FIFTEENTH ANNUAL REPORT

OF THE

Upper Colorado River Commission

SALT LAKE CITY, UTAH

SEPTEMBER 30, 1963

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IVAL V. GOSLIN
Executive Director

UPPER COLORADO RIVER BASIN

UPPER COLORADO RIVER
COMMISSION

UPPER COLORADO RIVER COMMISSION

355 South Fourth East Street
Salt Lake City 11, Utah

January 2, 1964

Mr. President:

The Fifteenth Annual Report of the Upper Colorado River Commission, as required by Article VIII (d) (13) of the Upper Colorado River Basin Compact, is enclosed.

The budget of the Commission is included in this report as Appendix B.

This report has also been transmitted to the Governor of each State signatory to the Upper Colorado River Basin Compact.

Respectfully yours,

Ival V. Goslin

Ival V. Goslin
Executive Director

The President
The White House
Washington 25, D. C.

Enclosure

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I. Preface

Article VIII (d) (13) of the Upper Colorado River Basin Compact requires the Upper Colorado River Commission to "make and transmit annually to the Governors of the signatory States and the President of the United States of America, with the estimated budget, a report covering the activities of the Commission for the preceding water year."

Article VIII (1) of the By-Laws of the Commission specifies that "the Commission shall make and transmit annually on or before April 1 to the Governors of the states signatory to the Upper Colorado River Basin Compact and to the President of the United States a report covering the activities of the Commission for the water year ending the preceding September 30."

This Fifteenth Annual Report of the Upper Colorado River Commission has been compiled pursuant to the above directives.

This Annual Report includes, among other things, the following:

Membership of the Commission, its Committees, Advisers, and Staff.

Roster of meetings of the Commission;

Brief discussion of the activities of the Commission;

Brief discussion of the Storage Units and participating projects of the Colorado River Storage Project and of the status of their construction or investigations;

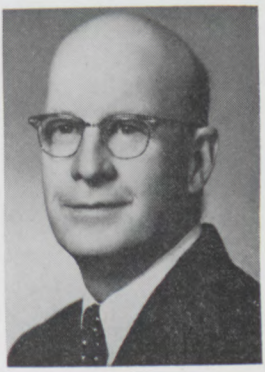
Appendices containing:

Fiscal data, such as: budget, balance sheet, statements of revenue and expense, etc.

Sixth Annual Report of Secretary of the Interior on financial status of Colorado River Storage Project and participating projects.

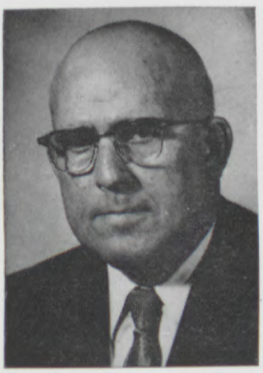
II. Commission

Edwin C. Johnson
Commissioner for
Colorado



John H. Bliss
Commissioner for
New Mexico

Robert J. Newell
Chairman
Commissioner for
United States



George D. Clyde
Vice-Chairman
Commissioner for
Utah

Eugene J. Van Camp
Commissioner for
Wyoming

III. Officers of the Commission

Chairman, Robert J. Newell

Vice-Chairman, George D. Clyde

Secretary, Ival V. Goslin

Treasurer, I. J. Coury

Assistant Treasurer, Richard T. Counley

IV. Staff

Ival V. Goslin, Executive Director

Paul A. Rechard, Principal Hydraulic Engineer

Paul L. Billhymer, General Counsel

Mrs. Hanna I. Wetmore, Administrative Secretary

V. Committees

The Committees of the Commission convened when required during the year.

Committees and their membership, at the date of this report, are as follows (The Chairman and the Secretary are ex-officio members of all committees, Article V (4) of By-Laws):

STANDING COMMITTEES

Engineering Committee

Ival V. Goslin, Chairman
R. M. Gildersleeve
L. R. Kuiper
Stephen E. Reynolds
David P. Hale
H. T. Person
Earl Lloyd
Jay R. Bingham
Wayne D. Criddle

Legal Committee

Felix L. Sparks, Chairman
Raphael J. Moses
J. Stuart McMaster
Dudley Cornell
Claud S. Mann
John F. Raper
A. Pratt Kesler
Dallin W. Jensen

Budget Committee

John H. Bliss, Chairman
Felix L. Sparks
Norman W. Barlow
Jay R. Bingham

SPECIAL COMMITTEES

Finance Committee

Norman W. Barlow, Chairman
I. J. Coury
Wayne D. Criddle
Felix L. Sparks

Education and Information Committee

Edwin C. Johnson, Chairman
John H. Bliss
Earl Lloyd
Jay R. Bingham

VI. Advisers to Commissioners

The following individuals served as advisers to their respective Commissioners:

UNITED STATES OF AMERICA

Legal

J. Stuart McMaster, Regional Solicitor
U. S. Department of the Interior
Salt Lake City, Utah

Engineering

J. R. Riter, Chief Development Engineer
Bureau of Reclamation
Denver, Colorado

G. B. Keesee, General Engineer
Bureau of Indian Affairs
Navajo Indian Irrigation Project
Farmington, New Mexico

COLORADO

Legal

Felix L. Sparks, Director
Colorado Water Conservation Board
Denver, Colorado

Raphael J. Moses, Counsel
Colorado Water Conservation Board
Boulder, Colorado

Engineering

R. M. Gildersleeve, Deputy Director
Colorado Water Conservation Board
Denver, Colorado

Leonard R. Kuiper, Chief Hydraulic Engineer
Colorado Water Conservation Board
Denver, Colorado

NEW MEXICO

Legal

Claud S. Mann
Special Assistant Attorney General
Albuquerque, New Mexico

Dudley Cornell
Special Assistant Attorney General
Albuquerque, New Mexico

F. Harlan Flint
Special Assistant Attorney General
Santa Fe, New Mexico

Engineering

Stephen E. Reynolds, State Engineer
Santa Fe, New Mexico

David P. Hale, Engineer
New Mexico Interstate Stream Commission
Santa Fe, New Mexico

General

I. J. Coury, Chairman
New Mexico Interstate Stream Commission
Farmington, New Mexico

UTAH

Legal

A. Pratt Kesler, Attorney General
Salt Lake City, Utah

Dallin W. Jensen, Assistant Attorney General
Salt Lake City, Utah

Engineering

Jay R. Bingham, Executive Director
Utah Water and Power Board
Salt Lake City, Utah

Wayne D. Criddle, State Engineer
Salt Lake City, Utah

WYOMING

Legal

John F. Raper, Attorney General
Cheyenne, Wyoming

Engineering

H. T. Person, Dean, College of Engineering
University of Wyoming
Laramie, Wyoming

Earl Lloyd, Consultant to State Engineer
Cheyenne, Wyoming

Floyd A. Bishop, State Engineer
Cheyenne, Wyoming

Assistant Commissioners

Joe L. Budd
Big Piney, Wyoming

Norman W. Barlow
Cora, Wyoming

VII. Meetings of the Commission

During the Water Year ended September 30, 1963 the Commission met five times as follows:

Meeting No. 82	December 10, 1962	Special Meeting Page, Arizona
Meeting No. 83	March 18, 1963	Regular Meeting Boise, Idaho
Meeting No. 84	April 4, 1963	Adjourned Regular Meeting Cheyenne, Wyoming
Meeting No. 85	September 16, 1963	Annual Meeting Boise, Idaho
Meeting No. 86	September 27, 1963	Adjourned Annual Meeting Salt Lake City, Utah

VIII. Activities of the Commission

Within the scope and limitations of Article I (a) of the Upper Colorado River Basin Compact, ". . . to secure the expeditious agricultural and industrial development of the Upper Basin, the storage of water . . ." and under the powers conferred upon the Commission by Article VIII (d) pertaining to making studies of water supplies of the Colorado River and its tributaries and the power to ". . . do all things necessary, proper or convenient in the performance of its duties . . . , either independently or in cooperation with any state or federal agency," the principal activities of the Commission have consisted of: (A) research and studies of an engineering and hydrologic nature of various phases of the water resources of the Colorado River Basin; (B) collection and compilation of documents for a legal department library relating to the utilization of waters of the Colorado River System for domestic, industrial, agricultural purposes and the generation of hydroelectric power, and legal analysis of associated problems; and, (C) an education and information program designed to aid in securing appropriations of funds by the United States Congress for the construction, planning and investigation of storage dams, reservoirs, and water resource development projects of the Colorado River Storage Project that have been authorized for construction, and to secure the authorization by Congress for the construction of additional Storage Units and participating irrigation projects as the essential investigations and planning are completed.

A. ENGINEERING — HYDROLOGY

Because the Colorado River Storage Project is a water resources development plan of the Upper Colorado River Basin, the Upper Colorado River Commission has determined that active participation in investigations, studies and plans related to the present and future construction and operation of water-regulating, water-diversion, power-generating, water-utilization facilities is both necessary and expedient. The Commission has a primary duty to the four Upper Division States to do all things necessary both to protect the interests of its member States in the water resources of the Colorado River and to aid the best and most expeditious development of those resources. In fulfilling this responsibility, the Commission's staff has been actively engaged during the past year in making many hydrologic and engineering studies relative to the utilization and distribution of the water resources of the Upper Colorado River Basin.

APRIL 1, 1963 FORECASTS OF APRIL-JULY FLOW OF THE COLORADO RIVER NEAR GRAND CANYON, ARIZONA

Agency	Acre-Feet
Soil Conservation Service Department of Agriculture	4,000,000
U. S. Weather Bureau Department of Commerce	5,400,000
Bureau of Reclamation Department of the Interior	4,500,000

The measured flow of the Colorado River near Grand Canyon for the period April-July 1963, amounted to 405,900 acre-feet.

During the April-July 1963 period the reservoirs of the Colorado River Storage Project accumulated 2,600,700 acre-feet in storage.

STATISTICAL DATA FOR PRINCIPAL RESERVOIRS IN COLORADO RIVER BASIN

(Units: Elevation — feet; capacity — 1,000 acre-feet)

UPPER BASIN

Colorado River Storage Project

	Flaming Gorge		Navajo		Lake Powell	
	Elev.	Capacity	Elev.	Capacity	Elev.	Capacity
River elevation at dam (average tailwater)	5,602	0	5,720	0	3,143	0
Dead Storage	5,740	40	5,882.5	175	3,370	1,998
Inactive Storage (minimum power pool)	5,871	273	[1]5,990	673	3,490	6,124
Rated Head	5,972	1,629	—	—	3,600	14,148
Maximum Storage (without surcharge)	6,040	3,789	6,085	1,709	3,700	27,000

[1]Required for Navajo Indian Irrigation Project

LOWER BASIN

	Lake Mead		Lake Mohave		Lake Havasu	
	Elev.	Capacity	Elev.	Capacity	Elev.	Capacity
River elevation at dam (average tailwater)	646	0	506	0	370	0
Dead Storage	895	2,620	533.39	8.5	400	28.6
Inactive Storage (minimum power pool)	1,050	7,974	570	217.5	[1]440	468
Rated Head	1,122.8	14,500				
Maximum Storage (without surcharge)	1,221.4	29,827	647	1,818.3	450	648

[1]Contractual minimum for delivery to Metropolitan Water District's Colorado River Aqueduct.

STORAGE IN PRINCIPAL RESERVOIRS AT END OF WATER YEAR

(acre-feet)

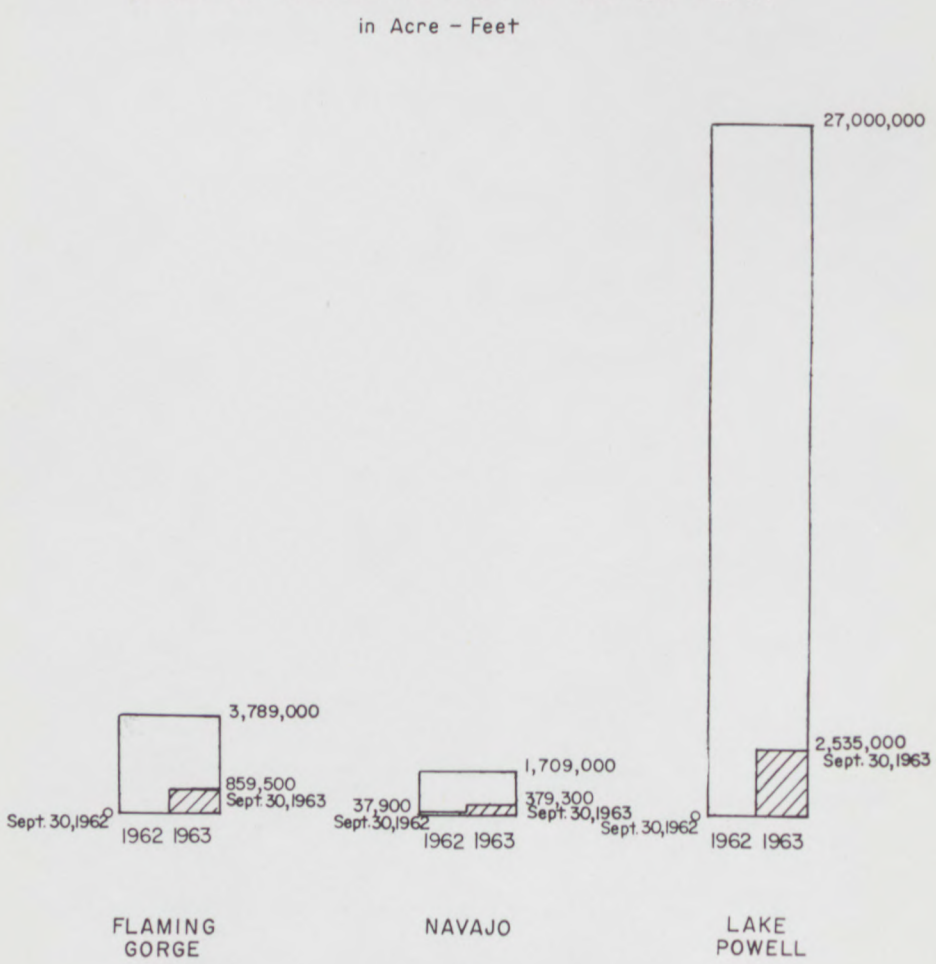
UPPER BASIN

(Total Storage)

Reservoir	Sept. 30, 1962	% of capacity	Sept. 30, 1963	% of capacity	Change in contents
Flaming Gorge	0	0	859,500	23	+ 859,500
Navajo	37,900	2	379,300	22	+ 341,400
Lake Powell	0	0	2,535,000	9	+2,535,000

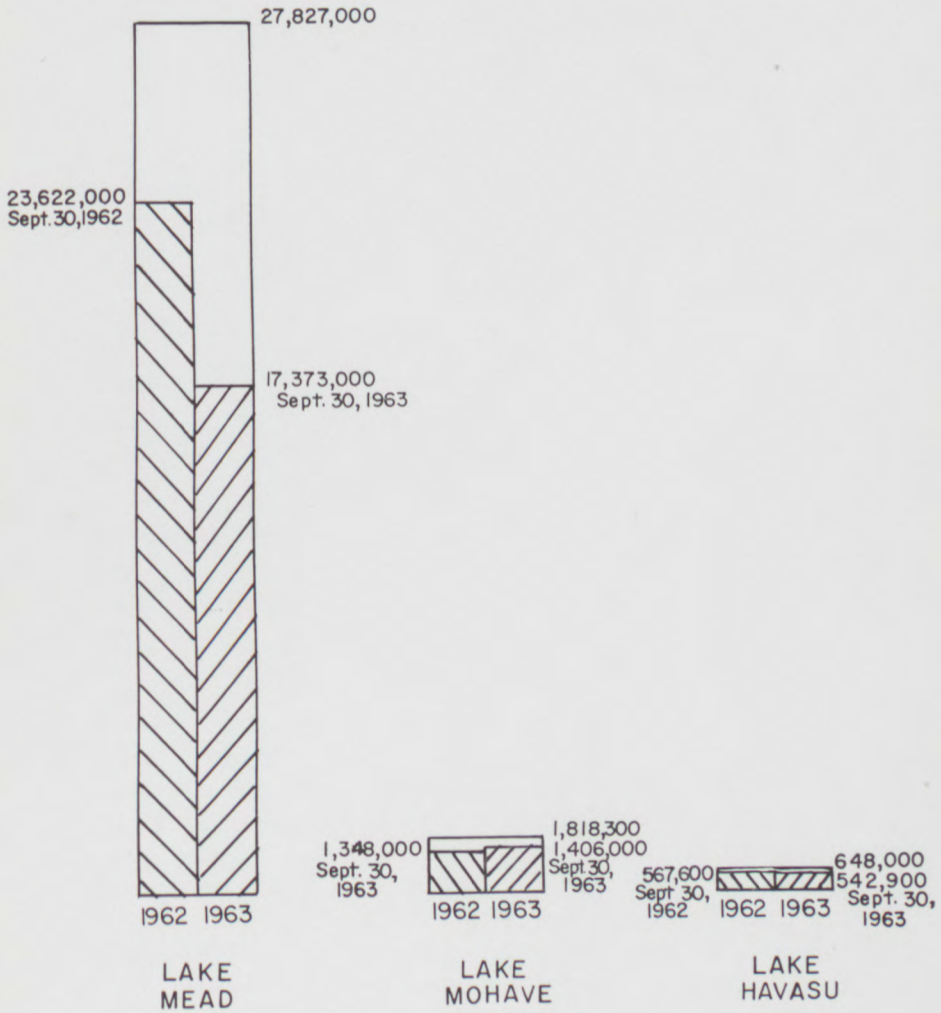
Storage was initiated in Storage Units of the Colorado River Storage Project as follows:

Navajo Reservoir on June 17, 1962
Flaming Gorge Reservoir on November 1, 1962
Lake Powell with closure of right diversion tunnel on January 21, 1963 and regulation of left diversion tunnel on March 13, 1963.



STORAGE CONTENTS END OF WATER YEAR

in Acre - Feet



LOWER BASIN

(Usable Storage)

Reservoir	Sept. 30, 1962	% of capacity	Sept. 30, 1963	% of capacity	Change in contents
Lake Mead	23,622,000	87	17,373,000	64	—6,249,000
Lake Mohave	1,348,000	74	1,406,000	78	+ 58,000
Lake Havasu	567,600	92	542,900	88	— 24,700

Filling of Upper Basin Storage Units

On March 13, 1963 at 2:00 o'clock p.m. the two outside gates on the left diversion tunnel at Glen Canyon Dam were closed. In accordance with the "General Principles to Govern, and Operating Criteria for Glen Canyon Reservoir (Lake Powell) and Lake Mead During the Lake Powell Filling Period" promulgated by the Commissioner of Reclamation, approved by Secretary of the Interior Udall on April 2, 1963 and published in Federal Register, 27 F.R. 6850-51 (July 19, 1962), the act of controlling the flow of the Colorado River signaled the initiation of operations under the "*General Principles.*" Conditions at the three Upper Basin Storage Units and at Lake Mead at that time were as follows:

	Water surface elevation, feet	Surface storage contents, acre-feet
Navajo	5,851.85	105,100
Flaming Gorge	5,787.75	82,000
Lake Powell	3,203.30	119,500
Lake Mead	1,188.23	22,299,000*

*active storage

On September 30, 1963 the conditions at these same reservoirs were:

	Water surface elevation, feet	Surface storage contents, acre-feet
Navajo	5,940.25	379,300
Flaming Gorge	5,930.86	859,500
Lake Powell	3,393.5	2,535,000
Lake Mead	1,149.04	17,373,000*

*active storage

On June 13, 1961 the Commissioner of Reclamation transmitted to the Secretary of the Interior a memorandum discussing his proposed "*general principles*" and an "Explanation of Proposed Procedures for Computing Deficiencies in Firm Power Generation at Hoover Dam During Filling of Colorado River Storage Project Reservoirs." The Region 3 office of the Bureau of Reclamation in Boulder City, Nevada began computing the so-called "*deficiencies*" as of 2:00 p.m. March 13, 1963 in the manner discussed in the Explanation dated June 13, 1961. The Commission's Staff receives copies of these computations each month. These computations are reviewed periodically. The staff's comments concerning the results and procedures used in computing the so-called "deficiencies" are transmitted to the Commission and its Engineering Committee.

