the flood plains of the Rio Grande and its principal tributaries above Caballo Reservoir. Investigations to determine possible ways of salvaging water were initiated and a reconnassisance report completed in 1960. The reconnaissance report showed sufficient justification for continuing the investigations at feasibility grade level.

A total of 6,300 acres was cleared by contract at a cost of $288,990. The area has been maintained since that time at gradually lessening annual costs of
has been maintained since that time at gradually lessening annual costs of $51,000, $46,000, $26,000, and $24,000 per year for 1965, 1966, 1967, 1968, and 1969, respectively. It is estimated that 9,400 acre-feet of water per year are being salvaged by this work.

We appreciate the concern of representatives of the honey industry in this matter. Our Regional Director, Amarillo, Texas, is responsible for handling the details of the saltcedar control program in areas of the Middle Rio Grande Valley. We have requested him to contact persons associated with this industry to obtain data on the number of beekeepers that may be affected by our program, the value of honey production in the area, and other information that would assist in evaluating our saltcedar control activities.

DRAINAGE AND MINOR CONSTRUCTION

Washoe Project, Nevada-California

Senator Ellender. The budget request is $70,000, and the House allowance is the same. Local interests have requested $255,000. What is your capability on this project?

Mr. Armstrong. Mr. Chairman, we could use a total of $255,000 for this work, an increase of $185,000 above the budget.

Senator ELLENDER. What would be accomplished with the additional $185,000?

Mr. ARMSTRONG. The additional amount would be used to advance collection of design data on Marble Bluff Dam and Pyramid Lake fishway so that construction of these facilities could be started in the following year.

REHABILITATION AND BETTERMENT

SHOSHONE PROJECT, GARLAND DIVISION, WYOMING

Senator ELLENDER. There is nothing in the budget; local interests have requested $200,000 and the House included nothing.

What is your capability on this project?

Mr. ARMSTRONG. Mr. Chairman, our capability on this project is $200,000 to initiate rehabilitation and betterment work on this project.

Senator ELLENDER. Would you submit a statement for the record?

Mr. AMSTRONG. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost (first stage)	$6,000,000
Allocations to date	0
Balance to complete	6,000,000
Amount that could be utilized in fiscal year 1971	200,000

Authorization: February 10, 1904

Location and Description: The Shoshone Irrigation District, Garland division, is located on the north side of the Shoshone River surrounding the town of Powell, Wyoming, and contains 35,905 irrigable acres of land.

Proposed Operations: The $200,000 will allow construction to be initiated on the first stage of the division.

Justification: Construction was completed in 1918 and rehabilitation and betterment work is now planned to modernize features and facilities and to improve operating efficiencies to meet current economic conditions in agriculture. The proposed program will consist of concrete lining and installation of closed conduits for 145 miles of laterals and add new or replacement drainage features and water control structures. A repayment contract was executed with the irrigation district on March 21, 1969, for $2 million on the first stage. The contract will be amended from time-to-time (at 5-year intervals) to make provision for additional work up to the total of $6 million.

TUMALO IRRIGATION DISTRICT, OREGON

Senator ELLENDER. There is nothing in the budget and the House included $5,000. What is your capability on this project?

Mr. ARMSTRONG. Mr. Chairman, our capability on this project is $5,000 to provide funding to review the engineering designs and specifications work for the rehabilitation and betterment work that is needed on this system.

Senator ELLENDER. Would you submit a statement for the record?

Mr. ARMSTRONG. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$2,500,000
Allocations to date	0
Balance to complete	2,500,000
Amount that could be utilized in fiscal year 1971	5,000

Authorization: October 7, 1949, as amended, Rehabilitation and Betterment Act.

Location and description: The district, located near Bend, Oreg., is presently delivering water to about 7,300 acres. The irrigation system of the Tumalo Irrigation District was developed by private interests. Emergency rehabilitation of Crescent Lake dam by the Bureau of Reclamation was authorized in 1954 and reconstruction was completed in 1956 and now serves the Tumalo Irrigation District.

Proposed operations: The $5,000 would be utilized to make an investigation of the needs of the project and to develop a rehabilitation and betterment program. On the basis of preliminary information now available, it appears such a program covering only the most critical features would cost in the neighborhood of $2,500,000.

Justification: The irrigation facilities are in a badly deteriorated condition, however, and some of the works are approaching the end of their useful life. As a result, operation and maintenance costs are relatively high and the irrigation district is unable to finance needed improvements. In addition, water losses are high and the water savings that would result from a rehabilitation and betterment program would help relieve the shortages that occur almost every year.

Uncompahgre Project, Colorado

Senator Ellender. There is nothing in the budget, and the House has not included anything. What is your capability on this project?

Mr. Armstrong. Mr. Chairman, our capability on this project is $133,000, to move ahead on repairs to the Gunnison Tunnel which should be undertaken as soon as possible. The district needs $133,000 in fiscal year 1971 to begin the additional tunnel lining.

Senator Ellender. Would you submit a statement for the record?

Mr. Armstrong. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$1,500,000
Allocations to date	
Balance to complete	1,500,000
Amount that could be utilized in fiscal year 1971	133,000

Authorization: October 7, 1949, as amended, Rehabilitation and Betterment Act.

Location and description: This project is located in Delta, Mesa, Montrose, and Ouray Counties in Colorado. Construction work is underway to rehabilitate the tunnel lining for the Gunnison Tunnel which is a principal water delivery structure for this project.

Proposed operations: The $133,000 would be used to continue replacement of deteriorated portions of the Gunnison Tunnel lining.

Justification: The Uncompahgre Valley Water Users Association and the U.S. executed a contract March 16, 1966, which provided for replacement of 900 feet of Gunnison Tunnel lining, 13,000 lineal feet of tunnel invert, and the acquisition of tunnel lining equipment. This contract provided that the total cost would not exceed $1,000,000, and work under this contract is nearly complete.

As work progressed on the first contract, it was evident that the condition of the tunnel lining was considerably worse than foreseen. An inspection of this structure revealed that additional repairs are necessary. A new rehabilitation and betterment contract was then developed which increased the original amount $1.5 million for a total of $2.5 million and will cover the additional work. This additional $133,000 in fiscal year 1971 would allow this urgently needed repair work to be continued.

Westland Irrigation District, Oregon

Senator Ellender. There is nothing in the budget and the House included $5,000. What is your capability on this project?

Mr. ARMSTRONG. Mr. Chairman, our capability on this project is $5,000 to provide funding to review the engineering designs and specifications work for the rehabilitation and betterment work that is needed on this system.

Senator ELLENDER. Would you submit a statement for the record?

Mr. ARMSTRONG. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$6,200,000
Allocations to date	0
Balance to complete	6,200,000
Amount that could be utilized in fiscal year 1971	5,000

Authorization.—October 7, 1949, as amended, Rehabilitation and Betterment Act.

Location and description.—The Westland Irrigation District serves approximately 7,100 acres of land in the vicinity of Hermiston, Oregon. This service is provided through privately constructed distribution facilities which have been in use for an extended period of time. In 1925, the district entered into a contract with the United States for the purchase of stored water from McKay reservoir constructed by the Bureau. Because of the badly deteriorated condition of distribution facilities long in use, operation and maintenance costs represent a heavy financial burden for the water users and water losses are high.

Proposed operations.—The $5,000 would be utilized to make an investigation of the needs of the project and to develop a rehabilitation and betterment program. On the basis of preliminary information now available, it appears such a program covering only the most critical features would cost approximately $6.2 million.

Justification.—Rehabilitation of the most critical facilities is needed to reduce the operation and maintenance costs in order for the Westland Irrigation District to undertake an aggressive improvement program on the balance of the system. The water savings that would be realized from such a program would help relieve the serious water shortages that now plague the irrigators.

CONSTRUCTION AND REHABILITATION

MISSOURI RIVER BASIN PROJECT

NEBRASKA MID-STATE DIVISION, NEBRASKA

Senator ELLENDER. The budget request is $200,000, and the House has included $400,000. Local interests have requested this same amount. Your earlier testimony indicated a capability of $400,000. Has this changed?

Mr. ARMSTRONG. Mr. Chairman, we could still use a total of $400,000 for this work, an increase of $200,000 above the budget.

Senator ELLENDER. What would be accomplished with the additional $200,000?

Mr. ARMSTRONG. The additional amount would be used to advance hydrologic and geologic studies of groundwater movements in the project area. Also studies will be made of available sources and quantities of surface water and storage capacities required to control these water supplies.

GARRISON DIVERSION UNIT

Senator ELLENDER. The budget request is $11,100,000, and the House allowance is the same. Your earlier testimony stated you have additional capability of $2,630,000. Has this changed?

Mr. ARMSTRONG. No, sir; our additional capability remains the same for this work, an increase of $2,630,000 above the budget.

Senator ELLENDER. What would be accomplished with the additional $2,630,000?

Mr. ARMSTRONG. The additional amount would be used as follows: Start of construction on reach 1 of the McClusky Canal would be advanced from July 1971 to March 1971 and reach 2 from August 1971 to April 1971. Increased funds would also expedite studies on the Devils Lake and Stump Lake Canals and permit accelerating the right-of-way acquisition program. Land along the McClusky Canal required for both construction and fish and wildlife developments and land for the Lonetree Reservoir, New Rockford Canal, and Devils Lake area would be acquired. Early acquisition would permit present owners to reestablish themselves in an orderly manner.

Senator ELLENDER. We will have to go vote and we will be right back. (Short recess.)

MINOT EXTENSION, GARRISON DIVERSION UNIT, NORTH DAKOTA

AUTHORIZATION LEGISLATION

Summarized financial data:	
Total estimated Federal cost	$12,910,000
Allocation to date	----------
Balance to complete	12,910,000
Amount that could be utilized in fiscal year 1971	470,000

Authorization: Now under consideration by the Congress.

Location and description.—The Minot extension of the Garrison Diversion Unit will supply 22,953 acre-feet of Missouri River water from Garrison Diversion Unit facilities to meet long-term (year 2020) municipal and industrial water needs of the city of Minot and the Minot Air Base and for fish and wildlife enhancement and recreation purposes. The first phase of the development would provide an interim supply by pumping up to 6.0 million gallons of water per day from a ground-water supply in the Sundre aquifer until water is available from the Garrison Diversion Unit facilities.

Proposed operations.—The $470,000 would be used to intiate construction on the pumping plant and pipelines before the end of fiscal year 1971.

Justification.—Historically the city of Minot has been plagued by inadequate water supplies from wells and the Spuris River. Its population has grown 50 percent since 1950 and is expected to double by the year 2000. The Minot Air Force Base, a strategic national defense installation about 12 miles north of the city, and John Moses Hospital, an Air Force hospital within the city, are major water customers. The expected increase in population and water use, declining ground-water levels, and seasonal low flows of the Souris River have caused the city to seek a more adequate supply for its municipal, industrial, and contractual water needs.

The benefit-cost ratio is 1.9.

Senator ELLENDER. The subcommittee will come to order. Senator Young.

Senator YOUNG. Mr. Commissioner, as you know, the House Interior Committee held hearings yesterday on legislation to authorize the so-called Minot Extension of the Garrison diversion unit of the Missouri Basin project in North Dakota. Similar hearings are being held by the Senate Interior Committee this morning.

This legislation would authorize both an interim and permanent water supply for the city of Minot. One of the major justifications of the Garrison diversion irrigation project, in addition to providing water for irrigation, was to provide water for municipal and industrial use in North Dakota.

This project is entirely justified, is it not?

Mr. ARMSTRONG. Yes. It is needed to meet the immediate water-shortage problem.

BENEFIT-COST RATIO

Senator YOUNG. What is its benefit-to-cost ratio?

Mr. ARMSTRONG. 1.9 to 1.

CAPABILITY: PLANNING, DESIGN AND CONSTRUCTION START

Senator YOUNG. In the event that this project is authorized, and I am sure it will be, what is your capability for fiscal year 1971?

Mr. ARMSTRONG. In fiscal year 1971 we could expend $470,000 to get the planning underway, and the designs, and we could then start construction before the end of the fiscal year. This would initiate construction on the pumping plant and pipelines by the end of fiscal year 1971.

Senator YOUNG. Minot badly needs both the interim and the permanent water supply. Could you use construction funds in the fiscal year 1971?

Mr. ARMSTRONG. Part of the initial capability would be used for the initiation of construction of the pumping plant and pipelines.

Senator YOUNG. How much did you say you could use in fiscal year 1971?

Mr. ARMSTRONG. $470,000.

GARRISON DIVERSION UNIT

DEVILS LAKE AREA LAND ACQUISITION

Senator YOUNG. As you know, officials of the Garrison diversion conservancy district and county officials of Benson County have requested that the Bureau of Reclamation proceed immediately with land acquisition in the Devils Lake area. It is rather unusual when county officials request that the Federal Government acquire land, thereby taking it off the tax rolls.

This property will have to be acquired for the Garrison diversion irrigation project, will it not?

Mr. ARMSTRONG. Yes, sir.

Senator YOUNG. Do you have funds in your current budget for acquiring this property?

Mr. ARMSTRONG. No, not in the present budget.

Senator YOUNG. If it becomes desirable to acquire that land now do you have the necessary funds?

Mr. ARMSTRONG. There are a number of problems connected with the acquisition, and in connection with the rights tied to the meander line of the lake that need resolving. Funds could be used, to initiate a complex land acquisition program involving, ultimately, approximately $1¾ million for the Fish and Wildlife lands that are involved in the project. It would require an additional $100,000 above the budget request in fiscal year 1971.

Senator YOUNG. That would be your capability for fiscal year 1971?
Mr. ARMSTRONG. Yes.
Senator YOUNG. In light of constantly rising land prices, there would be a saving to the Federal Government in acquiring this property at the present time?
Mr. ARMSTRONG. This is very true.
Senator YOUNG. Thank you.

OAHE UNIT, SOUTH DAKOTA

Senator ELLENDER. The budget request is $500,000, and the House allowance is the same. Local interests have requested $850,000. Your earlier testimony agreed with this capability of $850,000. Has this changed?
Mr. ARMSTRONG. Mr. Chairman, we could still use a total of $850,000 for this work, an increase of $350,000 above the budget.
Senator ELLENDER. What would be accomplished with the additional $350,000?
Mr. ARMSTRONG. The additional amount would be used to start construction on the Oahe unit. A contract would be awarded for pumps and motors for the Oahe pumping plant and designs and specifications prepared for the pumping plant structure.

TRANSMISSION DIVISION

Senator ELLENDER. The revised budget request for this project was $6,616,000, and the House allowance is the same. We note that funds for the Great Falls-Browning 161-kilovolt transmission line were deleted from the budget in the amendments submitted by House document. Local interests have requested $1,584,000, and the House included nothing. What is your capability on this project?
Mr. ARMSTRONG. The fiscal year 1971 construction funds of $1,584,000 for the Great Falls-Browning 161-kilovolt transmission line were deleted from our original budget request after it appeared that transmission needs in the area could be met more economically by entering into a contract with the Montana Power Co. for use of an existing 115-kilovolt transmission line. The wheeling contract is being negotiated with the company, and we expect to execute the contract soon. We do not anticipate any need for construction funds in fiscal year 1971 for this transmission line.
Senator ELLENDER. Local interests have requested $150,000 for the Casper-Glendo South 115-kilovolt transmission line for which no funds are in the budget. What is your capability on this line?
Mr. ARMSTRONG. Mr. Chairman, we could use a total of $150,000 for this line.
Senator ELLENDER. What would be accomplished with the additional $150,000?
Mr. ARMSTRONG. The additional amount would be used for designs, specifications, and right-of-way on the transmission line.

STEAMER BERTRAND

Senator ELLENDER. Senator Hruska is very interested in restoring the House reduction in the budget estimate for the archeological work by the National Park Service on the steamer *Bertrand* and its contents.

Without objection I will insert at this point in the record a statement prepared by Senator Hruska.

(The statement follows:)

STATEMENT OF THE HONORABLE ROMAN L. HRUSKA, A U.S. SENATOR FROM NEBRASKA

Mr. Chairman, the purpose of this statement is to request the restoration by the House of $140,000 requested in the budget for the archeological work of the National Park Service on the sunken Missouri River steamer *Bertrand*, and on the amazing and fascinating collection of objects discovered in the boat.

The steamer *Bertrand* was a river steamer sunk in the Missouri 105 years ago and discovered last year with its cargo of contents virtually intact. The Subcommittee should not underestimate the extraordinarily wide interest that has been expressed by the general public in this find. The items of everyday use of our Grandfathers and great grandfathers—clothing items, canned goods, tools, boots, bottles of so-called bitters and all sorts of things—have attracted a tremendous amount of public attention.

It is described as one of the most important collections of items ever discovered at a single historic site. It would be embarassing in the extreme if these items are mishandled or permitted to decay under exposure to the air.

The work on recovering and preserving the vessel and its contents has been a joint project of the National Park Service and the Bureau of Sport Fisheries and Wildlife. Funds for the Bureau of Sport Fisheries and Wildlife were contained in the Interior Appropriations bill (H.R. 17619). Funds for the Park Service were requested to be included in the present bill as part of the appropriation under the heading Missouri River Basin Studies.

When it was sunk the *Bertrand* was on the Missouri River itself. The channel of the river has shifted slightly, and today the vessel lies within one-quarter mile of the current channel of the river, and therefore within the Missouri Basin.

The House Committee report provided that none of the investigations funds for the Missouri River Basin should be used outside of the reservoir areas that are under study, and this language has the effect of prohibiting use of this money on the archeological salvage of the *Bertrand*, which is not within any reservoir area under study. However, since the vessel is located within the Basin, it would seem that this fund is the best legitimate source to use for this purpose. Furthermore, it is too late to request funds for this item to be included in the Interior Appropriation bill, which has already been reported by this committee, and in addition, the Interior Appropriation bill specifically excludes the use in the Missouri River Basin of funds appropriated for archeological work by the National Park Service.

We should not permit this appropriation to be lost simply on the basis of a dispute as to which appropriation bill it should be included in. If there is a difference in views as to the proper appropriation bill for the item, it is hoped that this subcommittee will restore the item here so that we may discuss it later in conference if necessary and determine which of the appropriation bills should include the item.

Attached is material supplied to me by the Department describing the present status of work on the *Bertrand*, how much has been accomplished with funds previously given and what still needs to be done, and proposed amendatory language to the bill.

STATEMENT CONCERNING THE STEAMBOAT "BERTRAND"

The Steamboat "Bertrand" project has moved forward significantly since the fall of 1969. The vessel itself now rests under a protective layer of sand ten feet below the ground water level. In this state it is adequately protected, awaiting

further preservation when funds are made available. Backfilling of the excavation site was accomplished in early October 1969. By December all artifacts had been located under protective cover in refuge garages and maintenance buildings. The most fragile items have been undergoing treatment at the makeshift laboratory at the De Soto National Wildlife Refuge, and at the Midwest Archeological Research Center of the National Park Service in Lincoln, Nebraska.

Construction of the temporary laboratory/storage facility at De Soto Refuge began in early December. The building has been completed and equipment is being installed at this time. The laboratory should be operational by June 29. Mr. Roy Switzer, who is in charge of preservation work at the refuge, entered on duty March 2 and is now supervising the work of a small staff of preservation technicians.

Approximately 12 percent of the estimated 2,000,000 artifacts from the cargo of the "Bertrand" have been transferred to the National Park Service laboratory at Lincoln, Nebraska. This consists primarily of textiles and clothing. Approximately 40 percent of this will have been washed and treated with preservative by June 30. Some 10 percent of the remaining artifacts at De Soto will be treated by June 30. Most of the activity at the De Soto laboratory has consisted of cataloguing and other record keeping, together with testing of preservation techniques. Once the temporary treatment/storage building is equipped and occupied, this work should proceed at an accelerated pace.

Through May 31, 1970, in the Bureau of Sport Fisheries and Wildlife, $85,697 had been either spent or obligated through issuance of two contracts, (1) for a building, and (2) for associated interior appurtenances. An additional $1,303 is available to cover engineering inspections and contingencies through June 30, 1970. Through June 26, $30,950 has been obligated for operation and maintenance activities.

The National Park Service estimates its expenses for personal services and laboratory equipment in FY 1970 at $132,585 of which $95,000 was reimbursed from the Bureau of Sport Fisheries and Wildlife.

Of the $100,000 supplemental appropriation authorized for planning of the future disposition of the "Bertrand" and its cargo, $44,868 had been obligated through May 31, with an additional $44,132 available for continuing the planning effort.

The aim is to develop facilities at the De Soto Refuge which will provide an opportunity for the public to understand the relationships of their historical and wildlife heritages. Involved will be the "Bertrand" and its artifacts, the river, the wildlife, and the refuge itself.

Progress has been good. Methods for preserving and displaying the hull and its artifacts and for introducing the visitor to the wildlife and refuge concept have been examined and selected for further refinement. The public-use master-plan which is being developed will ensure a rich and rewarding experience for the million visitors expected annually, while permitting the refuge function to continue as in the past.

In fiscal year 1971, $74,000 is requested in the Management and Investigation of Resources appropriation for the purpose of furthering the artifacts preservation process, and for preparing information materials, interpretive exhibits, etc. The funds will also cover historical research on the vessel's activities. House action disallowed the estimate.

In fiscal year 1971, the National Park Service is requesting $140,000 for archeological studies in its Public Works appropriation, Missouri River Basin Studies, for the "Bertrand" work. These funds will provide a continuation of the artifact preservation work at De Soto Refuge and Lincoln, Nebraska. House action disallowed the estimate with the following comments:

Missouri River Basin project, transfer to the National Park Service.—The committee has deleted the budget request to utilize $140,000 of the investigations funds for the Missouri River Basin to continue the salvage of the cargo of the steamboat Bertrand. Funds provided are restricted in the bill language to archeological work in the reservoir areas under study or development for water resources projects of the Missouri River Basin and, therefore, are not available for the proposed salvage work. The committee believes that such work should be budgeted under the appropriate appropriation item for the Bureau of Sport Fisheries and Wildlife or the National Park Service.

In connection with any proposed transfers in fiscal year 1971 to other agencies of the Department of the Interior under the Missouri River Basin investigations program, the committee directs that the Bureau of Reclamation approve

in advance any expenditure plans to assure the work is directly related and required in connection with its project investigations. The committee also directs that thereafter the various agencies in the Department make provision for their Missouri River Basin requirements in their regular budget estimates, in lieu of transfers from the Bureau of Reclamation, as the basic studies directly related to the projects in the Basin plan have been largely completed.

