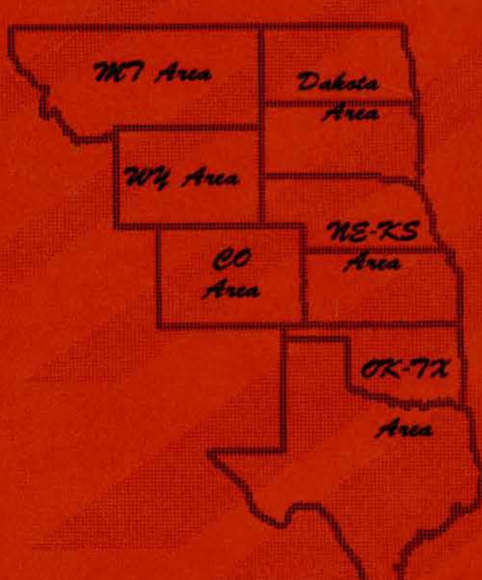
# Annual Operating Plan

# Niobrara, Lower Platte and Kansas River Basins




## Calendar Years 1995 - 1996

**U.S. DEPT. OF THE INTERIOR**
**BUREAU OF RECLAMATION**
**GREAT PLAINS REGION**

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## SYNOPSIS

General

This year is the 43rd consecutive year that an Annual Operating Plan (AOP) has been prepared for the Federally owned dams and reservoirs serving an irrigation function in the Niobrara, Lower Platte, and Kansas River Basins. The plan has been developed by the Water Control Field Branch, McCook, Nebraska for the 17 dams and reservoirs that are located in Colorado, Nebraska, and Kansas. These reservoirs, together with 11 diversion dams, 11 pumping plants, and 23 canal systems, serve approximately 325,600 acres of project lands in Nebraska and Kansas. In addition to irrigation and municipal water, these features serve flood control, recreation, and fish and wildlife purposes. A map in the appendix of this report shows the location of these features.

The reservoirs in the Niobrara and Lower Platte River Basins are operated by either irrigation or reclamation districts, and the reservoirs in the Kansas River Basin are operated by either the Bureau of Reclamation (Reclamation), or the Corps of Engineers. Virginia Smith and Davis Creek Dams are operated and maintained by the Twin Loups Reclamation District under an agreement with Reclamation. Kirwin Irrigation District provides operational and maintenance assistance for Kirwin Dam. The diversion dams, pumping plants, and canal systems are operated by either irrigation or reclamation districts.

A Programmable Master-Station Supervisory Control System (PMSC) located at McCook is used to assist in operational management of all 11 dams under Reclamation's jurisdiction that are located in the Kansas River Basin. The PMSC was replaced in 1994 with final acceptance in 1995.

The Headlines 95 that follows this synopsis is indicative of the awareness that the local people have of the natural resource development and conservation in the Niobrara, Lower Platte, and Kansas River Basins.

1995 Summary

Climatic Conditions

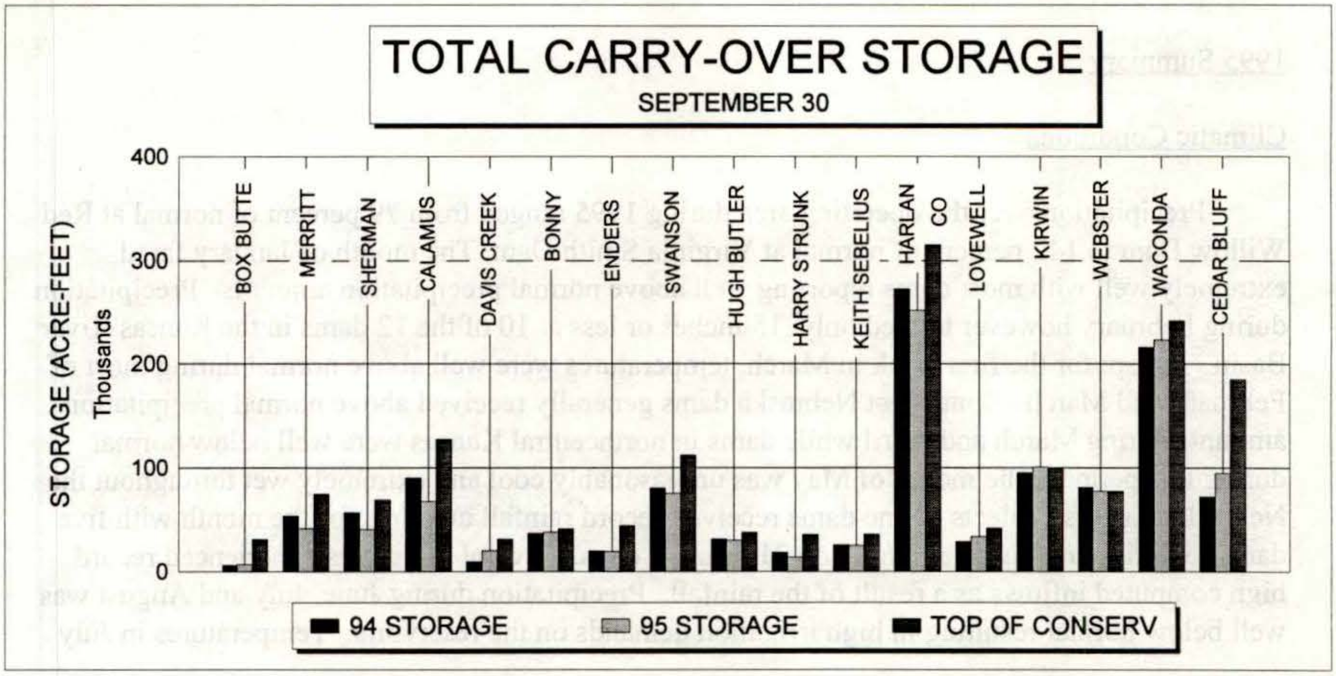
Precipitation over the operating area during 1995 ranged from 79 percent of normal at Red Willow Dam to 142 percent of normal at Virginia Smith Dam. The month of January fared extremely well with most dams reporting well above normal precipitation amounts. Precipitation during February however totaled only .15 inches or less at 10 of the 12 dams in the Kansas River Basin. Except for the first week in March, temperatures were well above normal during most of February and March. Southwest Nebraska dams generally received above normal precipitation amounts during March and April while dams in northcentral Kansas were well below normal during this period. The month of May was unseasonably cool and extremely wet throughout the Nebraska-Kansas Projects. Nine dams received record rainfall amounts for the month with five dams reporting measurable rainfall on 21 or more days. Several reservoirs experienced record high computed inflows as a result of the rainfall. Precipitation during June, July and August was well below normal resulting in high irrigation demands on the reservoirs. Temperatures in July and August were well above normal with several days exceeding the 100 degree mark during both months. September precipitation was above normal at most of the project dams. The area experienced an early freeze on September 21st. November and December precipitation amounts were well below normal for most of the dam sites in the projects. Precipitation averaged 106 percent of normal in 1995 at Kansas River Basin Dams.

Storage Reservoirs

1. Conservation Operations. The 1995 inflow was above the dry-year forecast at all of the project reservoirs. Hugh Butler Lake, Harry Strunk Lake and Enders Reservoir had inflows between the dry- and normal-year forecasts. Swanson, Keith Sebelius and Harlan County Lakes along with Box Butte, Merritt, Bonny, Lovewell, and Cedar Bluff Reservoirs had inflows between the normal- and wet-year forecasts. Waconda Lake and Webster, Kirwin, and Calamus Reservoirs had inflows above the wet-year forecasts.

Due to the flooding that took place during 1993, and the generous precipitation amounts recorded in July of 1994, 8 of the 12 reservoirs in the Kansas River Basin began 1995 with above normal storage. At the end of May, just prior to the irrigation season, only Enders and Cedar Bluff Reservoirs and Keith Sebelius Lake did not have some flood pool storage occupied. Reservoir releases were being made from several of the project dams to either reduce or maintain reservoir levels. This is a rare occurrence when nine of the twelve facilities which have flood control capability are utilized. High irrigation demands due to very dry conditions during the summer reduced storage significantly at most project reservoirs. None of the project reservoirs had flood pool storage occupied at the end of the irrigation season.

The following summarized graph shows a comparison of 1994 and 1995 carry-over storage conditions as compared to the top of conservation storage for all reservoirs in the Niobrara, Lower Platte, and Kansas River Basins as of September 30th.



2. Flood Control Operations. The total 1995 flood control benefits accrued by the operation of the Nebraska-Kansas Projects facilities was $261,828,700. The accumulative total of flood control benefits for the years 1951 through 1995 by facilities in this report total $1,669,631,000 (see table 5). To date no benefits have been accrued by the operation of Box Butte, Merritt, Sherman, Calamus, or Davis Creek Reservoirs.

A summary of precipitation, reservoir storage and inflows at Nebraska-Kansas Projects facilities can be found in table 7.

Water Service

There were 561,884 AF of water diverted to irrigate approximately 295,800 acres of project lands in the 14 irrigation districts (see tables 3 and 6). The project water supply was either inadequate or limited for 32,752 acres of the total project lands. This includes lands in Mirage Flats, Frenchman Valley and H&RW Irrigation Districts. The project water supplies for the other units mentioned in this report were adequate in 1995.

The water requirements of three municipalities, one rural water district, and two fish hatchery facilities were furnished from storage releases or natural flows.

Under a long-term contract with Reclamation for the use of Arcadia Diversion Dam, the Middle Loup Public Power and Irrigation District diverted 36,278 AF to irrigate 14,302 acres of non-project lands. This use of Arcadia Diversion Dam is provided as a replacement for MLPP&ID's diversion dam which was destroyed when Arcadia Division Dam was built by Reclamation. These diversions were made under natural-flow water rights granted by the state of Nebraska.

Irrigation Production

The 1995 crop yields from lands receiving project water were generally lower than those in 1994. Corn, the principal crop of all reporting districts, decreased from an average of 146 bushels per acre to approximately 133 bushels per acre. The Natural Resources Conservation Service in McCook, Nebraska estimated an average corn yield of 135 bushels per acre and the Middle Republican Natural Resource District estimated 131 bushels per acre. The decrease in crop yields can be attributed to several factors. Irrigation releases began later than normal due to a wet May and cool June. Corn development was about 10 days behind normal because of the late planting. Crops withstood a hot summer with several days exceeding the 100 degree mark during both July and August. An early freeze was experienced over most of the projects on September 21st bringing an early end to the growing season. Lower yields resulted in a higher unit price for corn in 1995 than in 1994.

Fish and Wildlife and Recreation Benefits

The National Recreational Fisheries Policy declares that the Governments vested stewardship responsibilities must work in concert with the state managing agencies recreational fisheries constituency and the general public to conserve, restore, and enhance recreational fisheries and their habitats. As a result of this policy, Reclamation has developed fishery management guidelines for reservoirs within the Nebraska-Kansas Projects. These guidelines outline a program which considers public use, fisheries, fish habitat, and improved communication and coordination. The Nebraska-Kansas Area Office conducts yearly meetings with Nebraska, Colorado, and Kansas state management agencies to discuss the Annual Operating Plans (AOP). Information is solicited that will allow Reclamation the flexibility to enhance fisheries resources while still meeting contractual obligations with the various irrigation districts.

During the early part of the 1995 season, normal reservoir operations were favorable for recreation and fish and wildlife uses. The flooding that occurred in 1993 and to a lesser extent in 1995, resulted in several reservoirs storing water well into the flood control pools. Recreation areas, including boat ramps, bathrooms, picnic areas, and trails were inundated by the high water levels at these reservoirs. Kirwin and Webster Reservoirs and Waconda Lake were the most severely affected reservoirs due to the time required in evacuating reservoir storage to normal conditions. Extensive renovations to these upstream recreational areas damaged by the 1993 and 1995 flooding continues.

Re-authorization of the North Loup Project by the Act of October 18, 1986 [Public Law 99-591, Section 101(e)] authorized the construction of a fish hatchery below Virginia Smith Dam and Calamus Reservoir. The hatchery was constructed under Public Law 89-72 and a cost-sharing agreement with the Nebraska Game and Parks Commission with 75 percent federal and 25 percent state funds. Administration of construction was accomplished by the Commission; construction began in July 1989, and was completed in September 1991. The hatchery consists of an office/visitor center, laboratory, 2 residences, a shop and feed storage building, 51 rearing ponds lined with VLDPE and covering 45.5 acres, 24 concrete raceways, 2 lined effluent ponds, 8 groundwater wells, a 36-inch diameter buried pipeline from Calamus Dam, a groundwater degassing tank, and a computerized monitoring and alarm system. The hatchery is operated and maintained by the Commission and in full operation should produce about 53 million fish per year. Water supply is provided by natural flows passed through Virginia Smith Dam and from Calamus Reservoir storage through an agreement dated July 28, 1988, between the Commission and the Twin Loups Reclamation District.

<u>1996 Outlook</u>

Three detailed studies have been developed for each of the reservoirs in the Niobrara, Lower Platte, and Kansas River Basins conforming with established operating criteria under various reservoir inflow conditions. These operation studies are included in table 4, sheet 1 through 17. The municipal and rural water district water supply requirements will be met under all three inflow forecast conditions for all units.

Under reasonable minimum inflow forecast conditions, irrigation districts receiving storage water from the following lakes and reservoirs are expected to receive less than a full supply: Box Butte, Sherman, Enders, Keith Sebelius, Harlan County and Lovewell. The irrigation districts affected are Mirage Flats; Sargent and Farwell; Frenchman Valley and H&RW; Almena; and Nebraska and Kansas Bostwick; respectively. If 1996 is a dry year, 160,450 of the total 300,700 acres estimated to be irrigated (53 percent) will have an inadequate water supply.

Under most probable inflow conditions, it is also expected that Frenchman Valley, H&RW, and Mirage Flats Irrigation Districts would experience some shortages to irrigation demands from Enders and Box Butte Reservoirs. Irrigators in several districts (Mirage Flats, Almena, Frenchman Valley, and H&RW) plan to use water from private wells to supplement the project water supply.

During 1996, under all inflow forecast conditions, storage water will be in excess of project needs at Bonny Reservoir and Waconda Lake. The state of Colorado will make Bonny storage water available to downstream water right appropriators.

Even under reasonable minimum inflow conditions, the conservation pools at Merritt, Sherman, Calamus, Davis Creek, Lovewell, Kirwin, and Webster Reservoirs along with Waconda Lake would fill during 1996.

Even with low reservoir levels and inadequate water supplies for some project lands, the recommendations of various state agencies will be considered. As in the past, irrigation and reclamation districts will advise state agencies regarding aquatic weed control and canal operations. Reclamation will continue to operate the reservoirs and other facilities under its jurisdiction in the best interests of all project functions and for the optimum public benefit.

# HEADLINES '95

State will receive $2.45 million in grants for flood relief projects

Gyllenborg named new area manager for Bureau

Rep River EPA study mandated

Basin district irrigation contracts up for renewal

Storage Levels For Reservoirs In Good Shape

Farm Groups Take Aim at Water Plan

McCOOK DAILY GAZETTE

Bureau of Reclamation project to alleviate problem at Enders

IMPERIAL — A $632,000 project planned by the Bureau of Reclamation will alleviate seepage problems at Enders Reservoir

Republican River public meeting held

Independent

Annual water tour to feature sites in Central Nebraska

UNL Ag Communications

The combination of research and policy-related presentations and on-site demonstrations is designed to deepen participants' understanding of vital water issues.

— Bob Volk, Water Center/Environmental Programs director

Platte River plan

Deadline extended for states to come up with water management accord

Game and Parks' Rights To River Water Targeted

NRDs Ponder Irrigation Well Water Meters

BY JULIE ANDERSON

The Nebraska Legislature's Natural Resources Committee has asked four natural resources districts in the Republican River Basin whether they plan to exercise their new authority to require water meters on irrigation wells.

The authority was granted by Legislative Bill 871, which the Legislature approved last session.

New Bureau policy drawing criticism

Clean Water Act revisions may give state more say on controls

Meetings set on transfer of reservoirs

Master Plan for Aquifer Eyed

Supreme Court moves closer to resolving water dispute between Nebraska, Wyoming

Nebraska continues to be open to settlement of the remaining issues, but as...Nebraska's position is continually strengthened...there is less reason not to go to trial.

— Michael Jess, water resource director for Nebraska

IRRIGATION DISTRICTS

Irrigators want control of lakes

Public meeting planned after federal legislation bogs down in Congress

By LINDA MOWERY-DENNING

COURTLAND — Irrigators will take their case to the public for control of four federal lakes in north central and northwest Kansas

Senators Don't Want Dams Sold

State rejects Prairie Bend 2

By Michael Hooper

Omaha World-Herald

No space to spare in reservoirs

■ Swift snow melt could put Missouri and Platte Rivers over their banks.

Endangered Species Vote Favors Landowners

Ample Rainfall Fills Reservoirs For Irrigators

Republican River Compact - Kansas vs Nebraska

Reservoir Water Depleted Near Irrigation Time's End

Huge sale of federal land feared

Local irrigation title transfer bill submitted by Roberts in U.S. House

Soggy spring weather raises fears of summer flooding

■ Farmers, gardeners kept idle, but trees and weeds benefiting from moisture.

Frenchman-Cambridge Irrigation district ownership would need act of Congress

By DIANA LAMBSON

Lawmakers to debate future of state water use

Residents Brace for River's Rise

Joint wetlands project model effort

By ANDY RAUN

TRUMBULL — Government agencies, conservation groups and area farmers will be working together over the next year to seek solutions to wetland drainage problems southwest of here.

Besides the Bureau of Reclamation, other agencies and groups involved in the effort include the Natural Resources Conservation Service, the Nebraska Game & Parks Commission, the U.S. Fish & Wildlife Service, The Nature Conservancy and Ducks Unlimited Inc.

Walleye Hiting at Lovewell Reservoir

Task Force Fine-Tunes Water Bill

Public Hearings To Begin Aug. 16

BY PAUL HAMMEL

Kansas Ready to Go to Court Over River Water

BY JULIE ANDERSON

Purpose of This Report

This AOP advises water users, cooperating agencies, and other interested groups or persons of the actual operations during 1995 and serves as a guideline for the 1996 operations. This report also describes the responsibilities of Reclamation, Corps of Engineers, and the irrigation and reclamation districts in the Niobrara, Lower Platte, and Kansas River Basins.

Operational Responsibilities

Reclamation is responsible for irrigation operations at all federal reservoirs in the Nebraska-Kansas Projects. Reclamation is also responsible for the operation and maintenance (O&M), safety of the structure, and reservoir operations not specifically associated with regulation of the flood control storage at the reservoirs constructed by Reclamation. In addition to irrigation and flood control, these reservoirs provide recreation, fish and wildlife, and municipal benefits.

By contractual arrangements with Reclamation, the irrigation or reclamation districts in the Niobrara, Lower Platte, and Kansas River Basins are responsible for the O&M of the canals and irrigation distribution facilities constructed or rehabilitated by Reclamation. In addition, the appropriate irrigation or reclamation districts are responsible for operating and maintaining Box Butte, Merritt, and Sherman Dams and Reservoirs. Under a contract with Reclamation, the Twin Loups Reclamation District will operate and maintain Virginia Smith and Davis Creek Dams until January 1, 1997 when the O&M contract will end and the operation and maintenance of these facilities will be transferred to the district. The Corps of Engineers operates and maintains Harlan County Dam and Lake. The state of Colorado provides operational guidelines for Bonny Reservoir. Operational guidelines for Cedar Bluff Reservoir will be provided by the State of Kansas. Reclamation operates and maintains 11 dams and reservoirs in the Republican, Solomon, and Smoky Hill River Basins. Under a contract with Reclamation, Kirwin Irrigation District performs certain operational and maintenance functions at Kirwin Dam.

The states of Nebraska, Colorado, and Kansas are responsible for the administration and enforcement of their state laws pertaining to the water rights and priorities of all parties concerned with the use of water. The states are also responsible for administering the water surface activities and the federal lands around the reservoir. The U.S. Fish and Wildlife Service administers the water surface activities and most of the federal lands at Kirwin Reservoir.

Reclamation cooperates with all state agencies and compact commissions to ensure that all operations are in compliance with state laws and compact requirements.

Tables and Exhibits

Records for the facilities reported in the AOP are included as tables and exhibits and are located in the appendix.

Water Supply

For forecasting purposes, values of annual inflows that will be statistically equaled or exceeded 10, 50, and 90 percent of the time were selected from the probability data to be reasonable maximum (wet year), most probable (normal year), and reasonable minimum (dry year) inflow conditions, respectively.

Inflow records from 1965 through 1995 were used for the analysis of those reservoirs in the Kansas River Basin with the exception of Harlan County Lake in which records from 1976 through 1995 were used to better represent present inflows. Inflow records from 1967 through 1995 were used for the analysis of the reservoirs located in the Niobrara and Lower Platte Basins, except for Calamus Reservoir where the more recent available record of 1986 through 1995 was used.

Reservoir Operations

All operations are scheduled for optimum benefits of the authorized project functions. Monthly, or as often as runoff and weather conditions dictate, Reclamation evaluates the carry-over storage and estimated inflow at each reservoir to determine whether excess water is anticipated. If excess inflow is apparent, controlled releases will be made to maximize the downstream benefits, including flood control.

Major Features

The Mirage Flats Project was constructed under the Water Conservation and Utilization Act and includes an irrigation storage reservoir, diversion dam, and canal system. The other features discussed in this report are all a part of the Pick-Sloan Missouri Basin Program and include single and multipurpose reservoirs, diversion dams, pump stations, and canal systems. The 17 storage facilities now in operation are listed below.

Constructed by Reclamation

1. Operated by irrigation or reclamation districts--Box Butte and Merritt Dams in the Niobrara River Basin and Sherman Dam in the Lower Platte River Basin. Under a contract with Reclamation, the Twin Loups Reclamation District will operate and maintain Virginia Smith Dam, Davis Creek Dam and Kent Diversion Dam and Canal during 1996. Following completion of the North Loup Project distribution works the responsibility for the operation and maintenance of these facilities will be transferred to the district on January 1, 1997.

2. Operated by Reclamation--Bonny, Trenton, Enders, Red Willow, Medicine Creek, Norton, Lovewell, Kirwin, Webster, Glen Elder, and Cedar Bluff Dams in the Kansas River Basin. A contract provides for Kirwin Irrigation District to perform certain operational and maintenance functions at Kirwin Dam.

Constructed and Operated by the Corps of Engineers

1. Harlan County Dam in the Kansas River Basin.

Irrigation and Reclamation Districts

Fourteen irrigation districts and two reclamation districts in the Niobrara, Lower Platte, and Kansas River Basins have contracted with Reclamation for water supply and irrigation facilities. The Sargent and Farwell Irrigation Districts have contracted their O&M responsibilities to the Loup Basin Reclamation District. The Twin Loups Irrigation District has contracted their O&M responsibilities to the Twin Loups Reclamation District. Bostwick Irrigation District in Nebraska has contracted their O&M responsibilities for Courtland Canal between the headgates and the Nebraska-Kansas state line to Kansas Bostwick Irrigation District.

The contracted irrigation season for the Mirage Flats Irrigation District is April through September. The contracted irrigation season for Frenchman Valley, H&RW and Frenchman-Cambridge Irrigation Districts is from May 1st through October 15th. The contracted irrigation season for Twin Loups Reclamation District is May 1st through September 30th or such additional period from April 1st through November 15th of each year as determined between the District and Reclamation. For all other districts, the contracted irrigation season is from May 1st through September 30th.

The water service contracts for nine irrigation districts in the Nebraska-Kansas Projects will expire between 1996 and 2007. The Frenchman-Cambridge, Kansas Bostwick and Bostwick in Nebraska Irrigation Districts have water service contracts that will expire on December 31, 1996. The water service contract for Frenchman Valley Irrigation District expires December 31, 1997; the contract with Loup Basin Reclamation District for Sargent and Farwell Irrigation Districts expires in 1998; Kirwin Irrigation District in 1999; Webster Irrigation District in 2001; and Almena Irrigation District on December 31, 2007.

Renewal of the contracts constitutes an action requiring preparation of a National Environmental Protection Act (NEPA) compliance document. Also, because of the extent and complexity of the resource management issues in the Basins, a resource management assessment (RMA) is needed. Both processes are required for the renewal of the contracts. The Irrigation Projects Reauthorization Council was formed by the irrigation districts involved in contract renewal for negotiating with Reclamation. Environmental and economic data collection, as well as hydrologic studies are being conducted in the Republican River Basin with an integrated RMA/EIS (Environmental Impact Statement) process scheduled for completion in December 1997. Plans of Action are being developed for the contract renewal process of districts in other basins.

Municipal Water

Three municipalities and one rural water district have executed water service contracts for full or supplemental water supplies.

Fish and Wildlife

The State of Kansas is presently using the fish hatchery facility below Cedar Bluff Reservoir to rear Canadian geese. The Calamus Fish Hatchery located below Calamus Reservoir is operated by the State of Nebraska for fish production.

State of Colorado Division of Wildlife

The Division of Wildlife provides operational guidelines for Bonny Reservoir. The entire conservation pool storage was purchased by the state of Colorado on June 24, 1982.

State of Kansas Department of Wildlife and Parks

The State of Kansas has acquired the use and control of portions of the conservation capacity at Cedar Bluff Reservoir. Water rights from the U.S. Fish and Wildlife Service and the Cedar Bluff Irrigation District are to be transferred to the state. The City of Russell's existing water storage right and contract with the United States will remain unchanged.

Power Interference Considerations

A Power Interference Agreement exists between Reclamation, the Twin Loups Reclamation District, and the Loup River Public Power District. Provisions of this agreement will be incorporated into the 1996 operations.

Environmental Considerations

A "Statement of Operational Objectives" for Harlan County Lake sets forth the general operational objectives and the specific reservoir uses that are desirable. The operational objectives indicate that fish and wildlife interests are best served by high reservoir levels, with minimum fluctuations and regulation of the outflow in excess of the minimum desired flows. Although the statement recognizes flood control and irrigation as primary purposes, it indicates that comprehensive operational plans should be developed for maximum integration of the secondary uses.

These objectives are also considered in the operation of all reservoirs in the Kansas River Basin, Merritt and Box Butte Reservoirs in the Niobrara River Basin, and Sherman, Calamus and Davis Creek Reservoirs in the Lower Platte River Basin. The regulated outflow will also benefit farmers, ranchers, cities, and other interests below the reservoirs.

Emergency Operation Plans

Bureau of Reclamation Commissioner Dan Beard announced in a February 9, 1995 news conference a program to aid local communities and jurisdictions downstream from Reclamation dams in the development of emergency evacuation plans. A Reclamation survey released the same day revealed that fewer than 10 percent of such communities have dam-specific evacuation plans. Reclamation will provide technical information and assistance to jurisdictions in the 17 western states to prepare dam-specific emergency operations plans for warning and evacuating the public in case of high operational water releases or dam failure.

The Nebraska-Kansas Area Office assisted in obtaining and compiling survey results for the status of emergency operation planning. State emergency management officials were contacted to assist in completing the surveys for each downstream jurisdiction. Local emergency management officials downstream of Reclamation dams located in the Nebraska-Kansas Projects were contacted with the survey results, the news release, and assistance that Reclamation would provide. Reclamation has met with a number of downstream local county emergency managers to discuss assistance that Reclamation will provide in the development of Local Warning and Evacuation Plans. The local officials were provided with a copy of Reclamation's draft Local Warning and Evacuation Plan to use in the development of their Local Emergency Operation Plans. These meetings will continue in 1996 and orientation meetings will be held with agencies involved in the warning and evacuation process (National Weather Service, State, County, and City Emergency Management Agencies, State water resource personnel, United State Geological Service, local law enforcement, etc.). The Nebraska-Kansas Area Office is currently assisting the local emergency officials in developing Early Warning Systems at Bonny Dam in Colorado and Box Butte Dam in Nebraska.

# CHAPTER II - NIOBRARA AND LOWER PLATTE RIVER BASINS

## Mirage Flats Project in Nebraska

### General

The flow of the Niobrara River and Box Butte Reservoir storage provide a water supply for the 11,662-acre Mirage Flats Project. From 1986 to 1995, the project water supply averaged 14,018 AF, which is about 1.20 acre-foot per irrigable acre. This amount is 1.12 acre-foot per acre short of the average diversion requirement of 2.32 AF per acre. The March 1965 report on the project estimated this amount to be necessary for a full water supply. Many irrigators supplement their water supply with private wells.

The Mirage Flats Irrigation District cooperates with the Nebraska Game and Parks Commission by operating the Box Butte Dam outlet works gates and the Dunlap Diversion Dam gates in a manner to avoid sudden large changes in the flows of the Niobrara River. A 30-year agreement was made in 1990 between the district and the Nebraska Game and Parks Commission whereby the district will not draw the reservoir water level below elevation 3978.00 feet (2,819 acre-feet). In return the district received an up-front payment which is being used to improve the efficiency of the project's delivery system.

Reclamation continues to finalize the Box Butte Dam Emergency Action Plan as part of the Box Butte Dam Early Warning System. Reclamation has met with and provided the Region 23 Emergency Management Agency with Reclamation's draft Local Warning and Evacuation Plan. Reclamation has completed a draft Emergency Action Plan for Box Butte Dam and provided copies of this plan to the Mirage Flats Irrigation District and Region 23 Emergency Management Agency. The District has reviewed and provided comments on the Emergency Action Plan, which includes expected actions for the District for each Response Level. Region 23 is continuing to develop their Local Warning and Evacuation Plan. When Region 23 completes a draft plan, it will be coordinated with the Reclamation's Emergency Action Plan and an orientation meeting and a tabletop exercise will be scheduled. A data collection platform (DCP) was installed in May of 1992 to monitor the reservoir elevation and outflow. A telephone (primary communication system) and a radio (backup communication system) have been installed at the outlet works for contacting Region 23 Emergency Management Agency.

### 1995 Summary

The flows of the Niobrara River plus the carry-over storage in Box Butte Reservoir were not adequate to provide a full water supply for the project lands. Precipitation at the Mirage Flats Irrigation District Office totaled 22.32 inches, which is 141 percent of normal. The total inflow (20,825 AF) was between the normal- and wet-year forecasts.

From July through September, diversions of 16,253 AF to the Mirage Flats Canal provided irrigation water for 10,371 acres, 89 percent of the service available acreage. The farm deliveries from the project water supply were 7,722 AF (0.66 acre-foot per irrigable acre), which is a delivery efficiency of 48 percent. The reservoir contained only 6,242 AF of water at the end of the irrigation season. Privately owned irrigation wells supplemented the project water supply.

1996 Outlook

The project water supply is expected to be inadequate in 1996 as it has been since the early 1960's. In the spring, the district will inform their water users of the amount of water that will be available from storage in Box Butte Reservoir. The district plans for the irrigators to continue the use of water from privately owned irrigation wells as a supplemental supply. In 1996, 11,000 acres are expected to be irrigated.

Ainsworth Unit, Sandhills Division in Nebraska

General

Within the Ainsworth Irrigation District, there are 34,539 acres with service available. The project water supply is provided by storage of Snake River flows in Merritt Reservoir. The reservoir is filled each fall after the irrigation season to elevation 2944.0 feet. This level is approximately 2 feet below the top of conservation capacity. The reservoir is regulated to maintain this level until the ice clears each spring. Upon ice-out the outlet pipe is drained, inspected, and repaired as necessary. The reservoir will then be rapidly filled to elevation 2945.00 feet to reduce shoreline erosion around the reservoir and minimize sand accumulations on the face of the dam. This reservoir level is maintained until May at which time the reservoir is slowly filled. A minimum release of 75 cubic feet per second (cfs) will be made to the river during spring filling operations. This operation also enhances the spring fish spawn. Seepage, pickup and toe drain flow normally result in flows of up to 15 cfs below Merritt Dam. Whenever possible, daily changes in releases to the river should be made in no more than 50 cfs increments. This will minimize adverse impacts on the Snake River trout fishery downstream of the dam.

The district has a basic water supply. If available, additional water can be purchased by the district as a supplemental supply.

1995 Summary

Precipitation, as recorded near Merritt Dam, totaled 27.27 inches, which was 141 percent of normal. The water supply was more than adequate to meet the project's irrigation requirement. There were 68,400 AF diverted from Merritt Reservoir into the Ainsworth Canal, with 46,840 AF delivered to the farm headgates (delivery efficiency of 68 percent). There were 34,208 acres of land irrigated in 1995.

The district executed several temporary water service contracts which provided a total of 352.7 AF of irrigation water from holding ponds located within the district's service area.

1996 Outlook

During the winter months, the reservoir will be regulated to maintain elevation 2944.0 feet (2.0 feet below the top of conservation capacity). This elevation is within the repaired area of soil cement on the upstream face of the dam. Holding the reservoir at this elevation during the winter will help avoid ice damage to the older existing soil cement at lower elevations.

In order to alleviate erosive action to the lands around the reservoir and to maximize all benefits associated with the reservoir, releases from Merritt Reservoir will be regulated to fill the conservation capacity in two stages during the spring months. As is the normal practice after ice-out in the spring, the outlet pipe will be drained, inspected, and repaired as necessary. Once inspections and repairs have been made the reservoir will be rapidly filled to elevation 2945.00 feet. A minimum river release of 75 cfs will be made during this filling operation. The reservoir level will be maintained through the end of April and then slowly filled to the top of conservation pool by late May. If weather conditions or irrigation demands dictate, it may be necessary to begin filling the reservoir prior to this time. The water supply is expected to be adequate in 1996 for the irrigation of 34,000 acres.

Sargent Unit, Middle Loup Division in Nebraska

General

With financial support from the Loup Basin Reclamation District, the Sargent Irrigation District performs the O&M of Milburn Diversion Dam and the Sargent Canal system which serves 13,922 acres. The water supply is diverted from the Middle Loup River into the Sargent Canal under an appropriated natural-flow water right from the State of Nebraska. These diversions may exceed the natural-flow water appropriation of 202 cfs by an exchange of storage from Sherman Reservoir, provided that water is available after all senior appropriations are satisfied, and the excess is not greater than the compensating storage releases from Sherman Reservoir.

1995 Summary

The precipitation over the Sargent Unit (28.84 inches at district headquarters) was 124 percent of normal. The irrigation diversions into the Sargent Canal totaled 22,860 AF (15,650 AF were delivered to the farm headgates for a delivery efficiency of 68 percent). The diversions exceeded the direct-flow water right for 8 days. Approximately 13,900 acres were irrigated. The irrigators grow corn as the principal crop, creating very high water demands in July and August. Normally these high demands cannot be met within canal capacity, so the district institutes a rationing process through the peak period, as necessary.

1996 Outlook

The Loup Basin Reclamation District estimates that 13,800 acres in the Sargent Unit will be irrigated in 1996. Under dry-year conditions, some shortages could occur. The Farwell and Sargent Irrigation Districts are required to share shortages in accordance with their contract.

Farwell Unit, Middle Loup Division in Nebraska

General

The Farwell Irrigation District operates and maintains, with financial support from the Loup Basin Reclamation District, the Arcadia Diversion Dam, Sherman Feeder Canal, Sherman Dam and Reservoir, and the Farwell Canal system, which serves 50,051 acres of land. Diversions are also made through the Arcadia Diversion Dam to 15,000 acres of non-project lands in the Middle Loup Public Power and Irrigation District under their appropriated natural-flow water rights.

Middle Loup Public Power and Irrigation District, Loup Basin Reclamation District, Farwell Irrigation District and Sargent Irrigation District have executed an agreement to temporarily cease diversions from the Middle Loup River when conservation storage space in Sherman Reservoir has been evacuated. The agreement was executed December 10, 1984.

During the winter months, Sherman Reservoir is normally regulated to 5 feet or more below the top of the conservation capacity. Doing so minimizes seepage from the reservoir into the groundwater table. Maintenance of the pool below the top of conservation provides time for seeding of exposed shore areas to prevent wind erosion. The seedings also provide winter food and cover for wildlife and spawning habitat for fish in the spring when these areas are inundated. Each spring, diversions into Sherman Feeder Canal from the Middle Loup River are regulated to fill the conservation capacity of Sherman Reservoir by late May. The gradually rising water surface in the spring is desirable for fish spawning.

Whenever the flows in the Middle Loup River at Arcadia, Nebraska, exceed 6,000 cfs, flows will be diverted through Sherman Feeder Canal into Sherman Reservoir. Flood control benefits can be accrued to Sherman Reservoir by such operations.

Reclamation developed two wetland sites through mitigation of the Middle Loup Valley during 1995. Phase I involved construction of a 25 acre wetland near Sherman Feeder Canal. Water can be diverted into the wetland via the Feeder Canal after water rights have been obtained. Also, a 110 acre wetland tract was developed near Fullerton, Nebraska as Phase II of the mitigation.

<u>1995 Summary</u>

The diversions from the Middle Loup River at Arcadia Diversion Dam were 36,278 AF to the Middle Loup Public Power and Irrigation District and 112,799 AF into the Sherman Feeder Canal. During the fall of 1985 the Middle Loup Public Power and Irrigation District constructed a turnout in the Sherman Feeder Canal near mile post 11.4. The turnout diverts water directly to the Number 4 Canal. Releases to the turnout amounted to 212 AF and the losses charged as a result of these deliveries totaled 21 AF.

Sherman Feeder Canal diversions into Sherman Reservoir were started on April 24th, and the conservation capacity was filled on May 30th. The precipitation at Sherman Dam was 25.23 inches, which is 114 percent of normal. Releases into the Farwell Canals totaled 85,518 AF (53,142 AF were delivered to the farm headgates for a delivery efficiency of 62 percent). The Farwell Irrigation District reported that 49,400 acres of land were irrigated in 1995. Sherman Feeder Canal was shut off October 23rd.

Under an ongoing program the Farwell Irrigation District has installed a total of about 155 miles of pipe to replace open laterals including approximately 8.1 miles this past year. Also, approximately 4.5 miles of plastic lining has been installed in canal reaches on the Farwell Canal system.

1996 Outlook

Diversions from the Middle Loup River into the Sherman Feeder Canal are expected to start in the spring for the normal filling of the conservation capacity of Sherman Reservoir prior to the irrigation season.

Under dry-year inflow conditions, irrigation shortages are expected in 1996. These shortages are attributable to large irrigation requirements for corn production during the months of July and August. Farwell and Sargent Irrigation Districts are required to share shortages in accordance with their contract.

North Loup Division in Nebraska

General

The North Loup Division is located in the Loup River drainage basin. Water is diverted from both the Calamus and North Loup Rivers for the irrigation of approximately 53,000 acres of project lands. Operation of the division will also provide a sustained groundwater supply for an additional 17,000 acres. Principal features of the division include Virginia Smith Dam and Calamus Reservoir, Calamus Fish Hatchery, Kent Diversion Dam, Davis Creek Dam and Reservoir, five principal canals, one major and one small pumping plant and numerous open ditch and buried pipe laterals.

Calamus Reservoir is normally regulated at 3 to 4 feet below the top of conservation capacity during the winter months. Holding the reservoir at this elevation during the winter will help avoid ice damage to the soil cement on the upstream face of the dam. After the ice clears in the spring, the reservoir will be filled to conservation capacity. North Loup Division project operation is restricted to no water diversion from the Calamus and the North Loup Rivers during the months of July and August each year; and during the month of September each year whenever sufficient water is available in storage reservoirs to deliver to the canals their design capacity. During this time inflows to Calamus Reservoir are required to be bypassed under the Power Interference Agreement between Reclamation, the Twin Loups Reclamation District, and the Loup River Public Power District and as required in the authorizing legislation.

Initial filling of Davis Creek Reservoir to the top of active conservation was reached on June 22, 1993. A 160-acre recreation area adjoining the reservoir was constructed and is managed by the Lower Loup Natural Resources District. The area includes a boat ramp, a handicapped fishing pier, a day-use area, a primitive camping area and shelter and a hiking path. Kent Diversion Dam is also open to day-use fishing with handicapped accessibility provided.

1995 Summary

Precipitation at Virginia Smith Dam was 32.12 inches which is 142 percent of normal. The inflow was 318,106 AF which was above the wet-year forecasts and the greatest recorded inflow in the 10 years since the dam was constructed. There were 85,299 AF of water released to Mirdan Canal with 39,846 AF diverted for use above Davis Creek Reservoir. The farm headgate delivery was 26,228 AF which is a delivery efficiency of 66 percent. A release of 33,843 AF was made from Davis Creek Dam into Fullerton Canal, with 22,553 AF delivered to the farm headgates (67 percent delivery efficiency). Construction of the canal and distribution system below Davis Creek Reservoir was completed early in 1995. Land irrigated in 1995 totaled 23,795 acres above Davis Creek Reservoir and 17,977 acres below. Inflows were bypassed during July, August, and September as required. The Calamus Fish Hatchery used approximately 6,988 AF of bypassed natural flow and storage from Calamus Reservoir during 1995.

<u>1996 Outlook</u>

Calamus Reservoir will be held at the present elevation of about 2240.0 feet until ice-out, at which time the reservoir will be rapidly filled to an elevation of 2243.5 feet (six inches below the top of conservation capacity). This reservoir level will be maintained in order to minimize shoreline erosion until demands begin to draw on the reservoir. Bypasses of inflows will be made during July, August and September. In the fall the reservoir will again be filled to approximately elevation 2240.0 feet.

Water will be available for all irrigable acres with service from the Mirdan, Geranium and Scotia Canals and Lateral Systems. It is estimated that approximately 23,890 acres will be irrigated from these canals. Water supplies will be sufficient to meet the full dry-year requirements.

Filling of Davis Creek Reservoir will take place this spring with flows diverted from the North Loup River at Kent Division Dam and transported through Kent and Mirdan Canals. Storage water can also be transferred from Calamus Reservoir into Davis Creek Reservoir during the summer months via Mirdan Canal. Water will be sufficient to irrigate an estimated 19,160 acres from Elba and Fullerton Canals under all inflow forecast conditions. The reservoir will be wintered at elevation 2040.0 feet. The low carryover elevation will minimize groundwater increases due to reservoir seepage.

The fish hatchery demand for 1996 is expected to be similar to that of the past with approximately 8,000 AF passing through the hatchery.

# CHAPTER III - REPUBLICAN RIVER BASIN

## Armel Unit, Upper Republican Division in Colorado

### General

Normal reservoir operations for Bonny Reservoir are primarily for recreation and fish and wildlife support, although water will be available for water right administration and irrigation purposes.

Bonny Reservoir inflows from the South Fork of the Republican River and Landsman Creek are released into Hale Ditch as requested by the Colorado State Engineer. The state will make Bonny storage water available to Hale Ditch and other natural flow appropriators under short-term water service contracts. Most of the 700 acres served by Hale Ditch are now owned and operated by the Division of Wildlife, Colorado Department of Natural Resources.

The normal operation pattern of Bonny Reservoir, with a slowly rising or stable pool, enhances fish spawning in the spring and provides excellent fishing opportunities through the summer and hunting conditions each fall.

### 1995 Summary

The 21.18 inches of precipitation at Bonny Dam was 127 percent of normal. The inflow (18,133 AF) to Bonny Reservoir was between the normal- and wet-year forecasts. The reservoir level was approximately 2.0 feet below the top of conservation at the first of the year. The conservation pool gradually filled to elevation 3672.00 feet on May 8th. A river release through the spillway sluicegate (free flow) began on May 19th to hold the reservoir level at full pool. Bonny Dam received 3.84 inches of precipitation from June 2nd through June 9th increasing the reservoir level to a peak of 3673.80 feet (1.8 feet above full) on June 14th. The flood pool was evacuated on July 27th and the sluicegate was closed. Canal releases during the fall continued to reduce the reservoir level. On December 31st the reservoir elevation was 2.5 feet below the top of conservation. Bonny Reservoir was estimated to have prevented $495,700 in flood damages during 1995 by the Corps of Engineers.

As directed by the Colorado Water Commissioner, 1,744 AF of reservoir inflows from the South Fork of the Republican River and Landsman Creek passed through Bonny Reservoir into Hale Ditch. In addition, the Colorado Department of Natural Resources requested storage releases of 1,001 AF for irrigation purposes into Hale Ditch.

Safety of Dams evaluations in 1986 and 1987 confirmed two deficiencies at Bonny Dam, the potential for piping failure and that floods greater than 55 percent of the probable maximum flood (PMF) will overtop and fail the dam. An interim toe drain completed in December of 1988 provided protection up to elevation 3691.0 feet. A foundation toe drain completed in 1994 will minimize the potential for dam failure due to piping when the reservoir goes above elevation 3691.0 feet. An Early Warning System (EWS) was selected as the preferred hydrologic alternative for the danger of the dam overtopping. The EWS will greatly reduce the threat to downstream populations if the dam were to overtop and fail due to large floods.

Reclamation continued development of the Bonny Dam Early Warning System in cooperation with the National Weather Service, Colorado Department of Wildlife and Parks, emergency management officials from the states of Colorado, Kansas, and Nebraska, and emergency officials from Yuma County in Colorado, Cheyenne County in Kansas, and Dundy and Hitchcock Counties in Nebraska. An Emergency Action Plan for Bonny Dam was developed and the local officials developed Local Warning and Evacuation Plans. A Tabletop Exercise was held on May 22, 1995 in Yuma, Colorado, with participation from the above agencies. The dam operator at Bonny Dam retired at the end of 1995 and there may no longer be a Reclamation employee residing at the dam. The Emergency Action Plan will need to be revised and the expected actions of the dam operator will need to be assigned to other personnel. An Orientation Meeting with involved agencies is planned in the spring of 1996 to address this and other issues.

1996 Outlook

Water stored in Bonny Reservoir will be available for sale to Hale Ditch and other private irrigators under short-term water service contracts executed with the state.

Inflows will be stored during the winter until filling of the conservation pool is certain. Releases can be made during this period to maintain a constant reservoir elevation when filling of the reservoir is imminent or if icing were to become a problem.

The installation of guardrail is scheduled for the Bonny Dam spillway bridge in 1996.

Frenchman Unit, Frenchman-Cambridge Division in Nebraska

General

The Culbertson Canal and the Culbertson Extension Canal systems serve 9,600 acres in the Frenchman Valley Irrigation District and 11,490 acres in the H&RW Irrigation District. The water supply for these lands is furnished by flows from Frenchman and Stinking Water Creeks and off-season storage in Enders Reservoir.

The normal operation of Enders Reservoir, with the gradual rise in water surface during the spring months, provides desirable fish spawning conditions. Irrigation releases will normally deplete the conservation storage by late summer, thereby limiting the fishing and recreational usage.

1995 Summary

The 18.02 inches of precipitation at Enders Dam was slightly below normal. The 1995 inflow into Enders Reservoir (18,911 AF) was just above the dry-year forecast. Due to extensive groundwater pumping above the reservoir, the inflow was only 31 percent of the average historical preconstruction runoff at the Enders Dam site (60,700 AF from 1929-1947). This year was the 28th consecutive year with below-normal inflows in which the conservation pool did not fill. A total of 3,496 AF of water was conserved between the 1994 and 1995 irrigation seasons by pumping seepage back into the reservoir. Reservoir releases for irrigation began July 3rd and were stopped on August 29th.

The farm delivery averaged about 0.49 feet per irrigated acre for the two districts. Some farmers were able to supplement their project water supply from private irrigation wells. The Frenchman Valley Irrigation District reports that approximately 8,580 acres received water in 1995, and the H&RW Irrigation District reports approximately 11,020 acres, which are 89 and 96 percent, respectively, of the lands with service available. Farm delivery efficiency was 45 and 44 percent respectively for the two districts.

Enders Reservoir on the Frenchman Creek, a tributary of the Republican River in southwest Nebraska, prevented $29,000 in flood damages (determined by the Corps of Engineers). Flood releases were not required from the reservoir as total storage remained below the top of conservation.

Installation of guardrail on the Enders Dam spillway bridge was completed in 1995.

1996 Outlook

The fall and early winter inflows into Enders Reservoir were slightly below the dry-year forecast. If reasonable minimum inflow conditions prevail, the project water supply is expected to experience a shortage of about 65,800 AF. Most probable inflow conditions are expected to be inadequate by 20,100 AF, to irrigate the 8,600 acres in the Frenchman Valley Irrigation District and 11,050 acres in the H&RW Irrigation District. Approximately 3,000 AF are expected to be conserved by pumping seepage water back into Enders Reservoir.

Meeker-Driftwood, Red Willow, and Cambridge Units, Frenchman-Cambridge Division in Nebraska

General

During the spring months, Swanson, Hugh Butler, and Harry Strunk Lakes normally have a rising or stable pool which enhances the spawning of northern pike and walleye. These lakes provide excellent opportunities for fishing, water sports, and recreation.

Service is provided for Frenchman-Cambridge Irrigation District by Meeker-Driftwood Canal to 16,476 acres; Red Willow Canal to 4,932 acres; Bartley Canal to 6,539 acres; and Cambridge Canal to 17,053 acres. The water supply for these lands is provided by storage in Swanson, Hugh Butler, and Harry Strunk Lakes, and inflows of the Republican River and Red Willow and Medicine Creeks. The Frenchman-Cambridge Irrigation District has replaced all of the open laterals which were physically or economically feasible with pipe laterals which has significantly increased both system and on-farm efficiencies.

1995 Summary

The precipitation of 21.55 inches at Trenton Dam was 109 percent of normal. The inflow of 69,414 AF to Swanson Lake was between the normal- and wet-year forecasts. The reservoir level began the year approximately 5.9 feet below the top of conservation pool. The conservation pool filled on May 8th (elevation of 2752.00 feet). The reservoir level continued to rise during the spring, gradually increasing to a maximum of 2754.86 feet on June 20th with 14,700 AF of flood storage occupied. Storage within the flood pool was made in cooperation with the Nebraska Game and Parks Commission and the Corps of Engineers. An irrigation release was started on June 19th and began drawing on the reservoir storage. Irrigation releases continued throughout the season with the reservoir level dropping from the flood pool on July 30th. It was determined by the Corps of Engineers that the reservoir prevented $5,390,500 in flood damages during 1995. Swanson Lake storage, along with inflows and river pickup flows was sufficient in furnishing a full water supply to each irrigable acre of the project lands served by the Meeker-Driftwood and Bartley Canal systems. The Frenchman-Cambridge Irrigation District diverted 35,371 AF into Meeker-Driftwood Canal to irrigate 16,533 acres and 10,677 AF into Bartley Canal for 6,466 acres. Delivery efficiency was 55 and 70 percent respectively for the two canals.

The precipitation of 15.52 inches at Red Willow Dam was 79 percent of normal, while the inflow of 16,813 AF into Hugh Butler Lake was between the dry- and normal-year forecasts. The reservoir level at the first of the year was 3.2 feet below the top of conservation. Inflows gradually increased the level of the reservoir to 2583.02 feet (1.2 feet into the flood pool) on June 15th. Irrigation releases began on June 18th evacuating the flood pool on July 15th. Hugh Butler Lake was estimated to have prevented $495,700 in flood damages by the Corps of Engineers. The water supply was adequate to meet the diversion requirements for Red Willow Canal. The district diverted 8,974 AF of water to irrigate 5,020 acres of land served by Red Willow Canal. The farm headgate delivery was 5,984 AF for a delivery efficiency of 67 percent.

The precipitation of 19.23 inches was 94 percent of normal at Medicine Creek Dam, while the inflow of 38,366 AF was between the dry- and normal-year forecast. The reservoir level at the beginning of 1995 was 4.6 feet below the top of conservation (2361.50 feet). The reservoir level gradually increased to an elevation of 2365.89 feet on March 13th at which time a release was started from the dam. A release continued to be made through April 15th maintaining a reservoir level of approximately .5 foot below the top of conservation. The reservoir level was then allowed to fill to elevation 2368.1 feet (2 feet into the flood pool) before a release resumed from May 15th through June 21st to maintain this level. The flood pool storage was regulated in cooperation with the Nebraska Game and Parks Commission and the Corps of Engineers. Irrigation releases began on June 21st. On July 15th the reservoir level dropped back into the conservation pool. The reservoir was estimated to have prevented $24,500 in flood damages by the Corps of Engineers. The water supply was more than adequate with 31,748 AF of water diverted to irrigate 17,204 acres of land served by the Cambridge Canal (farm delivery efficiency was 64 percent).

<u>1996 Outlook</u>

Forecasts show that carry-over storage, streamflow gains, plus reasonable minimum inflows for the three lakes supplying the Frenchman-Cambridge Irrigation District will be adequate to meet the full dry-year irrigation requirement.

It is estimated that 16,400 acres will be served from the Meeker-Driftwood Canal; 17,000 acres will be served from the Cambridge Canal; 4,900 acres will be served from the Red Willow Canal; and 6,500 acres will be served from the Bartley Canal.

Almena Unit, Kanaska Division in Kansas

General

Service is available to 5,763 acres in the Almena Irrigation District. The project water supply is provided by Prairie Dog Creek flows and Keith Sebelius Lake storage.

The water service contract for the city of Norton, Kansas, provides for a maximum annual use of 1,600 AF from Keith Sebelius Lake.

1995 Summary

The precipitation at Norton Dam was 25.59 inches, which is 107 percent of normal. The total inflow was 11,214 AF, which was between the normal- and wet-year forecasts. Farm delivery averaged about .37 acre-foot per irrigated acre from the project water supply. Water is also being supplied from privately owned irrigation wells to conserve reservoir water storage. The reservoir level was approximately 5.6 feet below the top of conservation on December 31, 1994 (2298.74 feet). The level slowly increased to 2299.80 feet on April 30th. Norton Dam received a record high May precipitation total of 14.33 inches, exceeding the previous high by 5.71 inches. The record rainfall amount resulted in the greatest May computed inflow since construction of the reservoir. Keith Sebelius Lake elevation increased 2.3 feet during May ending the month at the highest level since 1967. The reservoir level peaked at 2302.40 feet on June 16th, 1.9 feet below the top of conservation. Flood releases were not necessary because the total storage never exceeded the conservation pool. The Corps of Engineers estimated that $563,000 in flood damages was prevented by Keith Sebelius Lake.

The city of Norton used 456 AF of municipal water during 1995.

1996 Outlook

The district expects to deliver water to 5,500 acres if an adequate water supply is available. If 1996 is a dry year without significant run-off producing storms above Keith Sebelius Lake, it is anticipated that irrigation shortages of 8,400 AF would occur. If normal lake inflows and normal rainfall occur over the irrigated area in 1996 no shortage will be experienced.

Requirements for the city of Norton are expected to be met in full in 1996.

Painting of the spillway gates is planned to begin this summer.

Franklin, Superior-Courtland, and Courtland Units, Bostwick Division in Nebraska and Kansas

General

Harlan County Lake storage and Republican River flows provide a project water supply for 22,787 acres in the Bostwick Irrigation District in Nebraska, and 13,550 acres in the Kansas-Bostwick Irrigation District No. 2 above Lovewell Reservoir. These flows, together with White

Rock Creek flows and Lovewell Reservoir storage, furnish a water supply for 28,338 acres below Lovewell Reservoir in the Kansas-Bostwick Irrigation District.

The lands in the Franklin and Superior-Courtland Units are in the Bostwick Irrigation District in Nebraska. The lands in the Courtland Unit downstream of the Kansas state line are in the Kansas-Bostwick Irrigation District.

In accordance with the off-season flow alternative outlined in Reclamation's final environmental assessment dated December 16, 1983, releases will be 10 cfs during the months of December, January, and February, except when the reservoir is at low levels. During water-short years releases for these three months will be either zero or 5 cfs depending on reservoir levels. At the request of the state of Nebraska, releases of 30 cfs for a maximum 5-day period may be made to relieve icing conditions in the river.

Natural gain in streamflow, plus irrigation return flows, and operational bypass at Superior-Courtland Diversion Dam will provide some flow downstream.

The Kansas Department of Wildlife and Parks has requested that the Kansas-Bostwick Irrigation District and Reclamation maintain, when possible, a flow of 20 cfs into Lovewell Reservoir when the Courtland Canal is in operation and the conservation pool is below capacity. This recommended inflow provides excellent fishing around the canal inlet to the reservoir. The seepage below Lovewell Dam into White Rock Creek maintains a small live stream throughout the year.

<u>1995 Summary</u> - <u>Bostwick Division - Harlan County Lake Operations</u>

The precipitation at Harlan County Dam totaled 22.11 inches of rainfall, which is 99 percent of normal. The inflow of 201,800 AF was between the normal- and wet-year forecasts. A 10 cfs release was required during January, February and December in accordance to the environmental assessment and the annual operating plan.

Harlan County Lake began 1995 approximately 2.3 feet below the top of conservation pool at 1943.66 feet. The conservation pool filled on March 25th and the reservoir level continued to increase with spring inflows. Harlan County Dam recorded 11.02 inches of precipitation during May (2.67 inches greater than previously ever recorded). A river release of 400 cfs was started on May 10th to evacuate flood storage. The release was discontinued on May 27th because of high river stages downstream of the dam due to heavy rainfall. A 500 cfs release was resumed on June 2nd and increased to 1,000 cfs on June 7th. The reservoir level peaked at 1951.18 feet (5.2 feet into the flood pool) on June 7th. The 1,000 cfs river release continued until July 3rd when it was reduced to meet irrigation demands. On July 27th the reservoir level dropped from the flood pool as irrigation demands increased. At the end of irrigation season (September 19th) 248,553 acre-feet of storage remained in the reservoir. Harlan County Lake prevented $28,182,000 of downstream flood damages during 1995.

The 33,579 irrigated acres of the Bostwick District in Nebraska and the Kansas-Bostwick District above Lovewell Dam were furnished a full water supply. A total of 31,839 AF (approximately 47 percent of total inflow) was delivered to Lovewell Reservoir through the Courtland Canal.

1995 Summary - Bostwick Division - Nebraska

The Bostwick Irrigation District in Nebraska diverted 62,291 AF for the irrigation of 22,787 acres. Farm delivery efficiency averaged 39 percent in the district.

1995 Summary - Bostwick Division - Kansas

The 1995 precipitation at Lovewell Dam totaled 23.15 inches, which was 84 percent of normal. Lovewell Reservoir began 1995 with a water surface elevation of 1578.62 feet, 4.0 feet below the top of conservation. The conservation pool filled on April 20th (elevation 1582.60 feet). The reservoir level continued to rise peaking at 1587.29 feet on June 5th. A river release of 50 cfs was started on June 2nd and increased to 200 cfs on June 5th. The river release was shut off on June 20th with the reservoir elevation at 1585.60 feet. Canal releases began on this date and continued throughout the irrigation season dropping the reservoir from the flood pool on July 26th. The Corps of Engineers estimated the reservoir reduced local and downstream damages by $7,098,000. Off-season diversion of natural flow from the Republican River into Lovewell Reservoir through Courtland Canal was made during January and February.

The Kansas-Bostwick Irrigation District diverted a total of 80,129 AF to serve approximately 10,800 acres above Lovewell Dam and about 24,140 acres below Lovewell Dam. Farm delivery efficiency averaged 53 percent in the district.

Construction was completed on a section of Courtland Feeder Canal that was reshaped and lined with a polyethylene membrane to reduce seepage loss.

1996 Outlook - Bostwick Division

The Bostwick Irrigation District in Nebraska and the Kansas-Bostwick Irrigation District No. 2 expect to deliver water to 22,500 and 39,000 acres, respectively. The storage in Harlan County Lake and Lovewell Reservoir and flows of the Republican River and White Rock Creek will be inadequate to meet the full dry-year irrigation requirement for the Bostwick lands. An operation plan will not be required in 1996 because both reservoirs are expected to be full prior to the irrigation season. If a shortage should develop due to extremely dry conditions an interim operation plan may become necessary.

Up to two feet of flood pool storage will be utilized at Lovewell Reservoir prior to the irrigation season. This additional storage will help alleviate any irrigation shortages in the Bostwick Division. Natural flow in the Republican River will be diverted into Lovewell Reservoir via Courtland Canal in filling the reservoir.

Kirwin Unit, Solomon Division in Kansas

General

The water supply for the 11,435 acres of land in the Kirwin Irrigation District is furnished by storage from Kirwin Reservoir and inflows from the North Fork of the Solomon River and Bow Creek.

The operation of Kirwin Dam and Reservoir affords many opportunities for recreation, fishing, hunting, water sports, fish spawning, and preservation of waterfowl species.

1995 Summary

The precipitation total of 28.31 inches at Kirwin Dam was 123 percent of normal. The inflow of 91,083 AF was above the wet-year forecast. Kirwin Reservoir was only .15 foot below the top of conservation pool at the first of the year. The conservation pool filled on January 10th and the reservoir level continued to increase throughout the spring reaching 1731.25 feet (2 feet into flood pool) on May 3rd. May precipitation at Kirwin Dam (13.46 inches) and the resulting inflow to the reservoir were both record highs for the month. Recorded 24-hour precipitation amounts of 1.03, 1.83, 1.97 and 1.38 inches increased the reservoir level to 1732.19 feet on May 26th. Another 3.60 inches of precipitation was recorded overnight on the 26th. A peak average daily computed inflow of 8,200 cfs was recorded from May 27th to the 28th. Storage in Kirwin Reservoir increased 34,900 AF during the month. The reservoir elevation peaked at 1737.07 feet on June 2nd, 2.0 feet higher than the previous historical high set in 1993 and 7.8 feet into the flood pool. A river release of 250 cfs was made during May whenever downstream conditions permitted. A spillway release of 500 cfs was started from Kirwin Dam on June 1st and was decreased to 300 cfs on the 23rd when canal releases began. The spillway release was shut off on July 24th. Irrigation releases dropped the reservoir from the flood pool on September 2nd. Fall inflows increased the reservoir level to 1730.20 feet (.95 foot into the flood pool) at the end of the year. The reservoir prevented $13,514,200 in flood damages as determined by the Corps of Engineers.

Demands for project water were met in full during the irrigation season. A total of 8,072 acres received project water during 1995 with 9,777 AF delivered to farms. Farm delivery efficiency was 45 percent.

1996 Outlook

The district estimates that 8,000 acres may be irrigated in 1996. Even with below normal precipitation and dry-year forecasted inflows from the North Fork of the Solomon River the water supply will be more than adequate to irrigate these lands. Kirwin Reservoir will begin the irrigation season with a full active conservation pool for the third year in a row. Releases will be made early in 1996 to regulate flood storage.

Webster Unit, Solomon Division in Kansas

General

The Webster Irrigation District has service available to 8,500 acres. The project water supply is provided by Webster Reservoir storage and flows of the South Fork of the Solomon River.

1995 Summary

In 1995, the precipitation at Webster Dam was 125 percent of normal (28.83 inches). The inflow of 157,434 AF was well above the wet-year forecast and the greatest since initial reservoir filling. Webster Reservoir began 1995 with 1.31 feet of flood pool storage occupied (1893.76 feet). The reservoir elevation increased to 1894.72 feet on February 9th at which time a release was started to maintain this level. The reservoir level was 1894.75 feet on May 1st with a discharge of 40 cfs. May precipitation at Webster Dam (15.38 inches) and the resulting inflow to the reservoir were both record highs for the month. Persistent rainfall that included 2.5 inches on the 8th, 1.1 inches on the 13th, 1.4 inches on the 18th and 1.8 inches on the 23rd increased the reservoir level an additional 4.4 feet into the flood pool by May 26th. Another 5.20 inches of precipitation was recorded at Webster Dam overnight on the 26th. The peak average daily computed inflow of approximately 10,100 cfs was recorded from May 27th to the 28th. Storage in Webster Reservoir increased 57,540 AF during May. The reservoir level peaked at 1907.04 feet on June 5th, 2.7 feet higher than the previous historical high set in 1993 and 14.6 feet into the flood pool. A release of 500 cfs was made during May when downstream conditions permitted. A spillway release began on June 1st and was gradually increased to 1,000 cfs by June 12th. Spillway releases were discontinued on August 1st. River outlet releases dropped the reservoir from the flood pool on September 2nd. Fall inflows increased the reservoir level to 1893.78 feet (1.33 feet into the flood pool) on December 31, 1995. The Corps of Engineers determined that the reservoir prevented $26,867,300 in flood damages.

The district diverted 16,159 acre-feet for irrigation of 4,551 acres. Project water demands were met in full.

1996 Outlook

Flood releases will resume early in 1996 to regulate flood storage.

The carryover storage and the flows in the South Fork of the Solomon River will be more than adequate under dry-year forecasts to irrigate 5,000 acres in the district in 1996. This will be the third consecutive year since 1962 that Webster Reservoir will begin the irrigation season with a full active conservation pool.

Installation of guardrail on the Webster Dam spillway bridge is scheduled to begin early in 1996.

Glen Elder Unit, Solomon Division in Kansas

General

Releases from Waconda Lake will be regulated as outlined in two memorandums of understanding between the State of Kansas and Reclamation. Releases are made for the city of Beloit, the long-term water service contract with Glen Elder Irrigation District, and water right administration.

The water service contract with Beloit, Kansas, provides for the annual use of up to 2,000 AF of Waconda Lake storage. Water is measured at the Glen Elder Dam river outlet works. In any water year that the city's water supply is insufficient and there is surplus water in Waconda Lake, such additional water may be released for the city at a rate of $15.00 per acre-foot.

The water service contract with the Mitchell County Rural Water District No. 2 provides for use of storage water as available from Waconda Lake. Water usage is not to exceed 1,009 AF per calendar year.

The water service contract with the Glen Elder Irrigation District provides for the use of up to 18,000 AF of storage water each year. Water is released and measured through the river outlet works.

To lessen ice damage to the upstream face of Glen Elder Dam during the winter months, releases from Waconda Lake will be regulated each year to maintain a constant water surface level while the lake is ice-covered.

The available facilities along the shores of Waconda Lake and the large water surface area afford opportunities to thousands of people for picnics, sightseeing, recreation, water sports, hunting, and fishing. Renovation of the upstream recreational areas that were damaged during the 1993 and 1995 flooding continues.

When compatible with flood control operations, the operating criteria for Waconda Lake provide for a stable or rising pool level during the fish spawning period each spring.

When possible, drawdowns will be scheduled for late summer and early fall so that exposed shore areas can be seeded. This seeding prevents wind erosion and also provides both wildlife with winter food and cover and fish with spawning habitat in the spring when these areas are inundated.

1995 Summary

The annual precipitation total of 25.80 inches at Glen Elder Dam was 103 percent of normal. The inflow of 538,278 AF was above the wet-year forecast. Waconda Lake began 1995 approximately 1.6 feet below the top of conservation. A 300 cfs release was being made to drop the reservoir level to elevation 1453.6 feet (2 feet below conservation). The release was decreased to 200 cfs on January 23rd and remained at this rate until April 4th when the outflow was staged down to allow the reservoir to fill. May precipitation at Glen Elder Dam (10.20 inches) and the resulting inflow to Waconda Lake were the greatest on record for the month. The reservoir elevation of Waconda Lake at the beginning of the month was approximately 1.2 feet below the top of conservation. Precipitation was recorded on 22 days during May with 24-hour totals of an inch or more on four occasions. The peak average daily computed inflow of about 10,700 cfs was recorded from May 29th to the 30th. Storage in Waconda Lake increased 176,100 AF during May. The maximum release made to the river during May was 1,500 cfs. The reservoir level peaked at 1467.07 feet on June 10th (11.5 feet into the flood pool). River releases varied from 1,500 cfs to 2,700 cfs during June. The release was adjusted to 2,000 cfs on June 20th and continued at this discharge rate until August 22nd. Waconda Lake dropped from the flood pool on August 30th. The release to the river was gradually decreased to 20 cfs by September 18th with a reservoir level of 1453.5 feet. Fall inflows increased the reservoir level of Waconda Lake to 1455.67 feet (.07 foot above top of conservation) on December 31, 1995. A 200 cfs release was being made at the end of the year to maintain the pool near the top of conservation. The Corps of Engineers determined that the reservoir reduced local and downstream damages by $171,843,400.

No storage releases were made for the City of Beloit, however, 3,678 AF were bypassed for quality control as directed by the State Water Commissioner. Storage releases were not required for irrigation during the early part of the season because flood releases were more than sufficient in meeting demands. A total of 1,548 AF was released to meet late season irrigation demands. Other controlled releases totaled 459,375 AF during 1995. Releases of 697 AF were made to the Mitchell County Rural Water District No. 2.

Installation of guardrail on the Glen Elder Dam spillway bridge was completed in 1995.

1996 Outlook

The municipal requirement of Beloit and the requirements of the Mitchell County Rural Water District No. 2 will be met in full with releases as required from Waconda Lake. It is expected that the Kansas Water Commissioner will request that inflows be passed through the lake for water right administration. The Glen Elder Irrigation District estimates that 5,400 acres will be irrigated in 1996. The storage in Waconda Lake and flows in the North and South Forks of the Solomon River will furnish an adequate water supply to the district. River releases will continue during the first few months of 1996 to reduce the level of Waconda Lake to 1453.60 feet (two feet below top of conservation). This reservoir level will be maintained until irrigation demands begin to draw on the reservoir. Holding the reservoir level at this elevation is being made in cooperation with the Kansas Department of Wildlife and Parks. The State is planning to complete boat ramp and rip-rap projects. To minimize ice damage, the reservoir will be regulated to maintain a constant level during the late winter months when the reservoir is ice-covered. Under normal-year conditions, the lake is expected to be maintained at about three feet below the top of the conservation pool for next winter.

Cedar Bluff Unit, Smoky Hill Division in Kansas

General

Cedar Bluff storage furnishes a maximum of 2,000 AF each year for the city of Russell, Kansas when required. Prior to 1993, Cedar Bluff Reservoir storage and Smoky Hill River flows had provided a water supply for 6,800 acres in the Cedar Bluff Irrigation District. No water had been available for delivery to the district since 1978. Reformulation of the Cedar Bluff Unit in October of 1992 allowed the Cedar Bluff Irrigation District to begin the proceedings to disband, and the Kansas Water Office and Kansas Department of Wildlife and Parks to acquire the use and control of portions of the reservoir conservation capacity. The district completed all activities necessary to accomplish disbandment in 1994. A "designated operating pool" has been established for Cedar Bluff Reservoir and includes the following suballocation pools: The City of Russell's existing water storage right which remained unchanged; an artificial recharge pool under control of the Kansas Water Office; and a fish, wildlife and recreation pool under control of the Kansas Department of Wildlife and Parks. The "designated operating pool" consist of water stored between the dead pool and elevation 2109.05 feet. A joint-use pool has been established for the storage between the operating pool and the flood control pool. A decision on how the rights will be maintained by the state will be made after consultation between the agencies.

1995 Summary

The precipitation at Cedar Bluff Dam was 24.16 inches which is 118 percent of normal. The inflow (38,773 AF) was between the normal- and wet-year forecasts. Cedar Bluff Reservoir began 1995 with a reservoir level of 2120.68 feet (11.63 feet into the joint-use pool). Cedar Bluff Dam received 8.79 inches of precipitation during May exceeding the previous record of 6.72 inches for the month. The reservoir level increased 5.9 feet during May, ending the month at the highest level since 1976 (2126.80 feet). A release was not required from the reservoir as total storage remained below the top of conservation. Cedar Bluff Reservoir was estimated to have prevented $6,810,000 in flood damages in 1995 by the Corps of Engineers. Cedar Bluff Reservoir level was at 2126.78 feet at the end of 1995. The state of Kansas did not use reservoir water for the fish hatchery facility in 1995. No releases were made for the city of Russell.

1996 Outlook

The reservoir content of 91,680 AF on December 31, 1995 is in the joint use pool, with 53,690 AF of storage above the designated operating pool. The Kansas Department of Wildlife and Parks estimates around 400 acre-feet of water may be used in the operations of the fish hatchery facility.

**TABLE 1**

**RESERVOIR DATA - NIOBRARA, LOWER PLATTE AND KANSAS RIVER BASINS**

| RESERVOIR | | DEAD | Inactive | Active | FLOOD CONTROL |
|---|---|---|---|---|---|
| | | | CAPACITY ALLOCATIONS 1/ | | |
| | | | LIVE CONSERVATION | | |
| Box Butte | - Elevation Ft. | 3969.0 | 3976.5 | 4007.0 | --- |
| | Total Acre-feet | 640 | 2,275 | 31,060 | --- |
| | Net Acre-feet | 640 | 1,635 | 28,785 | --- |
| Merritt | - Elevation Ft. | 2875.0 | 2896.0 | 2946.0 | --- |
| | Total Acre-feet | 1,614 | 6,800 | 74,486 | --- |
| | Net Acre-feet | 1,614 | 5,186 | 67,686 | --- |
| Sherman | - Elevation Ft. | 2118.5 | 2129.0 | 2162.3 | --- |
| | Total Acre-feet | 3,839 | 10,496 | 69,076 | --- |
| | Net Acre-feet | 3,839 | 6,657 | 58,580 | --- |
| Calamus | - Elevation Ft. | 2185.0 | 2213.3 | 2244.0 | --- |
| | Total Acre-feet | 817 | 24,646 | 127,400 | --- |
| | Net Acre-feet | 817 | 23,829 | 102,754 | --- |
| Davis Creek | - Elevation Ft. | 1998.5 | 2003.0 | 2076.0 | --- |
| | Total Acre-feet | 76 | 172 | 31,158 | --- |
| | Net Acre-feet | 76 | 96 | 30,986 | --- |
| Bonny | - Elevation Ft. | 3635.5 | 3638.0 | 3672.0 | 3710.0 |
| | Total Acre-feet | 1,418 | 2,134 | 41,340 | 170,160 |
| | Net Acre-feet | 1,418 | 716 | 39,206 | 128,820 |
| Enders | - Elevation Ft. | 3080.0 | 3082.4 | 3112.3 | 3127.0 |
| | Total Acre-feet | 8,467 | 9,968 | 44,480 | 74,520 |
| | Net Acre-feet | 8,467 | 1,501 | 34,512 | 30,040 |
| Swanson Lake | - Elevation Ft. | 2710.0 | 2720.0 | 2752.0 | 2773.0 |
| | Total Acre-feet | 2,118 | 12,430 | 112,214 | 246,291 |
| | Net Acre-feet | 2,118 | 10,312 | 99,784 | 134,077 |
| Hugh Butler Lake | - Elevation Ft. | 2552.0 | 2558.0 | 2581.8 | 2604.9 |
| | Total Acre-feet | 6,313 | 10,450 | 37,776 | 86,627 |
| | Net Acre-feet | 6,313 | 4,137 | 27,326 | 48,851 |
| Harry Strunk Lake | - Elevation Ft. | 2335.0 | 2343.0 | 2366.1 | 2386.2 |
| | Total Acre-feet | 4,160 | 8,859 | 35,705 | 88,420 |
| | Net Acre-feet | 4,160 | 4,699 | 26,846 | 52,715 |
| Keith Sebelius Lake | - Elevation Ft. | 2275.0 | 2280.4 | 2304.3 | 2331.4 |
| | Total Acre-feet | 2,718 | 5,284 | 35,935 | 134,738 |
| | Net Acre-feet | 2,718 | 2,566 | 30,651 | 98,803 |
| Harlan County Lake | - Elevation Ft. | 1885.0 | 1927.0 3/ | 1946.0 | 1973.5 |
| | Total Acre-feet | 0 | 120,790 | 315,090 | 811,808 |
| | Net Acre-feet | 0 | 120,790 | 194,300 | 496,718 |
| Lovewell | - Elevation Ft. | 1562.0 | 1571.7 | 1582.6 | 1595.3 |
| | Total Acre-feet | 5,054 | 16,760 | 41,690 | 92,150 |
| | Net Acre-feet | 5,054 | 11,706 | 24,930 | 50,460 |
| Kirwin | - Elevation Ft. | 1693.0 | 1697.0 | 1729.25 | 1757.3 |
| | Total Acre-feet | 6,385 | 9,785 | 99,435 | 314,550 |
| | Net Acre-feet | 6,385 | 3,400 | 89,650 | 215,115 |
| Webster | - Elevation Ft. | 1855.5 | 1860.0 | 1892.45 | 1923.7 |
| | Total Acre-feet | 2,184 | 5,300 | 77,371 | 260,740 |
| | Net Acre-feet | 2,184 | 3,116 | 72,071 | 183,369 |
| Waconda Lake | - Elevation Ft. | 1407.8 | 1428.0 | 1455.6 | 1488.3 |
| | Total Acre-feet | 1,236 | 36,671 | 241,460 | 963,775 |
| | Net Acre-feet | 1,236 | 35,435 | 204,789 | 722,315 |
| Cedar Bluff | - Elevation Ft. | 2090.0 | 2107.8 | 2144.0 | 2166.0 |
| | Total Acre-feet | 8,261 | 35,320 | 185,090 | 376,950 |
| | Net Acre-feet | 8,261 | 27,059 | 149,770 | 191,860 |
| Total Storage (A.F.) | | 55,300 | 318,140 | 1,600,766 | 3,953,909 2/ |
| Total Net Acre-feet | | 55,300 | 262,840 | 1,282,626 | 2,353,143 |

1/ Includes space for sediment storage.