To the end of September, 1963 the Region 3 office of the Bureau has estimated that the filling of Upper Basin Storage Units has caused a diminution in firm energy generation at Hoover Dam power plants of about 75 million kilowatt-hours.

The Upper Colorado River Commission has never approved the "*general principles*" or the "*Procedures for Computing Deficiencies.*" The Commission has protested "the use of Upper Colorado River Basin Fund monies or energy from Upper Basin projects for the purpose of supplying so-called power "*deficiencies*" at Hoover Dam during the filling period unless the appropriations legislation provides that the Upper Colorado River Basin Fund be reimbursed to the full extent that it will be depleted by virtue of such procedures."

Participating Projects

Central Utah Project

Several special problems have been encountered in the process of planning the Congressionally authorized initial phase of the Central Utah Project. In an attempt to resolve these problems a Committee-type approach has been found to be worthwhile. In April, 1962 the Duchesne River Area Study Committee reported on some of the problems involved in the development of the Bonneville Unit of the Central Utah Project. On May 29, 1963 the Lake Fork — Uintah Area Study Committee was formed to study the Lake Fork, Yellowstone, and Uinta Rivers (the Upalco and Uintah Units of the Central Utah Project). Serving on this committee are the following representatives:

Upper Colorado River Commission

Paul A. Rechard, Chairman

Ute Indian Tribe

R. O. Curry
E. M. Chapoose
E. L. Decker

Bureau of Indian Affairs

James W. Chamberlin
Frederic H. Varnum

Bureau of Reclamation

Paul Willmore
Palmer B. DeLong

Utah Water and Power Board

Daniel F. Lawrence

Non-Indian Land Owners — Duchesne County

Leo Haueter
Louie Galloway
Jess Christensen
Lester Gardner
Bruce Hartman

Non-Indian Land Owners — Uintah County

L. Y. Siddoway
Earl Moore
Devon McKee
William McClure

At its initial meeting the Committee adopted the following objectives:

"Committee objectives (Upalco and Uintah Units)

a. To establish data basic to an understanding and appraisal of the Lake Fork River and Uinta River lands and water supplies. Review past and present water uses and irrigation practices. Determine water available for supplemental supply and additional development.

b. To make operation studies to determine the extent that the Central Utah Project can supply the potential Lake Fork River and Uinta River requirements for new and supplemental water.

c. To make appropriate conclusions and recommendations pertaining to optimum development within limits of the available water supplies.

d. To summarize policies to be determined, problems to be resolved, rights to be established, and agreements to be reached to permit construction of authorized project features or authorization of additional units."

Navajo Dam and Reservoir

The Commission's Engineering Committee cooperated with the Bureau of Reclamation with regard to special procedures for filling and operating the Navajo Dam and Reservoir. The Bureau has issued the following revised Interim Operation Rules for Navajo Reservoir to be effective October 1, 1963.

"The following interim rules will govern the operation of the Navajo Dam and Reservoir constructed by the Bureau of Reclama-

tion on the San Juan River in northwestern New Mexico. These rules will be changed from time to time by the Bureau of Reclamation as operating experience dictates but, in general, shall remain in effect until satisfactory operating levels are achieved at Glen Canyon Dam or water deliveries for the Navajo Indian Irrigation Project or other demands on the reservoir require permanent operating rules.

"1. Navajo Dam shall be operated by the United States as a storage unit of the Colorado River Storage Project subject to the terms of the Upper Colorado River Basin Compact, the Colorado River Compact, the Colorado River Storage Project Authorizing Act of April 11, 1956 (70 Stat. 105), and the Act of June 13, 1962 (76 Stat. 96), authorizing the San Juan-Chama and Navajo Indian Irrigation Projects.

"2. For the purpose of flood control, a permanent plan for which is being developed in conjunction with the Corps of Engineers, the Navajo Reservoir will be permitted to rise only to safe operating levels based on progressive runoff forecasts from January 1 through July. Orderly releases of snowmelt runoff will be scheduled accordingly within the physical capacities of the outlet works and the downstream channel so as to minimize flood damages on downstream developed areas on the San Juan River. Such schedule of releases will also consider simultaneous flood flows from downstream tributaries and the maintenance of space in the reservoir to adequately control normal late summer and early fall rain floods.

"3. Releases from Navajo Reservior shall be in accord with the following:

"a. A continuous flow of 500 cubic feet per second, or more, shall be maintained in the channel immediately below Navajo Dam.

"b. To avoid damage to the unprotected area of the dam below the riprap facing, the reservoir water surface level, when below elevation 5,990 feet, will not be held constant for any considerable period of time but will be kept gradually moving either up or down by adjusting the releases from the reservoir within the limitations of paragraphs 2 and 3a.

"c. To assist in the acquisition of initial storage at Glen

Canyon, water stored in Navajo Reservoir above elevation 5,945 feet will be withdrawn after September 1 of each year. However, the rate of withdrawal shall not exceed 2 feet per day when the water surface is above elevation 5,990 feet nor 1 foot per day when the water surface is below elevations 5,990 feet.

"d. After the reservoir water surface is lowered to elevation 5,945 feet, the releases from the reservoir will be according to the requirements of paragraphs 2 and 3a."

Lower Basin Hydrology

A tour of the Lower Colorado River Basin a few years ago revealed the need to know considerably more about the hydrology of that Basin than was generally known at the time. Therefore, the Commission's staff has established a continuing study of the Lower Basin in order that the Commission may be more fully advised about the river system as a whole. For example, in its office the Commission staff is:

1. *Maintaining a current "water log" of the Colorado River in the Lower Basin.*

Streamflow records beginning with 1951 have been tabulated for all measuring stations on the mainstream of the Colorado River and at the mouths of tributaries below Lee Ferry. These tables aid in locating reaches of the river that gain or lose water. Unusual changes in quantities of water used are readily ascertainable.

2. *Maintaining a "water log" of the Colorado River below Imperial Dam.*

This log is a refinement of the tables mentioned above. The reach of the river below Imperial Dam to the Mexican boundary is the reach of greatest diversion of water from the Colorado River. All uses of water, losses, and return flows are indicated on this log.

3. *Keeping a current "water log" of the Colorado River in the limitrophe section.*

This record is intended to show the amount of unmeasured water that enters the Colorado River below the northern boundary and above the southern boundary between the United States and Mexico.

4. *Keeping records of Lower Basin mainstream depletions.*

This tabulation lists all of the depletions to the Colorado River, computed by an inflow-outflow procedure, beginning with 1957, for certain specified reaches of the river.

5. *Recording mainstream depletions below Hoover Dam.*

On the basis of calendar years this tabulation indicates the depletions computed by an inflow-outflow method of the mainstream below Hoover Dam.

6. *Recording flood control operations of Lake Mead.*

On a monthly basis records are kept of the spring flood-control operations at Lake Mead. This procedure involves obtaining inflow forecasts and comparing releases of water from Lake Mead with the regulations of the Corps of Army Engineers.

7. *Computing "diminutions" in generation of hydroelectric energy at Hoover Dam caused by operation of Colorado River Storage Project reservoirs:*

Making these computations involves checking the computations of the Region 3 office of the Bureau of Reclamation and comparing the results with calculations made independently in the Commission office.

8. *Keeping a Lake Mead water budget.*

Detailed computations of the water budget at Lake Mead are being made in order to define the unmeasured inflow, bank storage, etc. By means of graphs and tables the progress of the storage of water in Lake Mead is followed.

Forecasts of Stream Flow

Forecasts of water supply have not been made by the Engineering Department, nor have any findings of fact pertaining to water deliveries or stream depletions been made by the Commission. Forecasts of stream flow made by various other agencies are to be found in the files of the Commission.

Pollution of Interstate Waters of the Colorado

In 1960 the United States Public Health Service, following the procedures of Public Law 660, 84th Congress, 2d Session, as amended, called a conference on Colorado River Pollution in Phoenix, Arizona. At this Conference it was determined that a study of the pollution problem in the Colorado River Basin was needed. It was decided to make the study and the scope was outlined in such a manner that the pollution problem would include all aspects of water quality. The original proposed study was to take six years for completion. Apparently the immediate reason for

calling the Conference was a problem of radioactive material in the Colorado River and its tributaries caused by the operations of various uranium processing mills in the Upper Basin.

At the Fourth Conference held in LaJolla, California May 27, 1963 it was reported that so far as radioactive pollution is concerned, the Colorado River is in excellent shape.

It was readily apparent that this Conference intends to investigate the salinity problem on the Colorado River in its totality. As a part of this program attempts will be made to evaluate the economic worth of water uses and to establish criteria for the evaluation of various water uses with relationship to their pollution contribution. Apparently these criteria would be used by the Conference for the purpose of suggesting the course of total development of the river system.

Lees Ferry Gaging Stations

The Commission wrote to Mr. Thomas B. Nolan, Director of the U. S. Geological Survey, expressing its interest in the stream-gaging stations on the Colorado River at Lees Ferry and Grand Canyon, Arizona, and on the Paria River at Lees Ferry. These stations are of such great importance to all seven States of the Basin that the stream gaging equipment should be the best designed to provide stream flow measurements of the highest degree of accuracy obtainable, and the attendant's quarters and other necessary appurtenances should be modern and of good enough quality to be comfortable and conducive to keeping good personnel on the job in such isolated locations.

The reply from Director Nolan expressed thanks for the Commission's interest in the gaging stations and stated that the Survey was developing firm plans and would budget for the necessary work during the Fiscal Year starting July 1964, but that an earlier start on upgrading the stations would be made if funds became available sooner.

"Wild Rivers"

In 1961 the Senate Select Committee on National Water Resources recommended that "certain streams be preserved in their free-flowing condition because their natural scenic, scientific, aesthetic, and recreational values outweigh their value for water development and control purposes now and in the future." Since that

time a Bureau of Outdoor Recreation has been established in the Department of the Interior and an Outdoor Recreation Resources Review Commission has recommended: "Because of the unique recreation and scenic values that certain rivers provide, the Commission endorses efforts to preserve them in their natural condition. Further study should be made to identify rivers or parts thereof that have these values."

The Secretary of the Interior and Secretary of Agriculture announced the appointment of a 5-man team to study the need for preservation and conservation of nationwide system of "wild rivers" particularly suited to outdoor recreation. According to these two Secretaries the assignment given the study team is to identify those portions of streams and rivers which have the highest outdoor recreation potential with the purpose "to dedicate them to such use by appropriate legislative and executive action."

An August 15, 1963 news release lists a number of rivers or segments of rivers in the Upper Colorado River Basin that have been assigned for study. The news release states that there may be other streams equally eligible for study. This indicates that the following list is only partial at this time, and that other rivers, or parts thereof, may be included later:

Mid-Continent Rivers

Animas, Colorado
Colorado, Utah
Gila, New Mexico
Green, Utah and Wyoming
San Juan, Utah and New Mexico
White, North and South Forks, Colorado

Past experience related to the proposed Echo Park and Split Mountain Dams, Glen Canyon, and the Rainbow Bridge National Monument, the Curcanti Project, and others makes it mandatory that the Upper Colorado River Commission, as well as each of its member States watch this problem of "wild rivers" very closely.

B. LEGAL

Arizona v. California, et al

On June 3, 1963 the United States Supreme Court rendered its decision in the above entitled case. In our past Annual Reports we have attempted to outline the current activities in this particular case. Apparently this case is nearing its final determination. We say "apparently" because the Court gave California until September 16, 1963 to file petitions for rehearing. On this date, the State of California, Metropolitan Water District, and Imperial Irrigation District filed separate petitions for rehearing. The Court has not acted upon these petitions for rehearing.

By way of preface it should be pointed out that the Court has before it a perplexing and difficult water problem. The welfare of an entire region may well hinge upon the final decision. As one reads the Opinion he cannot help but feel that the Court is keenly aware of its responsibilities. The Supreme Court did not deviate greatly from the Special Master's Opinion. In the particulars which the Court did not follow the Special Master's Opinion important and far-reaching changes were made by the Supreme Court. A summary of the holdings of the Court are as follows.

1. The Boulder Canyon Project Act, 45 Stat. 1057 (1928), 43 USC 617-167T, is the law which controls the solution of the issues presented by the case. In this Act Congress, acting under its powers granted by the Commerce Clause and the Property Clause of the United States Constitution, devised a complete solution of the Lower Basin controversy that has existed on the Colorado River between Arizona and California for 40 years.

2. The Colorado River Compact does not supply any real guide in the solution of the dispute because the Compact is an interbasin document and could not determine the division of the Lower Basin's share of the water granted to it under the Compact.

3. Equitable apportionment is not applicable to the case inasmuch as Congress, in the Boulder Canyon Project Act, devised a statutory allocation of the waters of the main stream of the Colorado River in the Lower Basin, and, therefore, there was no reason to apply the rules of equitable apportionment in the case. In other words, equitable apportionment, as established in past interstate water cases before the Supreme Court, was for the purpose of determining issues where there was no statutory guide to direct the Court.

4. The Colorado River Compact is relevant for some purposes. It provided an interbasin division which must be respected. Also, some of its terms are incorporated in the Project Act and thus are made applicable to the Lower Basin. There are other references in the Project Act to the Compact. These were placed in the Act to insure that the Act would not "upset, alter, or affect the Compact Congressionally approved division of water between the Basins."

5. Congress, by the Boulder Canyon Project Act, intended to divide only the Lower Basin mainstream waters between Arizona, California, and Nevada, leaving the tributaries in the Lower Basin to the State wherein the tributaries are located.

6. Congress has made this division of the mainstream in the Project Act by first placing a limitation on California in the amount of 4,400,000 acre-feet of beneficial consumptive use per annum in Section IV (a) of said Act, leaving a balance of 3,100,000 acre-feet for the States of Arizona and Nevada. In Section V, Congress authorized the Secretary of the Interior to make the division of this water by authorizing the Secretary of the Interior to contract for deliveries of water from Lake Mead, and by providing further that no water could be used from Lake Mead except under contracts. In granting this power of contracts, Congress intended to allow the Secretary of the Interior to apportion the river. The Secretary of the Interior has, by contract, made this apportionment which divides the mainstream in the Lower Basin as follows: Of the first 7,500,000 acre-feet of water available for beneficial consumptive use, California is to have 4,400,000 acre-feet; Arizona is to have 2,800,000; and Nevada is to have 300,000 acre-feet. Any surplus over and above the first 7,500,000 acre-feet is to be divided equally between Arizona and California.

7. The Secretary of the Interior is authorized to determine the method by which shortages of water are to be shared, should any shortages arise.

8. Lower Basin tributaries are to be used in the State wherein the tributaries are located and are not to be considered by the Secretary in making his division of mainstream water.

9. The Secretary of the Interior is in no way controlled by State water laws in making his contracts with individual water users within a State. Neither do State water laws control the Secretary in the allocation of water in case of shortage, except insofar as the Secretary is required to respect "present perfected rights under the Boulder Canyon Project Act." Since the Project Act provided for

a comprehensive Congressional allocation, there is no room for the application of conflicting State laws.

10. The Project Act provides adequate standards to guide the Secretary so that there can be no constitutional objection of inadequate standards. Examples of these standards are: (a) present perfected rights must be respected; (b) the California limitation must be followed; (c) the stated purposes of the Project Act must be honored, such as navigation, flood control, river regulation, etc.; (d) the Secretary must observe the requirements concerning revenues so that the Project is liquidated according to the terms of the Project Act; (e) the Compact allocation between the Upper and Lower Basins must be respected; (f) the exercise of the powers granted to the Secretary are subject to executive, congressional, and judicial review.

11. The Secretary has control of the Colorado River under the Boulder Canyon Project Act from Lee Ferry to the Mexican Border, and any uses on the mainstream of the Colorado River between Lee Ferry and Lake Mead are subject to the Secretary's control.

12. The Secretary must make contracts with each individual water user within the State of Nevada.

13. The United States' claims for Indian Reservations are valid for the amount of water necessary to irrigate the reasonable irrigable acreage on such Reservation. The quantities found necessary by the Special Master are approved. The methods by which the Indian Reservations were created are of no significance. The fact that water is from a navigable stream does not preclude the United States Government from reserving such water in the creation of an Indian Reservation.

14. The Master was correct in his holding with reference to the Lake Mead Recreational Area, Havasu and Imperial Wildlife Refuges, and the Gila National Forest that there was reserved with the creation of these reservations sufficient water for the purposes for which these reservations were created.

15. United States' uses are to be charged to the State wherein the uses are made. The United States' Indian uses are "present perfected rights." Present perfected rights protected by the Project Act are all of those actual uses or reserved water which occurred prior to the effective date of the Boulder Canyon Project Act.

16. The United States Government cannot claim the benefits of salvage because the Project Act commands that consumptive use be measured by diversion less returns from the river.

17. The Arizona-New Mexico compromise concerning the use of the waters of the Gila River is approved.

There were two dissents to the Majority Opinion. One dissent was only a partial dissent. This was written by Mr. Justice Harlan with whom Mr. Justice Stewart was a party. Mr. Justice Douglas also joined in the dissent, insofar as it objected to the majority opinion. Generally speaking, the partial dissent agreed with the majority opinion, except that Mr. Justice Harlan did not believe that the Project Act granted to the Secretary the authority to make an apportionment of the mainstream in the Lower Basin to the States of Arizona, California, and Nevada, either in times of surplus or shortage. It was the position of the partial dissent that "equitable principles established by the Court in interstate water right cases, as modified by the Colorado River Compact and the California Limitation" was intended by Congress to govern any Lower Basin apportionment. Also, this partial dissent believed that State water laws were intended to control the intrastate uses of Colorado River Water.

Mr. Justice Douglas wrote a separate dissenting opinion in which he took issue with the whole of the majority opinion of the Court. Mr. Justice Douglas stated it was not a question of the power of Congress to act, but rather the question was how Congress had acted in its passage of the Boulder Canyon Project Act. He found from the study of the same legislative history and historical background relied upon by the majority that Congress did not intend to replace State water laws by a Federal allocation system under the absolute control of the Secretary of the Interior. The Project Act did not limit the quantity of water to which the California Limitation Act applied to only the mainstream. For Mr. Justice Douglas the Colorado River system, i.e., Lower Basin mainstream and tributaries, was the area with which the Project Act dealt. In other words, California was limited to 4,400,000 acre-feet of Colorado River system water, and the balance of Colorado River system water was to be divided between the other four Lower Basin States according to the principles of equitable apportionment as has been developed heretofore in other interstate water suits. Mr. Justice Douglas found that the record before the Court did not allow for an equitable apportionment of the balance of the Colorado River system water amng the four states; and, therefore, should be sent back for a complete record.

California's rehearing attack upon the decision primarily concerned itself with the problem of reconciling the Court's decision with the Colorado River Compact so far as the accounting of tribu-

tary waters were concerned. In other words, California pointed out that under the Court's decision there is one type of accounting under its interpretation of the Boulder Canyon Project Act; while the Colorado River Compact calls for a different type of accounting. This came about, so far as California's interpretation of the decision is concerned, as follows: The Court's decision in making a statutory allocation under the Boulder Canyon Project Act eliminated the tributaries in the Lower Basin. California maintained that under the Colorado River Compact tributaries are, by definition, a part of the Colorado River system and, therefore, in any accounting between the Upper and Lower Basins such tributaries must be considered. These tributaries become particularly important so far as the Mexican Treaty is concerned. California pointed out that there is an impossibility of reconciliation between these two methods of accounting, unless the Court intended by its Decree to accept the Arizona position that so far as the Lower Basin is concerned the Colorado River Compact also actually would deal only with mainstream water.