AMENDMENT REQUESTED BY THE BUREAU OF RECLAMATION CONSTRUCTION AND REHABILITATION

Amendments requested:

(1) Page 15, line 18, strike out and insert in lieu thereof $171,140,000 an increase of $140,000 in the appropriation.

(2) Page 16, line 23, strike out period at end of line and insert in lieu thereof the following:

": Provided further, that of the amount herein appropriated not to exceed $140,000 may be used for archeological salvage of the cargo of the steamboat Bertrand in the Missouri River Basin."

HOUSE REPORT

"Missouri River Basin project, transfer to the National Park Service.—The committee has deleted the budget request to utilize $140,000 of the investigations funds for the Missouri River Basin to continue the salvage of the cargo of the steamboat *Bertrand*. Funds provided are restricted in the bill language to archeological work in the reservoir areas under study or development for water resources projects of the Missouri River Basin and, therefore, are not available for the proposed salvage work. The committee believes that such work should be budgeted under the appropriate appropriation item for the Bureau of Sport Fisheries and Wildlife or the National Park Service."

JUSTIFICATION

The proposed amendments restore the $140,000 reduction made by the House in the budget estimate for the Missouri River Basin project, transfer to the National Park Service, for preservation of the cargo of the Steamboat Bertrand and add language which will permit the use of these funds for this purpose.

This is a joint project with the Bureau of Sport Fisheries and Wildlife and the National Park Service. The cargo from the Steamboat Bertrand constitutes a unique national treasure. It was found to contain one of the most important collections ever to be excavated from a historic site. In April 1969, the Secretary of the Interior's Advisory Board on National Parks, Historic Sites, Bulidings, and Monuments recognized the boat as having national historical significance. With this recognition, in conformance with the Historic Sites Act of 1935, every effort is being expended to insure that the historic value of the boat and its cargo is preserved for the benefit and enjoyment of the American public. Over two million items of textiles, fabrics, wood, leather, glass, iron and other metal objects, as well as bitters and canned or bottled food stuffs need cleaning and preservation.

The amount of $140,000 is needed for the Park Service in fiscal year 1971 to complete the cleaning and preservation of the remaining two-thirds of the textiles and fabrics while continuing to carry out experimental tests on the best methods of preserving the leather goods and some of the ferrous objects.

The Historic Sites Act of 1935 directs the Secretary of the Interior to "restore, reconstruct, rehabilitate, preserve and maintain historic or prehistoric sites, buildings, objects, and properties of national historical or archeological significance. . . ." Since the Bertrand and its cargo have been declared to be of national significance by the Secretary of the Interior, and since it is the Secretary's responsibility under the terms of the Historic Sites Act to preserve such materials, work must continue on the artifacts.

Funds appropriated to the National Park Service in its Management and Protection appropriation for salvage projects outside the Missouri River Basin are not available for use in the Missouri River Basin because of language in the appropriation act which specifically excludes this work in the basin. Further, it is too late for consideration of this fund requirement in the Department of the Interior and Related Agencies Appropriation Bill for 1971.

According to the House Committee report on the Public Works Appropriation Bill, funds available to the Bureau of Reclamation and transferred to the

National Park Service are not available for preserving artifacts from the Bertrand since the Bertrand is not a part of or a result of a reservoir activity.

In order that the responsibilities of the Secretary of the Interior and the National Park Service for this work may be met, an amendment is proposed to the language of the Bureau of Reclamation Construction and Rehabilitation appropriation to provide that within the total amount appropriated, $140,000 may be used for archeological salvage of the cargo of the Steamboat Bertrand.

The restoration of the $140,000 requested and the language change will permit continuing in fiscal 1971 the preservation of these nationally significant historic objects.

NEED FOR RESTORATION

Senator ELLENDER. In view of the fact that you are asking the Senate to restore the House cut, I assume that you support the statement of Senator Hruska concerning the need for the funds requested in the budget.

Mr. ARMSTRONG. Yes, sir; we do.

UPPER COLORADO RIVER STORAGE PROJECT

CURECANTI UNIT, COLORADO

Senator ELLENDER. The budget request is $2,850,000 and the House allowance is the same. Local interests have requested an additional $700,000. Your earlier testimony indicated a capability of $700,000. Has this changed?

Mr. ARMSTRONG. Mr. Chairman, we could still use an additional $700,000 for this work which will allow a total of $3,550,000.

Senator ELLENDER. What would be accomplished with the additional $700,000?

Mr. ARMSTRONG. The additional amount would be used for the acquisition of flowage easements in connection with the damage caused by ice jam flooding in the Gunnison River.

The flooding occurs from the headwaters of the Blue Mesa Dam and Reservoir to the outskirts of Gunnison, Colo.

TRANSMISSION DIVISION, COLORADO-WYOMING

Senator ELLENDER. The revised budget request is $2,163,000 and the House allowance is the same. Local interests have requested an additional $410,000 for the Archer-Weld 230-kilovolt transmission division. Your earlier testimony indicated no need for additional capability in fiscal year 1971. Has this changed?

Mr. ARMSTRONG. Mr. Chairman, we believe the total of $2,163,000 as included in our budget will be adequate for fiscal year 1971. We have been delayed due to a service area dispute between power suppliers. This delay will not allow utilization of additional funds in fiscal year 1971.

ANIMAS-LA PLATA PARTICIPATING PROJECT, COLORADO-NEW MEXICO

PROJECT DESCRIPTION

Senator ALLOTT. Mr. Chairman, the Animas-La Plata project, in southwestern Colorado and northwestern New Mexico, would develop the flows of Animas and La Plata Rivers to provide irrigation water for 72,100 acres, of which 46,500 acres would receive a full supply and

25,600 acres would receive a supplemental supply. The project also would make available about 76,200 acre-feet of water annually for municipal and industrial use and for coal-fired electric powerplants which will utilize the area's valuable coal deposits. A dependable water supply is the most urgent need of the project area. Practically all of the land now being irrigated is in need of supplemental late season water than can only be provided by regulatory storage. A dependable water supply also is needed to meet the present and future needs of the communities in the area and to develop the vast coal deposits. By meeting these needs, the Animas-La Plata project will materially strengthen the local economy.

APPROVAL OF ACCEPTANCE OF CONTRIBUTED FUNDS

As representatives here are aware, last year in the Senate report accompanying the fiscal year 1970 public works appropriations bill, language was added to allow contributions of funds by the sponsor of the Animas-La Plata project. It is my understanding that $15,000 was available for contribution from various sources within the State of Colorado.

In order to clarify the record I would like to have some indication from representatives this morning as to the actual amounts required for appropriation to develop this $140,000 expenditure as proposed by the House. In other words, is the $15,000 previously contributed, to supplement this $140,000?

Mr. ARMSTRONG. Senator Allott, the House recommendation included $125,000 in appropriated funds, in addition to the $15,000 in contributions.

CAPABILITY

Senator ALLOTT. In connection with the decision of the House committee to increase the budget request for the Animas-La Plata project by $140,000. I would be very interested in knowing whether this amount represents your capability for this important project during the next fiscal year.

Mr. ARMSTRONG. Senator, the House allowance of $140,000 will allow a start on the advance planning program for this project. As we indicated during the regular hearings, we would use this money to start the work required in connection with the definite plan report. This would include topographic surveys, hydrology studies, land classification, drainage studies, and associated items.

A further review of the possibilities of a first-year program has indicated that we could award contracts for aerial mapping and surveys and for foundation drilling at the major structure sites. This would require an additional $100,000 and raise the total to $240,000, including the $15,000 contribution.

BOSTWICK PARK PARTICIPATING PROJECT, COLORADO

Senator ELLENDER. The budget request is $1,214,000, and the House allowance is the same. Your earlier testimony stated you have additional capability of $250,000.

Mr. ARMSTRONG. Mr. Chairman, we could use a total of $1,464,000 for this work, an increase of $250,000 above the budget.

Senator ELLENDER. What would be accomplished with the additional $250,000?

Mr. ARMSTRONG. The additional amount would be used to initiate construction on irrigation laterals and, as I stated, we would be able to complete this project 1 year earlier, in June 1972.

DALLAS CREEK PARTICIPATING PROJECT, COLORADO

Senator ELLENDER. The budget for fiscal year 1971 is limited to the $130,000 placed in budgetary reserve to be released and made available in fiscal year 1971. Local interests have requested an additional $100,000 and the House has included this additional amount. Your earlier testimony agreed with this additional capability of $100,000. Has this changed?

Mr. ARMSTRONG. Mr. Chairman, our additional capability on this project is still $100,000. This amount together with the $130,000 available from fiscal year 1970 appropriations will provide a total program of $230,000 to initiate advance planning studies and expedite the site selection for Ridgeway dam. The additional amount would also be used to resolve any hardship right-of-way problems which the selection of a damsite may cause.

DOLORES PARTICIPATING PROJECT, COLORADO

Senator ELLENDER. The budget for fiscal year 1971 is limited to the $110,000 placed in budgetary reserve to be released and made available in fiscal year 1971. Local interests have requested an additional $100,000 and the House has included $90,000. Your earlier testimony indicated no additional capability needed in fiscal year 1971. Has this changed?

Mr. ARMSTRONG. Yes, Mr. Chairman, it would be possible to use an additional $90,000 on this project in fiscal year 1971. This amount together with $110,000 available from fiscal year 1970 appropriations will provide a total program of $200,000 to initiate advance planning studies. The definite plan report is expected to be completed in 1973. With these additional funds, the report could be advanced from June 1973 to December 1972.

SAN JUAN-CHAMA PARTICIPATING PROJECT, COLORADO-MEXICO

Senator ELLENDER. The budget request is $1,272,000 and the House allowance is the same. Local interests have requested $1,747,000. What is your capability on this project?

Mr. ARMSTRONG. Mr. Chairman, we could use a total of $1,747,000 for this work, an increase of $475,000 above the budget.

Senator ELLENDER. What would be accomplished with the additional $475,000?

Mr. ARMSTRONG. The additional amount would be used to perform preconstruction investigations in the Taos and Cerro Tributary irrigation unit areas.

Investigations have concluded that one damsite on the Taos unit and the damsite on the Cerro unit were infeasible in that the resulting reservoirs would not be capable of storing surface water. There is a strong possibility that wells in the ground water reservoirs can be used as a substitute for the surface storage. Therefore, several tests will be

necessary in each unit to properly assess potential ground water development.

This investigation work will consist of drilling about 12 wells in the Taos unit area and six in the Cerro unit area.

San Miguel Participating Project, Colorado

Senator Ellender. There is nothing in the budget, local interests have requested $100,000 and the House included nothing. What is your capability on this project?

Mr. Armstrong. Mr. Chairman, our capability on this project is $50,000 to initiate advance planning studies. Availability of these funds would allow us to schedule completion of the definite plan report in 1975.

Senator Ellender. Would you submit a statement for the record?

Mr. Armstrong. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$73,140,100
Allocations to date	0
Balance to complete	73,140,000
Amount that could be utilized in fiscal year 1971	50,000

Authorization.—Public Law 90-537, September 30, 1968.

Location and Description.—The San Miguel participating project is located in Montrose and San Miguel counties of southwestern Colorado. This is a multipurpose project which will provide directly a full water supply for the irrigation of 26,420 acres and a supplemental supply for 12,530 acres. The project will also provide municipal and industrial water supplies, fish and wildlife, recreation, and flood control benefits.

Proposed Operations.—The $50,000 will allow initiation of advance planning studies. Availability of these funds would allow completion of the definite plan report in 1975.

Justification.—There is a need in the project area for new agricultural development which would create new settlement opportunities in this area. Interest has been shown in development of a municipal and industrial water supply to stabilize and expand present operations in the coal reserves of the area, and establishment of a wood pulp or pulp-paper mill to utilize the products derived from the nearby forest. Development of potash reserves and the use of water in secondary oil and gas operations represent other potential water needs. Recreation facilities at project reservoirs would help to meet the increasing needs of the ever-growing tourist trade in the project area.

Savery-Pot Hook Participating Project

Senator Ellender. The budget request is $50,000, and the House allowance is $300,000. Your earlier testimony stated you have a capability of $350,000. Has this changed?

Mr. Armstrong. No, sir; we can use a total of $350,000 for this work, an increase of $300,000 above the budget.

Senator Ellender. What would be accomplished with the additional $300,000?

Mr. Armstrong. The additional amount would be used to advance the preconstruction work necessary and initiate the purchase of rights-of-way for Pot Hook Dam. The additional $50,000 above the request by the local interests will allow a more aggressive right-of-way acquisition program.

West Divide Participating Project, Colorado

Senator Ellender. There is nothing in the budget. Local interests have requested $100,000, and the House included nothing. What is your capability on this project?

Mr. Armstrong. Mr. Chairman, our capability on this project is $125,000 to initiate advance planning studies. Availability of these funds would allow us to schedule completion of the definite plan report in 1974.

Senator Ellender. Would you submit a statement for the record?

Mr. Armstrong. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$106,580,000
Allocations to date	0
Balance to complete	106,580,000
Additional amount that could be utilized in fiscal year 1971	125,000

Authorization.—Public Law 90-537, September 30, 1968.

Location and description.—The West Divide Participating project is located in Mesa, Garfield and Pitkin counties of west central Colorado. This is a multipurpose project which will provide directly a full water supply for the irrigation of 18,890 acres and a supplemental supply for 12,530 acres. The project will also provide municipal and industrial water supplies, fish and wildlife, recreation, and flood control benefits.

Proposed operations.—The $125,000 will allow initiation of advance planning studies. Availability of these funds would allow completion of the definite plan report in 1974.

Justification.—Recent decreases in grazing permits on public lands have aggravated the agricultural problems and forced farmers to reduce livestock herds, and sell or abandon their farms. An increased supply of irrigation water made dependable by reservoir storage would alleviate these farm problems and provide a basis for an expanded and more prosperous agricultural economy. A need exists for municipal and industrial water supply in connection with oil shale potentialities. Commercial processing of oil shale would support an influx of industrial workers and their families in the area. M&I water is also urgently needed to support suburban and recreation expansion in the eastern portion of the project.

Central Utah Participating Project, Upalco Unit, Utah

Senator Ellender. There is nothing in the budget, local interests have requested $500,000 and the House included nothing.

What is your capability on this project?

Mr. Armstrong. Mr. Chairman, our capability on this project is $500,000 to initiate construction of Taskeech Dam, begin acquisition of right-of-way, and construction of a field laboratory. These funds would allow negotiations to be completed with the Ute Indian Tribe for joint participation in the project and execution of the repayment contract with the Central Utah Water Conservancy District. Initial delivery date of project water could be scheduled for the spring of 1975.

Senator Ellender. Would you submit a statement for the record?

Mr. Armstrong. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$18,709,000
Allocations to date	1,116,616
Balance to complete	17,592,384
Amount that could be utilized in fiscal year 1971	500,000

Authorization.—Public Law 84–485, April 11, 1956.

Location and 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 27,500 acres of non-Indian lands and 15,100 acres of Indian lands. Recreation and fish and wildlife and flood control benefits will also result from the project.

Proposed operations.—The $500,000 will allow the initiation of construction of Taskeech Dam. This includes collection of design data, issuance of specifications and award of a contract for construction of a project field laboratory; and acquisition of right-of-way. Also, these funds would allow the completion of negotiations with the Ute Indian Tribe for joint participation in the project and the execution of the repayment contract with Central Utah Water Conservancy District. The initial delivery date of project water could be scheduled for the spring of 1975 with the availability of these additional funds in F. Y. 1971.

Justification.—The principal purpose of the Upalco unit is to provide a supplemental water supply for 42,600 acres of presently irrigated land. That land for the most part is being irrigated by diversion of natural flows from several streams in the area. During the latter part of the irrigation season, the natural flow is far from adequate for maturing the crops. Reservoirs are needed to control and conserve the limited water to assure a late season supply. This would materially strengthen the local economy.

Lyman Participating Project, Wyoming

Senator Ellender. The budget request is $1,453,000, and the budget request and the House allowance are the same. Local interests have requested an additional $600,000 for China Meadows Dam and Reservoir. What is your capability on this project?

Mr. Armstrong. Mr. Chairman, we could use a total of $2,153,000 for this work, an increase of $700,000 above the budget.

Senator Ellender. What would be accomplished with the additional $700,000?

Mr. Armstrong. The additional amount would be used to complete work on the specifications and award a construction contract for China Meadows Dam. This would allow a continuity of construction on the project so that it could be completed at the most economical rate. We feel the additional $100,000 between our capability and that of the local interests represents additional earnings on the contract under a more aggressive schedule.

Recreational and Fish and Wildlife Facilities

Bureau of Sport Fisheries and Wildlife

Senator Ellender. The budget request is $227,000. Local interests have requested a total of $1,580,000. What is your capability on this project?

Mr. Armstrong. Mr. Chairman, we could use a total of $1,580,000 for this work, an increase of $1,353,000 above the budget.

Senator Ellender. What would be accomplished with the additional $673,000?

Mr. Armstrong. The additional amount would be used as follows:

Curecanti Unit, Colorado

Hotchkiss National Fish Hatchery $22,025

Funds are needed for design and preparation of bid specifications for water treatment and recirculation system at Corey site to meet water quality standards.

Flaming Gorge Unit, Wyoming-Utah

Land acquisition for big game and waterfowl $290,000

Funds in fiscal year 1971 would permit the purchase of private lands as originally contemplated for big game and waterfowl purposes. Increasing land prices in the area will probably make the purchases infeasible if acquisition is postponed for too long a period.

Glen Canyon Unit, Arizona-Utah

Big-Game range development planning $10,000

The Utah State Division of Fish and Game has conducted preliminary studies on the possibility of developing bighorn sheep herds within the project area. The funds will permit development of detailed management recommendations and cost estimates and a determination of those areas within the National Recreation Area that will lend themselves to improving the status of this uncommon big-game species, which has been adversely affected by the project.

Central Utah Project, Bonneville Unit, Utah

Fishery study and development, Utah Lake $11,400

Funds are needed to commence a 2-year study to determine specific developments to mitigate losses of valuable channel catfish spawning areas that will occur with the diking of Goshen and Provo Bays.

Starvation Reservoir big-game land acquisition ..... [1] $33,800

[1] Represents net addition to total program.

Due to increased land costs, additional funds are needed to acquire and develop 1,280 acres of private land adjacent to the reservoir.

Emery County Project, Utah

Reservoir stabilization, Seely and Cottonwood Creeks $230,000

Funds will be used to rehabilitate seven existing private storage reservoirs to Forest Service standards for fishing and recreation. Irrigation storage was transferred to Joes Valley Reservoir.

Hammond Project, New Mexico

Waterfowl area land acquisition $47,775

Funds needed to complete purchase of lands for operational management unit of 800 to 900 acres. Land purchase will permit New Mexico Department to proceed with detailed plans for development.

San Juan-Chama project, Colorado and New Mexico

Reservoir fishery investigation $18,000

Water storage in Heron Reservoir is expected to begin late in calendar year 1970. Funds are needed to begin a coincident three-year study to recognize nongame fish problems, to collect basic limnological data, and formulate management measures.

Seedskadee Project, Wyoming

Carp barrier above Fontenelle Reservoir $390,000

Funds in the amount of $390,000 in fiscal year 1971 would permit early construction of the carp barrier above Fontenelle Reservoir so as to prevent the displacement of the outstanding trout fishery in the Green River above the reservoir by a low-quality carp fishery. With construction costs increasing at about 10 percent a year, early completion of the project would represent an economic savings.

Jones Hole National Fish Hatchery, Utah	$300,000
Additional funds are needed for:	
Station roads and parking facilities	125,000
Seal coat, stripe, and safety signs for present access road	65,000
Emergency snow removal equipment and other hatchery equipment	105,000
Landscaping	5,000
Total increase	673,000

Colorado River Basin Project

Central Arizona Project

Senator Ellender. The budget request is $650,000 for advance planning on the central Arizona project and the House allowance has included an additional $1,200,000. What is your capability on this project?

Mr. Armstrong. Mr. Chairman, our additional capability is $1,200,000. This amount, together with $650,000 in the budget plus $200,000 available from fiscal year 1970 appropriations will provide a total program of $2,050,000. This program would allow an initial construction contract to be awarded. This initial contract would cover excavation of the inlet channel from Lake Havasu to the site of the Havasu pumping plant.

Dixie Project, Utah

Senator Ellender. The budget request is $100,000, and the House allowance is the same. Local interests have requested $500,000. What is your capability on this project?

Mr. Armstrong. Our capability on this project is $500,000, Mr. Chairman.

Senator Ellender. What would be accomplished with the additional $400,000?

Mr. Armstrong. The additional amount would provide for the issuance of specifications and award of a construction contract for access roads late in the fiscal year. Preconstruction work would be expedited on the Virgin River Dam with issuance of specifications in fiscal year 1972.

LOAN PROGRAM

Arvin-Edison Water Storage District, California

Senator Ellender. The budget request is $700,000, and the House has increased this to $1 million. Local interests have requested the same amount. What is your capability on this project?

Mr. Armstrong. Mr. Chairman, we could use a total of $1 million for this work, an increase of $300,000 above the budget.

Senator Ellender. What would be accomplished with the additional $300,000?

Mr. Armstrong. The additional amount would be used to complete construction of additional wells and installation of pumps and motors, manifold system, and power distribution.

Feather Water District

Senator Ellender. There is nothing in the budget and the House included $200,000. What is your capability on this project?

Mr. Armstrong. Mr. Chairman, our capability on this project is $200,000 to complete the drainage system.

West San Bernardino County Water District, California

Senator Ellender. The budget request is $703,000, and the House allowance is the same. Local interests have requested an additional $197,000 for a total of $900,000. What is your capability on this project?

Mr. Armstrong. Mr. Chairman, we could use a total of $1,603,000 for this work, an increase of $900,000 above the budget.

Senator Ellender. What would be accomplished with the additional $900,000?

Mr. Armstrong. The additional amount would allow the water district to award new contracts for installing urgently needed pipelines to replace leaky and undersized conduits, and allow construction to proceed at a more economical rate. The additional $703,000 capability above that of the local interests will allow a more aggressive construction schedule. With these additional funds it would be possible to cut a year off the construction period and finish in 1973.

Buttonwillow Improvement District, California

Senator Ellender. I have a question that Senator Murphy of California submitted to me expressing his interest in the Buttonwillow Improvement District. The Senator asked what is your capability on this project?

Mr. Armstrong. Mr. Chairman, our additional capability in fiscal year 1971, as indicated in the regular testimony, is $1 million.