2/ Includes total active storage for Box Butte, Merritt, Sherman, Calamus, and Davis Creek Reservoirs.

3/ Bottom of irrigation pool for Harlan County Lake is 1932.8 feet.

# TABLE 2
## SUMMARY OF 1995 OPERATIONS
### MIRAGE FLATS PROJECT

BOX BUTTE RESERVOIR / MIRAGE FLATS CANAL

| Month | Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | Month Content (AF) | Mirage Flats Canal Diversions To Canal (AF) | Mirage Flats Canal Delivered To Farms (AF) |
|---|---|---|---|---|---|---|---|
| Jan. | 1,665 | 57 | 82 | 0.27 | 12,339 | 0 | 0 |
| Feb. | 1,926 | 53 | 110 | 0.42 | 14,102 | 0 | 0 |
| Mar. | 1,996 | 63 | 207 | 0.41 | 15,828 | 0 | 0 |
| Apr. | 2,279 | 64 | 360 | 2.42 | 17,683 | 0 | 0 |
| May | 2,732 | 73 | 186 | 4.62 | 20,156 | 0 | 0 |
| June | 2,014 | 85 | 441 | 6.00 | 21,644 | 0 | 0 |
| July | 1,019 | 5,349 | 553 | 1.55 | 16,761 | 5,986 | 2,203 |
| Aug. | 534 | 7,442 | 438 | 2.83 | 9,415 | 7,287 | 3,794 |
| Sep. | 657 | 2,713 | 209 | 1.67 | 7,150 | 2,980 | 1,725 |
| Oct. | 2,038 | 57 | 190 | 1.74 | 8,941 | 0 | 0 |
| Nov. | 2,287 | 52 | 118 | 0.04 | 11,058 | 0 | 0 |
| Dec. | 1,678 | 53 | 75 | 0.35 | 12,608 | 0 | 0 |
| TOTAL | 20,825 | 16,061 | 2,969 | 22.32 | -- | 16,253 | 7,722 |

NOTE -- Acres irrigated 1995: Mirage Flats Canal - 10,371 acres.

### SANDHILLS DIVISION
### AINSWORTH UNIT

MERRITT RESERVOIR / AINSWORTH CANAL

| Month | Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | Ainsworth Canal Release To Canal (AF) | Ainsworth Canal Delivered To Farms (AF) |
|---|---|---|---|---|---|---|---|
| Jan. | 14,443 | 14,202 | 241 | 0.00 | 68,831 | 0 | 0 |
| Feb. | 13,396 | 13,091 | 305 | 0.63 | 68,831 | 0 | 0 |
| Mar. | 15,151 | 13,329 | 427 | 1.31 | 70,226 | 0 | 0 |
| Apr. | 18,316 | 12,734 | 733 | 4.47 | 75,075 | 0 | 0 |
| May | 23,158 | 21,114 | 570 | 7.84 | 76,549 | 0 | 0 |
| June | 19,406 | 20,281 | 1,188 | 4.31 | 74,486 | 3,070 | 83 |
| July | 14,275 | 29,950 | 1,359 | 2.18 | 57,452 | 26,970 | 18,607 |
| Aug. | 15,058 | 30,674 | 910 | 0.79 | 40,926 | 27,706 | 19,842 |
| Sep. | 14,907 | 13,813 | 378 | 1.11 | 41,642 | 10,654 | 8,308 |
| Oct. | 18,998 | 2,085 | 620 | 4.04 | 57,935 | 0 | 0 |
| Nov. | 16,296 | 4,967 | 433 | 0.52 | 68,831 | 0 | 0 |
| Dec. | 14,519 | 14,200 | 319 | 0.07 | 68,831 | 0 | 0 |
| TOTAL | 197,923 | 190,440 | 7,483 | 27.27 | -- | 68,400 | 46,840 |

NOTE -- Acres irrigated 1995: Ainsworth Canal - 34,208 acres.

### MIDDLE LOUP DIVISION

SARGENT UNIT – SARGENT CANAL; MIDDLE LOUP UNIT – MIDDLE LOUP PUBLIC POWER CANALS

| Month | Sargent Canal Diversions To Canal (AF) | Sargent Canal Delivered To Farms (AF) | Middle Loup Public Power Canals Diversions To Canals (AF) | Diversions To Sherman Feeder Canal (AF) |
|---|---|---|---|---|
| Jan. | 0 | 0 | 0 | 0 |
| Feb. | 0 | 0 | 0 | 0 |
| Mar. | 0 | 0 | 0 | 0 |
| Apr. | 0 | 0 | 0 | 2916 |
| May | 0 | 0 | 3,521 | 20,966 |
| June | 470 | 0 | 3,564 | 14,115 |
| July | 9,166 | 5,581 | 11,827 | 18,040 |
| Aug. | 9,374 | 7,290 | 10,022 | 18,780 |
| Sep. | 3,850 | 2,779 | 7,344 | 21,769 |
| Oct. | 0 | 0 | 0 | 16,213 |
| Nov. | 0 | 0 | 0 | 0 |
| Dec. | 0 | 0 | 0 | 0 |
| TOTAL | 22,860 | 15,650 | 36,278 | 112,799 |

FARWELL UNIT – SHERMAN RESERVOIR / FARWELL CANALS

| Month | Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | Farwell Canals Release To Canals (AF) | Farwell Canals Delivered To Farms (AF) |
|---|---|---|---|---|---|---|---|
| Jan. | 614 | 1,309 | 259 | 0.30 | 51,768 | 0 | 0 |
| Feb. | 900 | 1,291 | 320 | 0.51 | 51,057 | 0 | 0 |
| Mar. | 1,396 | 1,309 | 560 | 3.17 | 50,584 | 0 | 0 |
| Apr. | 2,685 | 1,303 | 909 | 3.17 | 51,057 | 0 | 0 |
| May | 20,318 | 1,533 | 477 | 7.18 | 69,365 | 0 | 0 |
| June | 11,359 | 10,403 | 1,245 | 2.54 | 69,076 | 8,832 | 104 |
| July | 18,090 | 34,911 | 1,435 | 2.42 | 50,820 | 33,573 | 20,889 |
| Aug. | 16,695 | 33,509 | 901 | 1.78 | 33,105 | 32,436 | 24,378 |
| Sep. | 19,825 | 11,863 | 546 | 2.51 | 40,521 | 10,677 | 7,771 |
| Oct. | 15,207 | 1,083 | 704 | 0.99 | 53,941 | 0 | 0 |
| Nov. | 744 | 1,303 | 416 | 0.49 | 52,966 | 0 | 0 |
| Dec. | 110 | 1,309 | 236 | 0.17 | 51,531 | 0 | 0 |
| TOTAL | 107,943 | 101,126 | 8,008 | 25.23 | -- | 85,518 | 53,142 |

NOTE--Acres irrigated 1995: Sargent Canal 13,909 acres (Est.) Middle Loup P.P. Canals 14,302 acres; Farwell Canals 49,400 acres.

### NORTH LOUP DIVISION

CALAMUS RESERVOIR / ABOVE DAVIS CREEK – MIRDAN CANAL

| Month | Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | Release to Calamus Fish Hatch. (AF) | Mirdan Canal Release To Canal (AF) | Mirdan Canal Canal Use (AF) | Mirdan Canal Delivered To Farms (AF) |
|---|---|---|---|---|---|---|---|---|---|
| Jan. | 20,684 | 20,442 | 410 | 0.59 | 94,546 | 784 | 0 | 0 | 0 |
| Feb. | 19,258 | 14,339 | 518 | 1.02 | 98,947 | 660 | 0 | 0 | 0 |
| Mar. | 21,644 | 9,765 | 964 | 3.25 | 109,862 | 398 | 0 | 0 | 0 |
| Apr. | 31,727 | 11,818 | 1,704 | 3.46 | 128,067 | 898 | 8 | 0 | 0 |
| May | 52,601 | 48,300 | 1,401 | 7.70 | 130,967 | 660 | 1,156 | 0 | 0 |
| June | 34,666 | 36,226 | 1,648 | 3.62 | 127,759 | 531 | 18,203 | 3,090 | 160 |
| July | 29,726 | 49,896 | 2,445 | 1.50 | 105,144 | 627 | 27,224 | 15,842 | 12,437 |
| Aug | 24,788 | 48,603 | 2,011 | 3.21 | 79,318 | 628 | 27,239 | 14,444 | 9,439 |
| Sep. | 23,435 | 34,249 | 1,030 | 4.65 | 67,474 | 689 | 11,469 | 6,470 | 4,192 |
| Oct. | 21,586 | 4,465 | 1,034 | 2.12 | 83,561 | 504 | 0 | 0 | 0 |
| Nov. | 21,702 | 3,626 | 637 | 0.71 | 101,000 | 285 | 0 | 0 | 0 |
| Dec. | 16,289 | 8,321 | 402 | 0.29 | 108,566 | 324 | 0 | 0 | 0 |
| TOTAL | 318,106 | 290,050 | 14,204 | 32.12 | -- | 6,988 | 85,299 | 39,846 | 26,228 |

NOTE -- Acres irrigated 1995: Mirdan Canal 23,795 acres.

### NORTH LOUP DIVISION (Continued)

DAVIS CREEK RESERVOIR / BELOW DAVIS CREEK – FULLERTON CANAL

| Month | Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Mo. Content (AF) | Fullerton Canal Release To Canal (AF) | Fullerton Canal Delivered To Farms (AF) |
|---|---|---|---|---|---|---|---|
| Jan. | 25 | 274 | 45 | 0.66 | 8,091 | 0 | 0 |
| Feb. | 15 | 256 | 54 | 0.43 | 7,796 | 0 | 0 |
| Mar. | 109 | 242 | 94 | 2.98 | 7,569 | 0 | 0 |
| Apr. | 2,663 | 254 | 165 | 2.24 | 9,813 | 0 | 0 |
| May | 15,032 | 2,140 | 175 | 7.89 | 22,530 | 284 | 0 |
| June | 13,134 | 3,842 | 493 | 3.06 | 31,329 | 2,182 | 0 |
| July | 11,021 | 15,402 | 596 | 1.04 | 26,352 | 13,244 | 9,374 |
| Aug. | 11,774 | 15,467 | 405 | 2.42 | 22,254 | 13,452 | 10,668 |
| Sep. | 3,387 | 4,736 | 256 | 1.47 | 20,649 | 4,681 | 2,511 |
| Oct. | 246 | 801 | 243 | 2.35 | 19,851 | 0 | 0 |
| Nov. | 47 | 726 | 128 | 0.72 | 19,044 | 0 | 0 |
| Dec. | 0 | 686 | 73 | 0.00 | 18,285 | 0 | 0 |
| TOTAL | 57,453 | 44,826 | 2,727 | 25.26 | -- | 33,843 | 22,553 |

NOTE - Acres irrigated 1995: Fullerton Canal 17,977 acres.

TABLE 2
SUMMARY OF 1995 OPERATIONS

UPPER REPUBLICAN DIVISION
ARMEL UNIT

BONNY RESERVOIR

| Month | Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | Outflow To Hale Ditch (AF) |
|---|---|---|---|---|---|---|
| Jan. | 1,371 | 369 | 176 | 0.59 | 38,311 | 0 |
| Feb. | 1,031 | 333 | 230 | 0.42 | 38,779 | 0 |
| Mar. | 1,552 | 369 | 318 | 1.11 | 39,644 | 0 |
| Apr. | 2,007 | 357 | 423 | 3.33 | 40,871 | 0 |
| May | 2,351 | 569 | 492 | 3.88 | 42,161 | 0 |
| June | 4,855 | 1,561 | 1,153 | 4.45 | 44,302 | 0 |
| July | 1,516 | 3,356 | 1,392 | 3.63 | 41,070 | 0 |
| Aug. | 323 | 369 | 1,323 | 0.90 | 39,701 | 0 |
| Sep. | 28 | 865 | 770 | 1.36 | 38,094 | 511 |
| Oct. | 503 | 1,364 | 470 | 1.03 | 36,763 | 877 |
| Nov. | 1,392 | 1,323 | 353 | 0.48 | 36,479 | 847 |
| Dec. | 1,204 | 1,002 | 221 | 0.00 | 36,460 | 510 |
| TOTAL | 18,133 | 11,837 | 7,321 | 21.18 | -- | 2,745 |

TABLE 2
SUMMARY OF 1995 OPERATIONS

FRENCHMAN-CAMBRIDGE DIVISION
FRENCHMAN UNIT

| Month | ENDERS RESERVOIR Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | CULBERTSON CANAL Diversions To Canal (AF) | Delivered To Farms (AF) | CULBERTSON EXT.CANAL Diversions To Canal (AF) | Delivered To Farms (AF) |
|---|---|---|---|---|---|---|---|---|---|
| Jan. | 1,634 | 61 | 86 | 0.40 | 26,147 | 0 | 0 | 0 | 0 |
| Feb. | 1,078 | 56 | 116 | 0.14 | 27,053 | 0 | 0 | 0 | 0 |
| Mar. | 1,634 | 61 | 186 | 1.79 | 28,440 | 0 | 0 | 0 | 0 |
| Apr. | 1,878 | 60 | 284 | 2.56 | 29,974 | 0 | 0 | 0 | 0 |
| May | 1,924 | 61 | 330 | 3.06 | 31,507 | 1,706 | 303 | 0 | 0 |
| June | 1,669 | 60 | 717 | 3.57 | 32,399 | 2,375 | 1,642 | 0 | 0 |
| July | 2,493 | 8,444 | 611 | 2.01 | 25,837 | 2,604 | 2,143 | 5,853 | 2,197 |
| Aug. | 705 | 7,628 | 542 | 0.15 | 18,372 | 2,738 | 236 | 5,920 | 3,113 |
| Sep. | 1,511 | 60 | 253 | 1.94 | 19,570 | 104 | 0 | 251 | 33 |
| Oct. | 1,316 | 61 | 152 | 1.92 | 20,673 | 0 | 0 | 0 | 0 |
| Nov. | 1,647 | 60 | 179 | 0.47 | 22,081 | 0 | 0 | 0 | 0 |
| Dec. | 1,422 | 61 | 108 | 0.01 | 23,334 | 0 | 0 | 0 | 0 |
| TOTAL | 18,911 | 16,673 | 3,564 | 18.02 | -- | 9,527 | 4,324 | 12,024 | 5,343 |

NOTE: Acres irrigated 1995: Culbertson Canal 8,580 acres (Est.) Culbertson Extension Canal - 11,020 acres (Est.)

FRENCHMAN-CAMBRIDGE DIVISION (Continued)
MEEKER-DRIFTWOOD UNIT

| Month | SWANSON LAKE Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | MEEKER-DRIFTWOOD Release To Canal (AF) | Delivered To Farms (AF) | BARTLEY CANAL Diversions To Canal (AF) | Delivered To Farms (AF) |
|---|---|---|---|---|---|---|---|---|---|
| Jan. | 5,694 | 61 | 310 | 1.00 | 90,440 | 0 | 0 | 0 | 0 |
| Feb. | 4,850 | 56 | 420 | 0.13 | 94,814 | 0 | 0 | 0 | 0 |
| Mar. | 6,405 | 61 | 665 | 1.25 | 100,493 | 0 | 0 | 0 | 0 |
| Apr. | 9,234 | 60 | 1,060 | 2.96 | 108,607 | 0 | 0 | 0 | 0 |
| May | 13,029 | 61 | 1,134 | 5.78 | 120,441 | 0 | 0 | 0 | 0 |
| June | 10,217 | 2,039 | 2,556 | 2.98 | 126,063 | 1,988 | 0 | 869 | 0 |
| July | 8,197 | 19,823 | 2,861 | 2.44 | 111,576 | 13,833 | 6,884 | 4,109 | 2,810 |
| Aug. | 2,540 | 26,225 | 2,901 | 1.14 | 84,990 | 15,363 | 9,697 | 4,523 | 3,833 |
| Sep. | 769 | 9,275 | 1,462 | 1.95 | 75,022 | 4,187 | 2,868 | 1,176 | 819 |
| Oct. | 768 | 61 | 1,023 | 1.53 | 74,706 | 0 | 0 | 0 | 0 |
| Nov. | 3,959 | 60 | 668 | 0.39 | 77,937 | 0 | 0 | 0 | 0 |
| Dec. | 3,752 | 61 | 390 | 0.00 | 81,238 | 0 | 0 | 0 | 0 |
| TOTAL | 69,414 | 57,843 | 15,450 | 21.55 | -- | 35,371 | 19,449 | 10,677 | 7,462 |

NOTE: Acres irrigated 1995: Meeker-Driftwood Canal - 16,533 acres; Bartley Canal - 6,466

FRENCHMAN-CAMBRIDGE DIVISION (Continued)
RED WILLOW UNIT

| Month | HUGH BUTLER LAKE Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | RED WILLOW CANAL Diversions To Canal (AF) | Delivered To Farms (AF) |
|---|---|---|---|---|---|---|---|
| Jan. | 1,482 | 246 | 97 | 0.22 | 33,943 | 0 | 0 |
| Feb. | 1,047 | 222 | 137 | 0.06 | 34,631 | 0 | 0 |
| Mar. | 1,382 | 246 | 215 | 0.73 | 35,552 | 0 | 0 |
| Apr. | 2,282 | 238 | 354 | 2.24 | 37,242 | 0 | 0 |
| May | 2,481 | 246 | 368 | 5.18 | 39,109 | 0 | 0 |
| June | 1,736 | 952 | 834 | 2.28 | 39,059 | 635 | 0 |
| July | 1,562 | 4,253 | 958 | 0.85 | 35,410 | 3,522 | 2,358 |
| Aug. | 991 | 4,201 | 1,048 | 0.34 | 31,152 | 3,553 | 2,706 |
| Sep. | 905 | 1,587 | 519 | 2.19 | 29,951 | 1,264 | 920 |
| Oct. | 926 | 246 | 351 | 1.31 | 30,280 | 0 | 0 |
| Nov. | 1,137 | 238 | 225 | 0.12 | 30,954 | 0 | 0 |
| Dec. | 882 | 246 | 125 | 0.00 | 31,465 | 0 | 0 |
| TOTAL | 16,813 | 12,921 | 5,231 | 15.52 | -- | 8,974 | 5,984 |

NOTE -- Acres irrigated 1995: Red Willow Canal - 5,020 acres.

FRENCHMAN-CAMBRIDGE DIVISION (Continued)
CAMBRIDGE UNIT

| Month | HARRY STRUNK LAKE Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | CAMBRIDGE CANAL Diversions To Canal (AF) | Delivered To Farms (AF) |
|---|---|---|---|---|---|---|---|
| Jan. | 3,339 | 61 | 102 | 0.26 | 31,230 | 0 | 0 |
| Feb. | 2,998 | 56 | 145 | 0.05 | 34,027 | 0 | 0 |
| Mar. | 3,266 | 2,261 | 237 | 1.79 | 34,795 | 0 | 0 |
| Apr. | 4,261 | 1,274 | 561 | 2.21 | 37,221 | 0 | 0 |
| May | 5,306 | 2,561 | 467 | 6.36 | 39,499 | 0 | 0 |
| June | 4,309 | 4,225 | 1,051 | 1.77 | 38,532 | 3,023 | 58 |
| July | 2,867 | 12,347 | 1,131 | 1.94 | 27,921 | 12,240 | 7,786 |
| Aug. | 1,665 | 13,841 | 885 | 0.59 | 14,860 | 13,194 | 10,124 |
| Sep. | 2,360 | 2,682 | 354 | 3.26 | 14,184 | 3,291 | 2,272 |
| Oct. | 2,464 | 61 | 122 | 0.69 | 16,465 | 0 | 0 |
| Nov. | 2,873 | 60 | 167 | 0.31 | 19,111 | 0 | 0 |
| Dec. | 2,658 | 61 | 95 | 0.00 | 21,613 | 0 | 0 |
| TOTAL | 38,366 | 39,490 | 5,317 | 19.23 | -- | 31,748 | 20,240 |

NOTE -- Acres irrigated 1995: Cambridge Canal - 17,204 acres.

# TABLE 2
## SUMMARY OF 1995 OPERATIONS
### KANASKA DIVISION
### ALMENA UNIT

| | KEITH SEBELIUS LAKE | | | | | Release | ALMENA CANAL | |
|---|---|---|---|---|---|---|---|---|
| Month | Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | To City Of Norton (AF) | Diversions To Canal (AF) | Delivered To Farms (AF) |
| Jan. | 565 | 17 | 113 | 0.55 | 25,651 | 17 | 0 | 0 |
| Feb. | 425 | 19 | 145 | 0.06 | 25,912 | 19 | 0 | 0 |
| Mar. | 1,013 | 20 | 244 | 2.81 | 26,661 | 20 | 0 | 0 |
| Apr. | 911 | 25 | 502 | 2.14 | 27,045 | 25 | 0 | 0 |
| May | 4,899 | 26 | 526 | 14.33 | 31,392 | 26 | 351 | 0 |
| June | 1,322 | 54 | 985 | 1.42 | 31,675 | 54 | 329 | 0 |
| July | 977 | 2,575 | 1,276 | 1.64 | 28,801 | 86 | 2,117 | 1,041 |
| Aug. | 490 | 2,305 | 1,317 | 0.35 | 25,669 | 74 | 2,073 | 997 |
| Sep. | 33 | 40 | 663 | 1.71 | 24,999 | 40 | 95 | 0 |
| Oct. | 0 | 45 | 558 | 0.36 | 24,396 | 45 | 0 | 0 |
| Nov. | 348 | 26 | 271 | 0.22 | 24,447 | 26 | 0 | 0 |
| Dec. | 231 | 24 | 141 | 0.00 | 24,513 | 24 | 0 | 0 |
| TOTAL | 11,214 | 5,176 | 6,741 | 25.59 | – | 456 | 4,965 | 2,038 |

NOTE: Acres irrigated 1995: Almena Canal - 5,576 acres (Est.)

### BOSTWICK DIVISION
### FRANKLIN UNIT

| | HARLAN COUNTY LAKE Data from Corps of Engineers | | | | | FRANKLIN CANAL | | NAPONEE CANAL | |
|---|---|---|---|---|---|---|---|---|---|
| Month | Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | Release To Canal (AF) | Delivered To Farms (AF) | Release To Canal (AF) | Delivered To Farms (AF) |
| Jan. | 11,798 | 435 | 976 | 0.17 | 295,685 | 0 | 0 | 0 | 0 |
| Feb. | 11,308 | 555 | 944 | 0.07 | 305,494 | 0 | 0 | 0 | 0 |
| Mar. | 17,040 | 179 | 1,305 | 1.50 | 321,050 | 0 | 0 | 0 | 0 |
| Apr. | 17,530 | 0 | 2,487 | 1.94 | 336,093 | 0 | 0 | 0 | 0 |
| May | 62,206 | 13,479 | 2,707 | 11.02 | 382,113 | 0 | 0 | 0 | 0 |
| June | 29,336 | 52,363 | 5,371 | 1.65 | 353,715 | 2,236 | 44 | 156 | 54 |
| July | 16,106 | 53,996 | 7,734 | 1.77 | 308,091 | 13,828 | 4,951 | 1,324 | 676 |
| Aug. | 10,066 | 45,913 | 7,732 | 1.19 | 264,512 | 13,334 | 5,166 | 1,423 | 730 |
| Sep. | 7,795 | 16,260 | 4,616 | 2.14 | 251,431 | 6,314 | 2,392 | 282 | 159 |
| Oct. | 4,612 | 2 | 4,836 | 0.33 | 251,205 | 0 | 0 | 0 | 0 |
| Nov. | 7,041 | 0 | 825 | 0.33 | 257,421 | 0 | 0 | 0 | 0 |
| Dec. | 6,962 | 0 | 823 | 0.00 | 263,560 | 0 | 0 | 0 | 0 |
| TOTAL | 201,800 | 183,182 | 40,356 | 22.11 | – | 35,712 | 12,553 | 3,185 | 1,619 |

NOTE: Acres irrigated 1995: Franklin Canal - 11,196 acres; Naponee Canal - 1,618 acres.

### BOSTWICK DIVISION (Continued)
### SUPERIOR-COURTLAND UNIT

| | FRANKLIN PUMP CANAL | | SUPERIOR CANAL | | | COURTLAND CANAL - ABOVE LOVEWELL NEBRASKA USE | | COURTLAND CANAL - ABOVE LOVEWELL KANSAS USE | |
|---|---|---|---|---|---|---|---|---|---|
| Month | Diverted To Canal (AF) | Delivered To Farms (AF) | Diverted To Canal (AF) | Delivered To Farms (AF) | Total Diversion (AF) | Total (AF) | Delivered To Farms (AF) | Diversion To Canal (AF) | Delivered To Farms (AF) |
| Jan. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Feb. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mar. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Apr. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| May | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| June | 0 | 0 | 1,001 | 52 | 3,629 | 1 | 1 | 1,687 | 13 |
| July | 1,517 | 816 | 8,083 | 3,255 | 25,096 | 1,198 | 879 | 18,510 | 8,250 |
| Aug. | 1,764 | 907 | 6,337 | 2,427 | 24,418 | 703 | 547 | 11,193 | 6,073 |
| Sep. | 682 | 320 | 1,851 | 495 | 13,800 | 257 | 139 | 2,246 | 1,085 |
| Oct. | 0 | 0 | 0 | 0 | 2,700 | 0 | 0 | 0 | 0 |
| Nov. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Dec. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL | 3,963 | 2,043 | 17,272 | 6,229 | 69,643 | 2,159 | 1,566 | 33,636 | 15,421 |

NOTE: Acres irrigated 1995: Franklin Pump Canal - 2,106 acres; Superior Canal - 5,800 acres.
Courtland Canal-Nebraska use - 2,067 acres.
Courtland Canal-Kansas use - 10,792 acres (Est.)

### BOSTWICK DIVISION (Continued)
### COURTLAND UNIT
### LOVEWELL RESERVOIR

| Month | Est. Flow from White Rock Creek (AF) | Inflow from Courtland 34.8 (AF) | Total Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | COURTLAND (Below) Release To Canal (AF) | COURTLAND (Below) Delivered To Farms (AF) |
|---|---|---|---|---|---|---|---|---|---|
| Jan. | 1,571 | 3,490 | 5,061 | 6 | 145 | 1.31 | 35,880 | 0 | 0 |
| Feb. | 1,848 | 2,060 | 3,908 | 11 | 207 | 0.12 | 39,570 | 0 | 0 |
| Mar. | 1,704 | 0 | 1,704 | 12 | 372 | 1.31 | 40,890 | 0 | 0 |
| Apr. | 1,862 | 0 | 1,862 | 18 | 594 | 2.07 | 42,140 | 0 | 0 |
| May | 15,455 | 0 | 15,455 | 630 | 665 | 7.21 | 56,300 | 484 | 0 |
| June | 3,665 | 837 | 4,502 | 8,363 | 1,339 | 1.86 | 51,100 | 2,176 | 11 |
| July | 2,322 | 3,813 | 6,135 | 18,546 | 1,339 | 1.28 | 37,350 | 18,839 | 11,613 |
| Aug. | 3,712 | 10,199 | 13,911 | 20,173 | 1,078 | 3.76 | 30,010 | 19,603 | 12,454 |
| Sep. | 635 | 9,450 | 10,085 | 5,966 | 519 | 2.55 | 33,610 | 5,391 | 2,975 |
| Oct. | 589 | 1,990 | 2,579 | 12 | 507 | 0.68 | 35,670 | 0 | 0 |
| Nov. | 988 | 0 | 988 | 12 | 406 | 0.57 | 36,240 | 0 | 0 |
| Dec. | 1,275 | 0 | 1,275 | 6 | 189 | 0.43 | 37,320 | 0 | 0 |
| TOTAL | 35,626 | 31,839 | 67,465 | 53,755 | 7,360 | 23.15 | – | 46,493 | 27,053 |

NOTE: Acres irrigated 1995: Courtland Canal below Lovewell - 24,141 acres (Est.)

# TABLE 2
## SUMMARY OF 1995 OPERATIONS

### SOLOMON DIVISION
### KIRWIN UNIT

| Month | KIRWIN RESERVOIR Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | KIRWIN CANAL Release To Canal (AF) | Delivered To Farms (AF) |
|---|---|---|---|---|---|---|---|
| Jan. | 3,284 | 0 | 324 | 0.86 | 101,640 | 0 | 0 |
| Feb. | 2,616 | 0 | 456 | 0.03 | 103,800 | 0 | 0 |
| Mar. | 3,580 | 0 | 730 | 1.26 | 106,650 | 0 | 0 |
| Apr. | 3,671 | 0 | 1,321 | 1.44 | 109,000 | 0 | 0 |
| May | 44,367 | 8,019 | 1,453 | 13.46 | 143,895 | 0 | 0 |
| June | 14,775 | 27,043 | 2,887 | 1.33 | 128,740 | 1,264 | 4 |
| July | 5,003 | 21,743 | 3,480 | 1.16 | 108,520 | 9,518 | 3,879 |
| Aug. | 3,686 | 8,987 | 3,069 | 2.91 | 100,150 | 9,322 | 5,160 |
| Sep. | 3,628 | 1,801 | 1,567 | 5.23 | 100,410 | 1,647 | 734 |
| Oct. | 1,246 | 0 | 1,306 | 0.10 | 100,350 | 0 | 0 |
| Nov. | 2,717 | 0 | 817 | 0.39 | 102,250 | 0 | 0 |
| Dec. | 2,510 | 0 | 430 | 0.14 | 104,330 | 0 | 0 |
| TOTAL | 91,083 | 67,593 | 17,840 | 28.31 | -- | 21,751 | 9,777 |

NOTE: Acres irrigated 1995: Kirwin Canal - 8,072 acres.

### SOLOMON DIVISION (Continued)
### WEBSTER UNIT

| Month | WEBSTER RESERVOIR Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | OSBORNE CANAL Diversions To Canal (AF) | Delivered To Farms (AF) |
|---|---|---|---|---|---|---|---|
| Jan. | 3,303 | 0 | 298 | 1.40 | 85,410 | 0 | 0 |
| Feb. | 2,616 | 1,825 | 351 | 0.15 | 85,850 | 0 | 0 |
| Mar. | 3,275 | 2,567 | 588 | 1.05 | 85,970 | 0 | 0 |
| Apr. | 3,533 | 2,380 | 1,113 | 1.39 | 86,010 | 0 | 0 |
| May | 70,933 | 12,077 | 1,316 | 15.38 | 143,550 | 0 | 0 |
| June | 35,718 | 54,254 | 2,710 | 2.12 | 122,304 | 2,138 | 0 |
| July | 25,357 | 56,650 | 2,604 | 1.80 | 88,407 | 6,583 | 1,526 |
| Aug. | 3,118 | 11,197 | 2,387 | 1.19 | 77,941 | 6,153 | 2,624 |
| Sep. | 2,374 | 1,591 | 1,315 | 3.99 | 77,409 | 1,285 | 605 |
| Oct. | 1,432 | 0 | 1,166 | 0.07 | 77,675 | 0 | 0 |
| Nov. | 2,827 | 0 | 622 | 0.29 | 79,880 | 0 | 0 |
| Dec. | 2,948 | 0 | 346 | 0.00 | 82,482 | 0 | 0 |
| TOTAL | 157,434 | 142,541 | 14,816 | 28.83 | -- | 16,159 | 4,755 |

NOTE: Acres irrigated 1995: Osborne Canal - 4,551 acres.

### SOLOMON DIVISION (Continued)
### GLEN ELDER UNIT

| Month | WACONDA LAKE Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | OUTFLOW TO RIVER: City of Beloit Storage Release (AF) | City of Beloit Quality Bypass (AF) | Irrigation District (AF) | Other Controlled Releases (AF) | Release To Mitchell Co. RWD No. 2 (AF) |
|---|---|---|---|---|---|---|---|---|---|---|
| Jan. | 15,075 | 16,923 | 726 | 1.53 | 218,620 | 0 | 0 | 0 | 16,866 | 57 |
| Feb. | 11,758 | 11,160 | 950 | 0.10 | 218,268 | 0 | 0 | 0 | 11,108 | 52 |
| Mar. | 15,747 | 12,357 | 1,634 | 1.12 | 220,024 | 0 | 0 | 0 | 12,297 | 60 |
| Apr. | 15,074 | 4,459 | 3,517 | 1.80 | 227,122 | 0 | 0 | 0 | 4,403 | 56 |
| May | 208,645 | 28,360 | 4,152 | 10.20 | 403,255 | 0 | 0 | 0 | 28,314 | 46 |
| June | 119,327 | 122,238 | 8,655 | 2.41 | 391,689 | 0 | 0 | 0 | 122,188 | 50 |
| July | 75,283 | 123,037 | 10,788 | 2.54 | 333,147 | 0 | 0 | 0 | 122,976 | 61 |
| Aug. | 27,560 | 113,303 | 9,462 | 2.48 | 237,942 | 0 | 0 | 322 | 112,912 | 69 |
| Sep. | 16,564 | 26,503 | 4,767 | 2.19 | 223,236 | 0 | 490 | 1,226 | 24,726 | 61 |
| Oct. | 9,456 | 1,291 | 4,279 | 0.51 | 227,122 | 0 | 1,230 | 0 | 0 | 61 |
| Nov. | 12,122 | 1,253 | 1,933 | 0.48 | 236,058 | 0 | 1,191 | 0 | 0 | 62 |
| Dec. | 11,667 | 4,414 | 972 | 0.44 | 242,339 | 0 | 767 | 0 | 3,585 | 62 |
| TOTAL | 538,278 | 465,298 | 51,835 | 25.80 | -- | 0 | 3,678 | 1,548 | 459,375 | 697 |

### SMOKY HILL DIVISION
### ELLIS UNIT
### CEDAR BLUFF RESERVOIR

| Month | Inflow (AF) | Outflow (AF) | Gross Evap. (AF) | Precip. (Inches) | End of Month Content (AF) | Release To Fish Hatchery (AF) |
|---|---|---|---|---|---|---|
| Jan. | 694 | 0 | 298 | 1.39 | 69,640 | 0 |
| Feb. | 625 | 0 | 328 | 0.28 | 69,937 | 0 |
| Mar. | 857 | 0 | 527 | 1.08 | 70,267 | 0 |
| Apr. | 696 | 0 | 1,125 | 1.39 | 69,838 | 0 |
| May | 22,840 | 0 | 918 | 8.79 | 91,760 | 0 |
| June | 8,149 | 0 | 2,239 | 2.98 | 97,670 | 0 |
| July | 2,937 | 0 | 2,727 | 2.80 | 97,880 | 0 |
| Aug. | 1,337 | 0 | 3,107 | 3.10 | 96,110 | 0 |
| Sep. | 397 | 0 | 1,667 | 1.49 | 94,840 | 0 |
| Oct. | 0 | 0 | 2,300 | 0.20 | 92,540 | 0 |
| Nov. | 4 | 0 | 704 | 0.24 | 91,840 | 0 |
| Dec. | 237 | 0 | 397 | 0.42 | 91,680 | 0 |
| TOTAL | 38,773 | 0 | 16,337 | 24.16 | -- | 0 |

No releases were made for the City of Russell, Kansas.

**TABLE 3**

ACRES IRRIGATED IN 1995 AND ESTIMATES FOR 1996

| Irrigation District and Canal | Acres With Service Available | Acres Irrigated in 1995* | Estimated Acres to be Irrigated in 1996 |
|---|---|---|---|
| Mirage Flats Irrigation District | | | |
| Mirage Flats Canal | 11,662 | 10,371 | 11,000 |
| Ainsworth Irrigation District | | | |
| Ainsworth Canal | 34,539 | 34,208 | 34,000 |
| Sargent Irrigation District | | | |
| Sargent Canal | 13,922 | 13,909 | 13,800 |
| Farwell Irrigation District | | | |
| Farwell Canal | 50,051 | 49,400 | 49,000 |
| Twin Loups Irrigation District | | | |
| Above Davis Creek | 31,817 | 23,795 | 23,890 |
| Below Davis Creek | 21,183 | 17,977 | 19,160 |
| Total Twin Loups Irrigation District | 53,000 | 41,772 | 43,050 |
| Frenchman Valley Irrigation District | | | |
| Culbertson Canal | 9,600 | 8,580 | 8,600 |
| H & RW Irrigation District | | | |
| Culbertson Extension Canal | 11,490 | 11,020 | 11,050 |
| Frenchman-Cambridge Irrigation District | | | |
| Meeker-Driftwood Canal | 16,476 | 16,533 | 16,400 |
| Red Willow Canal | 4,932 | 5,020 | 4,900 |
| Bartley Canal | 6,539 | 6,466 | 6,500 |
| Cambridge Canal | 17,053 | 17,204 | 17,000 |
| Total Frenchman-Cambridge Irrigation District | 45,000 | 45,223 | 44,800 |
| Almena Irrigation District | | | |
| Almena Canal | 5,763 | 5,576 | 5,500 |
| Bostwick Irrigation District in Nebraska | | | |
| Franklin Canal | 11,116 | 11,196 | 11,100 |
| Naponee Canal | 1,737 | 1,618 | 1,700 |
| Franklin Pump Canal | 2,091 | 2,106 | 2,000 |
| Superior Canal | 5,863 | 5,800 | 5,800 |
| Courtland Canal (Nebraska) | 1,980 | 2,067 | 1,900 |
| Total Bostwick Irrigation Dist. in Nebraska | 22,787 | 22,787 | 22,500 |
| Kansas-Bostwick Irrigation District | | | |
| Courtland Canal above Lovewell | 13,550 | 10,792 | 12,200 |
| Courtland Canal below Lovewell | 28,338 | 24,141 | 26,800 |
| Total Kansas-Bostwick Irrigation District | 41,888 | 34,933 | 39,000 |
| Kirwin Irrigation District | | | |
| Kirwin Canal | 11,435 | 8,072 | 8,000 |
| Webster Irrigation District | | | |
| Osborne Canal | 8,500 | 4,551 | 5,000 |
| Glen Elder Irrigation District | 6,000 | 5,400 | 5,400 |
| TOTAL PROJECT USES | 325,637 | 295,802 | 300,700 |
| Non-Project Uses | | | |
| Middle Loup Public Power & Irrig. Dist. Canals | 15,000 | 14,302 | 14,300 |
| Hale Ditch | 700 | 700 | 700 |
| TOTAL NON-PROJECT USES | 15,700 | 15,002 | 15,000 |
| TOTAL PROJECT AND NON-PROJECT | 341,337 | 310,804 | 315,700 |

*Acres not recorded in 1995 - estimated by irrigation districts.

BOX BUTTE RESERVOIR OPERATION ESTIMATES - 1996

| | INFLOW | | EVAPORATION | | RELEASE REQUIREMENT | | RESERVOIR SPILL | REQUIREMENT SHORTAGE | END OF MONTH | | RESERVOIR CHANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MEAN | 1000 | | 1000 | MEAN | 1000 | 1000 | 1000 | ELEV | CONT 1000 | 1000 |
| MONTH | CFS | AF | INCHES | AF | CFS | AF | AF | AF | FT | AF | AF |
| | | | | | REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | |
| JAN | 18. | 1.1 | 1.06 | .1 | 2. | .1 | .0 | .0 | 3993.4 | 13.5 | .9 |
| FEB | 25. | 1.4 | 1.32 | .1 | 2. | .1 | .0 | .0 | 3994.6 | 14.7 | 1.2 |
| MAR | 33. | 2.0 | 2.33 | .2 | 2. | .1 | .0 | .0 | 3996.2 | 16.4 | 1.7 |
| APR | 25. | 1.5 | 3.79 | .4 | 2. | .1 | .0 | .0 | 3997.1 | 17.4 | 1.0 |
| MAY | 11. | .7 | 5.79 | .6 | 2. | .1 | .0 | .0 | 3997.1 | 17.4 | .0 |
| JUN | 0. | .0 | 7.12 | .6 | 173. | 10.3 | .0 | .0 | 3985.0 | 6.5 | -10.9 |
| JUL | 0. | .0 | 7.68 | .3 | 226. | 13.9 | .0 | 10.5 | 3978.0 | 2.8 | -3.7 |
| AUG | 10. | .6 | 6.67 | .2 | 226. | 13.9 | .0 | 13.5 | 3978.0 | 2.8 | .0 |
| SEP | 8. | .5 | 5.80 | .2 | 64. | 3.8 | .0 | 3.5 | 3978.0 | 2.8 | .0 |
| OCT | 11. | .7 | 3.08 | .1 | 2. | .1 | .0 | .0 | 3979.1 | 3.3 | .5 |
| NOV | 22. | 1.3 | 1.67 | .1 | 2. | .1 | .0 | .0 | 3981.3 | 4.4 | 1.1 |
| DEC | 21. | 1.3 | .97 | .0 | 2. | .1 | .0 | .0 | 3983.5 | 5.6 | 1.2 |
| TOTAL | | 11.1 | 47.28 | 2.9 | | 42.7 | .0 | 27.5 | | | -7.0 |
| | | | | | MOST PROBABLE INFLOW CONDITIONS | | | | | | |
| JAN | 24. | 1.5 | 1.06 | .1 | 2. | .1 | .0 | .0 | 3993.8 | 13.9 | 1.3 |
| FEB | 32. | 1.8 | 1.32 | .1 | 2. | .1 | .0 | .0 | 3995.3 | 15.5 | 1.6 |
| MAR | 44. | 2.7 | 2.33 | .2 | 2. | .1 | .0 | .0 | 3997.5 | 17.9 | 2.4 |
| APR | 37. | 2.2 | 3.79 | .4 | 2. | .1 | .0 | .0 | 3998.9 | 19.6 | 1.7 |
| MAY | 29. | 1.8 | 4.63 | .5 | 2. | .1 | .0 | .0 | 3999.8 | 20.8 | 1.2 |
| JUN | 5. | .3 | 5.69 | .6 | 34. | 2.0 | .0 | .0 | 3998.0 | 18.5 | -2.3 |
| JUL | 2. | .1 | 6.40 | .5 | 221. | 13.6 | .0 | .0 | 3981.5 | 4.5 | -14.0 |
| AUG | 21. | 1.3 | 5.75 | .2 | 216. | 13.3 | .0 | 10.5 | 3978.0 | 2.8 | -1.7 |
| SEP | 24. | 1.4 | 4.17 | .1 | 35. | 2.1 | .0 | .8 | 3978.0 | 2.8 | .0 |
| OCT | 26. | 1.6 | 3.08 | .1 | 2. | .1 | .0 | .0 | 3981.0 | 4.2 | 1.4 |
| NOV | 32. | 1.9 | 1.67 | .1 | 2. | .1 | .0 | .0 | 3984.0 | 5.9 | 1.7 |
| DEC | 28. | 1.7 | .97 | .1 | 2. | .1 | .0 | .0 | 3986.3 | 7.4 | 1.5 |
| TOTAL | | 18.3 | 40.86 | 3.0 | | 31.8 | .0 | 11.3 | | | -5.2 |
| | | | | | REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | |
| JAN | 33. | 2.0 | 1.06 | .1 | 2. | .1 | .0 | .0 | 3994.3 | 14.4 | 1.8 |
| FEB | 43. | 2.4 | 1.32 | .1 | 2. | .1 | .0 | .0 | 3996.3 | 16.6 | 2.2 |
| MAR | 55. | 3.4 | 2.33 | .2 | 2. | .1 | .0 | .0 | 3999.0 | 19.7 | 3.1 |
| APR | 50. | 3.0 | 3.79 | .4 | 2. | .1 | .0 | .0 | 4000.9 | 22.2 | 2.5 |
| MAY | 44. | 2.7 | 3.02 | .3 | 2. | .1 | .0 | .0 | 4002.6 | 24.5 | 2.3 |
| JUN | 101. | 6.0 | 4.19 | .5 | 18. | 1.1 | .0 | .0 | 4005.6 | 28.9 | 4.4 |
| JUL | 54. | 3.3 | 4.94 | .6 | 185. | 11.4 | .0 | .0 | 3999.4 | 20.2 | -8.7 |
| AUG | 36. | 2.2 | 4.37 | .4 | 177. | 10.9 | .0 | .0 | 3990.9 | 11.1 | -9.1 |
| SEP | 32. | 1.9 | 2.67 | .2 | 20. | 1.2 | .0 | .0 | 3991.5 | 11.6 | .5 |
| OCT | 33. | 2.0 | 3.08 | .2 | 2. | .1 | .0 | .0 | 3993.2 | 13.3 | 1.7 |
| NOV | 42. | 2.5 | 1.67 | .1 | 2. | .1 | .0 | .0 | 3995.4 | 15.6 | 2.3 |
| DEC | 33. | 2.0 | .97 | .1 | 2. | .1 | .0 | .0 | 3997.1 | 17.4 | 1.8 |
| TOTAL | | 33.4 | 33.41 | 3.2 | | 25.4 | .0 | .0 | | | 4.8 |

MERRITT RESERVOIR OPERATION ESTIMATES - 1996

| MONTH | INFLOW MEAN CFS | INFLOW 1000 AF | EVAPORATION INCHES | EVAPORATION 1000 AF | RELEASE REQUIREMENT CANAL 1000 AF | RELEASE REQUIREMENT RIVER 1000 AF | RELEASE REQUIREMENT TOTAL MEAN CFS | RELEASE REQUIREMENT TOTAL 1000 AF | RES SPILL 1000 AF | REQUIREMENT SHORTAGE 1000 AF | END OF MONTH ELEV FT | END OF MONTH CONT 1000 AF | RESERVOIR CHANGE 1000 AF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | | | | | | | | |
| JAN | 200. | 12.3 | 1.05 | .2 | .0 | 12.1 | 197. | 12.1 | .0 | .0 | 2944.0 | 68.8 | .0 |
| FEB | 218. | 12.1 | 1.33 | .3 | .0 | 11.8 | 212. | 11.8 | .0 | .0 | 2944.0 | 68.8 | .0 |
| MAR | 229. | 14.1 | 1.85 | .4 | .0 | 10.9 | 177. | 10.9 | .0 | .0 | 2945.0 | 71.6 | 2.8 |
| APR | 224. | 13.3 | 3.08 | .7 | .0 | 11.8 | 198. | 11.8 | .0 | .0 | 2945.3 | 72.4 | .8 |
| MAY | 213. | 13.1 | 5.45 | 1.3 | 5.1 | 4.6 | 158. | 9.7 | .0 | .0 | 2946.0 | 74.5 | 2.1 |
| JUN | 213. | 12.7 | 6.22 | 1.5 | 6.8 | 1.0 | 131. | 7.8 | 3.4 | .0 | 2946.0 | 74.5 | .0 |
| JUL | 213. | 13.1 | 7.11 | 1.5 | 36.0 | 1.0 | 602. | 37.0 | .0 | .0 | 2935.9 | 49.1 | -25.4 |
| AUG | 210. | 12.9 | 6.27 | .9 | 35.4 | 1.0 | 592. | 36.4 | .0 | .0 | 2920.4 | 24.7 | -24.4 |
| SEP | 208. | 12.4 | 5.22 | .5 | 8.8 | 1.0 | 165. | 9.8 | .0 | .0 | 2922.2 | 26.8 | 2.1 |
| OCT | 221. | 13.6 | 3.50 | .4 | .0 | 1.0 | 16. | 1.0 | .0 | .0 | 2930.6 | 39.0 | 12.2 |
| NOV | 215. | 12.8 | 2.00 | .3 | .0 | 1.0 | 17. | 1.0 | .0 | .0 | 2936.6 | 50.5 | 11.5 |
| DEC | 207. | 12.7 | 1.39 | .3 | .0 | 1.0 | 16. | 1.0 | .0 | .0 | 2941.4 | 61.9 | 11.4 |
| TOTAL | | 155.1 | 44.47 | 8.3 | 92.1 | 58.2 | | 150.3 | 3.4 | .0 | | | -6.9 |
| MOST PROBABLE INFLOW CONDITIONS | | | | | | | | | | | | | |
| JAN | 228. | 14.0 | 1.05 | .2 | .0 | 13.8 | 224. | 13.8 | .0 | .0 | 2944.0 | 68.8 | .0 |
| FEB | 243. | 13.5 | 1.33 | .3 | .0 | 13.2 | 238. | 13.2 | .0 | .0 | 2944.0 | 68.8 | .0 |
| MAR | 262. | 16.1 | 1.85 | .4 | .0 | 12.9 | 210. | 12.9 | .0 | .0 | 2945.0 | 71.6 | 2.8 |
| APR | 266. | 15.8 | 3.08 | .7 | .0 | 15.1 | 254. | 15.1 | .0 | .0 | 2945.0 | 71.6 | .0 |
| MAY | 249. | 15.3 | 4.19 | 1.0 | 2.7 | 8.7 | 185. | 11.4 | .0 | .0 | 2946.0 | 74.5 | 2.9 |
| JUN | 240. | 14.3 | 5.29 | 1.3 | 5.8 | 1.0 | 114. | 6.8 | 6.2 | .0 | 2946.0 | 74.5 | .0 |
| JUL | 239. | 14.7 | 6.13 | 1.4 | 26.5 | 1.0 | 447. | 27.5 | .0 | .0 | 2940.7 | 60.3 | -14.2 |
| AUG | 246. | 15.1 | 5.16 | 1.0 | 26.9 | 1.0 | 454. | 27.9 | .0 | .0 | 2934.6 | 46.5 | -13.8 |
| SEP | 249. | 14.8 | 4.19 | .7 | 9.2 | 1.0 | 171. | 10.2 | .0 | .0 | 2936.5 | 50.4 | 3.9 |
| OCT | 252. | 15.5 | 3.50 | .7 | .0 | 1.0 | 16. | 1.0 | .0 | .0 | 2942.3 | 64.2 | 13.8 |
| NOV | 237. | 14.1 | 2.00 | .4 | .0 | 9.1 | 153. | 9.1 | .0 | .0 | 2944.0 | 68.8 | 4.6 |
| DEC | 229. | 14.1 | 1.39 | .3 | .0 | 13.8 | 224. | 13.8 | .0 | .0 | 2944.0 | 68.8 | .0 |
| TOTAL | | 177.3 | 39.16 | 8.4 | 71.1 | 91.6 | | 162.7 | 6.2 | .0 | | | .0 |
| REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | | | | | | | | |
| JAN | 263. | 16.2 | 1.05 | .2 | .0 | 16.0 | 260. | 16.0 | .0 | .0 | 2944.0 | 68.8 | .0 |
| FEB | 283. | 15.7 | 1.33 | .3 | .0 | 15.4 | 277. | 15.4 | .0 | .0 | 2944.0 | 68.8 | .0 |
| MAR | 296. | 18.2 | 1.85 | .4 | .0 | 15.0 | 244. | 15.0 | .0 | .0 | 2945.0 | 71.6 | 2.8 |
| APR | 311. | 18.5 | 3.08 | .7 | .0 | 17.8 | 299. | 17.8 | .0 | .0 | 2945.0 | 71.6 | .0 |
| MAY | 309. | 19.0 | 3.11 | .7 | 1.7 | 13.7 | 250. | 15.4 | .0 | .0 | 2946.0 | 74.5 | 2.9 |
| JUN | 286. | 17.0 | 4.38 | 1.1 | 6.5 | 1.0 | 126. | 7.5 | 8.4 | .0 | 2946.0 | 74.5 | .0 |
| JUL | 289. | 17.8 | 4.90 | 1.1 | 23.1 | 1.0 | 392. | 24.1 | .0 | .0 | 2943.4 | 67.1 | -7.4 |
| AUG | 307. | 18.9 | 4.14 | .9 | 20.7 | 1.0 | 353. | 21.7 | .0 | .0 | 2942.0 | 63.4 | -3.7 |
| SEP | 286. | 17.0 | 3.12 | .7 | 4.8 | 6.1 | 183. | 10.9 | .0 | .0 | 2944.0 | 68.8 | 5.4 |
| OCT | 283. | 17.4 | 3.50 | .8 | .0 | 16.6 | 270. | 16.6 | .0 | .0 | 2944.0 | 68.8 | .0 |
| NOV | 262. | 15.6 | 2.00 | .5 | .0 | 15.1 | 254. | 15.1 | .0 | .0 | 2944.0 | 68.8 | .0 |
| DEC | 250. | 15.4 | 1.39 | .3 | .0 | 15.1 | 246. | 15.1 | .0 | .0 | 2944.0 | 68.8 | .0 |
| TOTAL | | 206.7 | 33.85 | 7.7 | 56.8 | 133.8 | | 190.6 | 8.4 | .0 | | | .0 |

# SHERMAN RESERVOIR OPERATION ESTIMATES - 1996

| MONTH | INFLOW MEAN CFS | INFLOW 1000 AF | EVAPORATION INCHES | EVAPORATION 1000 AF | RELEASE REQUIREMENT MEAN CFS | RELEASE REQUIREMENT 1000 AF | RESERVOIR SPILL 1000 AF | REQUIREMENT SHORTAGE 1000 AF | END OF MONTH ELEV FT | END OF MONTH CONT 1000 AF | RESERVOIR CHANGE 1000 AF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 0. | .0 | 1.30 | .3 | 21. | 1.3 | .0 | .0 | 2154.9 | 49.9 | -1.6 |
| FEB | 0. | .0 | 1.62 | .3 | 23. | 1.3 | .0 | .0 | 2154.2 | 48.3 | -1.6 |
| MAR | 0. | .0 | 2.86 | .5 | 21. | 1.3 | .0 | .0 | 2153.4 | 46.5 | -1.8 |
| APR | 168. | 10.0 | 4.63 | .9 | 22. | 1.3 | .0 | .0 | 2156.7 | 54.3 | 7.8 |
| MAY | 325. | 20.0 | 5.43 | 1.2 | 65. | 4.0 | .0 | .0 | 2162.3 | 69.1 | 14.8 |
| JUN | 318. | 18.9 | 6.26 | 1.5 | 292. | 17.4 | .0 | .0 | 2162.3 | 69.1 | .0 |
| JUL | 153. | 9.4 | 7.29 | 1.3 | 891. | 54.8 | .0 | .0 | 2139.9 | 22.4 | -46.7 |
| AUG | 246. | 15.1 | 6.41 | .6 | 639. | 39.3 | .0 | 12.9 | 2129.0 | 10.5 | -11.9 |
| SEP | 501. | 29.8 | 4.80 | .5 | 138. | 8.2 | .0 | .0 | 2145.8 | 31.6 | 21.1 |
| OCT | 369. | 22.7 | 3.77 | .7 | 18. | 1.1 | .0 | .0 | 2156.0 | 52.5 | 20.9 |
| NOV | 0. | .0 | 2.05 | .4 | 22. | 1.3 | .0 | .0 | 2155.3 | 50.8 | -1.7 |
| DEC | 0. | .0 | 1.18 | .2 | 21. | 1.3 | .0 | .0 | 2154.6 | 49.3 | -1.5 |
| TOTAL | | 125.9 | 47.60 | 8.4 | | 132.6 | .0 | 12.9 | | | -2.2 |
| MOST PROBABLE INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 0. | .0 | 1.30 | .3 | 21. | 1.3 | .0 | .0 | 2154.9 | 49.9 | -1.6 |
| FEB | 0. | .0 | 1.62 | .3 | 23. | 1.3 | .0 | .0 | 2154.2 | 48.3 | -1.6 |
| MAR | 3. | .2 | 2.86 | .5 | 21. | 1.3 | .0 | .0 | 2153.5 | 46.7 | -1.6 |
| APR | 151. | 9.0 | 4.63 | .9 | 22. | 1.3 | .0 | .0 | 2156.4 | 53.5 | 6.8 |
| MAY | 294. | 18.1 | 4.35 | 1.0 | 24. | 1.5 | .0 | .0 | 2162.3 | 69.1 | 15.6 |
| JUN | 296. | 17.6 | 4.92 | 1.2 | 276. | 16.4 | .0 | .0 | 2162.3 | 69.1 | .0 |
| JUL | 376. | 23.1 | 5.68 | 1.3 | 581. | 35.7 | .0 | .0 | 2157.1 | 55.2 | -13.9 |
| AUG | 449. | 27.6 | 4.87 | 1.0 | 559. | 34.4 | .0 | .0 | 2153.8 | 47.4 | -7.8 |
| SEP | 255. | 15.2 | 3.68 | .7 | 104. | 6.2 | .0 | .0 | 2157.3 | 55.7 | 8.3 |
| OCT | 31. | 1.9 | 3.77 | .8 | 18. | 1.1 | .0 | .0 | 2157.3 | 55.7 | .0 |
| NOV | 0. | .0 | 2.05 | .4 | 22. | 1.3 | .0 | .0 | 2156.6 | 54.0 | -1.7 |
| DEC | 0. | .0 | 1.18 | .2 | 21. | 1.3 | .0 | .0 | 2156.0 | 52.5 | -1.5 |
| TOTAL | | 112.7 | 40.91 | 8.6 | | 103.1 | .0 | .0 | | | 1.0 |
| REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 23. | 1.4 | 1.30 | .3 | 21. | 1.3 | .0 | .0 | 2155.5 | 51.3 | -.2 |
| FEB | 43. | 2.4 | 1.62 | .3 | 23. | 1.3 | .0 | .0 | 2155.8 | 52.1 | .8 |
| MAR | 89. | 5.5 | 2.86 | .6 | 21. | 1.3 | .0 | .0 | 2157.3 | 55.7 | 3.6 |
| APR | 101. | 6.0 | 4.63 | 1.0 | 22. | 1.3 | .0 | .0 | 2158.8 | 59.4 | 3.7 |
| MAY | 194. | 11.9 | 3.10 | .7 | 24. | 1.5 | .0 | .0 | 2162.3 | 69.1 | 9.7 |
| JUN | 200. | 11.9 | 3.89 | .9 | 185. | 11.0 | .0 | .0 | 2162.3 | 69.1 | .0 |
| JUL | 208. | 12.8 | 4.42 | 1.0 | 454. | 27.9 | .0 | .0 | 2156.2 | 53.0 | -16.1 |
| AUG | 207. | 12.7 | 3.75 | .7 | 273. | 16.8 | .0 | .0 | 2154.2 | 48.2 | -4.8 |
| SEP | 213. | 12.7 | 2.56 | .5 | 79. | 4.7 | .0 | .0 | 2157.3 | 55.7 | 7.5 |
| OCT | 31. | 1.9 | 3.77 | .8 | 18. | 1.1 | .0 | .0 | 2157.3 | 55.7 | .0 |
| NOV | 24. | 1.4 | 2.05 | .4 | 22. | 1.3 | .0 | .0 | 2157.2 | 55.4 | -.3 |
| DEC | 24. | 1.5 | 1.18 | .2 | 21. | 1.3 | .0 | .0 | 2157.2 | 55.4 | .0 |
| TOTAL | | 82.1 | 35.13 | 7.4 | | 70.8 | .0 | .0 | | | 3.9 |

# CALAMUS RESERVOIR OPERATION ESTIMATES - 1996

| MONTH | INFLOW MEAN CFS | INFLOW 1000 AF | EVAPORATION INCHES | EVAPORATION 1000 AF | RELEASE REQUIREMENT CANAL 1000 AF | RELEASE REQUIREMENT RIVER 1000 AF | RELEASE REQUIREMENT TOTAL MEAN CFS | RELEASE REQUIREMENT TOTAL 1000 AF | RES SPILL 1000 AF | REQUIREMENT SHORTAGE 1000 AF | END OF MONTH ELEV FT | END OF MONTH CONT 1000 AF | RESERVOIR CHANGE 1000 AF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | | | | | | | | |
| JAN | 298. | 18.3 | 1.17 | .4 | .7 | 17.2 | 291. | 17.9 | .0 | .0 | 2240.1 | 108.6 | .0 |
| FEB | 292. | 16.2 | 1.46 | .6 | .7 | 14.9 | 281. | 15.6 | .0 | .0 | 2240.1 | 108.6 | .0 |
| MAR | 329. | 20.2 | 2.58 | 1.0 | .7 | 6.0 | 109. | 6.7 | .0 | .0 | 2242.7 | 121.1 | 12.5 |
| APR | 308. | 18.3 | 4.18 | 1.7 | .7 | 12.1 | 215. | 12.8 | .0 | .0 | 2243.5 | 124.9 | 3.8 |
| MAY | 298. | 18.3 | 5.69 | 2.4 | 1.7 | 14.2 | 259. | 15.9 | .0 | .0 | 2243.5 | 124.9 | .0 |
| JUN | 304. | 18.1 | 7.04 | 3.0 | 9.3 | 3.3 | 212. | 12.6 | .0 | .0 | 2244.0 | 127.4 | 2.5 |
| JUL | 272. | 16.7 | 7.83 | 3.1 | 21.3 | 16.7 | 618. | 38.0 | .0 | .0 | 2238.9 | 103.0 | -24.4 |
| AUG | 291. | 17.9 | 8.18 | 2.6 | 37.6 | 17.9 | 903. | 55.5 | .0 | .0 | 2228.4 | 62.8 | -40.2 |
| SEP | 282. | 16.8 | 6.35 | 1.4 | 31.0 | 16.8 | 803. | 47.8 | .0 | .0 | 2216.3 | 30.4 | -32.4 |
| OCT | 273. | 16.8 | 3.40 | .7 | .7 | 3.1 | 62. | 3.8 | .0 | .0 | 2221.5 | 42.7 | 12.3 |
| NOV | 277. | 16.5 | 1.85 | .4 | .7 | 3.0 | 62. | 3.7 | .0 | .0 | 2226.0 | 55.1 | 12.4 |
| DEC | 272. | 16.7 | 1.07 | .3 | .7 | 3.1 | 62. | 3.8 | .0 | .0 | 2229.9 | 67.7 | 12.6 |
| TOTAL | | 210.8 | 50.80 | 17.6 | 105.8 | 128.3 | | 234.1 | .0 | .0 | | | -40.9 |
| MOST PROBABLE INFLOW CONDITIONS | | | | | | | | | | | | | |
| JAN | 327. | 20.1 | 1.17 | .4 | .7 | 19.0 | 320. | 19.7 | .0 | .0 | 2240.1 | 108.6 | .0 |
| FEB | 333. | 18.5 | 1.46 | .6 | .7 | 17.2 | 322. | 17.9 | .0 | .0 | 2240.1 | 108.6 | .0 |
| MAR | 374. | 23.0 | 2.58 | 1.0 | .7 | 8.3 | 146. | 9.0 | .0 | .0 | 2242.8 | 121.6 | 13.0 |
| APR | 375. | 22.3 | 4.18 | 1.7 | .7 | 16.6 | 291. | 17.3 | .0 | .0 | 2243.5 | 124.9 | 3.3 |
| MAY | 377. | 23.2 | 4.19 | 1.8 | .7 | 20.7 | 348. | 21.4 | .0 | .0 | 2243.5 | 124.9 | .0 |
| JUN | 345. | 20.5 | 4.77 | 2.0 | 1.7 | 14.3 | 269. | 16.0 | .0 | .0 | 2244.0 | 127.4 | 2.5 |
| JUL | 348. | 21.4 | 5.88 | 2.4 | 14.4 | 21.4 | 582. | 35.8 | .0 | .0 | 2240.6 | 110.6 | -16.8 |
| AUG | 337. | 20.7 | 5.89 | 2.2 | 17.9 | 20.7 | 628. | 38.6 | .0 | .0 | 2236.0 | 90.5 | -20.1 |
| SEP | 323. | 19.2 | 4.78 | 1.5 | 20.7 | 19.2 | 671. | 39.9 | .0 | .0 | 2230.1 | 68.3 | -22.2 |
| OCT | 320. | 19.7 | 3.40 | 1.0 | .7 | 3.1 | 62. | 3.8 | .0 | .0 | 2234.1 | 83.2 | 14.9 |
| NOV | 329. | 19.6 | 1.85 | .6 | .7 | 3.0 | 62. | 3.7 | .0 | .0 | 2237.9 | 98.5 | 15.3 |
| DEC | 317. | 19.5 | 1.07 | .4 | .7 | 8.9 | 156. | 9.6 | .0 | .0 | 2240.0 | 108.0 | 9.5 |
| TOTAL | | 247.7 | 41.22 | 15.6 | 60.3 | 172.4 | | 232.7 | .0 | .0 | | | -.6 |
| REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | | | | | | | | |
| JAN | 356. | 21.9 | 1.17 | .4 | .7 | 20.8 | 350. | 21.5 | .0 | .0 | 2240.1 | 108.6 | .0 |
| FEB | 366. | 20.3 | 1.46 | .6 | .7 | 19.0 | 355. | 19.7 | .0 | .0 | 2240.1 | 108.6 | .0 |
| MAR | 473. | 29.1 | 2.58 | 1.0 | .7 | 12.6 | 216. | 13.3 | .0 | .0 | 2243.2 | 123.4 | 14.8 |
| APR | 489. | 29.1 | 4.18 | 1.8 | .7 | 25.1 | 434. | 25.8 | .0 | .0 | 2243.5 | 124.9 | 1.5 |
| MAY | 610. | 37.5 | 3.07 | 1.3 | .7 | 35.5 | 589. | 36.2 | .0 | .0 | 2243.5 | 124.9 | .0 |
| JUN | 466. | 27.7 | 3.25 | 1.4 | .7 | 23.1 | 400. | 23.8 | .0 | .0 | 2244.0 | 127.4 | 2.5 |
| JUL | 465. | 28.6 | 4.28 | 1.8 | 7.6 | 28.6 | 589. | 36.2 | .0 | .0 | 2242.1 | 118.0 | -9.4 |
| AUG | 397. | 24.4 | 4.98 | 2.0 | 9.0 | 24.4 | 543. | 33.4 | .0 | .0 | 2239.8 | 107.0 | -11.0 |
| SEP | 380. | 22.6 | 3.43 | 1.3 | 1.6 | 22.6 | 407. | 24.2 | .0 | .0 | 2239.1 | 104.1 | -2.9 |
| OCT | 369. | 22.7 | 3.40 | 1.3 | .7 | 16.8 | 285. | 17.5 | .0 | .0 | 2240.0 | 108.0 | 3.9 |
| NOV | 358. | 21.3 | 1.85 | .7 | .7 | 19.9 | 346. | 20.6 | .0 | .0 | 2240.0 | 108.0 | .0 |
| DEC | 356. | 21.9 | 1.07 | .4 | .7 | 20.8 | 350. | 21.5 | .0 | .0 | 2240.0 | 108.0 | .0 |
| TOTAL | | 307.1 | 34.72 | 14.0 | 24.5 | 269.2 | | 293.7 | .0 | .0 | | | -.6 |

DAVIS CREEK RESERVOIR OPERATION ESTIMATES - 1996

| MONTH | INFLOW MEAN CFS | INFLOW 1000 AF | EVAPORATION INCHES | EVAPORATION 1000 AF | RELEASE REQUIREMENT MEAN CFS | RELEASE REQUIREMENT 1000 AF | RESERVOIR SPILL 1000 AF | REQUIREMENT SHORTAGE 1000 AF | END OF MONTH ELEV FT | END OF MONTH CONT 1000 AF | RESERVOIR CHANGE 1000 AF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | | |
| JAN | 0. | .0 | 1.30 | .1 | 5. | .3 | .0 | .0 | 2062.1 | 17.9 | -.4 |
| FEB | 0. | .0 | 1.62 | .1 | 5. | .3 | .0 | .0 | 2061.6 | 17.5 | -.4 |
| MAR | 0. | .0 | 2.86 | .2 | 10. | .6 | .0 | .0 | 2060.6 | 16.7 | -.8 |
| APR | 166. | 9.9 | 4.63 | .3 | 25. | 1.5 | .0 | .0 | 2070.0 | 24.8 | 8.1 |
| MAY | 163. | 10.0 | 5.43 | .5 | 50. | 3.1 | .0 | .0 | 2076.0 | 31.2 | 6.4 |
| JUN | 192. | 11.4 | 6.26 | .6 | 182. | 10.8 | .0 | .0 | 2076.0 | 31.2 | .0 |
| JUL | 0. | .0 | 7.29 | .5 | 293. | 18.0 | .0 | .0 | 2054.6 | 12.7 | -18.5 |
| AUG | 239. | 14.7 | 6.41 | .3 | 324. | 19.9 | .0 | .0 | 2043.9 | 7.2 | -5.5 |
| SEP | 240. | 14.3 | 4.80 | .2 | 259. | 15.4 | .0 | .0 | 2040.6 | 5.9 | -1.3 |
| OCT | 18. | 1.1 | 3.77 | .1 | 5. | .3 | .0 | .0 | 2042.5 | 6.6 | .7 |
| NOV | 0. | .0 | 2.05 | .1 | 5. | .3 | .0 | .0 | 2041.4 | 6.2 | -.4 |
| DEC | 0. | .0 | 1.18 | .0 | 5. | .3 | .0 | .0 | 2040.6 | 5.9 | -.3 |
| TOTAL | | 61.4 | 47.60 | 3.0 | | 70.8 | .0 | .0 | | | -12.4 |
| | | | | MOST PROBABLE INFLOW CONDITIONS | | | | | | | |
| JAN | 0. | .0 | 1.30 | .1 | 5. | .3 | .0 | .0 | 2062.1 | 17.9 | -.4 |
| FEB | 0. | .0 | 1.62 | .1 | 5. | .3 | .0 | .0 | 2061.6 | 17.5 | -.4 |
| MAR | 0. | .0 | 2.86 | .2 | 10. | .6 | .0 | .0 | 2060.6 | 16.7 | -.8 |
| APR | 158. | 9.4 | 4.63 | .3 | 25. | 1.5 | .0 | .0 | 2069.5 | 24.3 | 7.6 |
| MAY | 153. | 9.4 | 4.35 | .4 | 34. | 2.1 | .0 | .0 | 2076.0 | 31.2 | 6.9 |
| JUN | 62. | 3.7 | 4.92 | .5 | 54. | 3.2 | .0 | .0 | 2076.0 | 31.2 | .0 |
| JUL | 0. | .0 | 5.68 | .5 | 195. | 12.0 | .0 | .0 | 2063.1 | 18.7 | -12.5 |
| AUG | 33. | 2.0 | 4.87 | .2 | 226. | 13.9 | .0 | .0 | 2042.5 | 6.6 | -12.1 |
| SEP | 161. | 9.6 | 3.68 | .1 | 160. | 9.5 | .0 | .0 | 2042.5 | 6.6 | .0 |
| OCT | 0. | .0 | 3.77 | .1 | 5. | .3 | .0 | .0 | 2041.4 | 6.2 | -.4 |
| NOV | 0. | .0 | 2.05 | .1 | 5. | .3 | .0 | .0 | 2040.3 | 5.8 | -.4 |
| DEC | 0. | .0 | 1.18 | .0 | 5. | .3 | .0 | .0 | 2039.5 | 5.5 | -.3 |
| TOTAL | | 34.1 | 40.91 | 2.6 | | 44.3 | .0 | .0 | | | -12.8 |
| | | | | REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | | |
| JAN | 0. | .0 | 1.30 | .1 | 5. | .3 | .0 | .0 | 2062.1 | 17.9 | -.4 |
| FEB | 0. | .0 | 1.62 | .1 | 5. | .3 | .0 | .0 | 2061.6 | 17.5 | -.4 |
| MAR | 0. | .0 | 2.86 | .2 | 10. | .6 | .0 | .0 | 2060.6 | 16.7 | -.8 |
| APR | 156. | 9.3 | 4.63 | .3 | 25. | 1.5 | .0 | .0 | 2069.4 | 24.2 | 7.5 |
| MAY | 153. | 9.4 | 3.10 | .3 | 34. | 2.1 | .0 | .0 | 2076.0 | 31.2 | 7.0 |
| JUN | 42. | 2.5 | 3.89 | .4 | 35. | 2.1 | .0 | .0 | 2076.0 | 31.2 | .0 |
| JUL | 0. | .0 | 4.42 | .4 | 128. | 7.9 | .0 | .0 | 2067.9 | 22.9 | -8.3 |
| AUG | 0. | .0 | 3.75 | .2 | 145. | 8.9 | .0 | .0 | 2056.3 | 13.8 | -9.1 |
| SEP | 0. | .0 | 2.56 | .1 | 5. | .3 | .0 | .0 | 2055.7 | 13.4 | -.4 |
| OCT | 0. | .0 | 3.77 | .2 | 5. | .3 | .0 | .0 | 2055.0 | 12.9 | -.5 |
| NOV | 0. | .0 | 2.05 | .1 | 5. | .3 | .0 | .0 | 2054.3 | 12.5 | -.4 |
| DEC | 0. | .0 | 1.18 | .1 | 5. | .3 | .0 | .0 | 2053.6 | 12.1 | -.4 |
| TOTAL | | 21.2 | 35.13 | 2.5 | | 24.9 | .0 | .0 | | | -6.2 |

BONNY RESERVOIR OPERATION ESTIMATES - 1996

| MONTH | INFLOW MEAN CFS | INFLOW 1000 AF | EVAPORATION INCHES | EVAPORATION 1000 AF | RELEASE REQUIREMENT CANAL 1000 AF | RELEASE REQUIREMENT RIVER 1000 AF | RELEASE REQUIREMENT TOTAL MEAN CFS | RELEASE REQUIREMENT TOTAL 1000 AF | RES SPILL 1000 AF | REQUIREMENT SHORTAGE 1000 AF | END OF MONTH ELEV FT | END OF MONTH CONT 1000 AF | RESERVOIR CHANGE 1000 AF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | | |
| JAN | 23. | 1.4 | 1.15 | .2 | .0 | .5 | 8. | .5 | .0 | .0 | 3669.9 | 37.2 | .7 |
| FEB | 22. | 1.2 | 1.37 | .2 | .0 | .4 | 7. | .4 | .0 | .0 | 3670.2 | 37.8 | .6 |
| MAR | 21. | 1.3 | 1.95 | .3 | .0 | .5 | 8. | .5 | .0 | .0 | 3670.5 | 38.3 | .5 |
| APR | 24. | 1.4 | 5.56 | .9 | .0 | .4 | 7. | .4 | .0 | .0 | 3670.5 | 38.4 | .1 |
| MAY | 21. | 1.3 | 7.04 | 1.1 | .4 | .5 | 15. | .9 | .0 | .0 | 3670.2 | 37.7 | -.7 |
| JUN | 12. | .7 | 8.43 | 1.3 | .3 | .4 | 12. | .7 | .0 | .0 | 3669.5 | 36.4 | -1.3 |
| JUL | 5. | .3 | 9.09 | 1.4 | 1.0 | .5 | 24. | 1.5 | .0 | .0 | 3668.1 | 33.8 | -2.6 |
| AUG | 0. | .0 | 8.07 | 1.2 | .6 | .5 | 18. | 1.1 | .0 | .0 | 3666.8 | 31.5 | -2.3 |
| SEP | 0. | .0 | 7.18 | 1.0 | .3 | .4 | 12. | .7 | .0 | .0 | 3665.8 | 29.8 | -1.7 |
| OCT | 7. | .4 | 5.03 | .7 | .2 | .5 | 11. | .7 | .0 | .0 | 3665.2 | 28.8 | -1.0 |
| NOV | 17. | 1.0 | 2.24 | .3 | .0 | .4 | 7. | .4 | .0 | .0 | 3665.4 | 29.1 | .3 |
| DEC | 20. | 1.2 | 1.42 | .2 | .0 | .5 | 8. | .5 | .0 | .0 | 3665.7 | 29.6 | .5 |
| TOTAL | | 10.2 | 58.53 | 8.8 | 2.8 | 5.5 | | 8.3 | .0 | .0 | | | -6.9 |
| | | | | | | MOST PROBABLE INFLOW CONDITIONS | | | | | | | |
| JAN | 28. | 1.7 | 1.10 | .2 | .0 | .5 | 8. | .5 | .0 | .0 | 3670.1 | 37.5 | 1.0 |
| FEB | 31. | 1.7 | 1.26 | .2 | .0 | .4 | 7. | .4 | .0 | .0 | 3670.6 | 38.6 | 1.1 |
| MAR | 31. | 1.9 | 1.93 | .3 | .0 | .5 | 8. | .5 | .0 | .0 | 3671.2 | 39.7 | 1.1 |
| APR | 35. | 2.1 | 4.40 | .7 | .0 | .4 | 7. | .4 | .0 | .0 | 3671.7 | 40.7 | 1.0 |
| MAY | 39. | 2.4 | 5.84 | 1.0 | .1 | .5 | 10. | .6 | .2 | .0 | 3672.0 | 41.3 | .6 |
| JUN | 25. | 1.5 | 6.85 | 1.2 | .3 | .4 | 12. | .7 | .0 | .0 | 3671.8 | 40.9 | -.4 |
| JUL | 16. | 1.0 | 8.16 | 1.4 | .7 | .5 | 20. | 1.2 | .0 | .0 | 3671.0 | 39.3 | -1.6 |
| AUG | 8. | .5 | 6.83 | 1.1 | .6 | .5 | 18. | 1.1 | .0 | .0 | 3670.1 | 37.6 | -1.7 |
| SEP | 3. | .2 | 5.35 | .8 | .3 | .4 | 12. | .7 | .0 | .0 | 3669.4 | 36.3 | -1.3 |
| OCT | 15. | .9 | 3.61 | .6 | .1 | .5 | 10. | .6 | .0 | .0 | 3669.3 | 36.0 | -.3 |
| NOV | 25. | 1.5 | 2.24 | .4 | .0 | .4 | 7. | .4 | .0 | .0 | 3669.6 | 36.7 | .7 |
| DEC | 24. | 1.5 | 1.34 | .2 | .0 | .5 | 8. | .5 | .0 | .0 | 3670.1 | 37.5 | .8 |
| TOTAL | | 16.9 | 48.91 | 8.1 | 2.1 | 5.5 | | 7.6 | .2 | .0 | | | 1.0 |
| | | | | | | REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | | |
| JAN | 36. | 2.2 | 1.08 | .2 | .0 | .5 | 8. | .5 | .0 | .0 | 3670.3 | 38.0 | 1.5 |
| FEB | 40. | 2.2 | 1.19 | .2 | .0 | .4 | 7. | .4 | .0 | .0 | 3671.1 | 39.6 | 1.6 |
| MAR | 42. | 2.6 | 1.87 | .3 | .0 | .6 | 10. | .6 | .0 | .0 | 3672.0 | 41.3 | 1.7 |
| APR | 52. | 3.1 | 3.14 | .5 | .0 | 2.6 | 44. | 2.6 | .0 | .0 | 3672.0 | 41.3 | .0 |
| MAY | 60. | 3.7 | 4.30 | .7 | .2 | .5 | 11. | .7 | 2.3 | .0 | 3672.0 | 41.3 | .0 |
| JUN | 84. | 5.0 | 5.33 | .9 | .2 | .4 | 10. | .6 | 3.5 | .0 | 3672.0 | 41.3 | .0 |
| JUL | 46. | 2.8 | 6.22 | 1.1 | .4 | .5 | 15. | .9 | .8 | .0 | 3672.0 | 41.3 | .0 |
| AUG | 63. | 3.9 | 5.70 | 1.0 | .4 | .5 | 15. | .9 | 2.0 | .0 | 3672.0 | 41.3 | .0 |
| SEP | 50. | 3.0 | 4.23 | .7 | .2 | .4 | 10. | .6 | 1.7 | .0 | 3672.0 | 41.3 | .0 |
| OCT | 33. | 2.0 | 3.61 | .6 | .2 | .5 | 11. | .7 | .7 | .0 | 3672.0 | 41.3 | .0 |
| NOV | 39. | 2.3 | 2.24 | .4 | .0 | .4 | 7. | .4 | 1.5 | .0 | 3672.0 | 41.3 | .0 |
| DEC | 34. | 2.1 | 1.24 | .2 | .0 | .5 | 8. | .5 | 1.4 | .0 | 3672.0 | 41.3 | .0 |
| TOTAL | | 34.9 | 40.15 | 6.8 | 1.6 | 7.8 | | 9.4 | 13.9 | .0 | | | 4.8 |