The Petition for Rehearing filed by the Metropolitan Water District amplified the original position taken in the main California petition for rehearing inasmuch as it also dealt with the reasons and necessity for accounting in the Lower Basin for waters used in the tributaries as a part of the Colorado River system waters, and the impossibility of reconciling the Decree with system-wide accounting in the Lower Basin. The Petition for Rehearing filed by the Metropolitan Water District fundamentally dealt with the impact of the decision upon that California agency, and reasserted the position of the Metropolitan Water District that the California Limitation Act and the Boulder Canyon Project Act was a statutory compact, and that the interpretation of the satutory compact was that placed upon it by the paries at the time of the entering into such compacts, mainly that system-wide accounting in the Lower Basin would be applied. The main impact of the decision so far as the California agencies are concerned fell upon the Metropolitan Water District, and the elimination of the tributaries from accounting would automatically cut down the amount of water available for use in California. Since the Metropolitan Water District held the lowest priority in California, it would be the first to feel the impact of such cut-back.

The Imperial Irrigation District's petition for rehearing was also concerned with the dual accounting system which was set up under the court decision; i.e., one under the Colorado River Compact, and one under the decision. The apparent inability to reconcile these two

systems of accounting for water uses will, so far as Imperial Irrigation District is concerned, only generate further controversies.

Comments on the Decision:

The Court in this decision seemed to be well aware of the fact that it was dealing only with the Lower Basin. The Court also seemed to be aware that the Colorado River Compact was in existence and had to somehow be considered in any Lower Basin controversy. The Court stated that the Compact division had to be honored. However, at this point it seems that the Court was considering the III (d) allocation of water that had to be honored and it must be admitted that it is not clear whether the Court was dividing in the Lower Basin the III (d) allocation, or whether it became confused at this point and superimposed upon the III (d) allocation to the Lower Basin the III (a) and III (b) apportionment made to the Lower Basin. It must be admitted that the failure to make this distinction between water available for use and consumptive use is not unique to the Supreme Court, for when one considers the debates in Congress during the passage of the Boulder Canyon Project Act the feeling is generated that the Congress, particularly the Senators, were also confused on this particular point. In fact, this apparent confusion is probably behind the Arizona position that so far as the Lower Basin is concerned, the Compact only dealt with mainstream. Arizona in taking this position apparently attempts to bring rational order out of seeming chaos of the debates by claiming that the tributaries were never a part of the Colorado River system so far as the Lower Basin was concerned, and that the Compact itself dealt only with Lower Basin mainstream.

Perhaps the greatest impact of this decision is the awesome power granted to the Secretary of the Interior. In the Lower Basin the Secretary of the Interior is given almost absolute control of the Lower Colorado River with very little practical safeguards or control so far as the parties are concerned. The dissent of Mr. Justice Harlan clearly demonstrated that there will be very little effective control of the discretion of the Secretary of the Interior in his operation of the river under the decision in this case.

Marble Canyon

As indicated in the Fourteenth Annual Report of the Upper Colorado River Commission, the Presiding Examiner on September 16, 1962 filed his recommended decision in the Arizona Power Authority's application for a federal license to build a power project at Marble Canyon. Subsequent to this decision, the Secretary of

the Interior filed a *Motion to Intervene Out of Time* and also a *Motion to Reopen the Record for the Presentation of Evidence.* On November 2, 1962 the Federal Power Commission granted a *Limited Intervention Out of Time* to the Secretary of the Interior. The Secretary was limited to filing exceptions to the Presiding Examiner's decision and participating in any oral argument which might subsequently take place in the case. Various parties filed exceptions to the decision of the Presiding Examiner. Oral argument was held upon the decision on February 15, 1963. On June 19, 1963 the Secretary of the Interior filed a *Motion For Leave to File Supplemental Brief and Reopen the Record.* He did this on the basis of the opinion of the Supreme Court in *Arizona v. California*, 373 U.S. 546.

On June 21, 1963 the Federal Power Commission authorized all parties to file briefs as to the impact of *Arizona v. California*, supra, on the pending decision before the Federal Power Commission. Briefs were filed by various parties upon this matter and on August 16, 1963 the Federal Power Commission issued its order allowing the Secretary of the Interior until January 15, 1964 to file his plan of development for the Lower Basin in the Colorado River. On September 10, 1963 Arizona sought, by petition, a reconsideration of the August 16, 1963 order of the Federal Power Commission. The case now stands in this posture — namely, the Secretary of the Interior has until January 15th to file his Pacific Southwest Water Plan before the Federal Power Commission.

Tobin v. United States

As indicated in the Fourteenth Annual Report of this Commission the Circuit Court of Appeals had reversed the Federal District Court which had found the defendant guilty of contempt of Congress for refusing to supply internal working papers of a compact organization. We further indicated in the Fourteenth Annual Report that the Solicitor General of the United States had filed a *Petition for Certiorari* in the Supreme Court to review the Circuit Court of Appeals decision. The Supreme Court on November 13, 1962 denied *Certiorari* and thus the Circuit Court of Appeals decision heretofore reported stands.

General

The Legal Committee and the legal staff of the Commission have imbarked upon a program of detailed analysis of the Colorado River Compact during the past year. This program is under way and will occupy a great deal of the staff's time in the future in order to prepare historical background material for analysis of this Com-

pact, particularly in the light of the decision of *Arizona v. California*, heretofore reported.

Library

The Commission is continuing its efforts to accumulate a Library of pertinent documents pertaining to the Colorado River in order that engineering and legal information can be furnished to any of its members should the need arise. Legal aspects are being studied on many problems associated with the utilization and conservation of water and power resources of the Colorado River Basin.

C. EDUCATION — INFORMATION

The Upper Colorado River Commission has directed its Education and Information efforts toward promoting interstate cooperation, harmony and united efforts; developing an understanding in other sections of the United States of the problems of the Upper Colorado River Basin; and the creation of a favorable attitude on the part of Congress with respect to the development of the industrial and agricultural resources of the Upper Colorado River Basin.

The Commission has continued to cooperate with members of the Congressional Delegations from the Upper Colorado River Basin States and with officials of the Department of the Interior and the Bureau of Reclamation in seeking appropriations of funds by the Congress for the construction of the Storage Units and participating projects authorized for construction, as well as funds for the investigations of additional participating projects that are given priority in planning in the Colorado River Storage Project Act. As part of this cooperation, the Commission's Executive Director has been in Washington, D. C. at intermittent periods acting as liaison between the Congress and States and various departments of Government, supplying information, arranging and taking part in Congressional hearings, and providing other assistance requested.

Relief Model

The Relief Model of the Upper Colorado River Basin and adjacent areas has been on display in the City-County Building in Provo, Utah. It continues to attract many interested individuals and groups, especially tourists from other parts of the country. (See picture last page of this report.)

Motion Picture

The Commission has produced a motion picture on the recreational benefits of reclamation reservoirs in the Upper Colorado River Basin. Twenty-six prints of the picture titled "The Lakes Made For You," were secured. The Bureau of Reclamation purchased fifteen of these prints for distribution through channels available to it. One print was furnished to each of the four States represented on the Commission, and the remaining prints are available in the office of the Commission. Any of these films may be obtained for showing by writing to or calling the Bureau of Reclamation, Denver office, individual State Commissioners, or the Commission's office. Those persons who have viewed the picture have been very enthusiastic about it. The film is entertaining, educational, and well worth seeing.

Information Booklet

The Commission authorized the publication of a new informational booklet showing the progress of the development of the water and power resources of the Upper Colorado River Basin. This booklet has been widely distributed during the last year. The booklet is titled "Year of the First Harvest" for as it states: "The year 1963 is a significant one for the Colorado River Storage Project. The first crops grown on new project lands go to market. The first project power goes on the line. And the first recreational benefits on project lakes and reservoirs await an outdoor-minded America." A small map of the Upper Basin was included in the brochure. An enlarged colored copy of this map is also available upon request. The maps and the motion picture films have been distributed to all parts of the nation.

Congressional Tour of Upper Basin Projects

The Commission cooperated with the House Interior and Insular Affairs Committee, the Colorado Water Conservation Board, et al., in organizing and conducting an aerial and ground tour of potential participating projects in the States of Colorado and Wyoming in April, 1963. Approximately 20 persons participated in different parts of the aerial tour. Five members of the House Interior and Insular Affairs Committee, including Congressman Aspinall, its chairman, Rogers of Texas, Chairman of the Subcommittee on Irrigation and Reclamation, Chenoweth of Colorado, Burton of Utah, and Johnson of California, were on the tour. Senator McGee of Wyoming also attended part of the hearings.

Hearings were held on the Savery-Pot Hook Project in Craig, Colorado on April 18th. On April 19th hearings were held on the Fruitland Mesa Project at Crawford, Colorado, and on the Bostwick Park Project in Montrose, Colorado. On April 20th Crawford Dam of the Smith Fork Project was dedicated by the Secretary of the Interior, the Commissioner of Reclamation, the members of Congress, and others on the tour.

UPPER COLORADO RIVER BASIN

COLORADO RIVER STORAGE PROJECT

UPPER COLORADO RIVER
COMMISSION

IX. Colorado River Storage Project and Participating Projects

A. APPROPRIATION OF FUNDS BY THE UNITED STATES CONGRESS

On January 17, 1963 President Kennedy in his annual budget message to the Congress recommended that Congress appropriate $103,409,000 to the Upper Colorado River Basin Fund for fiscal year 1964. On March 28, 1963 the President in a communication to the Speaker of the House of Representatives recommended a supplemental appropriation of $4,000,000 to the Upper Colorado River Basin Fund for fiscal year 1963 because contractor earnings on Flaming Gorge and Glen Canyon Dams and Powerplants have been higher than anticipated in 1963. An offsetting decrease of $4,000,000 in the fiscal 1964 budget currently under consideration by the Congress was also recommended. This decrease was made in the budget item for the Loan Program of the Bureau of Reclamation, not in funds for the Colorado River Storage Project. This communication was printed as House Document No. 89, 88th Congress, First Session.

After House Doc. No. 89 became effective the 1964 budget items for the Colorado River Storage Project were adjusted, but the total to be appropriated remained the same as it was in the President's January 17th budget. The principal adjustments of budget items consisted of a reduction of $300,000 for Flaming Gorge, a reduction of $3,759,000 for Glen Canyon, an addition of $3,473,118 for transmission lines, and an addition of $400,000 for the Florida Project.

On April 30, 1963 the President submitted a proposed amendment to the budget for fiscal year 1964 involving a decrease in the amount of $2,622,000 for the Department of the Interior to defer construction of irrigation facilities of the Seedskadee participating project pending final recommendations of the Wyoming Reclamation Projects Survey Team. The House of Representatives printed this communication as House Document No. 109.

Hearings before the Appropriations Committees of the Congress were not held until June 17, 1963. On that date Governor Love, Colorado; Governor Campbell, New Mexico; Governor Clyde, Utah, and Governor Hansen, Wyoming, appeared before the Public Works

Subcommittee of the House Appropriations Committee and the Subcommittee on Bureau of Reclamation and Power Marketing Agencies of the Senate Appropriations Committee in support of appropriations for the Colorado River Storage Project and other projects within their respective states. Their testimony was very well received, and it was evident that our four Governors made a very good impression on both Appropriations Committees. The Governors strongly supported an appropriation for initiating the construction of the Silt Project in fiscal 1964.

Shortly following the four Governors' appearance before the Appropriations Committee, the President transmitted to the Speaker of the House of Representatives a recommendation (H. D. 125) to increase the budget for fiscal 1964 by $500,000 to initiate construction of the Silt participating project. The following table indicates the breakdown in the budget requests for the Colorado River Storage Project.

The Public Works Appropriation Bill for 1964 is still lying dormant in the House Appropriations Subcommittee as of September 30, 1963.

COLORADO RIVER STORAGE PROJECT APPROPRIATIONS

Fiscal Year 1964

Project	President's Budget Message Jan. 17, 1963	After House Doc. No. 89 Mar. 28, 1963	After House Doc. No. 109 April 30, 1963	After House Doc. No. 125 June 19, 1963
Storage Unit				
Curecanti	$ 18,832,000	$ 18,822,000	$ 18,822,000	$ 18,822,000
Flaming Gorge	4,939,381	4,639,381	4,639,381	4,639,381
Glen Canyon	29,119,000	25,360,000	25,360,000	25,360,000
Transmission Division	34,196,882	37,670,000	37,670,000	37,670,000
Participating Projects:				
Emery County	3,853,000	3,853,000	3,853,000	3,853,000
Florida	1,855,000	2,255,000	2,255,000	2,255,000
Lyman	600,000	600,000	600,000	600,000
San Juan Chama	1,600,000	1,600,000	1,600,000	1,600,000
Seedskadee	8,622,000	8,622,000	6,000,000	6,000,000
Silt	—	—	—	500,000
Navajo Indian Irrigation*	1,800,000	1,800,000	1,800,000	1,800,000
Drainage & Minor Construction	64,619	64,619	64,619	64,619
Advance Planning	1,795,000	1,795,000	1,795,000	1,795,000
Subtotal	107,276,882	107,081,000	104,459,000	104,959,000
Recreation and Fish & Wildlife:				
National Park Service	3,000,000	3,000,000	3,000,000	3,000,000
Fish and Wildlife	1,309,000	1,309,000	1,309,000	1,309,000
TOTAL CRSP	$111,585,882	$111,390,000	$108,768,000	$109,268,000
Construction Revenues	— 195,882			
Under Financing and Undistributed Reductions Based on Anticipated Delays	— 6,181,000	— 6,181,000	— 6,181,000	— 6,181,000
Total Appropriation	$105,209,000	$105,209,000	$102,587,000	$103,087,000

*Appropriations made to Bureau of Indian Affairs

B. FISCAL DATA — COLORADO RIVER STORAGE PROJECT

Section 6 of the Act authorizing the construction and operation of the Colorado River Storage Project and participating projects (Act of April 11, 1956, 70 Stat. 105) stipulates that "On January 1 of each year the Secretary (of the Interior) shall report to the Congress for the previous fiscal year . . . upon the status of the revenues from, and the cost of constructing, operating, and maintaining the Colorado River storage project and the participating projects." Appendix C of this report consists of the SIXTH ANNUAL REPORT ON THE COLORADO RIVER STORAGE PROJECT AND PARTICIPATING PROJECTS of the Secretary of the Interior to the Congress of the United States for the fiscal year ending June 30, 1962.

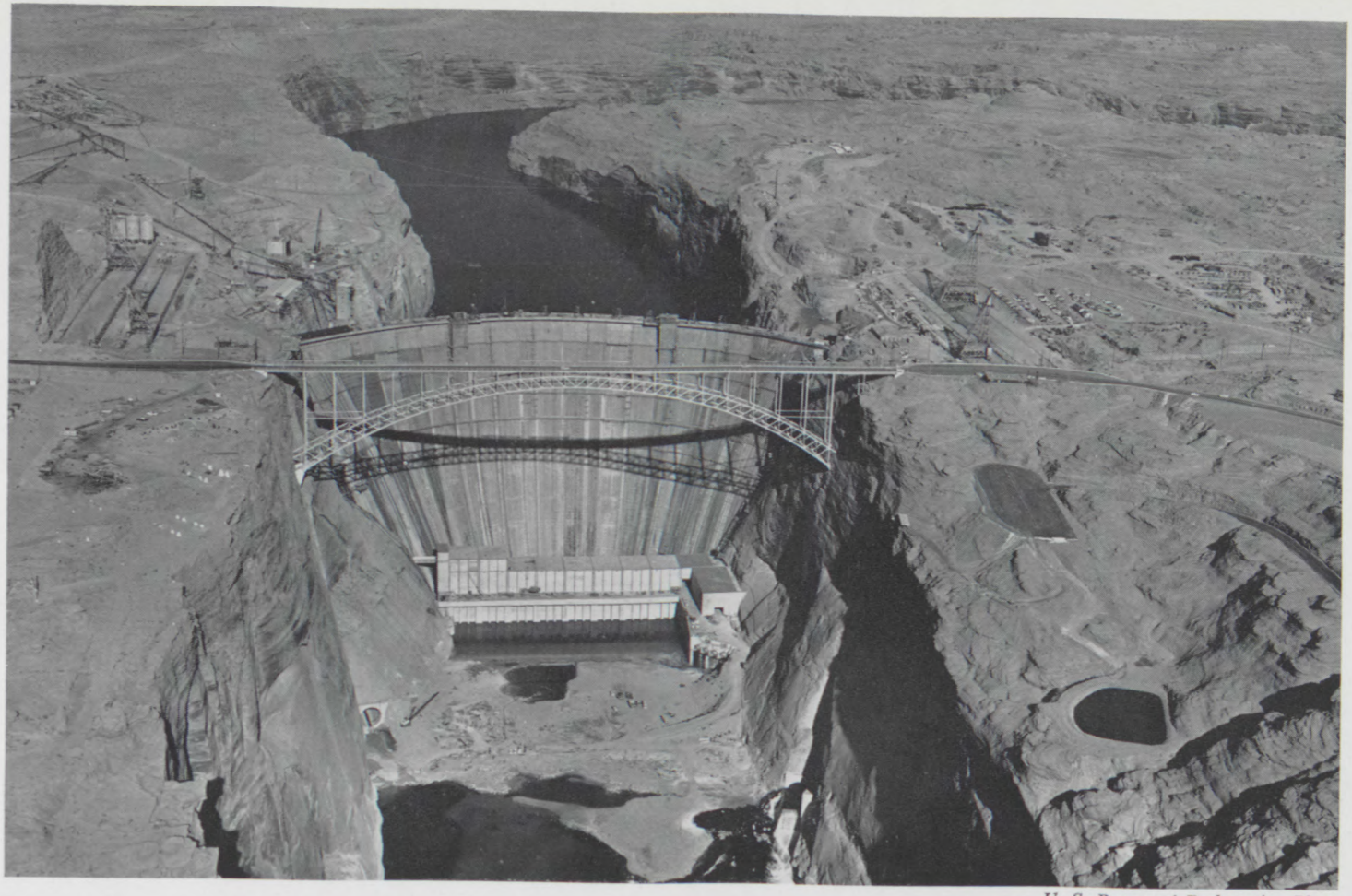
C. AUTHORIZED STORAGE UNITS

(Information relative to Storage Units and participating projects has been obtained from reports on investigations and activities of the United States Bureau of Reclamation, Department of the Interior.)

The construction of four Storage Units of the Colorado River Storage Project and eleven participating projects was authorized in Section 1 of Public Law 485. The four authorized Storage Units are at Glen Canyon on the Colorado River in Utah and Arizona, Flaming Gorge on the Green River in Wyoming and Utah, Navajo on the San Juan River in New Mexico and Colorado and Curecanti on the Gunnison River in Colorado. Combined they will provide about 33,594,000 acre-feet of reservoir capacity and about 1,208,000 kilowatts of installed generating capacity.