Valley Center Municipal Water District, California

Senator Ellender. The budget for fiscal year 1971 is limited to $200,000 placed in budgetary reserve to be released and made available in fiscal year 1971. Local interests have requested an additional $1,300,000. The House included $1,500,000, for a total program of $1,700,000. Your earlier testimony agreed with this capability of $1,700,000. Has this changed?

Mr. Armstrong. Mr. Chairman, our additional capability on this project is still $1,500,000. This amount, together with the $200,000 available from fiscal year 1970 appropriations, will provide a total program of $1,700,000. This would be used to review designs and specifications and initiate a construction contract by the district early in fiscal year 1971. With this earlier start, first year contractor earnings will be greater than the later start planned in the budget. The difference of $200,000 between the Bureau capability and that of the district represents a more aggressive program.

Pioneer Water Co., California

Senator Ellender. There is nothing in the budget; local interests have requested $50,000 and the House has included $50,000. What is your capability on this project?

Mr. Armstrong. Mr. Chairman, our capability on this project is $50,000 to begin final designs and initiate construction of distribution mains. The loan application was approved October 7, 1969, and the estimated contract approval date is August 1970, with execution in September and validation by October 1970.

Senator Ellender. Would you submit a statement for the record?

Mr. Armstrong. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$414,000
Allocations to date	0
Balance to complete	414,000
Amount that could be utilized in fiscal year 1971	50,000

Authorization.—Public Law 984, 84th Congress (70 Stat. 1044).

Location and Description.—The Pioneer Water Company loan project is located in Tulare county, near Porterville, California. This loan will replace the present open ditch irrigation system with concrete pipe.

Proposed Operations.—An amount of $50,000 would allow initiation of final designs and construction of distribution mains. The loan application was approved October 7, 1969, and the estimated contract approval date is August 1970, with execution in September and validation by October 1970.

Justification.—Replacement of the open-ditch system to concrete pipe would conserve valuable water supplies lost to evaporation, seepage, vegetation, and uncontrollable spills. A concrete pipe system will allow enhancement of the local area and eliminate a hazard to safety.

Yolo County Flood Control and Water Conservation District, California

Senator Ellender. There is nothing in the budget, local interests have requested $200,000 and the House included nothing.

What is your capability on this project?

Mr. Armstrong. Mr. Chairman, our capability on this project is $200,000 to prepare final designs and initiate construction. The loan application is currently under final review with contract approval expected early in 1971.

Senator Ellender. Would you submit a statement for the record?

Mr. Armstrong. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$4,524,000
Allocations to date	0
Balance to complete	4,524,000
Amount that could be utilized in fiscal year 1917	200,000

Authorization.—Public Law 984, 84th Congress (70 Stat. 1044).

Location and Description.—This project is locate in the Sacramento River Valley in Yolo County northeast of the city of Winters. The primary works consists of the construction of Indian Valley Dam and Reservoir on the north fork of Cache Creek.

Proposed Operations.—The $200,000 would allow preparation of final designs and initiation of construction. The loan application is currently under review and contract approval is expected early in 1971.

Justification.—Ground-water levels in the service area are declining as natural recharge is not adequate to offset the pumping required for irrigation of project lands. Also, the surface water flow of Cache Creek which is diverted for irrigation is very erratic. Without supplemental storage such as would be provided by Indian Valley Dam and Reservoir, a series of dry years could seriously lower ground-water levels, impair irrigated crop production, and necessitate additional farm expenditures through increased pumping systems. Construction of the project would permit a coordinated utilization of surface and groundwater supplies and improve th eoverall efficiency of the irrigation system.

Hidalgo and Willacy Counties Water Control and Improvement District No. 1, Texas

Senator Ellender. The budget for fiscal year 1971 is limited to the $400,000 placed in budgetary reserve to be released and made available in fiisical year 1971. Local interests have requested an additional $400,000 and the House has increased the request by $600,000 to allow a total program of $1 million. Your earliest testimony indicated no additional capability. Has this changed?

Mr. Armstrong. Mr. Chairman, the District has advised that they could use an additional $600,000 in fiscal year 1971. This amount, together with the $400,000 available from fiscal year 1970 appropriations, would provide a total program of $1 million to start rehabilitation work under the loan project. Completion of the project would be advanced by about 6 months.

Santa Maria Water Control and Improvement District, Cameron County No. 4, Texas

Senator Ellender. There is nothing in the budget, local interests have requested $727,000 and the House has included $200,000. What is your capability on this project?

Mr. Armstrong. Mr. Chairman, our capability on this project is $200,000 to initiate rehabilitation work on this loan project. The district has requested the full amount of the loan. We feel that a 2-year program is more realistic.

Senator Ellender. Would you submit a statement for the record?

Mr. Armstrong. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$723,303
Allocation to date	0
Balance to complete	723,303
Amount that could be utilized in fiscal year 1970	200,000

Authorization.—Public Law 984, 84th Congress (70 Stat. 1044).

Location and Description.—This project is located in the Lower Rio Grande Valley in Cameron County, Texas. The district plans to rehabilitate its existing irrigation and drainage systems which serve about 4,100 acres. The principal work includes: improvements of the pumping plant; rehabilitation of canals, laterals, drains, pump house and office building; provision for water measurement and maintenance equipment.

Proposed Operations.—The $200,000 would be used to initiate rehabilitation work on this loan project.

Justification.—The Santa Maria Water Control and Improvement District is needed to permit the District to rehabilitate its existing irrigation and drainage

systems which serve about 4,100 acres. The irrigation system suffered extensive damage from hurricane Beulah in 1967. That damage, coupled with the deteriorated condition of the system, results in the need for rehabilitation. As a result of the rehabilitation work, water loss through seepage, the weed seed content of the irrigation water, the period of time to irrigate all lands in the District, and maintenance costs on canals and laterals will all be greatly reduced.

Haight's Creek Irrigation Co. Loan No. 2, Utah

Senator Ellender. There is nothing in the budget, local interests have requested $500,000 and the House has included $500,000. What is your capability on this project?

Mr. Armstrong. Mr. Chairman, our capability on this project is $500,000 to initiate construction. The repayment contract has been signed, and the company is ready to start construction upon availability of funds.

Senator Ellender. Would you submit a statement for the record?

Mr. Armstrong. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$713,000
Allocations to date	0
Balance to complete	713,000
Amount that could be utilized in fiscal year 1971	500,000

Authorization.—Public Law 984, 84th Congress (70 Stat. 1044).

Location and Description.—This project is located in the vicinity of Kaysville, Davis County, Utah. The company proposes to construct a pressure distribution system to serve the balance of the company's service area of 1,437 acres of land.

Proposed Operations.—The $500,000 would allow initiation of construction. The repayment contract has been signed, and the company is ready to start construction upon availability of funds.

Justification.—The Haight's Creek Irrigation Company loan No. 2 is needed to replace an existing gravity system with a high pressure distribution pipeline system. Valuable water supplies now lost to evaporation, transpiration, and seepage will be saved to serve more efficiently the irrigation company's requirements.

Roy Water Conservancy Subdistrict, Utah

Senator Ellender. There is nothing in the budget, local interests have requested $500,000 and the House included nothing. What is your capability on this project?

Mr. Armstrong. Mr. Chairman, our capability on this project is $500,000 to initiate construction. The loan application was submitted on March 30, 1970. There is sufficient time this calendar year for approval of the loan application, completion of the 60-day waitiing period before Congress, and for negotiation and execution of a repayment contract.

Senator Ellender. Would you submit a statement for the record?

Mr. Armstrong. Yes, sir.

(The statement follows:)

Summarized financial data

Total estimated Federal cost	$4,761,000
Allocation to date	0
Balance to complete	4,761,000
Amount that could be utilized in fiscal year 1971	500,000

Authorization.—Public Law 984, 84th Congress (70 Stat. 1044)

Location and Description.—The subdistrict is located in Roy and Weber counties, Utah. The loan will enable construction of a pressure distribution system to replace an open-ditch system serving 2,605 acres of irrigated land and 870 acres devoted to residential and community purposes.

Proposed Operations.—The $500,000 would allow start of construction and speed completion of the project. The loan application was submitted on March 30, 1970 for review. There is sufficient time this calendar year for approval of the loan application, completion of the 60-day waiting period before Congress, and negotiation and execution of a repayment contract. The company engineers would prepare, and obtain Bureau approval of construction plans and specifications during the 1970–71 winter months so that a construction contract award could be made in the early spring of F.Y. 1971.

Justification.—The purpose of this project is to provide a pressure irrigation service system for 3,475 acres including 2,605 acres presently used for irrigation, and 870 acres used for residential and community purposes. The project area is currently irrigated by conventional gravity methods and would replaced by a pressure irrigation system.

Senator ELLENDER. Thank you, Commissioner Armstrong.

We will now consider the Federal Water Quality Administration. The principal witness will be Assistant Secretary Klein.

STATEMENT OF CARL L. KLEIN, ASSISTANT SECRETARY, WATER QUALITY AND RESEARCH

ACCOMPANIED BY:
EUGENE T. JENSEN, ASSISTANT COMMISSIONER FOR OPERATIONS, FWQA
MATTHEW PILZYS, BUDGET OFFICER, FWQA

AMENDMENT REQUESTED BY DEPARTMENT OF THE INTERIOR

Senator ELLENDER. I will insert at this point in the record, the amendment requested by the Department of the Interior:

FEDERAL WATER QUALITY ADMINISTRATION CONSTRUCTION GRANTS FOR WASTE TREATMENT WORKS

(House Hearings, part 3, pages 1–249)

(Senate Hearings, pp. 53–242)

Appropriation 1970	$800,000,000
Estimate	4,000,000,000
House allowance	1,000,000,000
Reduction requested	1,000,000,000

(P. 14, lines 1 through 13)

Amendment requested:

Page 14, lines 1 through 13, strike out entire "Construction Grants for Waste Treatment Works" language.

HOUSE REPORT

"Appropriation, 1970	$800,000,000
Budget estimate 1971 (contract authority)	1,000,000,000
Recommended, 1971 (direct appropriation)	−1,000,000,000
Comparison:	
Appropriation, 1970	+200,000,000
Budget estimate, 1971	

"The appropriation of $1 billion recommended by the committee, together with estimated carryover unobligated balances of $440 million will provide a total grant program of $1,444 million for construction of waste treatment works, as authorized by the Clean Water Restoration Act of 1966, to abate water pollution problems.

"As discussed in detail above beginning on page 10, the budget proposed, in lieu of a direct appropriation under the remaining existing authority, a new legislative proposal which would provide a $4 billion contract authority to the Secretary of Interior to be obligated over 4 years at the rate of $1 billion a year. To assure continuity of the current grant program, the committee has recommended continuation of the direct appropriation method of financing in the bill pending consideration of the new legislative proposal by the Congress.

"The committee has also recommended, as a stop gap interim measure, that $200 million of the new appropriation be allocated on the basis of eligibility for reimbursement under section 8(c) of the act and need as evidenced by the current backlog of applications. It is believed that this will help alleviate the current problem stemming from the present allocation formula which allocates the grant funds to States based primarily on population regardless of need or the ability of the States to utilize the funds. The committee has also included language in

the bill which would permit the reallocation of unutilized grants at the end of 12 months in lieu of the present 18 month requirement. The committee believes that these temporary changes, pending consideration of a more basic revision of the present allocation formula by the legislative committees, will help to accelerate the program for the abatement of water pollution through the construction of waste treatment plants."

JUSTIFICATION

The change is proposed because the President's legislative proposal of a $4 billion contract authority for the construction grant program, to be used at a rate of $1 billion per year for each of the fiscal years 1971–1974, should be enacted in lieu of the House allowance to permit a dramatic and more effective long range program plan.

1970 APPROPRIATION

Senator ELLENDER. What is your full authorization for construction grants for waste treatment facilities?

I understand that you are requesting the Senate to delete the funds provided in the House bill.

Last year we were confronted, as I recall, with the same proposition that is the Department objected to an appropriation over and above the $214 million requested by the President. As I recall the House provided $600 million and we increased it to $1 billion. Last year the Department of the Interior asked the Senate to reject the House increase and provide only the $214 million requested by the President.

Mr. KLEIN. Yes, sir.

Senator ELLENDER. In conference, we agreed with the House on an amount of $800 million.

HOUSE INCREASE

The House increased your 1971 request by $1 billion.

Mr. KLEIN. Yes, sir.

Senator ELLENDER. And you are opposed to that?

Mr. KLEIN. Sir——

PENDING WATER POLLUTION ABATEMENT LEGISLATION: $4 BILLION CONTRACTUAL AUTHORITY

Senator ELLENDER. Why?

Mr. KLEIN. We wanted the President's $4 billion contractual authority at the rate of $1 billion a year, so that we would have a solid basis for a long-term program.

Senator ELLENDER. But that law has not yet been enacted.

Mr. KLEIN. That is right, sir.

Senator ELLENDER. What will happen in the meantime if we do not appropriate some funds? Of course, the authority will expire at the end of fiscal year 1971, and, unless money is provided, you will have nothing with which to work.

Mr. KLEIN. May I put it this way, and I have a paragraph on it. We would hope that the Congress will shortly enact the President's Water Pollution Abatement legislation, as forwarded by Secretary Hickel, so that the entire job can be completed. If the Congress appropriates the sum of $1 billion for 1 year instead of moving forward on the 4-year, full-funding contractual authority, we can regard it, of course, as the first year of that 4-year contractual authority; and we

would trust that the Congress will enact the legislation necessary to complete that 4-year contractual authority.

Senator ELLENDER. Suppose it does not?

Mr. KLEIN. This is something I cannot guess at, sir.

Senator ELLENDER. Well, there is a possibility it won't.

Mr. KLEIN. Not as of today, but we hope Congress will see fit to enact the administration's legislation.

EXPENDITURE CAPABILITY

Senator ELLENDER. Well, I say there is a possibility it won't, and this money that is authorized for fiscal year 1971 under the existing program, I believe, could be used, could it not?

Mr. KLEIN. We have submitted to the House committee, sir, and I have submitted it here, that the most we can utilize out of an appropriation of one and one-quarter billion dollars under any formula is $985 million, even including reimbursements.

Senator ELLENDER. $985 million?

Mr. KLEIN. Yes, sir.

1970 UNOBLIGATED FUNDS

Senator ELLENDER. Last year you, or your predecessor told us that you could use more than the $214 million, submitted a requested amendment which would reduce the House amount of $600 million to the budget estimate of $214 million in conference we agreed on $800 million. Where is that money?

Mr. KLEIN. I think the final statement by both Secretary Hickel and Commissioner Dominick was that the utmost we could use was $600 million. As of today it appears, I think, that we are going to be able to use $360 million—obligate $360 million by June 30 out of that $800, million—so that as of tomorrow we will have a $440 million carryover. Projecting it forward over the next 6 months, because we are now working on an 18-month basis, using the best estimate available it looks like it is somewhat over $600 million, that will be utilized out of the $800 million during this 18-month period.

REALLOCATION OF FUNDS

Senator ELLENDER. Well, as I understand, those States that are unable to use money allocated to them after 18 months, you can reallocate the balance to other States that can use the funds.

Mr. KLEIN. Yes, sir. We can reallocate it for some other sewage treatment plants or for some reimbursables.

1971 APPROPRIATION: STATUTORY DETERMINATION OF UTILIZATION OF FUNDS BEYOND FISCAL YEAR

Senator ELLENDER. Could you do the same thing with these funds if appropriated?

Mr. KLEIN. Yes, we could. But we would rather not do it that way. We would rather have a solid program going forward.

Sir, I ran into this last week on the hearing before Senator Tydings' committee when the District of Columbia Department of Sanitation

says, "You put it in writing that you are going to have this money each year and every year, and every year until we get Blue Plains built."

I could not, of course, put it into writing because that is the prerogative of Congress at this time, to enact the legislation and to appropriate the money, and we do not have any solid basis for saying even that we are going to have the money for this coming fiscal year until after this committee and the Senate and the House agree on a figure and it is signed into law by the President, whatever that law may be.

PENDING WATER POLLUTION ABATEMENT LEGISLATION

Senator ELLENDER. They have held hearings on the water pollution abatement legislation to some extent.

Mr. KLEIN. Yes. I appeared with the Secretary.

Senator. ELLENDER. It may be that enactment of the legislation requested may be late. Based on the record, those interested in sewage treatment facilities have less to fear from the Congress not following through on the programs enacted than from the administration. I think that provision should be made in this bill to have money available should the proposed legislation not be enacted.

HOUSE CHANGE FROM 18-MONTH TO 12-MONTH FUNDING

I am informed that the House has changed the present law in two respects, as you are aware.

Mr. KLEIN. Yes, sir.

Senator ELLENDER. I did not know about it until a moment ago, because I have so much to do. Instead of providing funds on an 18-month basis, it has provided in the current bill funds on a 12-month basis. Would that be an improvement?

Mr. KLEIN. Yes, sir. We have submitted in one of the President's bills a proposal which calls for reallocation after 12 months. Under our present allocation system, some of the States are getting to the point where they are not utilizing all of it, and we do not think the money should lay around for another 6 months, but it should be reallocated, and it also fits in with the President's thoughts.

EXPENDITURE CAPABILITY

Senator ELLENDER. In view of the change made by the House, with which we might comply, could you use the money provided by the House?

Mr. KLEIN. Yes, sir.

Senator ELLENDER. All right.

Would you submit a tabulation showing the allocations by States under the formula in the House bill for the $1 billion in the bill and for the $1¼ billion authorization?

Mr. KLEIN. We shall be glad to do so.

Senator ELLENDER. We may increase the ante, for all I know. We have a number of people on this committee and in the Senate who feel that greater funds should be utilized, because they are believers in doing the job now instead of waiting until the enactment of a new law.

Mr. KLEIN. Yes, sir. The only trouble is we cannot utilize it within that period of time. We have looked it over very carefully, and we know exactly what we can utilize.

Senator ELLENDER. Please furnish the full details of what you can utilize.

Mr. KLEIN. Yes, sir.

(The information follows:)

DEPARTMENT OF THE INTERIOR, FEDERAL WATER QUALITY ADMINISTRATION—COMPUTATION OF STATE ALLOCATIONS UTILIZING FORMULA IN HOUSE APPROPRIATION BILL[1]

Totals	Col. I ($1,000,000,000)	Col. II ($1,250,000,000)	Difference between cols. I and II
Alabama	16,280,000	20,274,400	3,994,400
Alaska	1,982,500	2,321,300	338,800
Arizona	6,316,000	7,748,800	1,432,800
Arkansas	8,580,800	10,546,300	1,965,500
California	65,557,000	82,850,500	17,293,500
Colorado	8,084,200	10,013,900	1,929,700
Connecticut	31,557,800	39,457,300	7,899,500
Delaware	2,611,000	3,112,000	501,000
District of Columbia	4,488,000	5,503,700	1,015,700
Florida	21,431,100	26,904,300	5,473,200
Georgia	22,129,000	27,677,500	5,548,500
Hawaii	3,670,900	4,432,100	761,200
Idaho	3,787,400	4,521,400	734,000
Illinois	44,434,100	56,061,300	11,627,200
Indiana	20,912,000	26,257,000	5,345,000
Iowa	12,481,800	15,580,800	3,099,000
Kansas	9,882,200	12,289,200	2,407,000
Kentucky	13,609,300	16,952,100	3,342,800
Louisiana	14,510,200	18,093,800	3,583,600
Maine	6,034,600	7,361,000	1,326,400
Maryland	26,090,700	32,637,300	6,546,600
Massachusetts	22,780,200	28,645,000	5,864,800
Michigan	51,823,400	65,126,200	13,302,800
Minnesota	15,070,100	18,861,300	3,791,200
Mississippi	10,359,900	12,756,600	2,396,700
Missouri	22,130,300	27,743,300	5,613,000
Montana	3,724,200	4,466,600	742,400
Nebraska	6,674,300	8,227,100	1,552,800
Nevada	1,888,000	2,201,700	313,700
New Hampshire	5,007,200	6,085,000	1,077,800
New Jersey	42,121,700	52,891,900	10,770,200
New Mexico	4,976,300	6,022,700	1,046,400
New York	166,287,900	208,843,100	42,555,200
North Carolina	19,863,000	24,876,000	5,013,000
North Dakota	3,632,000	4,327,800	695,800
Ohio	42,189,800	53,204,600	11,014,800
Oklahoma	10,588,200	13,149,900	2,561,700
Oregon	9,598,900	11,909,900	2,311,000
Pennsylvania	55,525,100	69,979,500	14,454,400
Rhode Island	4,438,000	5,409,000	970,600
South Carolina	11,021,800	13,643,400	2,621,600
South Dakota	3,799,800	4,548,600	748,800
Tennessee	16,014,700	19,989,500	3,974,800
Texas	40,667,200	51,257,600	10,590,400
Utah	4,672,900	5,652,900	980,000
Vermont	2,528,700	2,957,700	429,000
Virginia	18,595,300	23,285,100	4,689,800
Washington	13,576,600	16,975,900	3,399,300
West Virginia	8,805,000	10,852,000	2,047,000
Wisconsin	20,737,900	25,985,900	5,248,000
Wyoming	2,248,600	2,611,800	363,200
Guam	1,649,400	1,723,200	73,800
Puerto Rico	11,067,200	13,652,400	2,585,200
Virgin Islands	1,505,400	1,540,800	35,400

[1] State allocations based on reimbursables of expenditures made as of Apr. 30, 1970. Actual year-end values may change.

DIVISION OF STATE AND LOCAL PROGRAMS

CONSTRUCTION GRANTS AND ENGINEERING BRANCH EVALUATION AND RESOURCE CONTROL OPERATIONS

Estimated State allotments in fiscal year 1971 based upon appropriation $1,000,000,000 and the President's 60–20–20 formula

Alabama	12,283,600	Nevada	1,938,200
Alaska	1,806,800	New Hampshire	6,081,600
Arizona	5,489,900	New Jersey	52,764,800
Arkansas	6,568,200	New Mexico	6,013,000
California	52,921,600	New York	188,481,900
Colorado	6,487,100	North Carolina	15,042,400
Connecticut	36,070,000	North Dakota	2,674,500
Delaware	2,220,100	Ohio	30,983,200
District of Columbia	5,318,400	Oklahoma	7,877,800
Florida	18,064,100	Oregon	7,758,500
Georgia	18,322,800	Pennsylvania	67,728,700
Hawai	3,192,400	Rhode Island	5,439,000
Idaho	2,963,200	South Carolina	8,420,000
Illinois	32,505,300	South Dakota	2,761,700
Indiana	27,218,000	Tennessee	21,185,000
Iowa	14,984,100	Texas	31,183,400
Kansas	7,126,500	Utah	3,804,000
Kentucky	9,753,400	Vermont	3,111,100
Louisiana	11,129,000	Virginia	14,766,200
Maine	6,916,400	Washington	10,939,800
Maryland	32,088,200	West Virginia	6,013,900
Massachusetts	28,822,500	Wisconsin	25,559,700
Michigan	63,294,300	Wyoming	1,745,700
Minnesota	10,920,600	Guam	1,871,700
Mississippi	7,710,400	Puerto Rico	14,693,100
Missouri	27,519,400	Virgin Islands	1,647,500
Montana	2,804,200		
Nebraska	4,742,500	Total	1,000,000,000

(The prepared statement of Mr. Klein follows:)

STATEMENT BY ASSISTANT SECRETARY OF THE INTERIOR CARL L. KLEIN

Mr. Chairman:

It is indeed a pleasure to appear before this Subcommittee again to discuss the financing of municipal waste treatment plants through grants to States.