ENDERS RESERVOIR OPERATION ESTIMATES - 1996

| | INFLOW | | EVAPORATION | | RELEASE REQUIREMENT | | RESERVOIR SPILL | REQUIREMENT SHORTAGE | END OF MONTH | | RESERVOIR CHANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MEAN | 1000 | | 1000 | MEAN | 1000 | 1000 | 1000 | ELEV | CONT 1000 | 1000 |
| MONTH | CFS | AF | INCHES | AF | CFS | AF | AF | AF | FT | AF | AF |
| | | | | | REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | |
| JAN | 28. | 1.7 | .93 | .1 | 0. | .0 | .0 | .0 | 3098.6 | 24.9 | 1.6 |
| FEB | 27. | 1.5 | 1.05 | .1 | 0. | .0 | .0 | .0 | 3099.8 | 26.3 | 1.4 |
| MAR | 26. | 1.6 | 1.78 | .2 | 0. | .0 | .0 | .0 | 3100.9 | 27.7 | 1.4 |
| APR | 27. | 1.6 | 5.29 | .6 | 0. | .0 | .0 | .0 | 3101.7 | 28.7 | 1.0 |
| MAY | 24. | 1.5 | 6.52 | .7 | 68. | 4.2 | .0 | .0 | 3099.0 | 25.3 | -3.4 |
| JUN | 25. | 1.5 | 7.75 | .6 | 306. | 18.2 | .0 | 2.0 | 3082.4 | 10.0 | -15.3 |
| JUL | 26. | 1.6 | 8.48 | .5 | 533. | 32.8 | .0 | 31.7 | 3082.4 | 10.0 | .0 |
| AUG | 24. | 1.5 | 7.55 | .4 | 540. | 33.2 | .0 | 32.1 | 3082.4 | 10.0 | .0 |
| SEP | 22. | 1.3 | 5.60 | .3 | 0. | .0 | .0 | .0 | 3083.9 | 11.0 | 1.0 |
| OCT | 24. | 1.5 | 4.19 | .3 | 0. | .0 | .0 | .0 | 3085.6 | 12.2 | 1.2 |
| NOV | 27. | 1.6 | 1.96 | .1 | 0. | .0 | .0 | .0 | 3087.5 | 13.7 | 1.5 |
| DEC | 26. | 1.6 | 1.16 | .1 | 0. | .0 | .0 | .0 | 3089.3 | 15.2 | 1.5 |
| TOTAL | | 18.5 | 52.26 | 4.0 | | 88.4 | .0 | 65.8 | | | -8.1 |
| | | | | | MOST PROBABLE INFLOW CONDITIONS | | | | | | |
| JAN | 44. | 2.7 | .88 | .1 | 0. | .0 | .0 | .0 | 3099.5 | 25.9 | 2.6 |
| FEB | 41. | 2.3 | .95 | .1 | 0. | .0 | .0 | .0 | 3101.2 | 28.1 | 2.2 |
| MAR | 37. | 2.3 | 1.73 | .2 | 0. | .0 | .0 | .0 | 3102.8 | 30.2 | 2.1 |
| APR | 40. | 2.4 | 4.28 | .5 | 0. | .0 | .0 | .0 | 3104.2 | 32.1 | 1.9 |
| MAY | 42. | 2.6 | 5.38 | .6 | 15. | .9 | .0 | .0 | 3105.0 | 33.2 | 1.1 |
| JUN | 39. | 2.3 | 6.46 | .7 | 77. | 4.6 | .0 | .0 | 3102.8 | 30.2 | -3.0 |
| JUL | 52. | 3.2 | 7.23 | .6 | 372. | 22.9 | .0 | .1 | 3082.4 | 10.0 | -20.2 |
| AUG | 42. | 2.6 | 6.22 | .3 | 361. | 22.2 | .0 | 19.9 | 3082.4 | 10.0 | .0 |
| SEP | 44. | 2.6 | 4.51 | .2 | 42. | 2.5 | .0 | .1 | 3082.4 | 10.0 | .0 |
| OCT | 41. | 2.5 | 2.97 | .2 | 0. | .0 | .0 | .0 | 3085.7 | 12.3 | 2.3 |
| NOV | 42. | 2.5 | 1.96 | .1 | 0. | .0 | .0 | .0 | 3088.7 | 14.7 | 2.4 |
| DEC | 42. | 2.6 | 1.07 | .1 | 0. | .0 | .0 | .0 | 3091.5 | 17.2 | 2.5 |
| TOTAL | | 30.6 | 43.64 | 3.7 | | 53.1 | .0 | 20.1 | | | -6.1 |
| | | | | | REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | |
| JAN | 70. | 4.3 | .82 | .1 | 0. | .0 | .0 | .0 | 3100.8 | 27.5 | 4.2 |
| FEB | 67. | 3.7 | .90 | .1 | 0. | .0 | .0 | .0 | 3103.5 | 31.1 | 3.6 |
| MAR | 57. | 3.5 | 1.65 | .2 | 0. | .0 | .0 | .0 | 3105.9 | 34.4 | 3.3 |
| APR | 61. | 3.6 | 3.16 | .4 | 0. | .0 | .0 | .0 | 3108.0 | 37.6 | 3.2 |
| MAY | 63. | 3.9 | 4.14 | .5 | 0. | .0 | .0 | .0 | 3110.2 | 41.0 | 3.4 |
| JUN | 84. | 5.0 | 5.29 | .7 | 0. | .0 | .8 | .0 | 3112.3 | 44.5 | 3.5 |
| JUL | 98. | 6.0 | 5.98 | .8 | 205. | 12.6 | .0 | .0 | 3107.7 | 37.1 | -7.4 |
| AUG | 80. | 4.9 | 5.05 | .6 | 210. | 12.9 | .0 | .0 | 3101.5 | 28.5 | -8.6 |
| SEP | 86. | 5.1 | 3.38 | .4 | 0. | .0 | .0 | .0 | 3105.0 | 33.2 | 4.7 |
| OCT | 72. | 4.4 | 2.08 | .3 | 0. | .0 | .0 | .0 | 3107.8 | 37.3 | 4.1 |
| NOV | 71. | 4.2 | 1.96 | .3 | 0. | .0 | .0 | .0 | 3110.3 | 41.2 | 3.9 |
| DEC | 72. | 4.4 | .97 | .1 | 0. | .0 | 1.0 | .0 | 3112.3 | 44.5 | 3.3 |
| TOTAL | | 53.0 | 35.38 | 4.5 | | 25.5 | 1.8 | .0 | | | 21.2 |

## SWANSON LAKE OPERATION ESTIMATES - 1996

| MONTH | INFLOW MEAN CFS | INFLOW 1000 AF | EVAPORATION INCHES | EVAPORATION 1000 AF | RELEASE REQUIREMENT CANAL 1000 AF | RELEASE REQUIREMENT RIVER 1000 AF | RELEASE REQUIREMENT TOTAL MEAN CFS | RELEASE REQUIREMENT TOTAL 1000 AF | RES SPILL 1000 AF | REQUIREMENT SHORTAGE 1000 AF | END OF MONTH ELEV FT | END OF MONTH CONT 1000 AF | RESERVOIR CHANGE 1000 AF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | | | | | | | | |
| JAN | 50. | 3.1 | .91 | .3 | .0 | .1 | 2. | .1 | .0 | .0 | 2745.8 | 83.9 | 2.7 |
| FEB | 94. | 5.2 | 1.09 | .4 | .0 | .1 | 2. | .1 | .0 | .0 | 2746.9 | 88.6 | 4.7 |
| MAR | 109. | 6.7 | 1.76 | .6 | .0 | .1 | 2. | .1 | .0 | .0 | 2748.2 | 94.6 | 6.0 |
| APR | 99. | 5.9 | 5.43 | 2.0 | .0 | .1 | 2. | .1 | .0 | .0 | 2749.1 | 98.4 | 3.8 |
| MAY | 70. | 4.3 | 6.57 | 2.5 | .0 | .1 | 2. | .1 | .0 | .0 | 2749.4 | 100.1 | 1.7 |
| JUN | 55. | 3.3 | 7.53 | 2.8 | 8.9 | 1.5 | 175. | 10.4 | .0 | .0 | 2747.2 | 90.2 | -9.9 |
| JUL | 13. | .8 | 8.84 | 2.9 | 19.2 | 10.8 | 488. | 30.0 | .0 | .0 | 2739.0 | 58.1 | -32.1 |
| AUG | 2. | .1 | 7.84 | 1.8 | 14.6 | 23.4 | 618. | 38.0 | .0 | .0 | 2723.7 | 18.4 | -39.7 |
| SEP | 0. | .0 | 5.83 | .8 | 2.0 | 2.6 | 77. | 4.6 | .0 | .0 | 2720.4 | 13.0 | -5.4 |
| OCT | 0. | .0 | 3.84 | .5 | .0 | .1 | 2. | .1 | .0 | .0 | 2720.0 | 12.4 | -.6 |
| NOV | 24. | 1.4 | 2.01 | .2 | .0 | .1 | 2. | .1 | .0 | .0 | 2720.7 | 13.5 | 1.1 |
| DEC | 46. | 2.8 | 1.17 | .2 | .0 | .1 | 2. | .1 | .0 | .0 | 2722.3 | 16.0 | 2.5 |
| TOTAL | | 33.6 | 52.82 | 15.0 | 44.7 | 39.1 | | 83.8 | .0 | .0 | | | -65.2 |
| MOST PROBABLE INFLOW CONDITIONS | | | | | | | | | | | | | |
| JAN | 94. | 5.8 | .88 | .3 | .0 | .1 | 2. | .1 | .0 | .0 | 2746.4 | 86.6 | 5.4 |
| FEB | 140. | 7.8 | .98 | .4 | .0 | .1 | 2. | .1 | .0 | .0 | 2748.1 | 93.9 | 7.3 |
| MAR | 153. | 9.4 | 1.73 | .7 | .0 | .1 | 2. | .1 | .0 | .0 | 2750.0 | 102.5 | 8.6 |
| APR | 155. | 9.2 | 4.34 | 1.7 | .0 | .1 | 2. | .1 | .0 | .0 | 2751.5 | 109.9 | 7.4 |
| MAY | 153. | 9.4 | 5.17 | 2.1 | .0 | .1 | 2. | .1 | 4.9 | .0 | 2752.0 | 112.2 | 2.3 |
| JUN | 116. | 6.9 | 6.39 | 2.6 | 3.9 | .1 | 67. | 4.0 | .3 | .0 | 2752.0 | 112.2 | .0 |
| JUL | 59. | 3.6 | 7.40 | 2.9 | 12.8 | 4.9 | 288. | 17.7 | .0 | .0 | 2748.4 | 95.2 | -17.0 |
| AUG | 36. | 2.2 | 6.50 | 2.3 | 13.3 | 5.3 | 303. | 18.6 | .0 | .0 | 2744.0 | 76.5 | -18.7 |
| SEP | 5. | .3 | 4.84 | 1.6 | 2.5 | 1.4 | 66. | 3.9 | .0 | .0 | 2742.6 | 71.3 | -5.2 |
| OCT | 21. | 1.3 | 3.07 | 1.0 | .0 | .1 | 2. | .1 | .0 | .0 | 2742.7 | 71.5 | .2 |
| NOV | 72. | 4.3 | 2.01 | .7 | .0 | .1 | 2. | .1 | .0 | .0 | 2743.6 | 75.0 | 3.5 |
| DEC | 75. | 4.6 | 1.10 | .4 | .0 | .1 | 2. | .1 | .0 | .0 | 2744.6 | 79.1 | 4.1 |
| TOTAL | | 64.8 | 44.41 | 16.7 | 32.5 | 12.5 | | 45.0 | 5.2 | .0 | | | -2.1 |
| REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | | | | | | | | |
| JAN | 122. | 7.5 | .85 | .3 | .0 | .1 | 2. | .1 | .0 | .0 | 2746.8 | 88.3 | 7.1 |
| FEB | 184. | 10.2 | .92 | .3 | .0 | .1 | 2. | .1 | .0 | .0 | 2749.0 | 98.1 | 9.8 |
| MAR | 216. | 13.3 | 1.65 | .6 | .0 | .1 | 2. | .1 | .0 | .0 | 2751.7 | 110.7 | 12.6 |
| APR | 260. | 15.5 | 3.20 | 1.3 | .0 | 12.7 | 213. | 12.7 | .0 | .0 | 2752.0 | 112.2 | 1.5 |
| MAY | 280. | 17.2 | 3.86 | 1.6 | .0 | .1 | 2. | .1 | 15.5 | .0 | 2752.0 | 112.2 | .0 |
| JUN | 237. | 14.1 | 5.15 | 2.1 | 3.3 | .1 | 57. | 3.4 | 8.6 | .0 | 2752.0 | 112.2 | .0 |
| JUL | 187. | 11.5 | 6.17 | 2.5 | 9.7 | 3.5 | 215. | 13.2 | .0 | .0 | 2751.1 | 108.0 | -4.2 |
| AUG | 85. | 5.2 | 5.32 | 2.1 | 8.4 | 3.5 | 194. | 11.9 | .0 | .0 | 2749.2 | 99.2 | -8.8 |
| SEP | 104. | 6.2 | 3.76 | 1.4 | 1.5 | .1 | 27. | 1.6 | .0 | .0 | 2749.9 | 102.4 | 3.2 |
| OCT | 117. | 7.2 | 2.24 | .9 | .0 | .1 | 2. | .1 | .0 | .0 | 2751.2 | 108.6 | 6.2 |
| NOV | 134. | 8.0 | 2.01 | .8 | .0 | .1 | 2. | .1 | 3.5 | .0 | 2752.0 | 112.2 | 3.6 |
| DEC | 111. | 6.8 | 1.00 | .4 | .0 | .1 | 2. | .1 | 6.3 | .0 | 2752.0 | 112.2 | .0 |
| TOTAL | | 122.7 | 36.13 | 14.3 | 22.9 | 20.6 | | 43.5 | 33.9 | .0 | | | 31.0 |

HUGH BUTLER LAKE OPERATION ESTIMATES - 1996

| MONTH | INFLOW MEAN CFS | INFLOW 1000 AF | EVAPORATION INCHES | EVAPORATION 1000 AF | RELEASE REQUIREMENT MEAN CFS | RELEASE REQUIREMENT 1000 AF | RESERVOIR SPILL 1000 AF | REQUIREMENT SHORTAGE 1000 AF | END OF MONTH ELEV FT | END OF MONTH CONT 1000 AF | RESERVOIR CHANGE 1000 AF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | |
| JAN | 16. | 1.0 | .84 | .1 | 5. | .3 | .0 | .0 | 2578.1 | 32.1 | .6 |
| FEB | 22. | 1.2 | 1.01 | .1 | 5. | .3 | .0 | .0 | 2578.7 | 32.9 | .8 |
| MAR | 23. | 1.4 | 1.68 | .2 | 5. | .3 | .0 | .0 | 2579.3 | 33.8 | .9 |
| APR | 22. | 1.3 | 5.66 | .7 | 5. | .3 | .0 | .0 | 2579.5 | 34.1 | .3 |
| MAY | 21. | 1.3 | 6.85 | .9 | 5. | .3 | .0 | .0 | 2579.5 | 34.2 | .1 |
| JUN | 20. | 1.2 | 8.27 | 1.0 | 40. | 2.4 | .0 | .0 | 2578.1 | 32.0 | -2.2 |
| JUL | 15. | .9 | 9.18 | 1.0 | 104. | 6.4 | .0 | .0 | 2573.2 | 25.5 | -6.5 |
| AUG | 11. | .7 | 8.04 | .7 | 148. | 9.1 | .0 | .0 | 2564.8 | 16.4 | -9.1 |
| SEP | 7. | .4 | 6.01 | .5 | 18. | 1.1 | .0 | .0 | 2563.5 | 15.2 | -1.2 |
| OCT | 13. | .8 | 4.50 | .3 | 5. | .3 | .0 | .0 | 2563.7 | 15.4 | .2 |
| NOV | 17. | 1.0 | 1.93 | .2 | 5. | .3 | .0 | .0 | 2564.2 | 15.9 | .5 |
| DEC | 18. | 1.1 | 1.09 | .1 | 5. | .3 | .0 | .0 | 2565.0 | 16.6 | .7 |
| TOTAL | | 12.3 | 55.06 | 5.8 | | 21.4 | .0 | .0 | | | -14.9 |
| | | | | | MOST PROBABLE INFLOW CONDITIONS | | | | | | |
| JAN | 21. | 1.3 | .78 | .1 | 5. | .3 | .0 | .0 | 2578.3 | 32.4 | .9 |
| FEB | 27. | 1.5 | .90 | .1 | 5. | .3 | .0 | .0 | 2579.1 | 33.5 | 1.1 |
| MAR | 31. | 1.9 | 1.64 | .2 | 5. | .3 | .0 | .0 | 2580.0 | 34.9 | 1.4 |
| APR | 32. | 1.9 | 4.78 | .6 | 5. | .3 | .0 | .0 | 2580.6 | 35.9 | 1.0 |
| MAY | 33. | 2.0 | 5.83 | .8 | 5. | .3 | .0 | .0 | 2581.2 | 36.8 | .9 |
| JUN | 32. | 1.9 | 6.76 | .9 | 27. | 1.6 | .0 | .0 | 2580.8 | 36.2 | -.6 |
| JUL | 26. | 1.6 | 7.52 | 1.0 | 62. | 3.8 | .0 | .0 | 2578.7 | 33.0 | -3.2 |
| AUG | 24. | 1.5 | 6.64 | .8 | 63. | 3.9 | .0 | .0 | 2576.5 | 29.8 | -3.2 |
| SEP | 18. | 1.1 | 5.04 | .6 | 18. | 1.1 | .0 | .0 | 2576.1 | 29.2 | -.6 |
| OCT | 20. | 1.2 | 3.33 | .4 | 5. | .3 | .0 | .0 | 2576.4 | 29.7 | .5 |
| NOV | 22. | 1.3 | 1.93 | .2 | 5. | .3 | .0 | .0 | 2577.0 | 30.5 | .8 |
| DEC | 21. | 1.3 | 1.01 | .1 | 5. | .3 | .0 | .0 | 2577.6 | 31.4 | .9 |
| TOTAL | | 18.5 | 46.16 | 5.8 | | 12.8 | .0 | .0 | | | -.1 |
| | | | | | REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | |
| JAN | 29. | 1.8 | .76 | .1 | 5. | .3 | .0 | .0 | 2578.7 | 32.9 | 1.4 |
| FEB | 38. | 2.1 | .83 | .1 | 5. | .3 | .0 | .0 | 2579.8 | 34.6 | 1.7 |
| MAR | 49. | 3.0 | 1.55 | .2 | 5. | .3 | .0 | .0 | 2581.4 | 37.1 | 2.5 |
| APR | 47. | 2.8 | 3.40 | .5 | 27. | 1.6 | .0 | .0 | 2581.8 | 37.8 | .7 |
| MAY | 50. | 3.1 | 4.29 | .6 | 5. | .3 | 2.2 | .0 | 2581.8 | 37.8 | .0 |
| JUN | 61. | 3.6 | 5.24 | .7 | 18. | 1.1 | 1.8 | .0 | 2581.8 | 37.8 | .0 |
| JUL | 59. | 3.6 | 6.26 | .8 | 42. | 2.6 | .2 | .0 | 2581.8 | 37.8 | .0 |
| AUG | 44. | 2.7 | 5.53 | .7 | 42. | 2.6 | .0 | .0 | 2581.4 | 37.2 | -.6 |
| SEP | 35. | 2.1 | 3.93 | .5 | 15. | .9 | .1 | .0 | 2581.8 | 37.8 | .6 |
| OCT | 29. | 1.8 | 2.22 | .3 | 5. | .3 | 1.2 | .0 | 2581.8 | 37.8 | .0 |
| NOV | 29. | 1.7 | 1.93 | .3 | 5. | .3 | 1.1 | .0 | 2581.8 | 37.8 | .0 |
| DEC | 28. | 1.7 | .90 | .1 | 5. | .3 | 1.3 | .0 | 2581.8 | 37.8 | .0 |
| TOTAL | | 30.0 | 36.84 | 4.9 | | 10.9 | 7.9 | .0 | | | 6.3 |

HARRY STRUNK LAKE OPERATION ESTIMATES - 1996

| | INFLOW | | EVAPORATION | | RELEASE REQUIREMENT | | RESERVOIR SPILL | REQUIREMENT SHORTAGE | END OF MONTH | | RESERVOIR CHANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MEAN | 1000 | | 1000 | MEAN | 1000 | 1000 | 1000 | ELEV | CONT 1000 | 1000 |
| MONTH | CFS | AF | INCHES | AF | CFS | AF | AF | AF | FT | AF | AF |
| | | | | | REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | |
| JAN | 41. | 2.5 | .89 | .1 | 2. | .1 | .0 | .0 | 2358.5 | 23.9 | 2.3 |
| FEB | 47. | 2.6 | .99 | .1 | 2. | .1 | .0 | .0 | 2360.3 | 26.3 | 2.4 |
| MAR | 49. | 3.0 | 1.63 | .2 | 2. | .1 | .0 | .0 | 2362.1 | 29.0 | 2.7 |
| APR | 54. | 3.2 | 5.57 | .7 | 2. | .1 | .0 | .0 | 2363.6 | 31.4 | 2.4 |
| MAY | 50. | 3.1 | 6.84 | 1.0 | 2. | .1 | .0 | .0 | 2364.8 | 33.4 | 2.0 |
| JUN | 45. | 2.7 | 8.04 | 1.1 | 76. | 4.5 | .0 | .0 | 2363.1 | 30.5 | -2.9 |
| JUL | 21. | 1.3 | 8.94 | .9 | 358. | 22.0 | .0 | .0 | 2343.0 | 8.9 | -21.6 |
| AUG | 31. | 1.9 | 7.98 | .5 | 23. | 1.4 | .0 | .0 | 2343.0 | 8.9 | .0 |
| SEP | 24. | 1.4 | 6.11 | .4 | 5. | .3 | .0 | .0 | 2344.0 | 9.6 | .7 |
| OCT | 34. | 2.1 | 4.33 | .3 | 2. | .1 | .0 | .0 | 2346.3 | 11.3 | 1.7 |
| NOV | 40. | 2.4 | 1.89 | .1 | 2. | .1 | .0 | .0 | 2348.9 | 13.5 | 2.2 |
| DEC | 41. | 2.5 | 1.04 | .1 | 2. | .1 | .0 | .0 | 2351.4 | 15.8 | 2.3 |
| TOTAL | | 28.7 | 54.25 | 5.5 | | 29.0 | .0 | .0 | | | -5.8 |
| | | | | | MOST PROBABLE INFLOW CONDITIONS | | | | | | |
| JAN | 52. | 3.2 | .81 | .1 | 2. | .1 | .0 | .0 | 2359.0 | 24.6 | 3.0 |
| FEB | 63. | 3.5 | .87 | .1 | 2. | .1 | .0 | .0 | 2361.4 | 27.9 | 3.3 |
| MAR | 62. | 3.8 | 1.58 | .2 | 2. | .1 | .0 | .0 | 2363.6 | 31.4 | 3.5 |
| APR | 69. | 4.1 | 4.62 | .7 | 2. | .1 | .0 | .0 | 2365.6 | 34.7 | 3.3 |
| MAY | 72. | 4.4 | 5.60 | .8 | 2. | .1 | 2.5 | .0 | 2366.1 | 35.7 | 1.0 |
| JUN | 69. | 4.1 | 6.74 | 1.0 | 54. | 3.2 | .0 | .0 | 2366.0 | 35.6 | -.1 |
| JUL | 73. | 4.5 | 7.67 | 1.0 | 220. | 13.5 | .0 | .0 | 2359.7 | 25.6 | -10.0 |
| AUG | 52. | 3.2 | 6.57 | .6 | 220. | 13.5 | .0 | .0 | 2350.2 | 14.7 | -10.9 |
| SEP | 35. | 2.1 | 4.93 | .4 | 12. | .7 | .0 | .0 | 2351.3 | 15.7 | 1.0 |
| OCT | 44. | 2.7 | 3.29 | .3 | 2. | .1 | .0 | .0 | 2353.5 | 18.0 | 2.3 |
| NOV | 49. | 2.9 | 1.89 | .2 | 2. | .1 | .0 | .0 | 2355.8 | 20.6 | 2.6 |
| DEC | 47. | 2.9 | .97 | .1 | 2. | .1 | .0 | .0 | 2358.0 | 23.3 | 2.7 |
| TOTAL | | 41.4 | 45.54 | 5.5 | | 31.7 | 2.5 | .0 | | | 1.7 |
| | | | | | REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | |
| JAN | 63. | 3.9 | .76 | .1 | 2. | .1 | .0 | .0 | 2359.5 | 25.3 | 3.7 |
| FEB | 92. | 5.1 | .81 | .1 | 2. | .1 | .0 | .0 | 2362.9 | 30.2 | 4.9 |
| MAR | 101. | 6.2 | 1.51 | .2 | 23. | 1.4 | .0 | .0 | 2365.6 | 34.8 | 4.6 |
| APR | 86. | 5.1 | 3.57 | .5 | 62. | 3.7 | .0 | .0 | 2366.1 | 35.7 | .9 |
| MAY | 104. | 6.4 | 4.24 | .7 | 2. | .1 | 5.6 | .0 | 2366.1 | 35.7 | .0 |
| JUN | 156. | 9.3 | 5.34 | .8 | 20. | 1.2 | 7.3 | .0 | 2366.1 | 35.7 | .0 |
| JUL | 146. | 9.0 | 6.24 | .9 | 145. | 8.9 | .0 | .0 | 2365.7 | 34.9 | -.8 |
| AUG | 94. | 5.8 | 5.38 | .8 | 137. | 8.4 | .0 | .0 | 2363.7 | 31.5 | -3.4 |
| SEP | 61. | 3.6 | 3.72 | .5 | 2. | .1 | .0 | .0 | 2365.4 | 34.5 | 3.0 |
| OCT | 60. | 3.7 | 2.50 | .4 | 2. | .1 | 2.0 | .0 | 2366.1 | 35.7 | 1.2 |
| NOV | 64. | 3.8 | 1.89 | .3 | 2. | .1 | 3.4 | .0 | 2366.1 | 35.7 | .0 |
| DEC | 59. | 3.6 | .86 | .1 | 2. | .1 | 3.4 | .0 | 2366.1 | 35.7 | .0 |
| TOTAL | | 65.5 | 36.82 | 5.4 | | 24.3 | 21.7 | .0 | | | 14.1 |

KEITH SEBELIUS OPERATIONS ESTIMATES - 1996

| MONTH | INFLOW MEAN CFS | INFLOW 1000 AF | EVAPORATION INCHES | EVAPORATION 1000 AF | RELEASE REQUIREMENT MEAN CFS | RELEASE REQUIREMENT 1000 AF | RESERVOIR SPILL 1000 AF | REQUIREMENT SHORTAGE 1000 AF | END OF MONTH ELEV FT | END OF MONTH CONT 1000 AF | RESERVOIR CHANGE 1000 AF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 2. | .1 | .85 | .1 | 2. | .1 | .0 | .0 | 2298.2 | 24.4 | -.1 |
| FEB | 2. | .1 | 1.02 | .1 | 2. | .1 | .0 | .0 | 2298.2 | 24.3 | -.1 |
| MAR | 3. | .2 | 1.71 | .2 | 2. | .1 | .0 | .0 | 2298.1 | 24.2 | -.1 |
| APR | 3. | .2 | 5.68 | .8 | 2. | .1 | .0 | .0 | 2297.7 | 23.5 | -.7 |
| MAY | 7. | .4 | 7.37 | 1.0 | 2. | .1 | .0 | .0 | 2297.3 | 22.8 | -.7 |
| JUN | 3. | .2 | 8.62 | 1.0 | 118. | 7.0 | .0 | .0 | 2291.6 | 15.0 | -7.8 |
| JUL | 0. | .0 | 9.86 | .8 | 135. | 8.3 | .0 | .0 | 2281.4 | 5.9 | -9.1 |
| AUG | 0. | .0 | 8.65 | .4 | 135. | 8.3 | .0 | 7.1 | 2278.6 | 4.3 | -1.6 |
| SEP | 0. | .0 | 6.20 | .3 | 24. | 1.4 | .0 | 1.3 | 2277.8 | 3.9 | -.4 |
| OCT | 0. | .0 | 5.00 | .2 | 2. | .1 | .0 | .0 | 2277.1 | 3.6 | -.3 |
| NOV | 0. | .0 | 1.96 | .1 | 2. | .1 | .0 | .0 | 2276.6 | 3.4 | -.2 |
| DEC | 2. | .1 | 1.06 | .0 | 2. | .1 | .0 | .0 | 2276.6 | 3.4 | .0 |
| TOTAL | | 1.3 | 57.98 | 5.0 | | 25.8 | .0 | 8.4 | | | -21.1 |
| MOST PROBABLE INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 5. | .3 | .81 | .1 | 2. | .1 | .0 | .0 | 2298.4 | 24.6 | .1 |
| FEB | 5. | .3 | .95 | .1 | 2. | .1 | .0 | .0 | 2298.4 | 24.7 | .1 |
| MAR | 5. | .3 | 1.69 | .2 | 2. | .1 | .0 | .0 | 2298.4 | 24.7 | .0 |
| APR | 10. | .6 | 4.95 | .7 | 2. | .1 | .0 | .0 | 2298.3 | 24.5 | -.2 |
| MAY | 13. | .8 | 5.75 | .8 | 2. | .1 | .0 | .0 | 2298.2 | 24.4 | -.1 |
| JUN | 10. | .6 | 7.09 | 1.0 | 35. | 2.1 | .0 | .0 | 2296.7 | 21.9 | -2.5 |
| JUL | 13. | .8 | 8.18 | .9 | 120. | 7.4 | .0 | .0 | 2291.1 | 14.4 | -7.5 |
| AUG | 5. | .3 | 7.06 | .6 | 98. | 6.0 | .0 | .0 | 2284.5 | 8.1 | -6.3 |
| SEP | 0. | .0 | 5.26 | .3 | 2. | .1 | .0 | .0 | 2284.0 | 7.7 | -.4 |
| OCT | 2. | .1 | 3.59 | .2 | 2. | .1 | .0 | .0 | 2283.7 | 7.5 | -.2 |
| NOV | 5. | .3 | 1.96 | .1 | 2. | .1 | .0 | .0 | 2283.8 | 7.6 | .1 |
| DEC | 3. | .2 | 1.02 | .1 | 2. | .1 | .0 | .0 | 2283.8 | 7.6 | .0 |
| TOTAL | | 4.6 | 48.31 | 5.1 | | 16.4 | .0 | .0 | | | -16.9 |
| REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 5. | .3 | .79 | .1 | 2. | .1 | .0 | .0 | 2298.4 | 24.6 | .1 |
| FEB | 13. | .7 | .91 | .1 | 2. | .1 | .0 | .0 | 2298.7 | 25.1 | .5 |
| MAR | 21. | 1.3 | 1.66 | .2 | 2. | .1 | .0 | .0 | 2299.2 | 26.1 | 1.0 |
| APR | 20. | 1.2 | 4.10 | .6 | 2. | .1 | .0 | .0 | 2299.5 | 26.6 | .5 |
| MAY | 36. | 2.2 | 4.43 | .7 | 2. | .1 | .0 | .0 | 2300.3 | 28.0 | 1.4 |
| JUN | 39. | 2.3 | 5.53 | .8 | 15. | .9 | .0 | .0 | 2300.6 | 28.6 | .6 |
| JUL | 80. | 4.9 | 6.57 | 1.0 | 52. | 3.2 | .0 | .0 | 2301.0 | 29.3 | .7 |
| AUG | 65. | 4.0 | 5.78 | .9 | 52. | 3.2 | .0 | .0 | 2301.0 | 29.2 | -.1 |
| SEP | 32. | 1.9 | 4.15 | .7 | 2. | .1 | .0 | .0 | 2301.5 | 30.3 | 1.1 |
| OCT | 24. | 1.5 | 2.63 | .4 | 2. | .1 | .0 | .0 | 2302.1 | 31.3 | 1.0 |
| NOV | 7. | .4 | 1.96 | .3 | 2. | .1 | .0 | .0 | 2302.1 | 31.3 | .0 |
| DEC | 7. | .4 | .97 | .2 | 2. | .1 | .0 | .0 | 2302.1 | 31.4 | .1 |
| TOTAL | | 21.1 | 39.48 | 6.0 | | 8.2 | .0 | .0 | | | 6.9 |

HARLAN COUNTY LAKE OPERATION ESTIMATES - 1996

| MONTH | INFLOW MEAN CFS | INFLOW 1000 AF | EVAPORATION INCHES | EVAPORATION 1000 AF | RELEASE REQUIREMENT MEAN CFS | RELEASE REQUIREMENT 1000 AF | RESERVOIR SPILL 1000 AF | REQUIREMENT SHORTAGE 1000 AF | END OF MONTH ELEV FT | END OF MONTH CONT 1000 AF | RESERVOIR CHANGE 1000 AF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 80. | 4.9 | 1.02 | 1.0 | 10. | .6 | .0 | .0 | 1942.1 | 266.9 | 3.3 |
| FEB | 146. | 8.1 | .95 | .9 | 11. | .6 | .0 | .0 | 1942.7 | 273.5 | 6.6 |
| MAR | 195. | 12.0 | 1.82 | 1.8 | 0. | .0 | .0 | .0 | 1943.5 | 283.7 | 10.2 |
| APR | 182. | 10.8 | 5.23 | 5.3 | 0. | .0 | .0 | .0 | 1944.0 | 289.2 | 5.5 |
| MAY | 166. | 10.2 | 6.38 | 6.6 | 29. | 1.8 | .0 | .0 | 1944.1 | 291.0 | 1.8 |
| JUN | 131. | 7.8 | 7.88 | 7.9 | 395. | 23.5 | .0 | .0 | 1942.1 | 267.4 | -23.6 |
| JUL | 88. | 5.4 | 8.92 | 8.0 | 1270. | 78.1 | .0 | .0 | 1934.6 | 186.7 | -80.7 |
| AUG | 78. | 4.8 | 7.83 | 6.3 | 810. | 49.8 | .0 | 34.0 | 1932.8 | 169.4 | -17.3 |
| SEP | 18. | 1.1 | 5.61 | 4.4 | 79. | 4.7 | .0 | 4.7 | 1932.4 | 166.1 | -3.3 |
| OCT | 20. | 1.2 | 4.19 | 3.2 | 0. | .0 | .0 | .0 | 1932.2 | 164.1 | -2.0 |
| NOV | 71. | 4.2 | 1.94 | 1.5 | 0. | .0 | .0 | .0 | 1932.5 | 166.8 | 2.7 |
| DEC | 80. | 4.9 | 1.51 | 1.2 | 0. | .0 | .0 | .0 | 1932.9 | 170.5 | 3.7 |
| TOTAL | | 75.4 | 53.28 | 48.1 | | 159.1 | .0 | 38.7 | | | -93.1 |
| MOST PROBABLE INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 137. | 8.4 | .83 | .8 | 10. | .6 | .0 | .0 | 1942.4 | 270.6 | 7.0 |
| FEB | 218. | 12.1 | .85 | .8 | 11. | .6 | .0 | .0 | 1943.3 | 281.3 | 10.7 |
| MAR | 291. | 17.9 | 1.52 | 1.6 | 0. | .0 | .0 | .0 | 1944.6 | 297.6 | 16.3 |
| APR | 297. | 17.7 | 4.15 | 4.4 | 0. | .0 | .0 | .0 | 1945.7 | 310.9 | 13.3 |
| MAY | 364. | 22.4 | 5.15 | 5.7 | 0. | .0 | 12.5 | .0 | 1946.0 | 315.1 | 4.2 |
| JUN | 212. | 12.6 | 6.34 | 7.0 | 49. | 2.9 | 2.7 | .0 | 1946.0 | 315.1 | .0 |
| JUL | 198. | 12.2 | 7.18 | 7.6 | 579. | 35.6 | .0 | .0 | 1943.5 | 284.1 | -31.0 |
| AUG | 164. | 10.1 | 6.12 | 5.9 | 735. | 45.2 | .0 | .0 | 1940.0 | 243.1 | -41.0 |
| SEP | 86. | 5.1 | 4.66 | 4.3 | 74. | 4.4 | .0 | .0 | 1939.7 | 239.5 | -3.6 |
| OCT | 88. | 5.4 | 3.15 | 2.9 | 0. | .0 | .0 | .0 | 1939.9 | 242.0 | 2.5 |
| NOV | 111. | 6.6 | 1.85 | 1.7 | 0. | .0 | .0 | .0 | 1940.3 | 246.9 | 4.9 |
| DEC | 119. | 7.3 | 1.04 | 1.0 | 10. | .6 | .0 | .0 | 1940.8 | 252.6 | 5.7 |
| TOTAL | | 137.8 | 42.84 | 43.7 | | 89.9 | 15.2 | .0 | | | -11.0 |
| REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 220. | 13.5 | .67 | .7 | 10. | .6 | .0 | .0 | 1942.8 | 275.8 | 12.2 |
| FEB | 364. | 20.2 | .60 | .6 | 11. | .6 | .0 | .0 | 1944.4 | 294.8 | 19.0 |
| MAR | 615. | 37.8 | 1.23 | 1.3 | 263. | 16.2 | .0 | .0 | 1946.0 | 315.1 | 20.3 |
| APR | 504. | 30.0 | 3.20 | 3.5 | 445. | 26.5 | .0 | .0 | 1946.0 | 315.1 | .0 |
| MAY | 727. | 44.7 | 4.00 | 4.4 | 0. | .0 | 40.3 | .0 | 1946.0 | 315.1 | .0 |
| JUN | 491. | 29.2 | 4.80 | 5.3 | 42. | 2.5 | 21.4 | .0 | 1946.0 | 315.1 | .0 |
| JUL | 556. | 34.2 | 5.38 | 5.9 | 158. | 9.7 | 18.6 | .0 | 1946.0 | 315.1 | .0 |
| AUG | 397. | 24.4 | 4.84 | 5.3 | 122. | 7.5 | 11.6 | .0 | 1946.0 | 315.1 | .0 |
| SEP | 262. | 15.6 | 3.70 | 4.1 | 5. | .3 | 11.2 | .0 | 1946.0 | 315.1 | .0 |
| OCT | 187. | 11.5 | 2.31 | 2.6 | 0. | .0 | 8.9 | .0 | 1946.0 | 315.1 | .0 |
| NOV | 215. | 12.8 | 1.62 | 1.8 | 0. | .0 | 11.0 | .0 | 1946.0 | 315.1 | .0 |
| DEC | 220. | 13.5 | .87 | 1.0 | 10. | .6 | 11.9 | .0 | 1946.0 | 315.1 | .0 |
| TOTAL | | 287.4 | 33.22 | 36.5 | | 64.5 | 134.9 | .0 | | | 51.5 |

LOVEWELL RESERVOIR OPERATION ESTIMATES - 1996

| MONTH | WHITE ROCK CREEK INFLOW 1000 AF | COURTLAND CANAL INFLOW 1000 AF | TOTAL INFLOW MEAN CFS | TOTAL INFLOW 1000 AF | EVAPORATION INCHES | EVAPORATION 1000 AF | RELEASE REQUIREMENT MEAN CFS | RELEASE REQUIREMENT 1000 AF | RES SPILL 1000 AF | REQ SHORT 1000 AF | END OF MONTH ELEV FT | END OF MONTH CONT 1000 AF | RES CHANGE 1000 AF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | | | |
| JAN | .0 | 2.2 | 36. | 2.2 | .71 | .2 | 0. | .0 | .0 | .0 | 1581.8 | 39.3 | 2.0 |
| FEB | .2 | 2.5 | 49. | 2.7 | .90 | .2 | 0. | .0 | .0 | .0 | 1582.6 | 41.8 | 2.5 |
| MAR | .4 | 3.3 | 60. | 3.7 | 1.56 | .4 | 0. | .0 | .0 | .0 | 1583.7 | 45.1 | 3.3 |
| APR | .5 | 2.3 | 47. | 2.8 | 4.54 | 1.2 | 0. | .0 | .0 | .0 | 1584.2 | 46.7 | 1.6 |
| MAY | .3 | 3.9 | 68. | 4.2 | 5.71 | 1.6 | 21. | 1.3 | .0 | .0 | 1584.6 | 48.0 | 1.3 |
| JUN | .3 | 1.2 | 25. | 1.5 | 6.96 | 1.8 | 166. | 9.9 | .0 | .0 | 1581.2 | 37.8 | -10.2 |
| JUL | .1 | 23.5 | 384. | 23.6 | 8.30 | 1.6 | 698. | 42.9 | .0 | .0 | 1571.8 | 16.9 | -20.9 |
| AUG | .0 | 7.2 | 117. | 7.2 | 7.16 | 1.0 | 470. | 28.9 | .0 | 22.6 | 1571.7 | 16.8 | -.1 |
| SEP | .0 | .5 | 8. | .5 | 4.93 | .7 | 49. | 2.9 | .0 | 2.9 | 1571.6 | 16.6 | -.2 |
| OCT | .0 | 1.9 | 31. | 1.9 | 3.53 | .5 | 0. | .0 | .0 | .0 | 1572.4 | 18.0 | 1.4 |
| NOV | .0 | 2.5 | 42. | 2.5 | 1.82 | .3 | 0. | .0 | .0 | .0 | 1573.6 | 20.2 | 2.2 |
| DEC | .0 | 2.6 | 42. | 2.6 | .90 | .1 | 0. | .0 | .0 | .0 | 1574.9 | 22.7 | 2.5 |
| TOTAL | 1.8 | 53.6 | | 55.4 | 47.02 | 9.6 | | 85.9 | .0 | 25.5 | | | -14.6 |
| | | | | | MOST PROBABLE INFLOW CONDITIONS | | | | | | | | |
| JAN | .7 | .0 | 11. | .7 | .68 | .2 | 0. | .0 | .0 | .0 | 1581.2 | 37.8 | .5 |
| FEB | 1.4 | .0 | 25. | 1.4 | .84 | .2 | 0. | .0 | .0 | .0 | 1581.7 | 39.0 | 1.2 |
| MAR | 2.2 | .0 | 36. | 2.2 | 1.53 | .4 | 0. | .0 | .0 | .0 | 1582.3 | 40.8 | 1.8 |
| APR | 2.0 | .0 | 34. | 2.0 | 3.70 | .9 | 0. | .0 | .0 | .0 | 1582.7 | 41.9 | 1.1 |
| MAY | 5.4 | 2.4 | 127. | 7.8 | 4.61 | 1.2 | 8. | .5 | .0 | .0 | 1584.6 | 48.0 | 6.1 |
| JUN | 4.7 | 2.8 | 126. | 7.5 | 5.68 | 1.6 | 99. | 5.9 | .0 | .0 | 1584.6 | 48.0 | .0 |
| JUL | 4.1 | 1.2 | 86. | 5.3 | 6.54 | 1.4 | 527. | 32.4 | .0 | .0 | 1573.2 | 19.5 | -28.5 |
| AUG | .9 | 17.8 | 304. | 18.7 | 5.41 | .8 | 335. | 20.6 | .0 | .0 | 1571.7 | 16.8 | -2.7 |
| SEP | .5 | 2.3 | 47. | 2.8 | 3.75 | .5 | 35. | 2.1 | .0 | .0 | 1571.8 | 17.0 | .2 |
| OCT | .6 | 4.7 | 86. | 5.3 | 2.51 | .4 | 0. | .0 | .0 | .0 | 1574.5 | 21.9 | 4.9 |
| NOV | .6 | 4.1 | 79. | 4.7 | 1.82 | .3 | 0. | .0 | .0 | .0 | 1576.6 | 26.3 | 4.4 |
| DEC | .8 | 4.6 | 88. | 5.4 | .85 | .2 | 0. | .0 | .0 | .0 | 1578.8 | 31.5 | 5.2 |
| TOTAL | 23.9 | 39.9 | | 63.8 | 37.92 | 8.1 | | 61.5 | .0 | .0 | | | -5.8 |
| | | | | | REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | | | |
| JAN | 4.0 | .0 | 65. | 4.0 | .67 | .2 | 0. | .0 | .0 | .0 | 1582.4 | 41.1 | 3.8 |
| FEB | 6.1 | .0 | 110. | 6.1 | .80 | .2 | 0. | .0 | .0 | .0 | 1584.3 | 47.0 | 5.9 |
| MAR | 12.8 | .0 | 208. | 12.8 | 1.49 | .4 | 185. | 11.4 | .0 | .0 | 1584.6 | 48.0 | 1.0 |
| APR | 8.8 | .0 | 148. | 8.8 | 2.71 | .7 | 136. | 8.1 | .0 | .0 | 1584.6 | 48.0 | .0 |
| MAY | 10.5 | .0 | 171. | 10.5 | 3.35 | .9 | 8. | .5 | 9.1 | .0 | 1584.6 | 48.0 | .0 |
| JUN | 8.0 | 1.2 | 155. | 9.2 | 4.45 | 1.2 | 49. | 2.9 | 5.1 | .0 | 1584.6 | 48.0 | .0 |
| JUL | 14.0 | 1.2 | 247. | 15.2 | 4.80 | 1.3 | 213. | 13.1 | 7.1 | .0 | 1582.6 | 41.7 | -6.3 |
| AUG | 11.8 | 1.2 | 211. | 13.0 | 4.00 | 1.0 | 161. | 9.9 | 2.1 | .0 | 1582.6 | 41.7 | .0 |
| SEP | 11.1 | .6 | 197. | 11.7 | 2.77 | .7 | 18. | 1.1 | 15.6 | .0 | 1580.6 | 36.0 | -5.7 |
| OCT | 9.3 | .0 | 151. | 9.3 | 1.73 | .4 | 0. | .0 | 8.9 | .0 | 1580.6 | 36.0 | .0 |
| NOV | 4.9 | .0 | 82. | 4.9 | 1.82 | .4 | 0. | .0 | 4.5 | .0 | 1580.6 | 36.0 | .0 |
| DEC | 4.3 | .0 | 70. | 4.3 | .81 | .2 | 0. | .0 | 4.1 | .0 | 1580.6 | 36.0 | .0 |
| TOTAL | 105.6 | 4.2 | | 109.8 | 29.40 | 7.6 | | 47.0 | 56.5 | .0 | | | -1.3 |

KIRWIN RESERVOIR OPERATION ESTIMATES - 1996

| MONTH | INFLOW MEAN CFS | INFLOW 1000 AF | EVAPORATION INCHES | EVAPORATION 1000 AF | RELEASE REQUIREMENT MEAN CFS | RELEASE REQUIREMENT 1000 AF | RESERVOIR SPILL 1000 AF | REQUIREMENT SHORTAGE 1000 AF | END OF MONTH ELEV FT | END OF MONTH CONT 1000 AF | RESERVOIR CHANGE 1000 AF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 0. | .0 | .81 | .4 | 0. | .0 | .0 | .0 | 1730.1 | 103.9 | -.4 |
| FEB | 4. | .2 | 1.05 | .5 | 0. | .0 | .0 | .0 | 1730.0 | 103.6 | -.3 |
| MAR | 8. | .5 | 1.69 | .7 | 0. | .0 | .0 | .0 | 1730.0 | 103.4 | -.2 |
| APR | 5. | .3 | 4.68 | 2.0 | 0. | .0 | .0 | .0 | 1729.7 | 101.7 | -1.7 |
| MAY | 15. | .9 | 5.93 | 2.5 | 0. | .0 | .0 | .0 | 1729.4 | 100.1 | -1.6 |
| JUN | 7. | .4 | 7.15 | 3.0 | 61. | 3.6 | .0 | .0 | 1728.1 | 93.9 | -6.2 |
| JUL | 2. | .1 | 8.39 | 3.3 | 164. | 10.1 | .0 | .0 | 1725.3 | 80.6 | -13.3 |
| AUG | 0. | .0 | 7.49 | 2.7 | 125. | 7.7 | .0 | .0 | 1722.9 | 70.2 | -10.4 |
| SEP | 0. | .0 | 5.25 | 1.8 | 0. | .0 | .0 | .0 | 1722.4 | 68.4 | -1.8 |
| OCT | 0. | .0 | 3.97 | 1.3 | 0. | .0 | .0 | .0 | 1722.1 | 67.1 | -1.3 |
| NOV | 0. | .0 | 1.91 | .6 | 0. | .0 | .0 | .0 | 1721.9 | 66.5 | -.6 |
| DEC | 0. | .0 | 1.02 | .3 | 0. | .0 | .0 | .0 | 1721.9 | 66.2 | -.3 |
| TOTAL | | 2.4 | 49.34 | 19.1 | | 21.4 | .0 | .0 | | | -38.1 |
| MOST PROBABLE INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 10. | .6 | .77 | .3 | 0. | .0 | .0 | .0 | 1730.2 | 104.6 | .3 |
| FEB | 18. | 1.0 | .99 | .4 | 0. | .0 | .0 | .0 | 1730.4 | 105.2 | .6 |
| MAR | 29. | 1.8 | 1.67 | .7 | 0. | .0 | .0 | .0 | 1730.6 | 106.3 | 1.1 |
| APR | 50. | 3.0 | 3.94 | 1.7 | 0. | .0 | .0 | .0 | 1730.8 | 107.6 | 1.3 |
| MAY | 50. | 3.1 | 4.87 | 2.2 | 0. | .0 | .0 | .0 | 1731.0 | 108.5 | .9 |
| JUN | 40. | 2.4 | 6.10 | 2.7 | 40. | 2.4 | .0 | .0 | 1730.5 | 105.8 | -2.7 |
| JUL | 42. | 2.6 | 6.86 | 3.0 | 111. | 6.8 | .0 | .0 | 1729.1 | 98.6 | -7.2 |
| AUG | 16. | 1.0 | 5.97 | 2.5 | 85. | 5.2 | .0 | .0 | 1727.7 | 91.9 | -6.7 |
| SEP | 5. | .3 | 4.24 | 1.7 | 0. | .0 | .0 | .0 | 1727.4 | 90.5 | -1.4 |
| OCT | 2. | .1 | 2.94 | 1.2 | 0. | .0 | .0 | .0 | 1727.2 | 89.4 | -1.1 |
| NOV | 7. | .4 | 1.91 | .8 | 0. | .0 | .0 | .0 | 1727.1 | 89.0 | -.4 |
| DEC | 8. | .5 | .97 | .4 | 0. | .0 | .0 | .0 | 1727.1 | 89.1 | .1 |
| TOTAL | | 16.8 | 41.23 | 17.6 | | 14.4 | .0 | .0 | | | -15.2 |
| REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 29. | 1.8 | .74 | .3 | 0. | .0 | .0 | .0 | 1730.5 | 105.8 | 1.5 |
| FEB | 67. | 3.7 | .94 | .4 | 0. | .0 | .0 | .0 | 1731.1 | 109.1 | 3.3 |
| MAR | 96. | 5.9 | 1.64 | .7 | 67. | 4.1 | .0 | .0 | 1731.3 | 110.2 | 1.1 |
| APR | 77. | 4.6 | 3.15 | 1.4 | 54. | 3.2 | .0 | .0 | 1731.3 | 110.2 | .0 |
| MAY | 190. | 11.7 | 3.81 | 1.7 | 0. | .0 | 10.0 | .0 | 1731.3 | 110.2 | .0 |
| JUN | 197. | 11.7 | 4.83 | 2.2 | 25. | 1.5 | 8.0 | .0 | 1731.3 | 110.2 | .0 |
| JUL | 171. | 10.5 | 5.62 | 2.5 | 68. | 4.2 | 14.6 | .0 | 1729.2 | 99.4 | -10.8 |
| AUG | 231. | 14.2 | 4.70 | 2.0 | 52. | 3.2 | 9.0 | .0 | 1729.2 | 99.4 | .0 |
| SEP | 158. | 9.4 | 3.33 | 1.4 | 0. | .0 | 8.0 | .0 | 1729.2 | 99.4 | .0 |
| OCT | 93. | 5.7 | 2.14 | .9 | 0. | .0 | 4.8 | .0 | 1729.2 | 99.4 | .0 |
| NOV | 61. | 3.6 | 1.91 | .8 | 0. | .0 | 2.8 | .0 | 1729.2 | 99.4 | .0 |
| DEC | 46. | 2.8 | .91 | .4 | 0. | .0 | 2.4 | .0 | 1729.2 | 99.4 | .0 |
| TOTAL | | 85.6 | 33.72 | 14.7 | | 16.2 | 59.6 | .0 | | | -4.9 |

WEBSTER RESERVOIR OPERATION ESTIMATES - 1996

| | INFLOW | | EVAPORATION | | RELEASE REQUIREMENT | | RESERVOIR SPILL | REQUIREMENT SHORTAGE | END OF MONTH | | RESERVOIR CHANGE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | MEAN | 1000 | | 1000 | MEAN | 1000 | 1000 | 1000 | ELEV | CONT 1000 | 1000 |
| MONTH | CFS | AF | INCHES | AF | CFS | AF | AF | AF | FT | AF | AF |
| | | | | | REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | |
| JAN | 0. | .0 | .89 | .3 | 0. | .0 | .0 | .0 | 1893.7 | 82.2 | -.3 |
| FEB | 2. | .1 | 1.04 | .3 | 0. | .0 | .0 | .0 | 1893.6 | 82.0 | -.2 |
| MAR | 2. | .1 | 1.77 | .6 | 0. | .0 | .0 | .0 | 1893.5 | 81.5 | -.5 |
| APR | 8. | .5 | 5.20 | 1.7 | 0. | .0 | .0 | .0 | 1893.2 | 80.3 | -1.2 |
| MAY | 13. | .8 | 6.41 | 2.0 | 0. | .0 | .0 | .0 | 1892.9 | 79.1 | -1.2 |
| JUN | 2. | .1 | 8.04 | 2.5 | 76. | 4.5 | .0 | .0 | 1891.0 | 72.2 | -6.9 |
| JUL | 0. | .0 | 9.14 | 2.6 | 187. | 11.5 | .0 | .0 | 1886.9 | 58.1 | -14.1 |
| AUG | 0. | .0 | 8.16 | 2.0 | 132. | 8.1 | .0 | .0 | 1883.5 | 48.0 | -10.1 |
| SEP | 0. | .0 | 5.80 | 1.3 | 0. | .0 | .0 | .0 | 1883.0 | 46.7 | -1.3 |
| OCT | 0. | .0 | 4.44 | 1.0 | 0. | .0 | .0 | .0 | 1882.6 | 45.7 | -1.0 |
| NOV | 0. | .0 | 1.96 | .4 | 0. | .0 | .0 | .0 | 1882.5 | 45.3 | -.4 |
| DEC | 0. | .0 | 1.08 | .2 | 0. | .0 | .0 | .0 | 1882.4 | 45.1 | -.2 |
| TOTAL | | 1.6 | 53.93 | 14.9 | | 24.1 | .0 | .0 | | | -37.4 |
| | | | | | MOST PROBABLE INFLOW CONDITIONS | | | | | | |
| JAN | 5. | .3 | .85 | .3 | 0. | .0 | .0 | .0 | 1893.8 | 82.5 | .0 |
| FEB | 18. | 1.0 | .98 | .3 | 0. | .0 | .0 | .0 | 1893.9 | 83.2 | .7 |
| MAR | 31. | 1.9 | 1.76 | .6 | 0. | .0 | .0 | .0 | 1894.3 | 84.5 | 1.3 |
| APR | 39. | 2.3 | 4.17 | 1.4 | 0. | .0 | .0 | .0 | 1894.5 | 85.4 | .9 |
| MAY | 44. | 2.7 | 5.26 | 1.8 | 0. | .0 | .0 | .0 | 1894.7 | 86.3 | .9 |
| JUN | 35. | 2.1 | 6.72 | 2.2 | 47. | 2.8 | .0 | .0 | 1894.0 | 83.4 | -2.9 |
| JUL | 10. | .6 | 7.58 | 2.4 | 127. | 7.8 | .0 | .0 | 1891.5 | 73.8 | -9.6 |
| AUG | 15. | .9 | 6.55 | 1.9 | 89. | 5.5 | .0 | .0 | 1889.7 | 67.3 | -6.5 |
| SEP | 2. | .1 | 4.87 | 1.4 | 0. | .0 | .0 | .0 | 1889.3 | 66.0 | -1.3 |
| OCT | 2. | .1 | 3.35 | .9 | 0. | .0 | .0 | .0 | 1889.0 | 65.2 | -.8 |
| NOV | 2. | .1 | 1.96 | .6 | 0. | .0 | .0 | .0 | 1888.9 | 64.7 | -.5 |
| DEC | 8. | .5 | 1.05 | .3 | 0. | .0 | .0 | .0 | 1889.0 | 64.9 | .2 |
| TOTAL | | 12.6 | 45.10 | 14.1 | | 16.1 | .0 | .0 | | | -17.6 |
| | | | | | REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | |
| JAN | 34. | 2.1 | .80 | .3 | 0. | .0 | .0 | .0 | 1894.2 | 84.3 | 1.8 |
| FEB | 54. | 3.0 | .93 | .3 | 9. | .5 | .0 | .0 | 1894.8 | 86.5 | 2.2 |
| MAR | 85. | 5.2 | 1.73 | .6 | 75. | 4.6 | .0 | .0 | 1894.8 | 86.5 | .0 |
| APR | 121. | 7.2 | 3.41 | 1.1 | 103. | 6.1 | .0 | .0 | 1894.8 | 86.5 | .0 |
| MAY | 181. | 11.1 | 4.22 | 1.4 | 0. | .0 | 9.7 | .0 | 1894.8 | 86.5 | .0 |
| JUN | 111. | 6.6 | 5.24 | 1.8 | 7. | .4 | 4.4 | .0 | 1894.8 | 86.5 | .0 |
| JUL | 246. | 15.1 | 6.21 | 2.0 | 54. | 3.3 | 18.9 | .0 | 1892.4 | 77.4 | -9.1 |
| AUG | 104. | 6.4 | 5.36 | 1.7 | 42. | 2.6 | 2.1 | .0 | 1892.4 | 77.4 | .0 |
| SEP | 69. | 4.1 | 3.68 | 1.2 | 0. | .0 | 2.9 | .0 | 1892.4 | 77.4 | .0 |
| OCT | 47. | 2.9 | 2.37 | .7 | 0. | .0 | 2.2 | .0 | 1892.4 | 77.4 | .0 |
| NOV | 49. | 2.9 | 1.96 | .6 | 0. | .0 | 2.3 | .0 | 1892.4 | 77.4 | .0 |
| DEC | 31. | 1.9 | 1.01 | .3 | 0. | .0 | 1.6 | .0 | 1892.4 | 77.4 | .0 |
| TOTAL | | 68.5 | 36.92 | 12.0 | | 17.5 | 44.1 | .0 | | | -5.1 |

WACONDA LAKE OPERATION ESTIMATES - 1996

| MONTH | INFLOW MEAN CFS | INFLOW 1000 AF | EVAPORATION INCHES | EVAPORATION 1000 AF | RELEASE REQUIREMENT MEAN CFS | RELEASE REQUIREMENT 1000 AF | RESERVOIR SPILL 1000 AF | REQUIREMENT SHORTAGE 1000 AF | END OF MONTH ELEV FT | END OF MONTH CONT 1000 AF | RESERVOIR CHANGE 1000 AF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 26. | 1.6 | .78 | .8 | 151. | 9.3 | .0 | .0 | 1455.0 | 233.8 | -8.5 |
| FEB | 38. | 2.1 | .95 | 1.0 | 169. | 9.4 | .0 | .0 | 1454.3 | 225.5 | -8.3 |
| MAR | 44. | 2.7 | 1.67 | 1.7 | 153. | 9.4 | .0 | .0 | 1453.6 | 217.1 | -8.4 |
| APR | 54. | 3.2 | 5.57 | 5.4 | 2. | .1 | .0 | .0 | 1453.4 | 214.8 | -2.3 |
| MAY | 83. | 5.1 | 6.76 | 6.5 | 2. | .1 | .0 | .0 | 1453.3 | 213.3 | -1.5 |
| JUN | 81. | 4.8 | 8.59 | 8.2 | 35. | 2.1 | .0 | .0 | 1452.8 | 207.8 | -5.5 |
| JUL | 36. | 2.2 | 10.40 | 9.6 | 99. | 6.1 | .0 | .0 | 1451.6 | 194.3 | -13.5 |
| AUG | 36. | 2.2 | 8.96 | 7.9 | 99. | 6.1 | .0 | .0 | 1450.5 | 182.5 | -11.8 |
| SEP | 3. | .2 | 6.50 | 5.6 | 35. | 2.1 | .0 | .0 | 1449.7 | 175.0 | -7.5 |
| OCT | 2. | .1 | 4.64 | 3.9 | 2. | .1 | .0 | .0 | 1449.3 | 171.1 | -3.9 |
| NOV | 22. | 1.3 | 1.89 | 1.6 | 2. | .1 | .0 | .0 | 1449.3 | 170.7 | -.4 |
| DEC | 20. | 1.2 | .95 | .8 | 11. | .7 | .0 | .0 | 1449.3 | 170.4 | -.3 |
| TOTAL | | 26.7 | 57.66 | 53.0 | | 45.6 | .0 | .0 | | | -71.9 |
| MOST PROBABLE INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 57. | 3.5 | .72 | .7 | 224. | 13.8 | .0 | .0 | 1454.8 | 231.3 | -11.0 |
| FEB | 113. | 6.3 | .89 | .9 | 248. | 13.8 | .0 | .0 | 1454.1 | 222.9 | -8.4 |
| MAR | 159. | 9.8 | 1.69 | 1.7 | 226. | 13.9 | .0 | .0 | 1453.6 | 217.1 | -5.8 |
| APR | 171. | 10.2 | 4.54 | 4.4 | 97. | 5.8 | .0 | .0 | 1453.6 | 217.1 | .0 |
| MAY | 246. | 15.1 | 5.45 | 5.3 | 159. | 9.8 | .0 | .0 | 1453.6 | 217.1 | .0 |
| JUN | 235. | 14.0 | 7.06 | 6.9 | 119. | 7.1 | .0 | .0 | 1453.6 | 217.1 | .0 |
| JUL | 168. | 10.3 | 8.30 | 8.1 | 70. | 4.3 | .0 | .0 | 1453.4 | 215.0 | -2.1 |
| AUG | 138. | 8.5 | 7.08 | 6.9 | 70. | 4.3 | .0 | .0 | 1453.2 | 212.3 | -2.7 |
| SEP | 133. | 7.9 | 5.29 | 5.1 | 25. | 1.5 | .0 | .0 | 1453.3 | 213.6 | 1.3 |
| OCT | 85. | 5.2 | 3.51 | 3.4 | 2. | .1 | .0 | .0 | 1453.4 | 215.3 | 1.7 |
| NOV | 55. | 3.3 | 1.89 | 1.8 | 2. | .1 | .0 | .0 | 1453.6 | 216.7 | 1.4 |
| DEC | 63. | 3.9 | .94 | .9 | 42. | 2.6 | .0 | .0 | 1453.6 | 217.1 | .4 |
| TOTAL | | 98.0 | 47.36 | 46.1 | | 77.1 | .0 | .0 | | | -25.2 |
| REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 223. | 13.7 | .69 | .7 | 224. | 13.8 | .0 | .0 | 1455.6 | 241.5 | -.8 |
| FEB | 439. | 24.4 | .84 | .9 | 423. | 23.5 | .0 | .0 | 1455.6 | 241.5 | .0 |
| MAR | 865. | 53.2 | 1.60 | 1.7 | 838. | 51.5 | .0 | .0 | 1455.6 | 241.5 | .0 |
| APR | 785. | 46.7 | 3.61 | 3.8 | 721. | 42.9 | .0 | .0 | 1455.6 | 241.5 | .0 |
| MAY | 932. | 57.3 | 4.31 | 4.5 | 2. | .1 | 52.7 | .0 | 1455.6 | 241.5 | .0 |
| JUN | 938. | 55.8 | 5.52 | 5.8 | 2. | .1 | 49.9 | .0 | 1455.6 | 241.5 | .0 |
| JUL | 1285. | 79.0 | 6.39 | 6.7 | 2. | .1 | 72.2 | .0 | 1455.6 | 241.5 | .0 |
| AUG | 532. | 32.7 | 5.79 | 6.1 | 2. | .1 | 26.5 | .0 | 1455.6 | 241.5 | .0 |
| SEP | 418. | 24.9 | 4.20 | 4.4 | 2. | .1 | 20.4 | .0 | 1455.6 | 241.5 | .0 |
| OCT | 377. | 23.2 | 2.60 | 2.7 | 462. | 28.4 | .0 | .0 | 1455.0 | 233.6 | -7.9 |
| NOV | 218. | 13.0 | 1.89 | 1.9 | 464. | 27.6 | .0 | .0 | 1453.6 | 217.1 | -16.5 |
| DEC | 247. | 15.2 | .89 | .9 | 233. | 14.3 | .0 | .0 | 1453.6 | 217.1 | .0 |
| TOTAL | | 439.1 | 38.33 | 40.1 | | 202.5 | 221.7 | .0 | | | -25.2 |

CEDAR BLUFF RESERVOIR OPERATION ESTIMATES - 1996

| MONTH | INFLOW MEAN CFS | INFLOW 1000 AF | EVAPORATION INCHES | EVAPORATION 1000 AF | RELEASE REQUIREMENT MEAN CFS | RELEASE REQUIREMENT 1000 AF | RESERVOIR SPILL 1000 AF | REQUIREMENT SHORTAGE 1000 AF | END OF MONTH ELEV FT | END OF MONTH CONT 1000 AF | RESERVOIR CHANGE 1000 AF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| REASONABLE MINIMUM INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 0. | .0 | 1.07 | .4 | 0. | .0 | .0 | .0 | 2126.7 | 91.3 | -.4 |
| FEB | 0. | .0 | 1.30 | .4 | 0. | .0 | .0 | .0 | 2126.6 | 90.9 | -.4 |
| MAR | 0. | .0 | 1.92 | .6 | 2. | .1 | .0 | .0 | 2126.4 | 90.2 | -.7 |
| APR | 5. | .3 | 6.37 | 2.1 | 2. | .1 | .0 | .0 | 2125.9 | 88.3 | -1.9 |
| MAY | 8. | .5 | 7.69 | 2.5 | 7. | .4 | .0 | .0 | 2125.3 | 85.9 | -2.4 |
| JUN | 5. | .3 | 9.32 | 3.0 | 7. | .4 | .0 | .0 | 2124.5 | 82.8 | -3.1 |
| JUL | 0. | .0 | 11.00 | 3.4 | 13. | .8 | .0 | .0 | 2123.4 | 78.6 | -4.2 |
| AUG | 0. | .0 | 9.60 | 2.8 | 11. | .7 | .0 | .0 | 2122.4 | 75.1 | -3.5 |
| SEP | 0. | .0 | 7.57 | 2.2 | 3. | .2 | .0 | .0 | 2121.7 | 72.7 | -2.4 |
| OCT | 0. | .0 | 6.14 | 1.7 | 0. | .0 | .0 | .0 | 2121.2 | 71.0 | -1.7 |
| NOV | 0. | .0 | 2.07 | .6 | 0. | .0 | .0 | .0 | 2121.0 | 70.4 | -.6 |
| DEC | 0. | .0 | 1.20 | .3 | 0. | .0 | .0 | .0 | 2120.9 | 70.1 | -.3 |
| TOTAL | | 1.1 | 65.25 | 20.0 | | 2.7 | .0 | .0 | | | -21.6 |
| MOST PROBABLE INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 3. | .2 | .95 | .3 | 0. | .0 | .0 | .0 | 2126.8 | 91.6 | -.1 |
| FEB | 7. | .4 | 1.04 | .4 | 0. | .0 | .0 | .0 | 2126.8 | 91.6 | .0 |
| MAR | 8. | .5 | 1.90 | .6 | 2. | .1 | .0 | .0 | 2126.7 | 91.4 | -.2 |
| APR | 22. | 1.3 | 5.13 | 1.7 | 2. | .1 | .0 | .0 | 2126.6 | 90.9 | -.5 |
| MAY | 29. | 1.8 | 6.24 | 2.1 | 5. | .3 | .0 | .0 | 2126.4 | 90.3 | -.6 |
| JUN | 27. | 1.6 | 7.73 | 2.6 | 5. | .3 | .0 | .0 | 2126.1 | 89.0 | -1.3 |
| JUL | 21. | 1.3 | 8.84 | 2.9 | 11. | .7 | .0 | .0 | 2125.5 | 86.7 | -2.3 |
| AUG | 16. | 1.0 | 7.71 | 2.5 | 7. | .4 | .0 | .0 | 2125.1 | 84.8 | -1.9 |
| SEP | 2. | .1 | 6.12 | 1.9 | 2. | .1 | .0 | .0 | 2124.5 | 82.9 | -1.9 |
| OCT | 0. | .0 | 4.47 | 1.4 | 0. | .0 | .0 | .0 | 2124.2 | 81.5 | -1.4 |
| NOV | 0. | .0 | 2.07 | .6 | 0. | .0 | .0 | .0 | 2124.0 | 80.9 | -.6 |
| DEC | 2. | .1 | 1.12 | .3 | 0. | .0 | .0 | .0 | 2123.9 | 80.7 | -.2 |
| TOTAL | | 8.3 | 53.32 | 17.3 | | 2.0 | .0 | .0 | | | -11.0 |
| REASONABLE MAXIMUM INFLOW CONDITIONS | | | | | | | | | | | |
| JAN | 18. | 1.1 | .85 | .3 | 0. | .0 | .0 | .0 | 2127.0 | 92.5 | .8 |
| FEB | 38. | 2.1 | .97 | .3 | 0. | .0 | .0 | .0 | 2127.4 | 94.3 | 1.8 |
| MAR | 72. | 4.4 | 1.84 | .6 | 2. | .1 | .0 | .0 | 2128.3 | 98.0 | 3.7 |
| APR | 86. | 5.1 | 4.05 | 1.5 | 2. | .1 | .0 | .0 | 2129.1 | 101.5 | 3.5 |
| MAY | 112. | 6.9 | 4.50 | 1.7 | 5. | .3 | .0 | .0 | 2130.2 | 106.4 | 4.9 |
| JUN | 146. | 8.7 | 5.89 | 2.3 | 5. | .3 | .0 | .0 | 2131.5 | 112.5 | 6.1 |
| JUL | 263. | 16.2 | 7.09 | 2.9 | 3. | .2 | .0 | .0 | 2134.2 | 125.6 | 13.1 |
| AUG | 112. | 6.9 | 6.20 | 2.7 | 0. | .0 | .0 | .0 | 2135.0 | 129.8 | 4.2 |
| SEP | 61. | 3.6 | 4.72 | 2.1 | 0. | .0 | .0 | .0 | 2135.2 | 131.3 | 1.5 |
| OCT | 50. | 3.1 | 3.11 | 1.4 | 0. | .0 | .0 | .0 | 2135.6 | 133.0 | 1.7 |
| NOV | 32. | 1.9 | 2.07 | .9 | 0. | .0 | .0 | .0 | 2135.7 | 134.0 | 1.0 |
| DEC | 24. | 1.5 | 1.02 | .5 | 0. | .0 | .0 | .0 | 2135.9 | 135.0 | 1.0 |
| TOTAL | | 61.5 | 42.31 | 17.2 | | 1.0 | .0 | .0 | | | 43.3 |

TABLE 5

**FLOOD DAMAGES PREVENTED BY NEBRASKA-KANSAS PROJECTS RESERVOIRS**

**BONNY**

| Year | $ Damages Prevented | Cumulative Total |
|---|---|---|
| 1951 | 293,000 | 293,000 |
| 1953 | 135,000 | 428,000 |
| 1957 | 1,050,000 | 1,478,000 |
| 1960 | 169,000 | 1,647,000 |
| 1965 | 273,000 | 1,920,000 |
| 1967 | 42,000 | 1,962,000 |
| 1969 | 200,000 | 2,162,000 |
| 1995 | 496,000 | 2,658,000 |

**ENDERS**

| Year | $ Damages Prevented | Cumulative Total |
|---|---|---|
| 1951 | 220,000 | 220,000 |
| 1956 | 104,000 | 324,000 |
| 1960 | 412,000 | 736,000 |
| 1962 | 37,000 | 773,000 |
| 1965 | 137,000 | 910,000 |
| 1967 | 42,000 | 952,000 |
| 1969 | 1,000 | 953,000 |
| 1995 | 29,000 | 982,000 |

**SWANSON**

| Year | $ Damages Prevented | Cumulative Total |
|---|---|---|
| 1957 | 233,000 | 233,000 |
| 1960 | 900,000 | 1,133,000 |
| 1962 | 126,000 | 1,259,000 |
| 1964 | 50,000 | 1,309,000 |
| 1965 | 477,000 | 1,786,000 |
| 1967 | 182,000 | 1,968,000 |
| 1969 | 1,000 | 1,969,000 |
| 1994 | 1,135,000 | 3,104,000 |
| 1995 | 5,391,000 | 8,495,000 |

**HUGH BUTLER**

| Year | $ Damages Prevented | Cumulative Total |
|---|---|---|
| 1962 | 2,000 | 2,000 |
| 1965 | 137,000 | 139,000 |
| 1967 | 42,000 | 181,000 |
| 1995 | 496,000 | 677,000 |

**HARRY STRUNK**

| Year | $ Damages Prevented | Cumulative Total |
|---|---|---|
| 1951 | 14,000 | 14,000 |
| 1957 | 5,000 | 19,000 |
| 1960 | 198,000 | 217,000 |
| 1962 | 29,000 | 246,000 |
| 1967 | 129,000 | 375,000 |
| 1969 | 6,000 | 381,000 |
| 1994 | 24,000 | 405,000 |
| 1995 | 540,000 | 945,000 |