1. Glen Canyon Storage Unit

Glen Canyon Dam and Reservoir comprises the key storage unit and is the largest of the initial four, providing about 80 percent of both the storage and generating capacity. It rises 710 feet above the river bed and is roughly comparable in size to Hoover Dam and Lake Mead. The concrete, gravity-arch dam is located in northern Arizona on the Colorado River, 12.4 miles downstream from the Utah-Arizona state line, and 15.3 miles upstream from Lees Ferry. (Lees Ferry is the location of the Geological Survey gaging station and is 1.0 miles upstream from the compact point, Lee Ferry, which divides the Colorado River drainage into two basins.) Glen Canyon Dam is the second tallest dam in the United States. The reservoir will have a capacity of 27,000,000 acre-feet and will extend 186 miles upstream on the Colorado River, and 71



U. S. Bureau of Reclamation Photo

Glen Canyon Storage Unit on the Colorado River, Colorado River Storage Project.
Aerial view, looking upstream of Glen Canyon Dam after completion of concrete placement.

miles up the San Juan River. The powerhouse, which is located at the toe of the dam, will have eight generating units with a total installed capacity of 900,000 kilowatts.

Construction Activities

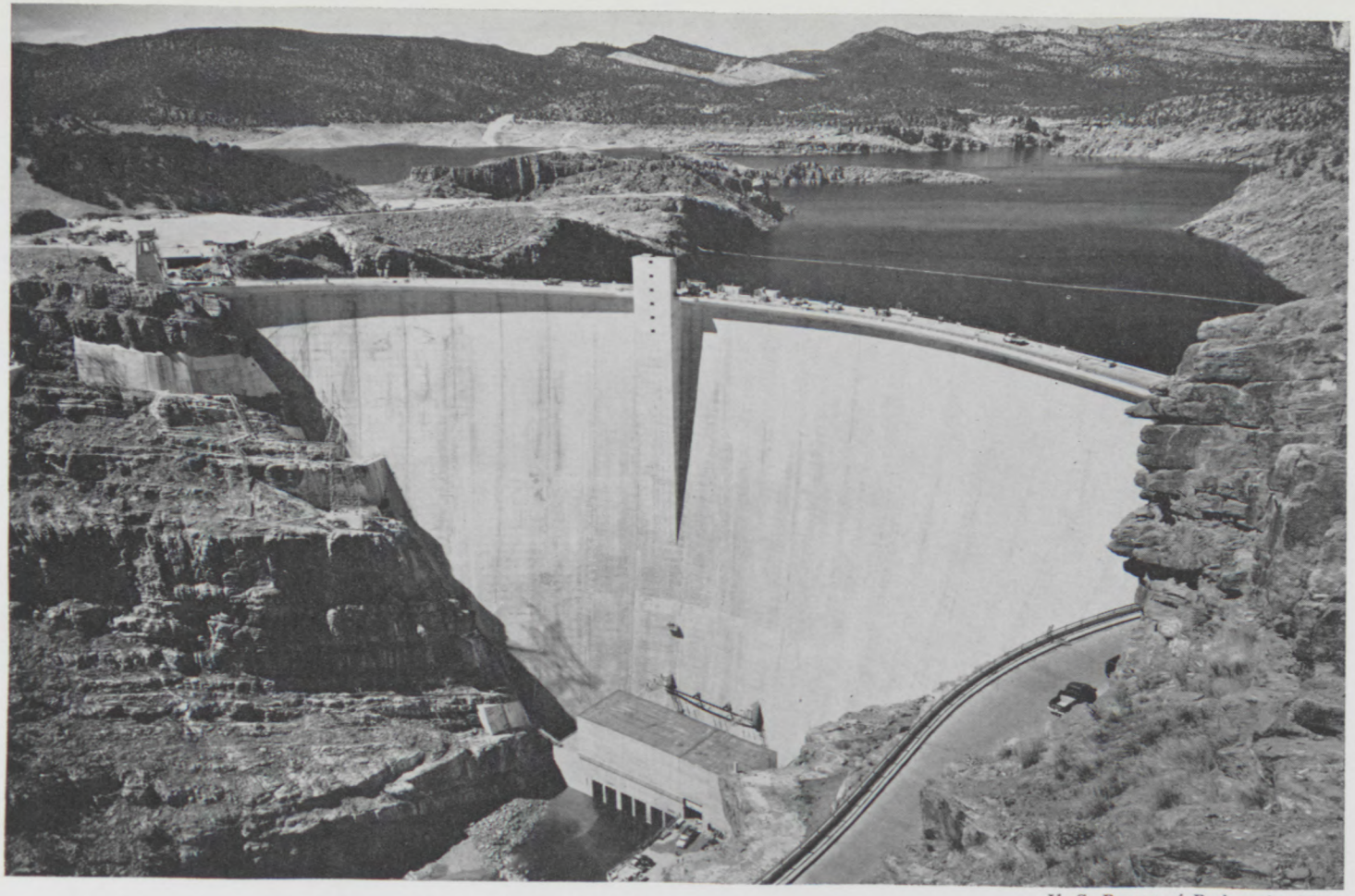
On September 13, 1963, the last bucket of mass concrete was placed in Glen Canyon Dam, bringing all blocks in the massive structure to their final 710-foot height. Nearly 5,000,000 cubic yards of concrete went into the dam. Storage of water began in Lake Powell behind the dam on March 13, 1963. By September 30, 1963, the lake had backed up 130 miles, was 250 feet deep near the dam, and contained 2,535,000 acre-feet of water. Another 3,600,000 acre-feet of water are required to reach the minimum power pool of 6.1 million acre-feet at elevation 3490 feet above sea level. Turbines and generators are being installed in the powerhouse at the foot of the dam, with the first power due to be generated in the autumn of 1964.

2. Flaming Gorge Storage Unit

Flaming Gorge Dam is located on the Green River in northeastern Utah, about 40 road miles north of Vernal, Utah, and 32 river miles downstream from the Utah-Wyoming state line. The dam is a concrete thin-arch structure rising 502 feet above the riverbed. The reservoir will have a capacity of 3,789,000 acre-feet and will extend upstream 94 miles, nearly to the town of Green River, Wyoming. The powerplant will have an installed generating capacity of 108,000 kilowatts.

Construction Activities

Flaming Gorge Dam is now essentially completed and the first Colorado River Storage Project hydroelectric power has gone on the line from the Flaming Gorge Powerplant. Flaming Gorge Dam was finished on November 15, 1962. By the end of the water year the completion contractor had finished about 85 percent of the work of installing the generators and turbines in the powerhouse. On November 1, just two weeks before the dam was completed, the stop logs were dropped into place at the diversion tunnel inlet, and storage of water in Flaming Gorge Reservoir began. Storage at Flaming Gorge reached the minimum power operating level on June 1, 1963, and the reservoir level continued to rise. On September 27, 1963, President John F. Kennedy gave the signal to start the test runs for generating unit No. 1. By November 11th all the tests had been completed and generating unit No. 1 went on the line.



U. S. Bureau of Reclamation Photo

Flaming Gorge Storage Unit on the Green River, Colorado River Storage Project.
View of completed Flaming Gorge Dam and Power Plant showing early accumulation of water in the reservoir.

3. Navajo Storage Unit

Navajo Dam is located in northwestern New Mexico on the San Juan River, 34 miles east of Farmington and 3½ miles downstream from the confluence of the Los Pinos and San Juan Rivers. The dam is a rolled earth-fill embankment structure. The reservoir has 1,709,000 acre-feet total capacity and an active capacity of 1,036,000 acre-feet.

The major purpose of this reservoir is to regulate the flows of the San Juan River for the authorized Navajo Indian Irrigation Project near Farmington, the San Juan-Chama participating project in the Rio Grande Basin, and the Hammond participating project. Part of the water to be made available will also be used for industrial and municipal purposes in northwestern New Mexico. Recreational facilities will be provided and are expected to contribute materially to the economy of the area.

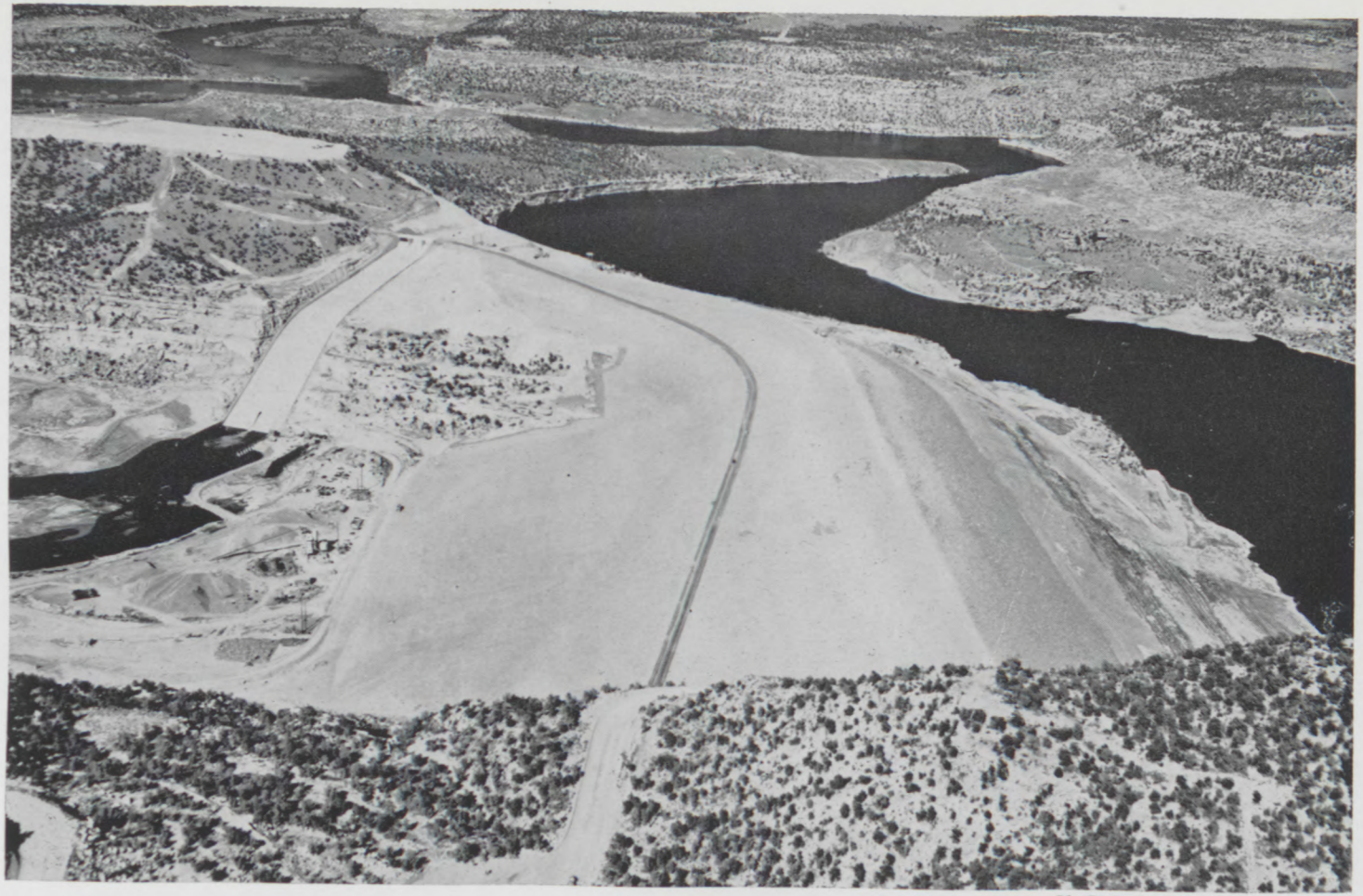
Construction Activities

Navajo Dam is now a completed structure in operational status. Completed on August 22, 1962, the dam was dedicated by Secretary of the Interior Stewart L. Udall on September 15, 1962. Storage of water was initiated on June 27, 1962, marking the first storage of water behind a major dam of the Colorado River Storage Project. Because of the subnormal runoff, Navajo Reservoir contained only 379,300 acre-feet of water on September 30, 1963.

4. Curecanti Storage Unit

The Curecanti Unit involves construction of three major dams and powerplants along a 40-mile canyon cut by the Gunnison River below Gunnison, Colorado, and above the Black Canyon of the Gunnison National Monument. The Blue Mesa, Morrow Point, and Crystal Dams will capture and control the flows of the Gunnison River, which drains the western slopes of the high Continental Divide of the Rocky Mountains into the Colorado River. They will provide storage capacity for controlling the Gunnison River and for the production of hydroelectric power, as well as irrigation, flood control, and extensive recreational benefits.

Flows of the Gunnison River will be largely controlled by the 940,000-acre-foot Blue Mesa Reservoir, the largest and uppermost of the reservoirs. Water released from the Blue Mesa Reservoir through a 60,000-kilowatt-capacity powerplant at the dam will receive short-term regulation at the Morrow Point Reservoir immediately downstream. The reservoir behind Morrow Point Dam



U. S. Bureau of Reclamation Photo

Navajo Storage Unit on the San Juan River, Colorado River Storage Project.
Aerial view of the Navajo Dam from left abutment showing lake beginning to form.

will have a total capacity of 117,000 acre-feet, but an active capacity for power production of over 42,000 acre-feet. The powerplant capacity at Morrow Point will be 120,000 kilowatts since the downstream Crystal Reservoir can reregulate flows released at Morrow Point. In addition, Crystal Dam will have a capacity of 20,000 kilowatts.

Construction Activities

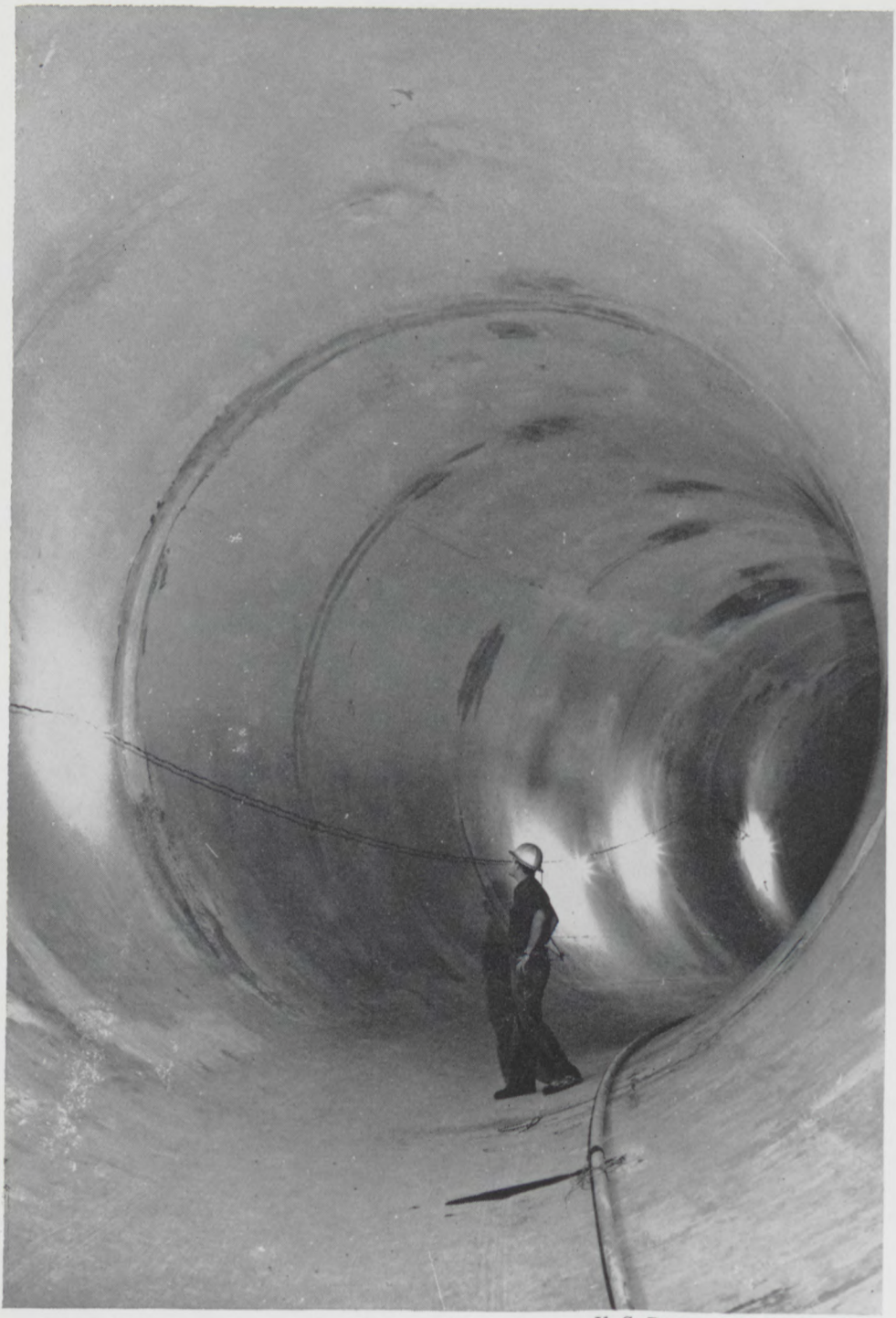
Blue Mesa Dam, an earth- and rockfill dam, will contain 3 million cubic yards of embankment material. It will rise approximately 340 feet above the streambed, with a crest length of 800 feet. By September 30, 1963 work on the Blue Mesa Dam and Powerplant was about 45 percent completed. Prior to October 8, 1963, when the Gunnison River was diverted to flow through the 1,882-foot-long diversion tunnel, the bulk of the work involved underground excavation and concrete lining of the spillway-diversion tunnel and outlet works tunnel. With diversion of the river, the contractor started foundation excavation for the dam embankment and placement of embankment in the dam.

On May 14, 1963, a $15,436,000 contract was awarded for construction of Morrow Point Dam and Powerplant, 12 miles downstream from the Blue Mesa Dam. The 465-foot-high Morrow Point Dam will embody several features unique to Bureau of Reclamation dams. It will be the first thin-arch, double curvature concrete dam built by the Bureau of Reclamation and will have a free-fall spillway over the center of the dam. Also, the first Bureau-built underground powerplant will be at Morrow Point. Work to date involves construction of the extremely difficult access roads to the damsite area.

The third feature of the Curecanti Unit — Crystal Dam and Powerplant — was determined to be feasible and has been approved by the Secretary of the Interior. Preconstruction surveys were underway during 1963.

Of the three segments of U. S. Highway 50 being relocated around Blue Mesa Reservoir, two segments have been completed and are open to traffic, and the contractor is making good progress on the third segment. There is one additional section of the highway to be completed to link these three sections. The Colorado Highway Department will have responsibility for construction of that section.

Aerial view of the Navajo Dam from left abutment showing lake beginning to form.



U. S. Bureau of Reclamation Photo

View of 21-foot-diameter concrete-lined diversion tunnel at Blue Mesa Dam. Curecanti Storage Unit on the Gunnison River, Colorado River Storage Project.

5. Transmission Division

The purpose of the Transmission Division is to deliver Colorado River Storage Project power to major load centers or to delivery points from which other agencies may transmit the power to load centers, and to interconnect the generating plants of the Colorado River Storage Project with each other and with other adjacent Federal, public, and private utility transmission systems.