First, Mr. Chairman, I wish to note that S. 3468, S. 3470, S. 3471, and S. 3472, the legislation proposed by the President to carry out the water pollution abatement program, are now pending in the Senate Committee on Public Works and have been the subject of recent hearings. On April 21, 1970, we testified on these bills. This program will achieve full funding of the Federal share over the four-year period with allocations designed for the best utilization of funds to meet the most pressing problems. It will assure the States and municipalities of the Federal funds promised, and it will include a new allocation formula to meet the most pressing needs first.

Second, Mr. Chairman, we would hope that early action will be forthcoming on the financing plan, the Environmental Financing Authority, as proposed in S. 3468. We have found that many communities have not been able to come forward with their own funds because of inability to market their bonds, despite Federal cash. The Environmental Financing Authority would provide the means, together with the $4 million contractual authority under S. 3472, for all communities to meet their requirements for waste treatment plant construction, including interceptors.

Some persons have stated that the President's $4 billion program is not sufficient. Mr. Chairman, our analysis of the situation would cover (1) backlog, (2) growth, (3) recapitalization, and (4) reimbursements from this $4

billion and the recently appropriated $800 million for FY 1970. The only figure we have on reimbursement is $320 million as of December 31, 1969; and this the President has said will be repaid. There have been some statements made as to a figure of $814 million reimbursables existing.

This figure of $814 million includes future commitments and new obligations of $494 million; the only true figure on reimbursables now available is $320 million.

Mr. Chairman, we are pleased that the House has seen fit, when it passed the $1 billion appropriation, to change the terms of allocation towards the viewpoint expressed in the President's legislative package. The ability of the Secretary of the Interior to utilize funds for reimbursement will help repay those States who accelerated the pollution abatement program by pre-financing their construction grants.

The House's proposed allocation formula would also provide for reallocation at the end of the fiscal year, rather than 6 months after the end of the fiscal year, as is the present case.

The proposed Presidential allocation formula in S. 3472 recognizes the need for reallocation at the end of each fiscal year, but also states that only 60% of the funds should be appropriated based on population and fiscal needs. Another 20% would be allocated to those States who contribute 25% of the funds required for all projects receiving Federal assistance. This would tend to eliminate or minimize future reimbursables and to move forward on full programs in the pre-financing States.

The last 20% allotted at the discretion of the Secretary of the Interior would be not only for reimbursables but also for the solution of critical pollution problems and for financing the clean-up of river basins.

We had hoped that all of the changes in the allocation formula would have been adopted by the Congress instead of only the partial change being considered before your Committee.

As to the $1 billion appropriation forwarded to this Committee for consideration after passage by the House of Representatives, the administration does not feel that this one-year appropriation is comparable to its four-year contracting authority since it does not deal with the full problem.

We would hope that the Congress will shortly enact the President's water pollution abatement legislation, as forwarded by Secretary Hickel, so that the entire job can be completed. If the Congress appropriates the sum of $1 billion for one year instead of moving forward on the four-year, full-funding contractual authority, we can regard it, of course, as the first year of that four-year contractual authority; and we would trust that the Congress will enact the legislation necessary to complete that four-year contractual authority..

One final item, Mr. Chairman: The question has arisen as to the amount of money the Federal Water Quality Administration can effectively use in this program. FWQA has already reported that only $360,000,000 of the $800 million appropriated for FY 1970 can be obligated by June 30, 1970, leaving a balance of $440 million. FWQA has also reported to the House Committee that its maximum obligation capability for FY 1971, including reimbursements, is $985 million under the best of circumstances. It would appear that an appropriation in excess of $1 billion would constitute an overage and we therefore request that the appropriation be held to a maximum of $1 billion.

In the meantime, we trust that the Congress will enact S. 3472 to grant contractual authority, and S. 3468 to establish the Environmental Financing Authority, in order that, in partnership with States and the municipalities, we may make and implement short-range and long-range plans to abate the water pollution problems.

Thank you, Mr. Chairman.

DEPARTMENT OF THE INTERIOR

FEDERAL WATER QUALITY ADMINISTRATION CONSTRUCTION GRANTS FOR WASTE TREATMENT WORKS

Fiscal year 1971 obligation capability

Alternative:

1. Given a $1.250 billion appropriation for a period of 18 months using the existing formula ---------- $925

2. Given a $1.250 billion appropriation for a 12-month period using the proposed formula	[1] $985
3. Given a $1 billion appropriation for a 12-month period using the proposed formula	[1] 823
4. Given a $1 billion appropriation for a 12-month period allocating 80 percent using existing formula with latest available population figures and 20 percent on basis of reimbursable needs	790

[1] Including reimbursement.

NOTE.—Any unobligated balances under each of these alternatives would be reallotted after the specified time period.

STATEMENT OF GEORGE W. TOMAN, ASSISTANT ADMINISTRATOR, BONNEVILLE POWER ADMINISTRATION

HOUSE REDUCTION AND APPEAL

Senator ELLENDER. All right. Bonneville Power Administration.

Mr. Toman, I understand that the House has cut you back from the $93,522,000 recommended in the budget to $90,500,000, and you are asking for full restoration of the House cut of $3,022,000. The amendment requested by the Bonneville Power Administration will be placed in the record at this point.

(The amendment follows:)

BONNEVILLE POWER ADMINISTRATION

CONSTRUCTION

(House Hearings, Part 3, pp 808–957 Senate Hearings)

Appropriation 1970	$96,500,000
Estimate	93,522,000
House Allowance	90,500,000
Restoration Requested	3,022,000

(P. 23, line 25)

Amendment requested:

Page 23, line 25, strike out "$90,500,000" and insert in lieu thereof "$93,522,000," an increase of $3,022,000 in the appropriation.

House Report

Appropriation, 1970	$96,500,000
Budget estimate, 1971	93,522,000
Recommended, 1971	90,500,000
Comparison:	
Appropriation, 1970	−6,000,000
Budget estimate, 1971	−3,022,000

The Bonneville Power Administration markets electric power produced at 31 Federal hydroelectric generating plants in service or under construction and wheels and exchanges power for certain non-Federal utilities in the Pacific Northwest. System revenues are estimated at $168 million for fiscal year 1971. Cumulatively, from the beginning of operation through June 30, 1969, revenues totaled $1.623 billion. Of this amount, $575 million has been applied to the repayment of the capital investment, $551 million has been in interest payments, and $496.8 million has been used to pay operation and maintenance expenses and for purchase and exchange of power.

The committee allowance provides for continuation of construction on transmission facilities initiated in prior years and for start of construction on essential system additions of transmission and substation capacity needed to carry power to load centers from power generating installations scheduled to be in operation by June, 1976. The recommended committee reduction is based on anticipated carryover balances and additional slippage in the program beyond that reflected in the budget estimate.

Last year the Administration approved a 10-year hydrothermal power program for the Pacific Northwest, and the Congress approved initiating its implementation through proposed agreements between Bonneville Power Administration, Portland General Electric Co., and the Eugene Water & Electric Board.

The program includes the construction of seven thermal generating plants between 1971 and 1981. None will be federally constructed, financed or owned. The committee approves implementation of the remainder of the program by the use of net billing as the means of affecting payment by the Bonneville Power Administration for part or all of the generating capacity of nonfederally financed thermal plants, under suitable agreements between Bonneville Power Administration and preference customers to accomplish this purpose. Such agreements would provide that the Bonneville Power Administration will acquire from a date certain, on a cost basis, the preference customers' rights to the generating capability of nonfederally financed plants whether or not they are operable. Any costs or losses to the Bonneville Power Administration under these agreements will be borne by Bonneville Power Administration rate payers through rate adjustments if necessary. The Committee requests that the proposed agreements be submitted to the House and Senate Appropriations Committees at least 60 days prior to their execution by the Administrator.

The allowance is to be allocated as follows:

Major grid: Facility	*Allowance*
Pacific Northwest-Pacific Southwest Interconnection	$290,000
Southwest Oregon service	1,300,000
Industrial services	3,400,000
Lower Snake transmission	10,800,000
Hanford-Ostrander	13,300,000
Chief Joseph integrating transmission	4,200,000
Dworshak-Hot Springs	2,900,000
Libby Dam integrating transmission	1,330,000
Santiam-Toledo-Wendson	2,390,000
Bandon-Rogue	1,220,000
Monroe-Custer	3,170,000
Custer-Blaine	310,000
Monroe-Sno-King	1,470,000
Covington-Tacoma	306,000
Olympia-Shelton	236,000
Grays Harbor area service	840,000
System reactive facilities	2,330,000
Grand Coulee-Chief Joseph	2,400,000
Paul-Allston No. 2	6,000,000
The Dalles Powerhouse Line No. 6	155,000
Southwest Washington area service	420,000
Allston-Skipanon	430,000
Olympia-Fairmount No. 4	1,400,000
Raver-Maple Valley	1,450,000
Grand Coulee-Hanford	3,000,000
Bonneville switchyard relocations	850,000
Keeler-Raver	2,450,000
Oregon City-McMinnville	170,000
Subtotal	68,517,000
Area and customer services:	
Clark County Service	450,000
Dworshak-Orofino	100,000
Mid-Columbia area service	400,000
Customer services	2,660,000
Subtotal	3,610,000
General system facilities:	
General structures and improvements	1,407,000
Advance power system control and dispatch	8,905,000
Tools and equipment	2,874,000
Preliminary engineering	2,460,000
System control center	430,000
Subtotal	16,076,000

System electrical facilities:	
Transformer additions	$2,830,000
Miscellaneous replacements and capital additions	2,580,000
Subtotal	5,410,000
Miscellaneous facilities	10,457,000
Total program	104,070,000
Undistributed reduction based on anticipated delays and carryover balances	−13,570,000
Total, allowance	90,500,000

Justification

Explanation of amendment.—The amendment restores the reduction of $3,022,000 made by the House in the Budget estimate for the appropriation. This amount is distributed as follows:

[In thousands of dollars]

	Appropriation, 1970	Budget estimate, 1971	House allowance, 1971	Restoration requested
System construction	107,110	104,070	104,070	
Undistributed reduction	−10,457	−10,548	−13,570	3,022
Subtotal, construction program	96,653	93,522	90,500	3,022
Net, financing adjustments (carryover and transfers)	−153			
Total appropriation	96,500	93,522	90,500	3,022

A breakdown of the request by objects of expenditures follows:

26	Supplies and materials	$750,000
31	Equipment	1,100,000
32	Lands and structures	1,172,000
	Total	3,022,000

The requested action will restore $3,022,000 to the BPA budget for the fiscal year 1971. This amount was cut by the House by increasing the "undistributed reduction" factor from $10,548,000 to $13,570,000. House action was based on the assumption that additional slippage, and associated carryover balances, would occur in the program beyond that reflected in the budget estimate.

The "undistributed reduction" factor of $10,548,000 as shown in the BPA Construction Budget Request is the maximum amount of underfinancing that can be tolerated considering the nature, size and firmness of the program we have presented. Thus, additional slippages and carryover balances cannot be expected to occur. For example, using a comparable level (10 percent) of underfinancing, we had practically a zero carryover balance in fiscal year 1969 and expect the same result for fiscal year 1970. Insofar as fiscal year 1971 is concerned, the increasing tightness of our program and schedules, the impact of cost escalations, and the greater sensitvity that must be shown to environmental considerations is placing a further unanticipated cost squeeze on program performance. This already serious problem will be further aggravated if the House cut of $3,022,000 is not restored.

A review of our program priorities indicates that, in our present judgment, unless the House cut of $3,022,000 is restored, it will be necessary to:

1. *Delay the completion date of the 230-kv line from Toledo to Wendson from October 1972 to October 1973. (Budget Item 134).*—This facility is intended to serve the increasing power requirements and provide needed improvement in the reliability of service to this Oregon coastal area. The 230-kv line from Toledo to Wendson will provide an alternate source of firm transmission to these areas. A delay in this facility would leave the area subject to complete loss of service during an outage on one of the 230-kv radial lines since other existing facilities would be loaded beyond their rating. Such a power blackout would affect about 20,000 people in residential areas as well as a large papermill and associated commercial and other industries.

2. *Delay Bonneville Switchyard relocation. (Budget Item 169).*—To take advantage of improved streamflows resulting from construction of upstream projects, the U.S. Corps of Engineers will construct a second Bonneville powerhouse, a new lock and ship channel for operation by February 1977. This plan requires that BPA retire the North Bonneville Substation and relocate its 230-kv lines in the area before the Corps can proceed with major construction work. Lack of funds to start BPA corrective work will introduce construction conflicts that may prevent meeting the February 1977 completion date. Loss of revenue and failure to serve forecasted loads would result from delaying the availability of this power in the transmission network.

EFFECT OF HOUSE REDUCTION

Senator ELLENDER. Will you tell us what will happen if the House reduction is not restored?

Mr. TOMAN. Yes, Mr. Chairman. It would reduce our construction program by that amount.

You will note that the House took this reduction in the underfinancing—described as the undistributed reduction item. Heretofore we have usually had an amount of about 10 percent in undistributed reduction, and this would increase it to about 14 to 15 percent of our construction appropriations.

In our best judgment, at this point in time, we would have to delay one transmission line and delay the relocation of the Bonneville switchyard.

DELAY OF TOLEDO-WENDSON TRANSMISSION LINE

Senator ELLENDER. Have you made a decision yet as to which transmission line you will have to delay?

Mr. TOMAN. Yes, as best we can. We have indicated that it would probably be the Toledo-Wendson 230-kv. line (B.I. 134), which is a line to serve the loads along the Oregon coast. This line would also close a loop to improve service. The loads currently are fed radially, and the loss of any one of these radial lines can cause curtailment of service in the area. Fund reduction would delay this line from 1972 to 1973.

Senator ELLENDER. The House, I do not suppose, identified where the cuts were to be made.

Mr. TOMAN. No, sir. It was just made in the undistributed reduction item.

Senator ELLENDER. They cut the total appropriation and let you apply the cut, and you made the reduction so as to have the best possible program with the money available?

Mr. TOMAN. That is correct, sir.

DELAY IN RELOCATION OF NORTH BONNEVILLE SWITCHYARD

Senator ELLENDER. What else would happen if these funds were not restored?

Mr. TOMAN. The other item affected by the cut was the relocation of the North Bonneville switchyard (B.I. 169).

As you may recall, the Corps of Engineers is going to construct a second powerhouse at the Bonneville Dam along with a new ship channel scheduled for February 1977. This requires that we relocate our existing switchyard because it would be in the way of this con-

struction. If we have a year's delay our contractors and their contractors would start getting in the way of one another, so it would not be a very efficient way of relocating this yard.

Senator ELLENDER. But would you have to do it before the contract of the Corps of Engineers is performed?

Mr. TOMAN. Yes, sir. You see, there are five 230,000-volt transmission lines that come into this area, and you have to provide the new location and move these lines over and still maintain your continuity of service. So this is the reason we planned to relocate the lines by June 1972 on a temporary basis so that the Corps could proceed with their construction. A permanent station is scheduled in 1974.

PRIORITY DETERMINATIONS

Senator ELLENDER. You chose those two projects as being two that you will delay as a result of the reduction made by the House?

Mr. TOMAN. Yes, sir. While it is difficult to assign priorities on budget items at this point in time, because you do not know where your other slippages are going to occur in the program; this is our best judgment, at this time, of where a cut of this size may be taken.

Senator ELLENDER. Have you studied it sufficiently to determine that you could not take a cut in some other area?

Mr. TOMAN. Yes, sir; we have. We have very tight schedules in our construction program.

HYDROTHERMAL PROGRAM

Senator ELLENDER. Mr. Toman, we understand that the voters of the city of Eugene recently modified the provision of the city's charter relating to the issuance of bonds for nuclear generating plants. We would appreciate your advice as to the impact of this election on the 10-year hydrothermal power program for the Pacific Northwest, which was described at the Bonneville Power Administration hearing earlier this year.

Mr. TOMAN. Mr. Chairman, BPA reviewed in detail the 10-year hydrothermal power program for the Pacific Northwest at our hearings in April and described the seven thermal plants which were to be built by non-Federal utilities during the 1970–71 through 1980–81 period. Plant No. 4, a 1,100 megawatt nuclear plant scheduled for September 1976, was being sponsored by the city of Eugene.

In 1968 the voters of Eugene adopted a charter amendment authorizing a $225 million bond issue for the purpose of constructing nuclear power generating plants. At an election on May 26, 1970, the voters further amended the charter to delay until January 1, 1974, the expenditure of any bond proceeds except for participation in the Trojan project and for certain studies. As a result Eugene no longer is in a position to sponsor plant No. 4.

The Joint Power Planning Council, a planning organization consisting of BPA and over 100 Pacific Northwest utilities, private, public, and cooperative, has been reviewing the timing and sponsorship of the plants in the light of the Eugene election and the short time within which to construct a plant in lieu of the Eugene plants. The revised schedule follows:

Plant No. 1 is the Centralia coal-fired plant owned by Pacific Power & Light Co., Washington Water Power Co., two other private utilities, and four public agencies. It will have two 700 megawatt units, the first scheduled for commercial operation by September 1971, and the second by September 1972.

Plant No. 2 is the Trojan nuclear plant of 1,100 megawatts sponsored by Portland General Electric Co. and owned by it jointly with the city of Eugene and Pacific Power & Light Co. It is scheduled for commercial operation by September 1974.

Plant No. 3 is the Jim Bridger coal-fired plant, located near Rock Springs, Wyo., sponsored by Pacific Power & Light Co. and owned by it jointly with Idaho Power Co. Two of the three 500 megawatt units in this plant will supply loads in the west group area. One of these units is scheduled for operation by September 1975, and the other, originally scheduled for 1979, has been advanced to September 1976.

Plant No. 4 is the 1,100 megawatt Grays Harbor nuclear project, sponsored and owned by the Washington Public Power supply system. Its scheduled date for commercial operation has been advanced to September 1977.

The sponsors and owners of plants 5, 6, and 7, which probably will be 1,100 megawatt nuclear plants and which are scheduled for September 1978, 1979, and 1980, respectively, have not yet been determined. It is anticipated that two of these will be in Washington and one in Oregon. The Joint Power Planning Council is developing this information as rapidly as possible, but there has been insufficient time to evaluate the impact of the loss of the Eugene plant and to identify the sponsors and owners of the later plants.

All seven of the foregoing plants are included within the 10-year hydrothermal power program as its operation was described in the hearings, although only those plants or portions of plants owned by the preference customers would be subject to the BPA net billing arrangements.

Any agreements for each of the remaining plants from which BPA will be acquiring power by net billing will be submitted to the Secretary of the Interior, the Bureau of the Budget, and the House and Senate Appropriations Committees for review prior to their execution, as was done with the agreements relating to the Trojan and Eugene plants.

Senator ELLENDER. Thank you.

Mr. TOMAN. Thank you, Mr. Chairman.

DEPARTMENT OF THE ARMY

CEMETERIAL EXPENSES, ARMY

STATEMENT OF CARL T. NOLL, DEPUTY CHIEF, MEMORIAL DIVISION, OFFICE, CHIEF OF SUPPORT SERVICES

ACCOMPANIED BY BENJAMIN R. WALTHALL, BUDGET OFFICER, CHIEF OF SUPPORT SERVICES

HOUSE INCREASE

Senator ELLENDER. The next item is "Cemeterial expenses, Army." The House added $750,000 for operation and maintenance. That was not a budgeted item, was it?

Mr. NOLL. No, sir, it was unbudgeted. The $750,000 was added by the House.

Senator ELLENDER. Yes, I notice that your budget estimate was in the amount of $17,434,000. Can you tell us whether you can use the extra $750,000?

Mr. NOLL. Mr. Chairman, without regard to fiscal restraints, we are capable of utilizing these additional funds to improve the condition of our cemeteries.

Senator ELLENDER. You are at least frank about it.

Mr. NOLL. It will be used to improve the condition of the five cemeteries I mentioned during our earlier testimony and also Arlington.

Senator ELLENDER. Why didn't you ask for it while you were before us?

Mr. NOLL. Sir?

Senator ELLENDER. I mean the amount allowed by the House, since it is so necessary.

Mr. NOLL. We asked for the budgeted amount, but as a consequence of questions asked by your committee, we testified that we needed and had capability to use additional maintenance funds.

Senator ELLENDER. The budget was $17,434,000, and the House allowed you an additional $750,000.

Mr. NOLL. That is correct.

Senator ELLENDER. That $750,000 is over and above the budget?

Mr. NOLL. That is correct, sir.

Senator ELLENDER. Are you asking for the amount allowed by the House?

Mr. NOLL. Mr. Chairman, we are stating that over and above the budgeted amount, we have a need for and a capability to use additional money at Arlington, Fort Logan, Fort Snelling, Jefferson Barracks, Long Island, and Willamette National Cemeteries.

Senator ELLENDER. Did you make a showing of the need for these additional funds when you appeared before the House?

Mr. NOLL. Yes, sir; we did.

Senator ELLENDER. Did you also make a showing of that need before the Bureau of the Budget?

Mr. NOLL. Our original request of the Bureau of the Budget was for more operation and maintenance funds.

Senator ELLENDER. And they denied the full amount you requested?

Mr. NOLL. Yes, sir.

Senator ELLENDER. The Budget Bureau denied it to you?

Mr. NOLL. Yes, sir.

Senator ELLENDER (continuing). You want us to approve the amount provided in the House bill?

Mr. NOLL. We feel there is a need for that money.

Senator ELLENDER. In your appearance before the House did you suggest that they increase the appropriation for operation and maintenance by $750,000 over and above the budget request?

Mr. NOLL. In our appearance before the House as a result of direct questioning we stated that we had additional capability at the larger cemeteries mentioned; however, the figure of $750,000 was not mentioned.