**KEITH SEBELIUS**

| Year | $ Damages Prevented | Cumulative Total |
|---|---|---|
| 1966 | 132,000 | 132,000 |
| 1967 | 885,000 | 1,017,000 |
| 1972 | 498,000 | 1,515,000 |
| 1995 | 563,000 | 2,078,000 |

**HARLAN COUNTY**

| Year | $ Damages Prevented | Cumulative Total |
|---|---|---|
| 1957 | 1,045,000 | 1,045,000 |
| 1960 | 4,853,000 | 5,898,000 |
| 1961 | 255,000 | 6,153,000 |
| 1962 | 45,000 | 6,198,000 |
| 1964 | 182,000 | 6,380,000 |
| 1965 | 60,000 | 6,440,000 |
| 1966 | 1,658,000 | 8,098,000 |
| 1967 | 3,539,000 | 11,637,000 |
| 1969 | 14,000 | 11,651,000 |
| 1971 | 64,000 | 11,715,000 |
| 1973 | 1,310,000 | 13,025,000 |
| 1974 | 1,000 | 13,026,000 |
| 1975 | 200,000 | 13,226,000 |
| 1976 | 1,000 | 13,227,000 |
| 1978 | 100,000 | 13,327,000 |
| 1979 | 21,000 | 13,348,000 |
| 1981 | 21,000 | 13,369,000 |
| 1982 | 465,000 | 13,834,000 |
| 1983 | 1,874,000 | 15,708,000 |
| 1984 | 1,639,000 | 17,347,000 |
| 1986 | 6,756,000 | 24,103,000 |
| 1987 | 2,336,000 | 26,439,000 |
| 1989 | 674,000 | 27,113,000 |
| 1990 | 183,000 | 27,296,000 |
| 1991 | 105,000 | 27,401,000 |
| 1992 | 1,159,000 | 28,560,000 |
| 1993 | 55,261,000 | 83,821,000 |
| 1994 | 1,233,000 | 85,054,000 |
| 1995 | 28,182,000 | 113,236,000 |

**LOVEWELL**

| Year | $ Damages Prevented | Cumulative Total |
|---|---|---|
| 1957 | 349,000 | 349,000 |
| 1960 | 178,000 | 527,000 |
| 1961 | 165,000 | 692,000 |
| 1962 | 5,000 | 697,000 |
| 1971 | 9,000 | 706,000 |
| 1973 | 1,728,000 | 2,434,000 |
| 1975 | 98,000 | 2,532,000 |
| 1978 | 25,000 | 2,557,000 |
| 1979 | 13,000 | 2,570,000 |
| 1981 | 8,000 | 2,578,000 |
| 1982 | 18,000 | 2,596,000 |
| 1983 | 511,000 | 3,107,000 |
| 1984 | 276,000 | 3,383,000 |
| 1985 | 140,000 | 3,523,000 |
| 1986 | 354,000 | 3,877,000 |
| 1987 | 1,185,000 | 5,062,000 |
| 1989 | 2,259,000 | 7,321,000 |
| 1990 | 77,000 | 7,398,000 |
| 1992 | 3,252,000 | 10,650,000 |
| 1993 | 124,769,000 | 135,419,000 |
| 1994 | 24,000 | 135,443,000 |
| 1995 | 7,098,000 | 142,541,000 |

**KIRWIN**

| Year | $ Damages Prevented | Cumulative Total |
|---|---|---|
| 1957 | 522,000 | 522,000 |
| 1958 | 10,000 | 532,000 |
| 1960 | 499,000 | 1,031,000 |
| 1961 | 1,000 | 1,032,000 |
| 1962 | 1,000 | 1,033,000 |
| 1964 | 34,000 | 1,067,000 |
| 1965 | 325,000 | 1,392,000 |
| 1967 | 191,000 | 1,583,000 |
| 1968 | 44,000 | 1,627,000 |
| 1969 | 2,000 | 1,629,000 |
| 1971 | 3,000 | 1,632,000 |
| 1973 | 40,000 | 1,672,000 |
| 1975 | 618,000 | 2,290,000 |
| 1978 | 4,000 | 2,294,000 |
| 1979 | 35,000 | 2,329,000 |
| 1982 | 25,000 | 2,354,000 |
| 1983 | 1,000 | 2,355,000 |
| 1985 | 60,000 | 2,415,000 |
| 1986 | 60,000 | 2,475,000 |
| 1987 | 441,000 | 2,916,000 |
| 1989 | 236,000 | 3,152,000 |
| 1990 | 54,000 | 3,206,000 |
| 1992 | 591,000 | 3,797,000 |
| 1993 | 54,794,000 | 58,591,000 |
| 1994 | 1,126,000 | 59,717,000 |
| 1995 | 13,514,000 | 73,231,000 |

**WEBSTER**

| Year | $ Damages Prevented | Cumulative Total |
|---|---|---|
| 1957 | 326,000 | 326,000 |
| 1958 | 114,000 | 440,000 |
| 1960 | 1,018,000 | 1,458,000 |
| 1961 | 1,000 | 1,459,000 |
| 1962 | 1,000 | 1,460,000 |
| 1964 | 17,000 | 1,477,000 |
| 1965 | 325,000 | 1,802,000 |
| 1967 | 85,000 | 1,887,000 |
| 1968 | 2,000 | 1,889,000 |
| 1969 | 1,000 | 1,890,000 |
| 1971 | 3,000 | 1,893,000 |
| 1973 | 54,000 | 1,947,000 |
| 1975 | 885,000 | 2,832,000 |
| 1978 | 2,000 | 2,834,000 |
| 1979 | 16,000 | 2,850,000 |
| 1982 | 36,000 | 2,886,000 |
| 1987 | 447,000 | 3,333,000 |
| 1989 | 286,000 | 3,619,000 |
| 1990 | 54,000 | 3,673,000 |
| 1992 | 303,000 | 3,976,000 |
| 1993 | 68,390,000 | 72,366,000 |
| 1994 | 1,160,000 | 73,526,000 |
| 1995 | 26,867,000 | 100,393,000 |

**WACONDA**

| Year | $ Damages Prevented | Cumulative Total |
|---|---|---|
| 1968 | 280,000 | 280,000 |
| 1969 | 606,000 | 886,000 |
| 1971 | 9,000 | 895,000 |
| 1973 | 3,797,000 | 4,692,000 |
| 1974 | 1,000 | 4,693,000 |
| 1975 | 967,000 | 5,660,000 |
| 1978 | 11,000 | 5,671,000 |
| 1979 | 959,000 | 6,630,000 |
| 1981 | 24,000 | 6,654,000 |
| 1982 | 1,398,000 | 8,052,000 |
| 1983 | 360,000 | 8,412,000 |
| 1984 | 1,363,000 | 9,775,000 |
| 1985 | 331,000 | 10,106,000 |
| 1986 | 1,269,000 | 11,375,000 |
| 1987 | 5,699,000 | 17,074,000 |
| 1989 | 1,779,000 | 18,853,000 |
| 1990 | 194,000 | 19,047,000 |
| 1991 | 31,000 | 19,078,000 |
| 1992 | 17,535,000 | 36,613,000 |
| 1993 | 889,702,000 | 926,315,000 |
| 1994 | 8,952,000 | 935,267,000 |
| 1995 | 171,843,000 | 1,107,110,000 |

**CEDAR BLUFF**

| Year | $ Damages Prevented | Cumulative Total |
|---|---|---|
| 1951 | 597,000 | 597,000 |
| 1955 | 357,000 | 954,000 |
| 1956 | 19,000 | 973,000 |
| 1957 | 4,812,000 | 5,785,000 |
| 1958 | 829,000 | 6,614,000 |
| 1960 | 1,573,000 | 8,187,000 |
| 1961 | 101,000 | 8,288,000 |
| 1962 | 1,000 | 8,289,000 |
| 1964 | 17,000 | 8,306,000 |
| 1965 | 38,000 | 8,344,000 |
| 1967 | 42,000 | 8,386,000 |
| 1969 | 1,000 | 8,387,000 |
| 1971 | 8,000 | 8,395,000 |
| 1973 | 536,000 | 8,931,000 |
| 1975 | 11,000 | 8,942,000 |
| 1979 | 2,000 | 8,944,000 |
| 1981 | 1,000 | 8,945,000 |
| 1982 | 48,000 | 8,993,000 |
| 1983 | 1,000 | 8,994,000 |
| 1985 | 3,000 | 8,997,000 |
| 1987 | 31,000 | 9,028,000 |
| 1992 | 3,000 | 9,031,000 |
| 1993 | 101,444,000 | 110,475,000 |
| 1995 | 6,810,000 | 117,285,000 |

**PROJECT TOTALS**

| Year | $ Damages Prevented | Cumulative Total |
|---|---|---|
| 1951 | 1,124,000 | 1,124,000 |
| 1953 | 135,000 | 1,259,000 |
| 1955 | 357,000 | 1,616,000 |
| 1956 | 123,000 | 1,739,000 |
| 1957 | 8,342,000 | 10,081,000 |
| 1958 | 953,000 | 11,034,000 |
| 1960 | 9,800,000 | 20,834,000 |
| 1961 | 523,000 | 21,357,000 |
| 1962 | 247,000 | 21,604,000 |
| 1964 | 300,000 | 21,904,000 |
| 1965 | 1,772,000 | 23,676,000 |
| 1966 | 1,790,000 | 25,466,000 |
| 1967 | 5,179,000 | 30,645,000 |
| 1968 | 326,000 | 30,971,000 |
| 1969 | 832,000 | 31,803,000 |
| 1971 | 96,000 | 31,899,000 |
| 1972 | 498,000 | 32,397,000 |
| 1973 | 7,465,000 | 39,862,000 |
| 1974 | 2,000 | 39,864,000 |
| 1975 | 2,779,000 | 42,643,000 |
| 1976 | 1,000 | 42,644,000 |
| 1978 | 142,000 | 42,786,000 |
| 1979 | 1,046,000 | 43,832,000 |
| 1981 | 54,000 | 43,886,000 |
| 1982 | 1,990,000 | 45,876,000 |
| 1983 | 2,747,000 | 48,623,000 |
| 1984 | 3,278,000 | 51,901,000 |
| 1985 | 534,000 | 52,435,000 |
| 1986 | 8,439,000 | 60,874,000 |
| 1987 | 10,139,000 | 71,013,000 |
| 1989 | 5,234,000 | 76,247,000 |
| 1990 | 562,000 | 76,809,000 |
| 1991 | 136,000 | 76,945,000 |
| 1992 | 22,843,000 | 99,788,000 |
| 1993 | 1,294,360,000 | 1,394,148,000 |
| 1994 | 13,654,000 | 1,407,802,000 |
| 1995 | 261,829,000 | 1,669,631,000 |

**NOTE: Construction Cost of storage dams -- $208,954,130. The reservoirs upstream from Harlan County Lake did not receive benefits for damages prevented from 1972 to 1993.**

**TABLE 6**

**WATER DIVERTED IN 1995 AND THE ESTIMATED DIVERSION FOR 1996**

**(Units - Acre-Feet)**

| Irrigation District and Canal | 1995 Irrigation Operations From | To | 10-Year Average Diversion (1985-94) | 1995 Diversion | Estimated Diversion in 1996 |
|---|---|---|---|---|---|
| Mirage Flats Irrigation District | | | | | |
| Mirage Flats Canal | 7/10 | 9/16 | 13,922 | 16,253 | 15,000 |
| Ainsworth Irrigation District | | | | | |
| Ainsworth Canal | 6/04 | 8/18 | 66,744 | 68,400 | 70,000 |
| Sargent Irrigation District | | | | | |
| Sargent Canal | 6/25 | 9/20 | 22,805 | 22,860 | 25,000 |
| Farwell Irrigation District | | | | | |
| Farwell Canal | 6/07 | 9/15 | 66,224 | 85,518 | 80,000 |
| Twin Loups Irrigation District | | | | | |
| Above Davis Creek | 5/29 | 9/20 | – | 39,846 | 40,000 |
| Below Davis Creek | 5/24 | 9/20 | – | 33,843 | 35,000 |
| Total Twin Loups Irrigation District | | | – | 73,689 | 75,000 |
| Frenchman Valley Irrigation District | | | | | |
| Culbertson Canal | 5/02 | 9/05 | 11,006 | 9,527 | 11,000 |
| H & RW Irrigation District | | | | | |
| Culbertson Extension Canal | 7/05 | 8/31 | 13,115 | 12,024 | 13,000 |
| Frenchman-Cambridge Irrigation District | | | | | |
| Meeker-Driftwood Canal | 6/19 | 9/15 | 29,144 | 35,371 | 32,000 |
| Red Willow Canal | 6/19 | 9/15 | 7,645 | 8,974 | 8,000 |
| Bartley Canal | 6/07 | 9/15 | 8,331 | 10,677 | 10,000 |
| Cambridge Canal | 6/15 | 9/15 | 26,111 | 31,748 | 29,000 |
| Total Frenchman-Cambridge Irrigation District | | | 71,231 | 86,770 | 79,000 |
| Almena Irrigation District | | | | | |
| Almena Canal | 5/02 | 9/11 | 1,364 | 4,965 | 5,000 |
| Bostwick Irrigation District in Nebraska | | | | | |
| Franklin Canal | 6/21 | 9/19 | 24,667 | 35,712 | 30,000 |
| Naponee Canal | 6/26 | 9/09 | 2,498 | 3,185 | 3,000 |
| Franklin Pump Canal | 7/09 | 9/15 | 2,823 | 3,963 | 3,000 |
| Superior Canal | 6/25 | 9/14 | 13,290 | 17,272 | 16,000 |
| Courtland Canal (Nebraska) | 6/21 | 9/18 | 1,587 | 2,159 | 2,000 |
| Total Bostwick Irrigation District in Nebraska | | | 44,865 | 62,291 | 54,000 |
| Kansas-Bostwick Irrigation District | | | | | |
| Courtland Canal above Lovewell | 6/21 | 9/18 | 23,033 | 33,636 | 31,000 |
| Courtland Canal below Lovewell | 5/09 | 9/18 | 39,181 | 46,493 | 46,000 |
| Total Kansas-Bostwick Irrigation District | | | 62,214 | 80,129 | 77,000 |
| Kirwin Irrigation District | | | | | |
| Kirwin Canal | 6/05 | 9/08 | 9,686 | 21,751 | 20,000 |
| Webster Irrigation District | | | | | |
| Osborne Canal | 6/05 | 9/08 | 5,885 | 16,159 | 14,000 |
| Glen Elder Irrigation District | 8/29 | 9/18 | – | 1,548 | 8,000 |
| TOTAL | | | 389,061 | 561,884 | 546,000 |

**TABLE 7**
**NEBRASKA-KANSAS AREA OFFICE**
**Summary of Precipitation, Reservoir Storage and Inflows**

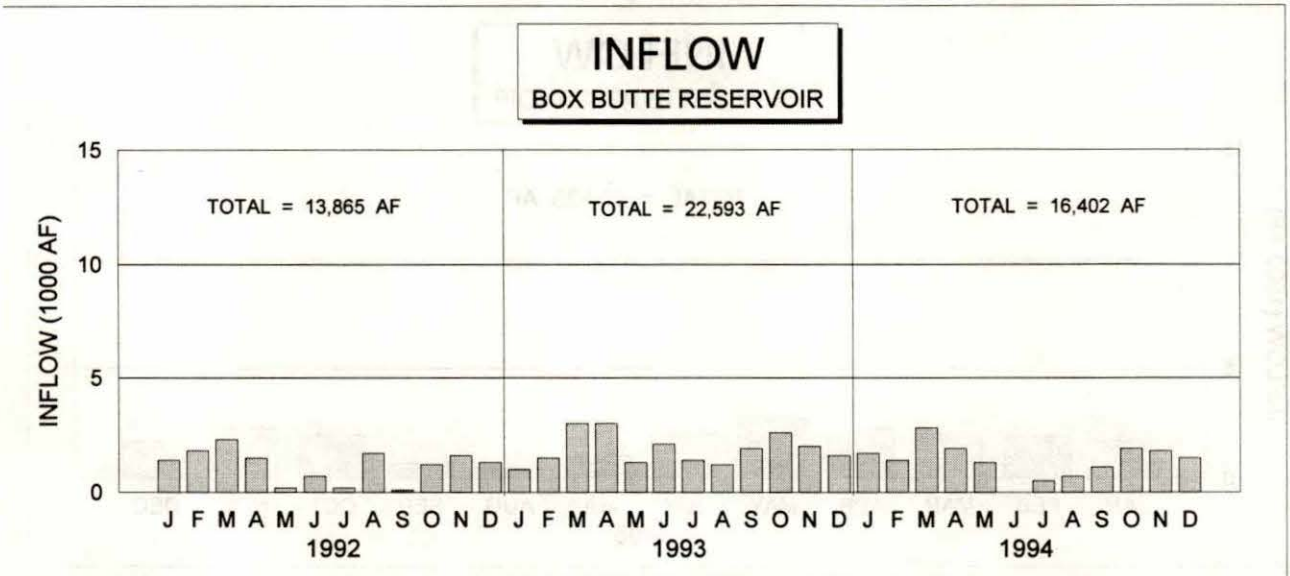
**CALENDAR YEAR 1995**

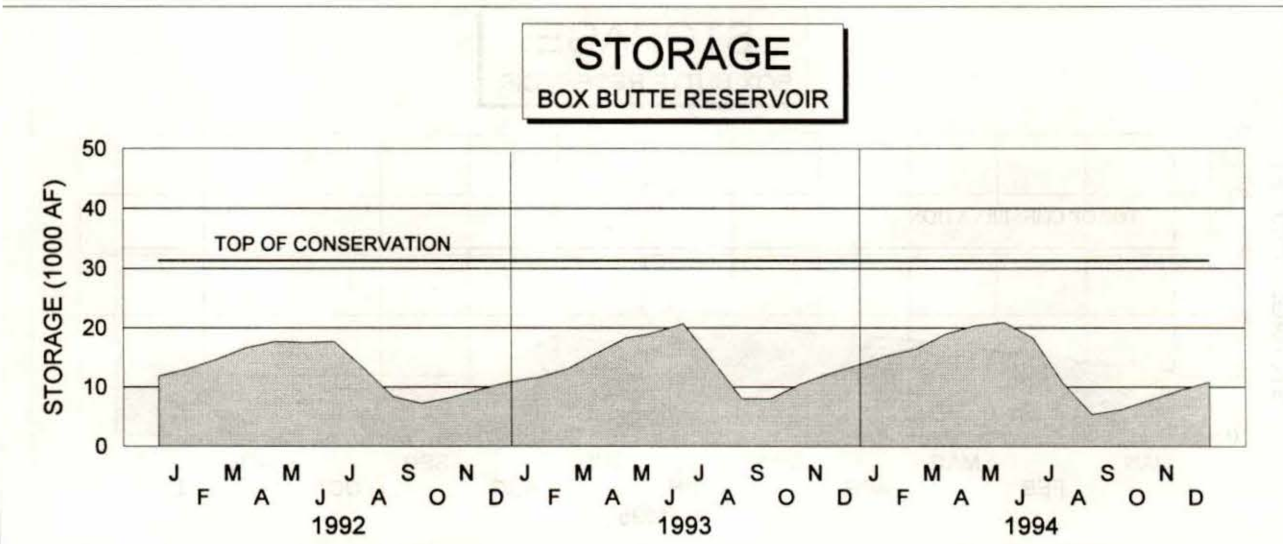
| Reservoir | Total Precip. Inches | Percent Of Average % | Storage 12-31-94 AF | Storage 12-31-95 AF | Gain or Loss AF | Maximum Storage Content AF | Maximum Storage Date | Minimum Storage Content AF | Minimum Storage Date | Total Inflow AF | Percent Of Most Probable % |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Box Butte | 22.32 | 141 | 10,813 | 12,608 | 1,795 | 21,743 | JUL 4 | 6,242 | SEP 15 | 20,825 | 114 |
| Merritt | 27.27 | 141 | 68,831 | 68,831 | 0 | 76,549 | MAY 31 | 35,714 | SEP 13 | 197,923 | 112 |
| Sherman | 25.23 | 114 | 52,722 | 51,531 | (1,191) | 69,653 | JUN 1 | 28,546 | SEP 11 | 107,943 | 96 |
| Calamus | 32.12 | 142 | 94,714 | 108,566 | 13,852 | 131,437 | MAY 30 | 66,386 | SEP 29 | 318,106 | 128 |
| Davis Creek | 25.26 | 109 | 8,385 | 18,285 | 9,900 | 31,535 | JUL 3 | 7,432 | APR 16 | 57,453 | 168 |
| Bonny | 21.18 | 127 | 37,485 | 36,460 | (1,025) | 45,121 | JUN 14 | 36,213 | DEC 16 | 18,133 | 107 |
| Enders | 18.02 | 98 | 24,660 | 23,334 | (1,326) | 32,482 | JUL 3 | 18,344 | AUG 29 | 18,911 | 62 |
| Swanson | 21.55 | 109 | 85,117 | 81,238 | (3,879) | 126,918 | JUN 20 | 73,841 | OCT 22 | 69,414 | 107 |
| Hugh Butler | 15.52 | 79 | 32,804 | 31,465 | (1,339) | 39,788 | JUN 15 | 29,705 | SEP 22 | 16,813 | 91 |
| Harry Strunk | 19.23 | 94 | 28,054 | 21,613 | (6,441) | 39,779 | MAY 27 | 13,005 | SEP 8 | 38,366 | 93 |
| Keith Sebelius | 25.59 | 107 | 25,216 | 24,513 | (703) | 31,957 | JUN 16 | 24,363 | NOV 8 | 11,214 | 244 |
| Harlan County | 22.11 | 99 | 285,301 | 263,580 | (21,721) | 388,925 | JUN 7 | 248,553 | SEP 18 | 201,800 | 146 |
| Lovewell | 23.15 | 84 | 30,970 | 37,320 | 6,350 | 57,380 | JUN 5 | 27,860 | SEP 11 | 67,465 | 106 |
| Kirwin | 28.31 | 123 | 98,680 | 104,330 | 5,650 | 144,675 | JUN 2 | 98,120 | SEP 11 | 91,083 | 542 |
| Webster | 28.83 | 125 | 82,405 | 82,482 | 77 | 144,654 | JUN 5 | 75,653 | SEP 10 | 157,434 | 1,249 |
| Waconda | 25.80 | 103 | 221,194 | 242,339 | 21,145 | 416,682 | JUN 10 | 215,694 | SEP 11 | 538,278 | 549 |
| Cedar Bluff | 24.16 | 118 | 69,244 | 91,680 | 22,436 | 98,610 | AUG 8 | 69,244 | JAN 1 | 38,773 | 467 |

EXHIBIT 1A

# BOX BUTTE RESERVOIR

## OPERATION



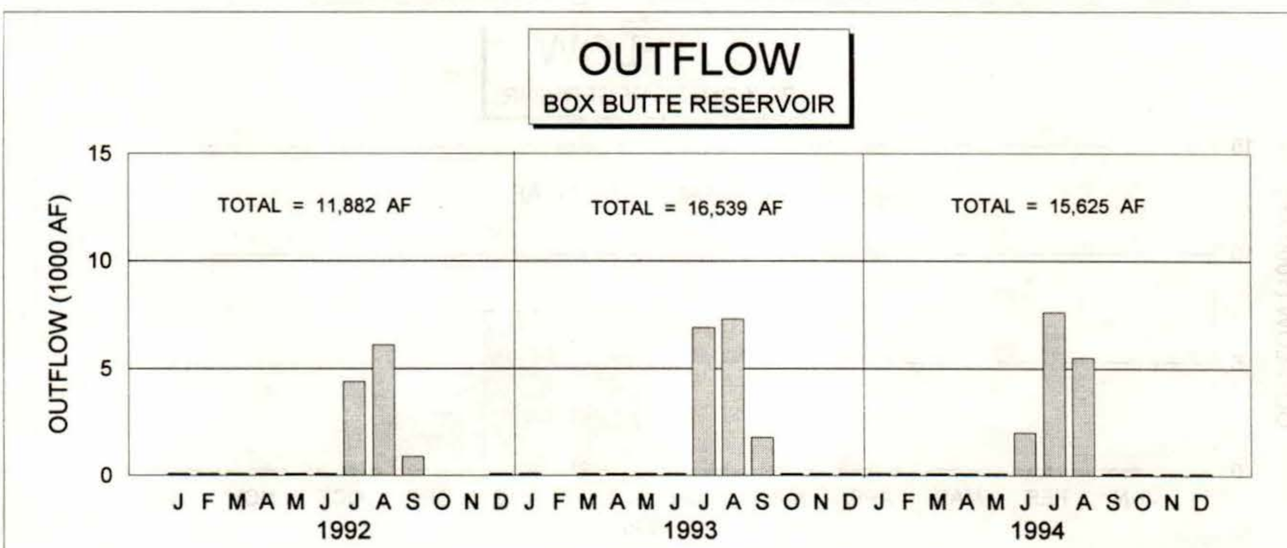
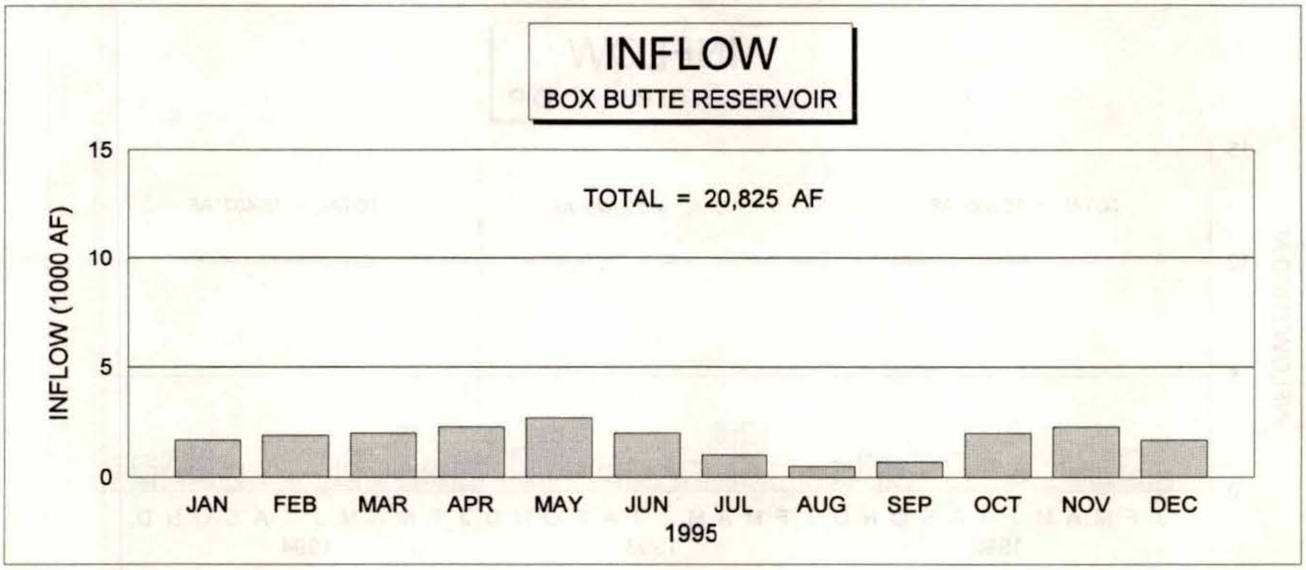
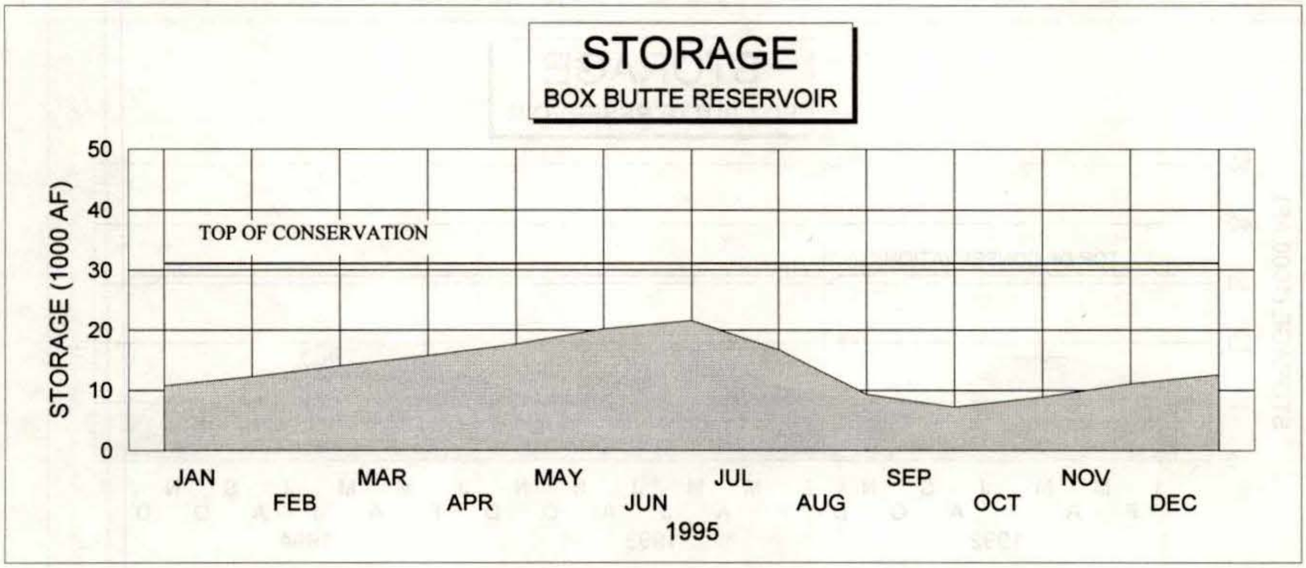



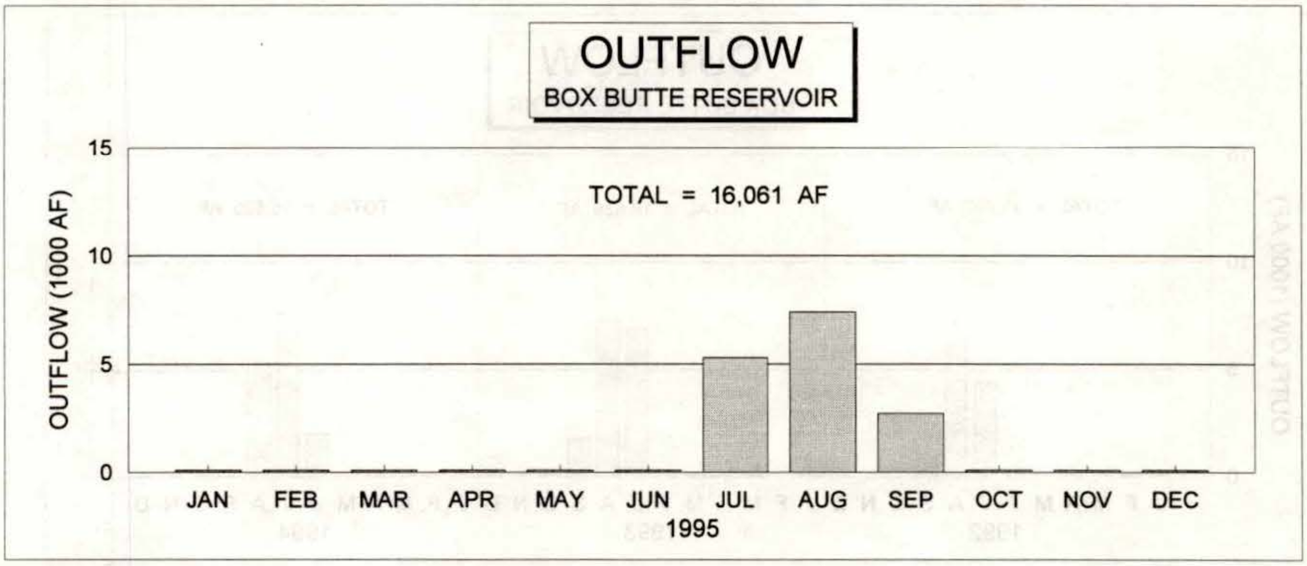
EXHIBIT 1B

# BOX BUTTE RESERVOIR

## 1995 OPERATION

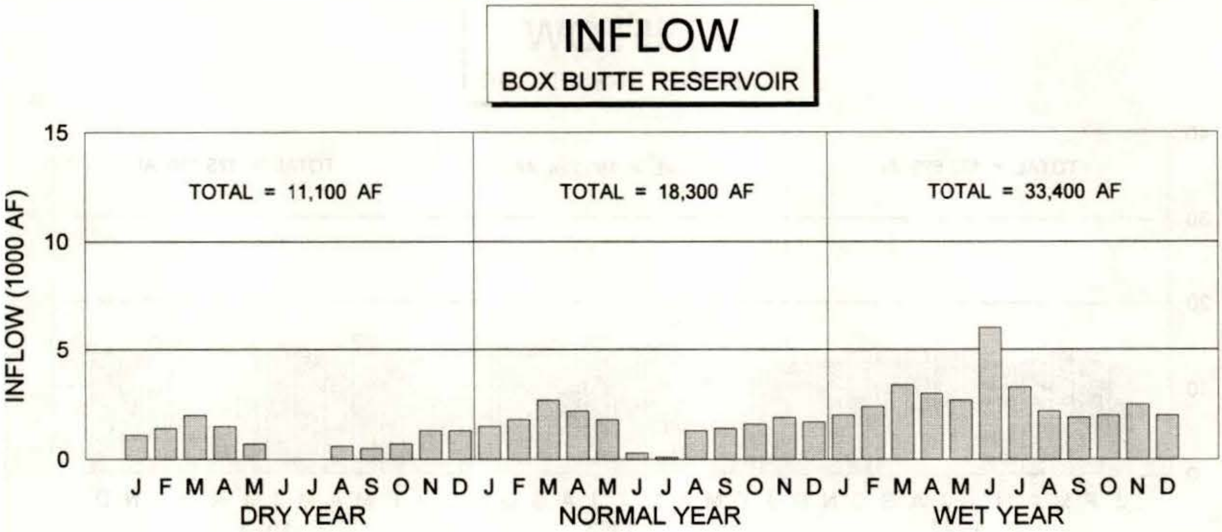


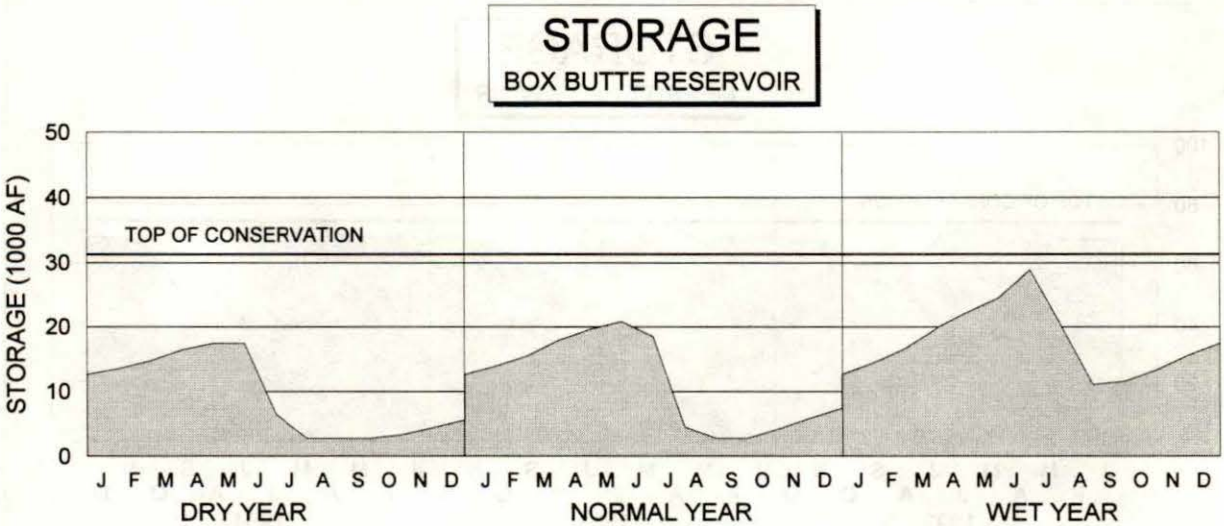



# BOX BUTTE RESERVOIR

## 1996 OPERATION PLAN



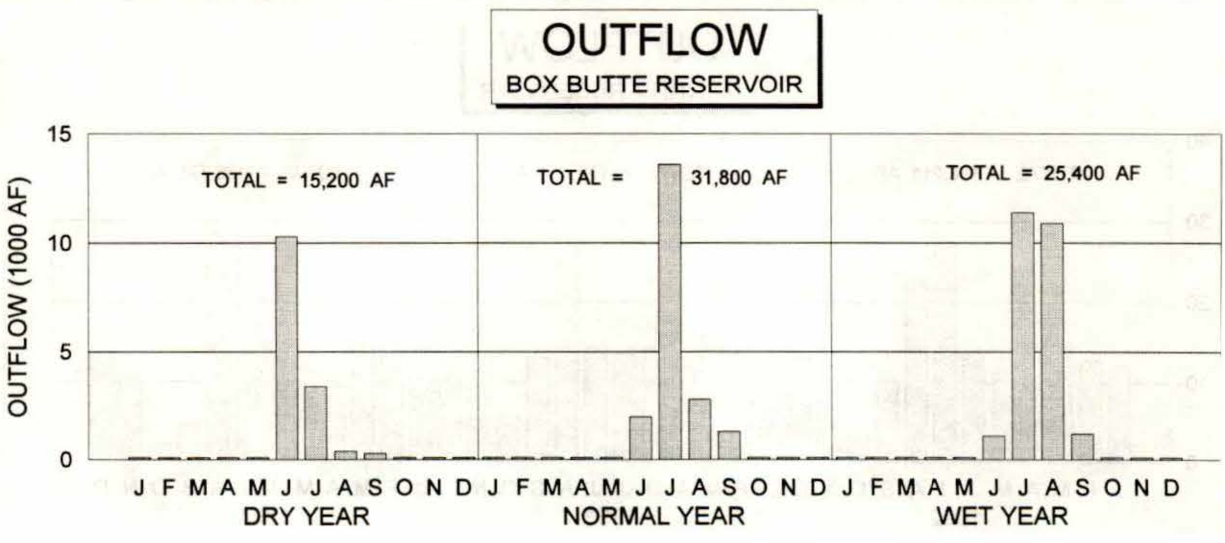
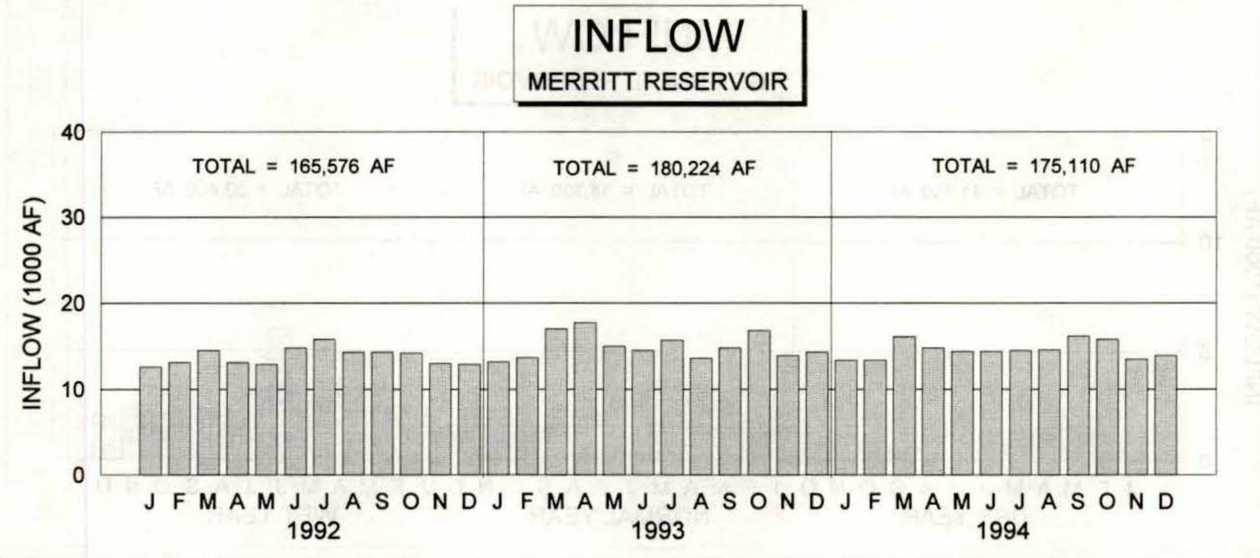
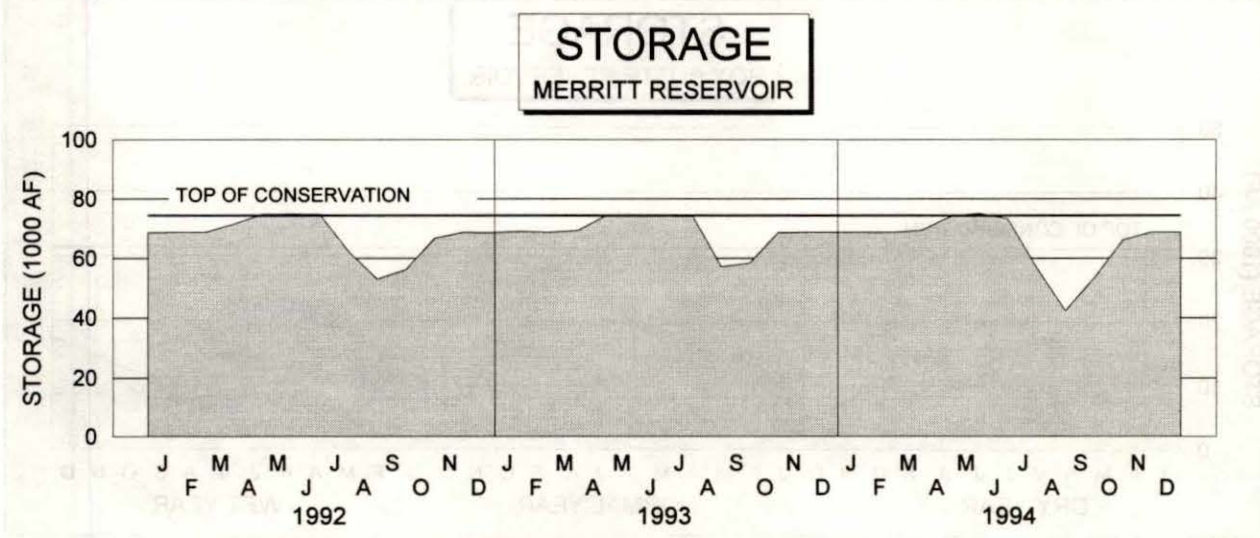



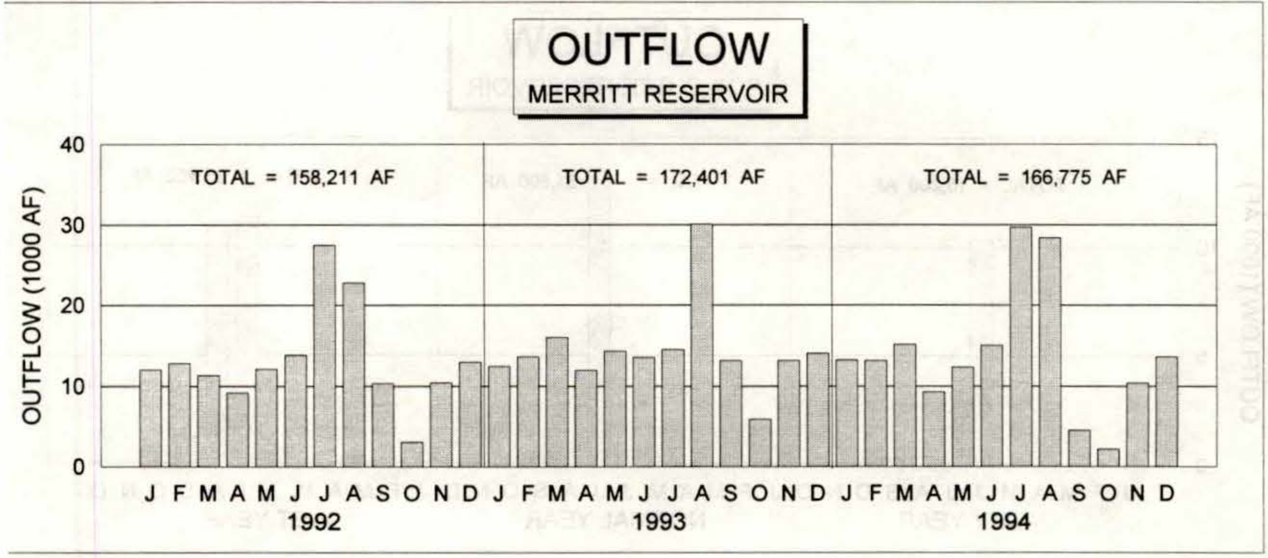
EXHIBIT 2A

# MERRITT RESERVOIR

## OPERATION

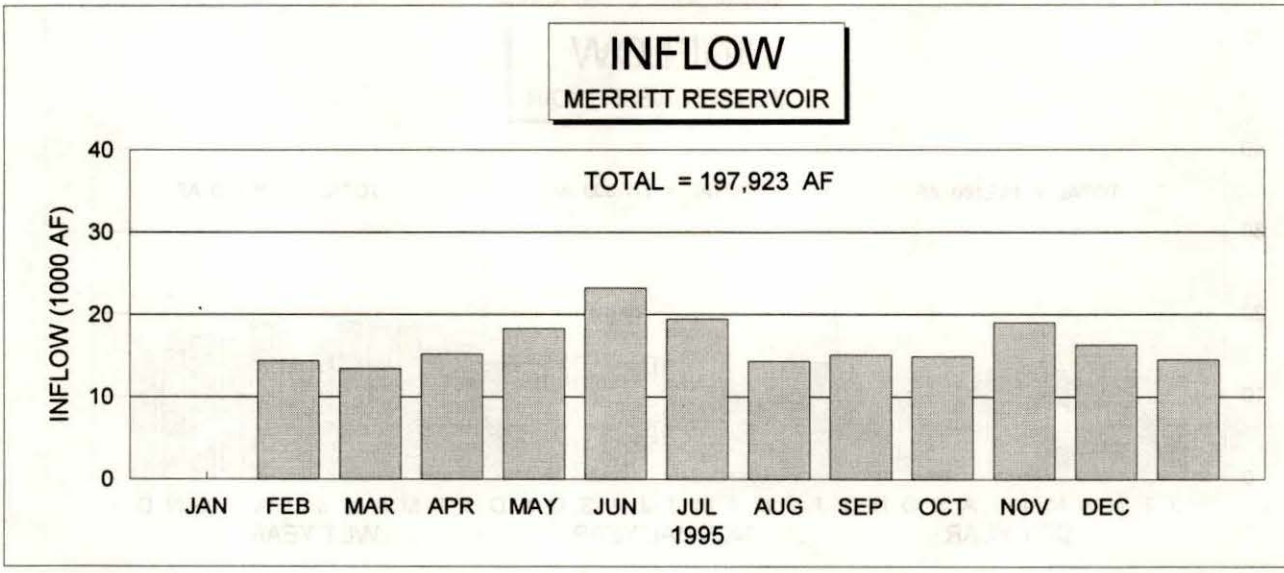


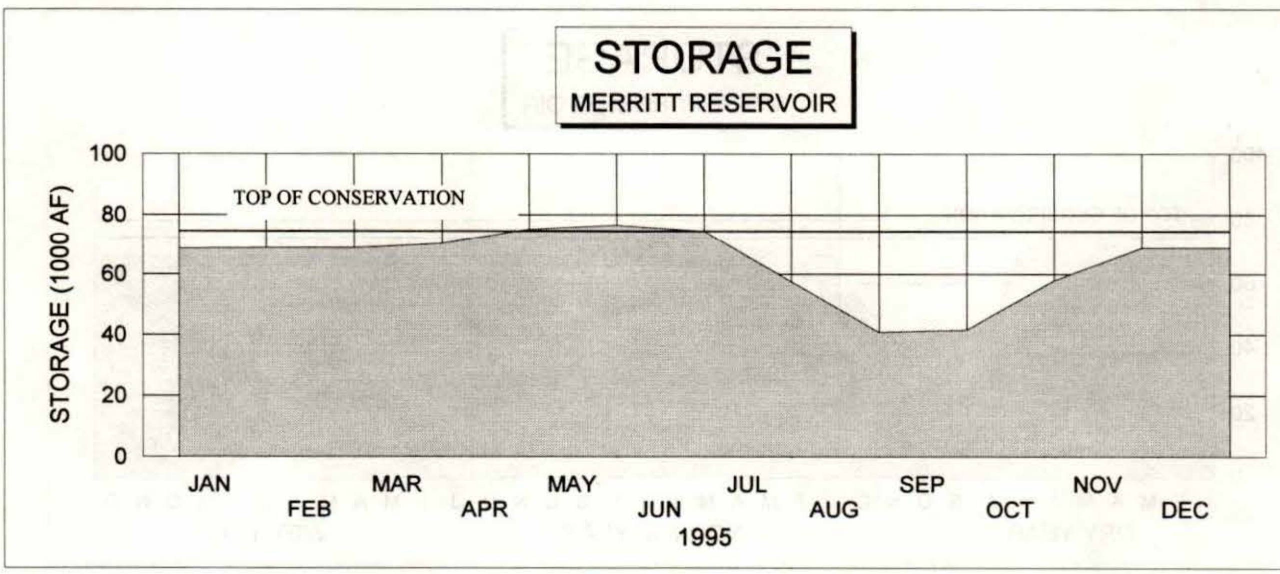



# MERRITT RESERVOIR

## 1995 OPERATION



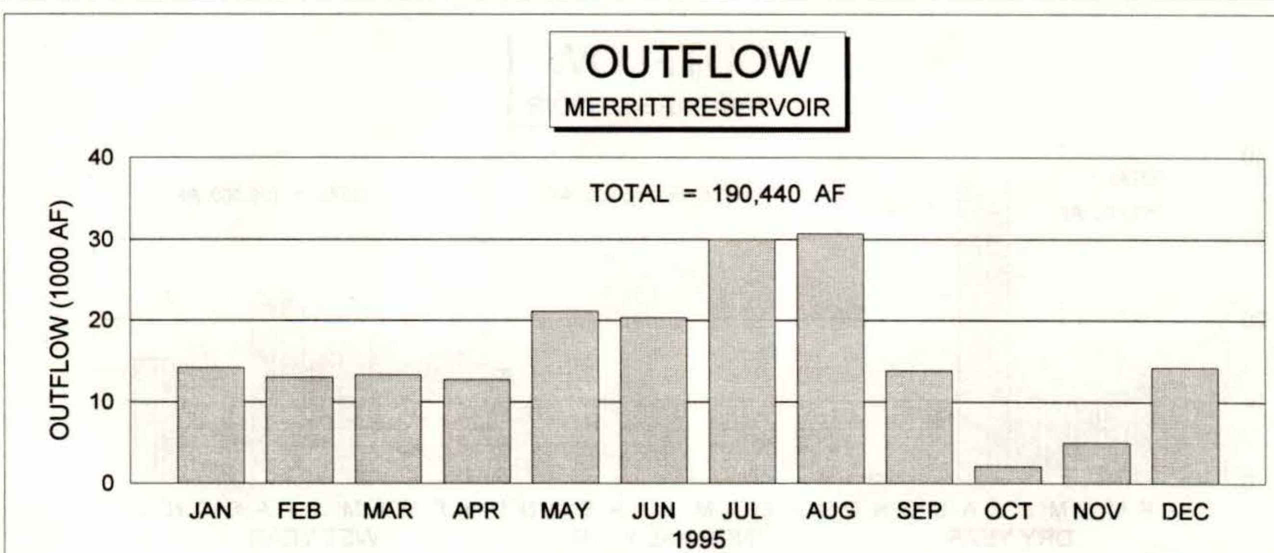
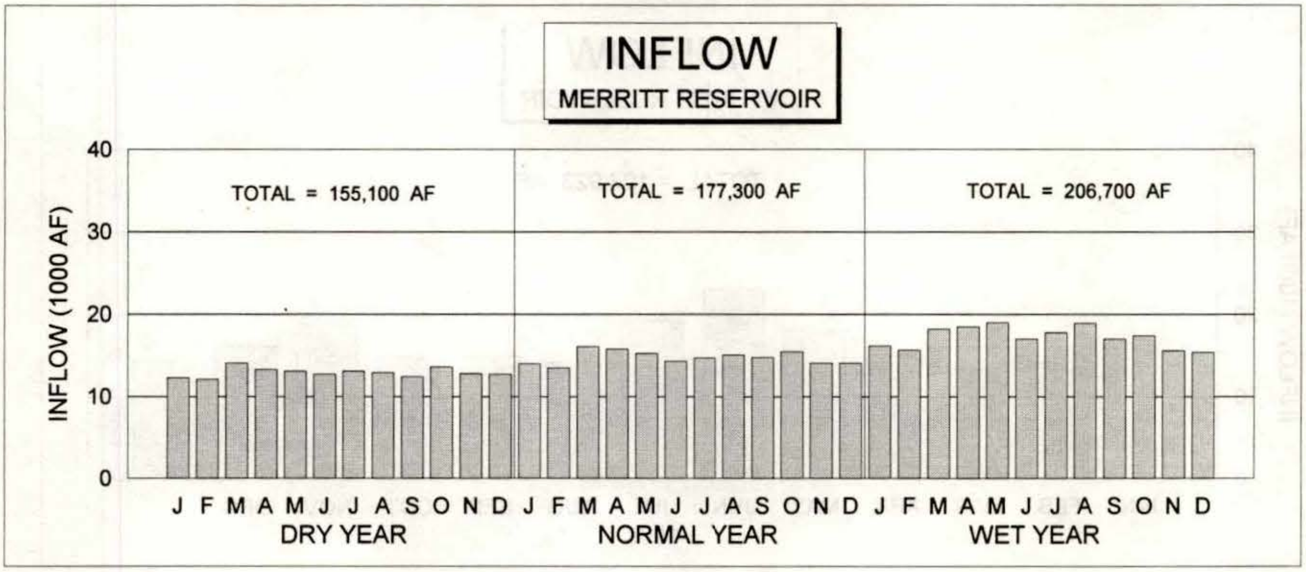
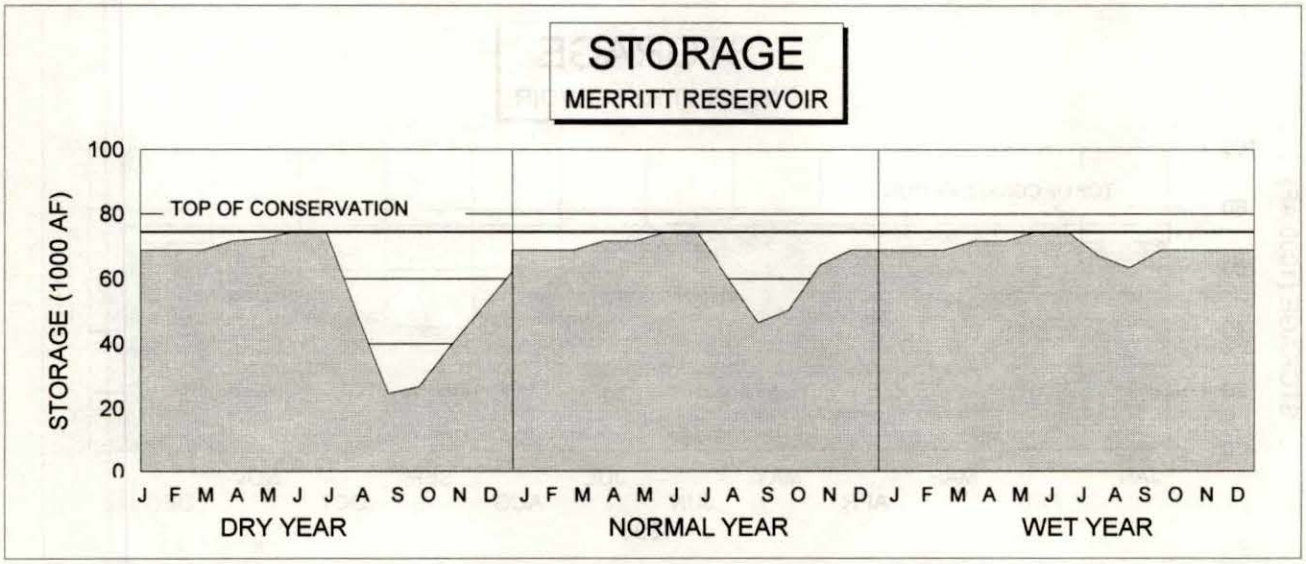



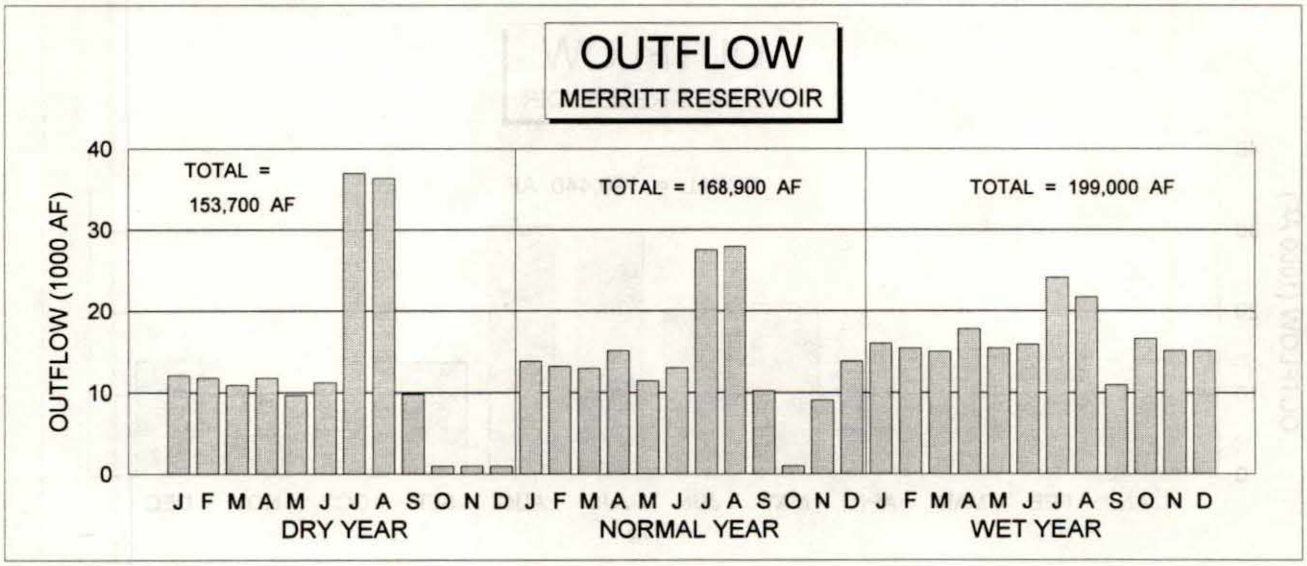
EXHIBIT 2C

# MERRITT RESERVOIR

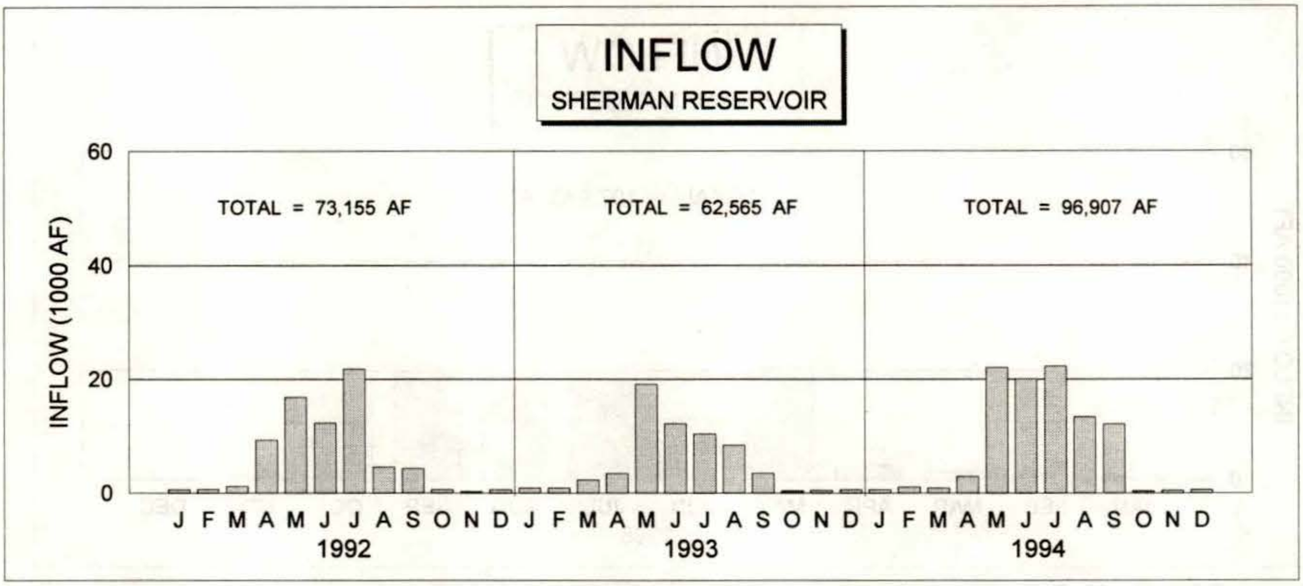
## 1996 OPERATION PLAN

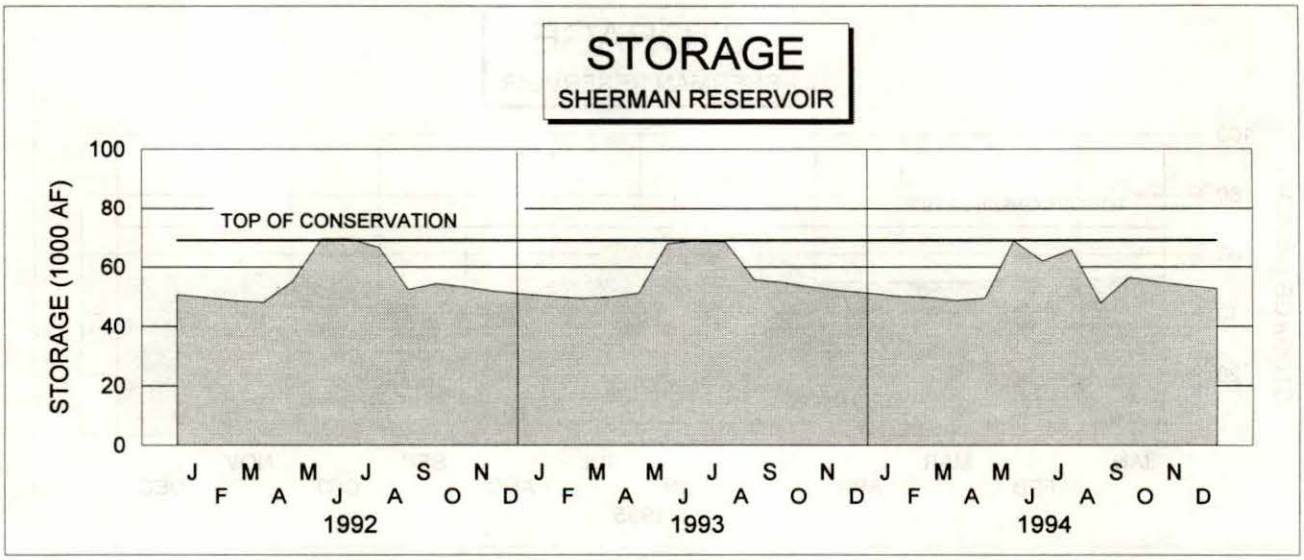


# SHERMAN RESERVOIR
## OPERATION



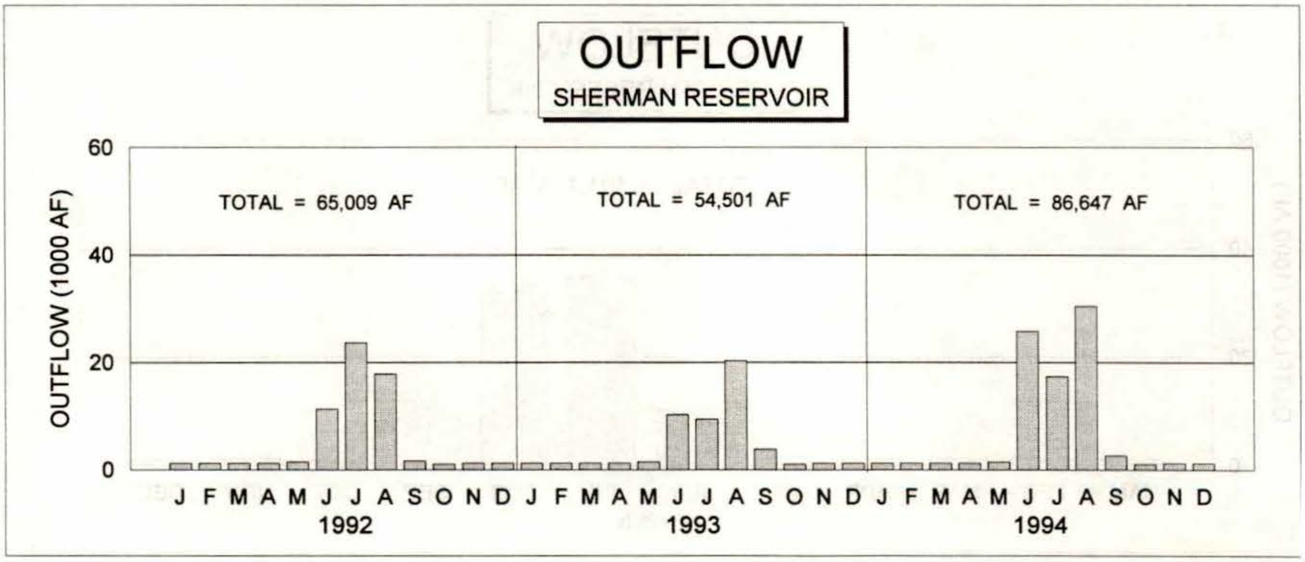
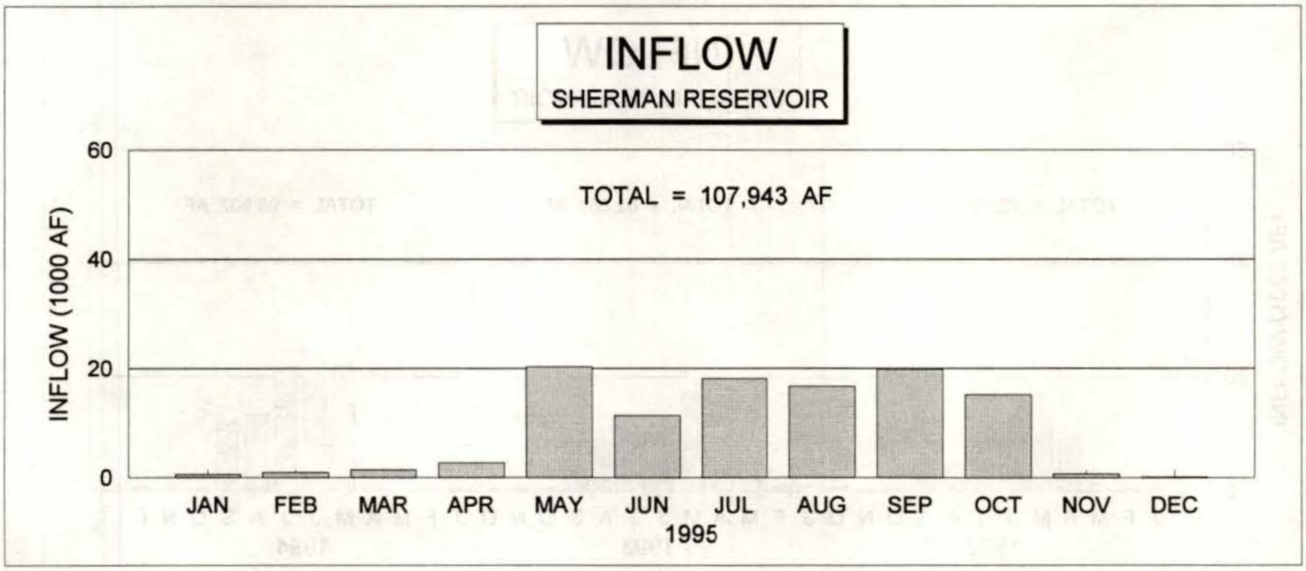
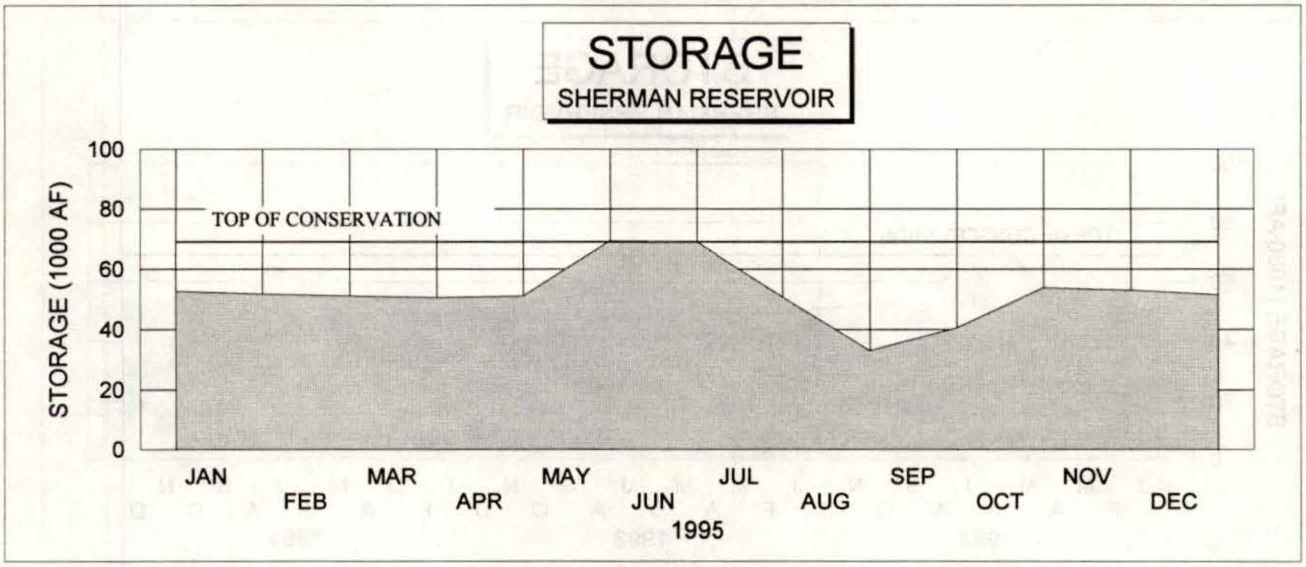



EXHIBIT 3B

# SHERMAN RESERVOIR

## 1995 OPERATION



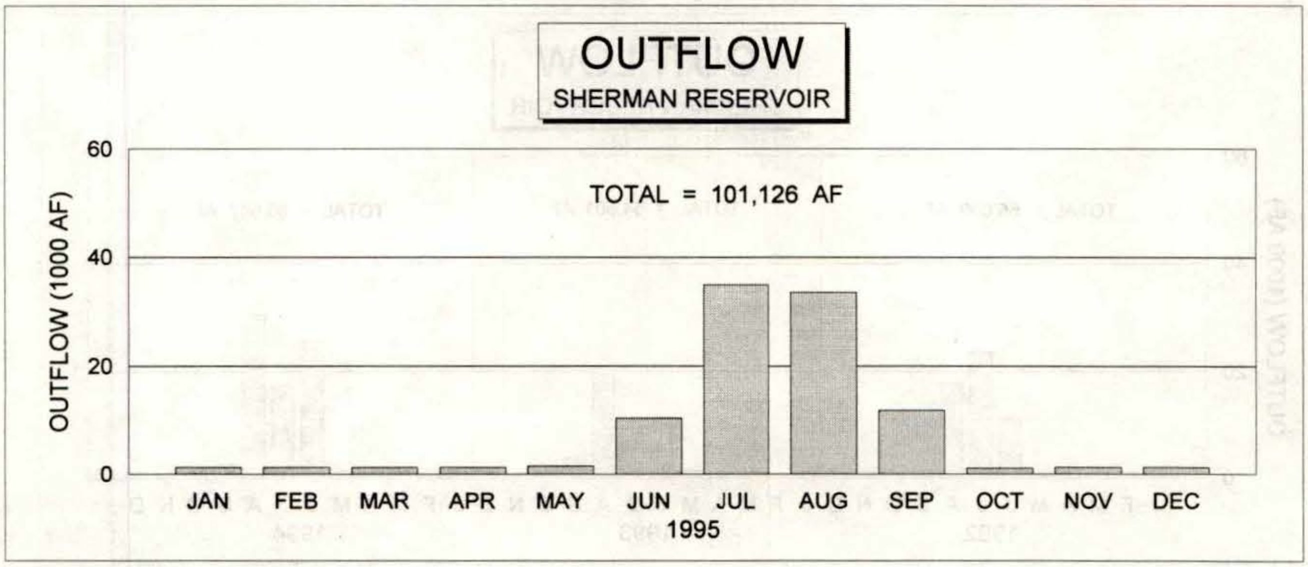
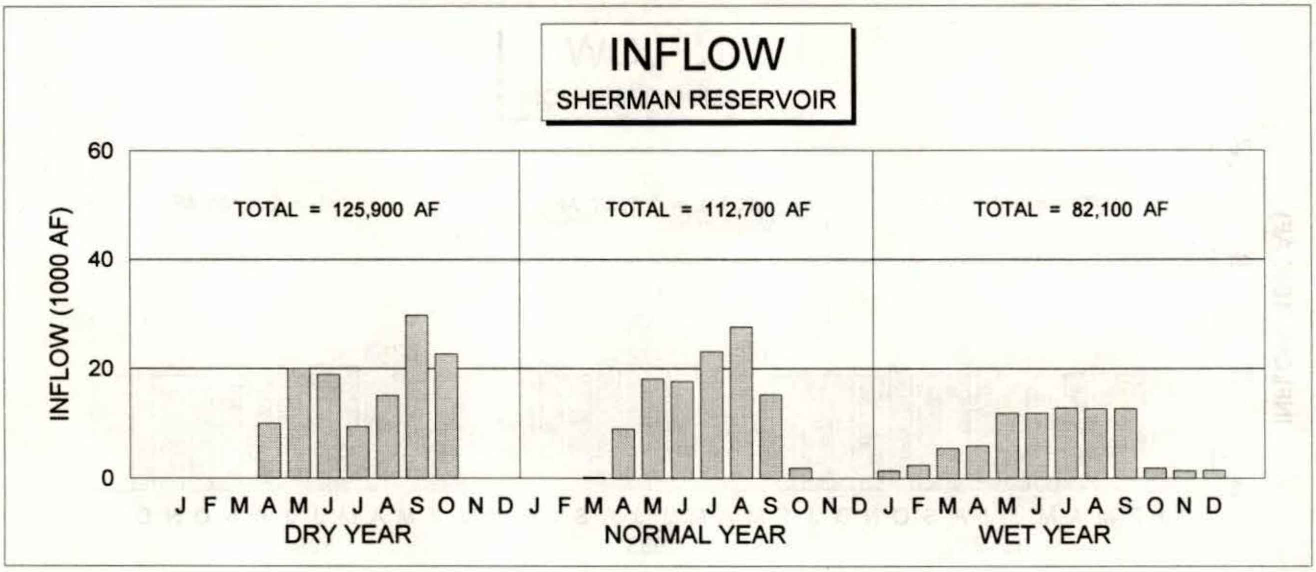
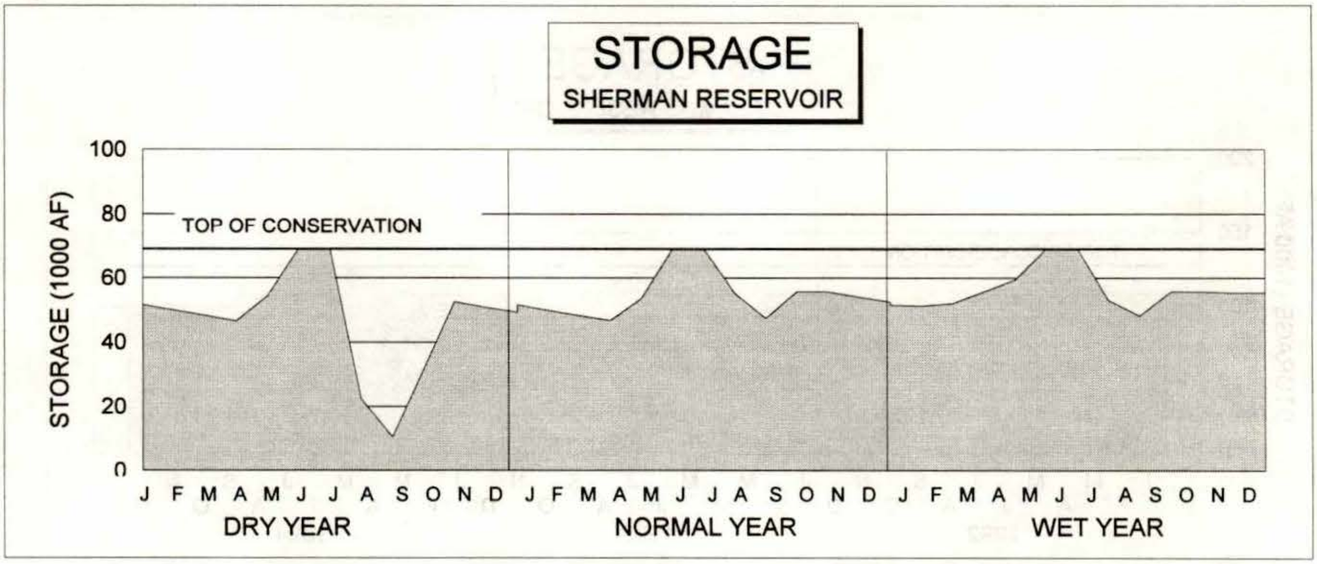