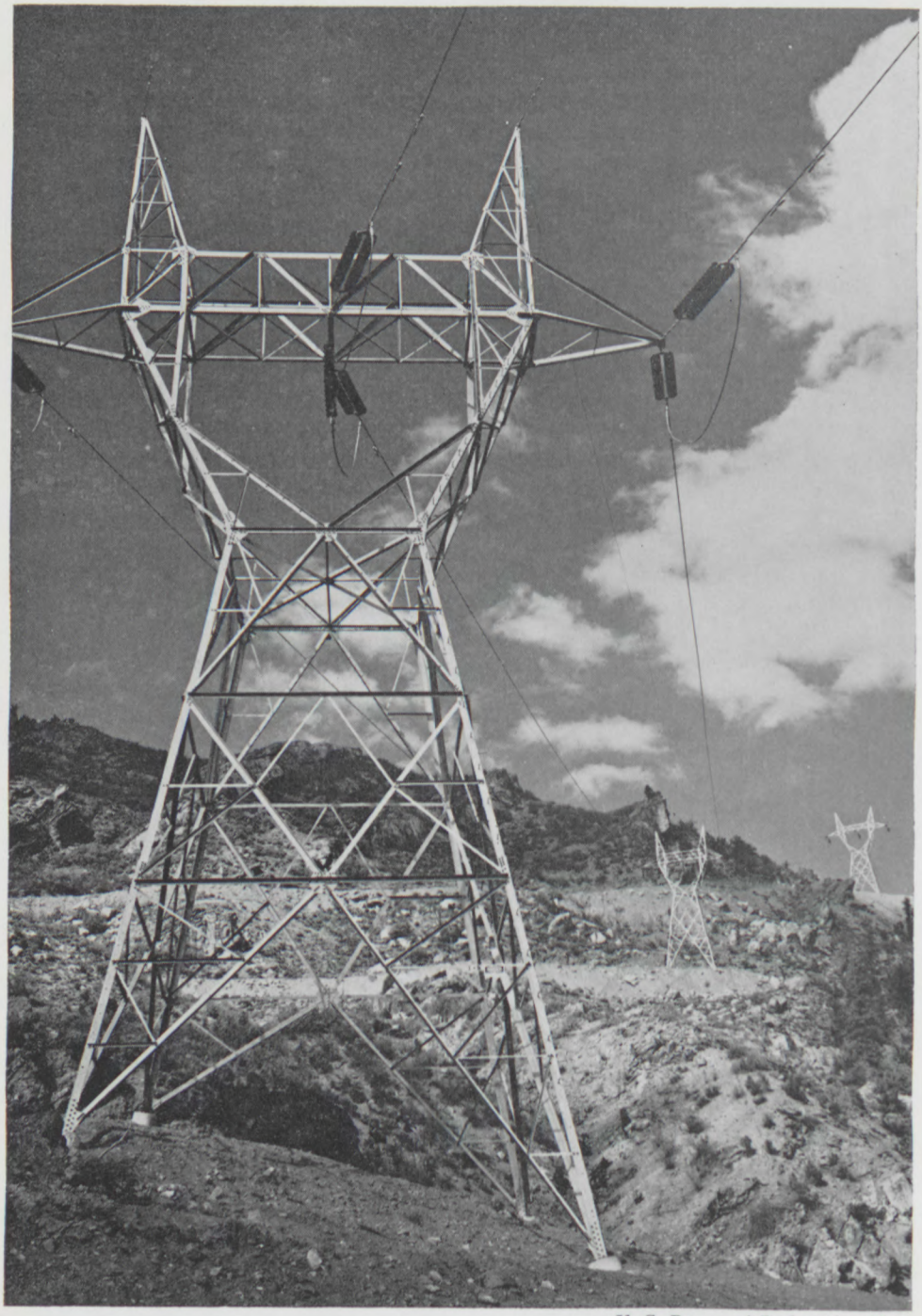
Construction Activities

The 1,300 miles of CRSP backbone transmission lines necessary to handle the first CRSP power from Glen Canyon and Flaming Gorge are either completed or under construction. Construction of the major substations — Pinnacle Peak, Curecanti, Hayden, and Shiprock — is also underway. The Vernal Substation is completed. Work is also proceeding on additions at Green Mountain switchyard and at Mesa (Arizona) Substation. On November 11, 1963, the first production of commercial hydroelectric power by the Colorado River Storage Project began at Flaming Gorge Dam from the first of three 36,000-kw generators. The remaining two generators are scheduled to go into service at three-month intervals.

The completed lines are: Blue Mesa-Gunnison, Blue Mesa-Curecanti, and Curecanti-Montrose 115-kv lines; the 138-kv line from Flaming Gorge to Vernal; the 138-kv Vernal-Hayden-Oak Creek and Kremmling-Green Mountain lines; the 138-kv Artesia-Rangely line, and the 69-kv Kremmling-Gore Tap line; the Shiprock-Cortez section of the Shiprock-Curecanti 230-kv line; and the Morrow Point-Curecanti 230-kv line. Percentages of completion as of the end of September 1963 for the remaining transmission lines and the substations are shown below:

Lines	Percent Complete
Curecanti-Hayden 230-kv	72
Glen Canyon-Shiprock 230-kv	91
Cortez-Curecanti 230-kv	68
Glen Canyon-Flagstaff-Pinnacle Peak 345-kv	54
Pinnacle Peak-Mesa 230-kv	.8
Hayden-Archer 230-kv	4.7
Shiprock-Four Corners Plant 230-kv	55
Substations	
Curecanti	31
Hayden	48
Pinnacle Peak	74
Shiprock	5

The Colorado River Storage Project Power Operations Office



U. S. Bureau of Reclamation Photo

Transmission Division, Colorado River Storage Project.
Steel transmission towers on the Curecanti-Hayden 230 kv line
as it crosses the Black Canyon area near Cimeron, Colorado.

was established at Montrose, Colorado, during March 1963. The entire transmission system will be operated from the Power Operations Office. Construction goes ahead on the administration and dispatching building for the center. A major contract was awarded on May 17, 1963, for construction of a multi-channel microwave radio system for supervision and control of the CRSP power system from the Power Operations Office. No on-site construction was started during the 1963 construction season, but manufacture of the necessary equipment is underway.

D. AUTHORIZED PARTICIPATING PROJECTS

Of the eleven participating projects authorized by Public Law 485, five are in Colorado, one is in New Mexico, two are in Utah, and three are located in Wyoming. Participating projects will consume water of the Upper Colorado River System for irrigation, municipal and industrial purposes, and will participate in the use of revenues in the Basin Fund to help repay the costs of irrigation features beyond the ability of the water users to repay.

Since 1956 when the original Colorado River Storage Project Act was signed into law, P. L. 485 has been amended once to include additional participating projects. This amendment was by Public Law 87-483 (76 Stat. 96), which authorized the construction, operation, and maintenance of the Navajo Indian Irrigation Project and the initial stage of the San Juan-Chama Project as participating projects of the Colorado River Storage Project.

Although the Fryingpan-Arkansas Project is not a full-fledged participating project of the Colorado River Storage Project because it does not participate in the use of Basin Fund revenues, it could be called a "limited" participating project in the Upper Basin development plan because it does use water apportioned to the Upper Basin by the Colorado River Compact and to the State of Colorado by the Upper Colorado River Basin Compact. This project was authorized by P. L. 87-500 (76 Stat. 389), which was signed by the President August 16, 1962.

A brief description of each of the authorized participating projects and the present status of its construction or investigations follows:

U. S. Bureau of Reclamation Photo

Smith Fork Participating Project, Colorado River Storage Project
Secretary of the Interior Udall, Congressman Wayne N. Aspinall, and Leslie Savage
unveil plaque of the dedication of Crawford Dam, April 20, 1963.

1. COLORADO

a. Paonia Project

The Paonia Dam was completed in January 1962 and the project was dedicated on September 29, 1962 — the first participating project of the Colorado River Storage Project to be completed. Responsibility for operating and maintaining the project was transferred to the North Fork Conservancy District on June 1, 1962. Delivery of water stored in Paonia Reservoir was made to project lands during the 1963 irrigation season.

The project is located near Paonia and Hotchkiss in west-central Colorado on the North Fork of Gunnison River. Water stored in the 21,000-acre-foot capacity Paonia Reservoir is distributed to project lands through the enlarged and extended Fire Mountain Canal. Irrigation water supply is supplemented for 13,070 acres of land previously irrigated and a full water supply provided for about 2,230 acres of new land. Fish and wildlife values in the area will be enhanced, and flood damages will be decreased.

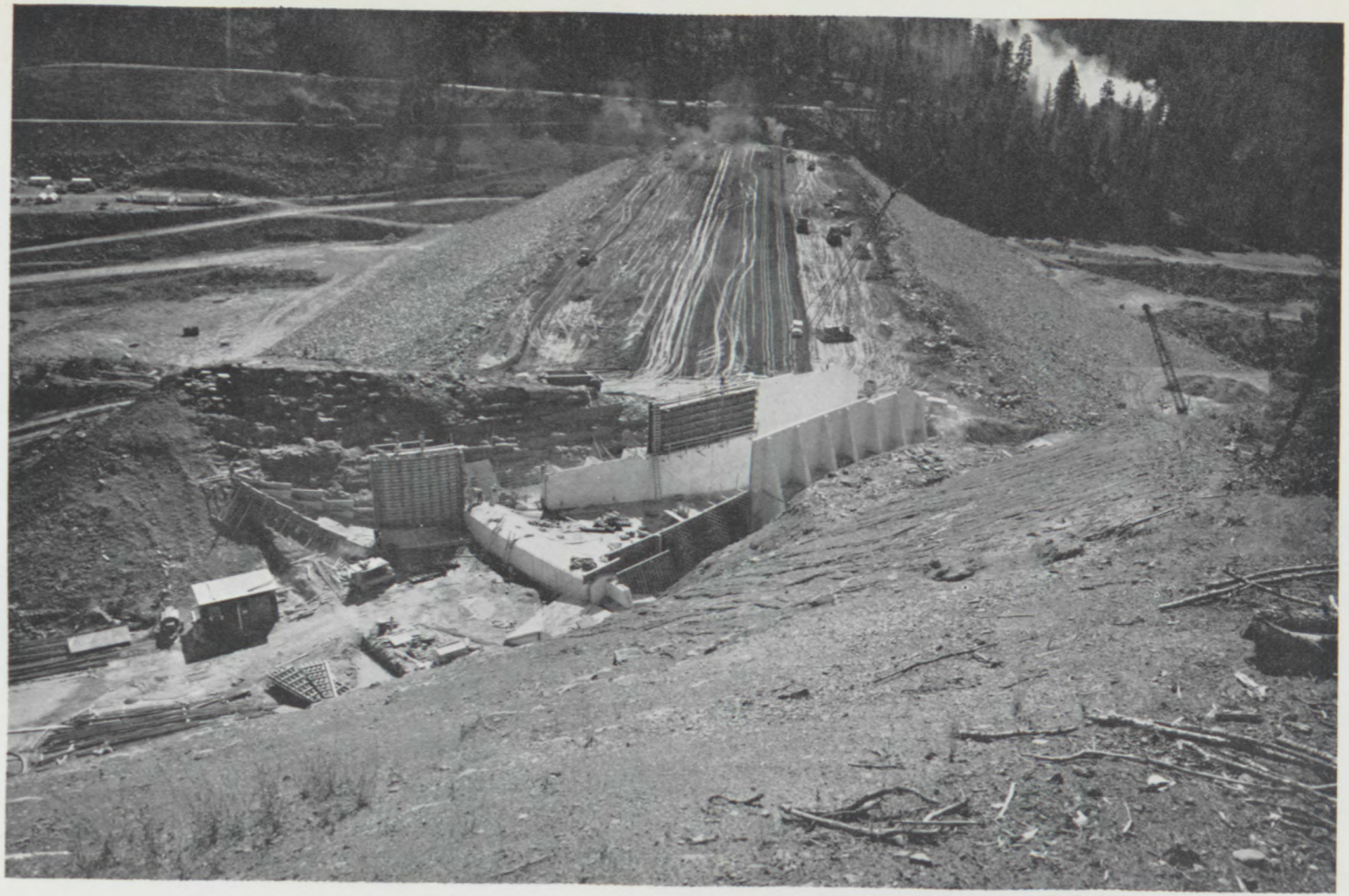
b. Smith Fork

Smith Fork Project is located in Delta County, along the Smith Fork of the Gunnison River. The principal features include Crawford Dam and Reservoir, Smith Fork Diversion Dam, Smith Fork Feeder Canal, and the Aspen Canal. The Crawford Reservoir, capacity of 13,650 acre-feet, has been constructed on Iron Creek, a tributary of Smith Fork. The reservoir will regulate the flow of Iron Creek and surplus flows of the Smith Fork that will be conveyed to it by the Smith Fork Feeder Canal. Small quantities of reservoir storage water will be released to Iron Creek and diverted by several small existing ditches. The remainder will be released to the new Aspen Canal and conveyed by this canal to existing ditches for distribution. Some of the storage releases through the Aspen Canal will replace present direct flow diversions from Smith Fork, thus permitting additional direct flow diversions to be made higher on the stream through existing ditches. Recreation facilities are under construction at Crawford Reservoir.

Smith Fork Project will provide a full water supply for irrigating 1,423 acres of new land and a supplemental supply for 8,056 acres of irrigated land located near Crawford, Colorado.

Construction Activities

Construction of the Smith Fork Project was substantially completed by the Fall of 1962. Secretary of the Interior Stewart L. Udall participated in a ceremony to dedicate Crawford Dam on



U. S. Bureau of Reclamation Photo

Florida Participating Project, Colorado River Storage Project.
View of construction work on Lemon Dam from right abutment.

April 20, 1963. Early in 1963 a serious water shortage was predicted for farms in the project area. With the use of water stored in Crawford Reservoir, under a rental and exchange plan, farmers near Crawford were able to claim a near normal year. The project was operated and maintained by the Bureau of Reclamation through the 1963 irrigation season. It is planned to transfer the facilities to the Crawford Water Conservancy District for operation and maintenance beginning January 1, 1964.

c. Florida Project

Florida Project is located in southwestern Colorado, southeast of Durango in the Florida River Valley and on Florida Mesa. Its principal features include Lemon Dam on the Florida River with a reservoir capacity of 40,300 acre-feet, enlargement of the existing Florida Farmers Ditch and Florida Canal, and the construction of a new diversion dam. Irrigation laterals will be constructed to 2,210 acres of project lands. Flood control and fish and wildlife values will be improved. The project includes 5,730 acres of new land and 13,720 acres of presently irrigated land needing a supplemental water supply.

Construction Activities

On September 30, 1963, the construction of Lemon Dam, prime feature of the Florida Project, was 98 percent complete. Enlargement of the Florida Farmers Ditch and the Florida Canal and construction of the Diversion Dam have been completed. This work was accomplished in a little over 50 percent of the time allowed by the contract. Water was made available through the new irrigation system in April 1963 — approximately one year ahead of schedule. By contract with the Florida Water Conservancy District, the District is modifying and extending its existing distribution systems to provide suitable carriage and water measurement facilities to serve project lands.

Stored project water in the Lemon Reservoir will be available on a rental basis during the 1964 irrigation season. It is planned to transfer the project facilities to the Florida Water Conservancy District for operation and maintenance beginning January 1, 1965.

d. Silt Project

An improved water supply for about 4,480 acres of partially irrigated land and a full supply for about 2,120 acres of new land will be provided by construction of the Silt Project between

U. S. Bureau of Reclamation Photo

Emery County Participating Project, Colorado River Storage Project.
View Looking through Joe's Valley Dam Site into reservoir site.

Rifle and Elk Creeks in western Colorado. Construction features will include the Rifle Gap Reservoir of 12,650 acre-feet capacity, a pumping plant, headworks and inlet channel, rehabilitation of existing works and construction of laterals and drains.

Advance Planning

The repayment contract between the Silt Water Conservancy District and the United States was executed on June 24, 1963, and is now awaiting court confirmation. Preparation of data for construction plans and specifications for Rifle Gap Dam and Silt Pump Canal is underway.

e. Fryingpan-Arkansas Project

The Fryingpan-Arkansas Project is located in central Colorado. The project will (a) divert through project works from the Roaring Fork River Basin in western Colorado to the Arkansas River Basin in eastern Colorado approximately 69,000 acre-feet of water per year; (b) divert through the existing works of the Twin Lakes Canal Company about 15,000 acre-feet of water per year in excess of that now being diverted by that company; (c) store the waters imported to the eastern slope, and, in addition, store eastern slope flood waters and winter flows averaging 50,000 and 93,000 acre-feet per year respectively.

Supplemental irrigation water will be supplied for 280,000 acres of irrigated land in the Arkansas River Valley that do not now have an adequate water supply. Water will also be supplied for expanding municipal, domestic, and industrial purposes on both sides of the Continental Divide. The project will prevent a large part of the flood damages along the Arkansas River which presently occur between Pueblo, Colorado and the John Martin Reservoir. In accomplishing the above primary purposes of the project, the generation of hydroelectric energy will be provided at seven powerplants having a nameplate rating of 123,900 kilowatts.

The Ruedi Dam and Reservoir costing about $13 million, a water storage facility on the Fryingpan River in western Colorado, will be constructed as a part of the Fryingpan-Arkansas Project, the over-all cost of which is about $170 million.

The conservation and development of fish and wildlife has been specifically included as one of the purposes of the project.

Advance Planning

Preconstruction activities during the year included extensive geological studies and field surveys of Ruedi Dam and Reservoir site, and initiation of field surveys and collection studies on the headwaters of the Fryingpan River on the West Slope of the Continental Divide in the vicinity of the West Portal of the Fryingpan-Arkansas Divide Tunnel. Negotiations for aerial mapping contracts for several feature sites on the East Slope of the Continental Divide were under way at the end of the year.

2. NEW MEXICO

a. Hammond Project

Hammond Project is located in northwestern New Mexico along the south bank of the San Juan River opposite the towns of Blanco, Bloomfield, and Farmington. The project will provide irrigation water for 3,900 acres, of which 3,180 acres are not now irrigated. The remaining 720 acres are now irrigated by pumping water from the San Juan River. The pumps will not be used to deliver project water. The new lands will be divided into 20 to 30 full-time, family-sized farms.

The project works consist of the Hammond Diversion Dam on the San Juan River, the main gravity canal, a hydraulic-turbine driven pumping plant, three main laterals, distribution laterals, and a drainage system.

Construction Activities

The Hammond Diversion Dam, pumping plant, main gravity canals, main laterals, and distribution system have been completed. Construction of drainage facilities has been deferred until the need for them develops. The project, operated and maintained by the Bureau of Reclamation through the 1963 irrigation season, supplied water to project lands on a rental basis.

b. Navajo Indian Irrigation Project

The Navajo Indian Irrigation project will be in Northwestern New Mexico along the south side of the San Juan River in the Farmington-Shiprock area on the Navajo Indian Reservation. It involves the development of 110,630 acres that will provide farms for 1,120 Indian families. Related service activities will support at least 2,240 additional families, thus raising the standard of living for more than 16,000 of our Navajo citizens.

Public Law 485 states that irrigation costs that will be beyond the capability of the Indian irrigators to repay shall be nonreimbursable, and irrigation costs that are within the capability of the lands to repay shall be deferred so long as the lands remain in Indian ownership.

The project was authorized for construction by the Act of June 13, 1962, as outlined in House Document No. 424, 86th Congress. Under Section 7 of this authorizing act, appropriations are to be authorized to the Bureau of Indian Affairs; although the construction will be accomplished by the Bureau of Reclamation.

The Navajo Dam and Reservoir, a storage unit of the Colorado River Storage Project, includes storage capacity for the irrigation project.

The principal features needed to be constructed for this project include: the canal headworks and tunnel necessary to divert water from the Navajo Reservoir; a main canal 152 miles long; two pumping plants; a hydroelectric power plant with a generating capacity of approximately 15,000 kw. in the main canal to furnish energy for the pumping plants; a water distribution lateral system; and a drainage system.