Senator ELLENDER. The reason why I ask, usually your request is within the budget estimate.

Mr. NOLL. Yes, sir.

Senator ELLENDER. As far as I can understand, you kept your request within the budget estimate when you appeared before the House committee. You did not ask for this additional sum.

Mr. NOLL. We supported the budget when we appeared before the House: however, as I stated in response to direct questions, stemming out of the Willamette situation, we were requested to reevaluate our maintenance requirements and furnish additional data for the record. Am I correct about this?

Mr. WALTHALL. That is correct.

Senator ELLENDER. You did not ask for the $750,000 specifically but a review of the maintenance problems at your larger cemeteries convinces you that these funds can be used and are in fact needed. Is that correct?

Mr. NOLL. Yes, sir.

Senator ELLENDER. All right, thank you.

Mr. NOLL. Thank you, sir.

TENNESSEE VALLEY AUTHORITY

STATEMENT OF JACOB D. VREELAND, WASHINGTON REPRESENTATIVE

HOUSE INCREASE

Senator ELLENDER. We will now consider the Tennessee Valley Authority. Mr. Vreeland, the Washington Representative, is here.

I notice that the House allowed $4,100,000 over and above the budget estimate. Can you tell us what the additional amount will be used for if the Senate approves the amounts allowed by the House?

Mr. VREELAND. Mr. Chairman, that increase was broken down as follows: $800,000 for the Yellow Creek Port project.

Senator ELLENDER. The which?

YELLOW CREEK PORT, MISS.

Mr. VREELAND. The Yellow Creek Port project in Mississippi. This was an $800,000 item that was added by the House. It was an unbudgeted item last year for which the conferees allowed $450,000. That money was placed in budgetary reserve and is to be released as of tomorrow.

Senator ELLENDER. Well, those funds were to be used to deepen the harbor and do work other than the shore facilities.

Mr. VREELAND. That was the restriction placed on those funds by the Congress.

Senator ELLENDER. Right, and that is what you are going to use those funds for?

Mr. VREELAND. If we are kept within the budget which, of course, we will support, that money can be spent for preliminary engineering and for the dredging.

The House added another $800,000, which gives a total, if the House bill stays intact, of $1,250,000 available for fiscal year 1971.

Senator ELLENDER. What will that be used for?

Mr. VREELAND. I have a table that we have prepared which will show how the funds would be spent, which I can submit for the record.

(The table follows:)

YELLOW CREEK

[In thousands]

	1971 [1]				
	Available now	Additional by House	Total	To complete	Total cost
Access railroad		$200	$200	$3,300	$3,500
Terminal dock (includes related dredging)	[2] $50	50	100	350	450
Terminal yard and structures		100	100	550	650
Construction plant equipment and inventories	[2] 200	350	550	−550	
Construction supervision and services		30	30	370	400
Engineering and design	200		200	500	700
General administration		70	70	230	300
Total	450	800	1,250	4,750	6,000

[1] Plans for 1971 assume availability in 1972 of funds sufficient for an efficient construction program.
[2] Construction of the dock should come early in the program with dredging, largely in the nature of cleanup, following construction of the dock face.

Senator ELLENDER. Is this to build facilities on the ground; that is, warehouses and things of that kind?

Mr. VREELAND. Yes, sir. We could not spend that much money just on preliminary design and dredging. We would have to get into the construction phase of the project.

Senator ELLENDER. I raised a question as to whether or not the warehouse and other ground facilities should be constructed by TVA. It is unusual for the Federal Government to construct warehouses as part of a port development.

PROJECT FACILITIES

Mr. VREELAND. This is actually not a warehouse that is going to be constructed. It will be a dock, and it will—what I called it was a warehouse last year when I testified before you—but it is a transit shed. It is a very small facility for handling freight at the time it is being taken off the barges and while it is awaiting redistribution throughout the area. But it is not a commercial warehouse or a large warehouse type where there would be long-term storage.

Senator ELLENDER. I understand that, but it still would be used for storage of some kind.

Mr. VREELAND. Yes, sir.

Senator ELLENDER. It is very unusual for the Federal Government to build such facilities as a part of a port development. I can well understand Federal participation in the construction of a harbor; that is, the deepening of it, and things of that kind. But here, as I understand it, the project provides for, and the estimate includes, money to construct buildings and other facilities on land in that area. Am I right in that, or not?

Mr. VREELAND. The buildings outside of the dock area and the transit shed for freight handling will not be built by TVA. The other buildings that are needed would be built either by the State or private industry. TVA will build a 12-mile rail spur connecting the port to the mainline railroad.

Senator ELLENDER. When you say build a dock, what does that consist of, piling along the water's edge?

Mr. VREELAND. It will consist of a piling, a wharf facility. The total money in the projects for that and related facilities, which would include this freight-handling shed or transit shed, is $1,500,000.

Senator ELLENDER. Now, $1,500,000 would be for the shed and the railroad.

Mr. VREELAND. Just the shed and the dock——

Senator ELLENDER. The what?

Mr. VREELAND. The dock, the wharf, and the shed. There is another $3,500,000——

Senator ELLENDER. We will have to recess while I go up and vote.

(Short recess.)

PROJECT COST

Senator ELLENDER. Now, in reference to the Yellow Creek Port project in Mississippi, what will be the entire cost of this project?

Mr. VREELAND. The entire cost will be $6 million.

Senator ELLENDER. $6 million.

Mr. VREELAND. This is the total TVA cost. The State has made available $1.5 million to buy the right-of-way for the railroad, and to buy land for industrial sites, about 2,000 acres.

Senator ELLENDER. All right. What will the $6 million be used for?

Mr. VREELAND. The $6 million will be used for an access railroad.

Senator ELLENDER. How much will that cost?

Mr. VREELAND. The total cost of the railroad is $3.5 million. The terminal dock, including dredging, that is related to that.

Senator ELLENDER. Forget the dredging. I am talking about the construction of the other physical facilities.

Mr. VREELAND. I do not have the dredging broken out, but it is my understanding it is a relatively minor figure, something like $20,000.

Senator ELLENDER. Only $20,000 for the dredging.

Mr. VREELAND. I would like to be able to check back on it.

Senator ELLENDER. Check back on it and give us the accurate figures.

(TVA subsequently reported that the estimated cost of dredging was $12,000.)

How much would be used to construct any kind of facilities on land?

Mr. VREELAND. That would include the dock, is that correct?

Senator ELLENDER. I presume so.

Mr. VREELAND. All right.

RAILROAD CONSTRUCTION

Senator ELLENDER. You said the estimate includes $3.5 million for a railroad spur. Isn't that unusual for the TVA to build a railroad spur to a proposed port? Have you ever done that before? I do not know that we have ever done that in Public Works program of the Corps of Engineers.

Mr. VREELAND. We have built railroads in connection with our own facilities.

Senator ELLENDER. I know that. But this is a nonfederally owned port.

Mr. VREELAND. This is the first time we are building a railroad of this type, sir.

Senator ELLENDER. That is what I thought. What is your authority for that?

Mr. VREELAND. This project is designed——

Senator ELLENDER. I am not asking you about the design of the project. What is your authority to build this railroad?

Mr. VREELAND. TVA's general authority includes the undertaking of projects to strengthen the economy of the Tennessee Valley area. This particular area of northeast Mississippi is a very depressed one, and this project is designed to help remedy those depressed conditions.

Senator ELLENDER. Will you put in the record your authority?

Mr. VREELAND. Yes, sir.

(The information follows:)

The Yellow Creek Port project is a cooperative effort between TVA and the State of Mississippi and its agencies to make the benefits of low-cost barge transportation available to North Mississippi and to foster industrial development in the area. The two basic components of the project are a river terminal, including a connecting railroad, and approximately 2,000 acres of land to be set aside for industrial development. TVA will finance and construct the terminal and connecting railroad facilities. The State will finance and purchase the industrial development land and the railroad right of way. Both the terminal and the railroad will be operated by the Mississippi Agricultural and Industrial Board or its designee. The contractual arrangements among the parties provide for ultimate repayment of both the State and the Federal investment from the revenues of the project. The United States will retain title to the terminal and railroad until such time as these facilities are transferred to the board, which transfer will occur following repayment of the Federal investment unless the board elects to purchase the facilities prior to the completion of repayment.

Section 1 of the TVA Act (16 U.S.C. Sec. 831) created TVA for, among other statutory purposes, "agricultural and industrial development, and to improve navigation in the Tennessee River." Section 4(j) of the act (16 U.S.C. sec. 831c(j)) provides specifically that TVA "shall have power to acquire or construct . . . navigation projects, and incidental works in the Tennessee River

and its tributaries. . . ." The authority conferred by section 4(j) is clearly broad enough to encompass the Yellow Creek Port project, particularly in view of the provision of section 31 of the TVA Act (16 U.S.C. sec. 831dd) that the act "shall be liberally construed to carry out the purposes of Congress to . . . promote interstate commerce and the general welfare. . . ."

There has been a clear recognition by Congress of TVA's statutory authority to construct public use navigation projects such as the Yellow Creek Port project, as evidenced by its action in appropriating funds to TVA in fiscal years 1943 and 1944 for construction of a number of public use navigation terminals on the Tennessee River (56 Stat. 418 and 57 Stat. 190). Such terminals were constructed at Knoxville and Chattanooga, Tennessee, and Guntersville and Decatur, Alabama, and were sold in the 1950's to private interests pursuant to a joint resolution adopted by the Congress at TVA's request (68 Stat. 997).

In order to serve its intended purpose of providing a navigation link a river terminal requires both highway and rail connections. In fact, such transportation facilities are an indispensable part of this kind of navigation project. At Yellow Creek the State will be responsible for providing the necessary highway connections and TVA will construct the railroad facilities on right of way to be acquired by the State. In the past TVA has on a number of occasions provided rail connections essential to a project. For example, this has been done in connection with construction of a number of our steam and hydro plants and major substations, as well as the four navigation terminals described above.

REPAYMENT OF FEDERAL INVESTMENT

Senator ELLENDER. As I recall, the last time we had hearings here somebody said, I do not know whether it was testified to or not, but I understood from someone connected with the project—it may have been off the record—that the State of Mississippi would repay all costs except for the dredging of the port.

Mr. VREELAND. Under the contract the State of Mississippi is to repay from project operating revenues the cost of the railroad, the cost of the terminal dock and the cost of full Federal construction. The full cost is to be repaid.

Senator ELLENDER. Where is that contract?

Mr. VREELAND. I can get a copy of it for you. I do not have it with me.

Senator ELLENDER. Can you put it in the record?

Mr. VREELAND. Yes, sir.

Senator ELLENDER. So it is a loan being made by TVA to the State of Mississippi and to be repaid by the State of Mississippi?

Mr. VREELAND. It will actually be repaid by a port authority that has been created by the State of Mississippi; yes, sir.

Senator ELLENDER. Well, you put that contract in the record. So that, as I understand it, the only money that would be spent by TVA not recoverable later would be to the cost of deepening the channel?

Mr. VREELAND. I would like to check on that, sir. I think that is also included in the repayment.

Senator ELLENDER. That is the point. I want to be certain.

Mr. VREELAND. I think the dredging is included in the repayment, too, but I am not sure on that particular point.

Senator ELLENDER. Well, in any event, put the contract in the record and indicate the total amount that will be repaid by the authority that is going to operate the port or the State of Mississippi.

Mr. VREELAND. Yes, sir.

Senator ELLENDER. I presume that this contract will show the obligations that will be incurred by the State and or by this authority, as well as how much you will spend?

Mr. VREELAND. Yes, sir; it will show how much they will put up and what operating and maintenance costs they will have to bear.

Senator ELLENDER. And your interpretation of the contract is that the authority will repay the Federal investment.

Mr. VREELAND. The full Federal investment; yes, sir.

Senator ELLENDER. The full Federal investment. How much interest will be charged?

Mr. VREELAND. The interest will be at 4⅝ percent.

Senator ELLENDER. 4⅝ percent. All right. It will be very important to put that in the record.

Mr. VREELAND. Yes, sir.

(The information follows:)

Disposition of revenues appear in section X on page 374.

Repayment provisions appear in section XA(5) on page 374 of the contract.

(The contract follows:)

AGREEMENT AMONG MISSISSIPPI AGRICULTURAL AND INDUSTRIAL BOARD, TOMBIGBEE RIVER VALLEY WATER MANAGEMENT DISTRICT, AND TENNESSEE VALLEY AUTHORITY

This agreement, made and entered into as of the 1st day of May, 1969, by and between the STATE OF MISSISSIPPI (hereinafter called "State"), acting by and through its duly authorized agency, the MISSISSIPPI AGRICULTURAL AND INDUSTRIAL BOARD (hereinafter called "Board") (which term shall include any agency or organization hereinafter succeeding to the powers and duties of Board), and Tombigbee River Valley Water Management District, an agency of the State of Mississippi (hereinafter called "District"), and the Tennessee Valley Authority, an agent and instrumentality of the United States (hereinafter called "TVA");

WITNESSETH:

Whereas, TVA, Board, and District, together with other state and local agencies, are engaged in cooperative programs to improve the economic conditions in northeast Mississippi by stimulating industrial development in the area; and

Whereas, in carrying out these programs a need has been demonstrated for a public port facility and industrial development area which will provide economic barge and rail transportation for existing industries, make land available for the development of new industries, and serve as a barge and cargo transfer point for traffic using the Tennessee-Tombigbee Waterway when that project is completed;

Whereas, the State Inland Ports Act, being House Bill 503 of the Regular 1968 Session of the Mississippi Legislature (hereinafter called "Act"), authorizes Board and District to participate in the development of such a port facility and industrial development area; and

Whereas, the parties wish to cooperate in the planning, acquisition, financing, construction, and operation of such an inland port and industrial development area on Yellow Creek in Tishomingo County, Mississippi (hereinafter sometimes referred to as the "Port Project");

Now, therefore, in consideration of the premises and the covenants hereinafter set forth, the parties hereto agree as follows:

I. RECITALS

The parties recite that plans for the acquisition, financing, construction, and operation of the Port Project, together with a petition and a proposal for participation by Board and the State of Mississippi in its development, have been identified and filed with the Board. Board has examined these documents and proposals submitted to it and has caused an independent determination and appraisal of the plans to be made, the results of which have been identified and filed. On the basis of these plans and findings, Board is of the opinion and so finds that the plans for the development of the Port Project are practicable and feasi-

ble and in the public interest and that the revenues therefrom will be sufficient over a period of time to make the project self-liquidating.

The parties further recite that Tishomingo County, where the proposed port will be located, and the three adjoining counties of Alcorn, Prentiss, and Itawamba, by resolution of their Boards of Supervisors, copies of which have been filed with Board, have declined to levy a tax of two mills and act as contracting agency for the Port Project as provided for in section 6 of the Act, and have requested District to act as contracting agency and to underwrite the project under the provisions of said Act.

The parties further recite and Board so finds that on the basis of an independent determination and appraisal by an independent engineer, the anticipated revenues from the Port Project combined with the pledge of District to underwrite any deficits are sufficient to service a bond issue in an amount adequate to provide for the financial participation as provided for herein in the project by the State of Mississippi.

The parties further recite and Board so finds that the security provided by District is adequate to protect the State's investment in the development of the Port Project and that the Commission of Budget Accounting is so convinced and has so determined that said security is adequate.

II. DEVELOPMENT OF THE PROJECT

The Port Project is to be a jointly financed federal, state, and local project in the total amount of approximately $7 million based upon 1969 price levels. It will consist of a public barge terminal and transfer facilities built on land owned by the United States and in TVA's custody on the Yellow Creek embayment of Pickwick Reservoir, together with facilities for handling and warehousing general cargo. That portion of the project to be built on TVA's land is hereinafter sometimes referred to as "terminal." Access to the terminal will be provided by a railroad spur connecting with the Southern Railway main line and by highways connecting with State Route 25. As part of the Port Project, approximately 2,000 acres or more of land located along the railroad spur will be acquired by Board and sold for industrial development purposes. In addition ,it is contemplated that certain lands in the immediate vicinity of the terminal now in TVA's custody will be made available for industrial development.

The obligations of the parties with respect to the development of the project are as follows:

A. TVA will:

(1) Design and construct the terminal facilities consisting of a dock and mooring cells, dredged channel, and steel and concrete warehouse substantially as shown in red on the drawing attached hereto as Exhibit A. In connection therewith TVA will make general yard improvements, including floodlighting, fencing, and parking areas.

(2) Design and construct on right-of-way to be acquired by Board a 12-mile-long railroad spur connecting the terminal with the Southern Railway main line, as shown in red on Exhibit B.

B. Board will:

(1) Through issuance of negotiable bonds of the State of Mississippi or other financing methods, provide funds in the amount of $1.5 million to be used for purchase of the railroad right-of-way and approximately 2,000 acres or more of land at the port and along the railroad for industrial development. These property interests will be acquired in accordance with the following priority: (a) the railroad right-of-way; (b) the lands marked in green on Exhibit B attached hereto; and (c) if, after purchase of the aforesaid property, there is available remaining funds, such remainder shall be used for the purchase of additional industrial land from among the tracts marked in orange on Exhibit B until the sum of $1.5 million has been expended.

(2) Convey by deeds in form satisfactory to TVA a perpetual easement and right-to-way for railroad purposes to the United States of America for the railroad to be constructed by TVA.

(3) Be responsible for outfitting the terminal and providing all equipment needed in its operation, either directly or through other state or local agencies.

(4) Provide for all necessary access roads to the terminal and to industrial sites as they are developed for use, in accordance with section 8021.8 of the Mississippi Code of 1942.

C. District will:

(1) Underwrite the operation of the Port Project and the sale of bonds as hereinafter set forth.

(2) Participate in the planning, promotion, and execution of the industrial development program.

All obligations of TVA hereunder are contingent upon the availability of funds for this purpose.

Promptly upon execution of this agreement, if it has not already done so, TVA will request appropriations from the Congress to carry out the work set forth in section II–A above. To the extent that funds may be available to Board and District for such purposes. Board will proceed immediately with preliminary steps of property acquisition, including mapping, surveying, title examination, and, where possible, the optioning of property interests to be acquired pursuant to section II–B above. Final property acquisition by purchase will begin as soon as Board is notified that TVA has obtained the appropriations necessary for the design and construction of the terminal. When Board has purchased and conveyed to TVA the railroad easement provided for in section II–B above, TVA will begin actual construction of the terminal and railroad. Construction of access roads to the terminal will be coordinated with TVA's construction schedule.

III. LAND ACQUISITION

In order to assist Board in acquiring land and landrights which it is responsible for providing hereunder, and in order to coordinate property acquisition with TVA's design and construction requirements, TVA will make available, when and as requested, at Board's expense, technical assistance in land acquisition, including the following:

(1) Surveying of property and preparation of land ownership maps.

(2) Preparation of title abstracts and title reports.

(3) Preparation of appraisals, including the procuring of services of outside appraisers when necessary.

(4) Land buying services, including the negotiation of option and sales contracts, preparation of deeds, and handling of closings.

(5) Furnishing TVA personnel for use as witnesses in condemnation proceedings.

For all services performed pursuant to subparagraphs (1) through (5) above, TVA will be reimbursed by Board for its actual direct costs, plus applicable overheads. All of the above technical services will be furnished by TVA in accordance with written plans and specifications covering details of the specific work to be performed and the responsibility of each party in connection therewith which will be agreed upon in advance by Board and TVA. It is understood that, except for TVA's furnishing witnesses as set forth in subparagraph (5) above, Board shall be solely responsible for carrying out any condemnation which may be required.

In addition, TVA will make available to Board upon request, without cost, results of preliminary mapping, title, and appraisal work which has heretofore been performed by TVA in connection with planning for the project.

IV. OPERATION AND MAINTENANCE

After construction is complete, TVA will transfer operating control of the terminal facilities and railroad to Board, which will be responsible thereafter for its maintenance and operation as a general purpose, public-use river terminal. It is contemplated by parties, pursuant to the provisions of section 8 of the Act, that the terminal shall be operated and maintained by Board acting through a State Inland Port Authority (hereinafter called "Port Authority"), which shall be solely responsible to Board. Board shall be fully responsible for the activity of Port Authority and its employees, servants, and agents.

Title to the railroad facilities and railroad right-of-way and to all facilities built or constructed on land in TVA's custody shall remain in TVA. Board will maintain said facilities in good repair according to sound business practices and perform in proper and expeditious manner all terminal operations which may be necessary to provide adequate terminal services for all shippers, receivers, and common carriers requesting such services. Board will establish reasonable and

equitable rates and charges for these services which shall be applied without discrimination among parties requesting such services.

Board shall appoint a qualified port director who shall be responsible for management of the port and railroad facilities. The selection of the port director shall be concurred in by TVA and Port Authority. In order to provide trained personnel for operation of the port, Board and District will exercise their best efforts to arrange with Tishomingo County Board of Supervisors to send a minimum of five (5) county employees to an approved port to learn the procedure of loading and unloading barge cargo. Payment of the salaries and expenses of these personnel will be by Tishomingo County during training. Thereafter, to the extent that their services are used by Board or Port Authority, their salaries and expenses will be paid by Board. Additional employees and supervisory sufficient in number to maintain adequately and operate the port may be added from time to time, but only when in the exercise of sound business judgment such additional employees and supervisors are required. Every effort will be made by the parties to avoid unnecessary overheads in the operation of the port.

V. INDUSTRIAL DEVELOPMENT ACTIVITIES

Maximum utilization of the Port Project can be realized only through effective planning and development of the terminal and industrial sites. Board will be responsible for enlisting the full cooperation of agencies of the State of Mississippi and local government in this connection. TVA and District will work with the Yellow Creek Watershed Authority, the North Mississippi Industrial Development Association, and other local groups interested in industrial development to promote the use of the terminal and the development of new and existing industries. In this connection, the parties will agree upon a preliminary plan to guide in the development of the industrial sites along the railroad spur. In addition, TVA will prepare and make available detailed studies of various industrial groups with potential for the area.

VI. LAND SALE AND MANAGEMENT

TVA and Board will make a physical survey of all property acquired for industrial use and a detailed plan of development for these sites will be drawn up. The sale of industrial land by Board will be at prices deemed by it to be reasonable; provided, however, that no land shall be sold for less than its appraised value without concurrence of TVA and District.

Land may be leased or rented by Board for agricultural purposes prior to the time it is needed for project construction or industrial development purposes. The amount charged for the rental or lease of such land will be no more or less than the amount charged for land of similar type and quality in Tishomingo County. In order to carry out the resource development purposes for which the federal investment in the project is being made, Board agrees that, except for the temporary rental or lease of land for agricultural purposes, no land may be sold or used for any purposes other than for project construction or industrial development purposes without the prior written approval of TVA.