EXHIBIT 3C

# SHERMAN RESERVOIR

## 1996 OPERATION PLAN



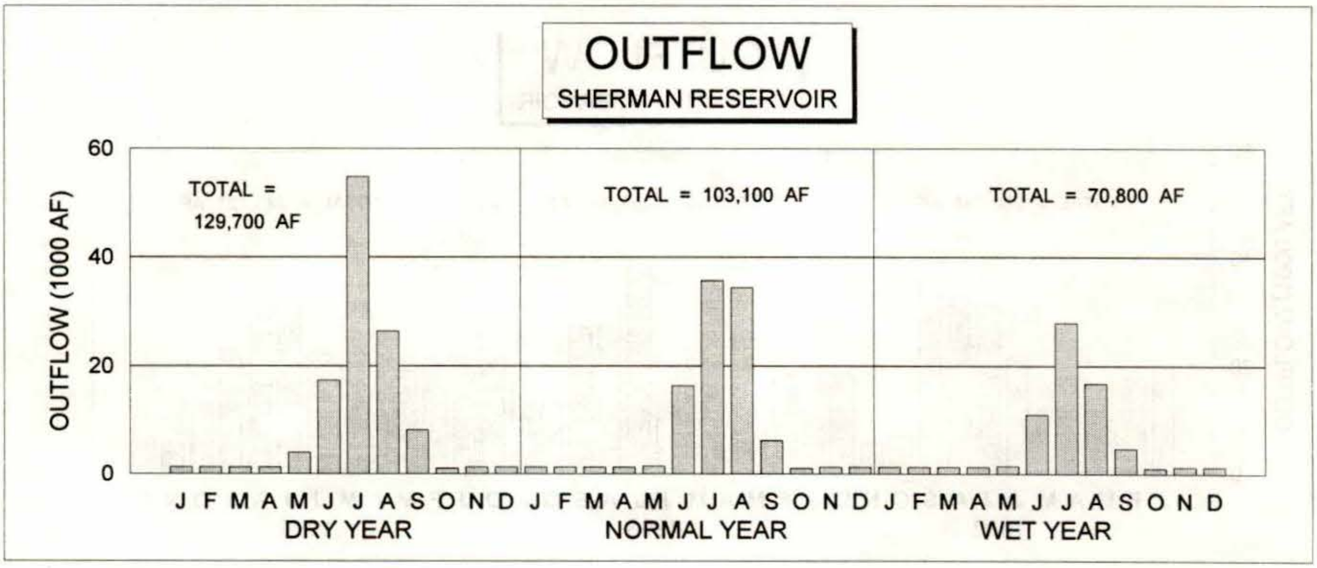
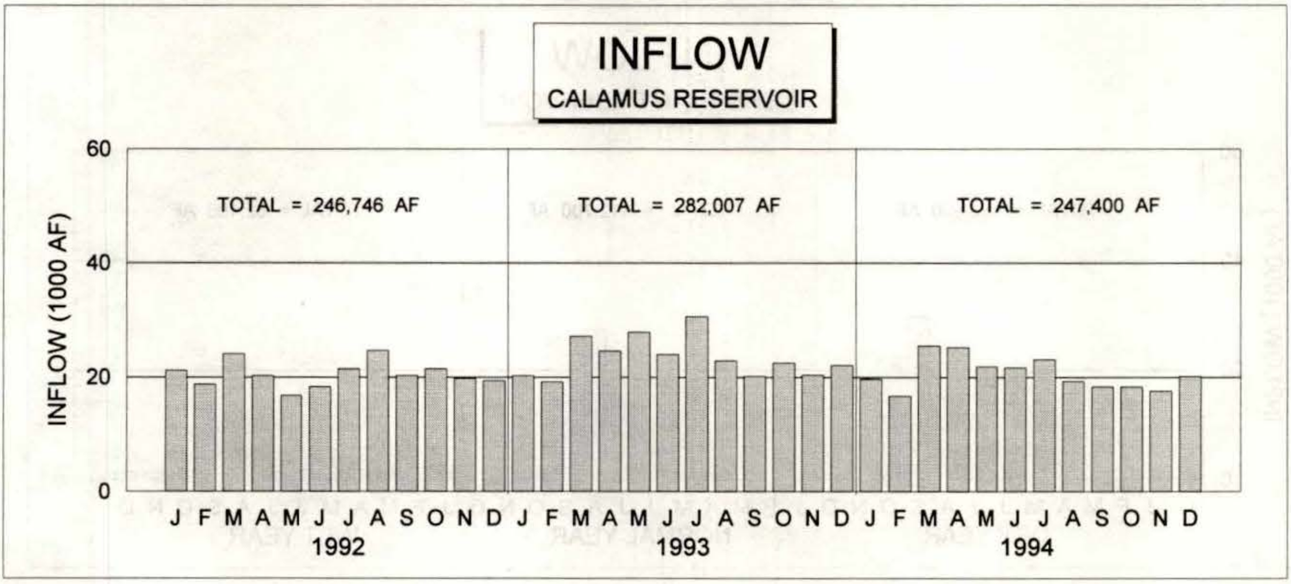
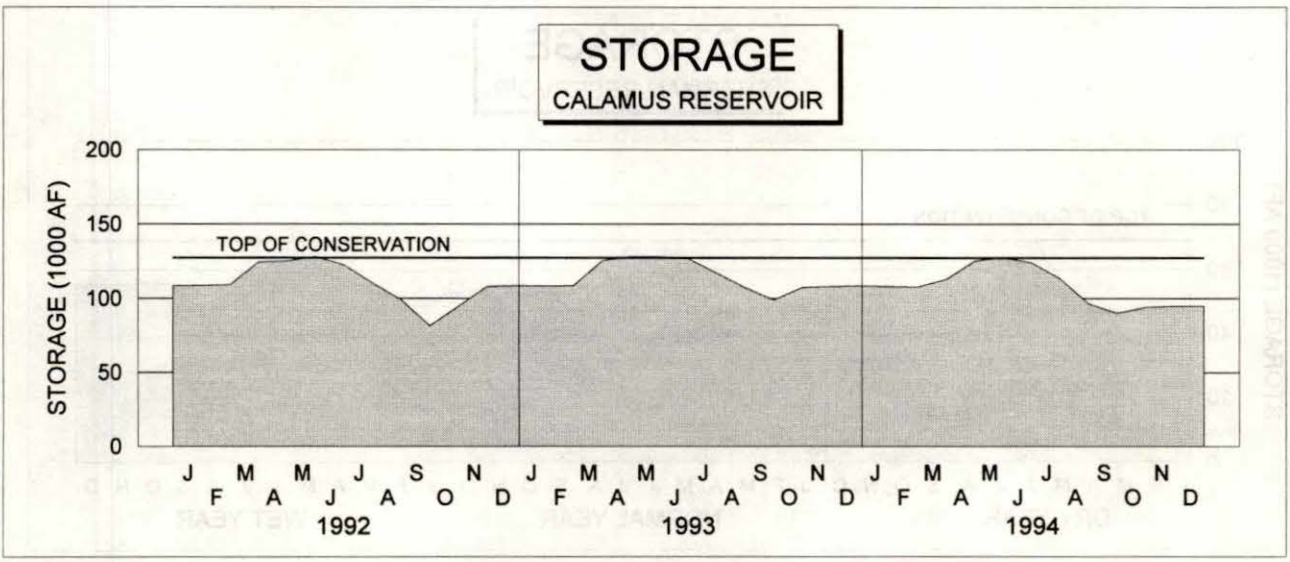
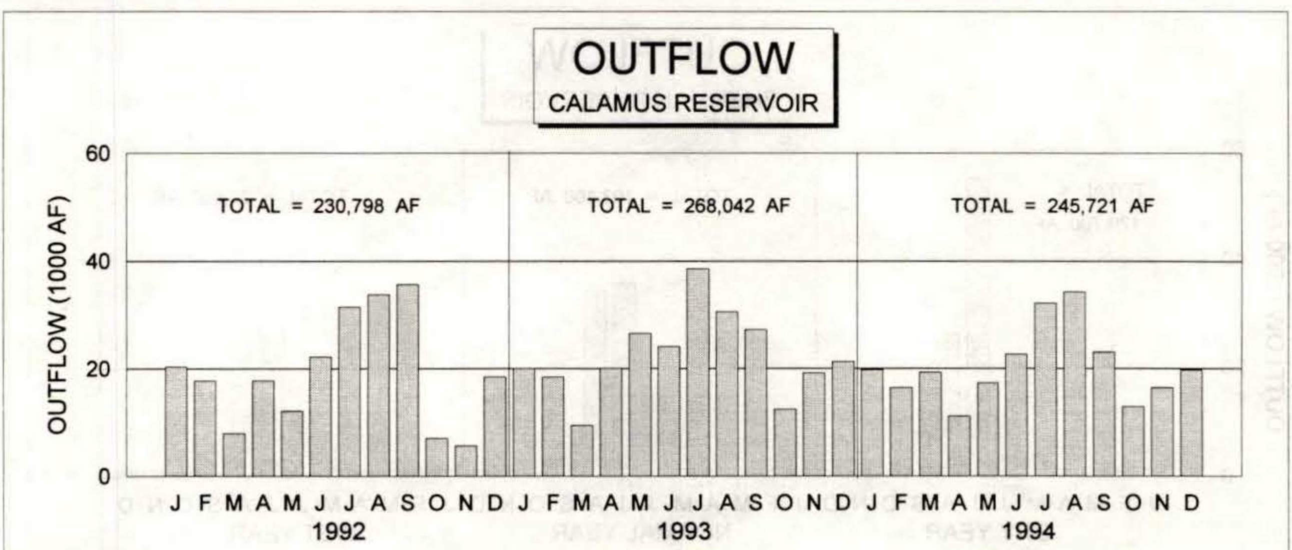



EXHIBIT 4A

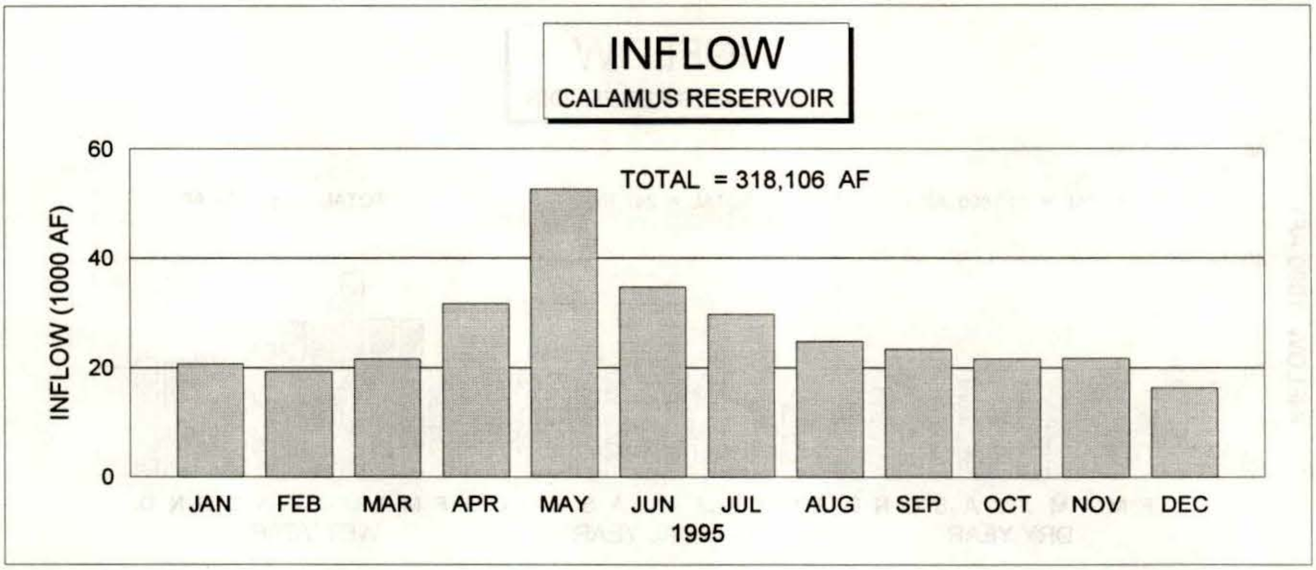
# CALAMUS RESERVOIR
## OPERATION

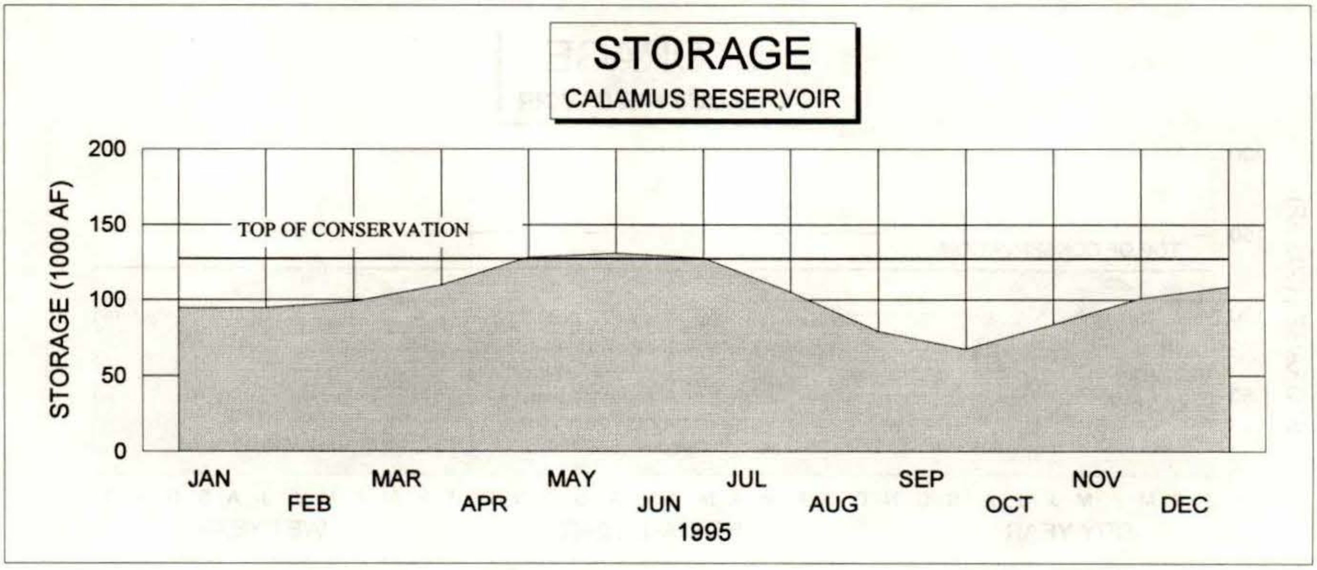


# CALAMUS RESERVOIR
## 1995 OPERATION



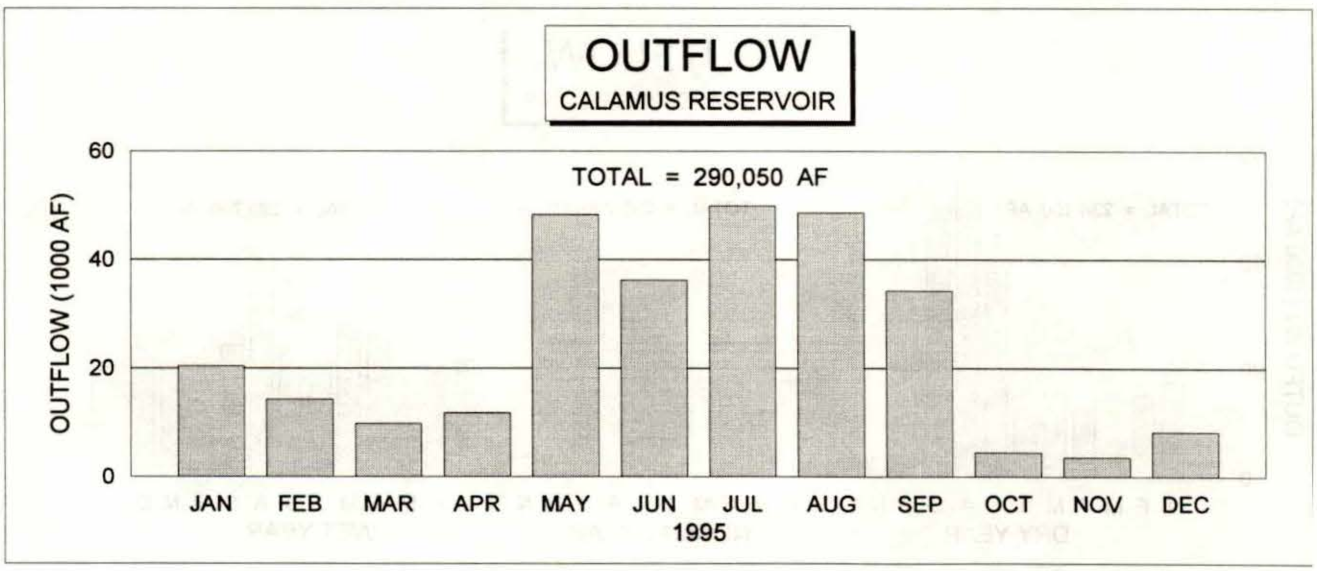
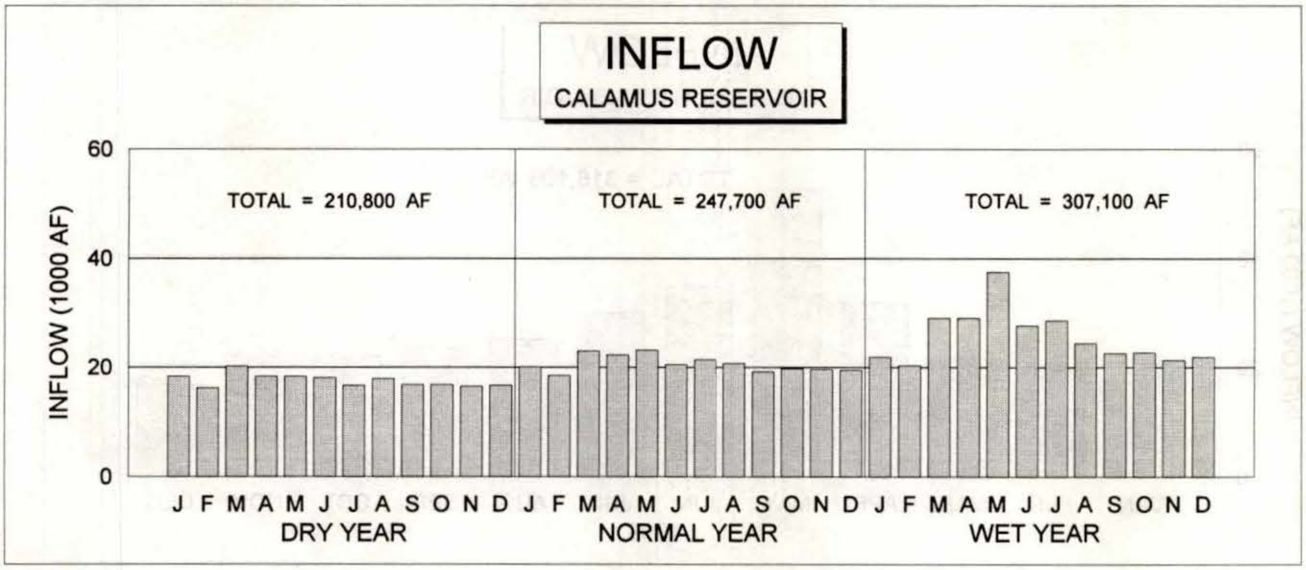
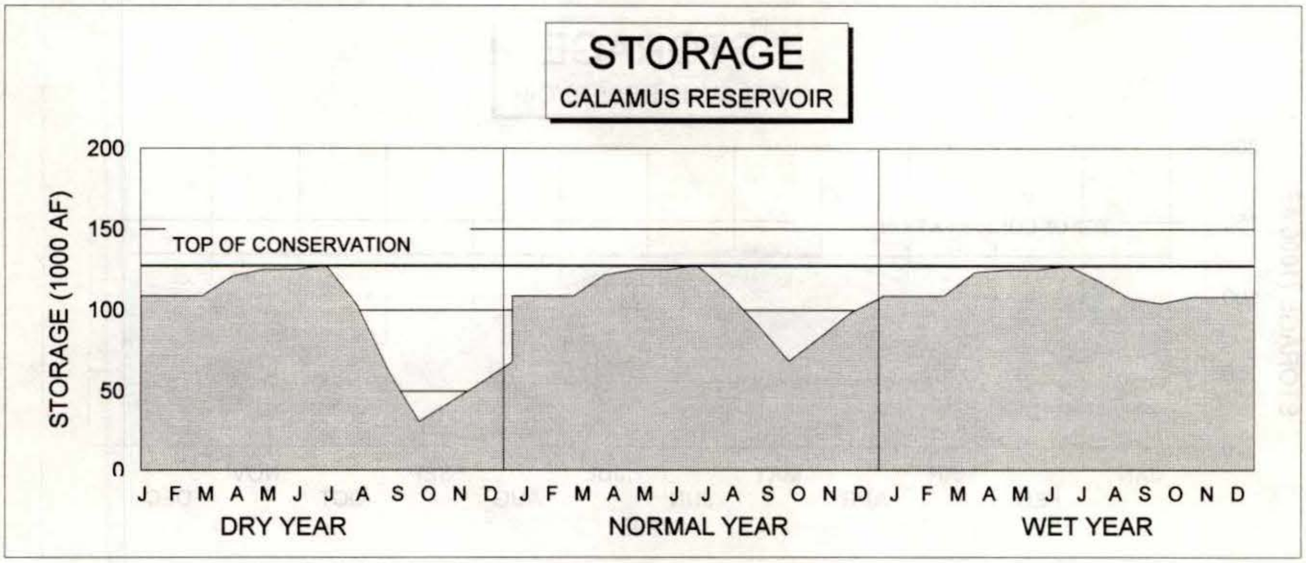



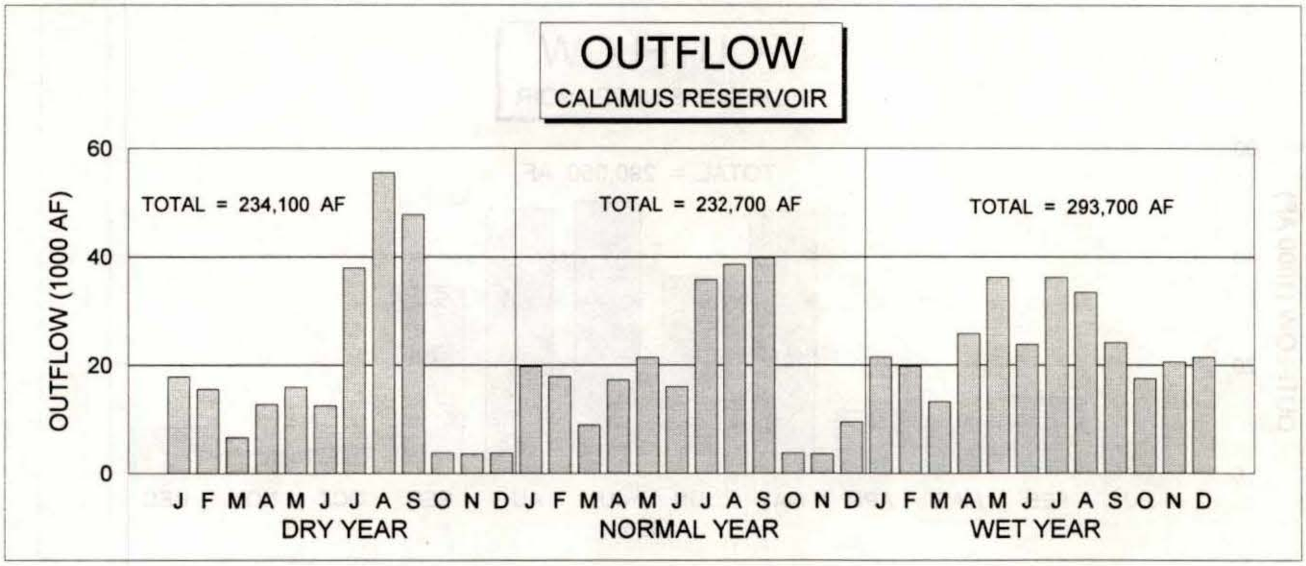
EXHIBIT 4C

# CALAMUS RESERVOIR

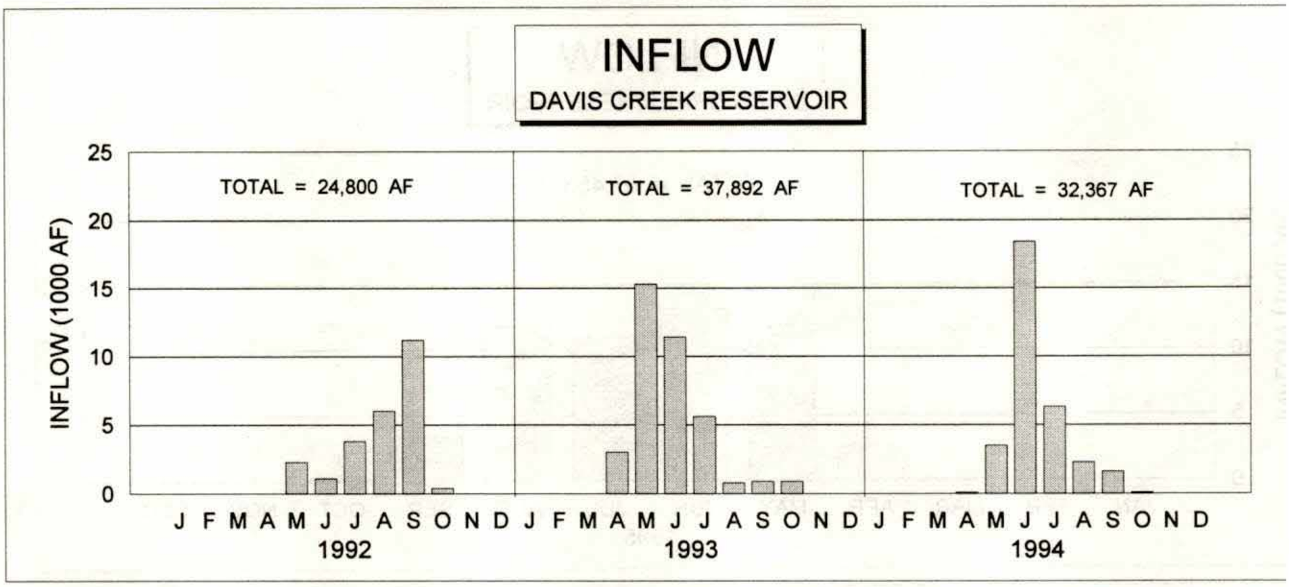
## 1996 OPERATION PLAN

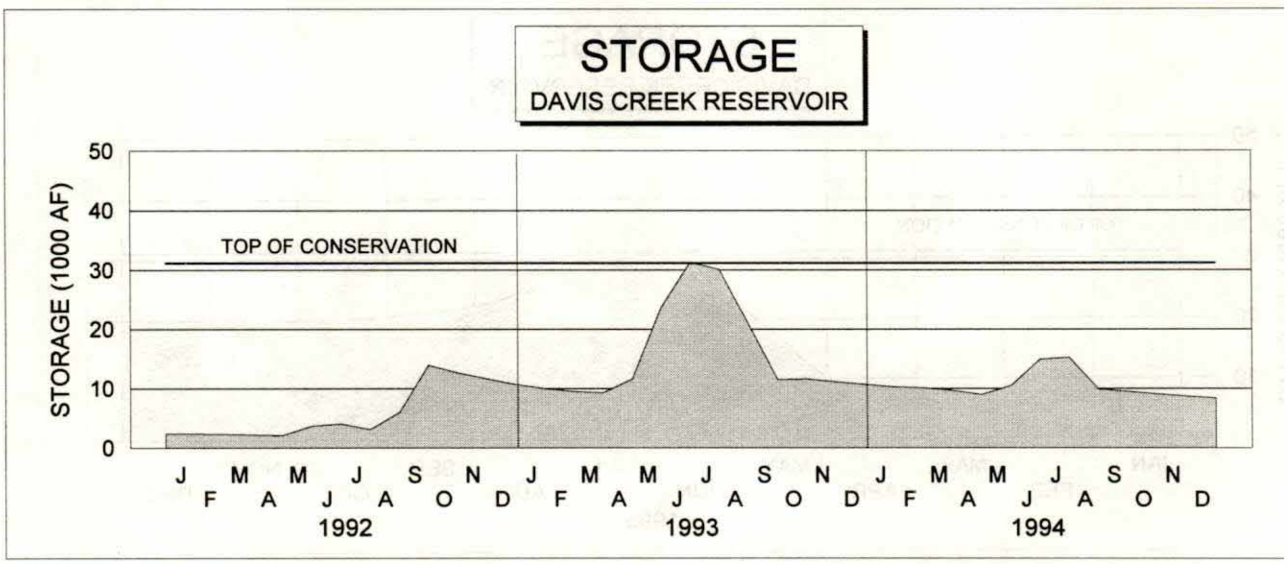


# DAVIS CREEK RESERVOIR
## OPERATION



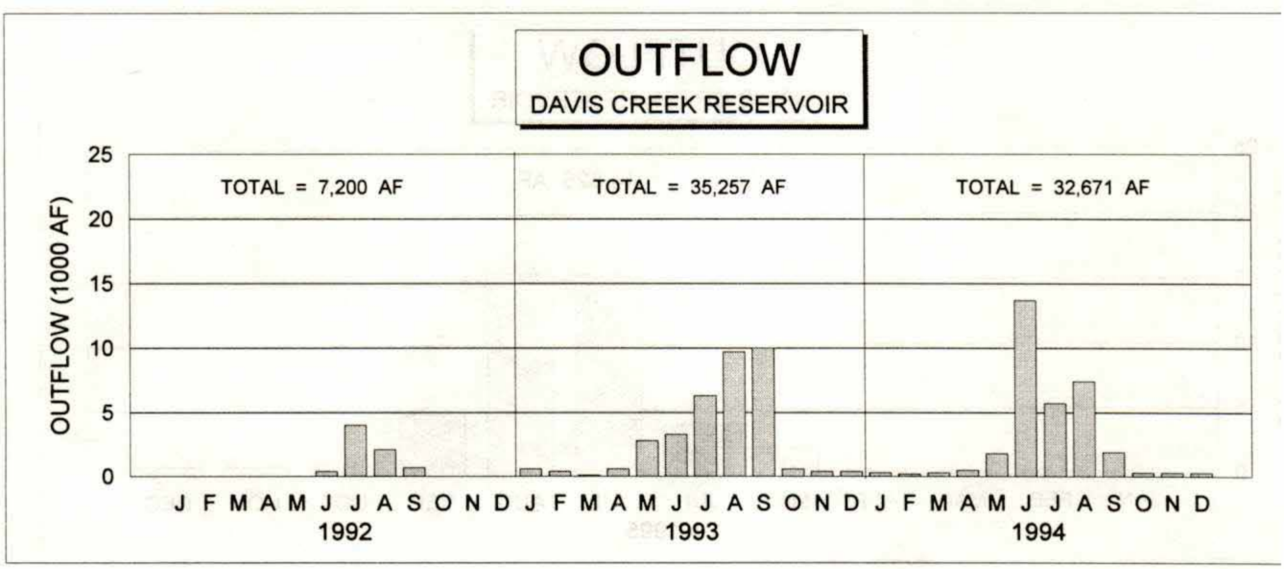
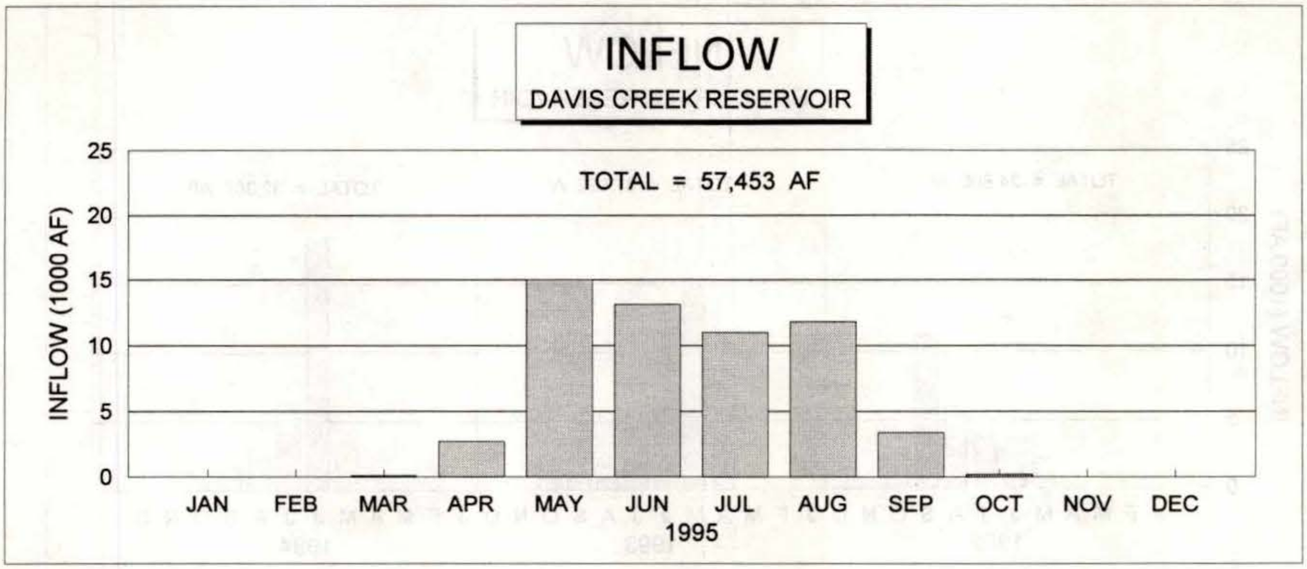
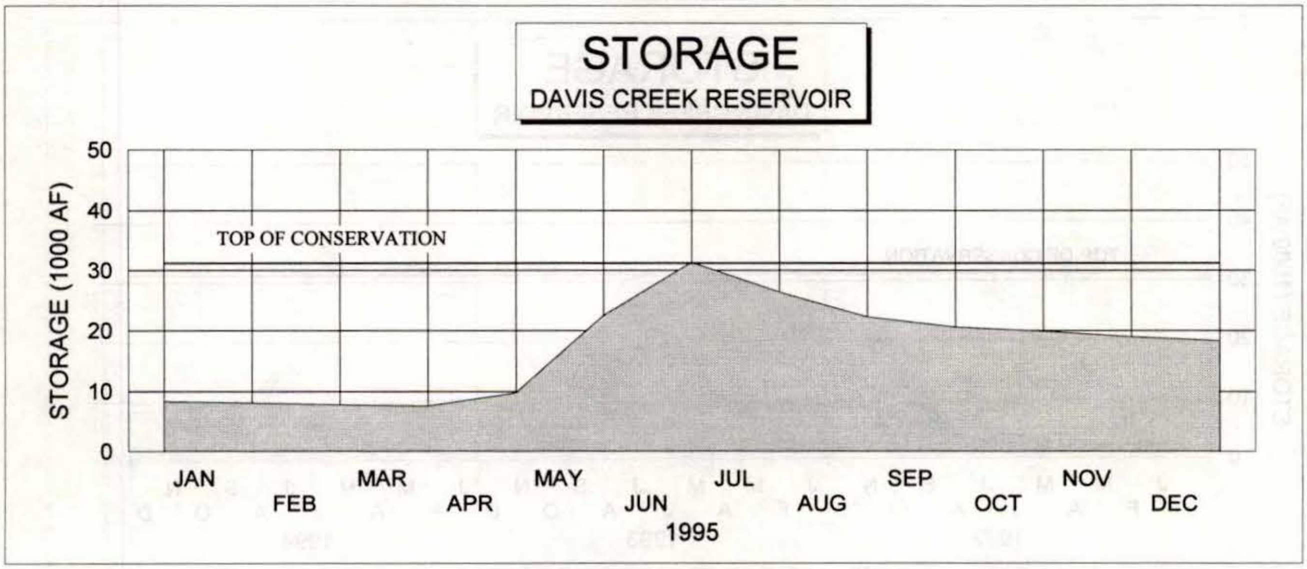



EXHIBIT 5B

# DAVIS CREEK RESERVOIR

## 1995 OPERATION



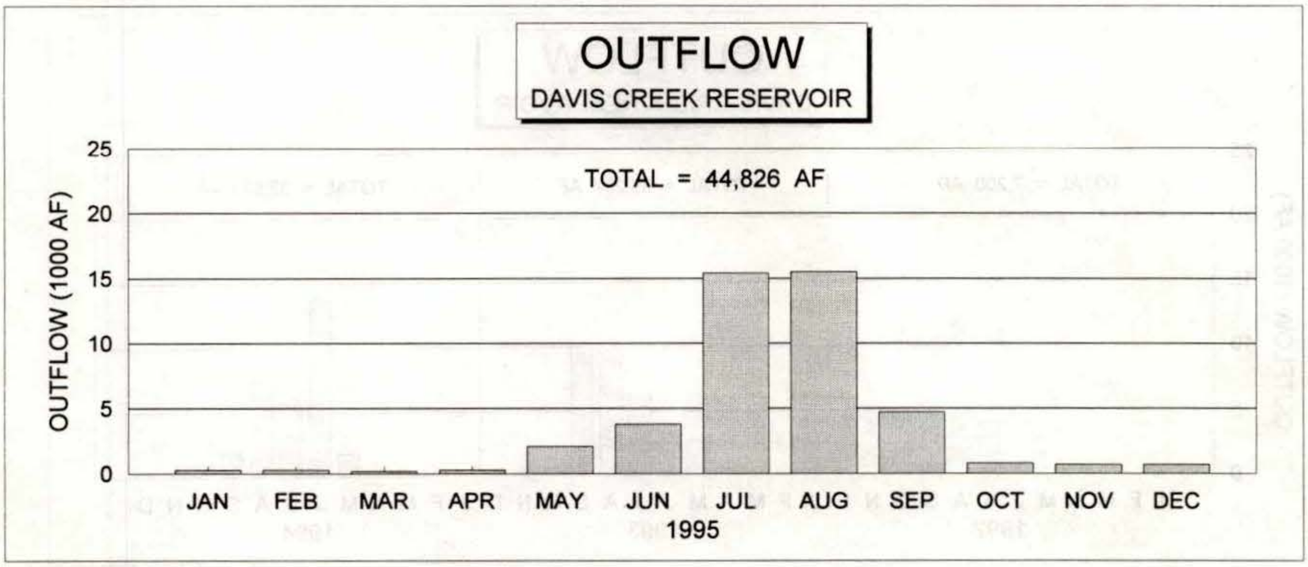
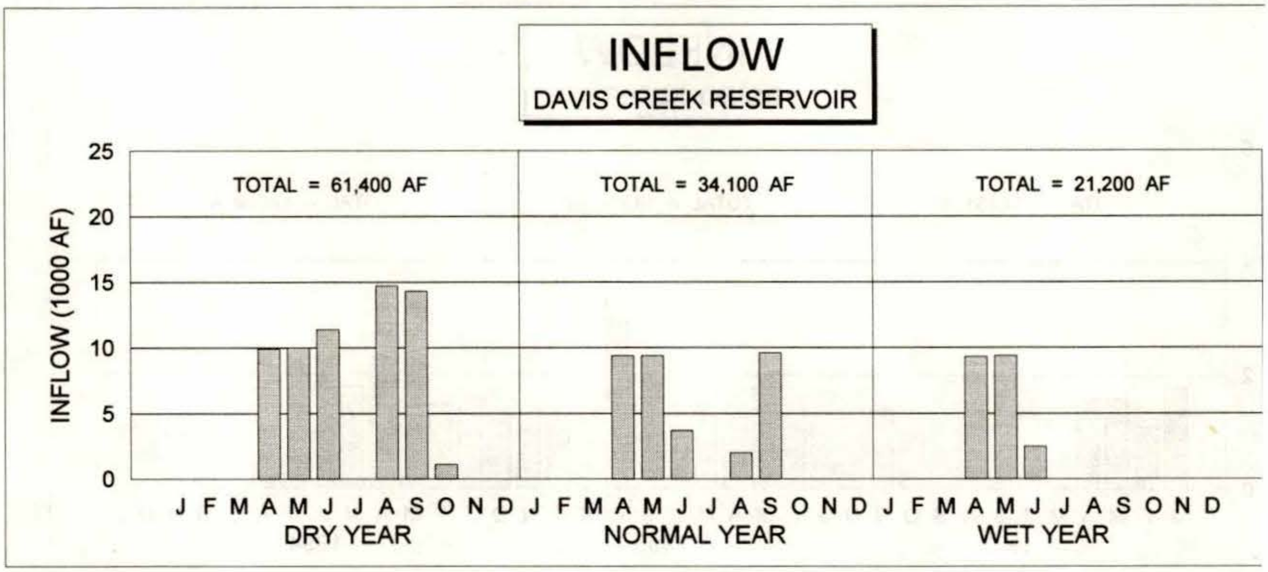
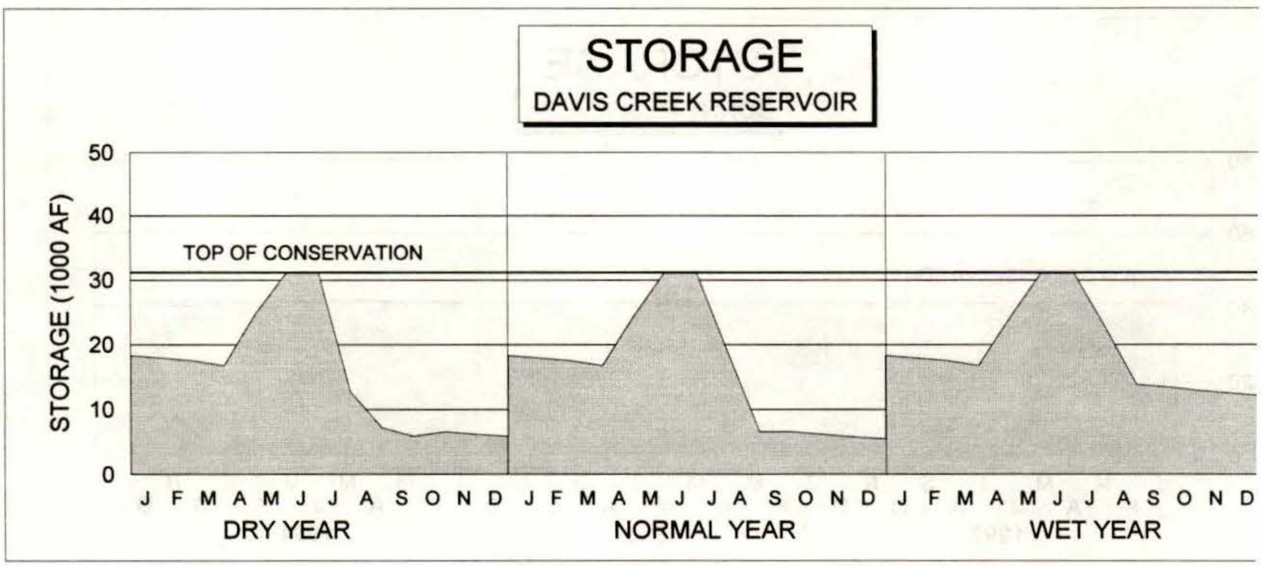



EXHIBIT 5C

# DAVIS CREEK RESERVOIR

## 1996 OPERATION PLAN



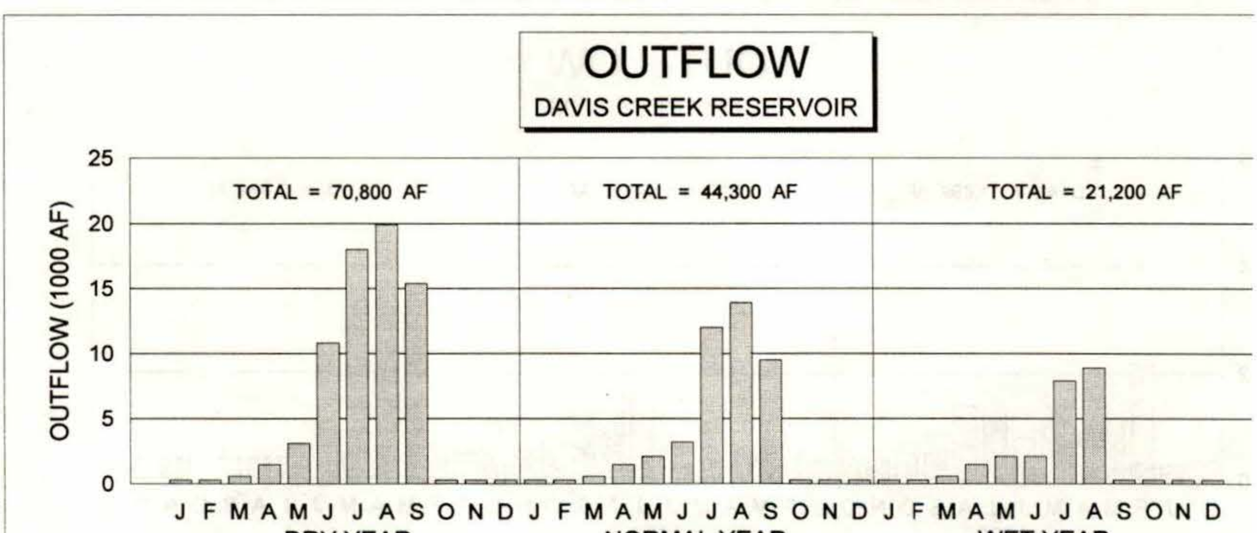
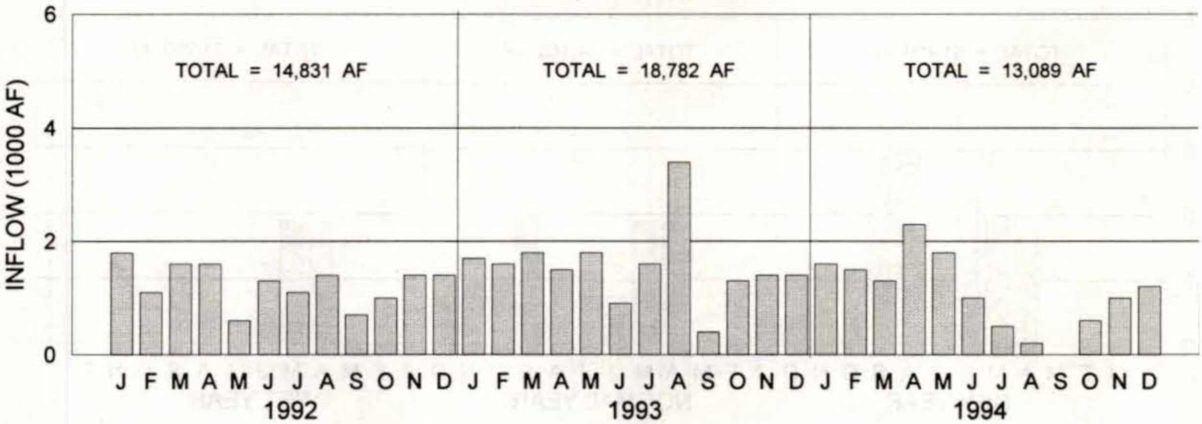



EXHIBIT 6A

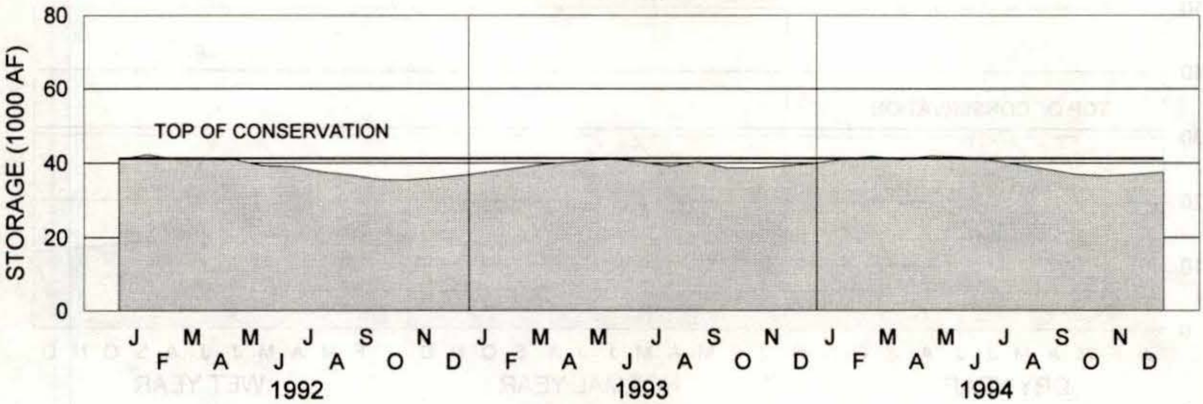
# BONNY RESERVOIR

## OPERATION

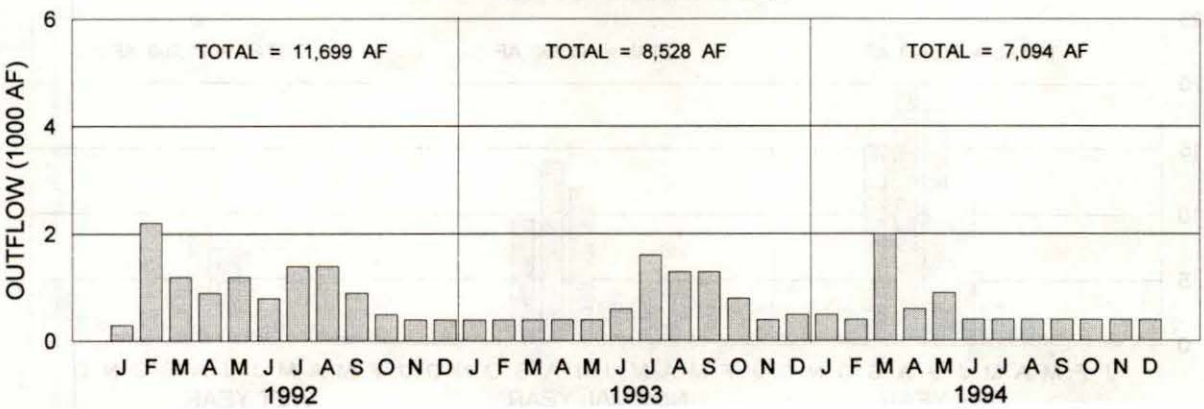
### INFLOW
BONNY RESERVOIR




### STORAGE
BONNY RESERVOIR

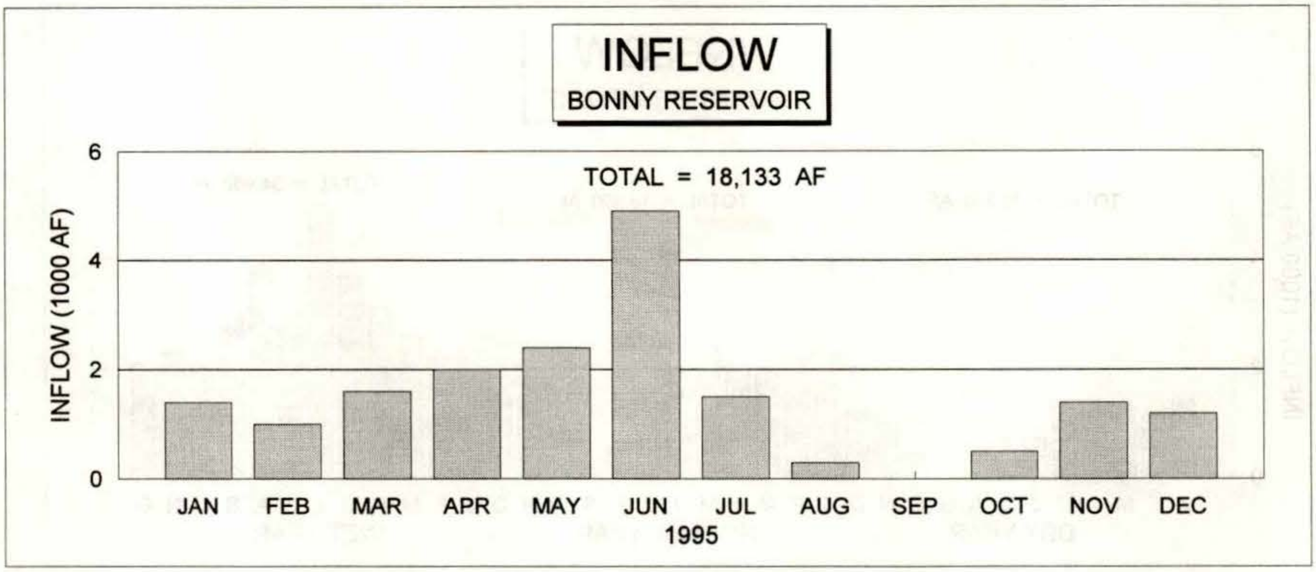


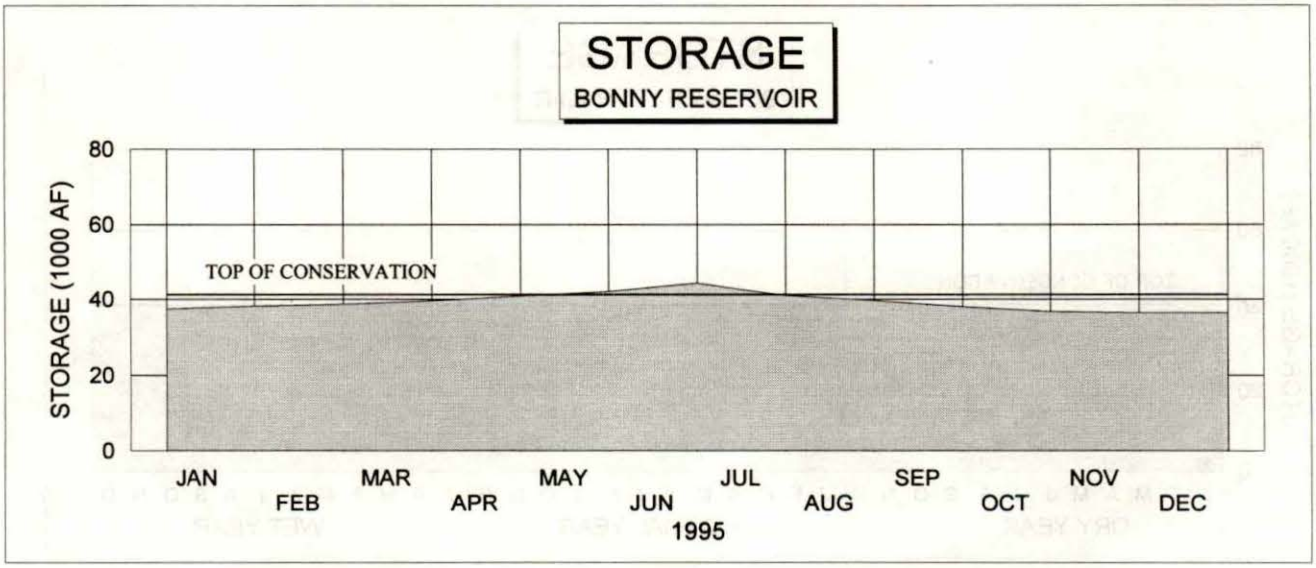

### OUTFLOW
BONNY RESERVOIR



# BONNY RESERVOIR

## 1995 OPERATION



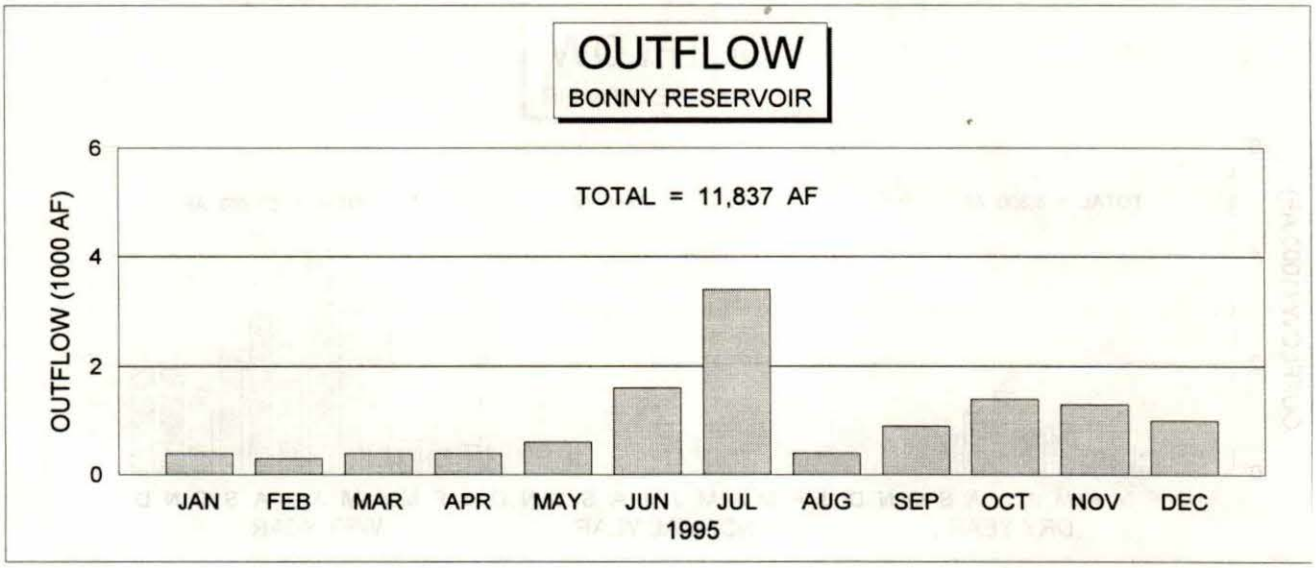
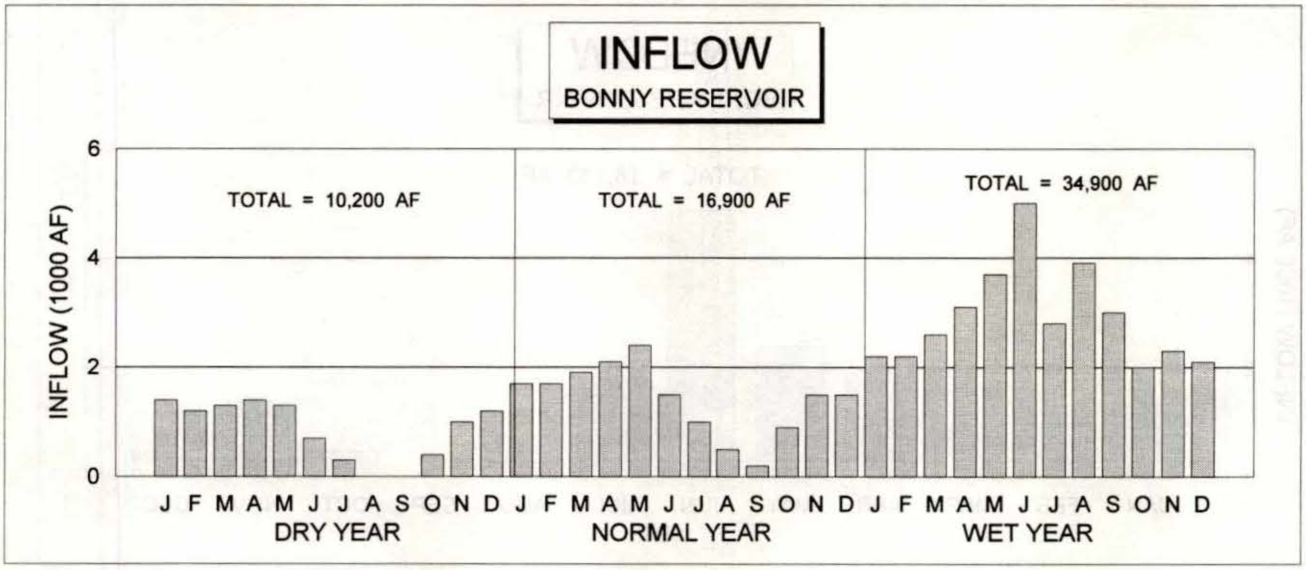
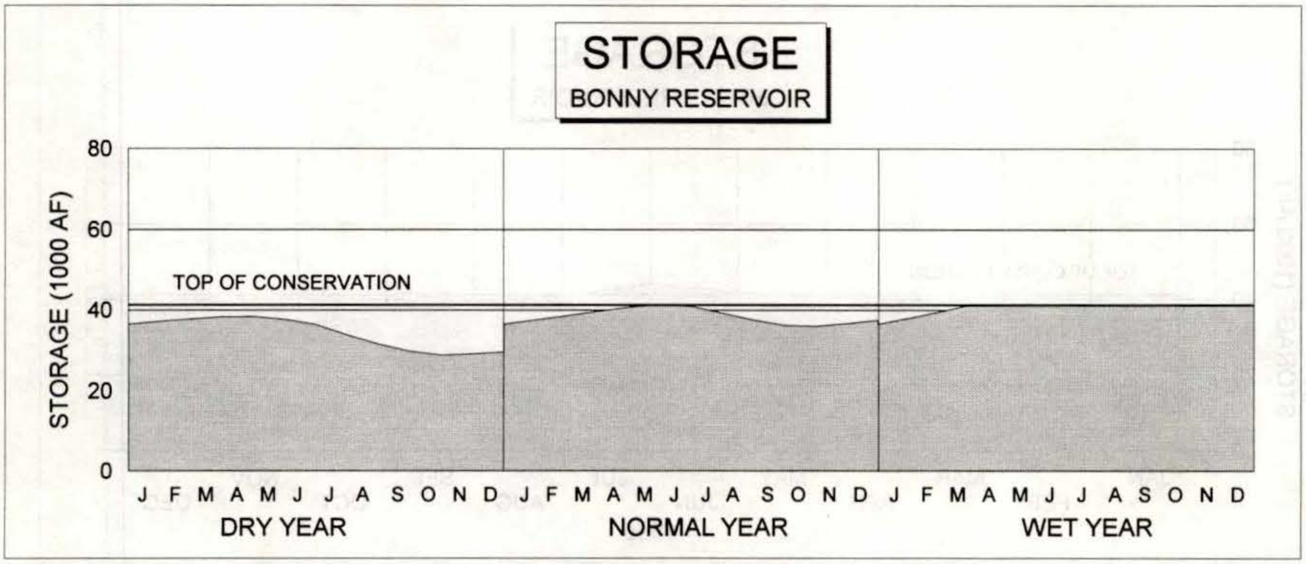



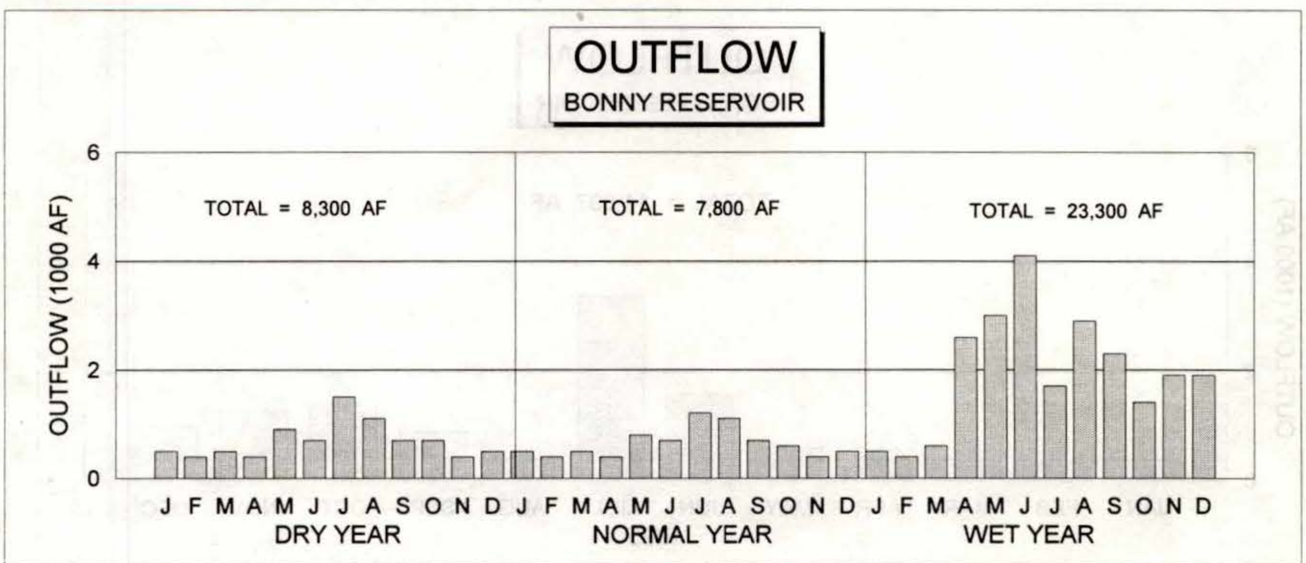
EXHIBIT 6C

# BONNY RESERVOIR

## 1996 OPERATION PLAN

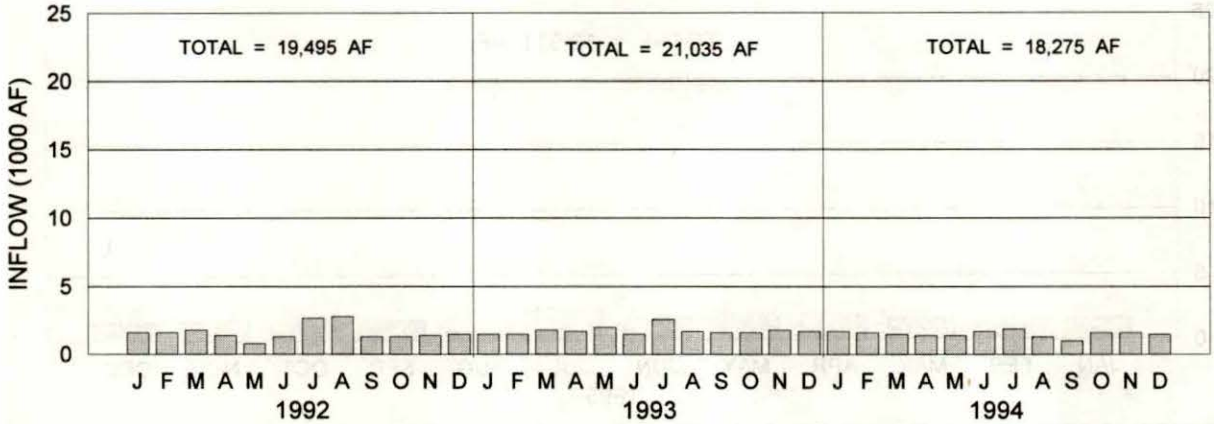


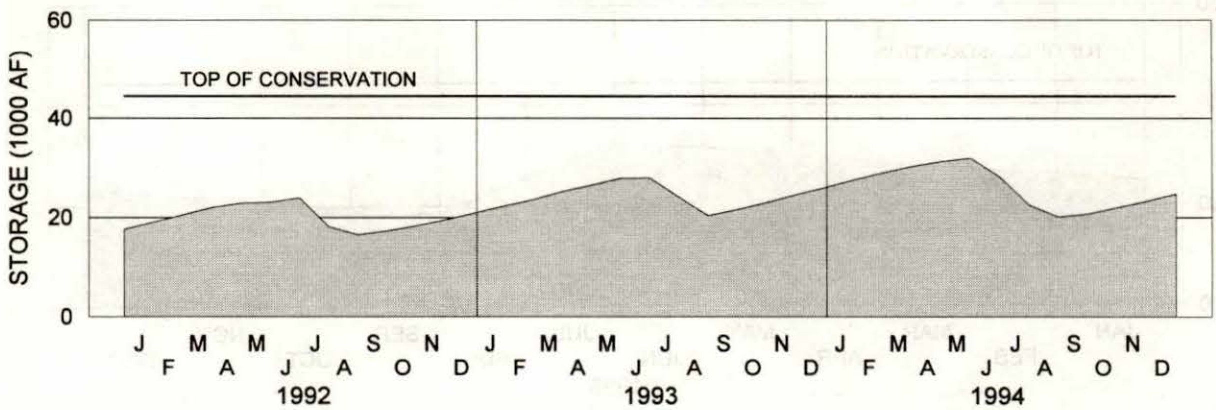



# ENDERS RESERVOIR
## OPERATION

### INFLOW
ENDERS RESERVOIR




### STORAGE
ENDERS RESERVOIR




### OUTFLOW
ENDERS RESERVOIR

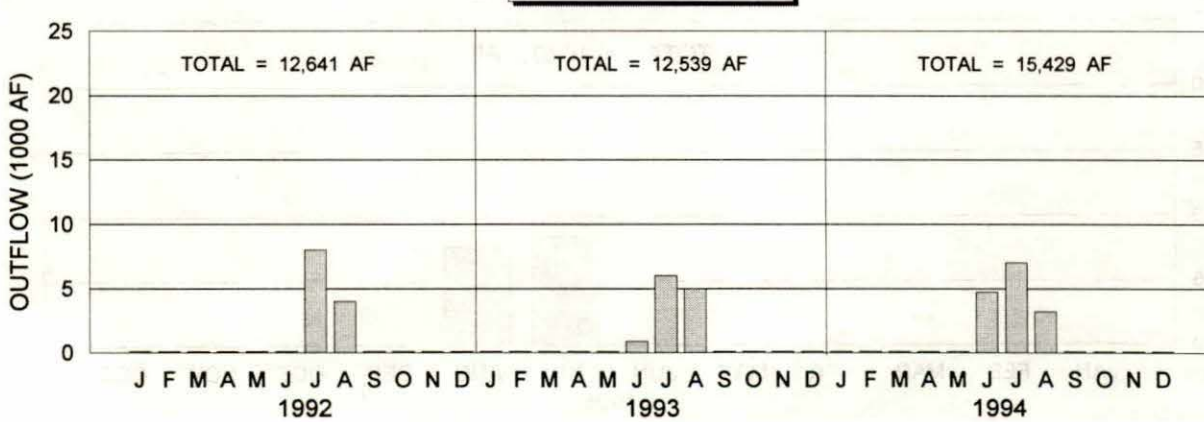
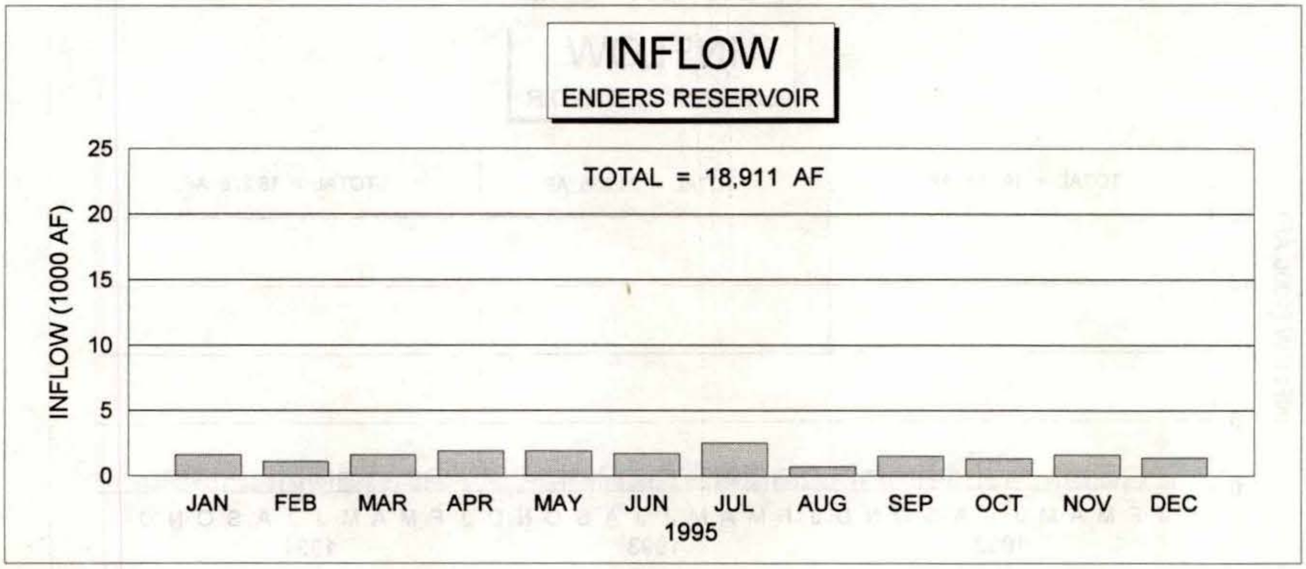
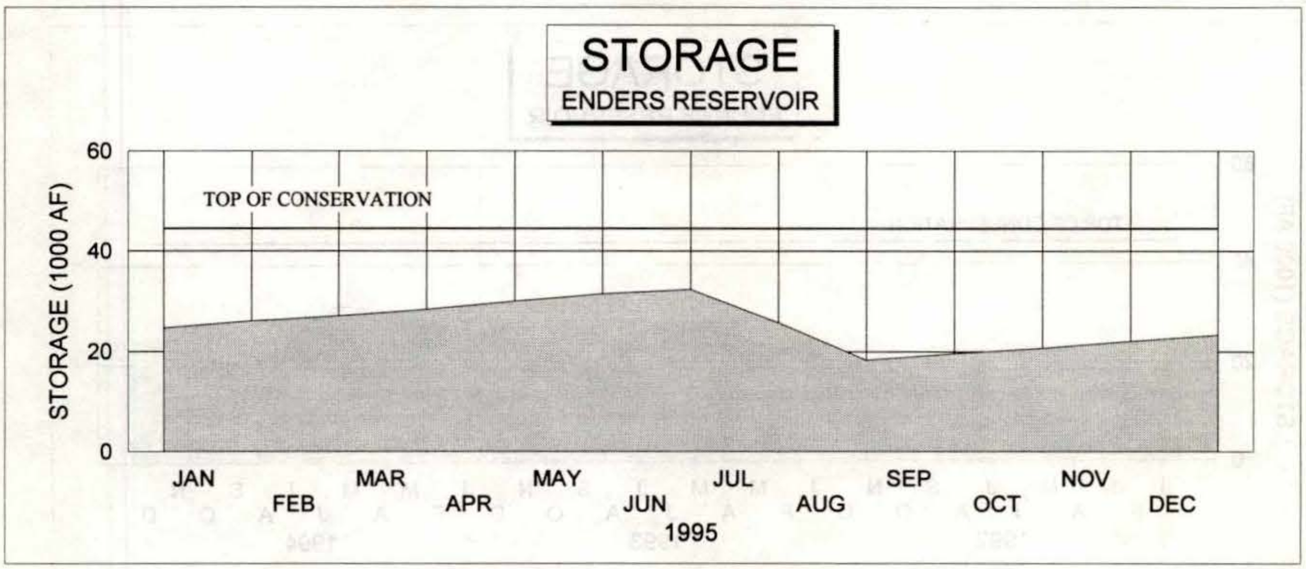