Advance Planning

The field office was established in Farmington, New Mexico, in February 1963. A memorandum of understanding was executed between the Bureau of Reclamation and the Bureau of Indian Affairs to better define the respective responsibilities of the two agencies in connection with the project. Work on preparation of specifications for the first construction contract, which involves the headworks and the two miles of tunnel, was initiated. The balance of the effort in water year 1963 was directed toward better definition of the lands which would be considered irrigable on a long-time basis, and preparation of data for reappraisal report on the project. The purpose of the reappraisal report is to crystallize a definite plan for construction of the project, define the irrigable acreage, and reappraise the estimates of cost of the project. This report is scheduled for completion in June 1964.

c. San Juan-Chama Project

The potential San Juan-Chama project is located in Southcentral Colorado and Northcentral New Mexico in the San Juan River, Rio Grande and Canadian River Basins. This project will divert waters from the headwaters of the San Juan River into the

Rio Grande Basin for the purpose of providing supplemental water for existing irrigation projects and for municipal and industrial uses in the Albuquerque, New Mexico metropolitan area. Although water for the diversion will be collected from tributaries of the San Juan River in both Colorado and New Mexico, all water will be used in New Mexico in the Rio Grande Basin. By exchange, the project will also increase the use of water in New Mexico in the Canadian River Basin. It is planned to provide for an initial diversion of an average of 110,000 acre-feet of Colorado River Basin water per year. This project will also improve conditions for recreation and fish and wildlife in the Rio Grande Basin.

Advance Planning

The major accomplishments were completion and approval of a report on water accounting as required by Public Law 87-483, completion of a definite plan report on the diversion and storage facilities, and negotiation and signing of repayment contracts with the city of Albuquerque and the Middle Rio Grande Conservancy District. Design data for Azotea tunnel also were collected. The project office was established in Santa Fe, New Mexico, and a field office in Chama, New Mexico.

3. UTAH

a. Central Utah Project (Initial Phase)

The Central Utah Project (initial phase) will provide water for irrigation, municipal and industrial use, and power generation. Benefits also will be realized in the fields of outdoor recreation, fish and wildlife conservation, flood control, water quality control, and area redevelopment. The initial phase consists of four units. Largest of these is the Bonneville unit which involves diversion of water from the Uinta Basin to the Bonneville Basin and associated developments in both basins. The other three units — the Vernal, Upalco, and Jensen — provide for local development in the Uinta Basin.

Under the Bonneville unit the potential Strawberry aqueduct will intercept flows of Uinta Mountain streams as far east as Rock Creek and convey the water to the existing Strawberry Reservoir which will be enlarged by construction of Soldier Creek Dam below the present dam. The stored water will be released through the Wasatch Mountains to the central Utah area. Through various exchanges and by the construction of new facilities, the water will be made available to an area extending from Salt Lake City about 75 miles south to Nephi. Starvation Reservoir on Strawberry River

with a feeder canal from Duchesne River will develop water for use in the Uinta Basin.

The Vernal unit, construction of which is now practically completed includes the Steinaker Reservoir offstream from Ashley Creek and feeder and service canals.

Advance Planning

The definite plan report on the Bonneville unit is scheduled for completion in fiscal year 1964, and a supplemental report on that unit is scheduled for fiscal year 1966. Definite plan reports on the Upalco and Jensen units are scheduled for completion in fiscal year 1965.

Definite plans are still being formulated for the Upalco and Jensen units. In the Upalco area studies are being made of possibilities for reservoir storage to be developed and operated in coordination with the Big Sand Wash Reservoir now being constructed by the State of Utah offstream from Lake Fork River. In the Jensen area studies are being made of possibilities for pumping from the Green River and for storage of Brush Creek flows in the potential Tyzack Reservoir.

b. Emery County

Emery County Project will provide supplemental water for 18,004 acres of land and a full supply for 771 acres in Emery County in east central Utah near the towns of Huntington, Castle Dale, and Orangeville. Principal construction features will include Joes Valley Dam and Reservoir on Cottonwood Creek with an active storage capacity of 50,000 acre-feet, the Swasey Diversion Dam located about ten miles downstream from Joes Valley, the 16-mile Cottonwood-Huntington Canal heading at the Swasey Diversion Dam, the Huntington North Dam and Reservoir with an active capacity of 3,100 acre-feet, and the 3½-mile Huntington North Service Canal. Canal lining, laterals and drains will be constructed as required. Recreational facilities will be provided at the project storage sites.

Construction Activities

Award of a $3.5 million contract was made on May 10, 1963, for construction of Joes Valley Dam, principal feature of the Emery County Project. Construction was officially launched by ground breaking ceremonies held at the damsite on June 20, 1963. By the end of the water year, 16 percent of the contract work was completed.

4. WYOMING

a. Lyman Project

The Lyman Project is located in Uinta County in southwestern Wyoming near the town of Lyman. As presently designed and planned, the project would serve supplemental water to 36,000 irrigable acres in the project area. Two dams — the Meeks Cabin and China Meadows Dams and Reservoirs — will be built by the Bureau of Reclamation and will comprise the principal features of the project.

Construction Activities

The definite plan report has been completed and was approved by the Commissioner on March 15, 1963. Preconstruction surveys were initiated on July 1, 1963. First construction to be undertaken will be an access road to the Meeks Cabin damsite, scheduled to begin in Spring 1964.

b. Seedskadee Project

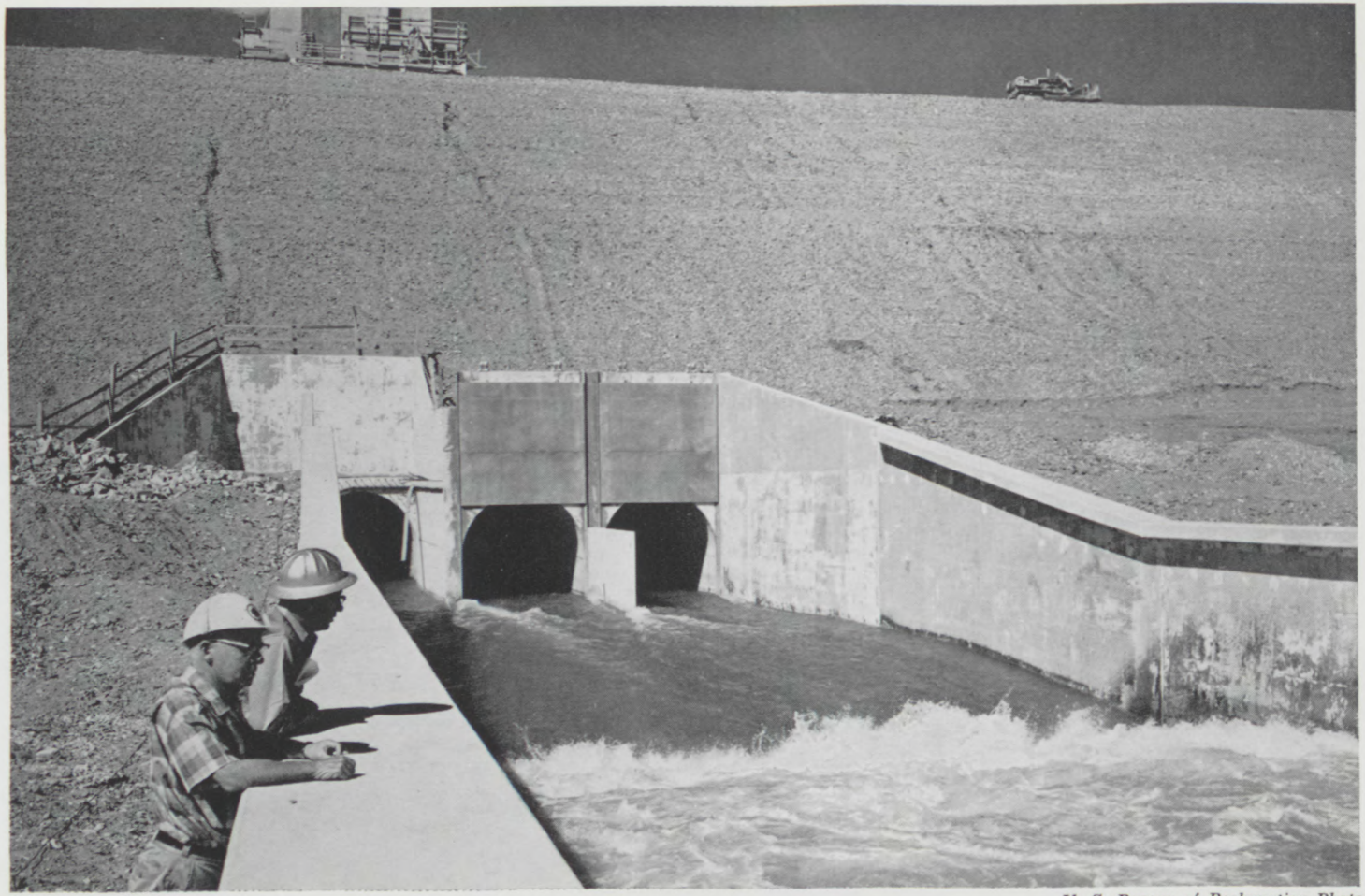
The Seedskadee Project will provide for the irrigation of 58,775 acres of dry arable land along both sides of the Green River in an area extending from 14 to 50 miles northwest of Green River, Wyoming. It will also provide water for future municipal and industrial needs.

Fontenelle Dam and Reservoir on Green River will be used both for storage (to a total capacity of 345,000 acre-feet) and as a means of diverting water from the river. A 10,000-kilowatt powerplant will be constructed at the toe of the dam. Development of a wildlife refuge downstream from Fontenelle Dam will be an adjunct to the project to be constructed under Section 8 of Public Law 485.

About 100 miles of canals and 160 miles of laterals will be constructed in the distribution system to convey water from the reservoir to farm units.

Construction Activities

A contract was awarded in June 1961 for construction of Fontenelle Dam. By September 30, 1963, the dam was 86 percent completed. During August 1963 the Green River was diverted to run through the dam's completed river outlet works so that embankment could be placed in the old diversion channel. On April 8, 1963, a $1,335,000 contract was awarded for construction of the 10,000-



U. S. Bureau of Reclamation Photo

Seedskadee Participating Project, Colorado River Storage Project.
View of outlet works at Fontennelle Dam.

kilowatt powerplant and switchyard at Fontenelle Dam. The powerplant is under construction and scheduled for completion in mid-1965.

A review commission was appointed by the Secretary of the Interior to make a study of the Wyoming Reclamation program and review the economic outlook of projects under development. In view of recommendations of the commission, and after consultation among the Bureau of Reclamation, the Department of Agriculture, and the State of Wyoming, it was determined that a development farm should be established and operated on the Seedskadee Project. The purpose of the farm will be to determine and demonstrate the most effective, economic, and best adapted water management practices, crop production, and livestock handling techniques, and their relationship to optimum family-size farm units and a project distribution system. Part of the farm will be used for basic research. The Bureau of Reclamation will construct the development farm and facilities. The farm will be operated under the direct supervision of the University of Wyoming's College of Agriculture under a cooperative agreement with the Bureau and the Department of Agriculture.

E. POTENTIAL STORAGE UNITS

1. Gray Canyon

Reconnaissance investigations on the potential Gray Canyon Unit of the Colorado River Storage Project (located in east-central Utah) will continue through the year. The development would include one or more dams and power generating facilities to utilize the 500 feet of head available in the Gray Canyon segment of the Green River. A damsite immediately below the confluence of the Price and Green Rivers is being considered in preference to the site described in the CRSP report of December 1950. This lower site is more accessible and offers greater opportunity for multiple-purpose development than the previously selected site three miles upstream from the Price River confluence.

F. POTENTIAL PROJECTS

In carrying out further investigations of projects under Federal Reclamation Laws in the Upper Colorado River Basin, the Secretary of the Interior is directed to give priority to completion of planning reports on twenty-five projects. Brief descriptions of these projects are to be found in the Commission's Eighth Annual Report.

The Bureau of Reclamation, so far as limited funds and personnel will permit, is continuing its studies on these projects. Con-

siderable progress in investigations has been accomplished during the past year.

The San Juan-Chama and Navajo Indian Irrigation Projects, originally in the priority of planning category, were found feasible and through Congressional action during the 87th Congress were transferred to the authorized participating project stage. The Savery-Pot Hook, Bostwick Park and Fruitland Mesa Projects have been found feasible and legislation has been introduced in Congress to authorize their construction as participating projects of the Colorado River Storage Project.

Other projects in the priority-for-planning category are in various stages of detailed planning for feasibility reports or preliminary investigations for reconnaissance reports.

1. CONGRESSIONAL AUTHORIZATION PENDING

COLORADO

a. Bostwick Park Project

A feasibility report on the Bostwick Park Project was sent to Congress by the Secretary of the Interior in July 1962 with a recommendation for authorization.

b. Fruitland Mesa Project

The feasibility report was sent to Congress in April 1963 for consideration with respect to project authorization.

COLORADO AND WYOMING

a. Savery-Pot Hook Project

The Secretary of the Interior transmitted the feasibility report to Congress on June 25, 1962, with a recommendation for authorization.

2. UNDER FEASIBILITY INVESTIGATIONS

COLORADO

a. Animas-La Plata Project

The feasibility report was approved by the Secretary of the Interior in October 1962 and transmitted to States and Federal Agencies for formal review under the provisions of the Flood Control Act of 1944. Comments have been received from the States of Colo-

rado, California, Nevada, and Wyoming, and from all interested Federal agencies. New Mexico was granted an extension of time for submitting its comments.

b. Dallas Creek

Feasibility investigations are progressing essentially as scheduled. Preparation of design data on all project features is in progress. Writing of the proposed land and agricultural economics and water supply appendices is in progress. Cooperative studies by other Federal agencies are continuing. Completion of a proposed feasibility report is scheduled late in fiscal year 1964.

c. Dolores Project

The project feasibility report on the Dolores Project was submitted to the Commissioner of Reclamation on May 31, 1963, for further action at the Washington level. Minor revisions are being made following the Washington office review.

d. San Miguel Project

Feasibility investigations on the San Miguel Project are progressing as scheduled. Feasibility designs and estimates have been completed for Telluride Dam, Naturita Dam, Pitchfork Dam, Norwood Canal, and Mailbox Park Canal. Work on the project land and agricultural economic appendices is in progress. Cooperative studies by Federal agencies are continuing. A proposed feasibility report is scheduled for completion at the end of fiscal year 1964.

e. West Divide Project

Good progress is being made on the West Divide Project feasibility investigations. Preparation of design data for all project features has been undertaken. A proposed feasibility report is scheduled to be completed in 1964.

f. Yellow Jacket Project

The Yellow Jacket Project is located in Moffat and Rio Blanco Counties, Colorado, and in the White and Yampa River Basins. Land classification studies, water supply studies, and plan formulation studies are in progress. A cooperative program of the Bureau of Reclamation with the State of Colorado and the Geological Survey to obtain aerial maps of the project area has been largely completed.

g. Battlement Mesa Project

Plan formulation, water supply, and land classification studies are in progress.

h. Bluestone Project

Engineering surveys and plan formulation studies are in progress.

i. Grand Mesa Project

Feasibility investigations are continuing. Engineering surveys and cooperative work with Federal agencies are in progress.

UTAH

a. Uintah Unit, Central Utah Project (Ultimate)

Feasibility investigations were initiated. Drainage investigations, land classification studies, and preliminary cost estimates for plan formulation are in progress.

3. UNDER RECONNAISSANCE INVESTIGATIONS

COLORADO

a. Juniper Project

A reconnaissance report on the Juniper Project was completed in July 1963 and has been distributed to interested agencies. Conclusions in the report are that an initial development involving about 9,000 acres of land and a powerplant of 30,000-kilowatt installed capacity would warrant a feasibility investigation. The possibility of developing a larger project involving 100,000 acres also would be studied as part of the feasibility investigation.

b. Ruedi Western Slope Project

A reconnaissance report on the Ruedi Western Slope Investigations was completed in January 1963. The report has been distributed to interested State and Federal agencies. As an extension of the investigations, a special study is nearing completion to determine the proper diversion elevation at Ruedi Reservoir for delivery of water to the potential Basalt Project. This determination is necessary before final construction plans are prepared for the Ruedi Dam and outlet works.

c. Upper Gunnison Basin Project

A field draft of a reconnaissance report has been completed on potential developments in the Upper Gunnison Basin to utilize Taylor Park Reservoir water which the Curecanti Unit will make available for use in that basin.

UTAH

a. Juniper Project

(See discussion under Colorado)

X. Findings of Fact

No findings of fact pursuant to Article VIII of the Upper Colorado River Basin Compact have been made by the Upper Colorado River Commission. No part of this Annual Report, or the information contained herein, is to be construed as findings of fact by the Commission.

XI. Acknowledgments

The Upper Colorado River Commission wishes to acknowledge the united actions of the Governors of Colorado, New Mexico, Utah and Wyoming on the fundamental issues involved in the development of the water and land resources of the Upper Colorado River Basin and for their interest in and support of the Upper Colorado River Commission.

The Commission especially wishes to give recognition to the difficult and able work of the members of the United States Congress from the Upper Colorado River Basin States and to acknowledge with appreciation the assistance it has received from agencies of the Executive Branch of the Federal Government: the Department of the Interior, Bureau of Reclamation, Geological Survey, Bureau of Indian Affairs, and the Department of Agriculture.

Officers and personnel of many state agencies having their primary interests in various phases of water resources have also aided materially with cooperative efforts and information.

Appendices

APPENDIX A

Report of Auditor

REPORT OF EXAMINATION
Upper Colorado River Commission
SALT LAKE CITY, UTAH
June 30, 1963

JOHN E. McNULTY
CERTIFIED PUBLIC ACCOUNTANT
200 NORTH SIXTH STREET
GRAND JUNCTION, COLORADO

September 17, 1963

Upper Colorado River Commission
Salt Lake City, Utah

Gentlemen:

I have examined the balance sheets of the General Fund, the Property and Equipment Fund, and the Upper Basin Promotion Fund of the Upper Colorado River Commission as of June 30, 1963, and the related Statement of Revenue and Expense-General Fund for the year then ended. My examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records as I considered necessary in the circumstances.

In my opinion, the accompanying balance sheets and statement of revenue and expense present fairly the financial position of the Upper Colorado River Commission at June 30, 1963, and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

/s/ JOHN E. McNULTY
Certified Public Accountant

BALANCE SHEET — GENERAL FUND

UPPER COLORADO RIVER COMMISSION

June 30, 1963

ASSETS

CASH		
Office cash fund		$ 25.00
Demand deposit — First National Bank in Grand Junction, Colorado		52,182.22
		$52,207.22
OTHER ASSETS — returnable deposit United Air Lines		425.00
PREPAID EXPENSE — unexpired insurance premiums		236.46
		$52,868.68

LIABILITIES, RESERVES, AND FUND BALANCE

ACCOUNTS PAYABLE		
For supplies and expenses		$ 1,262.40
RESERVE		
For fiscal year 1964 assessments received in advance		11,601.75
UNAPPROPRIATED FUND BALANCE		
Balance July 1, 1962	$18,884.12	
Less excess of receipts over expenses for fiscal year ended June 30, 1963	21,120.41	
Balance June 30, 1963		40,004.53
		$52,868.68

Note — At June 30, 1963, unrecorded liability of the Commission to its full-time employees for accrued annual leave amounted to $3,960.75. According to Commission policy (effective July 1, 1960) each employee is expected to take annual leave of 15 days each calendar year during which period of time regular salary payments are continued. Employees may accumulate a maximum of 30 days annual leave.