VII. UNDERWRITING BY DISTRICT OF BONDS AND OPERATION OF PORT

District shall establish an escrow fund in an amount of $150,000 or an amount sufficient to pay the estimated deficit to be incurred in the first three years' operation of the Port Project, whichever amount is smaller, and shall, from time to time, deposit any additional sums in said escrow account to insure that there will be on deposit in said fund at all times an amount sufficient to meet the estimated deficit from the operation of the Port Project for a period of three years and the payment of principal of all bonds maturing and interest accruing during the next 12-month period. Said funds shall, insofar as practicable, be funds which District has allocated for projects of a local nature in each of the aforesaid counties. Provided, however, that nothing in this contract shall be construed to limit or restrict in any way the unconditional guaranty of District to underwrite fully the operation of the port and/or obligations incurred by Board and the bonds to be issued by the State.

In consideration of the action of District in underwriting the project as aforesaid, the parties agree that District shall be reimbursed from the gross revenues of the Port Project for all reasonable and necessary funds which District is required to expend for engineering, auditing, legal, and other professional services.

When District has been fully reimbursed for all sums so expended, and for all sums it has been called upon to pay by virtue of underwriting said project, and when all of District's obligations and contingent liabilities under this contract have been fully discharged, then all rights, duties, obligations, powers and immunities conferred upon District by this contract shall terminate.

VIII. ISSUANCE, SALE, AND VALIDATION OF BONDS

There shall be issued from time to time bonds of the State of Mississippi, as provided in the Act, in an amount or amounts not exceeding the limits now provided by law or increased limits which may hereafter be provided, the proceeds of which shall be used solely for the purposes as set forth herein. Said bonds shall be issued by the State Bond Commission with the concurrence of the Commission of Budget and Accounting, and upon sale the proceeds are to be placed in a development fund as hereinafter provided. If the proceeds of any such issue, by error of calculation or otherwise, shall be less than the amount necesssary to meet the provisions of this contract, additional bonds in like manner may be issued to offset the deficit, subject to the limitations provided now for hereafter raised by law, and, unless otherwise provided in the resolution authorizing the issuance of bonds, said additional bonds shall be deemed to be of the same issue and shall be entitled to payment from the same funds provided for herein without preference or priority over the bond first issued for the same purpose.

Such bonds shall bear date or dates, be in such denomination or denominations, bear interest at such rate or rates, be payable at such place or places within or without the State of Mississippi, shall mature absolutely at such time or times, be redeemable prior to maturity at such time or times and upon such terms, with or without premium, shall bear such registration privileges, and shall be substantially in such form, all as shall be determined by resolution of Board; provided, however, that such bonds shall mature in annual installments beginning not more than four (4) years from date thereof and extending not more than thirty (30) years from date thereof.

The Attorney General of Mississippi shall represent the State Bond Commission in issuing, selling, and validating the bonds herein provided for, and Board is hereby authorized to expend a sum not exceeding $15,000 from the proceeds derived from the sale of said bonds to pay the cost of approving attorneys' fees, validating, printing, and the cost of delivery of such bonds.

The bonds issued from time to time shall share ratably in the funds pledged for retirement of bonds, and shall be entitled to payment from said funds without preference or priority as between the various issues or series of bonds.

IX. DEVELOPMENT FUND

Unless otherwise provided for herein, the proceeds of the bonds, including accrued interest, shall be placed in a special fund or funds to be known as the "Development Fund" and shall be deposited in a bank or banks duly qualified to act as county depositories, allocated in such equitable manner as provided by statute and as Board may determine. Such depository or depositories shall qualify as such by depositing bonds or other securities in the amount and as authorized by law to secure deposits in state depositories; provided, however, that if it shall become lawful to invest said construction funds at interest, then Board may in its discretion so invest any funds on hand in United States Government securities or other securities authorized by law until such time as said funds are needed to defray the cost of the land acquisition or other authorized purposes for which the said bonds were issued. Interest, if any, so earned on such investments shall be paid into the Development Fund. The proceeds of such bonds shall be used by Board solely for payment of the cost of its share of the Port Project and the redeeming of outstanding bonds, such purposes to include the following:

(a) The cost of acquiring the railroad right-of-way and industrial land provided for in section II–B hereof, including all engineering, surveys, appraisals, court costs, attorneys' fees, and other necesssary charges and costs incidental to acquiring said land, and including the reimbursement of District and Board for actual costs incurred in acquisition of property interests.

(b) The costs incurred by Board in acquiring, constructing, and improving the necessary access roads to the terminal, or to developed industrial land.

(c) The cost of approving attorneys' fees, validating and printing of bonds and the delivery thereof, not to exceed $15,000.

(d) The reasonable cost of employing engineers to make any required independent determinations and appraisals by Board relating to the Port Project.

(e) The interest on bonds pending use of funds.

(f) The amount expended for outfitting the terminal and providing equipment needed in the operation of the Port Project.

(g) If the proceeds of the bonds of any issue shall exceed the amount required for carrying out Board's obligations hereunder, the surplus shall be paid into the Bond and Interest Sinking Fund.

The Development Fund shall be administered by Board with such restrictions as the resolution authorizing the issuance of the bonds may specifically provide.

X. DISPOSITION OF REVENUES

It is anticipated that Board, through proper operation and management of the terminal and the industrial lands, will obtain sufficient revenue to meet all costs of operation, maintenance, renewals, and replacement; to meet the obligations of the bonds issued for the project; to repay the federal investment in the project; and to take an active role in industrial development in the northeast Mississippi area. In order to achieve these objectives, the parties have agreed upon the disposition of revenues from the Port Project as hereinafter set forth.

The gross receipts from the sale or lease of industrial lands, and all rents, fees, tolls, revenue, or other monies from any and all other sources or charges whatsoever prescribed, levied, and collected for the use, occupany, or sale of any part of the industrial development land or from the use or occupany of any part of the terminal facilities, together with all tariffs, fees, tolls, and charges resulting from the operation of the terminal and railroad, and the proceeds of all sums required to be paid by District in carrying out its obligations to underwrite the Port Project, and all monies from every source whatsoever received by Board and/or Port Authority in connection with the Port Project, are herein defined as "gross revenue." Said gross revenue shall be deposited in a bank or banks qualified to act as county depositories to be selected and designated from time to time by Board in an account or accounts to be known as the "Gross Revenue Fund of Yellow Creek Port." All of said gross revenue shall be set aside exclusively for the payment of any bonds issued by the State for the Port Project and for the other purposes set forth in this contract, and shall not be commingled with the funds of any other port, harbor, or other undertaking.

A. Dispostion of Gross Revenue

Gross revenue shall be applied according to the following priorities:

(1) To current expenses of operating the Port Project, including, but not limited to, the costs of necessary maintenance, repairs, and alterations; salaries and wages; costs of materials and supplies; insurance; auditing; legal and professional services; and the sums required for promotion, advertising, and expansion of said facilities under normal, reasonable, and economical management as determined and approved by Board and TVA.

(2) To the Sinking Fund an amount sufficient to meet current bond obligations.

(3) To a reserve fund for major repairs, renewals, contingencies, and replacement of equipment, computed on the basis of normal straight-line depreciation; and cash working capital adequate to cover operating expenses for a reasonable number of weeks.

(4) To the sums to be paid into the State Ports Fund provided for in section XII hereof.

(5) Commencing on the date upon which all bonds issued for the Port Project shall have been paid, or upon which the amount in the Bond and Interest Sinking Fund hereinafter described shall become sufficient to amortize all outstanding bonds, there shall likewise be paid from gross revenues the following: (a) to District, an amount which at a five-year (5) annual rate would repay without interest all sums expended by it for underwriting payments and expenses as provided for in section VII hereof; (b) to TVA, as repayment of TVA's investment in the project and in lieu of any

rental, lease, or other charges by TVA or the United States for the use of the terminal and/or railroad facilities, equal annual installments on July 1 of each year which shall be sufficient in amount to amortize the TVA investment as hereinafter defined within twenty-five (25) years from the date said payments commence; provided, however, that in no year shall said payment exceed eighty percent (80%) of the gross revenues remaining after the requirements of subsections (1) through (5a) are met for the preceding 12-month period. Credit toward annual payments shall be allowed for any sums which, with TVA approval, shall have been used by Board in making major improvements or additions to the port facilities, title to which shall be transferred to the United States, or in carrying out other approved area development projects. Said annual payments shall cease when the total TVA investment shall have been paid or credited in accordance with this subsection. For purposes of this agreement, the TVA investment shall include the appraisal value of all land or landrights upon which the terminal is constructed; the actual costs of design and construction of terminal facilities and railroad, including applicable overheads; together with interest on the unpaid principal at the rate of four and five-eighths percent (4⅝%), compounded annually, said interest to commence on July 1 of the fifth year after completion of construction.

After the TVA investment, as defined above, including interest, has been repaid in full, TVA, as agent for the United States, shall, subject to the provisions of the TVA Act or other applicable statutes, transfer to Board or its designee title to the terminal facilities and railroad, including land or land rights upon which they are situated. In the event the Board should purchase the terminal facilities and railroad from the United States prior to said repayment, credit shall be given toward the purchase price for all cash repayments pursuant to this subsection which are properly allocable to principal, as well as for the reasonable value of any improvements or additions made by Board pursuant to this subsection which become the property of TVA or the United States.

B. Disposition of Net Revenue

The items covered by subsections A–(1) through A–(5) above shall be lawful deductions from gross revenues, and "net revenue" is hereby defined as gross revenue of the Port Project remaining after deduction of the sums provided for in said subsections A–(1) through A–(5).

Said net revenue shall be applied as follows:

(1) to the sums required to be paid into the Bond and Interest Sinking Fund as provided by the resolution or resolutions directing the issuance of bonds;

(2) to the sums required to establish and maintain the Bond Reserve Fund, if any, as may be provided by the resolution or resolutions directing the issuance of bonds;

(3) To the sum or sums required to meet the provisions of the resolution or resolutions directing the issuance of bonds with respect to redemption prior to maturity; provided, however, that if no such bonds be outstanding, then the remaining net revenue shall be used by Board for the improvement, operation, advancement, development, maintenance, and advertising of the Yellow Creek Port, or other area development projects which shall have been approved by TVA.

The said gross receipts shall be received and immediately deposited as provided above. The annual operating funds, defined in subsection A–(1) above, shall be administered by the Port Authority under the direction of the Board. The reserve funds defined in subsection A–(3) above shall be administered by Board.

XI. BOND AND INTEREST SINKING FUND

Funds for repayment of bonds and interest thereon, as required by the resolution or resolutions directing the issuance of bonds, shall be deposited in a fund to be controlled and administered by Board and to be designated as the "Bond and Interest Sinking Fund of the Port."

Said Sinking Fund shall be pledged to and charged with payment of:

(a) The interest on bonds issued under this contract as such interest shall accrue.

(b) The principal of such bonds as the same shall become due.

(c) The necessary charges of the paying agent or paying agents for principal and interest of and on such bonds.

(d) Any premium on bonds retired by call or purchase as may be provided therein.

The use and disposition of such Sinking Fund shall, in addition, be subject to such regulations as may be provided in the resolution or resolutions directing the issuance of bonds, and subject to the provisions of the Act.

XII. STATE PORTS FUND

Commencing after the first year in which the revenue of the Port Project shall be sufficient to meet the requirements of subsections A(1) and A(2) of section X, there shall be paid anually a sum not to exceed $500 each year, which sum shall be paid into a separate fund in the State Treasury to be known as the State Ports Fund. Such fund shall be used by Board for the promotion, development, construction, improvement, expansion, all maintenance, advertising, and general advancement of the state harbors, ports, rivers, channels and waterways, and may be expended on requisition of Board for such purposes and for such other purposes as in the opinion of Board may be to the best interest of the ports, harbors, and waterways of the State, including payment of salaries of personnel of Board staff who perform duties in connection with the Port.

The amount to be paid annually may be increased or decreased on order of Board, concurred in by TVA and District. Nothing in this section of the contract shall be construed to limit the amount which Board may spend or authorize to be spent in the administration, promotion, and advertising of the Port.

XIII. BREACH OR DEFAULT

In the event of default by Board or Port Authority of any material obligations hereunder, including default in the annual payment to TVA of the sums provided in section X for any two (2) consecutive years, TVA may, at its option, assume custody and control of all, or any part of, the port and railroad facilities constructed hereunder and may thereafter at its option maintain and operate said facilities until conditions giving rise to the breach are corrected or, in the event of default of payment to TVA, until sufficient funds are accumulated to discharge all delinquent payments. These remedies shall be cumulative and without waiver of any other remedies provided by law.

XIV. BUDGET AND REPORTS

The Port Authority shall prepare and adopt an annual budget for the operation of the Port Project, which budget shall be subject to the approval of District, TVA, Board, and the State Commission of Budget and Accounting, and expenditures for the operation of said Port Project shall not exceed the amount included in the budget. Said budget may be amended from time to time upon good cause shown therefor. The budget shall include adequate funds for the efficient operation of the Port Project and may provide for adequate reserves for operation, maintenance, replacement, construction, repairs, promotion, advertising, expansion and new facilities of the Port Project, and for unforeseen emergency expenditures, and such items as adopted and approved shall be considered as reasonable expenses of port operation and maintenance.

Port Authority and Board shall keep general books of accounts relating to the Port Project according to standard accounting practices. Board, or its designated agent, will conduct an annual audit of the books and records of Port Authority, the results of which shall be made available to TVA and District on request. In addition, Port Authority shall allow the duly authorized agents of TVA and District to have free access at all reasonable times to all books and records relating to the operation and maintenance of the port.

Port Authority shall submit annually to the District, Board, and TVA a full report of its work and all transactions carried on by it and a complete statement of all its revenues and expenditures at such time and in such form as may be directed by Board. Port Authority shall furnish Board and TVA monthly financial statements and such other reports and information in such form as they may require from time to time, and so long as any bonds are outstanding shall furnish copies thereof to District.

XV. INSURANCE

For the benefit of the bondholders and other interested parties, Board will provide and maintain in full force at all times sufficient insurance, including fire, windstorm, and extended coverage, to insure replacement of docks, buildings, equipment, or other facilities damaged or destroyed. Board will, in addition, carry workmen's compensation, public liability, business interruption, and other insurance as may be required by law or by the resolution or resolutions directing the issuance of bonds. Said insurance policies shall be in amount and form satisfactory to TVA, and TVA and the United States shall be included as named insureds in all such policies.

XVI. DEFICIENCY TO BE PAID BY STATE

The bonds issued under the provisions of this contract shall be payable first from the Bond and Interest Sinking Fund provided for herein and next by District from any funds available to it. They shall be general obligations of the State of Mississippi backed by the full faith and credit of the State, and if the funds available to Board and District shall be insufficient to pay fully at maturity any installment of principal or interest or both on said bonds, then the deficiency shall be paid by the State Treasurer from any funds in the State Treasury not then otherwise appropriated, and all such bonds shall contain recitals on their face substantially covering the foregoing provisions.

XVII. POLLUTION

Board and Port Authority will not use or permit the use of the land on which the terminal facility is built for any purpose that will result in the draining or dumping into Yellow Creek or Pickwick Reservoir of any refuse, sewage, or other material which in the judgment of TVA or the State Air and Water Pollution Control Commission would degrade water quality to an extent that would be incompatible with the public interest.

XVIII. POLITICAL ACTIVITY

No employee of Port Authority shall take an active part in partisan political management or in any partisan political campaign; provided, however, that this provision does not prohibit political activity in connection with:

A. An election and the preceding campaign if none of the candidates is to be nominated or elected at that election as representing a party any of whose candidates for presidential elector received votes in the last preceding election at which presidential electors were selected; or

B. A matter which is not specifically identified with a national or state political party such as questions relating to constitutional amendments, referendums, approval of municipal ordinances, and others of a similar character.

This section is not intended to, and does not, affect the right of Port Authority employees to vote as they choose and to express their opinion on political subjects and candidates.

XIX. COMPLIANCE WITH CIVIL RIGHTS ACT

Board and Port Authority agree to comply with title VI of the Civil Rights Act of 1964 and part 302 of chapter II in title 18 of the Code of Federal Regulations in conducting its programs and in its employment practices.

XX. RESTRICTION OF BENEFITS

No director, agent, or employee of TVA, Board, District, or Port Authority shall be admitted to any share or part of this agreement or to any benefit that may arise therefrom, but this provision shall not be construed to extend to a corporation contracting for its general benefit.

XXI. AMENDMENTS

The terms and conditions of this contract may be amended or changed by mutual consent of Board, District, and TVA except as otherwise specifically pro-

vided in the resolution or resolutions authorizing the issuance of bonds.

In witness whereof, the parties hereto have executed this instrument in counterpart on this the 1st day of May, 1969.

Attest:

MISSISSIPPI AGRICULTURAL AND INDUSTRIAL BOARD,
By BRAD DYE,
Director.
PAUL S. BURT, Jr.,
Secretary.

Attest:

TENNESSEE VALLEY AUTHORITY,
By L. J. VAN MOU,
General Manager.
MADGE EVANS,
Assistant Secretary.

Attest:

TOMBIGBEE RIVER VALLEY WATER MANAGEMENT DISTRICT,
By B. H. FOWLKES,
President.
C. R. CAVINESS,
Secretary-Treasurer.

HOUSE ALLOWANCE FOR YELLOW CREEK PORT

Senator ELLENDER. How much was allowed by the House for the Yellow Creek project?

Mr. VREELAND. There is an additional $800,000 in the bill as passed the House which was not contained in the President's budget.

Senator ELLENDER. That is in addition to the $450,000 that we provided last year, and which will be available beginning in the next fiscal year, how much was included in the budget for fiscal year 1971?

Mr. VREELAND. The budget had no additional moneys.

Senator ELLENDER. No additional funds were recommended, but you are asking for $800,000 more.

Mr. VREELAND. The House allowed us $800,000 more, and we are continuing to support the President's budget.

Senator ELLENDER. So that, with the House allowance, you will have available for expenditure next year $2¼ million?

Mr. VREELAND. Yes, sir; if the bill goes through in its present state.

Senator ELLENDER. All right. I want to be sure that your contract is in the record and that the Federal cost is repayable.

Mr. VREELAND. Yes, sir; we will put that in the record.

Senator ELLENDER. If the Federal investment is not repayable, as I told some of the people who talked to me about it, I would be opposed to the appropriation. In fact, I would recommend against it to the committee.

Mr. VREELAND. Yes, sir.

Senator ELLENDER. That is, unless the Federal cost is repayable. If the Federal cost is repaid to the Government, it is all right.

Mr. VREELAND. All right, sir.

DUCK RIVER PROJECT

Senator ELLENDER. The President's budget contained a request of $50,080,000 for the TVA. The bill, as passed by the House, increases

this to $54,180,000. You have accounted for $800,000 of the increase. What other projects were affected by the increase?

Mr. VREELAND. The remaining $3.3 million is for the Duck River project, which includes the Columbia and Normandy dams.

Senator ELLENDER. Now as to the Duck River project, would you explain the status of financing of this project and the work that would be done if the level of financing approved by the House is written into the final appropriation bill.

Mr. VREELAND. Initial financing for this project was provided for fiscal year 1970. The $1.3 million appropriated was placed in budgetary reserve, and we have been informed that this money will be released from reserve on July 1. The House has recommended an additional $3.3 million for this project. We can make available a table showing how this $4.6 million could be spent if it is available in fiscal year 1971.

Senator ELLENDER. Would you place that table in the record?

Mr. VREELAND. Yes, sir.

(The table referred to follows:)

DUCK RIVER CAPABILITY—1971

[In thousands of dollars]

	Columbia	Normandy	Total
Land acquisition	300	1,000	1,300
Design and construction of highway relocations	100	500	600
Construction plant, equipment, and inventories		1,400	1,400
General engineering, design, supervision, and administration	400	900	1,300
Total	800	3,800	4,600
Total project cost	$53,500,000	$25,000,000	$78,500,000
Benefit-cost ratio	1.0:1	2.1:1	1.3:1

UPPER FRENCH BROAD PROJECT, NORTH CAROLINA

Senator ELLENDER. Funds provided for the Upper French Broad project in fiscal year 1970 were placed in budgetary reserve. What is the status of these funds?

Mr. VREELAND. Our latest information is that the $300,000 appropriated for the Mills River unit of the Upper French Broad project will remain in budgetary reserve.

Senator ELLENDER. For the information of the committee I would like to have an indication of your capabilities for this project in the coming fiscal year.

Mr. VREELAND. We can get that information and supply it for the record.

Senator ELLENDER. All right.

(The information requested follows.)

1. No financing available until October 31, 1970.
2. Fiscal year 1971 work will be limited to the Mills River unit.
3. Fiscal year 1972 funding will be at about $4 million level.

Under the above assumptions, fiscal year 1971 capability for this project is about $2 million. Details of the estimated application of funds in 1971 and 1972 are as follows:

[In thousands of dollars]

	1971	1972
Land acquisition	$1,400	$1,600
Reservoir (beginning of highway relocations)		400
Dam (beginning sluiceway construction)		200
Construction plant, equipment, and inventories		700
Construction supervision and services		200
Engineering and design	500	700
General administration	100	200
Total	2,000	4,000

NOTES

(1) The availability of funds at October 31, 1970, allows insufficient time for advancement of design sufficient to permit an on-site construction start in the spring of 1971. Design can be completed for a fall 1971 start; however, a start in the fall is impractical because of winter weather conditions in this mountainous area. Accordingly, the above application of funds assumes an on-site construction start for Mills River about March 1972.

(2) The estimate of $4 million for 1972 includes about $500,000 for engineering and design related to the dam and reservoir scheduled to follow construction of Mills River. All other funds shown for 1971 and 1972 would be applied to Mills River.

(3) The estimates above do not provide funds for the manpower development program which has previously been proposed in connection with the Upper French Broad project.

OPPOSITION TO UPPER FRENCH BROAD PROJECT

Senator ELLENDER. We have had several letters in opposition to this project. Has TVA received any letters of this type?

Mr. VREELAND. Yes, Mr. Chairman. Most of the letters of this type we have received have come from persons who will be affected by construction of the Mills River Unit.

Senator ELLENDER. Do these letters indicate a lessening of local support for the project?