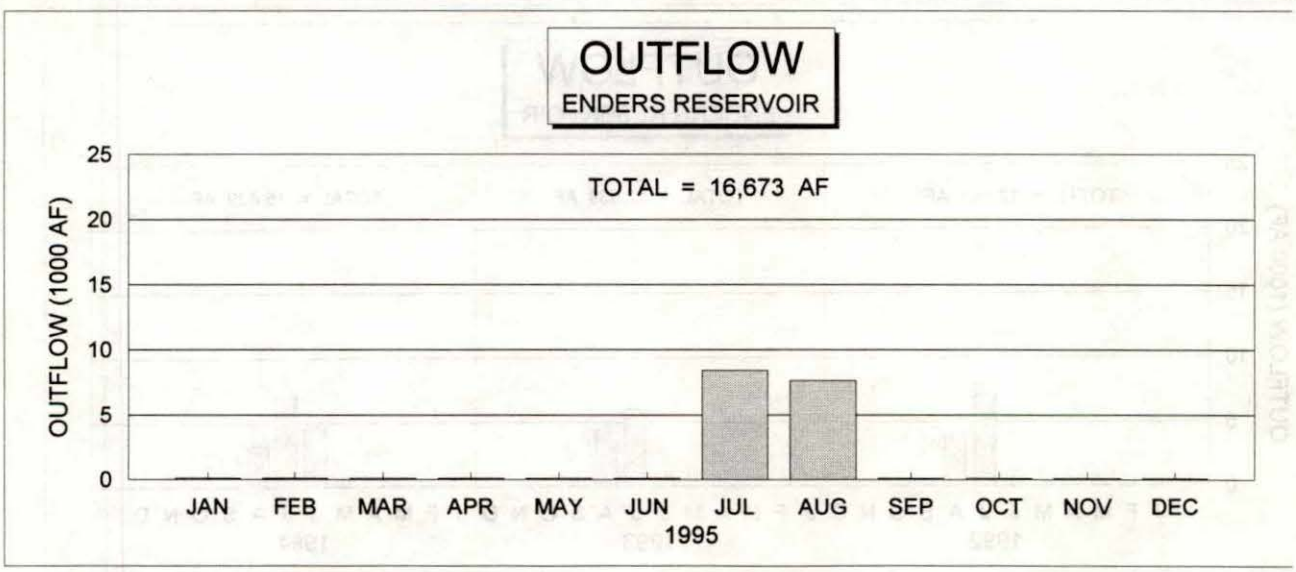
EXHIBIT 7B

# ENDERS RESERVOIR

## 1995 OPERATION

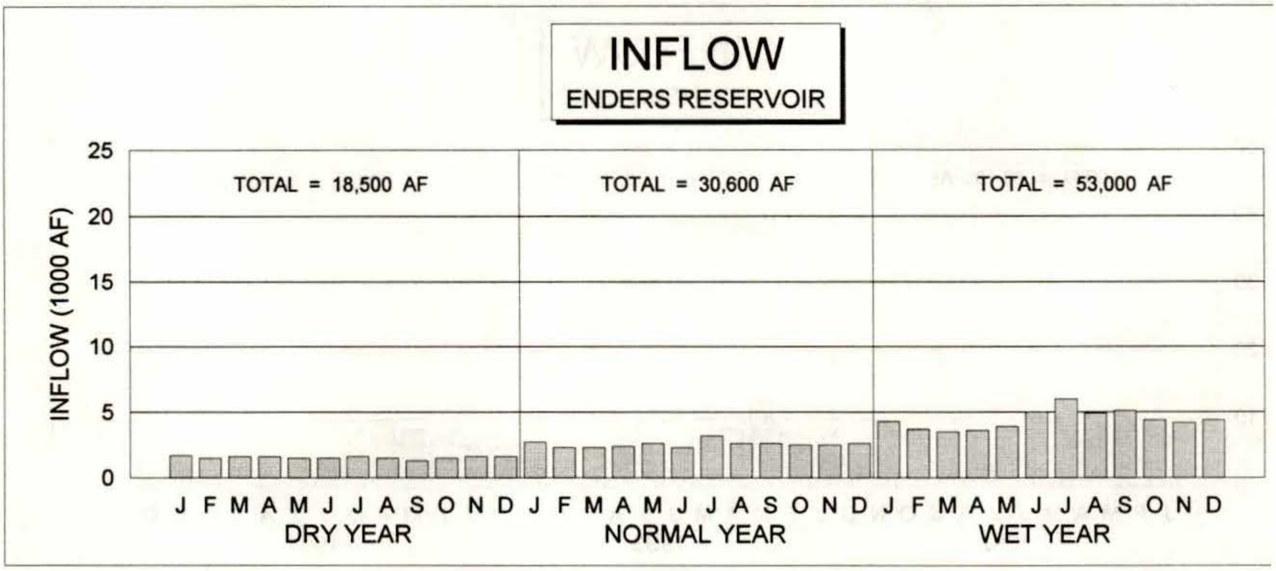


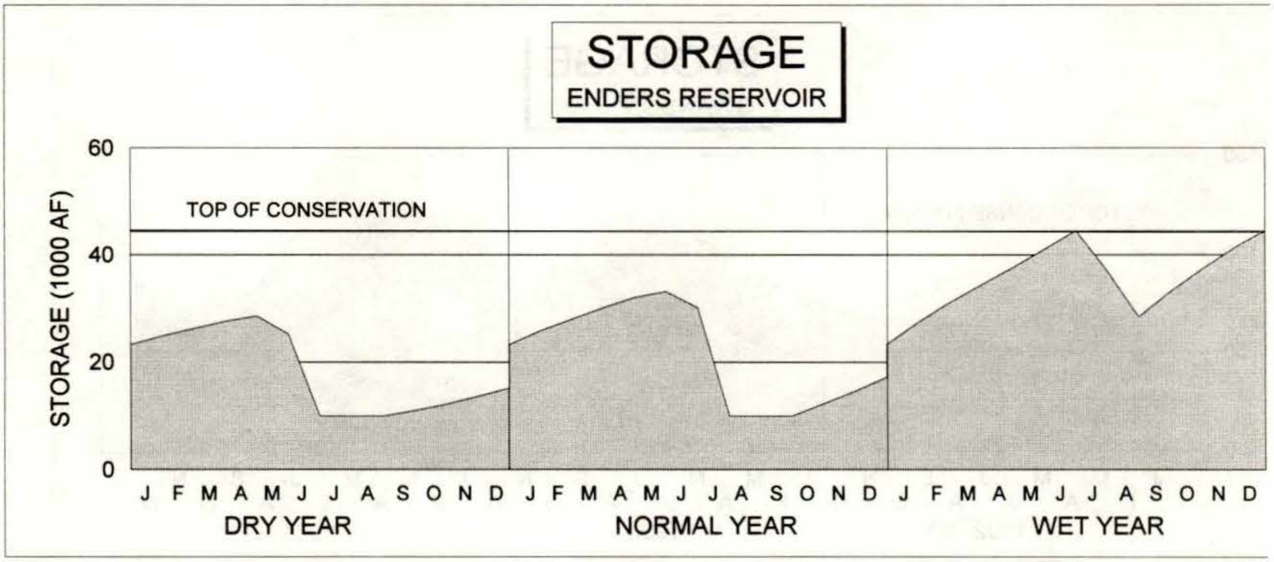



# ENDERS RESERVOIR

## 1996 OPERATION PLAN



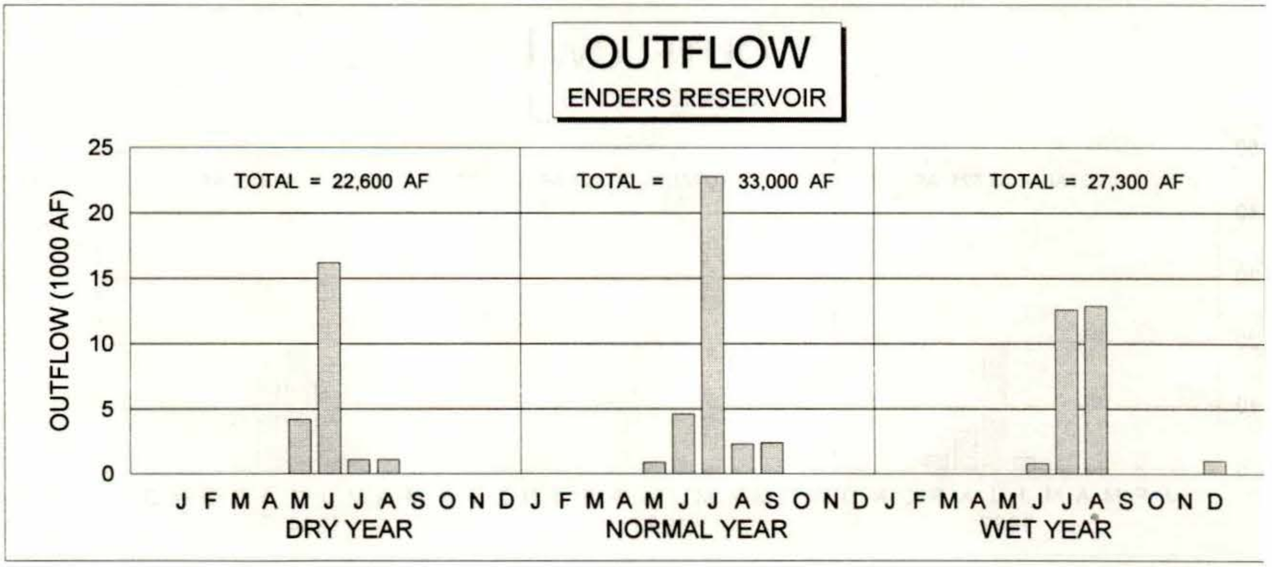
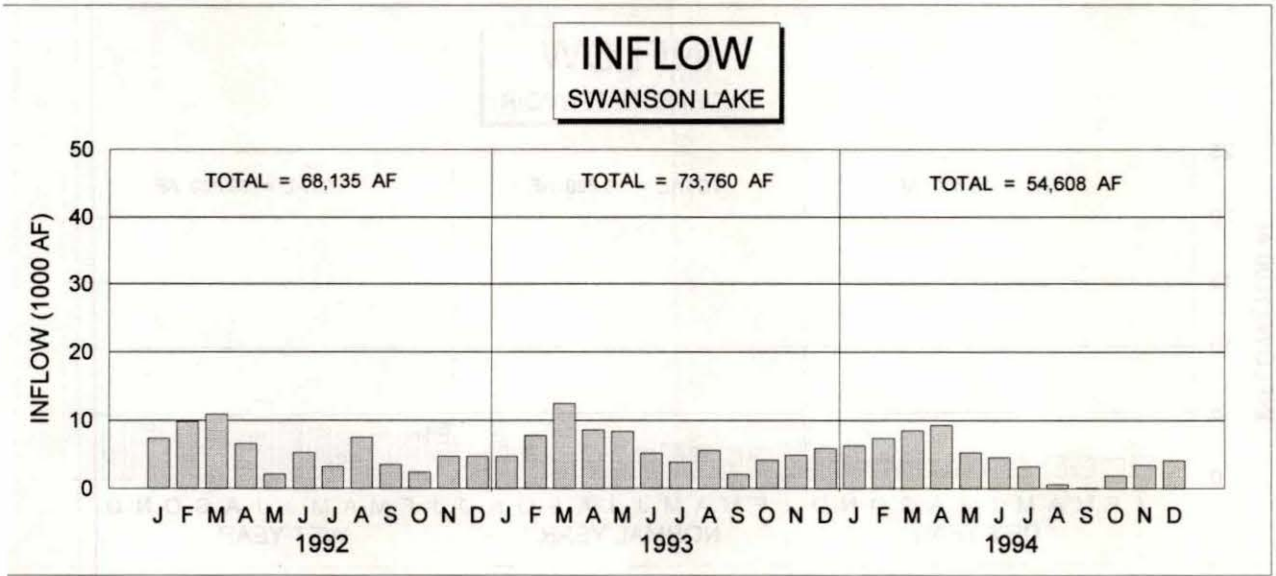
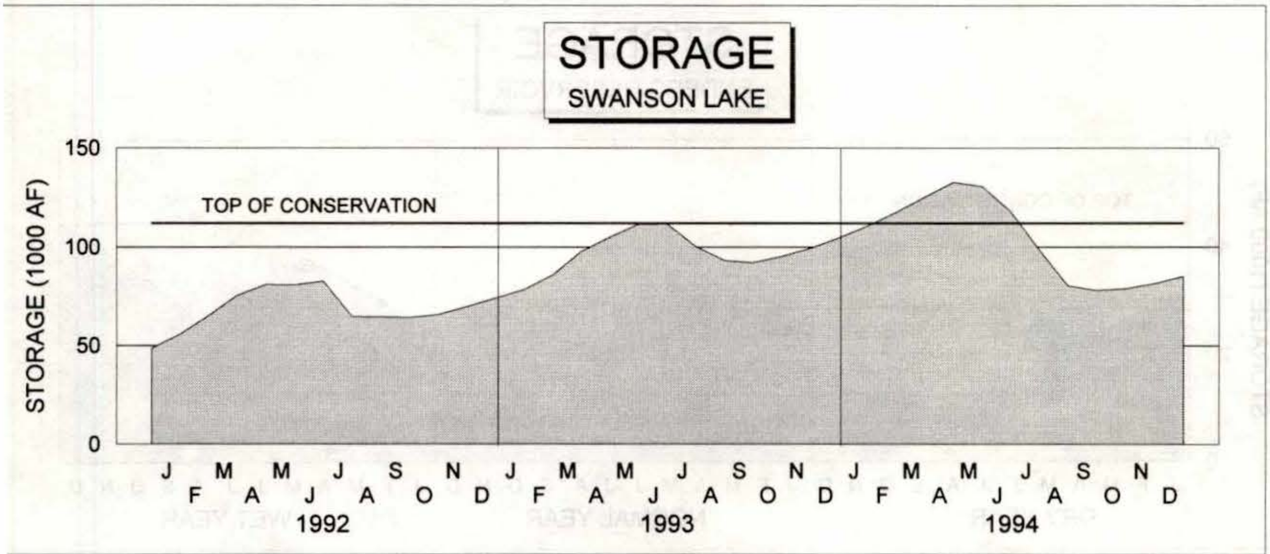



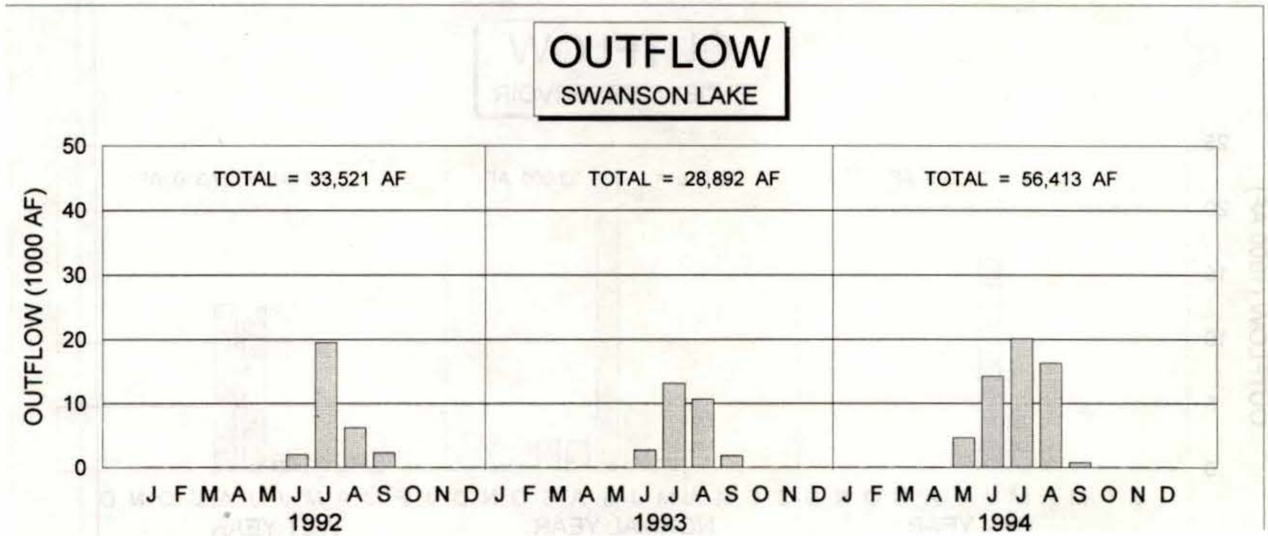
EXHIBIT 8A

# SWANSON LAKE

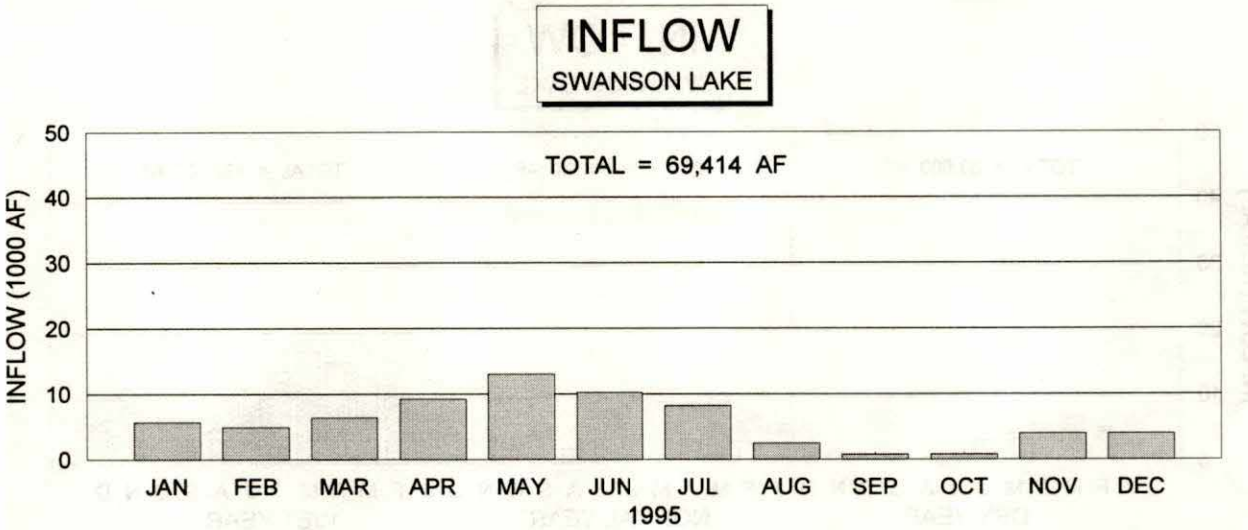
## OPERATION

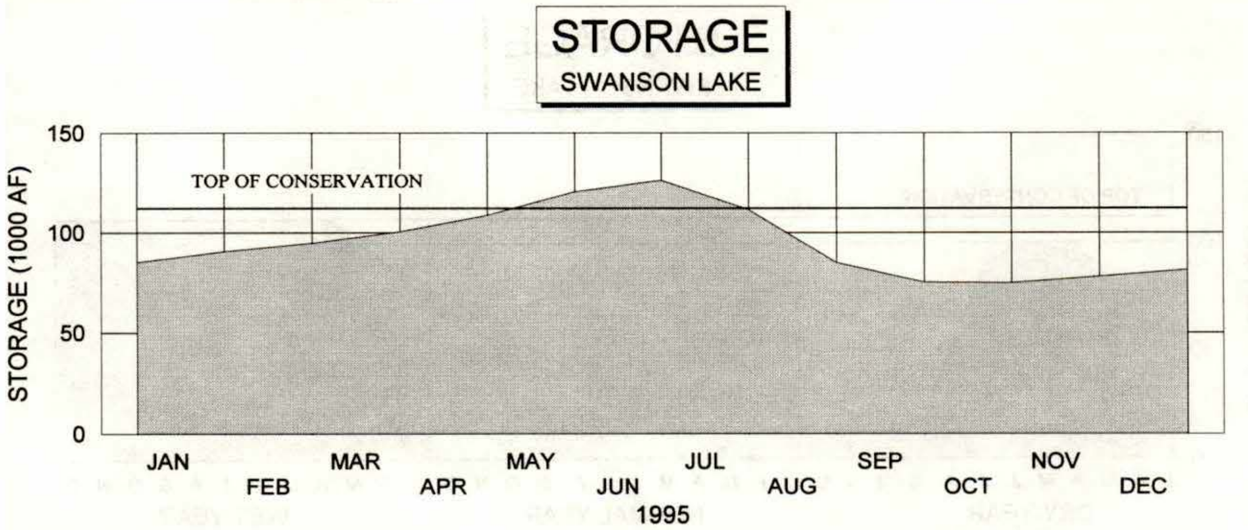


# SWANSON LAKE
## 1995 OPERATION



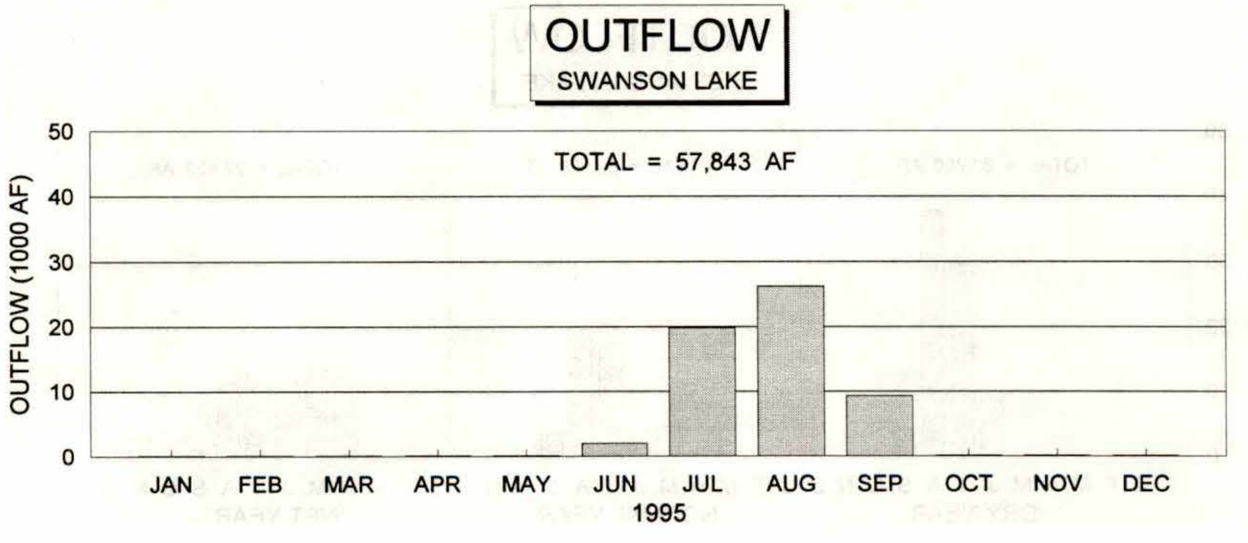
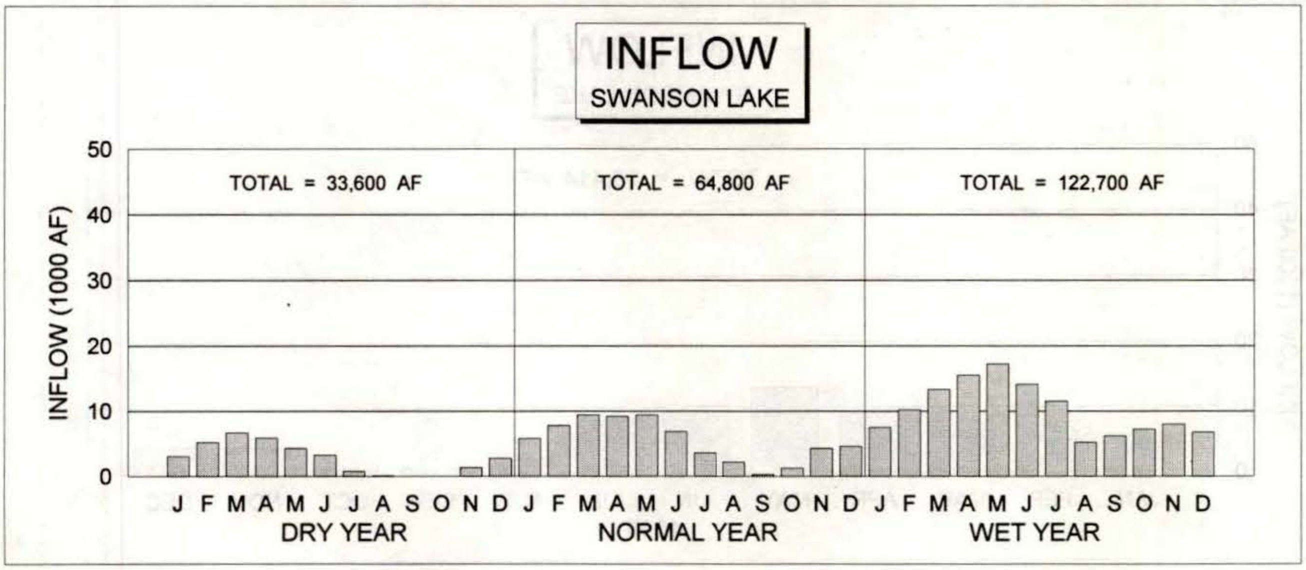
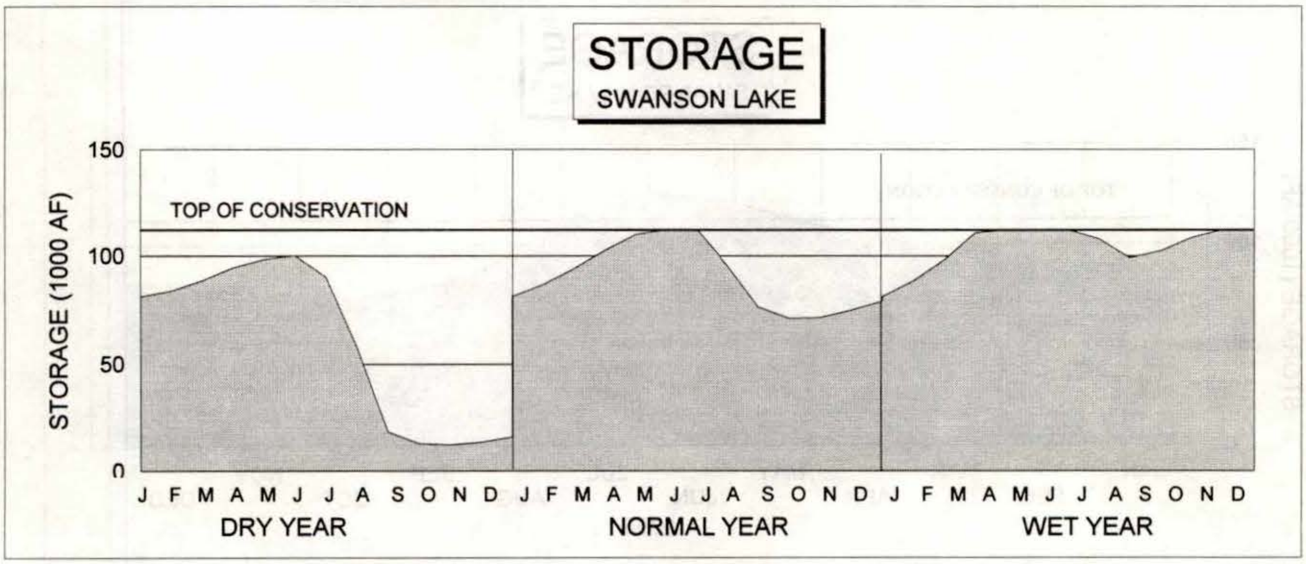



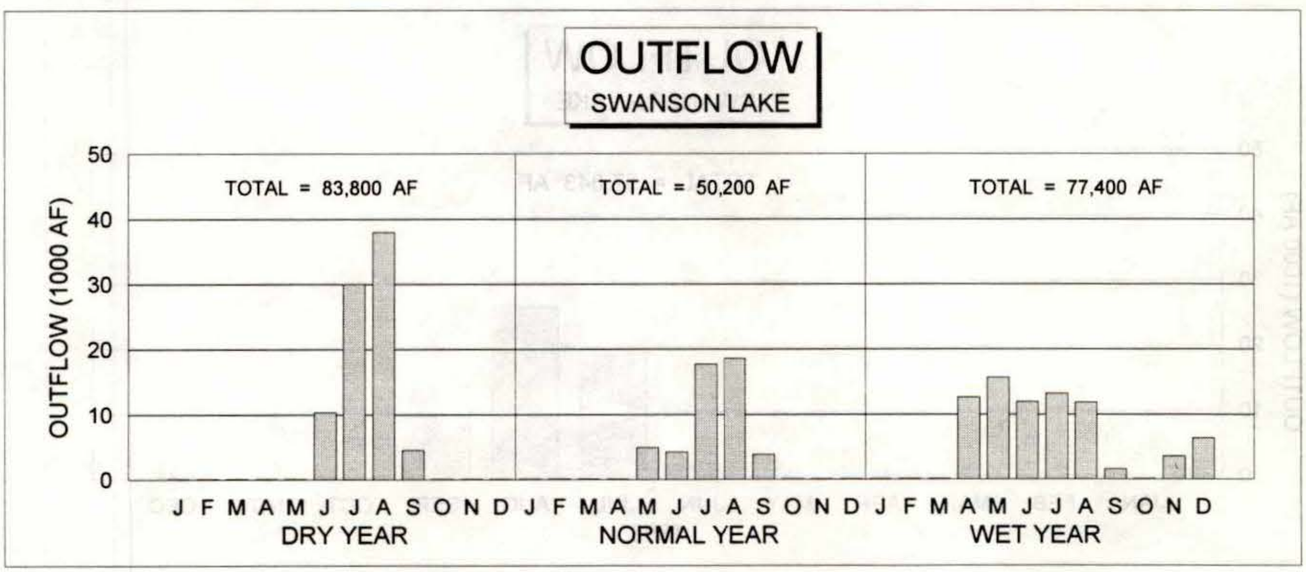
EXHIBIT 8C

# SWANSON LAKE

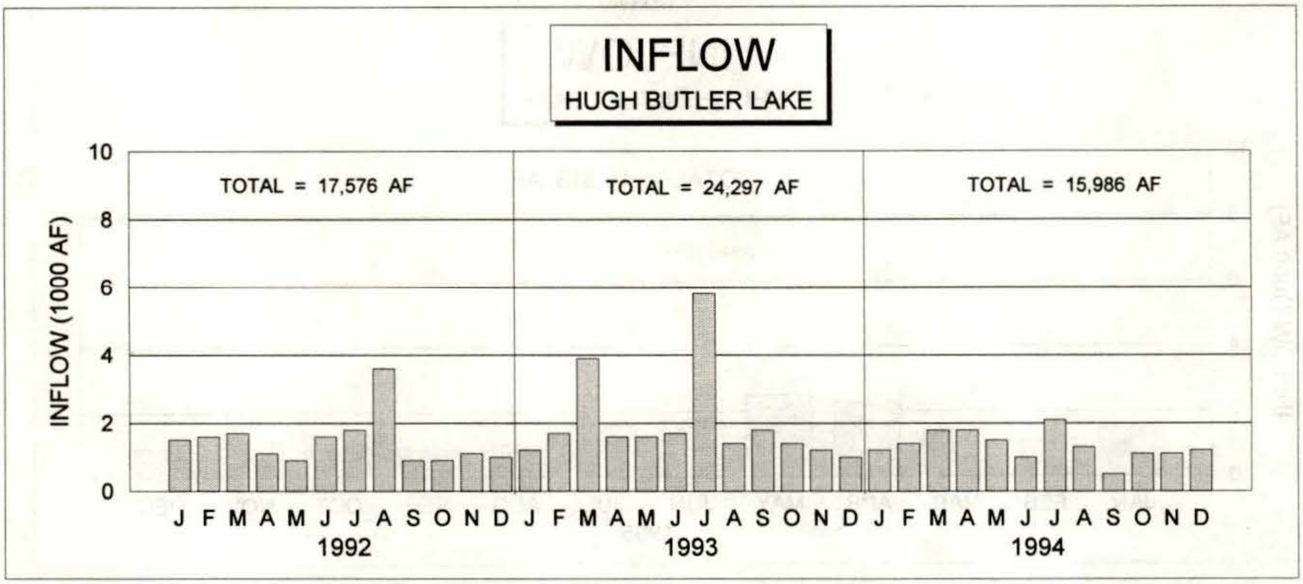
## 1996 OPERATION PLAN

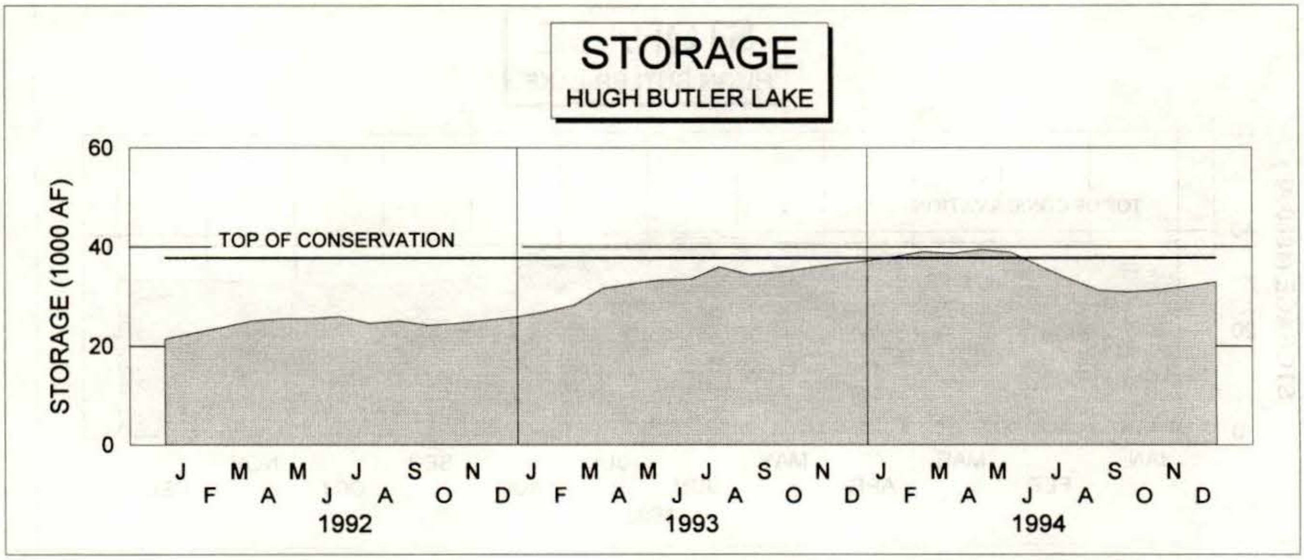


# HUGH BUTLER LAKE
## OPERATION



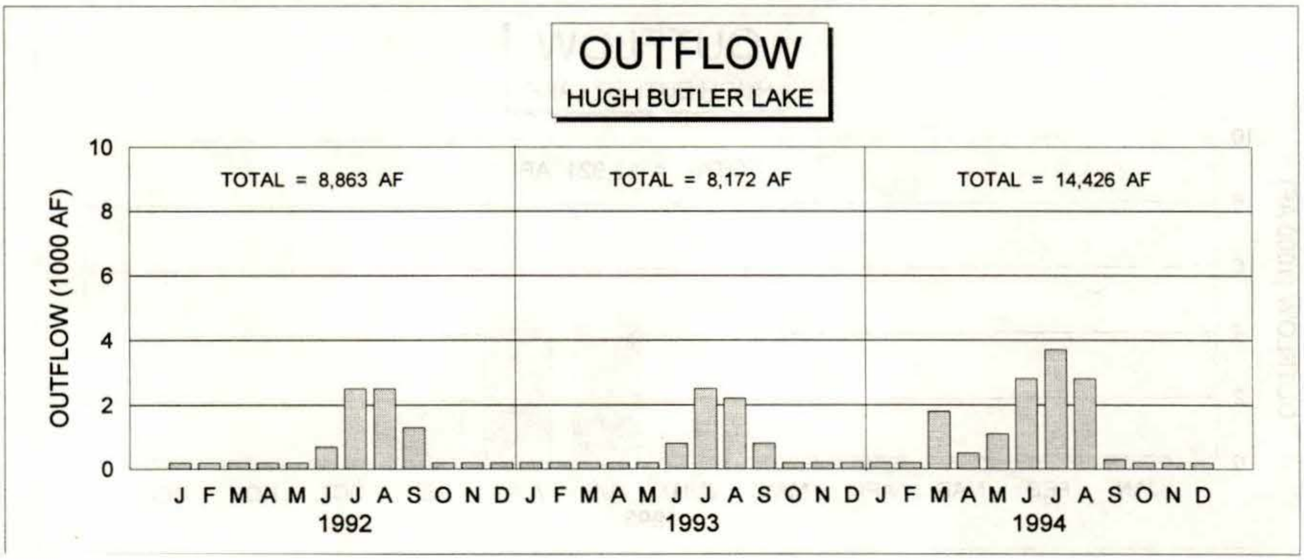
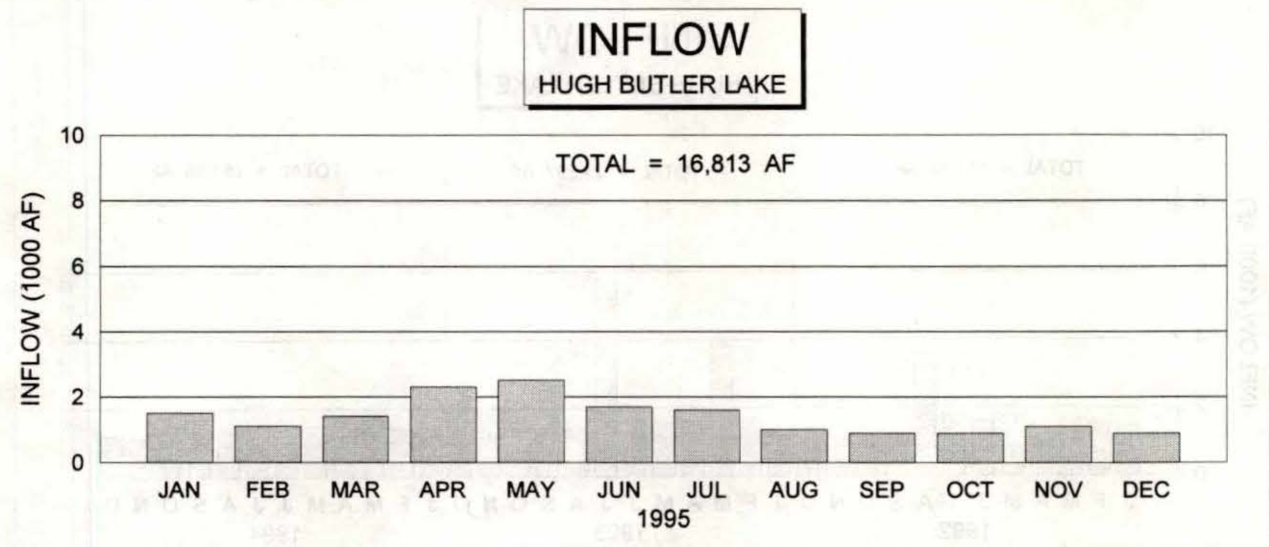
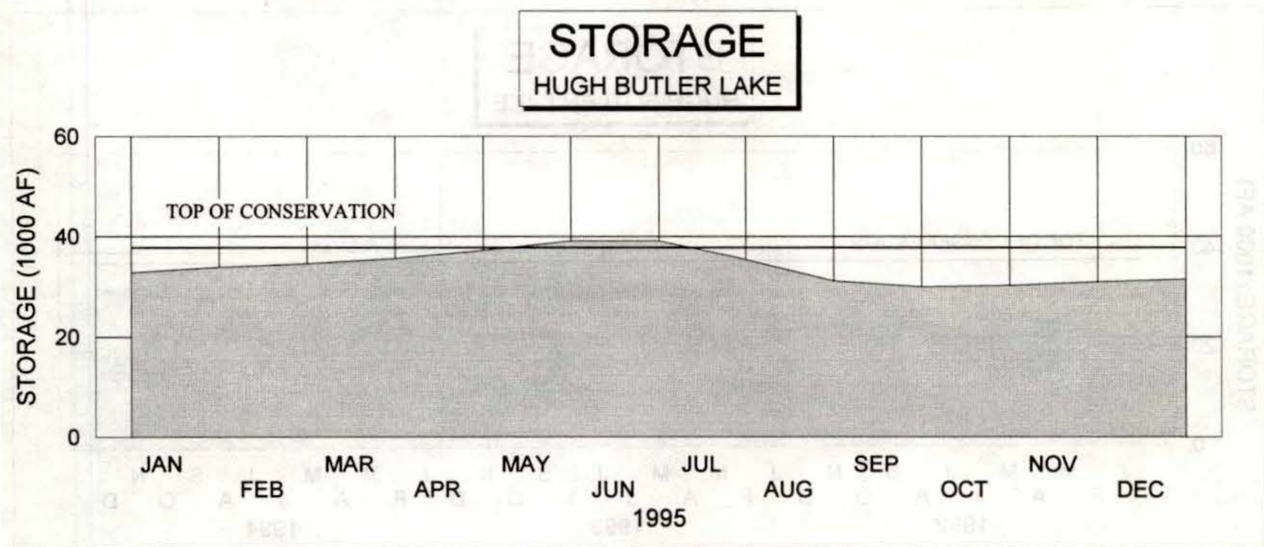



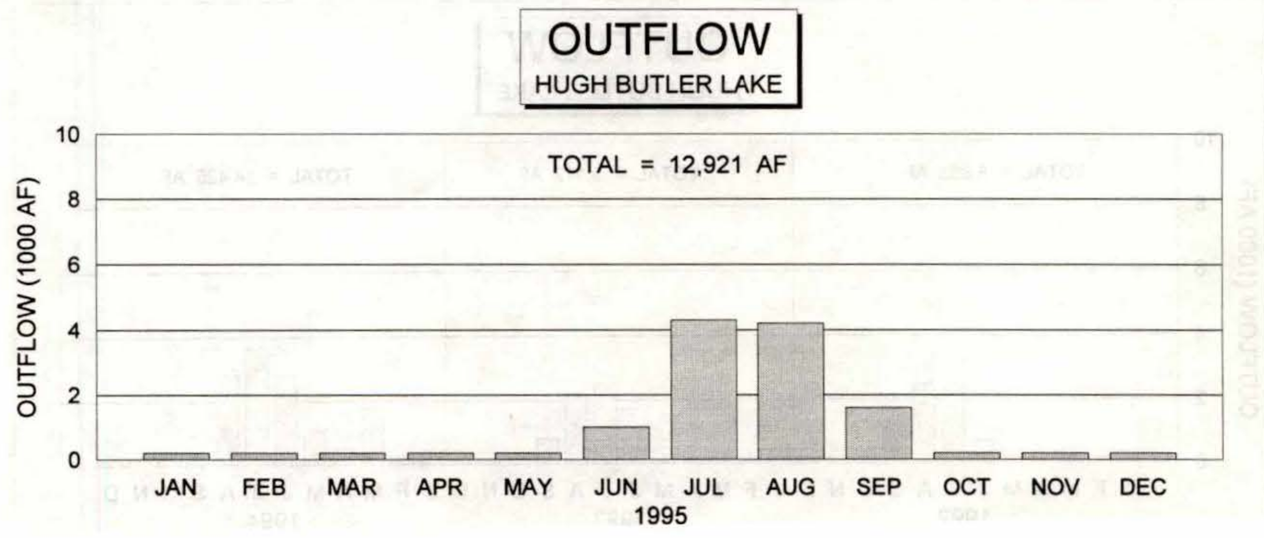
EXHIBIT 9B

# HUGH BUTLER LAKE

## 1995 OPERATION

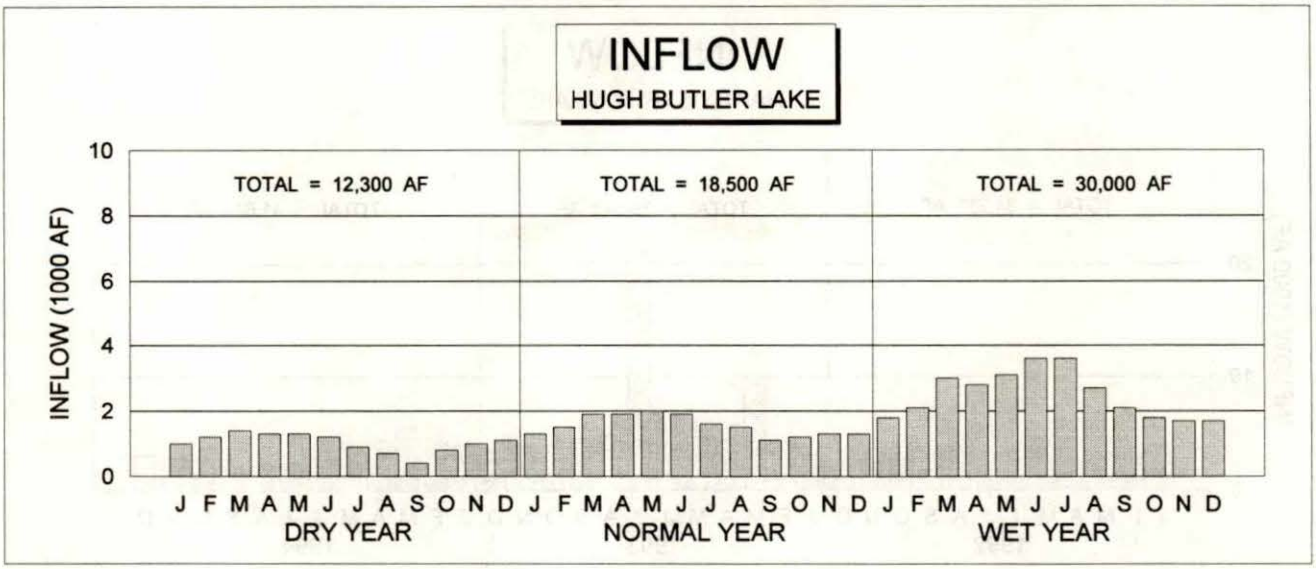


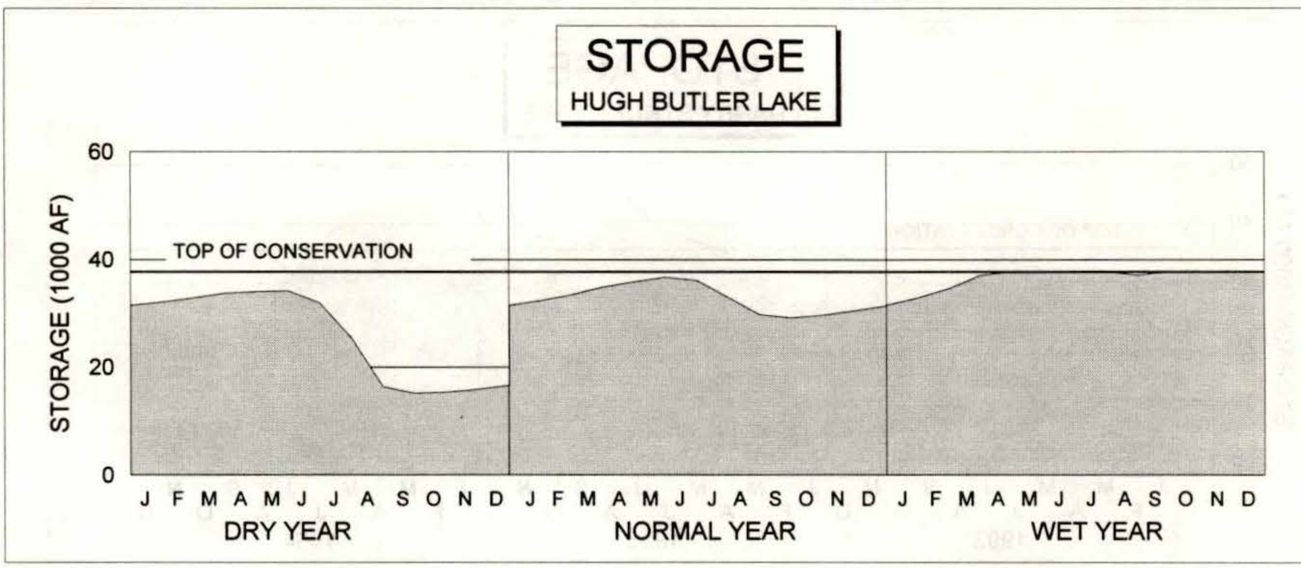



# HUGH BUTLER LAKE

## 1996 OPERATION PLAN



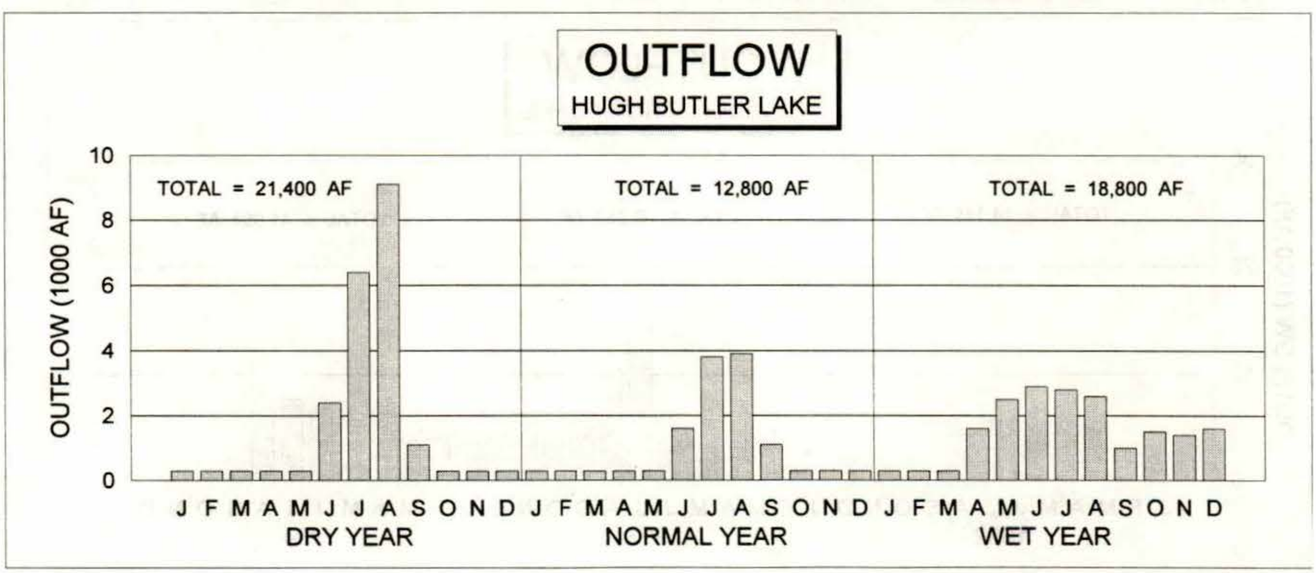
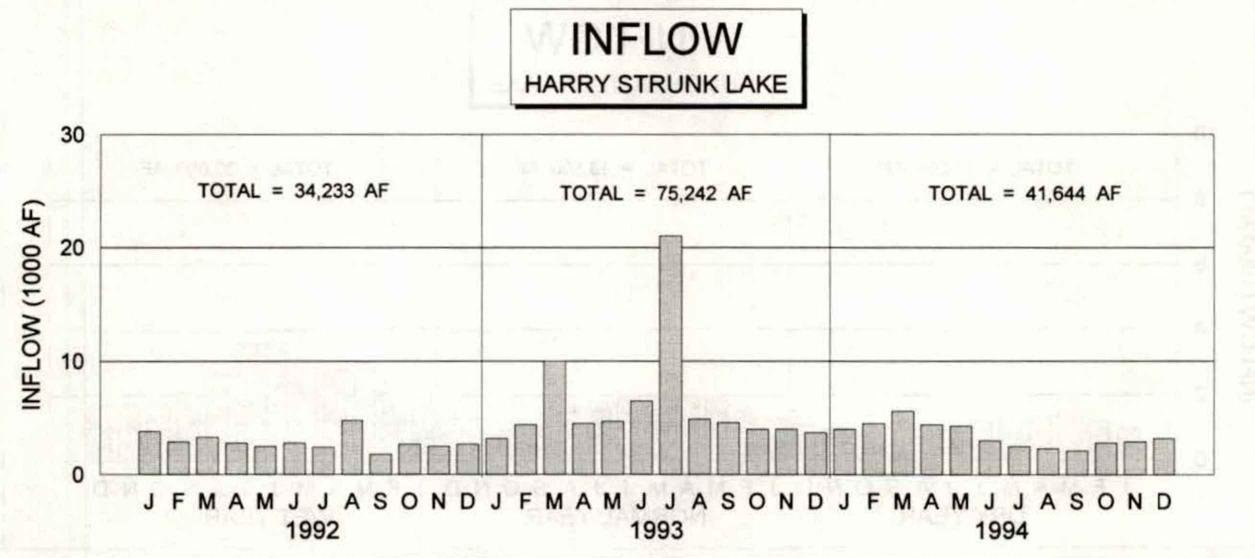
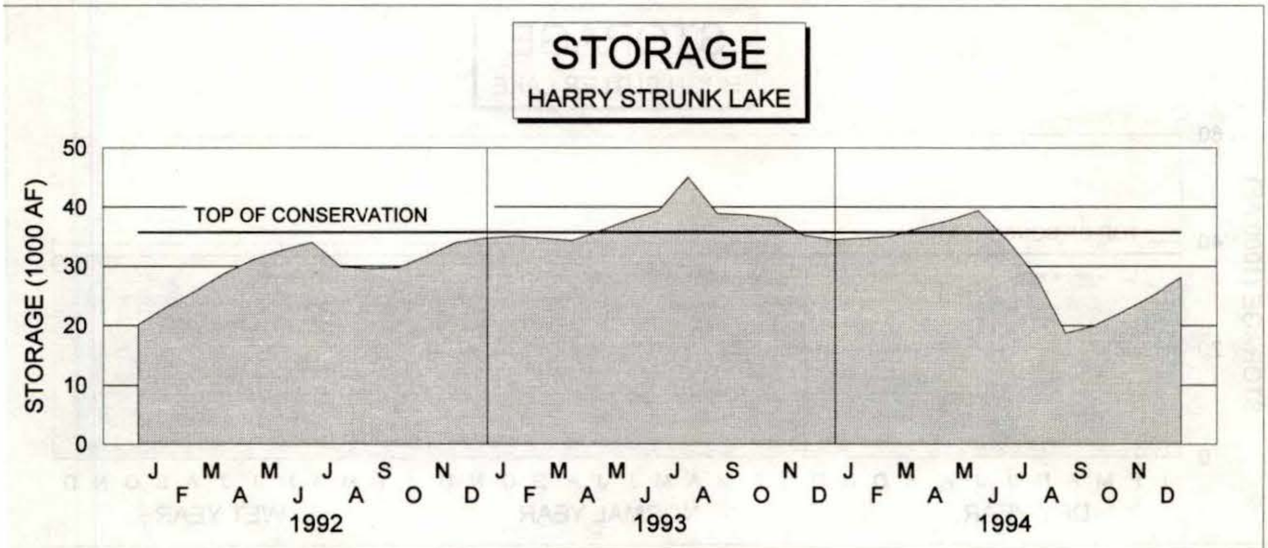



EXHIBIT 10A

# HARRY STRUNK LAKE
## OPERATION



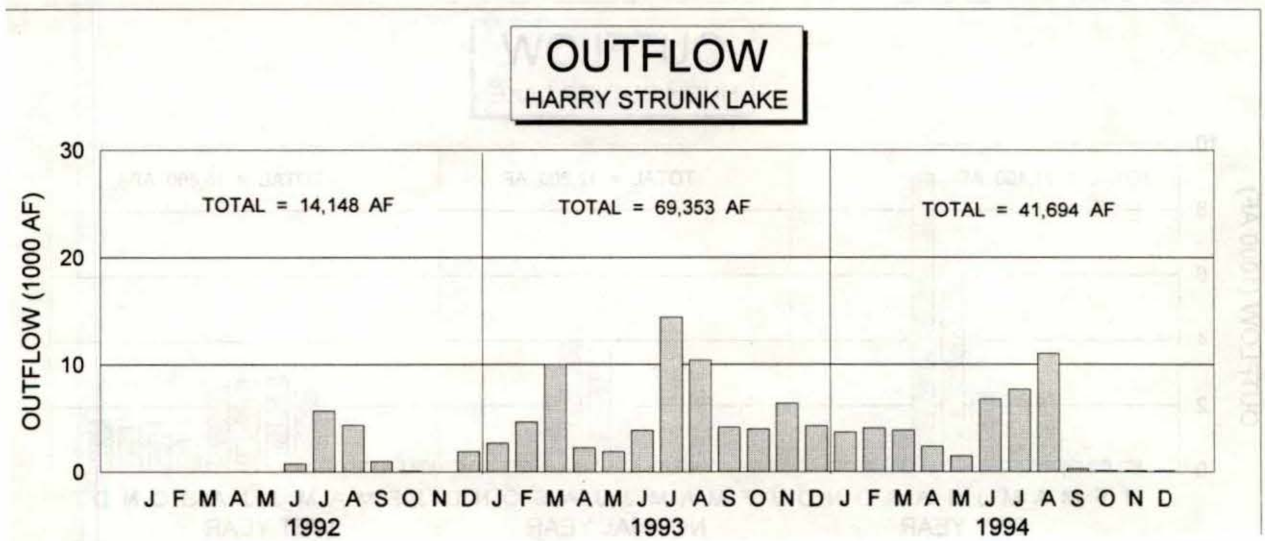
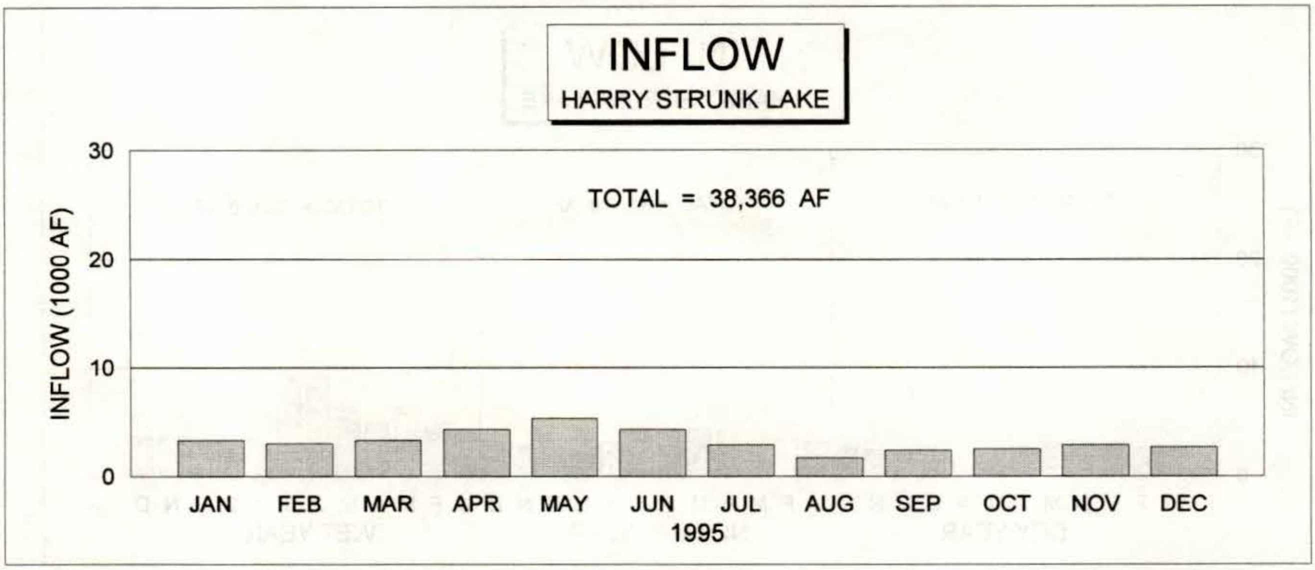
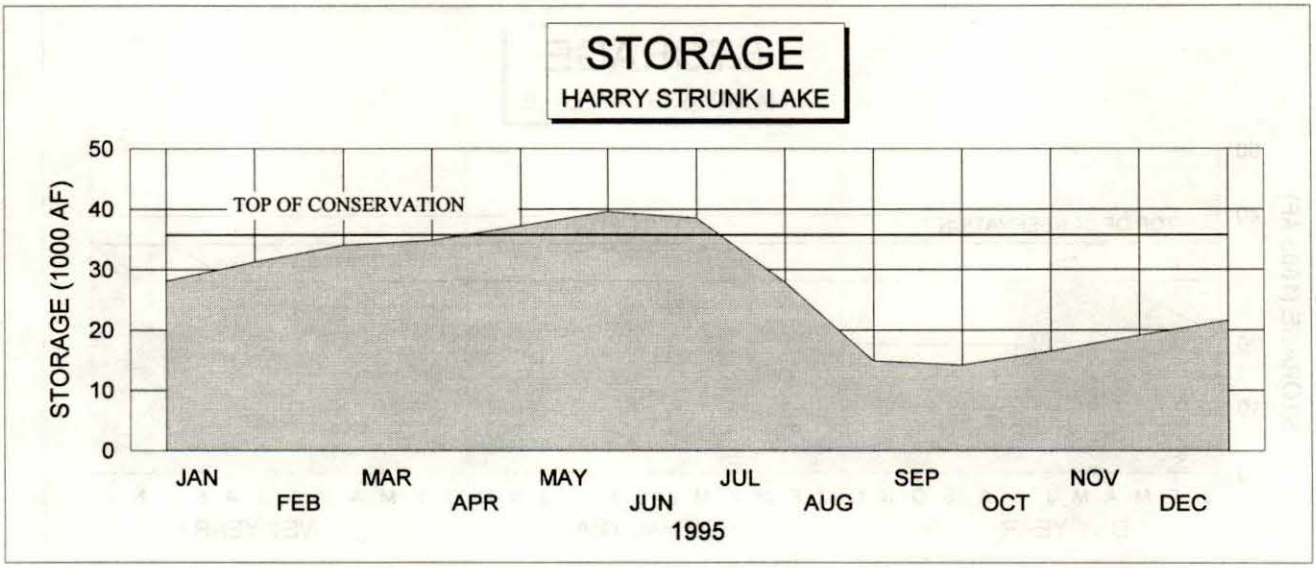



EXHIBIT 10B

# HARRY STRUNK LAKE

## 1995 OPERATION



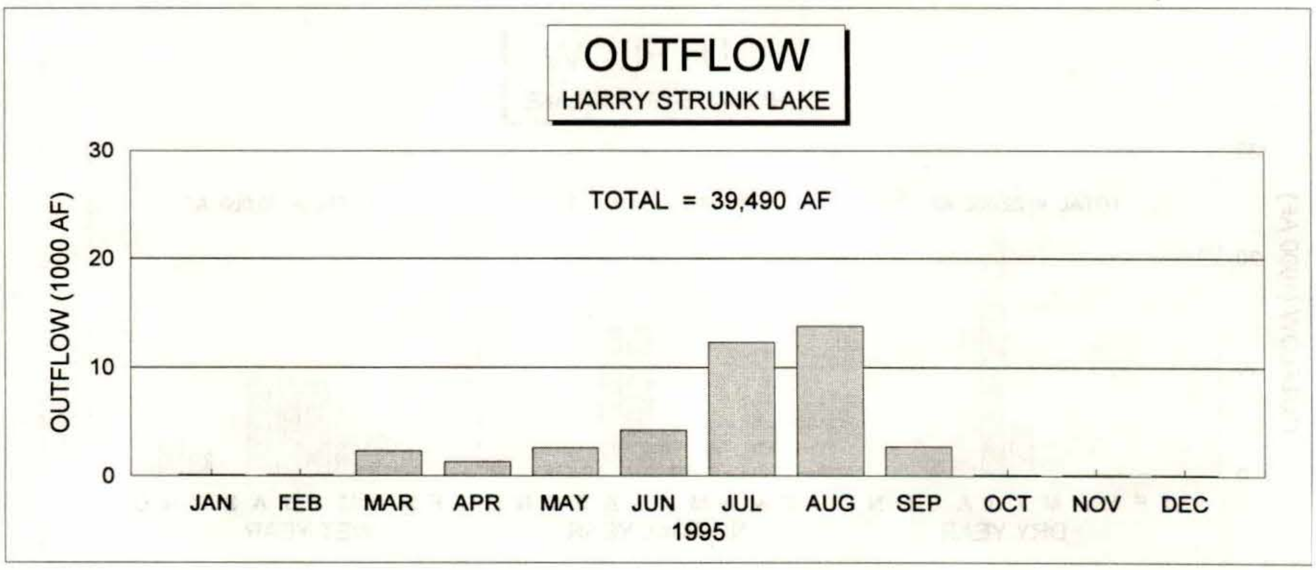
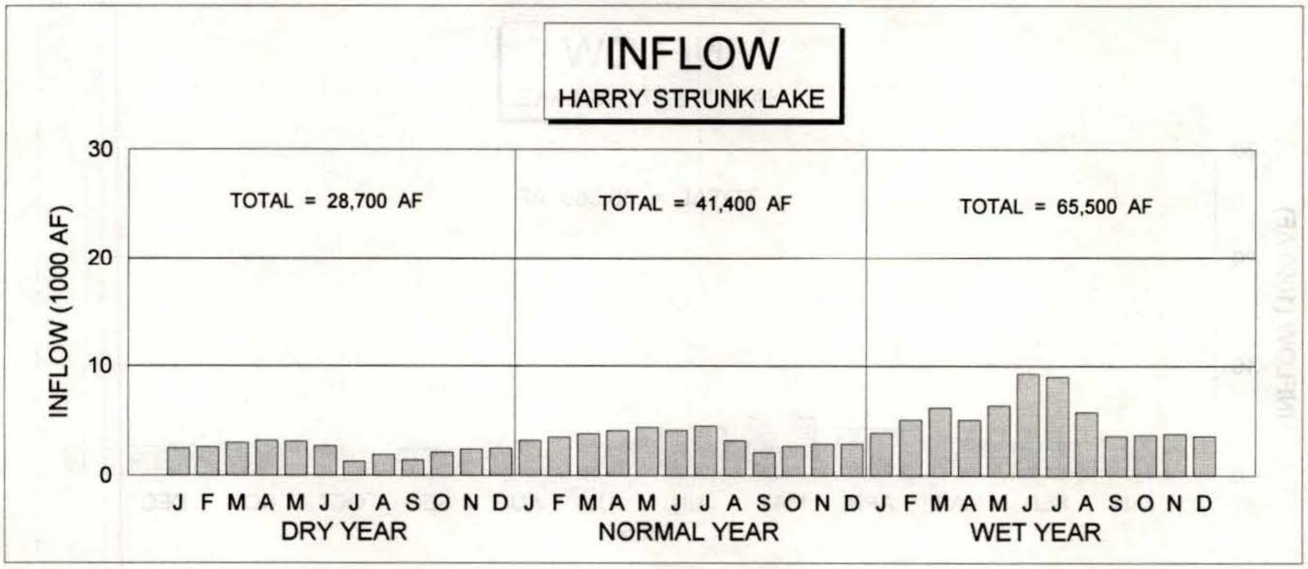
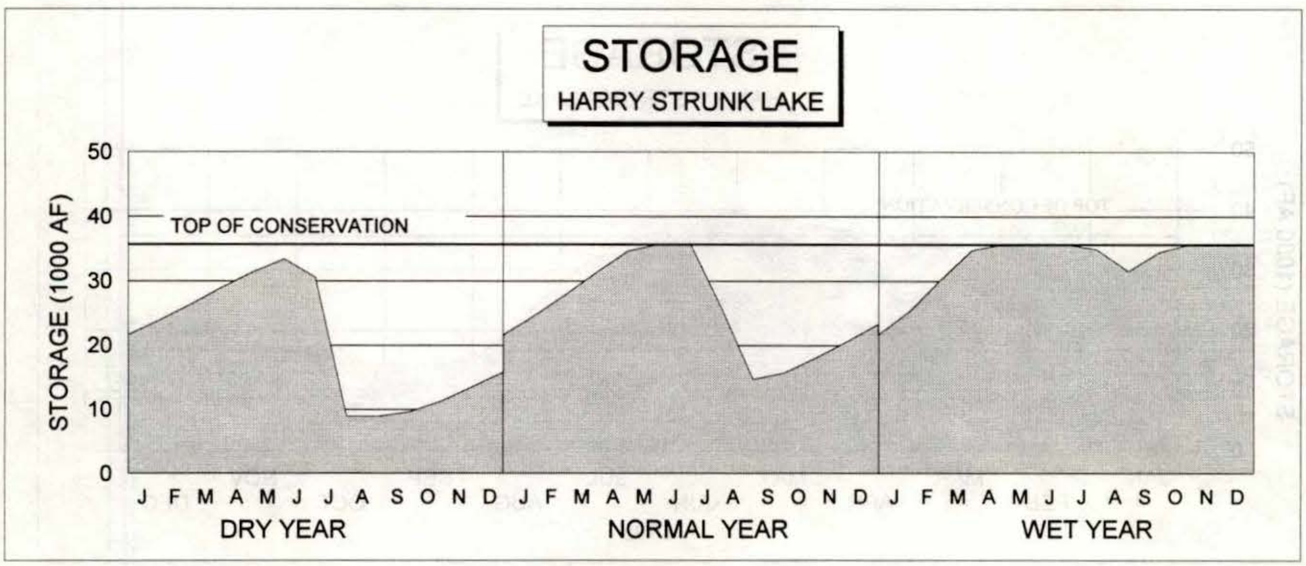



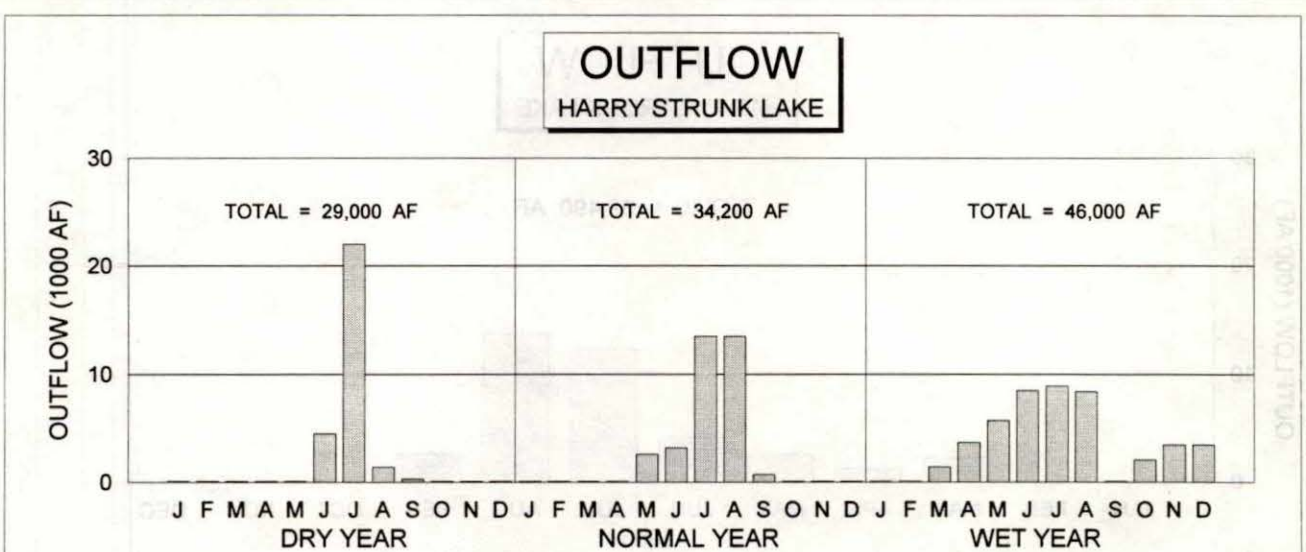
EXHIBIT 10C

# HARRY STRUNK LAKE

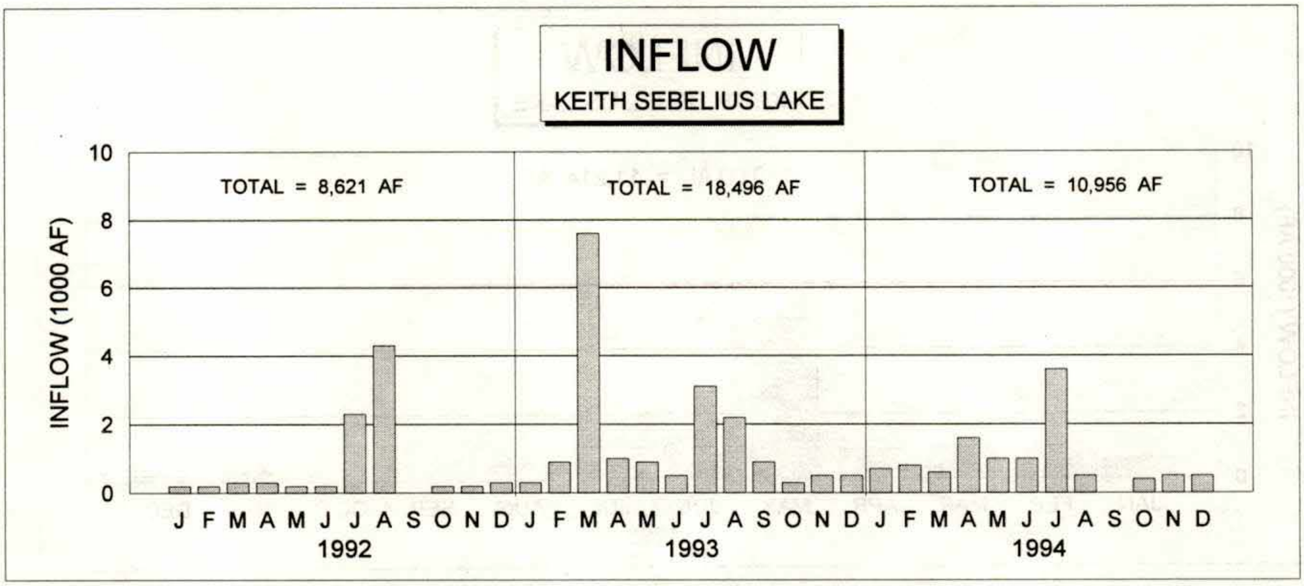
## 1996 OPERATION PLAN

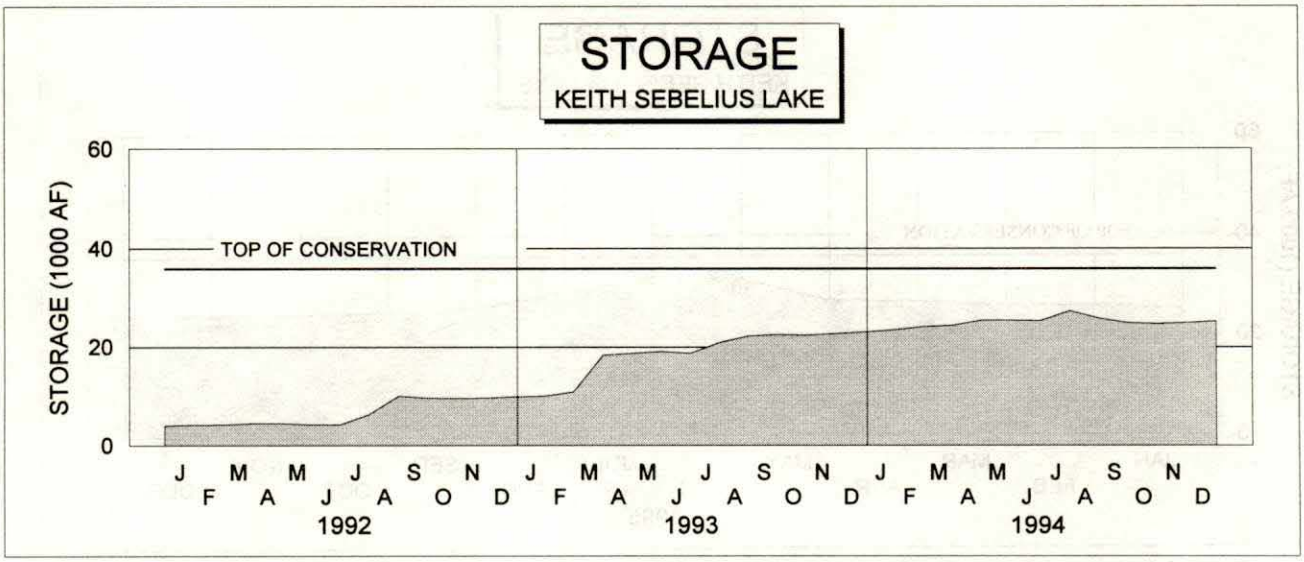


# KEITH SEBELIUS LAKE
## OPERATION



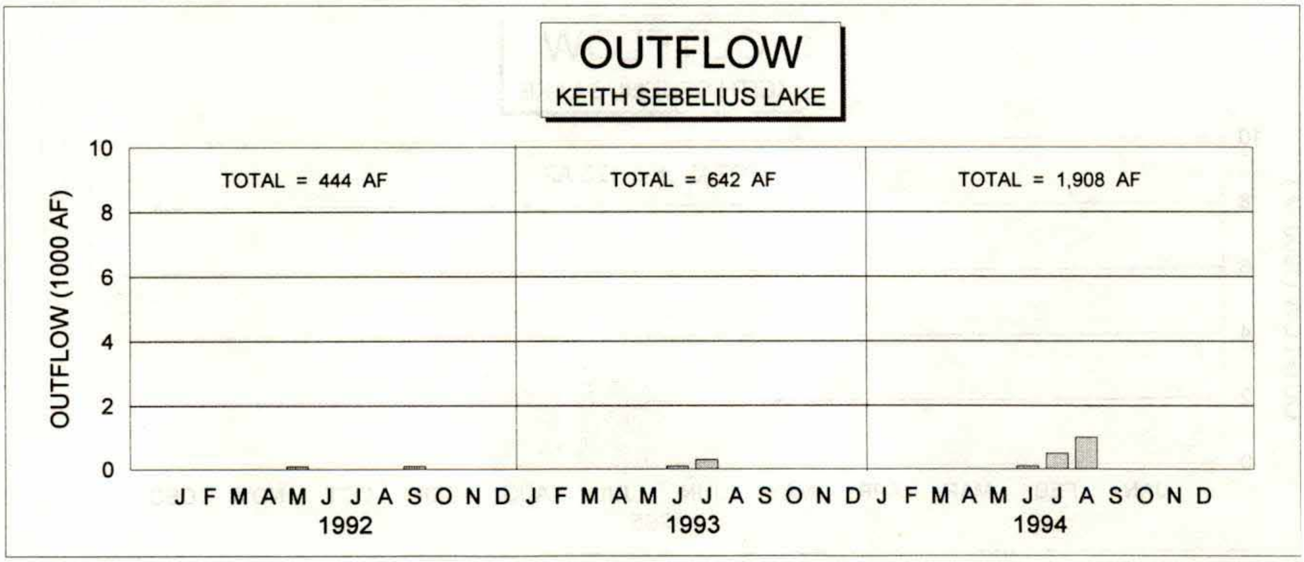
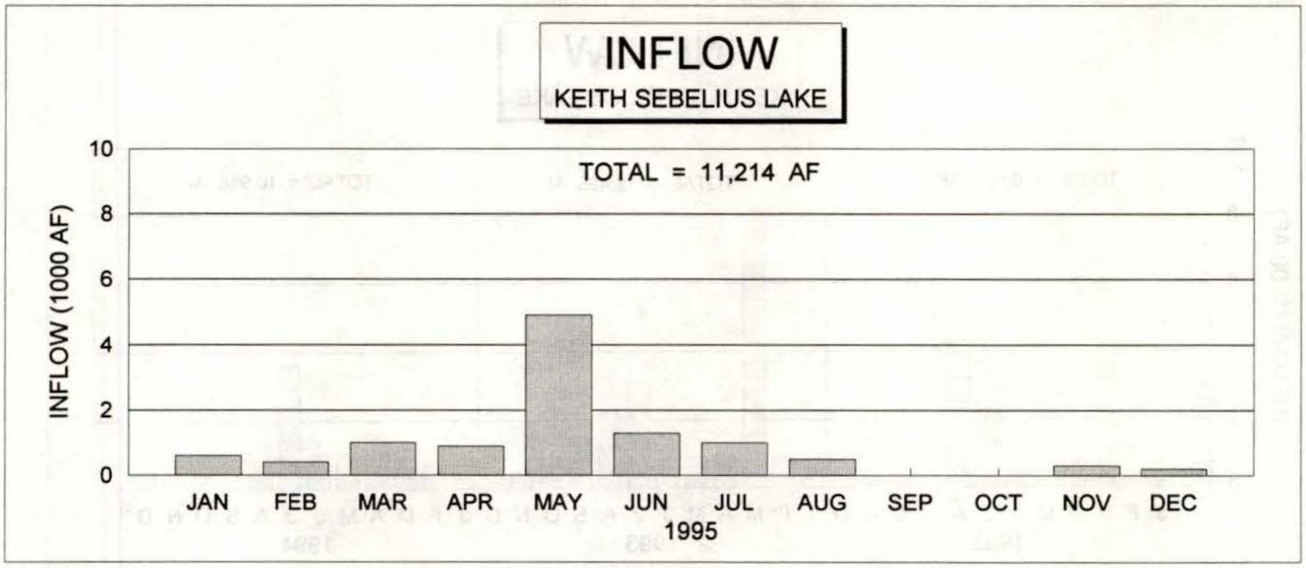
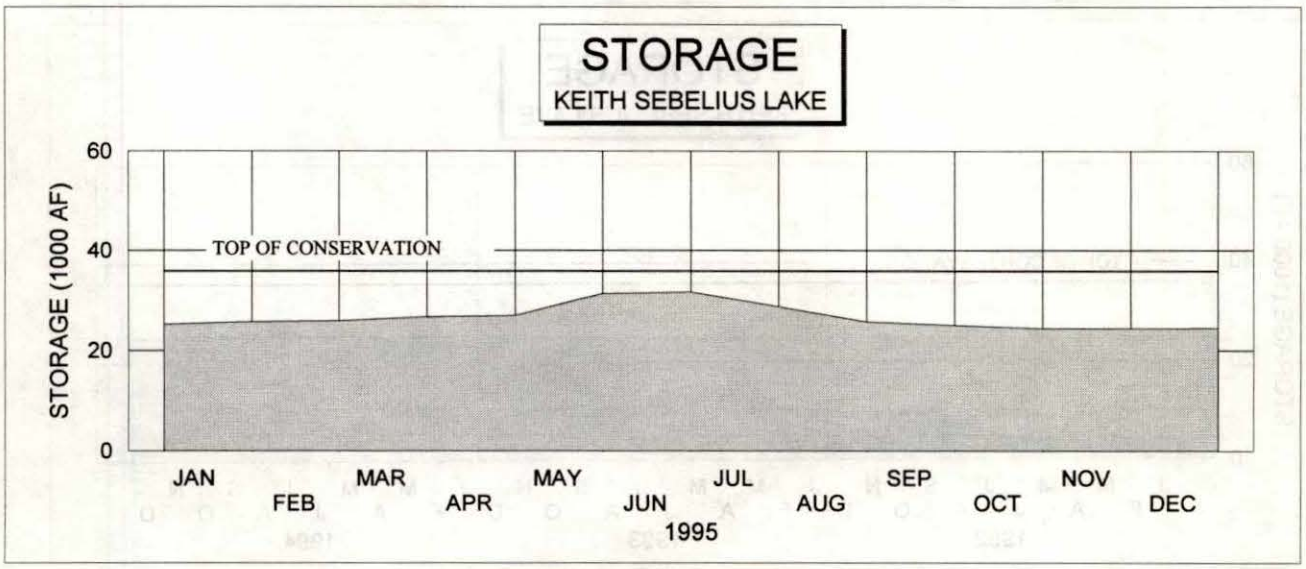