BALANCE SHEET — PROPERTY AND EQUIPMENT FUND

UPPER COLORADO RIVER COMMISSION

June 30, 1963

ASSETS

PROPERTY AND EQUIPMENT — at cost	
Land and land improvements	$ 26,366.00
Building	47,527.24
Furniture and fixtures	14,310.63
Library	2,745.54
Automobile	3,571.00
Engineering equipment	3,272.21
Motion picture film — at nominal value	3.00
Upper Colorado River Basin relief model	5,937.77
	$103,733.39

FUND BALANCE

INVESTMENT IN PROPERTY AND EQUIPMENT		
Balance July 1, 1962		$ 99,698.60
Transactions for fiscal year ended June 30, 1963:		
Additions	$5,534.79	
Retirements	1,500.00	4,034.79
		$103,733.39

BALANCE SHEET — UPPER BASIN PROMOTION FUND

UPPER COLORADO RIVER COMMISSION

June 30, 1963

ASSETS

CASH—on deposit with United States Bank of Grand Junction, Colorado	$ 742.31

FUND BALANCE

Balance July 1, 1962	$1,793.59
Less: Cost of Congressional Committee travel through the Upper Basin	1,051.28
Balance June 30, 1963	$ 742.31

STATEMENT OF REVENUE AND EXPENSE —
GENERAL FUND
UPPER COLORADO RIVER COMMISSION

For the fiscal year ended June 30, 1963

	Budget Amount	Actual Amount	Actual Amount Over-Under*
REVENUE			
Assessments	$100,000.00	$100,000.00	$ —0—
EXPENSE			
Personal services:			
Administrative salaries	$ 21,200.00	$ 20,970.00	$ 230.00*
Engineering salaries	22,600.00	12,900.00	9,700.00*
Attorney's salary	12,300	12,276.00	24.00*
Assistant Treasurer's salary	300.00	300.00	—0—
Clerical salaries	—0—	—0—	—0—
Janitor	1,200.00	1,152.00	48.00*
F.I.C.A. tax	1,400.00	694.73	705.27*
	$ 59,000.00	$ 48,292.73	$10,707.27*
Current expenses:			
Accounting and reporting	$ 1,500.00	$ 1,089.45	$ 410.55*
Telephone and telegrams	2,700.00	1,917.36	782.64*
Insurance and bond premiums	1,200.00	793.44	406.56*
Printing	2,800.00	1,729.68	1,070.32*
Engineering supplies	1,000.00	157.47	842.53*
Office supplies and postage	2,400.00	1,859.66	540.34*
Secretarial service	200.00	132.26	67.74*
Library supplies and expense	1,200.00	449.17	750.83*
Utilities	1,200.00	807.91	392.09*
Building repair and maintenance	500.00	136.17	363.83*
Miscellaneous	300.00	264.71	35.29*
	$ 15,000.00	$ 9,337.28	$ 5,662.72*
Capital outlay	$ 4,500.00	$ 4,125.79	$ 374.21*
Education and information	9,500	8,291.32	1,208.68*
Travel	12,000.00	8,832.47	3,167.53*
TOTAL EXPENSE	$100,000.00	$ 78,879.59	$21,120.41*
EXCESS OF REVENUE OVER EXPENSE		$ 21,120.41	$21,120.41

SUPPLEMENTARY DATA

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS — GENERAL FUND

UPPER COLORADO RIVER COMMISSION

For the fiscal year ended June 30, 1963

Balance of cash and demand deposit at July 1, 1962		$ 70,628.57
Cash receipts:		
Assessments for fiscal year 1963	$51,750.00	
Assessments for fiscal year 1964	10,125.00	
Return premiums on insurance and sundry	185.75	62,060.75
		$132,689.32
Cash disbursements:		
Personal services	$48,292.73	
Current expenses	9,373.35	
Capital outlay	4,076.29	
Education and information	8,291.32	
Travel	7,922.66	
Expenses of fiscal year ended June 30, 1962, paid after July 1, 1962	2,525.75	80,482.10
Balance of cash and demand deposit at June 30, 1963		$ 52,207.22

INSURANCE COVERAGE

UPPER COLORADO RIVER COMMISSION

June 30, 1963

	Coverage	
	Type	Amount (in dollars)
Treasurer	Fidelity bond	$ 40,000
Assistant Treasurer	Fidelity bond	$ 40,000
Automobile	Comprehensive	Actual cash value
	Liability:	
	Each person	$100,000
	Each accident	$300,000
	Property damage	$ 10,000
	Collision and upset	$100 deductible
Employees	Workmen's compensation	Statutory
Office contents	Fire and Comprehensive	$ 14,000
Office premises	Liability:	
	Each person	$100,000
	Each accident	$300,000
	Property damage	$5,000/$25,000
Building	Fire, extended coverage, etc.	$ 45,000-A

Note A — 90% co-insurance clause.

APPENDIX B

UPPER COLORADO RIVER COMMISSION

BUDGET

Fiscal year ending June 30, 1965

PERSONAL SERVICES		
Administrative Salaries (incl. Admin. Sec'y)	$21,400	
Legal Salary	12,900	
Engineering Salaries	22,600	
Assistant Treasurer	300	
Clerical	3,900	
Janitor	1,200	
Social Security	1,300	
		$63,600
TRAVEL		$12,000
CURRENT EXPENSE		
Utilities	850	
Building Repair & Maintenance	500	
Reporting & Accounting	1,400	
Telephone & Telegraph	3,500	
Insurance & Bond Premiums	1,200	
Printing	2,500	
Secretarial Services	1,000	
Engineering Supplies & Services	500	
Office Supplies & Postage	3,500	
Library & Miscellaneous	800	
		$15,750
EDUCATION & INFORMATION (incl. Public Relations)		$ 5,000
CAPITAL OUTLAY		$ 2,000
TOTAL ESTIMATED EXPENSE		
Fiscal Year July 1, 1964 thru June 30, 1965		$98,350

APPENDIX C

SIXTH ANNUAL REPORT, COLORADO RIVER STORAGE PROJECT AND PARTICIPATING PROJECTS

INTRODUCTION

The Colorado River Storage project and participating projects were initially authorized by the Congress on April 11, 1956 (70 Stat. 105). This act provided for the basinwide development and utilization of the water and land resources of the Upper Colorado River Basin. The authorized facilities will result in control of the flows of the Upper Colorado River in large reservoirs, will produce sizeable blocks of hydroelectric power, will bring about irrigation of lands from upper basin tributary streams, and will supply water for municipal and industrial use.

Construction of the project by the Bureau of Reclamation began in 1956 on Glen Canyon Dam, and in 1958 on Flaming Gorge and Navajo Dams. In following years, construction was started on the Curecanti unit, the transmission system, and on the following participating projects: Emery County, Florida, Hammond, Paonia, Seedskadee, Smith Fork, and the Vernal unit of the central Utah project.

Fiscal year 1962 heralds three significant events in the development of the project. First, the substantial completion of the Paonia participating project in western Colorado. Second, the receipt of the first operating revenues from the sale of water on the Navajo storage unit in New Mexico. Third, authorization on June 13, 1962, by Public Law 87-483 of the Navajo Indian irrigation project and the San Juan-Chama project (initial stage) as participating projects.

Section 6 of the authorizing act stipulates that, on January 1 of each year, the Secretary of the Interior shall report to Congress for the previous fiscal year:

(1) Status of revenues from; and

(2) Cost of constructing, operating, and maintaining the Colorado River Storage project and participating projects (hereinafter referred to as the "project").

The report is to be prepared so as to reflect accurately the —

(3) Federal investment allocated at that time to power, to irrigation, and to other purposes;

(4) Progress of return and repayment thereon; and

(5) Estimated rate of progress, year by year, in accomplishing full repayment.

Because of the nature of project activities during the fiscal year, this sixth annual report deals primarily with construction progress to June 30, 1962, and only limited coments are furnished with respect to the remaining items required to be reported upon.

1. STATUS OF REVENUES

Revenues received during fiscal year 1962 amounted to $6,529. Of this amount, $3,025 represents operating revenues from the sale of water from the Navajo storage unit under short-term water sales contracts, and $3,504 was collected from miscellaneous sources.

Total revenues to June 30, 1962, amount to $46,389 and were derived from the following sources:

Operating revenues: Sale of water	$ 3,025
Nonoperating revenues:	
Lease of land for grazing and agricultural use	31,765
Miscellaneous	11,599
Total	46,389

2. COST OF CONSTRUCTING, OPERATING, AND MAINTAINING THE PROJECT

The cost of constructing the project to June 30, 1962, is reflected in the following attached financial exhibits:

Exhibit A — Comparative balance sheets at June 30, 1962, and June 30, 1961.

Exhibit B — Statement of source and application of funds and other credits as of June 30, 1962.

Exhibit A sets forth comparatively the financial condition of the project at June 30, 1962, and June 30, 1961. The cumulative funds and other credits available to the project at June 30, 1962, and the manner in which such funds and credits were used or applied are set forth on exhibit B.

Activities during fiscal year 1962 were directed mainly to construction work on the storage project units, the transmission system, and on the Emery County, Florida, Hammond, Seedskadee, Smith Fork, Paonia, and Vernal unit participating projects. In addition, advance planning continued on the Crystal Dam, Reservoir, and powerplant of the Curecanti storage unit, and on the central Utah, La Barge, Lyman, and Silt participating projects. Costs incurred

for these activities constitute the principal items of cost of constructing the project to June 30, 1962, and are summarized as follows:

Activity:	*Cost to date*
Construction work in progress	$278,240,521
Completed plant in service	7,423,214
Service facilities	14,776,879
Investigation costs (undistributed advance planning)	5,299,824
Total	$305,740,438

Details with respect to the foregoing, identified by project or activity, are shown respectively on schedules Nos. 1, 2, 3, and 4, attached.

Highlights of certain of the major activities are set forth in the following paragraphs:

Curecanti Storage Unit, Colorado

Construction work continued on the relocation of segments of U. S. Highway 50 and Colorado State Highway 92 to bypass the Blue Mesa Reservior site. The prime contract for construction of the Blue Mesa Dam, powerplant, and switchyard, was awarded in April 1962 for $13,706,230. In addition, contracts were awarded for construction of temporary field office, laboratory, warehouse, and garage buildings. Surveys and preparation of designs are underway for the Morrow Point Dam, powerplant, and switchyard. The prime contract for the Morrow Point Dam will be awarded in the spring of 1963.

Flaming Gorge Storage Unit, Utah

Construction of the concrete arch dam on the upper Green River in Utah is 82 percent complete, and by November 1962 the dam will be "topped out" at a height of 502 feet above bedrock. A separate contract was awarded in February 1962 for completion of the powerplant and switchyard. Fabrication of powerplant turbines and generators was well underway with the turbines 64 percent complete and generators 55 percent complete. Closure of the single diversion tunnel will be accomplished in the fall of 1962, and filling of the 91-mile-long reservoir will begin. The first of the three power-generating units is expected to be placed on the line in September 1963. The remaining two units will be in service by March 1964. The powerplant will have a total generating capacity of 108,000 kilowatts.

Glen Canyon Storage Unit, Arizona

Progress on the $133,793,000 prime contract for construction of the 710-foot-high concrete arch dam and the 900,000-kilowatt powerplant is slightly ahead of schedule with physical completion estimated at 75 percent. Glen Canyon Dam is expected to be completed in March 1964.

The contractor has placed 3.4 million cubic yards of concrete of the total 5.4 million required to complete the dam and appurtenant works. Completion of the powerplant, switchyard, and appurtenant works will be under a separate contract for $7,891,272 awarded in June 1962.

Fabrication of the eight powerplant turbines and generators is 22 percent and 7 percent completed, respectively. According to present plans, initial power generation will begin in June 1964.

Closure of Glen Canyon Dam is scheduled early in 1963.

Navajo Storage Unit, New Mexico

Navajo Dam has been under construction for 4 years and is nearing completion at June 30, 1962, with 96 percent of the work completed under the $26,196,000 contract. It is expected that the earthfill dam will be substantially completed in August 1962.

Minor work remains under relocation contracts for relocation of powerlines, county roads, and segments of Denver & Rio Grande Western Railroad around the reservoir area.

Navajo Dam will be the first major feature of the storage unit to be completed. Storage of water in the 35-mile-long reservoir began in June 1962. The impoundment of water at Navajo will be the first at any of the storage units of the Colorado River storage project.

Transmission Division

Construction of the Flaming Gorge to Green Mountain 138-kilovolt transmission lines continued during the year and was 95 percent complete at June 30, 1962. Work was started on the Glen Canyon-Shiprock 230-kilovolt transmission line, the Morrow Point-Curecanti 230-kilovolt line, and the Gunnison-Blue Mesa-Curecanti-Montrose 115-kilovolt transmission line. A contract was awarded in April 1962 for construction of the Vernal substation with completion scheduled for June 1963. Construction contracts were awarded in fiscal year 1962 for the construction of the Glen Canyon-

Pinnacle Peak 345-kilovolt line, the Shiprock-Cortez-Curecanti 230-kilovolt line, and the Curecanti-Hayden 230-kilovolt line.

Preconstruction activities are underway on various other transmission lines and interconnection facilities in accordance with the agreements reached with the private utilities and preference customers.

Central Utah Participating Project, Vernal Unit, Utah

Work on the Steinaker service canal was nearly complete with progress to date estimated at 96 percent. Construction of the Ashley Valley water system is 98 percent complete at June 30, 1962. The earthfill Steinaker Dam, the Fort Thornburgh diversion dam, and the Steinaker feeder canal were all substantially completed in fiscal year 1961.

Irrigation water and municipal water supply will be available from the project works beginning with the 1963 irrigation season.

Emery County Participating Project, Utah

Funds were appropriated in fiscal year 1962 to initiate construction activities. Activity during the fiscal year was directed mainly to designs and surveys of project features and the construction of temporary storage facilities.

Construction of Joes Valley Dam and Reservoir, the project's main storage facility, is scheduled to begin in fiscal year 1963. Construction of the other major features, including Huntington North Dam and Reservoir, the Swasey diversion dam, about 20 miles of new canals, 10 miles of lining in existing canals, and nearly 25 miles of drains, will follow.

Florida Participating Project, Colorado

Lemon Dam and Reservoir, the major feature of the Florida project, is now under construction, and progress to date is estimated at 40 percent.

A contract for construction of irrigation facilities to be operated in conjunction with the Lemon Dam and Reservoir was awarded in March 1962. These facilities, when completed, will include the Florida Farmers diversion dam on the Florida River which will divert water for irrigation into the existing Florida Farmers Ditch and Florida Canal, both of which will be enlarged and relocated under the contract.

Construction of this project is scheduled for completion before the start of the 1964 irrigation season.

Hammond Participating Project, New Mexico

Work on the principal features of the Hammond project had been completed by June 30, 1962. These completed features include the Hammond diversion dam on the San Juan River which will divert natural streamflows into the 29-mile-long main canal. Additional construction work remains on the laterals and the hydraulic pumping plant.

Completion of the entire project except for minor cleanup activities is scheduled for fiscal year 1963. Irrigation water was available in limited amounts beginning with the 1962 irrigation season.

Paonia Participating Project, Colorado

Construction of the Paonia Dam on the North Fork of the Gunnison River was essentially completed early in 1962, and the 21,000 acre-foot Paonia Reservoir was filled during the spring runoff. Paonia Dam is the main feature of the Paonia project, which has the distinction of being the first participating unit of the five-State Colorado River storage project to be placed in operation. The completed portions of the project were turned over to the North Fork Water Conservancy District on June 1, 1962, for operation and maintenance. Other project features include the Fire Mountain diversion dam and several miles of irrigation canal.

Seedskadee Participating Project, Wyoming

The principal features of the Seedskadee project are the Fontenelle Dam and Reservoir on the Green River, a 10,000 kilowatt powerplant and switchyard, a system of canals, two pumping plants, laterals and drainage facilities. Construction of the Fontenelle Dam is 34 percent complete under a construction contract for $8,145,545 awarded in June 1961. Other construction activities were directed mainly to construction of the Fontenelle community.

The community is essentially completed and includes housing, both permanent and temporary, for about 30 Reclamation employees and their families, along with shops, garages, an office, fire station, and a laboratory. The permanent facilities will serve as the project operation headquarters after completion of the project.

Smith Fork Participating Project, Colorado

The Crawford Dam on Iron Creek in west-central Colorado is 88 percent completed at June 30, 1962. Construction is underway on the other project features including the Smith Fork diversion dam which will divert surplus flows from the Smith Fork, a 2¾-mile feeder canal to carry the surplus flow from the Smith Fork to the reservoir, and a new 6.6-mile Aspen Canal to deliver the water to the farmlands in the project area. Work on these features is estimated 81 percent complete.

Initial storage of water is scheduled to begin in the fall of 1962, and irrigation water will be available in limited amounts during the 1963 irrigation season.

Advance Planning Activities

Definite plan reports on the Silt participating project in Colorado, the Emery County participating project in Utah, and the economic justification report on Crystal Dam, reservoir, and powerplant of the Curecanti unit were completed during the year. Advance planning studies continued on the central Utah project and in Wyoming on the Lyman project. Quality of water studies were continued in the Upper Colorado River Basin as authorized by law.

Fish and Wildlife Facilities

Fishery rehabilitation programs were initiated on the San Juan and Green Rivers prior to closure of the Navajo and Flaming Gorge Dams. The rough-fish eradication program for approximately 67 miles of the San Juan River and its tributaries was completed in September 1961 in cooperation with both the Colorado and New Mexico fish and game departments. Work was begun under a $150,000 contract with the Utah and Wyoming fish and game departments for a similar program in a 445-mile stretch of the Green River and its tributaries. These measures are intended to assure improved populations of game fish in the rivers and to establish an optimum reservoir fishery during the initial years of impoundment.

A contract was awarded in June for the installation of a pump at the Stewart Lake State Waterfowl Refuge in Utah to replace the source of water impaired by project operations.

Planning activities for future facilities, including appraisal of

water supply and site locations for wildlife management areas and fish hatcheries, continued throughout fiscal year 1962.

Public Recreation Facilities

Activities relative to the provision of visitor facilities consisted primarily of the planning and designing of developments in the Glen Canyon, Flaming Gorge, and Navajo Reservoir areas. These include roads, parking areas, boat-launching ramps, campgrounds, picnic areas, utilities, comfort stations, beach developments, and miscellaneous administrative facilities.

In addition, in the Glen Canyon National Recreation Area, construction of utility and campground projects has been completed and two employee residences are 60-percent complete. In the Flaming Gorge Recreation Area, a temporary office building was completed; and in the Navajo Reservoir Recreation Area, a contract was awarded for construction of the boat-launching ramp.

3. ALLOCATION OF FEDERAL INVESTMENT

Section 6 of the authorizing act states that upon completion of each unit, participating project, or separable feature thereof, the Secretary shall allocate the total cost of constructing said unit, project, or feature to the various purposes authorized in the act or authorized under reclamation law. No formal allocations to the several purposes to be served by the project have been made of the cost to June 30, 1962. However, tentative allocations have been made of the total estimated cost of projects now under construction (schedule No. 6). The tentative allocations are summarized as follows:

Purpose	Amount (thousands)	Percent
Reimbursable allocations:		
Irrigation	$163,893	19.6
Power	606,057	72.3
Municipal and industrial water	1,469	.2
Total	771,419	92.1
Nonreimbursable allocations:		
Flood control	1,889	.2
Fish and wildlife	30,289	3.6
Recreation	30,267	3.6
Other nonreimbursable costs: Colorado River development fund investigations and non-Federal contributions	4,187	.5
Total	66,632	7.9
Total	838,051	100.0

NOTE.—The above allocation includes only those projects now under construction

4. PROGRESS OF RETURN AND REPAYMENT OF FEDERAL INVESTMENT

No progress has been made on repayment of the Federal investment as a result of operations. However, repayment contracts which schedule annual payments on irrigation construction facilities have been negotiated and executed with water users organizations on the following participating projects:

	Amount
Central Utah, Vernal unit: Uintah Water Conservancy District, July 14, 1958	$1,500,000
Emery County: Emery Water Conservancy District, May 15, 1962	2,935,000
Hammond: Hammond Conservancy District, Oct. 20, 1959	450,000
Paonia: North Fork Water Conservancy District, Aug. 21, 1957	2,320,000
Smith Fork: Crawford Water Conservancy District, May 10, 1960	1,025,000
Florida: Florida Water Conservancy District, Dec. 29, 1960	1,900,000
Total	10,130,000

5. ESTIMATED RATE OF PROJECT REPAYMENT, YEAR BY YEAR

Final cost allocations of the Federal investment to power, irrigation, and to other purposes have not been made. Accordingly, no estimated rate of progress of project repayment year by year of the investment to be so allocated is included.