Mr. VREELAND. I don't think so. The major local organization we work with is the Upper French Broad Economic Development Commission. This commission has actively supported the entire Upper French Broad project. In fact working on the project is their principal reason for existence. The Commission was formed by the governing bodies of the counties directly affected by the project. As I understand the law under which the Commission was established any of the county governments can withdraw their support on reasonably short notice.

To date none of the counties have indicated any intention of withdrawing from the Upper French Broad Economic Development Commission. The decision to continue support of the principal local sponsor of the project has been made by elected local officials. I think this indicates strong support by the citizens who elect these people.

TELLICO DAM, TENN.

Senator ELLENDER. I have here a letter opposing the Tellico Dam on the Little Tennessee River. The writer raises 11 questions concerning this project. I would like you to take this letter and supply TVA's answers to these 11 questions.

Mr. VREELAND. We will supply them for the record, Mr. Chairman.

(The information requested follows:)

1. The Tellico project will inundate an historic and beautiful countryside so situated that it could well take some of the recreational pressure from the adjacent federal park during its busiest seasons.

Answer: The Tellico project will supplement the recreational opportunities provided by the Great Smoky Mountains National Park by providing a base for water-oriented recreation. The project will also provide an opportunity for state and local governments to create parks along the reservoir shoreline. These parks will be able to reduce the pressure on the adjacent national park and national forest. Without the Tellico project it is highly unlikely that a significant recreation complex would be established in this area.

2. It will drown forever what I believe to be the greatest 35 miles of trout fishery east of the Mississippi River—one reasonably available to the overcrowded urban areas of the eastern United States.

Answer: The trout fishing along the stretch of the Little Tennessee River below Chilhowee Dam was made possible by TVA's construction of Fontana Dam in the early 1940's. Cold water from this reservoir keeps the stream at a temperature that enables trout to live. However, trout will not reproduce in this stream so fishing is supported on a put and take basis, that is the stream has to be stocked each year. After Tellico Dam is completed the stretch below Chilhowee Dam still will be suitable for put and take trout fishing and in addition there are many miles of trout streams in the nearby mountains.

3. It will cost $45,000,000 at a time when government should be looking for reasonable ways to reduce expenditures.

Answer: TVA feels that savings should be made where possible and in our program we continue to explore all means of completing the work we are assigned at the least possible cost. Stopping work on the Tellico project, however, would not be a reasonable economy measure. The funds expended on Tellico are invested in the economic future of the area. These funds will generate benefits that exceed the cost of the project. Congress carefully considered the project before the first appropriation was made and determined that the investment was fully justified. TVA believes that the justification is still present.

4. A reading of the testimony received from the TVA and others has not, in my opinion, proven that the dam is justified by either electrical requirements, water transportation requirements, or the need for new industrial sites.

Answer: The project has substantial electrical generation benefits. Because Tellico reservoir will be connected to Fort Loudoun Lake by a canal TVA will be able to generate an additional 200 million kilowatt-hours of electricity a year, without adding any new generating equipment.

The water transportation and industrial site questions are tied together. By making the Little Tennessee River navigable to Highway 411, Tellico project will make available industrial sites having good access to rail, water, and road transportation.

Surveys of the Knoxville metropolitan area, in which Tellico is located, show that there are no comparable sites available to fill the economic needs that the Tellico sites will fill. Even on Melton Hill Lake, which is in the same general area, remaining industrial sites are relatively small in size and few in number. In fact, in the eastern portion of the Tennessee Valley there is an extreme shortage of industrial sites of a size suitable for large industries that have access to rail, water, and highway transportation.

5. The dam has been consistently opposed by almost every important east Tennessee civic organization and sportsman's club.

Answer: An indication of the public support for the Tellico project can be obtained by looking at the report of the Senate hearings on Public Works Appropriations held in 1966. Following are the names of delegations that appeared in support of the dam.

LOUDOUN COUNTY

Bart Iddins, dairy farmer.
Dr. W. D. Thompson, dentist and president, Tellico Tri-County Development Association.
Ross Wilkerson, squire, Loudoun County Court and Chairman, Loudoun County Industrial Committee.
J. W. Wilburn, Jr., businessman and president, Lenoir City Chamber of Commerce.
Vernon McKinney, editor, Lenoir City News-Banner.
John Cardwell, farmer.
Clarence Burdett, president, Lenoir City Bank.

LOUDOUN COUNTY—continued

Guy Tallent, mayor, Lenoir City, Tenn.
Harvey Sproul, attorney, Lenoir City.
A. M. Beeman, Jr., Lenoir City.

KNOX COUNTY

Dr. Robert W. Newman.
Sexter Willis, Willis Supply Co.
Jim Blevins, Kays Ice Cream of Knoxville.
Ray Jenkins, attorney.
Charles Freeman, Culligan Soft Water Co.
Howard Bozeman, County Judge.
Bradley Van Hoesen, Southern Enterprises.
Leonard Rogers, mayor of Knoxville.
John Bailey, vice president, Hamilton National Bank.
Mike Handley, Knoxville Area Central Labor Council.
Aston Kennedy, president, Volunteer State Bank.
Charles Freeman, Jr., Culligan Soft Water Co.
Willard Yarbrough, Knoxville News-Sentinel.
Conley E. Morris, businessman, Knoxville.

MONROE COUNTY

Lowell Parker, National 5¢ & 10¢ Store, Madisonville.
Henry Johnson, Hicks Furniture Co., Sweetwater and Madisonville.
Charles Hall, mayor, Tellico Plains, Tenn.
H. G. Gangwer, Sr., Fort Loudoun Electric Co-op, Madisonville.
Paul Anderson, mayor, Madisonville.
Joe G. Bagwell, editor, Monroe Citizen-Democrat, Madisonville.
J. D. Lee, attorney, Madisonville.
Van Michael, attorney, Sweetwater.
Lynn Sherlin, Radio Station WDEH, Sweetwater.
Carroll Cagle, Firestone Store, Madisonville.
Ted Hamilton, Sequoyah Drive Inn, Tellico Plains.
O. S. Sexton, High School Principal, Madisonville.
Fred Hawkins, retired businessman, Tellico Plains.
Kenneth (Sam) Ingram, Prudential Insurance Co., Sweetwater.
Ronald P. Saylor, executive director, Monroe County Industrial Development Association.
Sanford Tate.

BLOUNT COUNTY

Frank Bird, attorney.
Roy Headrick, United Steelworkers, Local 309.
Hoyt Cooper, United Steelworkers, Local 309.
F. A. Greene, Greene Realty Co.
Hugh Calloway, President, Calloway Oil Co., Maryville.
Pat Moroney, Moroney Oil Co.

In addition, the Committee received letters and resolutions in support of the project from the following.
Nichols School PTA of the City of Lenoir City.
Loudon County Rescue Squad.
Gamma Theta Chapter of Beta Sigma Phi of the City of Lenoir City.
Lenoir City Utilities Board of the City of Lenoir City.
Lenoir City Women's Club of the City of Lenoir City.
Clionian Club of the City of Lenoir City.
Tellico Tri-County Development Association.
Surburia Junior Women's Club of the City of Lenoir City.
Pilot Club of the City of Lenoir City.
American Legion Post No. 70 of Lenoir City.
Junior Chamber of Commerce of the City of Lenoir City.
Lenoir City Regional Planning Commission.
Clionian Literary Club of the City of Lenoir City.
Board of Directors of the First National Bank of Lenoir City.
Rotary Club of the City of Lenoir City.
Chamber of Commerce of the City of Lenoir City.

Madisonville (Tenn.) Junior Chamber of Commerce.
Monroe County Industrial Development Association, Inc.
Sweetwater (Tenn.) Junior Chamber of Commerce.
Sweetwater (Tenn.) Kiwanis Club.
Tellico Plains (Tenn.) Kiwanis Club.
North Loudon County Planning Commission.
Loudon Regional Planning Commission.
Madisonville Jaycees.
Tennessee Rural Electric Cooperative Association.
Tennessee Valley Public Power Association.

Also, resolutions in support of the project were received from the following public bodies and officials.
Mayor and Council Members of the City of Knoxville.
Mayor and Board of Aldermen of the City of Lenoir City.
Mayor and Board of Aldermen of the Town of Tellico Plains.
Mayor and Board of Aldermen of the Town of Madisonville.
Blount County Court Members.

6. In a region where there are hundreds of miles of lakeshore available to the public, and ample cheap electric power, it seems illogical that one more dam can replace a great river resource in the public interest.

Answer: The benefits mentioned in earlier answers clearly indicate the value of this section of the Little Tennessee River to the area and nation will be greatly enhanced by the Tellico project.

7. On September 22, 1964, TVA Chairman Wagner, in a public statement at Greenback, Tennessee, said that flood control, power production and recreational values "were relatively insignificant as justifications for the Tellico Dam Project."

Answer: Mr. Wagner, by his statement, was indicating that in relation to the future well-being of the area the general economic development benefits were probably the most significant aspect of the project. On April 19, 1966, in testimony before the House Appropriations Committee Mr. Wagner stated that flood control and power benefits totaled an estimated 21.7 million dollars.

8. Nearly 60% of the capitalized benefits from the Tellico Dam were assigned to industrial development, yet Tennessee already has over 72,000 acres of industrial land on navigable waters. The State Planning Commission has already identified 13 available waterfront sites in the vicinity of the proposed Tellico Dam, yet these have not attracted a single industry in the past 20 years.

Answer: The 13 "sites" mentioned were identified by the State's Planning Commission as "waterfront areas designated for study." None of the 13 locations have first-class qualification; that it, suitable size, and access to water, railroad and highway transportation. That is why the locations have not been developed. As stated earlier, our experience at Melton Hill Lake shows that industrial sites in East Tennessee having these qualifications will be quickly developed.

9. It would take an impressive amount of industry just to recoup the economic losses the dam would create. The disruption of 300 farm families—a $3,000,000 annual yield in agricultural products, a $1,000,000 forestry nursery and a foreseeable $5,000,000 float fishing and tourist industry.

Answer: Annual benefits of the project will far exceed the value produced by the agricultural and forestry enterprises that will have to be relocated. Recreation benefits will be greatly enhanced over those that the river could generate in its present state.

10. Fourteen dams have been built on the Little Tennessee since 1913. TVA's huge Fontana Dam has controlled the lower river for many years.

The Clinch River and the Little Tennessee are similar in size and drainage areas, yet the Clinch is considered to be adequately flood controlled with one dam, "Norris."

If flood control is the object of the Tellico Dam, why are not 15 dams sufficient for the Little Tennessee when one suffices on the Clinch?

Answer: Tellico Dam will impound a reservoir which will be on the same elevation above sea level as the neighboring Fort Loudoun Reservoir and will have a controlled storage of 126,000 acre-feet, somewhat more than Fort Loudoun. Since the two will be joined by a short canal, the effect of the project on flood control will be to more than double the storage capacity at this point on the Tennessee River system. In a storm of major proportions in this part of the Tennessee Valley, the existence of Tellico storage could avert several million dollars in damages at vulnerable locations farther downstream on the Tennessee River.

11. It would appear that there is ample evidence the Tellico Dam Project places the TVA in the business of land speculation. It is proposed that 21,000 acres of land be condemned for resale at a profit of 10.9 million dollars. Worth noting is the fact that under TVA land acquisition policies, no land owner whose property is affected can obtain trial by jury as redress.

In the fall of 1965, the TVA was told to re-evaluate the project and I believe that the net of the matter is that no additional funding has been authorized to this point.

Answer: The land acquisition planned for the Tellico project has been designed to assure that benefits made possible by the investment of public moneys accrue to the benefit of the public as a whole. Thus sufficient land is being acquired to assure the optimum industrial development. The 6,000 or more jobs which will be provided by such development will do much to overcome the economic problems of the area. When the Tellico project was approved by Congress, condemnation for TVA projects was conducted under a procedure where disputed cases were heard by a commission appointed by the Federal District Court. Since that time the TVA Act has been amended to coincide with procedures applicable to most other Federal agencies. Under this procedure a jury trial is available unless the District Court Judge believes that justice would be better served by a commission hearing.

The last statement under this point is in error. Since 1966 over 22 million dollars, including more than 5 million dollars for fiscal year 1970, have been appropriated for this project.

FERTILIZER PROGRAM

Senator ELLENDER. The committee has received a letter from Mr. L. W. Lohry, president of Nutra-Flo Chemical Co., Sioux City, Iowa, which opposes the production and sale of fertilizer by TVA. Will you supply for the record TVA's response to the points made in that letter?

Mr. VREELAND. Yes; Mr. Chairman.

(The information follows:)

TVA's fertilizer marketing, to which Mr. Lohry referred, is but one phase of our broad research, development, and education program designed to generate improved fertilizer products and processes for the benefit of the American farmer. Experimental products first produced in very limited quantities in laboratory equipment are tested in the greenhouse. Success at this level moves the product to a pilot plant where the manufacturing technique is studied in more detail and production supplies enough for field tests by State University Experiment Stations.

Although a product may look quite promising in these tests, commercial producers rarely are willing to take over its exploitation at this point. They need additional information and first hand experience to assure that the new fertilizer can be produced economically on a large scale and that farmers will accept it. Thus, TVA usually carries its important process and product developments into demonstration-scale plants. This gives us an opportunity to get the "bugs" out of the process and to supply interested companies with enough of the new product for meaningful testing in their own plants and effective introduction to their own customers.

It typically is only after this final step that the industry adopts the new technology and makes its benefits widely available to farmers and, ultimately, to consumers.

We are acutely aware that fertilizer prices for some time have been extremely depressed. This primarily is the result of burdensome supplies built up as the industry brought new plants on stream at an abnormally fast rate in recent years. We are confident that TVA's production, which amounts to only a fraction of one percent of the nation's total and goes to more than 200 industry cooperators in 40 states, was an insignificant factor in the fertilizer price situation.

As a result of greater receptiveness to new technology, on the part of industry and farmers, we are successfully introducing new products today with a smaller TVA demonstration production than was required several years ago. As a matter of standing policy, we withdraw from the market as a new product gains acceptance and shift our attention to other areas.

To illustrate, the 71,030 tons of 11–37–0 mentioned by Mr. Lohry was the sales total for 1969. This tonnage was about one third less than for 1968, when production had been increased at the urgent request of industry because private production was inadequate to meet the growing demand. Our production of this material will be further reduced as industry takes over the market for it and program demands shrink.

In regard to Mr. Lohry's comment that we sell at low prices, TVA often prices materials slightly below the market level to provide an incentive to test the experimental products. However, no incentive is being provided on the 11–37–0 or on the 15–61–0 ammonium polyphosphate referred to in the letter. In fact, on a plant food basis, both command a small premium. Our 11–37–0 delivers to Sioux City, Iowa for about $1.56 per unit of plant food, compared to $1.48 per unit in readily available commercial 10–34–0. On the solid ammonium polyphosphate, TVA feels that $107 per ton is a premium in comparison with other dry fertilizers.

There is no question but that the development and infusion of new technology into the national economy have led to higher quality fertilizers that cost less to manufacture and sell to farmers, a basic objective laid out in the original TVA Act.

CONCLUSION OF HEARINGS

Senator ELLENDER. That is it. This concludes the hearings on the public works bill for fiscal 1971.

(Thereupon, at 12:50 p.m., Tuesday, June 30, the hearings were concluded, and the subcommittee was recessed subject to the call of the Chair.)

APPENDIX

UNDERGROUND NUCLEAR TESTING

The following communications relative to AEC compliance with the National Environmental Policy Act were received subsequent to the hearings.

NEW YORK, N.Y., *June 30, 1970.*

Senator ALLEN J. ELLENDER,
Senate Office Building,
Washington, D.C.:

This is with regard to Senate Appropriations Committee hearings on June 30 on the fiscal 1971 budget request of the Atomic Energy Commission on military weapons testing. By letter of June 17 from AEC Chairman Seaborg there was transmitted to the Subcommittee on Public Works the statement required by section 102 of the National Environmental Policy Act concerning the AEC weapons tests on Amchitka and elsewhere in FY 1971.

Chairman Seaborg notes in his letter that the draft statement has been submitted for comment by the Environmental Quality Council, and Federal, State and agencies concerned with environmental standards. He also comments that the final detailed statement required by the statute "will not be ready till early fall" in view of the 60-day statutory comment period.

We believe the best course would be a delay of action by the Subcommittee on Public Works on AEC's fiscal 71 request for nuclear testing until full compliance has been effected with the Environmental Policy Act. If, however, the committee does not desire to delay action on this matter we earnestly request that it schedule open hearings so that the Environmental Quality Council, the Federal, State and local agencies concerned with environmental standards and particularly the public at large, may have the right to comment upon the AEC's submission under the statute as contemplated by the statute itself. We deem it highly important that reputable scientists with competence in this field be invited to testify.

MRS. JO POMERANCE,
Chairman.
OSCAR DE LIMA,
Vice Chairman, Disarmament.

NEW YORK, N.Y., *July 1, 1970.*

Senator ALLEN J. ELLENDER,
Senate Office Building,
Washington, D.C.

DEAR SENATOR ELLENDER: I am writing in my capacity of Vice Chairman of the Disarmament Issues Committee of the United Nations Association of the U.S.A.

I am told that the Public Works Subcommittee hearings on the AEC budget for weapons testing have been closed. This is regrettable. I am told that we can submit written statements up to July 8th. What with the paucity of information from the AEC and the July Fourth holiday, we really are put to it.

The Disarmament Issues Committee represents a concerned public, and a competent one.

We feel that the AEC's "Draft Environmental Statement Cannikin" of June 12, 1970 is well intentioned, but inadequate. It doesn't give a scientist—or a Senator—the information, the nuts and bolts data, to arrive at an informed judgment as to the possible environmental effects of Cannikin.

The most important omission is the size of the proposed test explosion. The size will be known to all nuclear-competent states after the test. The American public will know the size after the test. But it is not the foreign nations, it is our country, our public, which will have to live with the possibly unhappy results, and it is we who will have to foot the bill for correcting damage.

The test is scheduled for the autumn of 1971. We hope that the appropriation for Cannikin can be delayed until the AEC can complete its draft statement and make a useful report available to the American public.

Sincerely yours,

OSCAR, A. DE LIMA,
Vice Chairman,
Disarmament Issues Committee, UNA–USA.

U.S. SENATE,
Washington, D.C., July 2, 1970.

Senator ALLEN ELLENDER,
Chairman, Senate Appropriations
Subcommittee on Public Works.

DEAR MR. CHAIRMAN: I appreciate the opportunities you have made available to me to comment on some Atomic Energy Commission programs for which your Committee (and subsequently the full Senate) must consider funds.

Your interest in finding out to what degree the AEC is complying with the new Environmental Policy Act of 1969 (Public Law 91–190) is particularly to be commended, since by its very nature, the AEC deals with man's most powerful contaminants and potentially greatest ecological disturbances. The Council on Environmental Quality, in its "Interim Guidelines" this spring, specifically stated that federal agencies are required to prepare and submit "Environmental Statements" when requesting appropriations and when proposing actions whose environmental impact is "likely to be highly controversial".

It is hard to imagine activities any more controversial than the AEC's underground bomb-testing, the nuclear reactor program, the shipping of radioactive waste around the country, the storage of highly radioactive wastes in Idaho, Washington, and elsewhere, the operation of the Rocky Flats plant near Denver, and the proposed burial of radioactive waste in Kansas—to name a few. I do not intend to comment on all these activities here, but only on the AEC's compliance so far with the Environmental Policy Act with regard to bomb-testing in Alaska and to nuclear power reactors.

The proposed bomb test, CANNIKIN, is treated by the AEC in a statement called "Preliminary Environmental Statement" (AEC General Manager, June 12, 1970). Power-generating reactors are treated by the AEC in a statement called "Implementation of the National Environmental Policy Act" (*Federal Register*, April 2, 1970). All of the AEC's own nuclear reactors—by far the bulk of the country's present inventory—are not covered by this statement, which applies to the reactors operated by electric utilities.

I reluctantly conclude that the Commission's idea of compliance with the Environmental Policy Act will make a travesty out of that law. I believe the law was written to provide the President, the Congress, the states, the localities, and the public with information about the "adverse" environmental consequences of programs *before* they are funded and carried out, and about alternatives in case

the adverse effects suggest the programs are unwise. If this was the intent of Congress, then the AEC compliance so far violates the spirit and possibly the letter of the law.

Consider first the proposed Alaska bomb test, CANNIKIN.

The size of the CANNIKIN test, proposed for autumn 1972, is known but it has been classified. The AEC is neither revealing how many megatons of explosive power the bomb will release nor its seismic magnitude. Classifying the size does not reconcile at all with a full "Environmental Statement" and its review by federal, state, and local officials, since the crucial piece of information is missing.

The effectiveness of classification will apparently be nullified, however, since the explosion's seismic magnitude will register on instruments all over the world, and since its explosive power can be calculated from that. Then why is it that the first test which is subject to the new Environmental Policy Act is also the first big test whose yield is classified?

The AEC's "Environmental Statement" omits other crucial information too. It omits any description of "adverse environmental impact" if anything goes wrong.

For instance, it does not inform us whether or not there might be a massive release of radioactivity if the bomb were to trigger a large earthquake. The detonation will create a cavity with a diameter nearly twice as long as a football field, and this cavity will be filled with intensely radioactive gases under high pressure. What happens if this cavity is involved in a large earthquake? Would this be just another standard earthquake?

The AEC statement does mention, however, the possibility that CANNIKIN conceivably could trigger a bad earthquake. The possibility exists because large earthquakes often begin with small initial quakes which seem to trigger stronger shocks. There may be a great difference in severity between the initial trigger-shock and the largest peak-shock of an earthquake. The AEC's statement, which happens to confound initial shocks with peak shocks, compares the intensity of the CANNIKIN shock with the peak intensity of various earthquakes in the region, and concludes that CANNIKIN will be nothing special. This seems like a rather extraordinary conclusion. Instead of being an event of negligible significance, wouldn't CANNIKIN actually be by far the largest initial shock and potential trigger ever recorded in the Amchitka region?

After calling the triggering chance negligible, the AEC statement also claims that any earthquake which CANNIKIN could trigger would happen sooner or later anyway. In an argument which seems to defy common sense, the AEC is asking us to believe the following, without offering us any evidence for such a belief: If we add the force of a bomb like CANNIKIN, which has force equivalent to a substantial earthquake, to an earthquake which is ready to occur anyway, the consequent earthquake will be *no worse* than it would have been without the bomb. Can you actually add the force of a substantial man-made earthquake to a natural earthquake which is about to occur anyway, and then deny that you have added a tremendous new force to the natural equation?