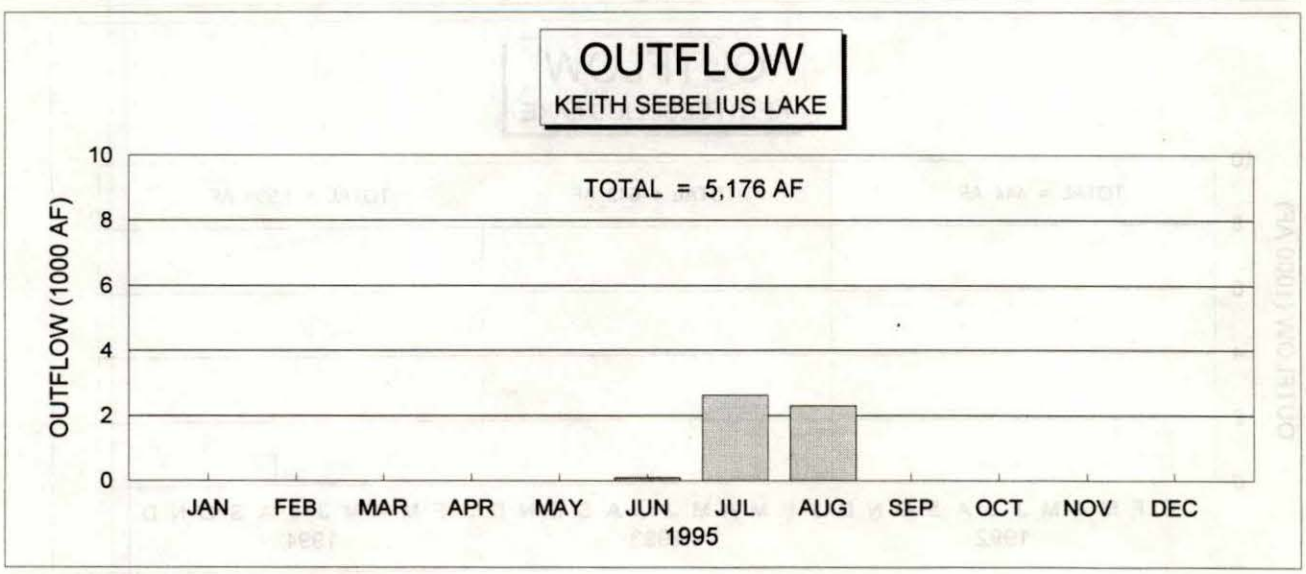
EXHIBIT 11B

# KEITH SEBELIUS LAKE

## 1995 OPERATION

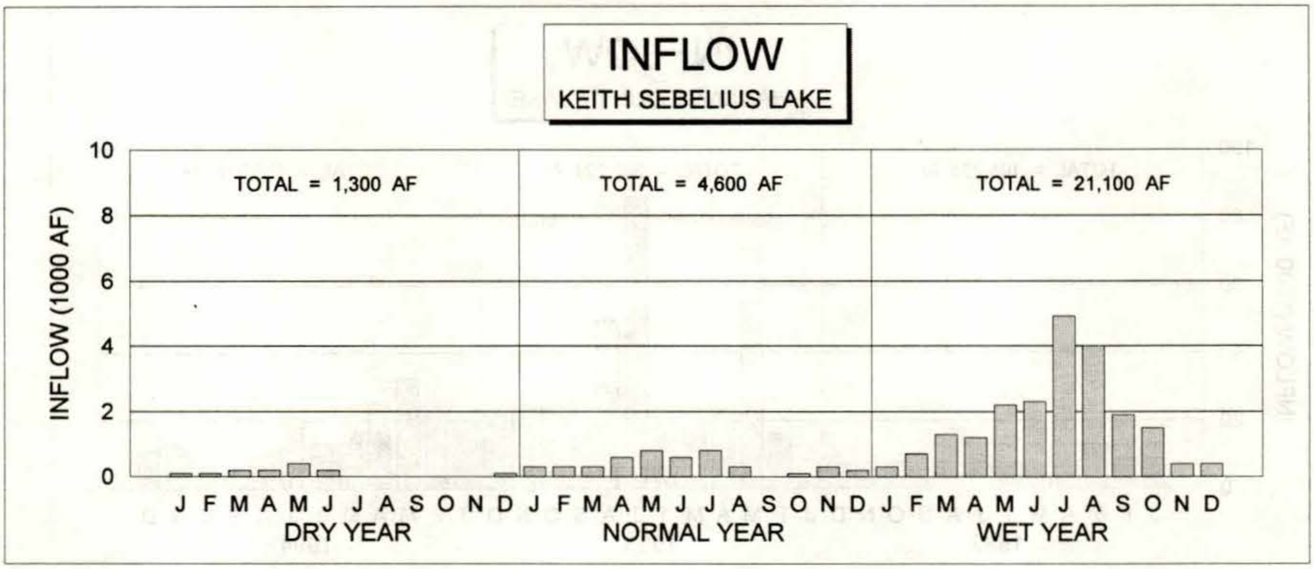


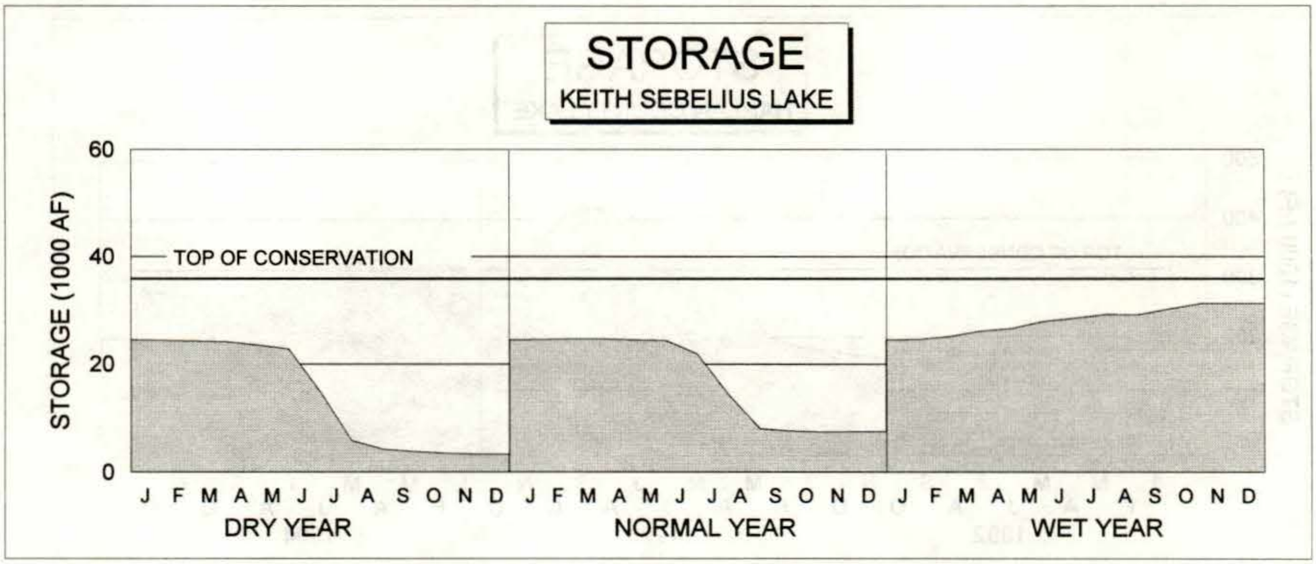



# KEITH SEBELIUS LAKE

## 1996 OPERATION PLAN



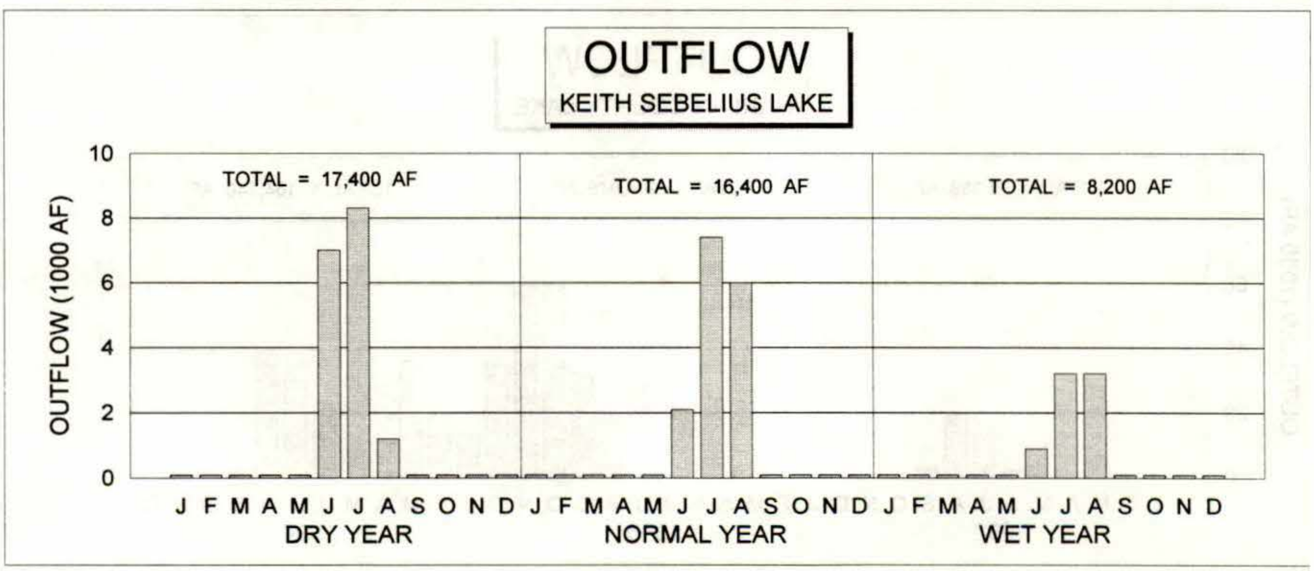
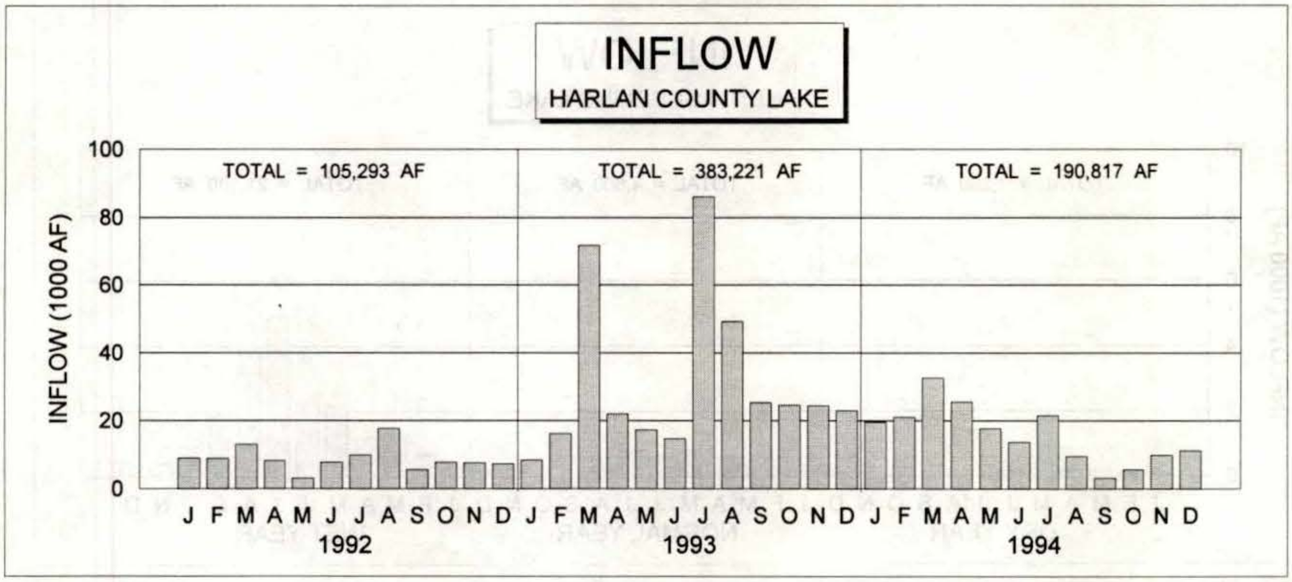
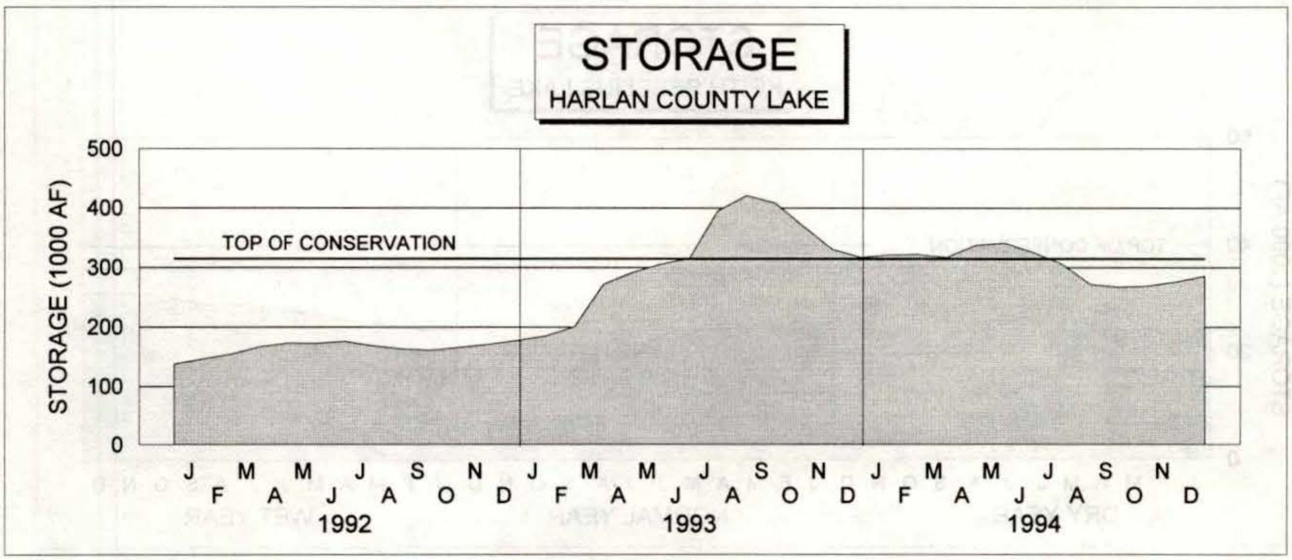



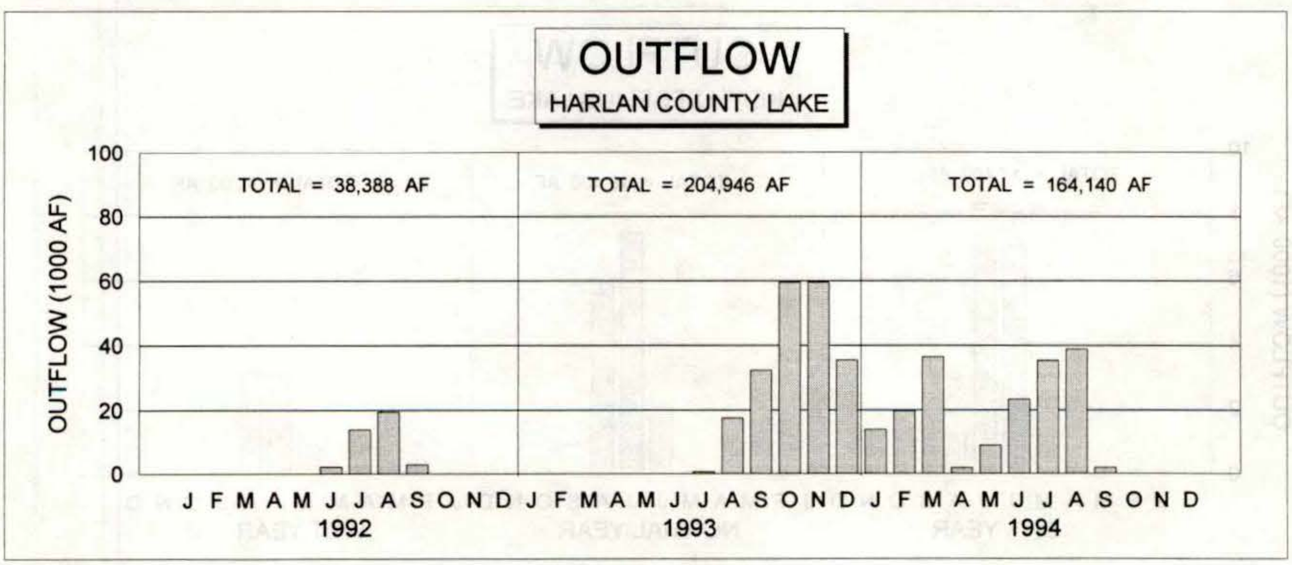
EXHIBIT 12A

# HARLAN COUNTY LAKE

## OPERATION

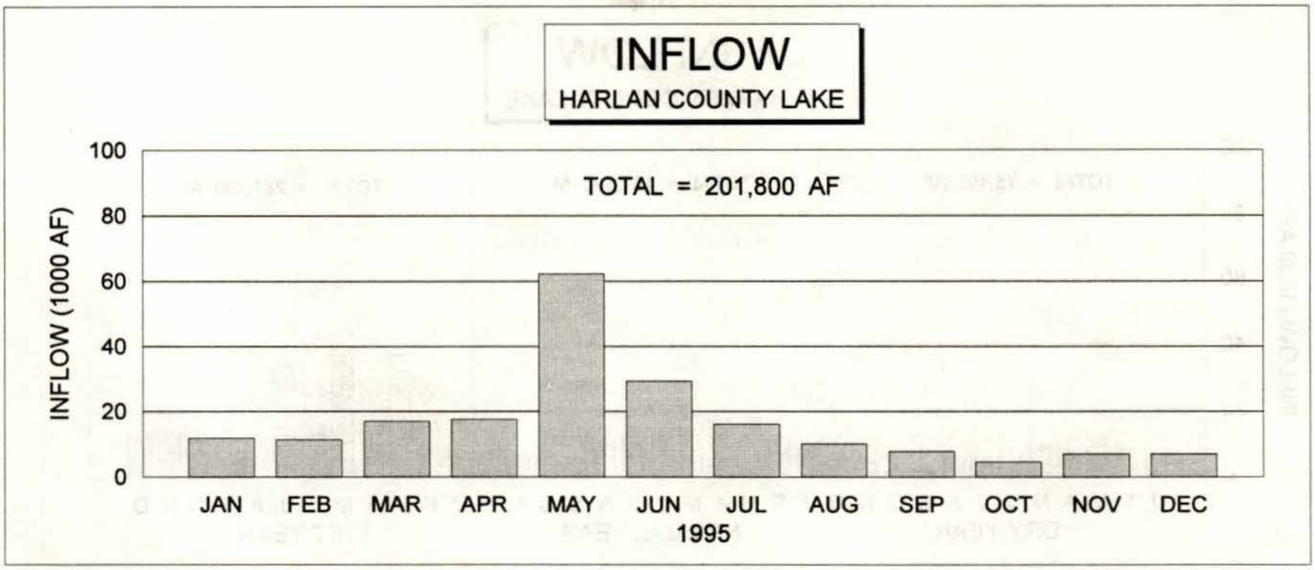


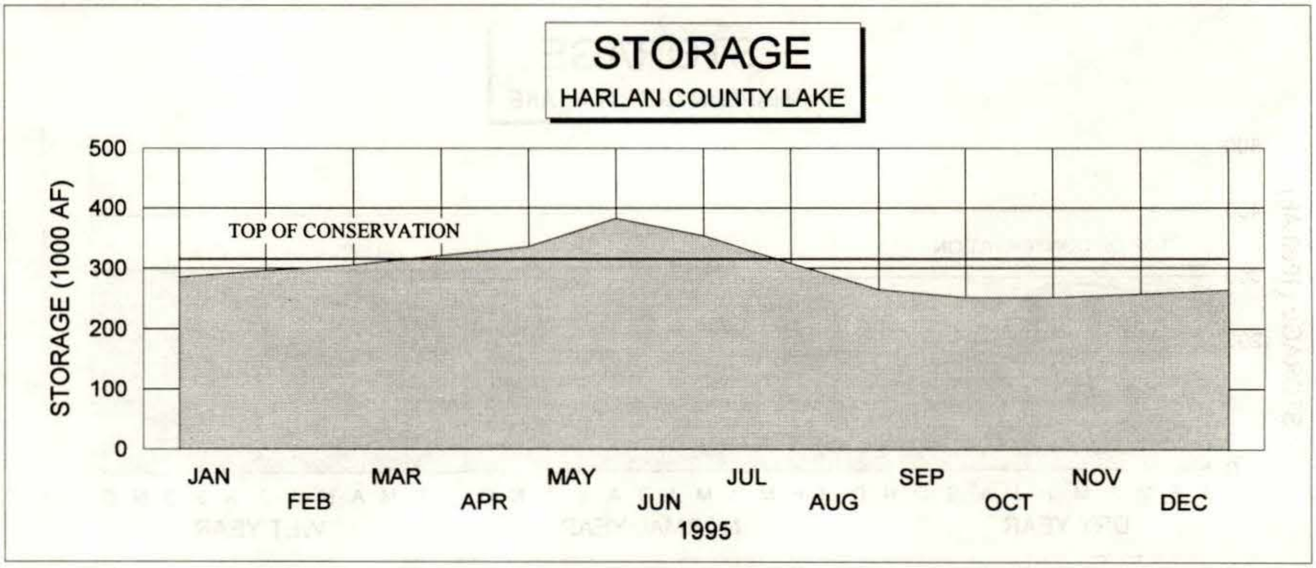



# HARLAN COUNTY LAKE

## 1995 OPERATION



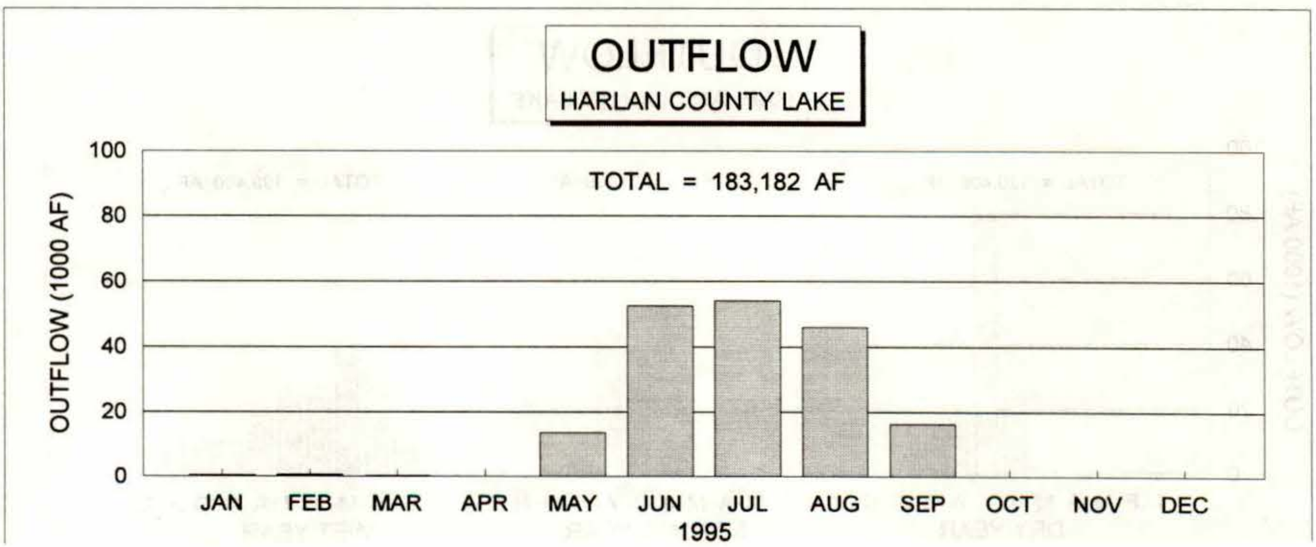
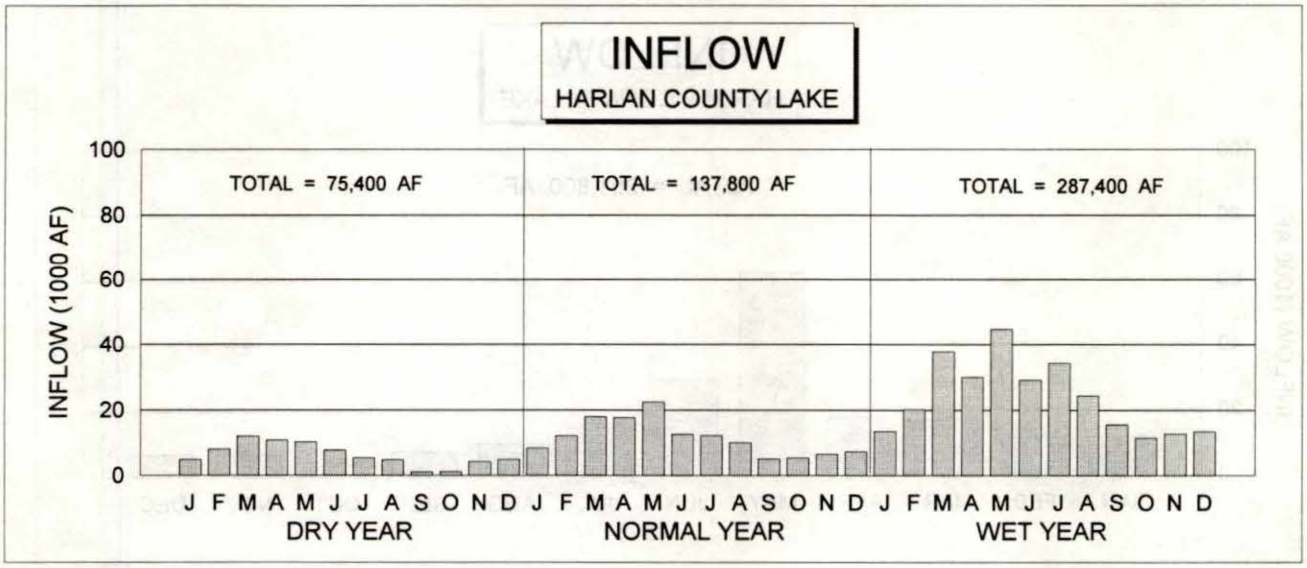
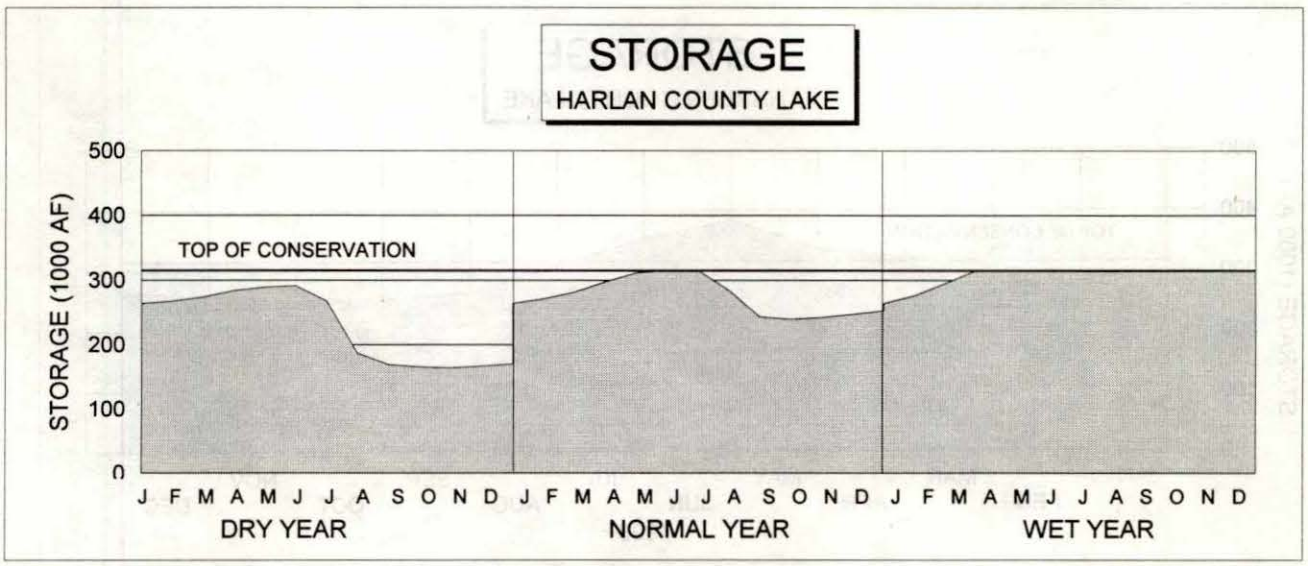



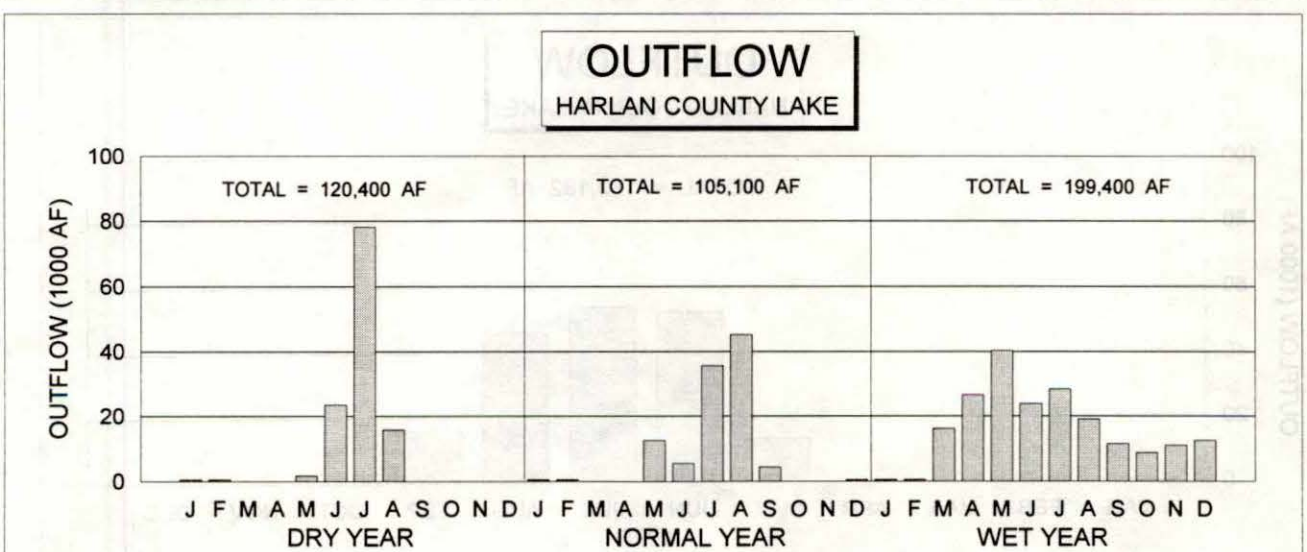
EXHIBIT 12C

# HARLAN COUNTY LAKE

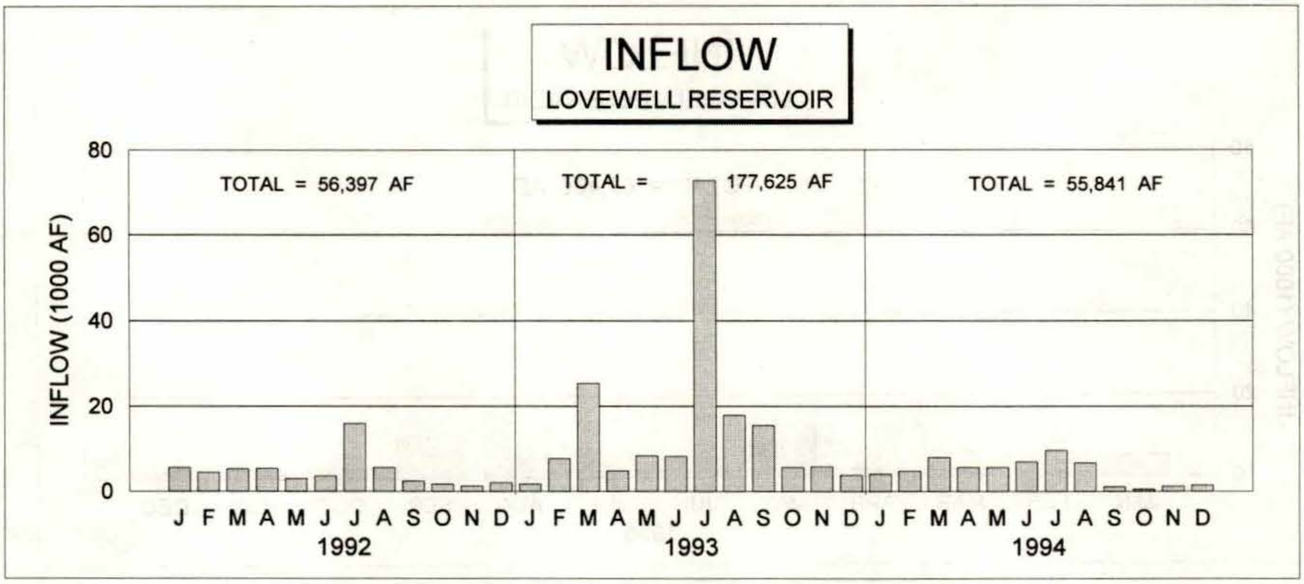
## 1996 OPERATION PLAN

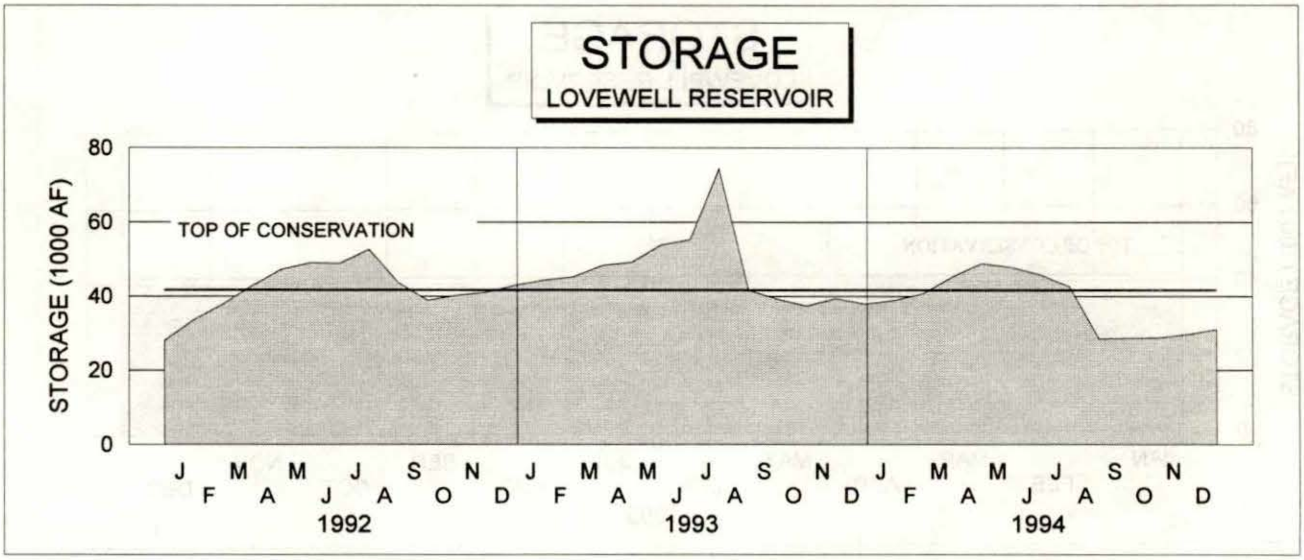


# LOVEWELL RESERVOIR
## OPERATION



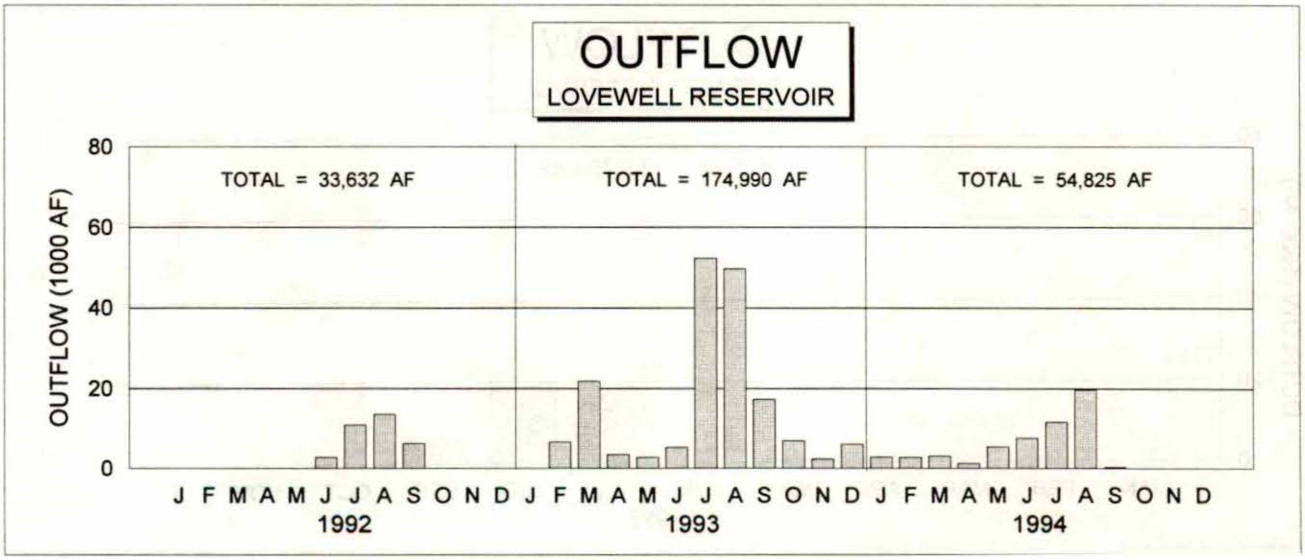
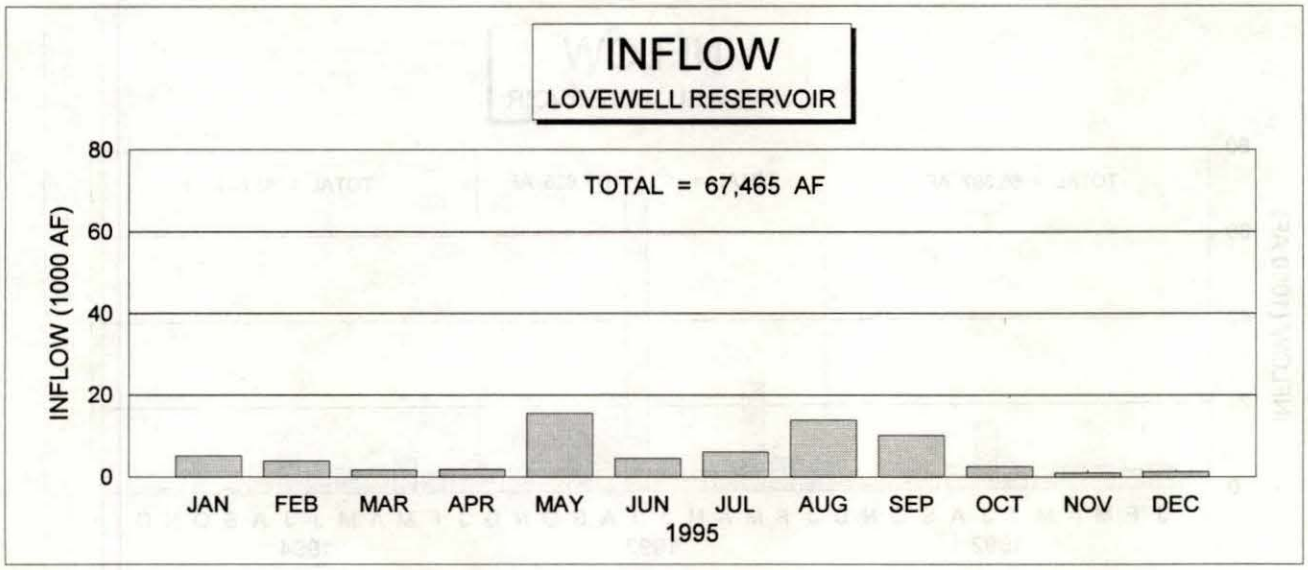
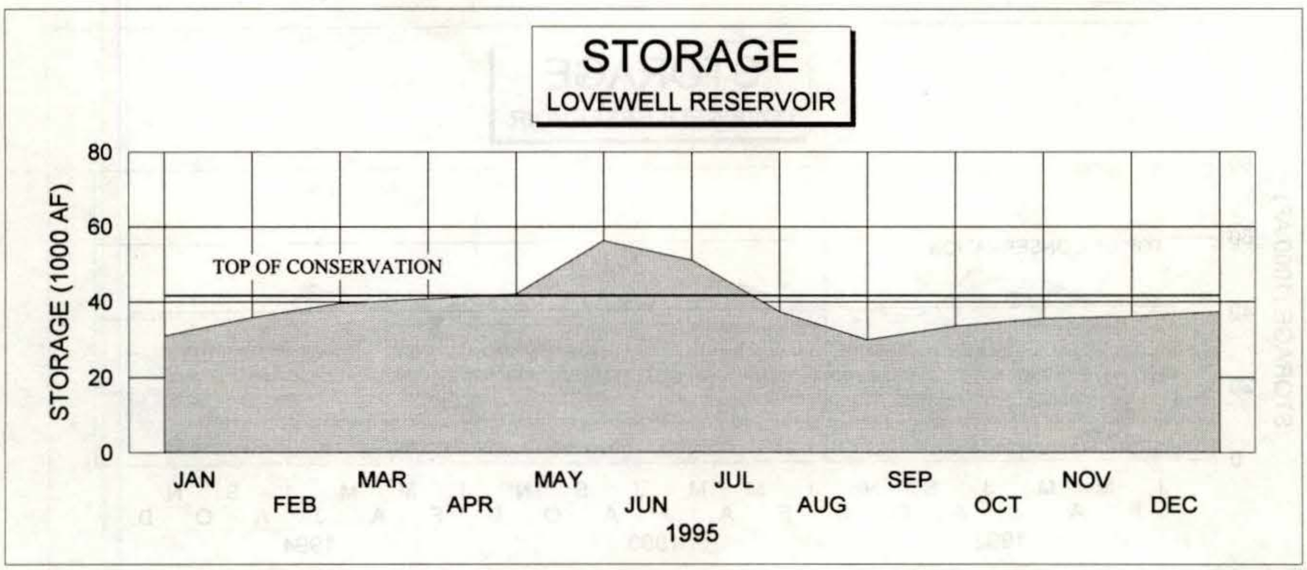



EXHIBIT 13B

# LOVEWELL RESERVOIR

## 1995 OPERATION



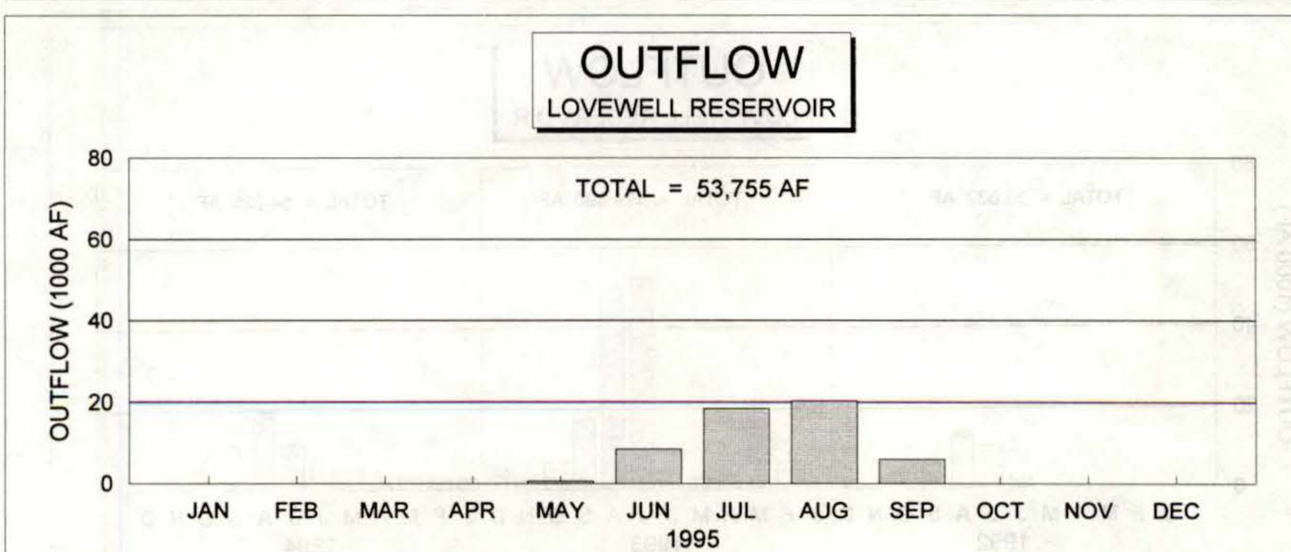
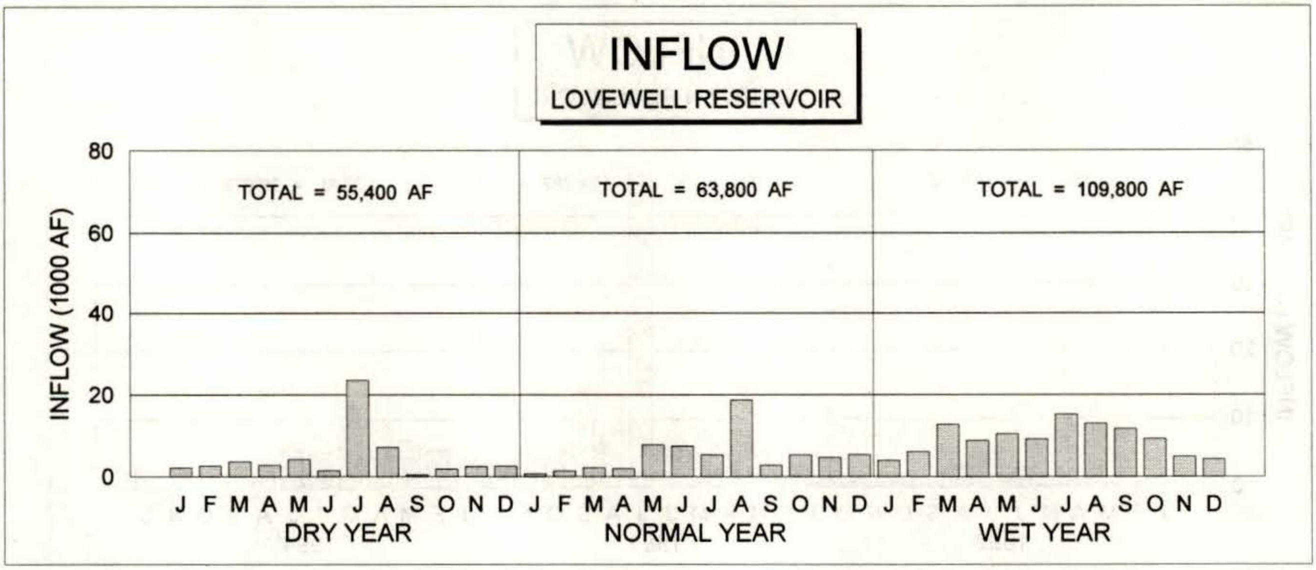
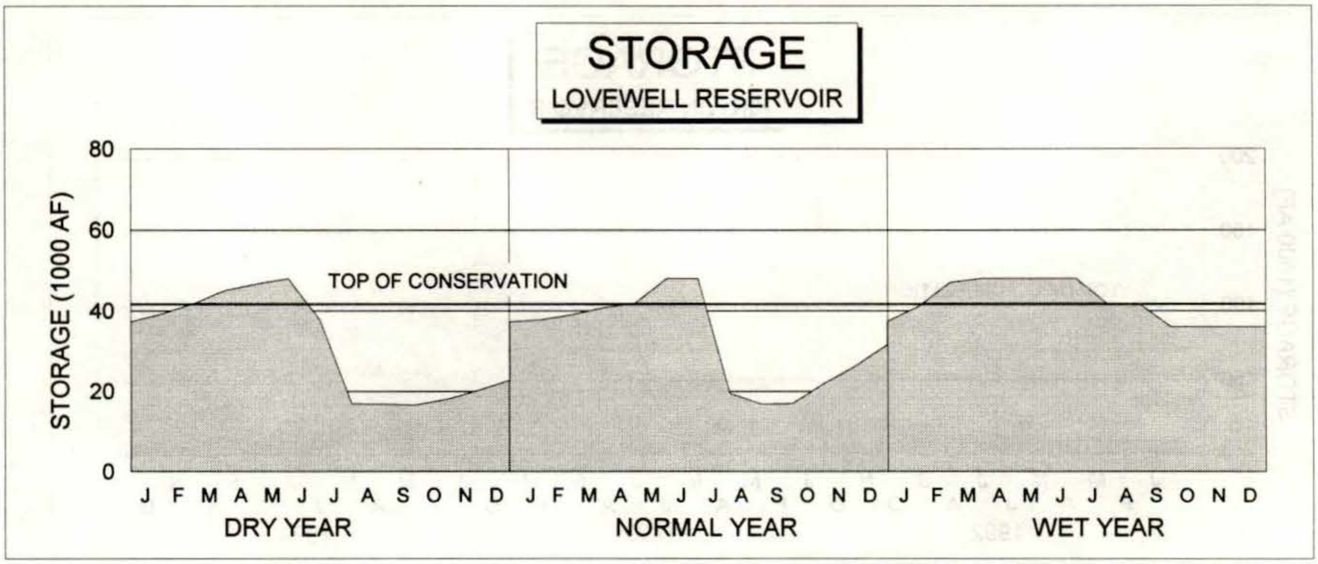



EXHIBIT 13C

# LOVEWELL RESERVOIR

## 1996 OPERATION PLAN



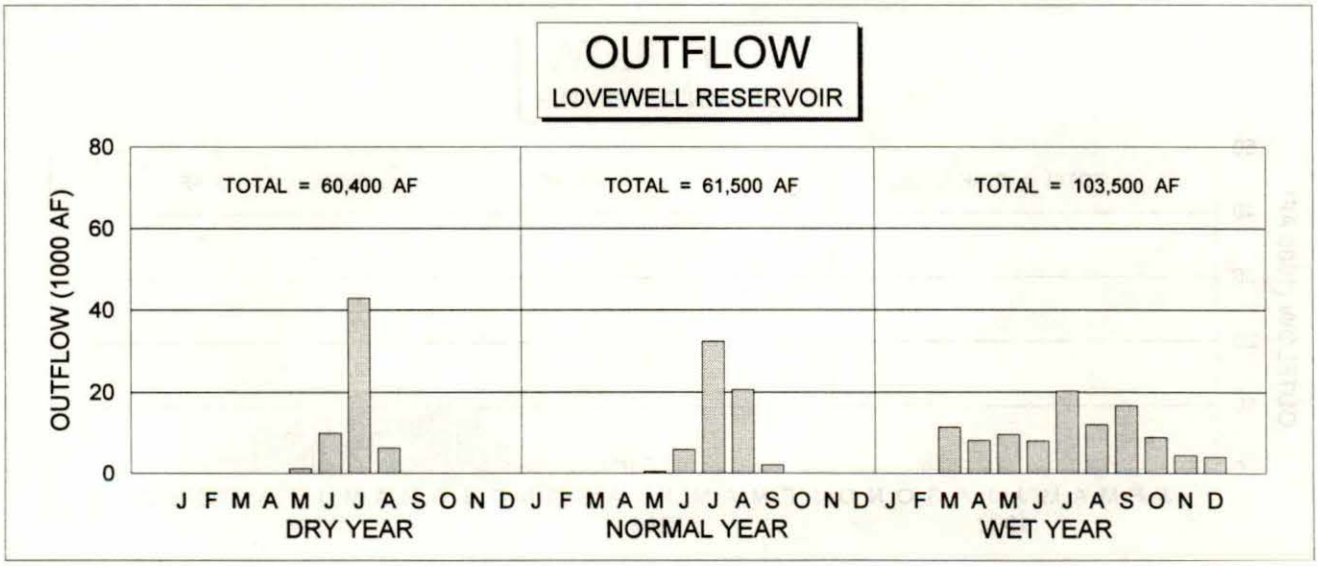
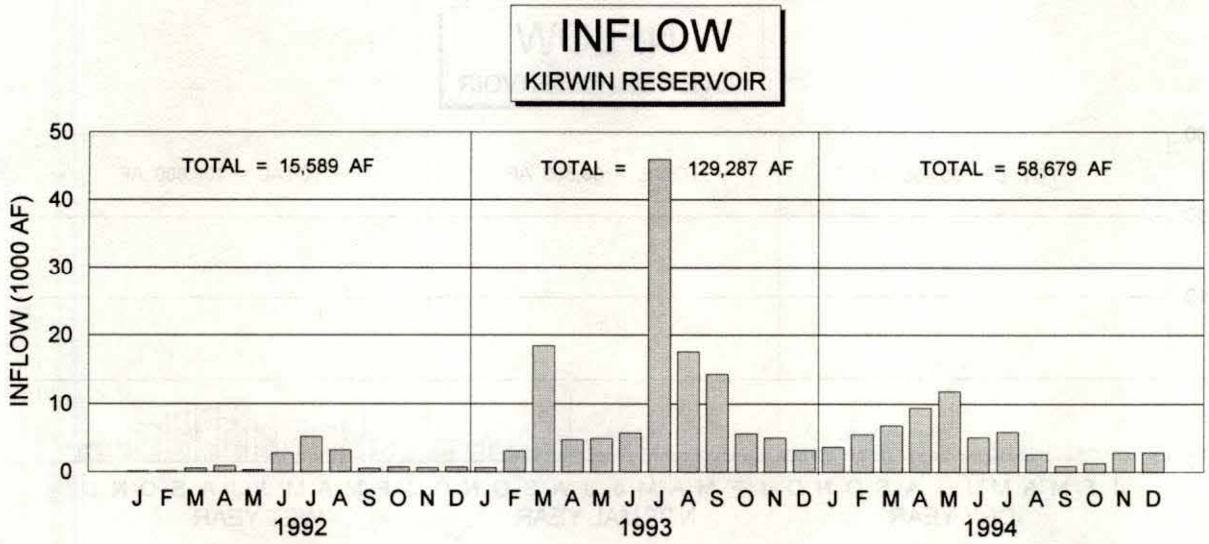
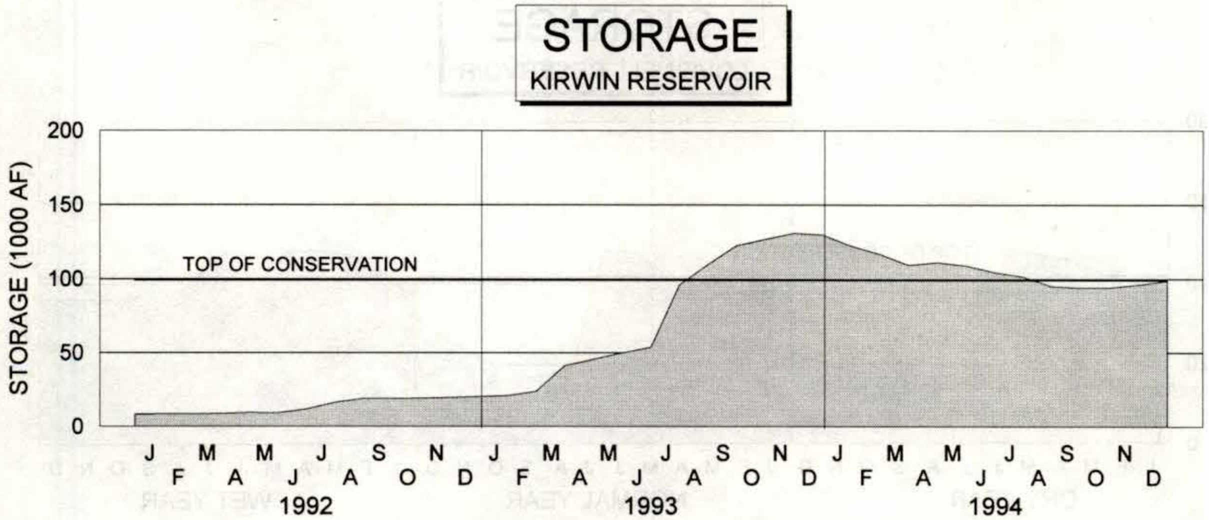



EXHIBIT 14A

# KIRWIN RESERVOIR

## OPERATION



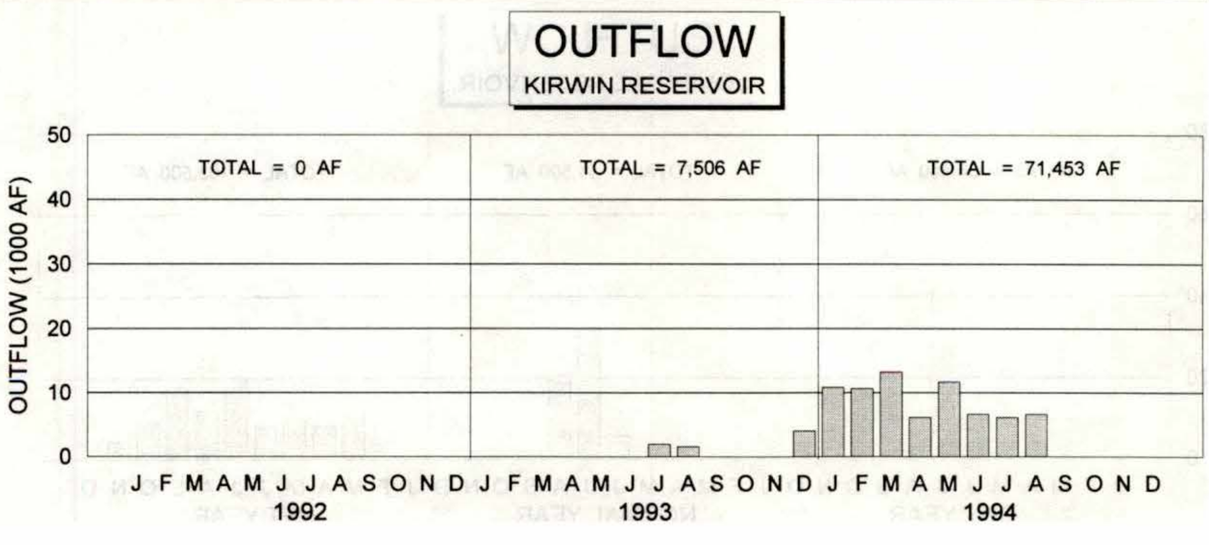
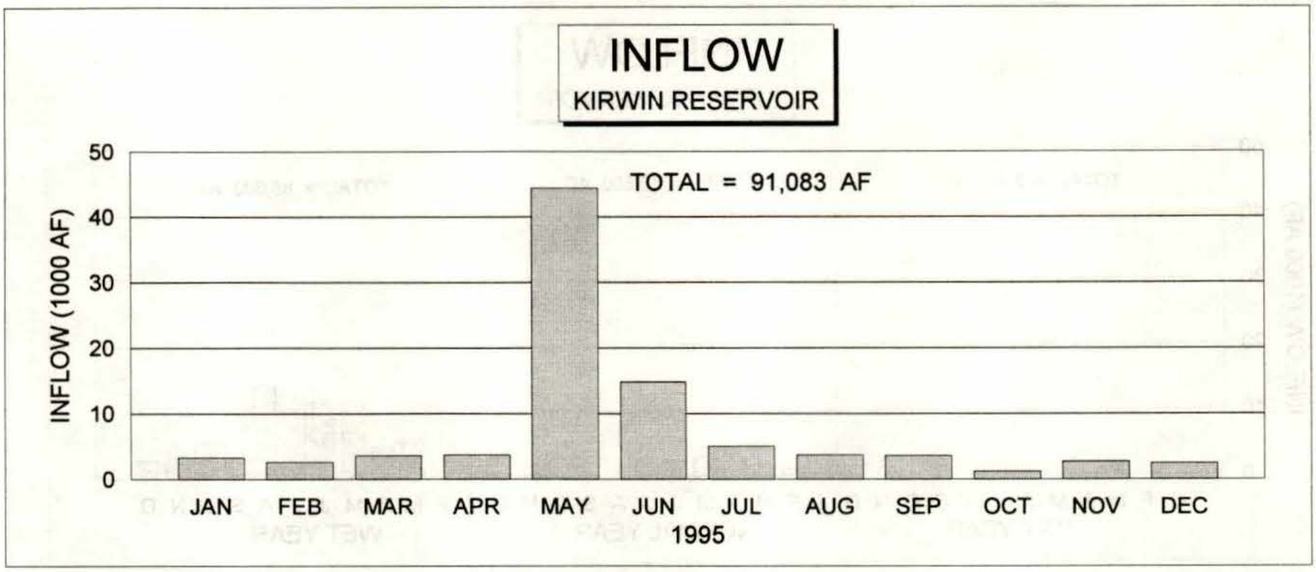
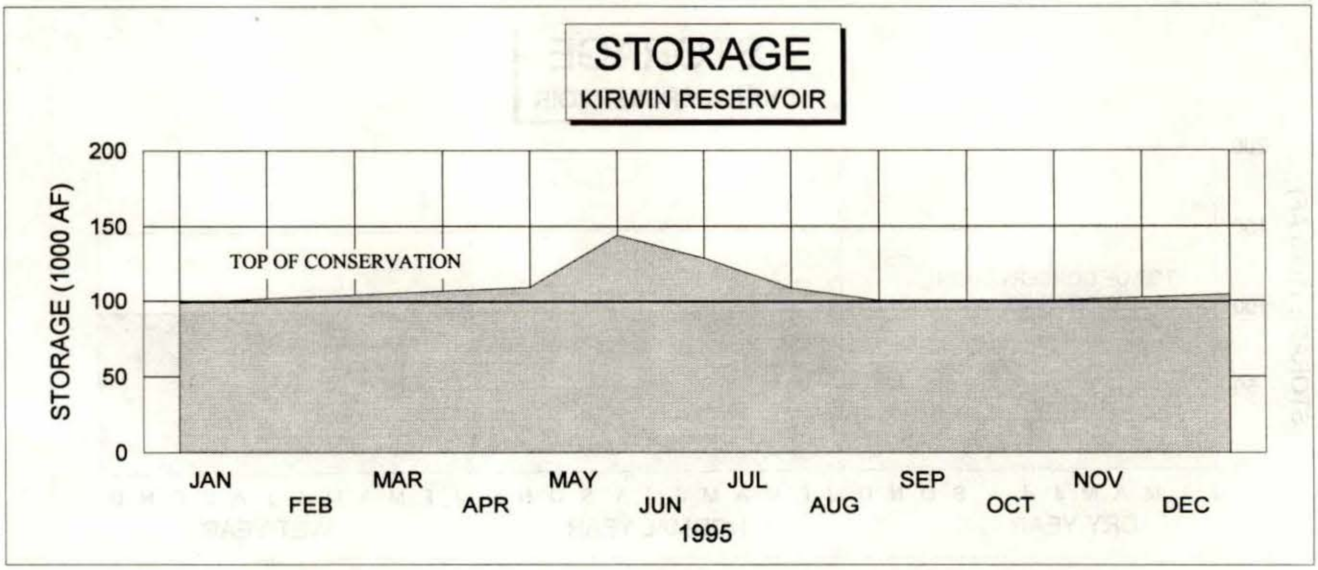



EXHIBIT 14B

# KIRWIN RESERVOIR

## 1995 OPERATION



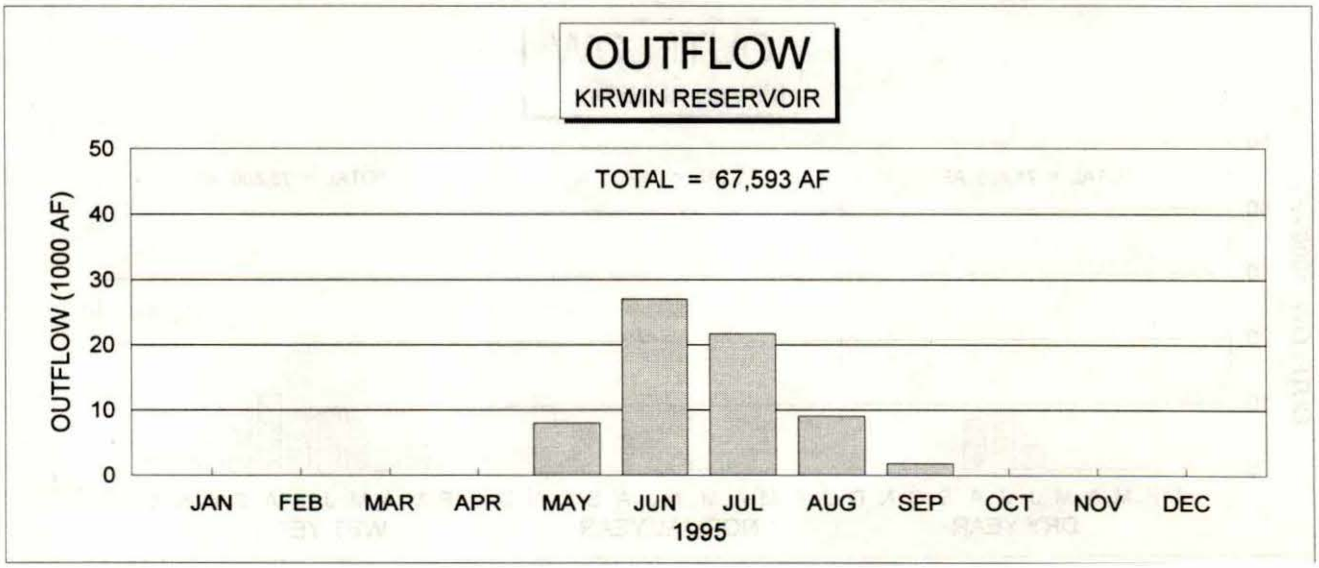
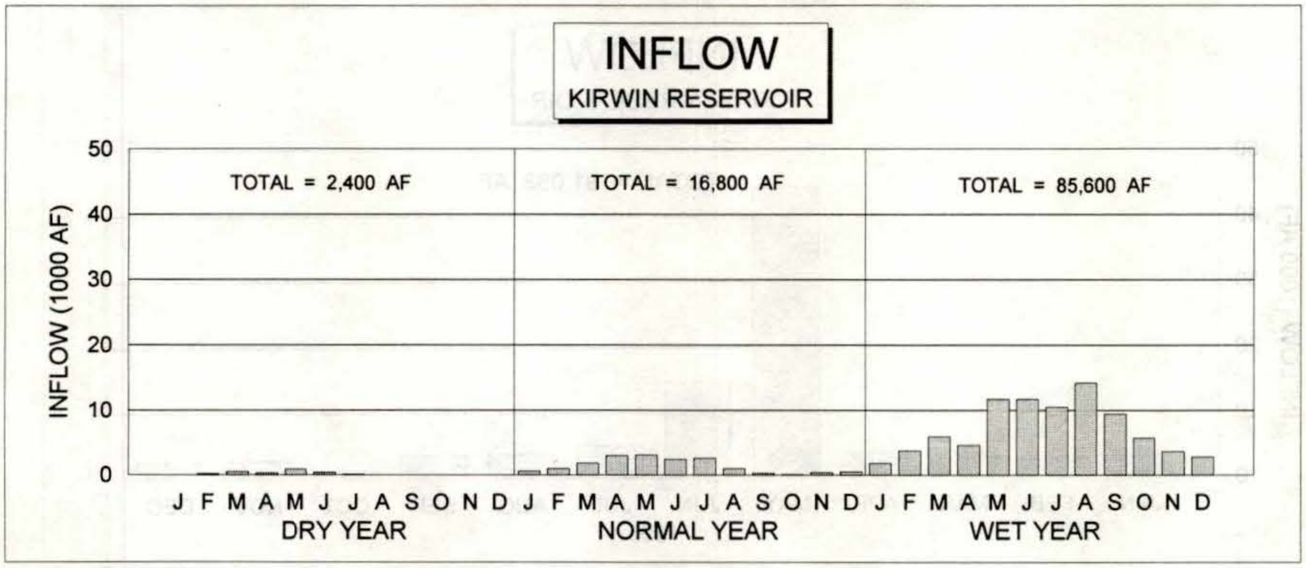
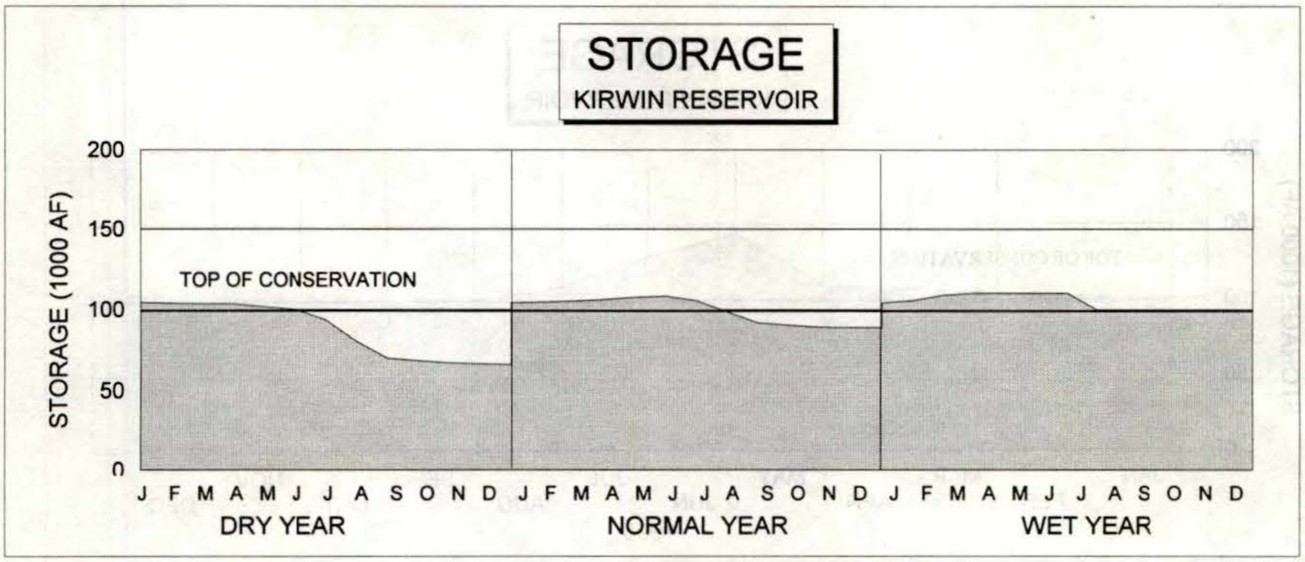