Colorado River Storage Project and Participating Projects
Exhibit A — Comparative Balance Sheets

ASSETS

	June 30—		Increase (decrease)
	1962	1961	
Construction work in progress (schedule No. 1) [1]	$278,240,521	$183,307,024	$94,933,497
Plant in service (schedule No. 2)	7,423,214	1,599,704	5,823,510
Service facilities (schedule No. 3)	14,776,879	14,175,124	601,755
Investigation costs (schedule No. 4)	5,299,824	4,348,207	951,617
Current assets:			
Cash and fund balances with U.S. Treasury:			
Operating funds [2]	27,500,671	65,182,547	(37,681,876)
Deposit funds [3]	4,415,751	6,194,466	(1,778,715)
Accounts receivable:			
Government agencies	46,864	14,234	32,630
Other	66,175	64,194	1,981
Materials and supplies	312,542	252,272	60,270
Prepayments and advances (schedule No. 5)	571,336	457,255	114,081
Total current assets	32,913,339	72,164,968	(39,251,629)
Other assets:			
Undistributed and deferred charges	470,787	186,767	284,020
Deferred and unmatured receivables	150,757	305,812	(155,055)
Total other assets	621,544	492,579	128,965
Total assets	339,275,321	276,087,606	63,187,715

LIABILITIES

Net investment:			
United States:			
Congressional appropriations [4]	$307,374,248	$251,981,177	$55,393,071
Transfer of property and services	4,344,490	4,257,029	87,461
Interest during construction capitalized	10,366,381	4,748,975	5,617,406
Total	322,085,119	260,987,181	61,097,938
Less:			
Funds returned to U.S. Treasury	52,175	52,175	
Nonreimbursable expense [5]	206,581	141,530	65,051
Total	258,756	193,705	65,051
Total net investment, United States	321,826,363	260,793,476	61,032,887
Non-Federal contributions	201,740	249,733	(47,993)
Accumulated net nonoperating income	46,389	39,860	6,529
Total net investment	322,074,492	261,083,069	60,991,423
Current liabilities:			
Accrued liabilities	4,415,751	6,189,016	(1,773,265)
Accounts payable:			
Government agencies	280,060	137,761	142,299
Other	12,488,002	8,672,280	3,815,722
Total current liabilities	17,183,813	14,999,057	2,184,756
Other deferred credits	17,016	5,480	11,536
Total liabilities	339,275,321	276,087,606	63,187,715

[1] Construction work in progress: Construction work in progress includes certain completed features, e.g., Glen Canyon bridge and access road, etc., aggregating $13,296,853.

[2] Operating funds:

Amount committed to payment of unliquidated obligations and accounts payable	$23,271,840
Other unobligated balance	4,228,831
Total	27,500,671

[3] Deposit funds:

Retained percentages of contractors' earnings	$4,412,836
Utility deposits	2,915
Total	4,415,751

[4] Congressional appropriations: Total congressional appropriations for the Colorado River storage project amounted to $55,468,000 in fiscal year 1962. During this fiscal year appropriation transfers amounting to $74,929 were turned over to Public Buildings Service, General Services Administration, for lease space rentals in accordance with Public Law 87-141, approved Aug. 17, 1961 (75 Stat. 353), and Bureau of the Budget Bulletin No. 62-4, dated Sept. 29, 1961.

[5] Nonreimbursable expense: Cost of quality of water studies required by sec. 15, Public Law 485, 84th Cong., $206,581.

GENERAL NOTE

Value of repayment contracts: Long-term repayment contracts, no part of which have matured at June 30, 1962, have been executed with water users' organizations for the repayment of the portion of the investment in irrigation. At that date such contracts amounted to $10,130,000.

Exhibit B — Statement of source and application of funds and other credits, June 30, 1962

	Total	Storage project units			
		Curecanti	Flaming Gorge	Glen Canyon	Navajo
Source of funds and other credits:					
Congressional appropriations:					
Prior fiscal years	$251,381,177	$2,400,000	$40,213,335	$146,491,358	$31,911,525
Fiscal year 1962	55,393,071	4,652,127	6,278,284	13,736,406	3,630,500
Total direct appropriations	[2] 306,774,248	7,052,127	46,491,619	160,227,764	35,542,025
Transfer appropriations, Bureau of Public Roads	600,000			600,000	
Total congressional appropriations	307,374,248	7,052,127	46,491,619	160,827,764	35,542,025
Non-Federal contributions	201,740	35,000	43,043	60,065	
Net transfers-in of property or services without charge	4,344,490	453,605	230,433	1,040,710	133,958
Interest during construction capitalized	10,366,381	91,610	1,596,647	8,402,224	
Net nonoperating income	46,389		5,343	3,038	4,094
Total	322,333,248	7,632,342	48,367,085	170,333,801	35,680,077
Application of funds and other credits:					
Plant in service:					
Irrigation	2,076,301				
Multipurpose	5,346,913				
Construction work in progress	278,240,521	6,051,943	43,075,623	157,384,450	34,428,337
Service facilities (net)	14,776,879	646,941	3,824,500	8,561,268	239,096
Investigation costs	5,299,824			117,133	
Nonreimbursable expense: Quality-of-water studies	206,581				
Funds returned to U.S. Treasury	52,175		4,882	3,038	910
Working capital (see below)	16,334,054	933,458	1,462,080	4,267,912	1,011,734
Total	322,333,248	7,632,342	48,367,085	170,333,801	35,680,077
Analysis of working capital:					
Current and deferred assets:					
Operating fund balance with U.S. Treasury	27,500,671	2,190,276	3,891,082	8,875,796	1,983,774
Deposit funds with U.S. Treasury	4,415,751	37,720	794,290	2,177,448	407,633
Accounts receivable	113,039	50	53,832	25,618	25,344
Inventories	312,542	149	30,848	274,279	2,892
Prepayments and advances	571,336	103,816	12,379	87,707	18,531
Deferred and unmatured receivables	150,757			150,757	
Deferred and undistributed charges	470,787	107	47,238	18,548	21,279
Total	33,534,883	2,332,118	4,829,669	11,610,153	2,459,453

Current and deferred liabilities:					
Accounts payable	12,768,062	1,360,940	2,573,299	5,153,227	1,040,086
Trust and deposit liabilities	4,415,751	37,720	794,290	2,177,448	407,633
Deferred and undistributed credits	17,016			11,566	
Total	17,200,829	1,398,660	3,367,589	7,342,241	1,447,719
Working capital	16,334,054	933,458	1,462,080	4,267,912	1,011,734

[1] Includes $2,046,067 appropriated to the original Paonia project (authorized June 25, 1947).
[2] Does not include $74,929 representing appropriation transfers to GSA for lease space requirements.

Exhibit B — Statement of source and application of funds and other credits, June 30, 1962—Continued

	Participating projects							Transmission division	Advance planning	Fish and wildlife development	Recreational development
	Central Utah	Emery County	Florida	Hammond	Paonia	Seedskadee	Smith Fork				
Source of funds and other credits:											
Congressional appropriations:											
Prior fiscal years	$5,174,000		$862,500	$1,592,500	[1] $7,080,442	$2,209,570	$1,850,500	$6,207,003	$5,388,444		
Fiscal year 1962	1,418,000	$450,000	3,699,228	1,702,500	223,000	3,776,861	2,027,000	9,586,665	1,279,000	$663,000	$2,270,500
Total direct appropriations	6,592,000	450,000	4,561,728	3,295,000	7,303,442	5,986,431	3,877,500	15,793,668	6,667,444	663,000	2,270,500
Transfer appropriations, Bureau of Public Roads											
Total congressional appropriations	6,592,000	450,000	4,561,728	3,295,000	7,303,442	5,986,431	3,877,500	15,793,668	6,667,444	663,000	2,270,500
Non-Federal contributions	3,565	1,436						27	58,604		
Net transfers-in of property or services without charge	501,879	371,732	332,877	286,152	199,023	1,248,386	343,206	164,467	(961,938)		
Interest during construction capitalized	33,582					5,086		237,232			
Net nonoperating income					24,368	8,022			1,524		
Total	7,131,026	823,168	4,894,605	3,581,152	7,526,833	7,247,925	4,220,706	16,195,394	5,765,634	663,000	2,270,500
Application of funds and other credits:											
Plant in service:											
Irrigation					2,076,301						
Multipurpose					5,346,913						
Construction work in progress	6,844,348	475,307	4,717,157	3,272,350		5,656,558	3,934,549	11,742,135		212,284	445,480
Service facilities (net)	52,362	37,519	57,379	91		887,578	142,392	132,313	195,440		
Investigation costs					18,794				5,163,897		
Nonreimbursable expense: Quality-of-water studies									206,581		
Funds returned to U.S. Treasury					36,683	5,397			1,265		
Working capital (see below)	234,315	310,343	120,070	308,710	48,142	698,392	143,765	4,320,946	198,451	450,716	1,825,020
Total	7,131,025	823,169	4,894,606	3,581,151	7,526,833	7,247,925	4,220,706	16,195,394	5,765,634	663,000	2,270,500

Analysis of working capital:											
Current and deferred assets:											
Operating fund balance with U.S. Treasury	372,132	303,962	488,418	363,974	95,659	1,216,527	320,218	4,922,746	241,596	610,663	1,623,848
Deposit funds with U.S. Treasury	104,846	166	266,546	29,590	47,508	235,012	71,941	233,131	9,920	----------	----------
Accounts receivable	932	----------	----------	----------	----------	1,059	----------	5,612	592	----------	----------
Inventories	----------	----------	----------	----------	----------	1,656	----------	----------	2,718	----------	----------
Prepayments and advances	13,768	23,529	22,309	18,380	10,667	72,302	26,176	97,713	64,059	----------	----------
Deferred and unmatured receivables	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------	----------
Deferred and undistributed charges	2,069	272	927	33	12	183,061	16	(2,391)	(1,556)	----------	201,172
Total	493,747	327,929	778,200	411,977	153,846	1,709,617	418,351	5,256,811	317,329	610,663	1,825,020
Current and deferred liabilities:											
Accounts payable	154,586	17,420	391,584	73,677	52,746	776,213	202,645	702,734	108,958	159,947	----------
Trust and deposit liabilities	104,846	166	266,546	29,590	47,508	235,012	71,941	233,131	9,920	----------	----------
Deferred and undistributed credits	----------	----------	----------	----------	5,450	----------	----------	----------	----------	----------	----------
Total	259,432	17,586	658,130	103,267	105,704	1,011,225	274,586	935,865	118,878	159,947	----------
Working capital	234,315	310,343	120,070	308,710	48,142	698,392	143,765	4,320,946	198,451	450,716	1,825,020

Schedule No. 1 — Construction work in progress, June 30, 1962

Property class	Total	Storage units			
		Curecanti	Flaming Gorge	Glen Canyon	Navajo
Dams and reservoirs	$202,306,570	$5,671,906	$32,804,939	$112,770,180	$34,428,337
Diversion works	660,488				
Pumping plants	383,064				
Canals and conduits	6,280,603				
Laterals	615,937				
Drains	233,418				
Powerplants, hydro	43,885,149	278,520	7,935,410	35,621,934	
Transmission lines, switchyards, substations	12,835,000	9,907	726,023	590,112	
General property	16,148		12,604		
Interest during construction capitalized	10,366,380	91,610	1,596,647	8,402,224	
Subtotal	277,582,757	6,051,943	43,075,623	157,384,450	34,428,337
Public recreation facilities	445,480		4,734	431,333	9,413
Fish and wildlife facilities	212,284	1,438	172,820		26,378
Total	278,240,521	6,053,381	43,253,177	157,815,783	34,464,128
Summary:					
Total June 30, 1961	183,307,024	1,777,676	25,103,052	110,816,708	27,386,280
Fiscal year activity:					
Additions	100,835,407	4,275,705	18,150,125	46,999,075	7,077,848
Transfers of completed work	(5,901,910)				
Total	278,240,521	6,053,381	43,253,177	157,815,783	34,464,128

[1] Project completed and construction cost transferred to plant-in-service accounts.

Property class	Participating projects							Transmission division
	Central Utah	Emery County	Florida	Hammond	Paonia	Seedskadee	Smith Fork	
Dams and reservoirs	$4,151,340	$305,203	$4,405,027			$4,484,798	$3,284.840	
Diversion works		11,840	46,284	$602,364				
Pumping plants				286,781		96,283		
Canals and conduits	2,596,871	121.304	198,362	2,112,969		601,388	649,709	
Laterals			67.484	265,592		282,861		
Drains	62,555	36,960		1,100		132,803		
Powerplants, hydro						49.285		
Transmission lines, switchyards, substations						4,054		$11,504,904
General property				3,544				
Interest during construction capitalized	33,582					5,086		237,231
Subtotal	6,844,348	475,307	4,717,157	3.272,350		5,656,558	3,934.549	11,742,135
Public recreation facilities								
Fish and wildlife facilities	10,211			1,437				
Total	6.854.559	475.307	4,717,157	3,273,787	(1)	5.656.558	3.934.549	11,742,135
Summary:								
Total June 30, 1961	4,838,512		1,032,253	1,441,949	$5,340,881	1.918,201	1,763,130	1,888,382
Fiscal year activity:								
Additions	2,016,047	475,307	3,684,904	1,831,838	561,029	3,738,357	2,171,419	9,853,753
Transfers of completed work					(5,901,910)			
Total	6,854,559	475,307	4,717,157	3,273,787		5,656,558	3,934,549	11,742,135

Schedule No. 2 — Plant in service, June 30, 1962

Property class	Amount
Paonia participating project:	
Dams and reservoirs	$5,346,913
Diversion works	129,489
Canals and conduits	1,946,812
Total	7,423,214

Schedule No. 3 — Service facilities, June 30, 1962

Structures	Total	Storage units			
		Curecanti	Flaming Gorge	Glen Canyon	Navajo
Permanent housing	$5,410,159		$1,347,965	$3,670,086	$210,965
Temporary housing	868,779	$60,000	180,199	373,517	
Warehouse buildings	642,171		75,261	540,302	
Administration buildings	525,359		124,053	305,126	
Municipal building	116,001			116,001	
Police buildings, garages, fire stations	409,173	49,710	77,165	239,612	7,884
Sewers, water systems, electrical distribution	3,428,569	15,521	1,153,569	2,080,258	157,486
Streets, street improvements, access roads	3,493,348		1,164,653	2,118,850	
Airstrip	322,650			322,650	
Other structures	1,430,089	442,214	218,513	579,601	85,863
Miscellaneous equipment	2,368,458	95,419	538,961	742,946	134,021
Total	19,014,756	662,864	4,880,339	11,088,949	596,219
Less accumulated depreciation to date (transferred to construction work in progress)	4,237,877	15,923	1,055,839	2,527,681	357,123
Total	14,776,879	646,941	3,824,500	8,561,268	239,096
Additions:					
Prior fiscal years	14,175,124	22,891	4,136,390	8,897,282	344,694
Fiscal year 1962	601,755	624,050	(311,890)	(336,014)	(105,598)
Total	14,776,879	646,941	3,824,500	8,561,268	239,096

Schedule No. 3 — Service facilities, June 30, 1962 — Continued

Structures	Participating projects							Transmission division	Advance planning
	Central Utah	Emery County	Florida	Hammond	Paonia	Seedskadee	Smith Fork		
Permanent housing						$181,143			
Temporary housing		$4,999				149,835	$100,229		
Warehouse buildings						19,793	6,815		
Administration buildings						92,750	3,430		
Municipal building									
Police buildings, garages, fire stations						34,802			
Sewers, water systems, electrical distribution						21,735			
Streets, street improvements, access roads						206,446	3,399		
Airstrip									
Other structures	$17,629	10,595				72,161			3,513
Miscellaneous equipment	56,746	22,090	$63,529	$109		122,725	29,443	$175,306	$387,163
Total	74,375	37,684	63,529	109		901,390	143.316	175,306	390,676
Less accumulated depreciation to date (transferred to construction work in progress)	22,013	165	6,150	18		13,812	924	42,993	195,236
Total	52,362	37,519	57,379	91		887,578	142,392	132,313	195,440
Additions:									
Prior fiscal years	60,836		41,562	103	$167,201	217,731	11,025	74,024	201,385
Fiscal year 1962	(8,474)	37,519	15,817	(12)	(167,201)	669,847	131,367	58,289	(5,945)
Total	52,362	37,519	57,379	91		887,578	142,392	132,313	195,440

Colorado River Storage Project and Participating Projects

Schedule No. 4 — Investigation Costs, June 30, 1962 (undistributed)

Description	Amount
Curecanti storage unit (Crystal)	$145,709
Glen Canyon storage unit (Rainbow Bridge protective works)	117,133
Participating projects:	
Central Utah (excludes Vernal unit)	3,655,565
Lyman	661,586
La Barge	221,707
Pine River extension	136,496
Silt	342,834
Paonia	18,794
Total	5,299,824

Colorado River Storage Project and Participating Projects

Schedule No. 5 — Prepayment and Advances, June 30, 1962

Advances to other Bureau of Reclamation activities performing services for the project are reflected in the accounting records of such entities in the following manner:

Fund balances with U.S. Treasury:	
Centralized projects activities	$166,045
Denver office	558,843
Accounts receivable: Centralized projects activities	9,314
Accounts payable: Centralized projects activities	(162,866)
Total	571,336

Schedule No. 6 — Preliminary allocation of Federal investment for units and projects under construction

[Dollars in thousands]

	Total	Allocation to purposes									
		Reimbursable costs					Nonreimbursable costs			Sec. 8 costs	
		Irrigation	Power		Municipal and industrial water		Flood control	Fish and wildlife	Other [1]	Fish and wildlife	Recreation
			Construction cost	Interest during construction	Construction cost	Interest during construction					
Storage project:											
Curecanti unit, Colorado	$82,133	$2,192	$66,095	$4,074			$1,444		$119	$3,235	$4,974
Flaming Gorge unit, Utah	77,344	12,054	47,949	3,306				$6,679	87	1,194	6,075
Glen Canyon unit, Arizona	363,769	40,545	274,424	23,743				6,122	3,043	200	15,692
Navajo unit, New Mexico	40,228	31,059					197	5,751	65	562	2,594
Transmission division	182,388		176,145	6,143					100		
Total	745,862	85,850	564,613	37,266			1,641	18,552	3,414	5,191	29,335
Participating projects:											
State of Colorado:											
Florida	10,961	9,031					176	1,641	22	10	81
Paonia	7,842	7,541					72		156	10	63
Smith Fork	4,616	4,241						189	72	10	104
State of New Mexico: Hammond	3,838	3,713						107	8	10	
State of Utah:											
Central Utah, Vernal unit	8,043	6,980			$542	$35		148	86	28	224
Emery County	11,910	9,277						2,340	18	205	70
State of Wyoming: Seedskadee	44,979	37,260	4,075	103	837	55		607	411	1,241	390
Subtotal	92,189	78,043	4,075	103	1,379	90	248	5,032	773	1,514	932
Total	838,051	163,893	568,688	37,369	1,379	90	1,889	23,584	4,187	6,705	30,267

[1] Colorado River development fund investigations and non-Federal contributions.

The relief model of the Upper Colorado River Basin, pictured above, was constructed by the Upper Colorado River Commission in cooperation with the Babson Institute of Business Administration. This model shows the topographic features of the area and indicates location of major units of the Colorado River Storage Project and Participating Projects. It is used by the Commission in work connected with administration of Upper Basin activities and is available for display at conventions and other public events.

UPPER COLORADO RIVER COMMISSION
355 South 4th East • Salt Lake City, Utah