Fortunately, the least test, MILROW, did not trigger a big quake or cause a tidal wave. But who knows how close we may have come? The AEC's statement fails to deal with the possibility that the negative effects of MILROW might have been spectacular if the test had taken place just before instead of just after the earthquake there on September 11, 1969. Are we going to accept luck as a satisfactory safeguard for saving the environment?

Another question we should be asking is this: Will contaminated water from the CANNIKIN test discharge into the ocean concurrently with radioactive water from the earlier tests, MILROW and LONGSHOT?

The AEC's CANNIKIN statement does acknowledge that, sooner or later, contaminated water will reach the ocean, but the statement nowhere reveals the total quantity of radioactivity which will be added to the environment. The statement speaks only of permissible and excessive concentrations, and assures us that even the latter would be rapidly diluted. My understanding is that the dilution principle was rejected years ago by reputable ecologists who have since been warning us that is is the *accumulation* of pollutants, not their initial dilution, which threatens life.

A technical report about the results of the MILROW test says it is possible that radioactive hydrogen could reach the ocean in six years and continue discharging for the subsequent 66 years at levels up to 300 times the maximum permissible concentration. What are the "conservative" calculations for the migration of CANNIKIN's contaminated water? Is it possible that in less than

ten years, both MILROW and CANNIKIN will be discharging contamination at levels up to 300 times the maximum permissible concentration? I find it inexcusable that the AEC does not confirm, deny, or discuss such matters when supplying information about the possible "adverse impact" of its proposed activity.

Finally, although the law requires an agency's "Environmental Statements" to include "a detailed statement on alternatives to the proposed action," the AEC omits any reference to the SALT talks, alternative weaponry, etc.

I find that the AEC's statement is not a statement designed to give anyone information about the "adverse impact" of CANNIKIN. Rather, it is the familiar advocacy statement using vague assertions in place of data.

It is difficult to see how the Congress and the public could make a judgment about the wisdom of accepting the environmental risks of CANNIKIN, or rejecting them, since the AEC's "Environmental Statement" tells so little about the environmental price and tells nothing at all about what the price is for.

At the time of the MILROW test last fall, it was widely assumed that the Alaska test program would relate to the ABM, a system which almost half of the Senate opposed. On the other hand, the AEC repeatedly asks us to believe that the Alaskan bomb tests are absolutely vital to national security and that therefore we should willingly accept the "remote possibility" of environmental calamity.

In short, the AEC's "Environmental Statement" for CANNIKIN does not discuss the need for the activity, the magnitude of the activity, the possible "adverse environmental impact" of the activity, nor alternatives to the activity. Apparently, AEC compliance with the Environmental Policy Act is a ritual signifying nothing.

Let me turn next to some comments on the AEC nuclear reactor program.

The AEC states explicitly (*Federal Register*, April 2, 1970) with regard to licensing nuclear power plants, that it will comply with the law provided it does not create "unreasonable delay in meeting the growing need for electric power."

The AEC further says, "In most cases, the detailed (environmental) statement will be prepared only in connection with the first licensing action that authorizes full-power operation of the facility". Does this really mean what it seems to mean? Will the AEC wait until a $200-million power plant has been built, counted on, fueled, and prepared to operate before it thoroughly considers the environmental implications? What kind of compliance with the Environmental Policy Act would that be?

Although radioactive contamination, both from normal operations and from reactor accidents, is the unique and irreparable environmental hazard presented by nuclear reactors, the AEC seems to be trying to exclude this matter from review under the Environmental Policy Act. At one point the AEC states, "Nothing in this appendix should be construed as affecting . . .the other and separate provisions of the license which deal with radiological effects." Does that mean that the AEC's present contamination regulations for reactors are not part of the review? Those very regulations pertaining to permissible "radiological effects" are at the very center of public concern about reactors.

Executive Order #11514 (March 5, 1970) on the Environmental Policy Act requires federal agencies to "develop procedures to ensure the fullest practicable provision of timely public information and understanding of federal plans and programs with environmental impact, in order to obtain the views of interested parties. These procedures shall include, whenever appropriate, provision for public hearings, and shall provide the public with relevant information, including information on alternative courses of action."

The AEC's current handling of the "radiological effects" controversy indicates to me that the AEC has no intention of complying fully with that order. On the contrary, the AEC seems to be going to considerable lengths to stop its principal critics (e.g., Dr. John Gofman and Dr. Arthur Tamplin) from providing the public with "relevant information" about the potential adverse impact of the AEC's principal product: radioactivity.

The AEC's reactor licensing procedure has long included routine public hearings on a local level. However, it is questionable whether local consideration is enough, when a really bad reactor accident might contaminate 150,000 square miles—roughly a square with each side extending from New York City to Richmond, Virginia.

Inasmuch as a working reactor can contain as much radioactivity as the explosion of several atomic bombs, the environmental consequences of either an accident or sabotage truly need to be considered under the Environmental Policy Act, and not just on a local level.

Even the normal operation of large reactors will affect whole states and eventually the whole country. For instance, if 165 mammoth power reactors go into operation in the next 30 years, as presently projected, just about every river system in the country will be used to coll them and to flush away "permissible" concentrations of radioactive waste.

Just how safe are the big new experimental reactors? What does it mean when the AEC's Advisory Committee on Reactor Safeguards issues a warning (November 1969) that "safety research in several important areas . . . has not been sufficient . . . The Committee reiterates its belief in the urgent need for additional research and development . . ."? Do we really have enough information presently at hand to move ahead at the pace we are moving?

Like the CANNIKIN statement, the AEC's "statement of general policy" about reactors does not help Congress or the public to answer the fundamental question: in view of the environmental impact and risk, do we want the reactor program at all, and if so, at what price? Again, the AEC fails to discuss alternatives, as required under the Environmental Policy Act.

I am happy to note that one particularly appealing alternative is developing outside the AEC's reactor division, but still within the AEC. I am referring to new break-throughs in fusion power.

For instance, a recent paper by Dr. Richard Post at the Lawrence Radiation Lab foresees fusion-reactors which will produce little or no radioactivity, and only tiny quantities of waste heat. They would be inherently safe, and could probably be built right inside large cities. Furthermore, they would produce no fissionable material for "black-market" atomic bombs. In the June issue of *Fortune* magazine, Dr. Robert Hirsch (until recently the head of the AEC's fusion program) says, "We are now at the point where a lot of money could do a lot of good. We could triple the program over the next five years and still not waste money—something we could not have said a year ago."

Although the AEC Authorization put a meagre ceiling again on the fusion program from Fiscal 1971, it is exciting to contemplate the possibilities if this country undertakes a crash-program in fusion research beginning in Fiscal 1972. Fusion power may actually offer a realistic alternative to the inherently dangerous breeder-reactor program. The breeder-reactors, if they ever work, would annually create tons of plutonium—a substance so toxic that human tolerance is measured in billionths of a gram, and a substance which stays radioactive for more than 24,000 years. This kind of environmental legacy might be left for all generations to come by breeder-reactors, for which approximately four times more money was authorized this year than for fusion. Neither the enormous environmental implications of reactors, not the alternatives like fusion, are discussed yet in accordance with the Environmental Policy Act.

In summary, I think a great many questions like the ones above should be asked and answered before Congress considers the AEC's compliance with the Environmental Policy Act to be satisfactory. This is surely required before this Senator can fully support the AEC program. In the meantime, I commend you and your Committee for taking a leading role in initiating such an inquiry.

Very truly yours,

MIKE GRAVEL.

[From the Federal Register, vol. 35, No. 64—Thursday, Apr. 2, 1970]

TITLE 10—ATOMIC ENERGY—CHAPTER 1—ATOMIC ENERGY COMMISSION, PART 2—RULES OF PRACTICE; PART 50—LICENSING OF PRODUCTION AND UTILIZATION FACILITIES, IMPLEMENTATION OF THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

The National Environmental Policy Act of 1969, Public Law 91–190, authorizes and directs that, to the fullest extent possible, the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies for the protection of the environment set forth in that Act. It also requires, among other things, Federal agencies to include in recommendations or reports on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement on specified environmental considerations.

The Atomic Energy Commission has adopted the statement of general policy, in the form of an Appendix D to Part 50, in which the Commission will exercise its responsibilities under the National Environmental Policy Act of 1969 with respect to licensing of power reactors and fuel reprocessing plants pending (1) the development of more detailed procedures, in consultation with the Council on Environmental Quality established by title II of that Act, (2) the development of arrangements between the Commission and other Federal agencies that may be designated as having jurisdiction by law or special expertise in environmental matters, and (3) the enactment of such legislation as may be proposed by the Commission in compliance with section 103 of that Act.

A conforming amendment to 10 CFR Part 2 has also been adopted.

Pursuant to the National Environmental Policy Act of 1969 and sections 552 and 553 of title 5 of the United States Code, the following amendments to Title 10, Chapter I, Code of Federal Regulations, Parts 2 and 50, are published as a document subject to codification, to be effective upon publication in the FEDERAL REGISTER. The Commission invites all interested persons who desire to submit written comments or suggestions in connection with the amendments to send them to the Secretary, U.S. Atomic Energy Commission, Washington, D.C. 20545, Attention: Chief, Public Proceedings Branch, within 30 days after publication of this notice in the FEDERAL REGISTER. Consideration will be given to such submissions with the view to possible further amendments. Copies of comments received may be examined in the Commission's Public Document Room at 1717 H Street NW., Washington, D.C.

1. The fourth sentence in section III (c) (7) of Appendix A of 10 CFR Part 2 is deleted.

2. A statement of general policy is appended to 10 CFR Part 50 to read as follows:

"APPENDIX D—STATEMENT OF GENERAL POLICY: IMPLEMENTATION OF THE NATIONAL ENVIRONMENTAL POLICY ACT OF 1969 (PUBLIC LAW 91–190)

"On January 1, 1970, the National Environmental Policy Act of 1969 (Public Law 91–190) became effective. The stated purposes of that Act are: To declare a national policy which will encourage productive and enjoyable harmony between man and his environment: to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation; and to establish a Council on Environmental Quality.

"Section 101(b) of that Act provides that, in order to carry out the policy set forth in the Act, it is the continuing responsibility of the Federal Government to use all practicable means, consistent with other essential considerations of national policy, to improve and coordinate Federal plans, functions, programs, and resources toward certain stated ends.

"In section 102 of the National Environmental Policy Act of 1969, the Congress authorizes and directs that, to the fullest extent possible, the policies, regulations, and public laws of the United States shall be interpreted and administered in accordance with the policies set forth in the Act. All agencies of the Federal Government are required, among other things, to include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on certain specified environmental considerations. Prior to making the detailed statement, the responsible Federal official is required to consult with and obtain the comments of any Federal agency which has jurisdiction by law or special expertise with respect to any environmental impact involved.

"Section 103 of that Act provides that all agencies of the Federal Government shall review their present statutory authority, administrative regulations, and current policies and procedures for the purpose of determining whether there are any deficiencies or inconsistencies therein which prohibit full compliance with the purposes and provisions of the Act and shall propose to the President not later than July 1, 1971, such measures as may be necessary to bring their authority and policies into conformity with the intent, purposes, and procedures set forth in the Act.

"Pending (1) the development of more detailed procedures, in consultation with the Council on Environmental Quality established by title II of that

Act, (2) the development of arrangements between the Commission and other Federal agencies that may be designated as having jurisdiction by law or special expertise in environmental matters, and (3) the enactment of such legislation as may be proposed by the Commission in compliance with section 103 of the Act, and consistent with the public interest in avoiding unreasonable delay in meeting the growing national need for electric power, the Commission will exercise its responsibilities under the Act as follows with respect to the licensing of power reactors and fuel reprocessing plants:

"1. Applications for permits to construct and licenses to operate power reactors and fuel reprocessing plants will be transmitted by the Commission to Federal agencies which have jurisdiction by law or special expertise with respect to the environmental impact involved, with a request for comments, to the extent appropriate, on the following environmental considerations:

"(a) The environmental impact of the proposed action,

"(b) Any adverse environmental effects which cannot be avoided should the proposal be implemented,

"(c) Alternatives to the proposed action,

"(d) The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and

"(e) Any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

"2. After obtaining the comments from those Federal agencies, the Commission's Director of Regulation or his designee will prepare a detailed statement on the environmental considerations specified in the preceding paragraph. Copies of the detailed statement and the comments and views of the appropriate Federal, State, and local agencies, which are authorized to develop and enforce environmental standards, will be made available to the President, the Council on Environmental Quality and to the public as provided by section 552 of title 5 of the United States Code, and will accompany the application through the Commission's review processes. In preparing the detailed statement, the Director of Regulation or his designee may reply, in whole or in part, on, and may incorporate by reference, the comments and views of those Federal, State, and local agencies, as well as the regulatory staff's radiological safety evalulation. The detailed statement will be limited to the environmental effects of the facility that is subject to the licensing action involved.

"3. With respect to those proceedings which take place in the immediate and near future, it is recognized that the detailed statements may not be as complete as they will be after there has been an opportunity to develop appropriate working arrangements between the Commission and other Federal agencies having jurisdiction by law or special expertise in these matters. With respect to the operation of power reactors, it is expected that in most cases the detailed statement will be prepared only in connection with the first licensing action that authorizes full-power operation of the facility.

"4. The filing of the detailed statement described in paragraphs 2 and 3 shall in no way be construed as extending the licensing or regulatory jurisdiction of the Commission to making independent determinations on matters other than those specified in Part 50 of its regulations for construction permit or operating license applications.

"5. The Commission will incorporate in construction permits and operating licenses for power reactors and fuel reprocessing plants a condition to the effect that the licensee shall observe such Federal and State standards and requirements for the protection of the environment, including standards and requirements for the control of the thermal effects of the release of liquid effluents from the facility to the environment, as are validly imposed pursuant to authority established under Federal and State law and as are determined by the Commission to be applicable to the facility that is subject to the licensing action involved. This condition will not apply to radiological effects since radiological effects are dealt with in other provisions of the construction permit and operating license.

"6. Determinations made by cognizant Federal or State bodies of nonobservance of the standards and requirements encompassed by the condition described in paragraph 5 will be deemed proper for consideration in Commission licensing proceedings. However, said condition shall in no way be construed as extending the jurisdiction of this agency to making an independent review of (a) standards or requirements validly imposed pursuant to authority established under Federal and State law or (b) equipment or measures proposed by the applicant to meet

standards or requirements validly imposed pursuant to authority established under Federal and State law.

"Nothing in this appendix should be construed as affecting (a) the manner in which the Commission obtains advice from other agencies, Federal and State, with respect to the control of radiation effects, or (b) the other, and separate, provisions of the construction permit and operating license which deal with radiological effects. Procedures and measures similar to those described in the preceding paragraphs of this appendix will be followed in proceedings other than those involving power reactors and fuel reprocessing plants when the Commission determines that the proposed action is one significantly affecting the quality of the human environment."

(Sec. 102, 93 Stat. 853).

Dated at Germantown, Md., this 31st day of March 1970.

For the Atomic Energy Commission.

F. T. HOBBS,
Acting Secretary.

[F.R. Doc. 70-4084; Filed, Apr. 1, 1970; 8:50 a.m.]

LAW OFFICES RAUH & SILARD,
Washington, D.C., July 9, 1970.

Hon. ALLEN J. ELLENDER,
Chairman, Subcommittee on Public Works, Committee on Appropriations, U.S. Senate, Washington, D.C.

DEAR SENATOR ELLENDER: At the hearing of the Subcommittee on Public Works of the Senate Appropriations Committee some weeks ago we were assured by you that we would have an opportunity of making a response in the hearing record to the AEC's proposed Environmental Policy Act statement concerning underground nuclear testing.

As the response of the Disarmament Issues Committee of the United Nations Association, please find enclosed communications from Mrs. Jo Pomerance and Professor George W. Rathjens, which we hope will be made part of the printed record.

Sincerely yours,

JOHN SILARD.

UNITED NATIONS ASSOCIATION OF THE UNITED STATES OF AMERICA,
DISARMAMENT ISSUES COMMITTEE,
New York, N.Y., July 7, 1970.

Senator ALLEN J. ELLENDER,
Chairman, Subcommittee on Public Works,
Senate Appropriations Committee, U.S. Senate, Washington, D.C.

DEAR MR. CHAIRMAN: John Silard, who testified before the Public Works Subcommittee on behalf of the Disarmament Issues Committee, has agreed to submit this letter for the record. We are grateful to you for this opportunity to make a rebuttal to the Atomic Energy Commission's Draft Environmental Statement on the next underground nuclear weapons test scheduled for Alaska—project Cannikin.

It is our understanding this Statement was submitted at your request after the Disarmament Issues Committee, UNA-USA, pointed out that the Commission had not complied with the requirements of the Environmental Policy Act in connection with its request for funds for the Nuclear Testing program for fiscal 1971.

An expert evaluation of the scientific information in the Commission's Statement will be submitted elsewhere. Here, I wish to point out the omission in the Statement of material on two related issues required by the Environmental Policy Act, namely: information on the "adverse environmental effects" of the proposed tests; and a discussion of "alternatives to the proposed action." The citations are from Section 102, 2, c of the National Environmental Policy Act of 1969 which specifies the material which must be included in recommendations for legislation significantly affecting the quality of the environment.

In regard to the first point above, it is evident from testimony presented before your Committee, before the Foreign Relations Committee in September 1969, and before various other Congressional Committees in hearings on the under-

ground testing question, that Commission experts consistently minimize the possibility of adverse effects. Distinguished scientists on the other hand, including a panel appointied by President Johnson and chaired by Dr. Kenneth Pitzer, have warned that extensive damage can result. Since project Cannikin reportedly will be the largest test yet attempted, it is worth noting that the independent experts maintain that the danger of certain after-effects increases proportionately with the magnitude of the explosion.

As could be expected, the Commission's draft report on project Cannikin failed to present adequately the substantial evidence of adverse environmental effects. In our view, therefore, the Commission has not complied with the requirements of the Act in this respect. Nor has the Commission obeyed the statute with regard to a presentation of "alternatives to the proposed action"; a most important aspect of the problem.

In point of fact, there is a clear and plausible alternative, namely an agreement between the U.S. and the USSR on a Threshold Underground Test Ban. This measure, it is widely recognized, would be a momentous step in the worldwide effort to halt the nuclear arms race. At the same time, the prospect of damage to the environment would be eliminated while the millions of dollars the Commission now spends on the test program could be used constructively in the solution of domestic problems.

The Partial Test Ban Treaty, completed in 1963, excluded underground tests because on-site inspection, which the U.S. insisted was essential for adequate monitoring, was not acceptable to the USSR. Since then, considerable research has been conducted on the identification and detection of underground nuclear explosions. The evaluation of the results was done by international experts, working under the sponsorship of the SIPRI International Institute for Peace and Conflict Research in Stockholm. In their significant report, "Seismic Methods for Monitoring Underground Explosions," the experts agreed that it is now possible to detect and identify all underground explosions down to a level of 4.5 on the seismic scale, without on-site inspections.

This important development makes it possible for governments to conclude a treaty banning all tests above a certain threshold with complete assurance that violations will be detected by national monitoring systems. The smaller tests which are not prohibited can have little military value. The greater threat to the security of the super-powers—and of all nations—lies in the large tests which are essential to the perfection of new and deadlier weapons, and add fuel to the arms race.

It is noteworthy that in his message to the Geneva Conference of the Committee on Disarmament, President Nixon included a ban on underground tests in his proposed agenda. Currently, several of the non-nuclear powers are once more pressing for a start in the negotiations on this question, without waiting for progress in the SALT talks.

The Ambassador from Canada, Mr. Ignatieff, stated in a speech to the Conference in June: "Clearly until the nuclear powers concerned are prepared to agree that the risk involved in any particular approach to the nuclear test ban is less than the risk inherent in the continued escalation of the nuclear arms race, progress can be of only a limited and preparatory nature." He cited the obligation assumed by the major nuclear powers in the preamble of the Partial Test Ban Treaty "to seek a discontinuance of all test explosions of nuclear weapons for all time," and a similar commitment in Article VI of the Nuclear Nonproliferation Treaty. In addition, he warned that ratification of the NPT by important non-nuclear powers would depend on progress toward an underground test ban.

With the strong support of the Swedish and Japanese delegations, the Canadian Ambassador has called for a meeting of seismologists from concerned nations early in August to plan and to arrange for the creation of the detection apparatus essential to monitor an underground test ban agreement. It is hoped that the United States and the Soviet Union will not only participate but will also give this conference every encouragement.

We urge the Senate Appropriations Committee to postpone a decision on the fiscal 1971 military test appropriation until the Atomic Energy Commission has provided the necessary information on the two points cited above.

Sincerely yours,

(Mrs.) Jo Pomerance,
Chairman, Disarmament Issues Committee.

STATEMENT OF GEORGE W. RATHJENS, PROFESSOR OF POLITICAL SCIENCE, MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MASS.

On behalf of the United Nations Association I should like to urge that any appropriations for the "Cannikin" nuclear test at Amchitka Island be withheld until such time as there is full compliance with the requirements of the National Environmental Policy Act of 1969, and until such time as the Council on Environmental Quality and appropriate committees of the Congress can make a determination as to whether the probable benefits to be derived from the test are sufficient to justify the hazards to the environment.

In my judgment the draft statement of June 12 by the Atomic Energy Committee does not fully meet the requirements of the National Environmental Policy Act. Moreover, I do not believe that on the basis of information so far made available by the AEC will it be possible to make a balanced assessment of the benefits versus the risks in the test.

The AEC's draft statement is deficient in that it does not explain fully the risks to the environment nor does it provide sufficient relevant background material so that independent scientists can make a meaningful assessment of the risks. It is my judgment that such an assessment is most likely to be assured of through an adversary process, i.e., through public hearings at which alternative points of view can be presented and at which there would be the possibility of debate and cross-examination. I urge such hearings.

I am even more concerned that no case has been made for the necessity of Cannikin either by the AEC or by the Department of Defense against which the hazards to the environment can be weighed. I would argue that in fact almost no such case can be made particularly in the light of the negative report of the Armed Services Committee of the Senate on the expansion of the Safeguard ABM program to provide a nation-wide "anti-Chinese" deployment. In the light of that report, and considering the Strategic Arms Limitation Talks now in progress with the Soviet Union, it is extremely unlikely that the United States will proceed with an "ava-type" ABM system in the near future, if ever. If one recognizes that, and the fact that no real case can be made for new nuclear warhead testing in the megaton range for "terminal-type" ABM systems or for any other military purpose now in sight, it seems clear that Cannikin should be cancelled or at least deferred until such time as the need for the test is more persuasive than at present, the hazards to the environment better understood, or both.

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