EXHIBIT 14C

# KIRWIN RESERVOIR

## 1996 OPERATION PLAN



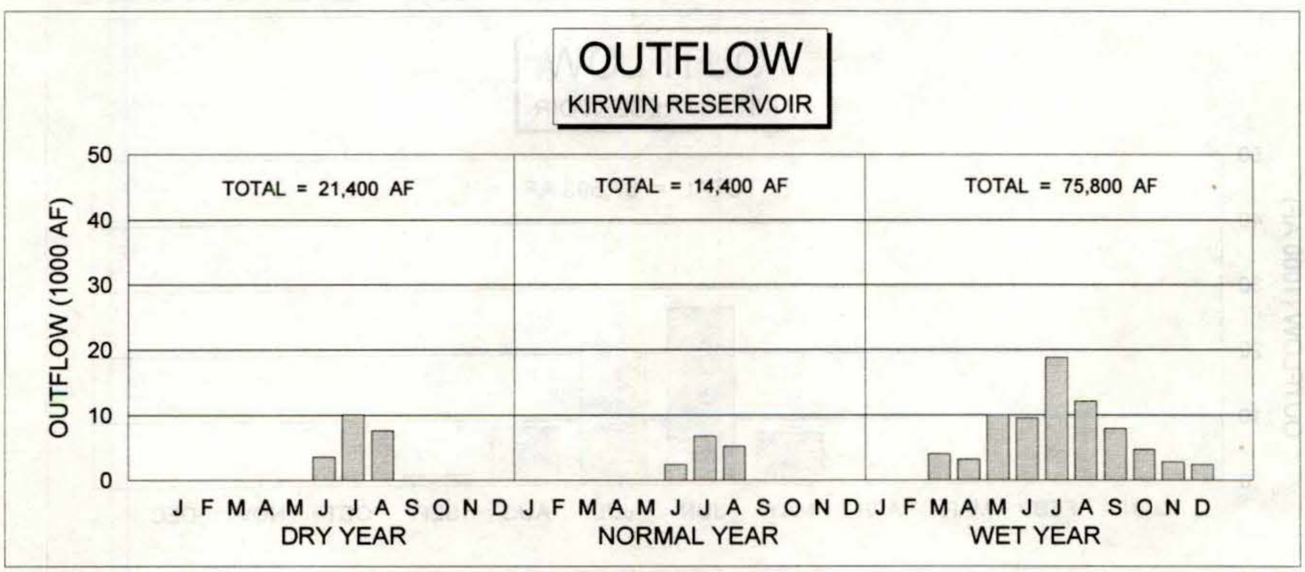
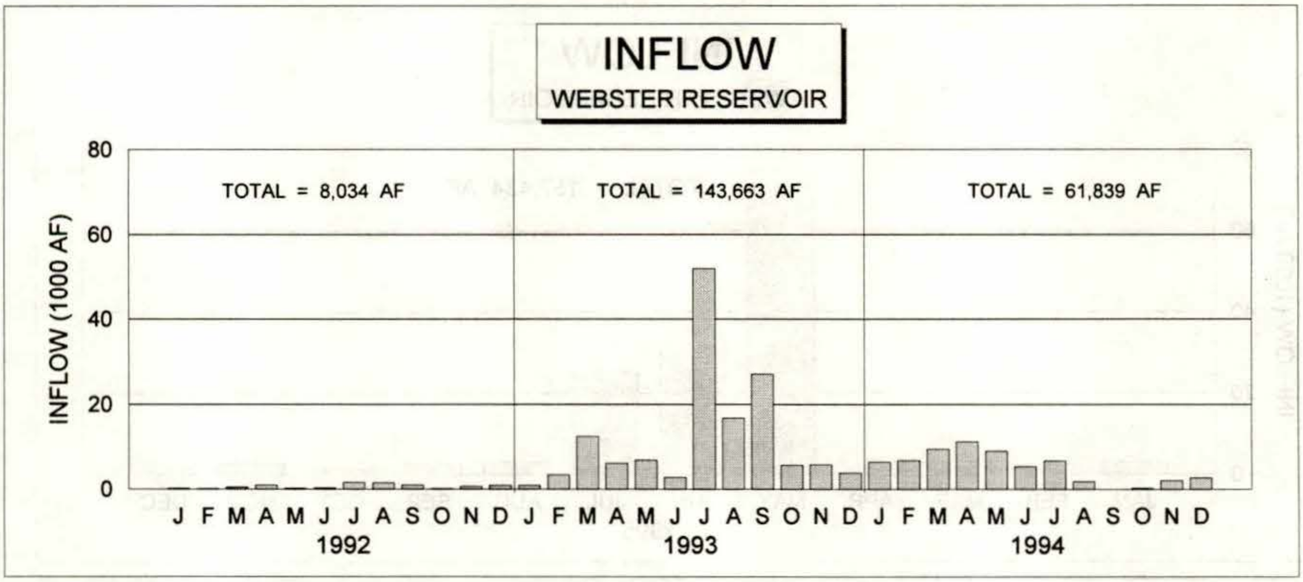
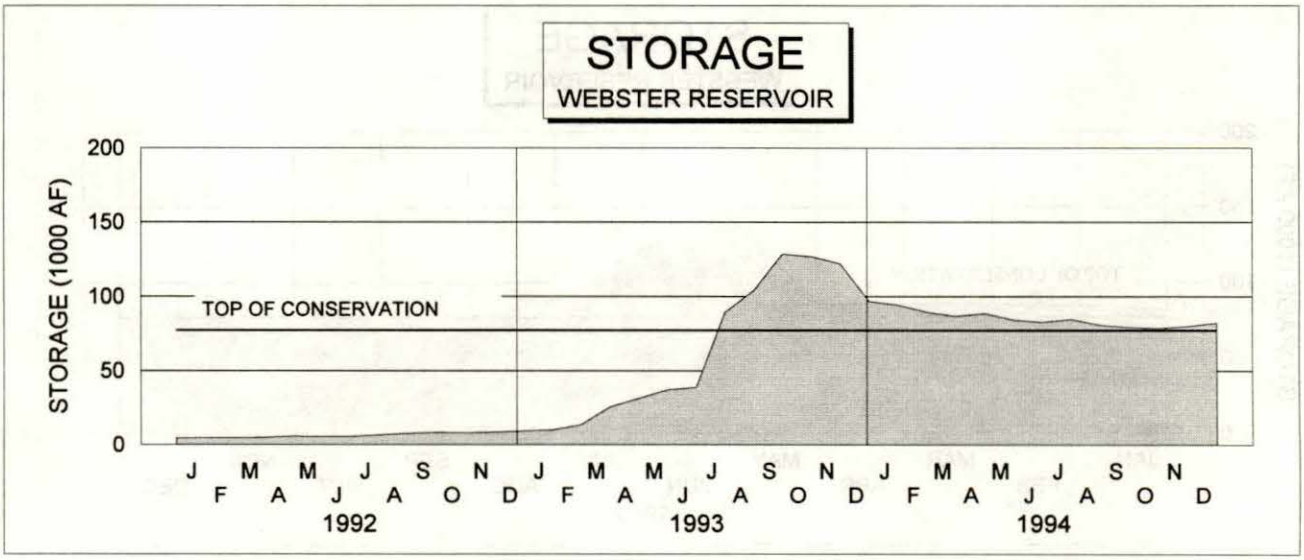



EXHIBIT 15A

# WEBSTER RESERVOIR
## OPERATION



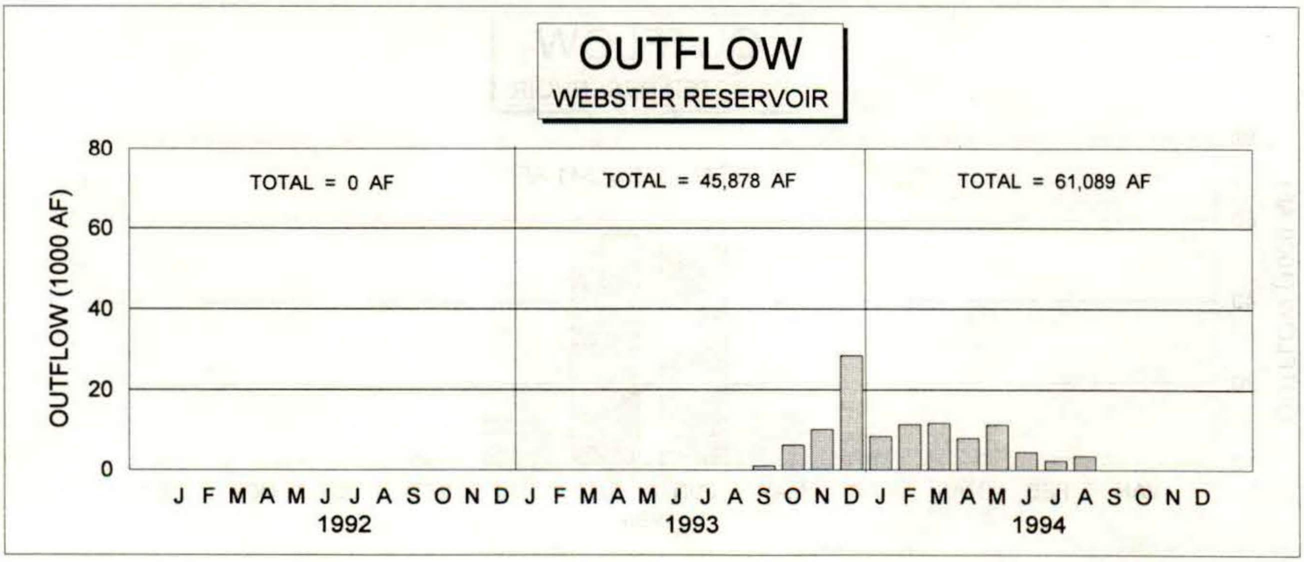
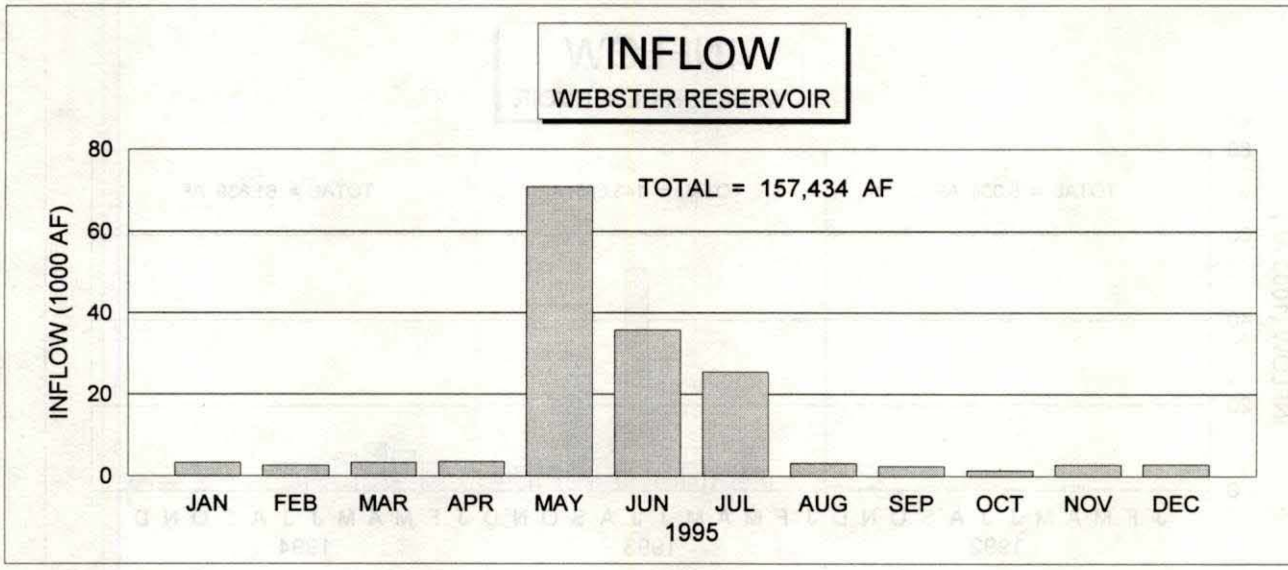
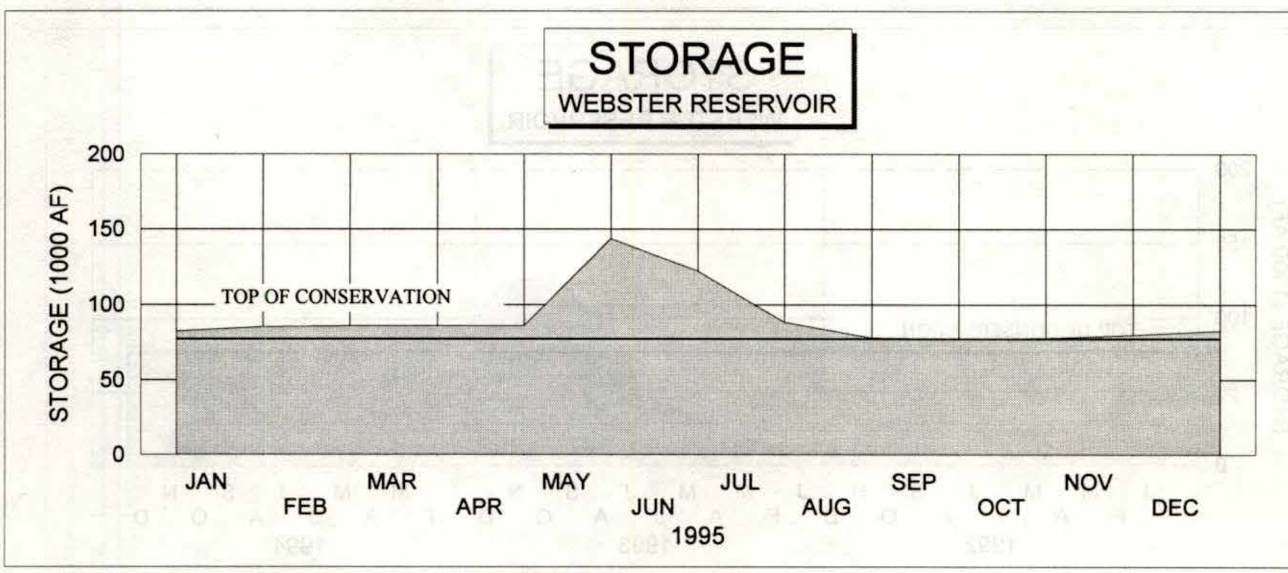



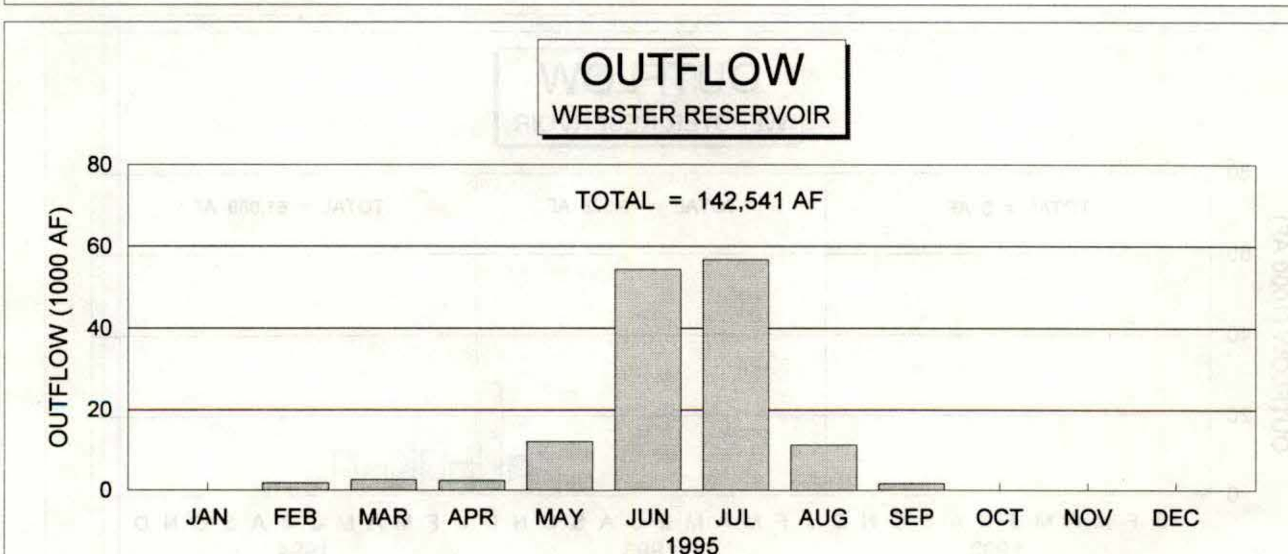
EXHIBIT 15B

# WEBSTER RESERVOIR

## 1995 OPERATION

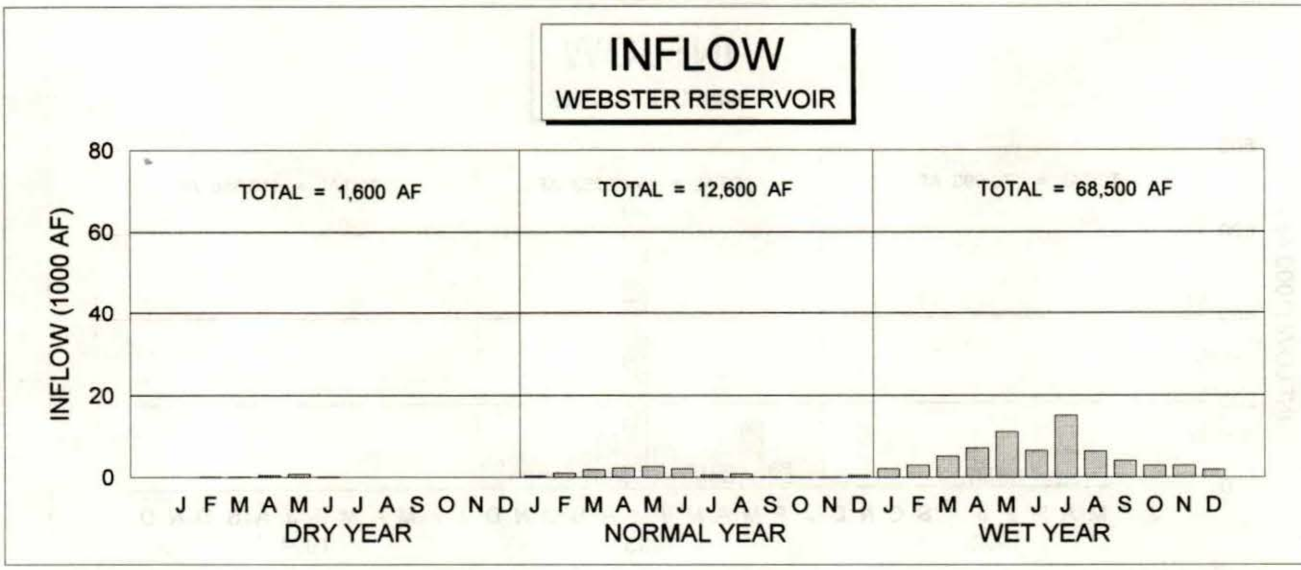


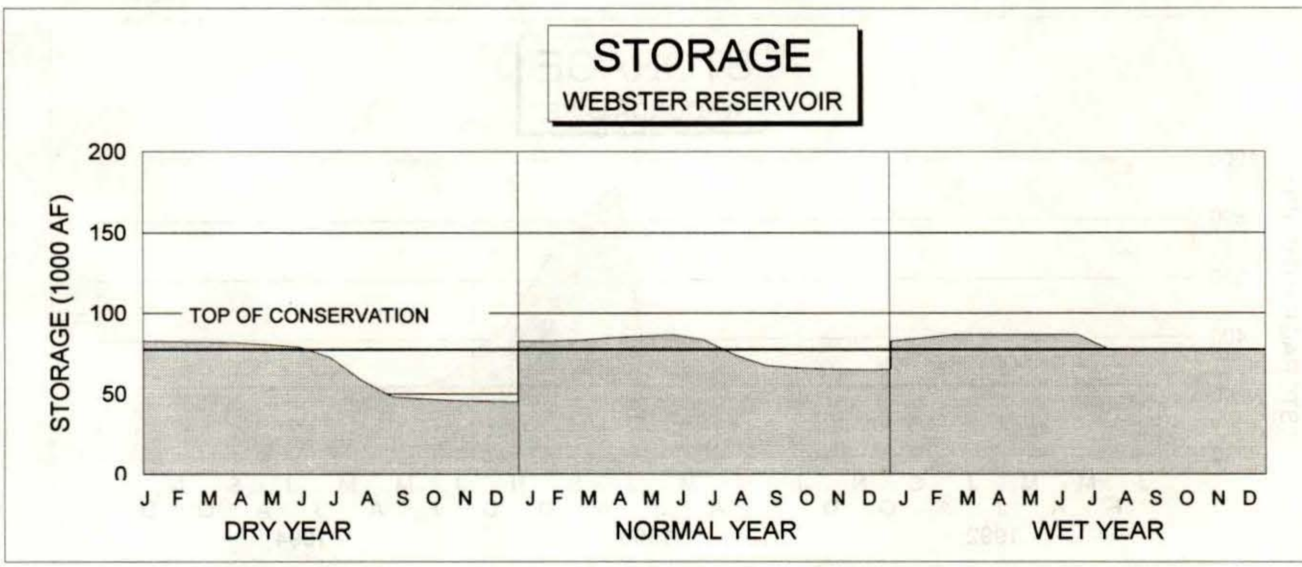



# WEBSTER RESERVOIR

## 1996 OPERATION PLAN



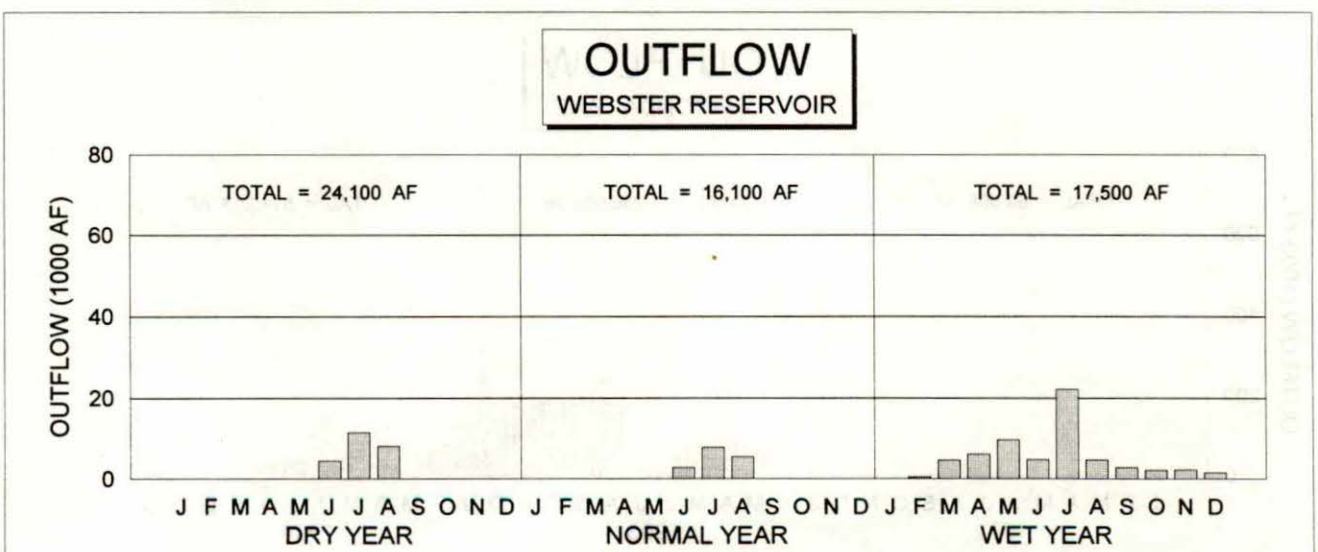
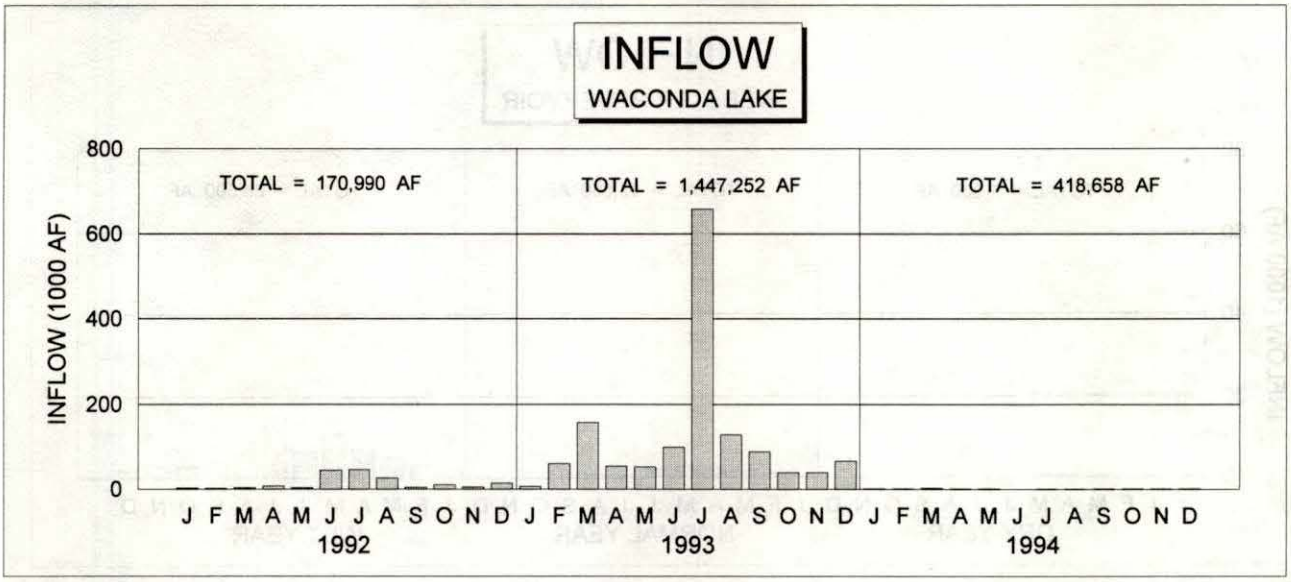
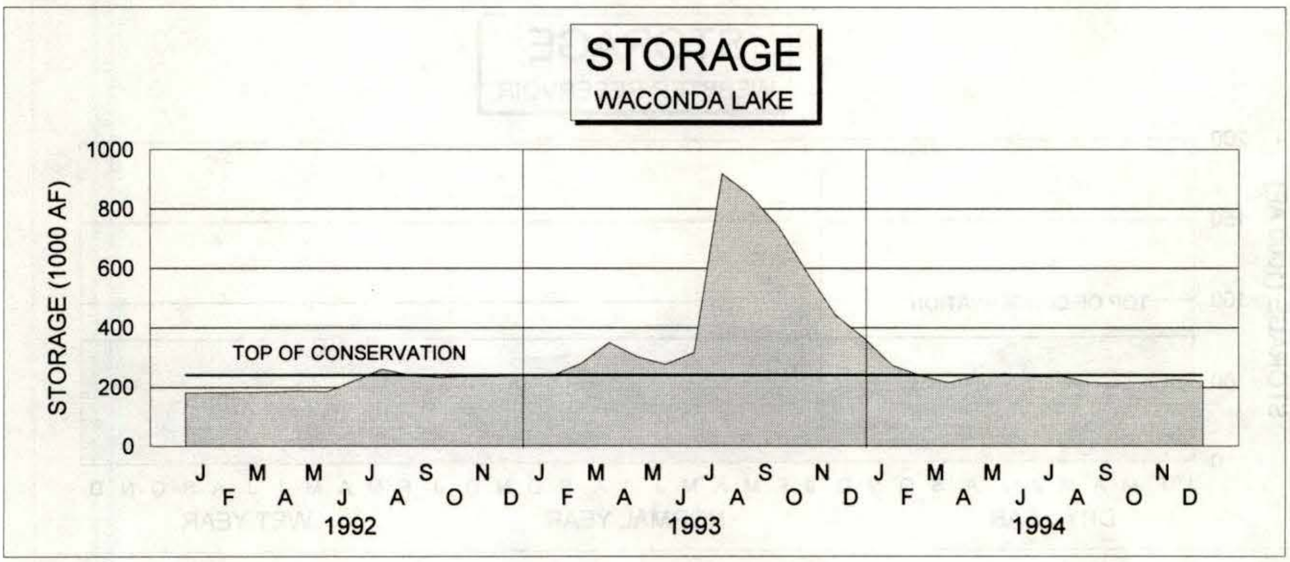
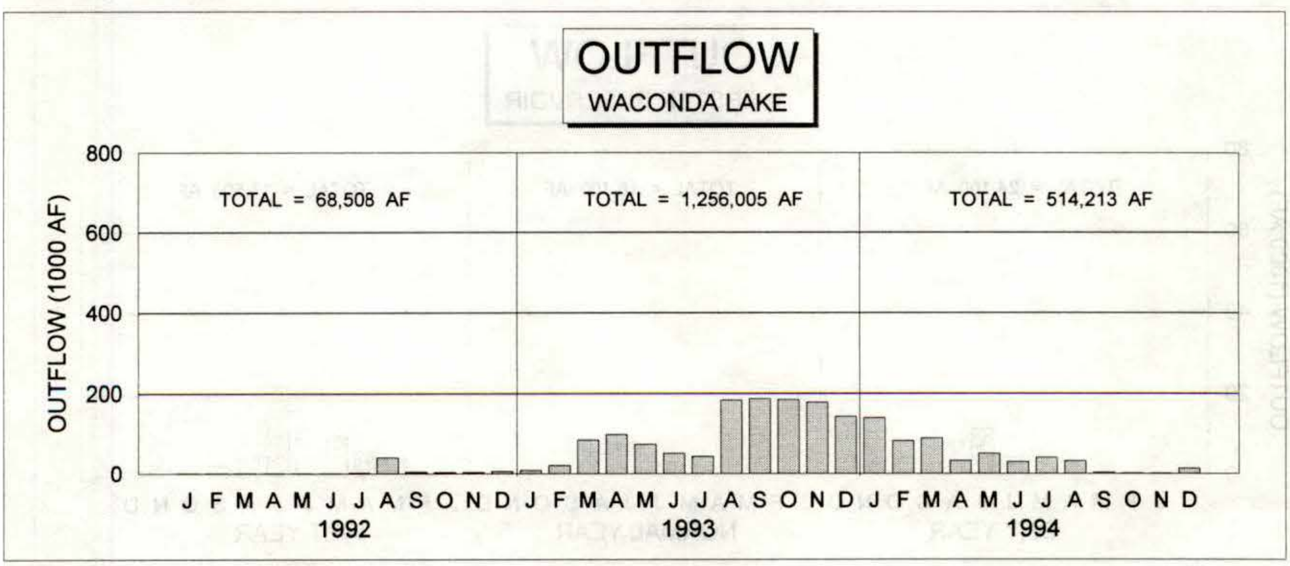



EXHIBIT 16A

# WACONDA LAKE
## OPERATION

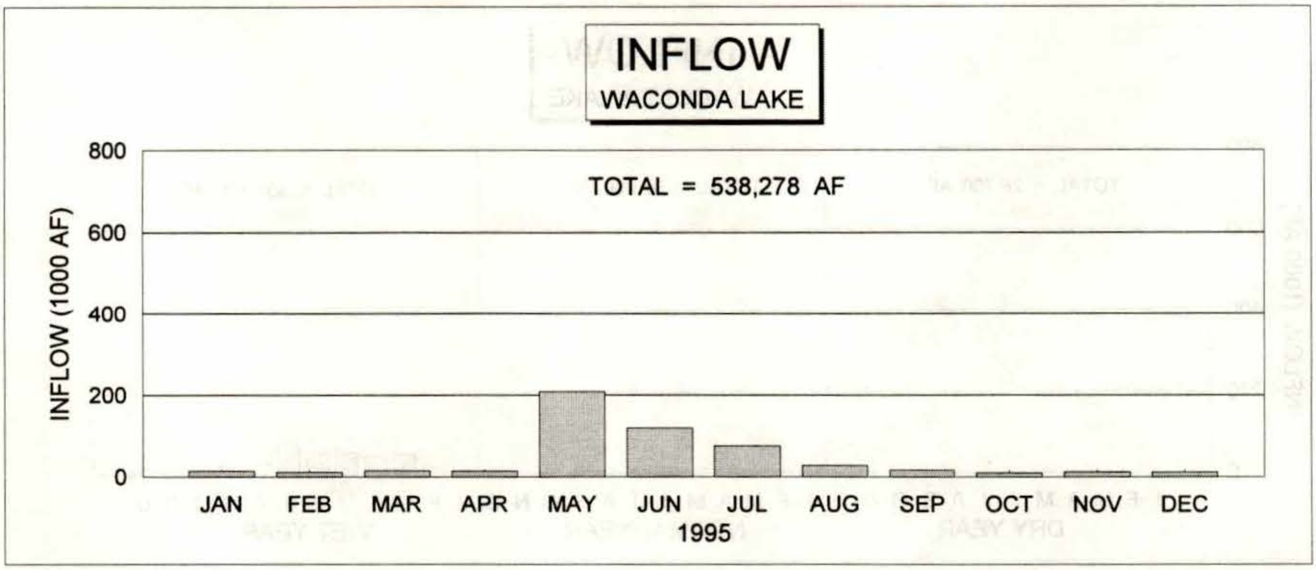


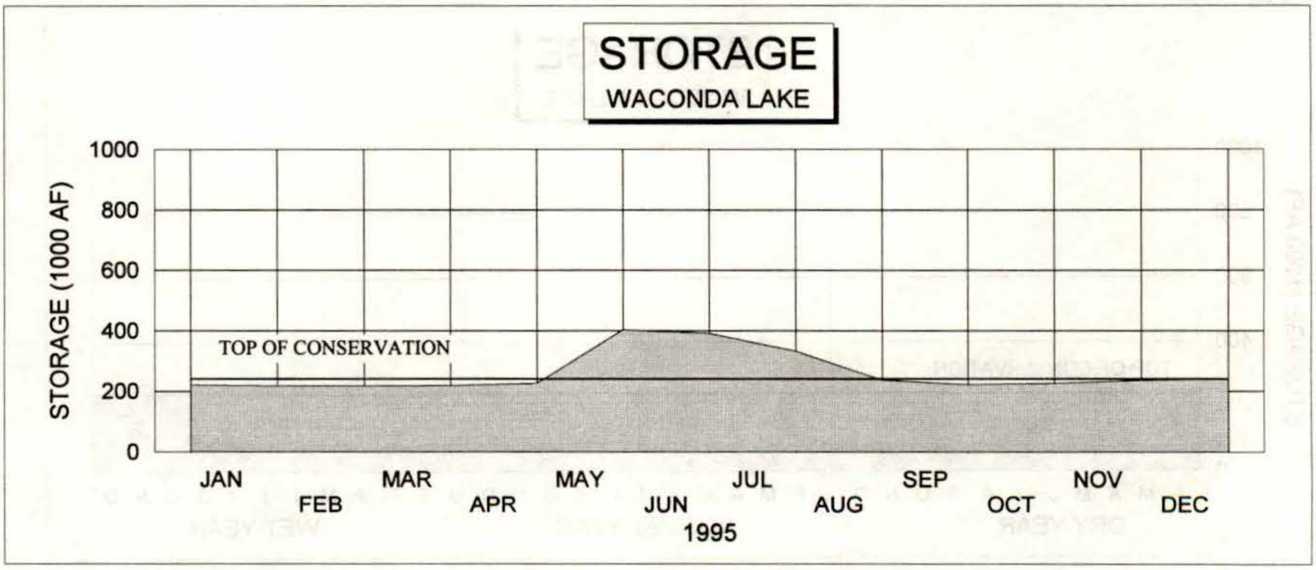



# WACONDA LAKE

## 1995 OPERATION



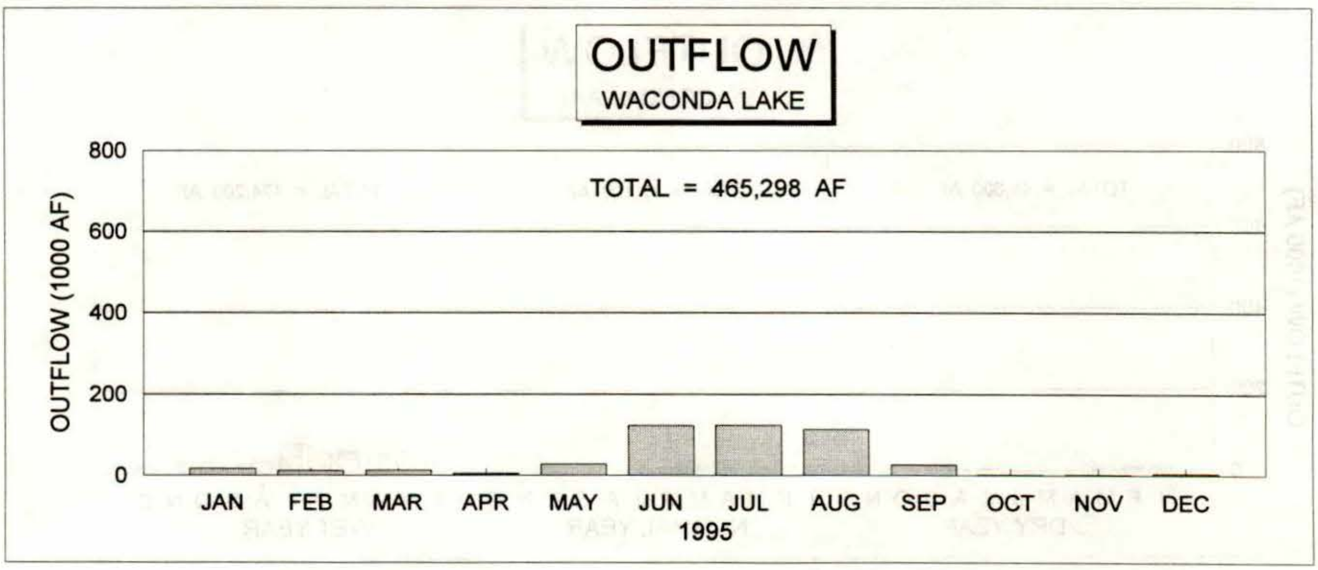
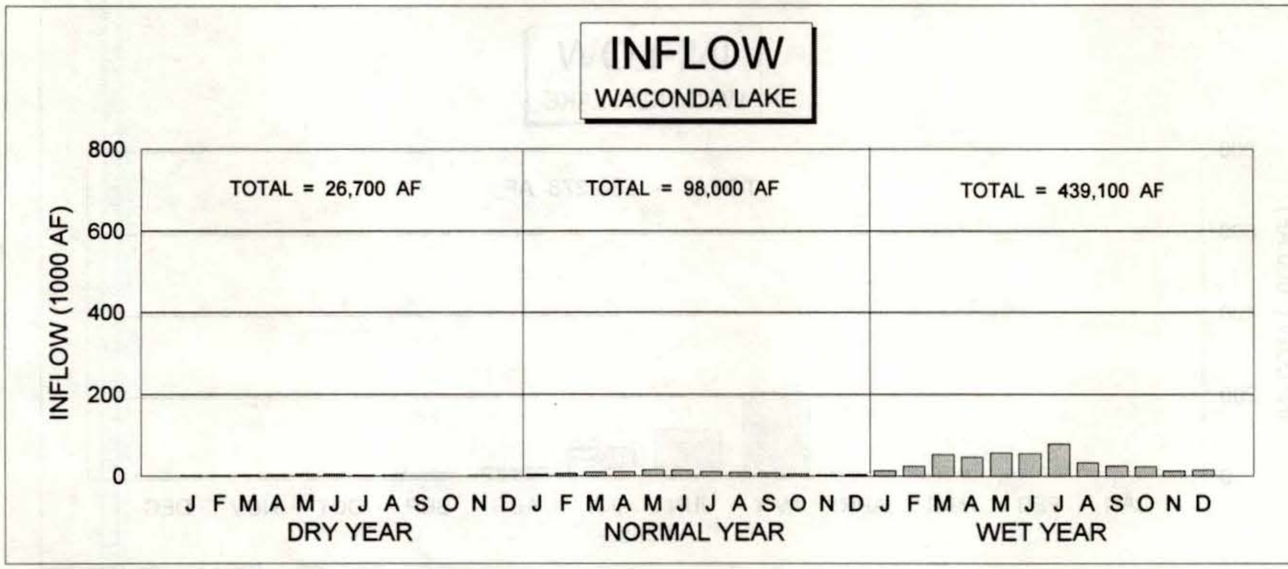
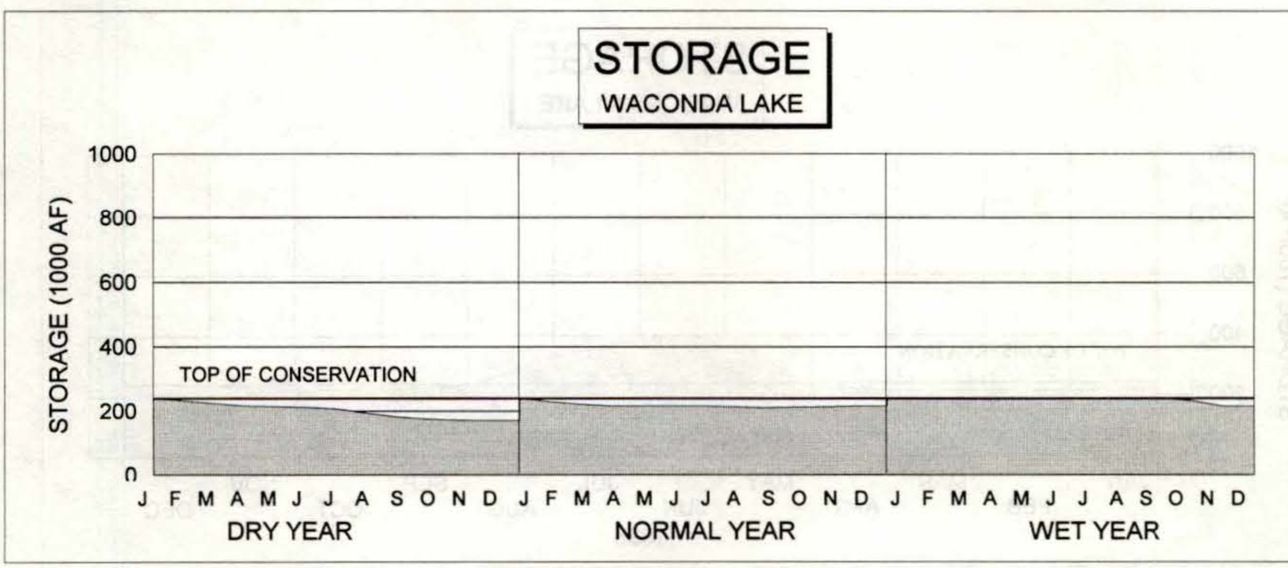



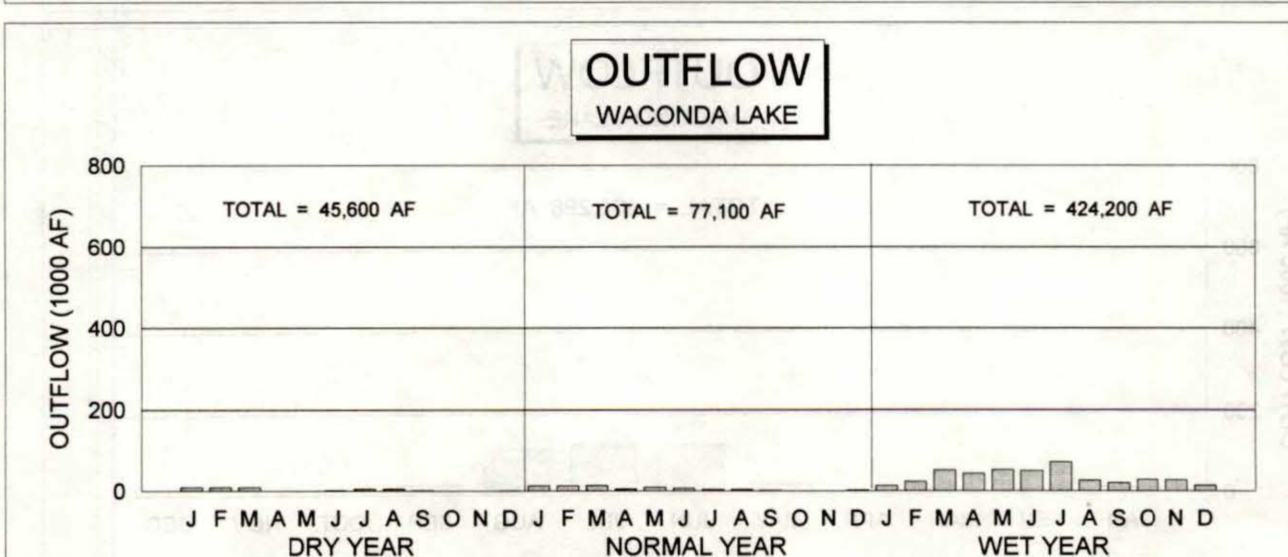
EXHIBIT 16C

# WACONDA LAKE

## 1996 OPERATION PLAN

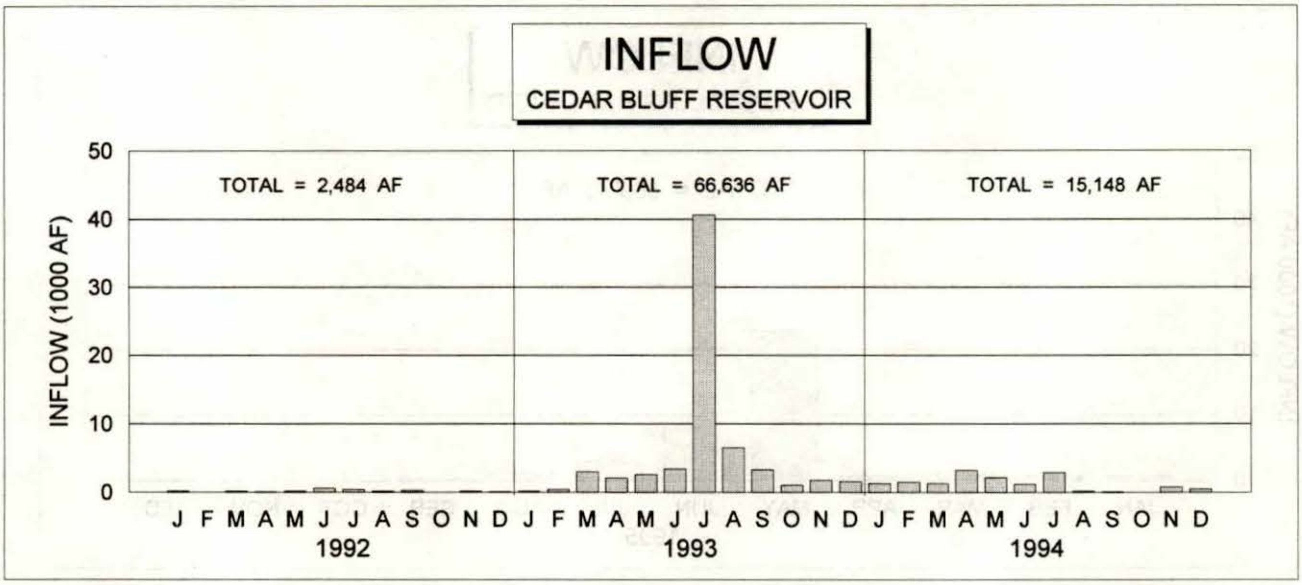


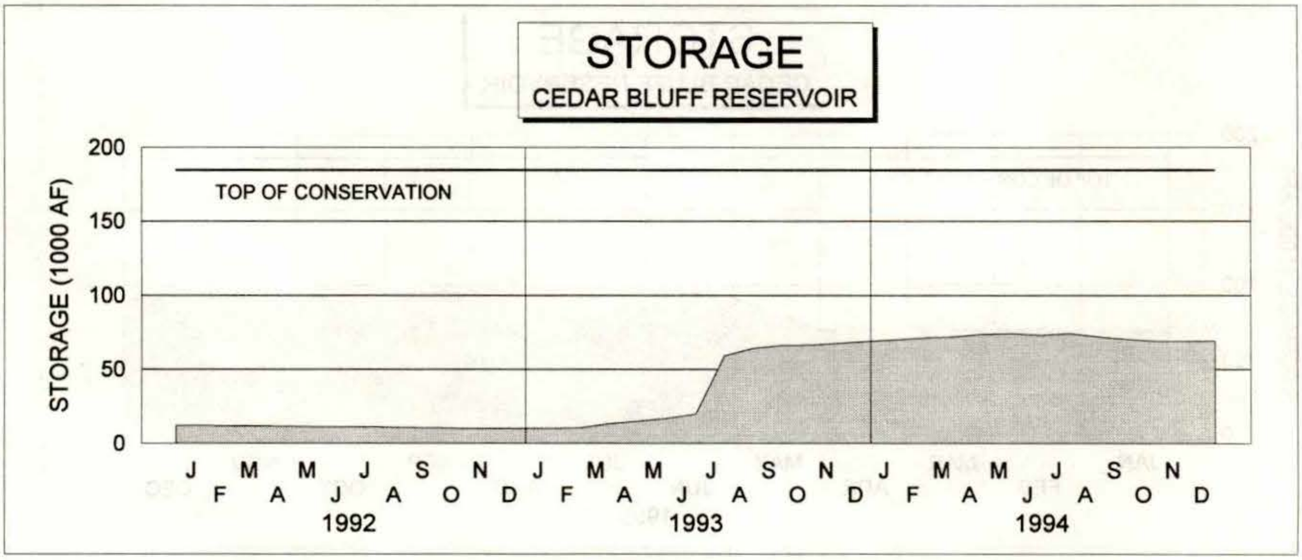



# CEDAR BLUFF RESERVOIR

## OPERATION



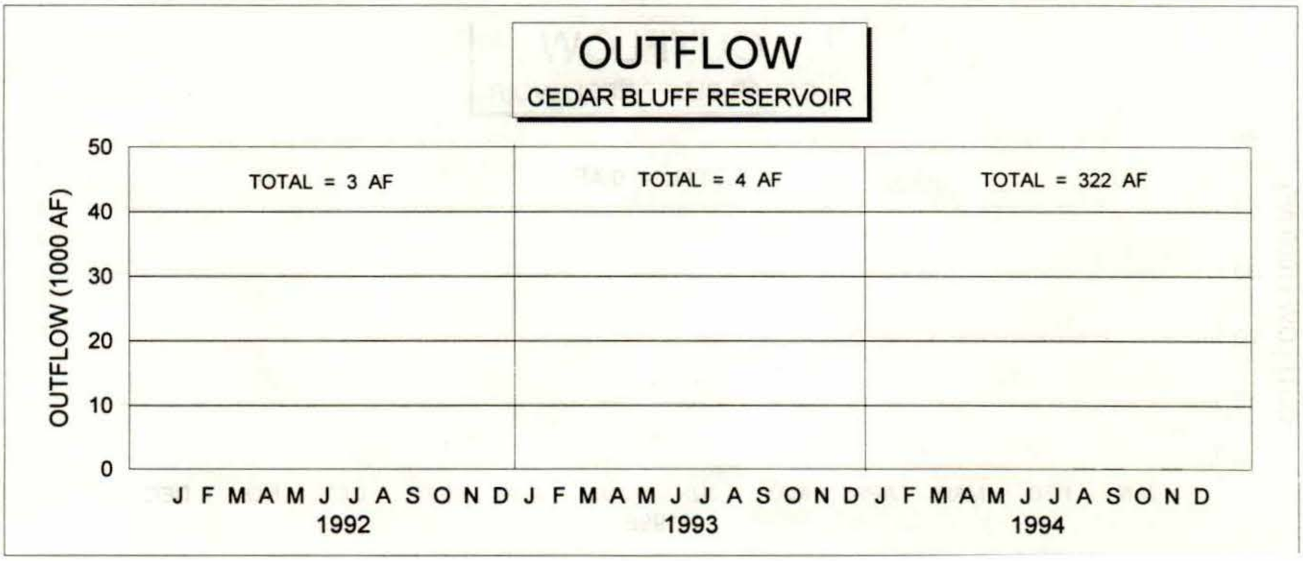
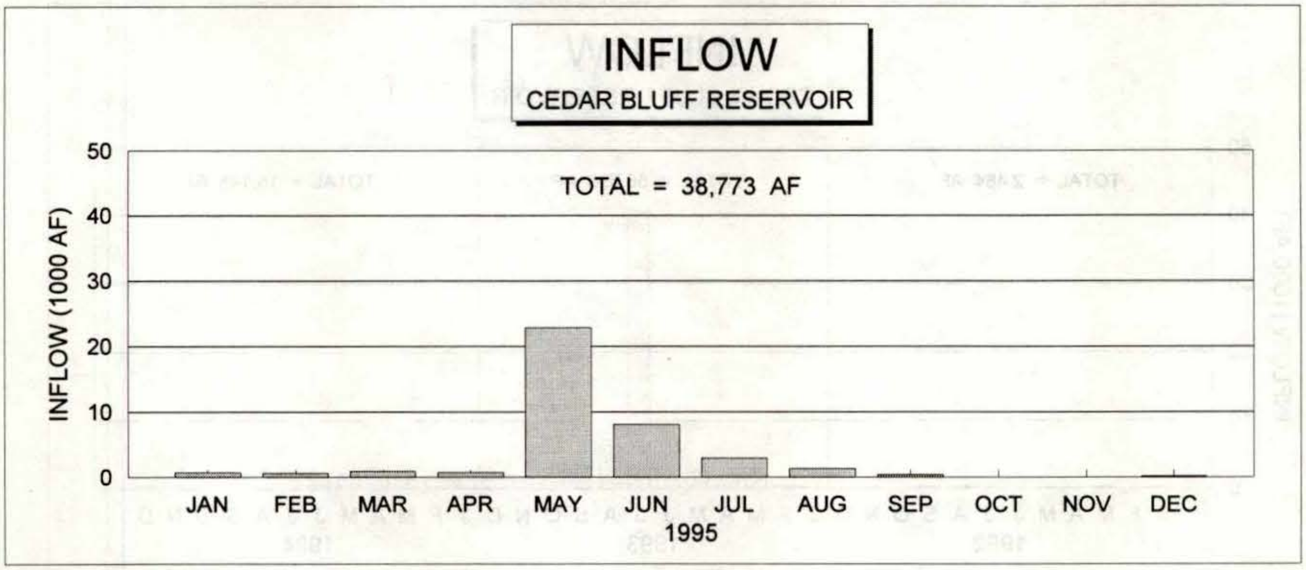
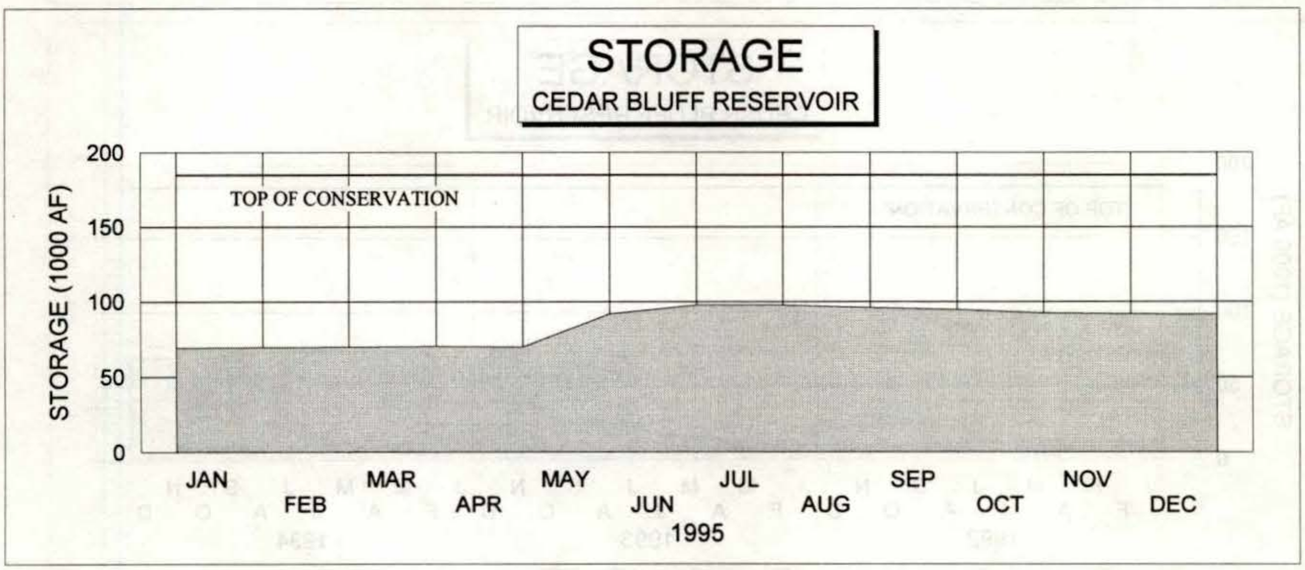



EXHIBIT 17B

# CEDAR BLUFF RESERVOIR

## 1995 OPERATION



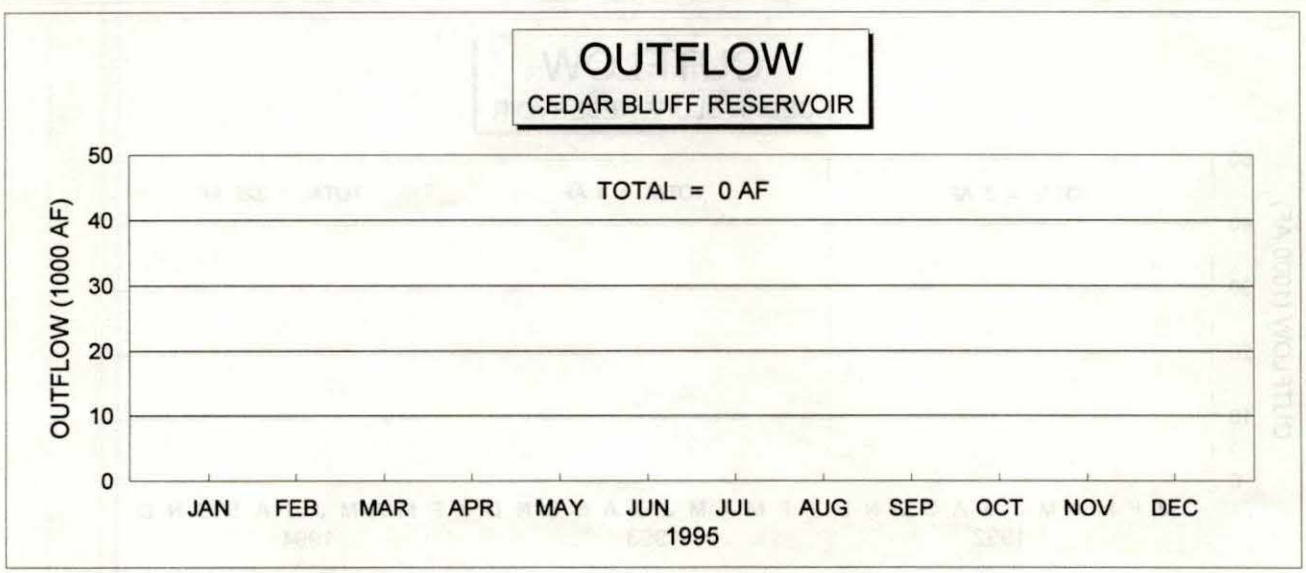
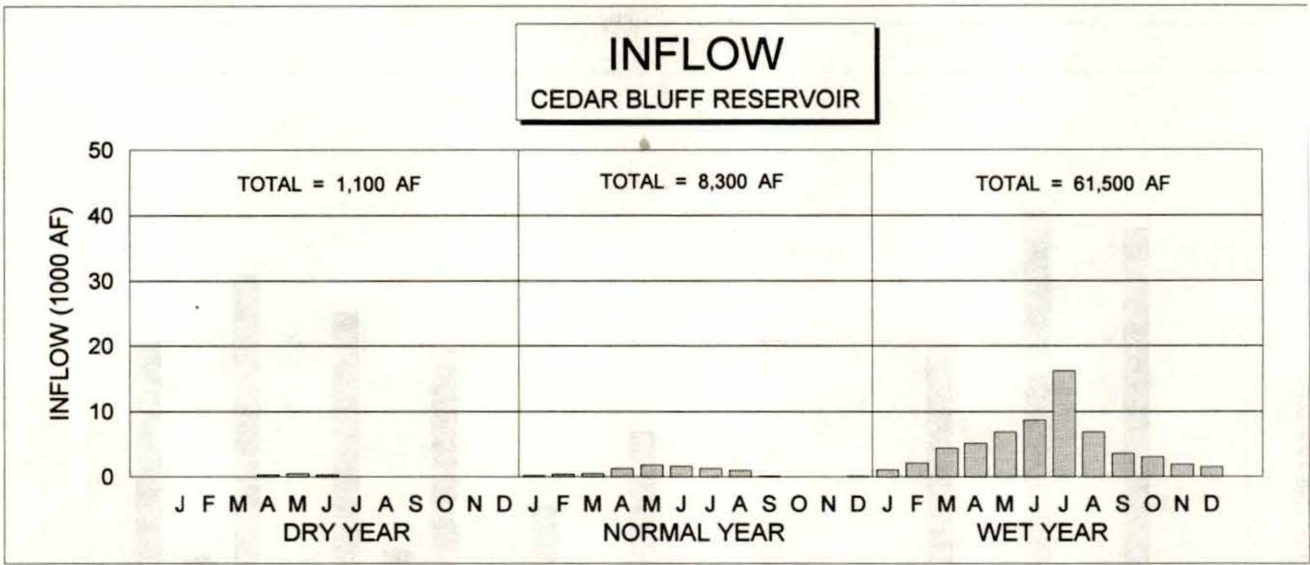
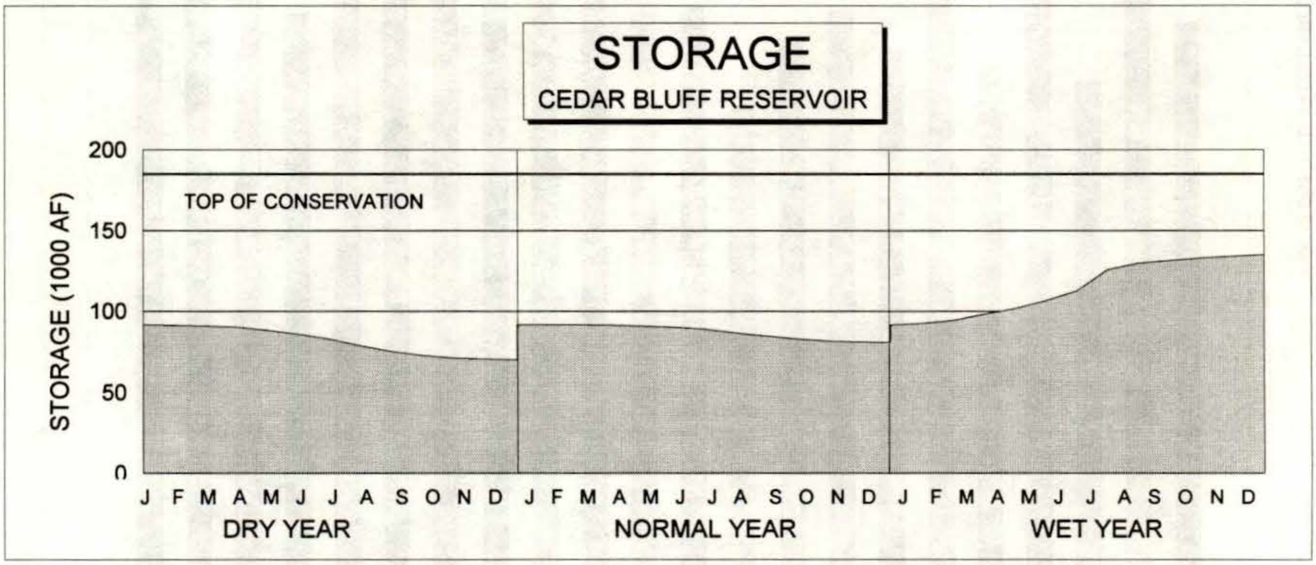



EXHIBIT 17C

# CEDAR BLUFF RESERVOIR

## 1996 OPERATION PLAN



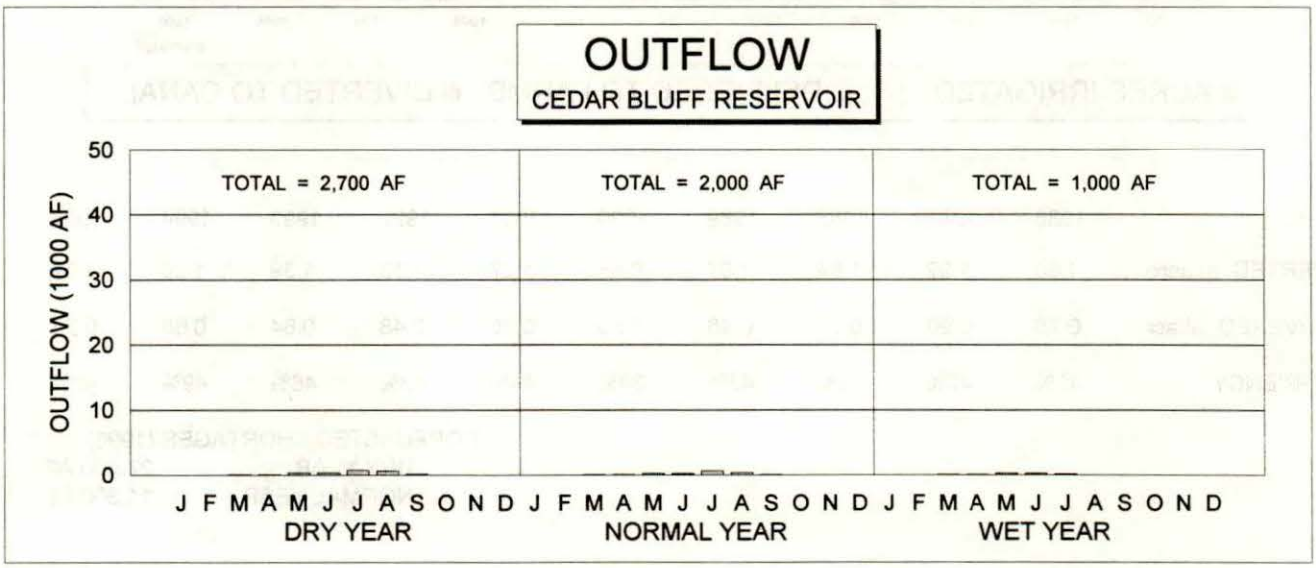
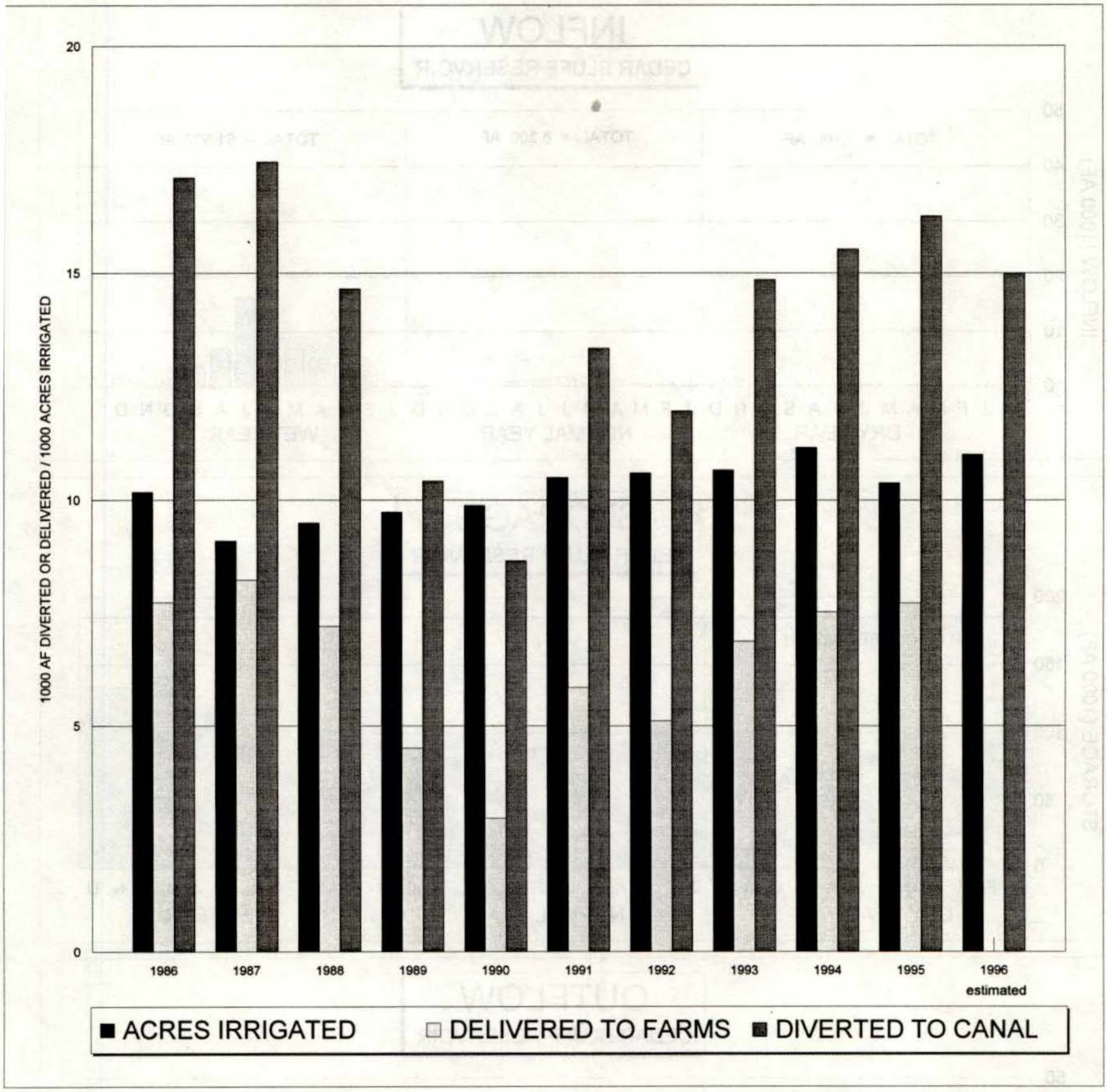



EXHIBIT 18

# MIRAGE FLATS IRRIGATION DISTRICT

CANAL DIV., FARM DEL., AND ACRES IRRIG.



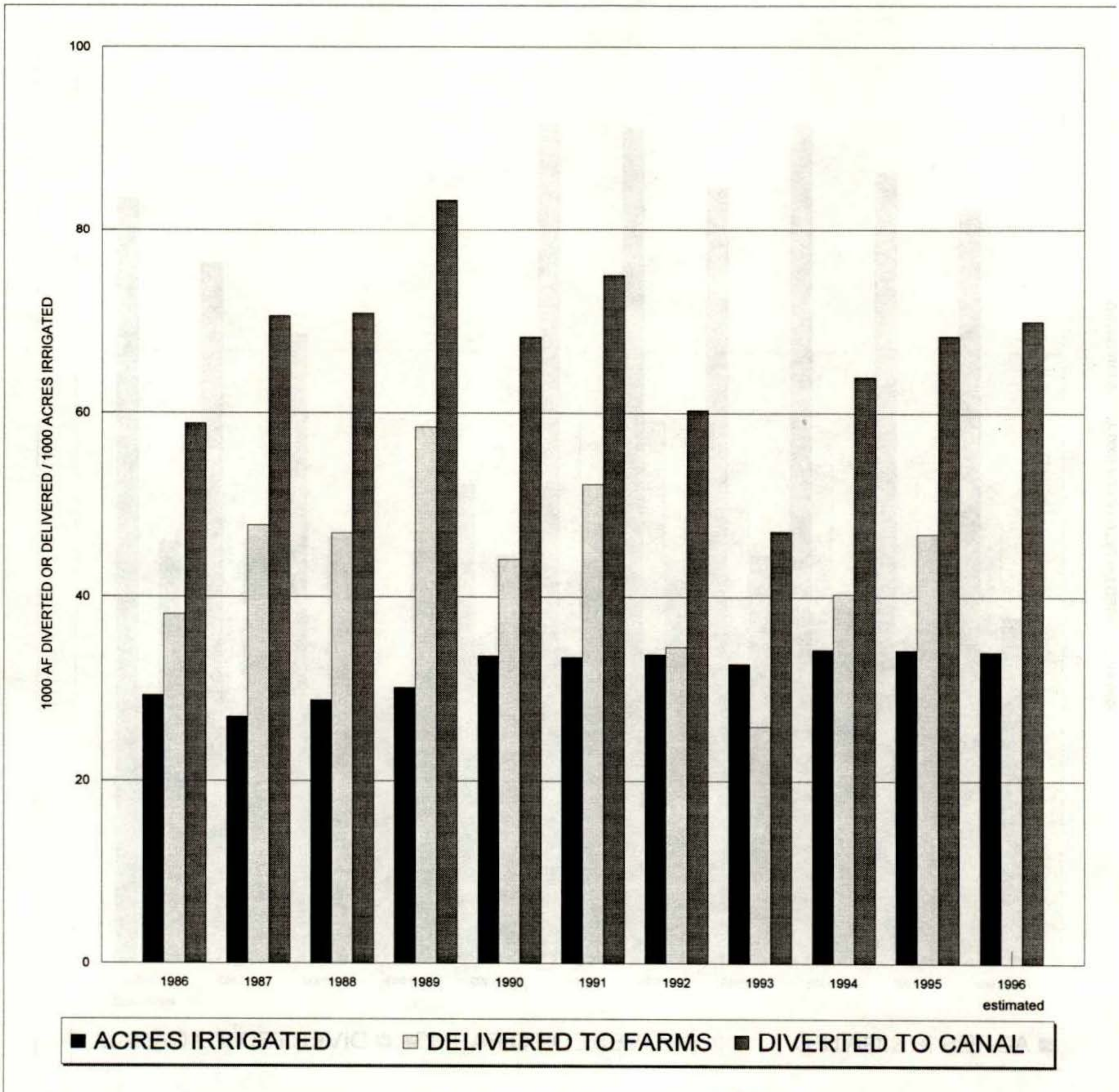

| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 1.68 | 1.92 | 1.54 | 1.07 | 0.88 | 1.27 | 1.13 | 1.39 | 1.39 | 1.57 |
| DELIVERED af/acr | 0.76 | 0.90 | 0.76 | 0.46 | 0.30 | 0.56 | 0.48 | 0.64 | 0.68 | 0.74 |
| EFFICIENCY | 45% | 47% | 49% | 43% | 34% | 44% | 43% | 46% | 49% | 48% |

FORECASTED SHORTAGES (1996)

| | |
|---|---|
| DRY YEAR | 27,500 AF |
| NORMAL YEAR | 11,300 AF |

# AINSWORTH IRRIGATION DISTRICT

CANAL DIV., FARM DEL., AND ACRES IRRIG.



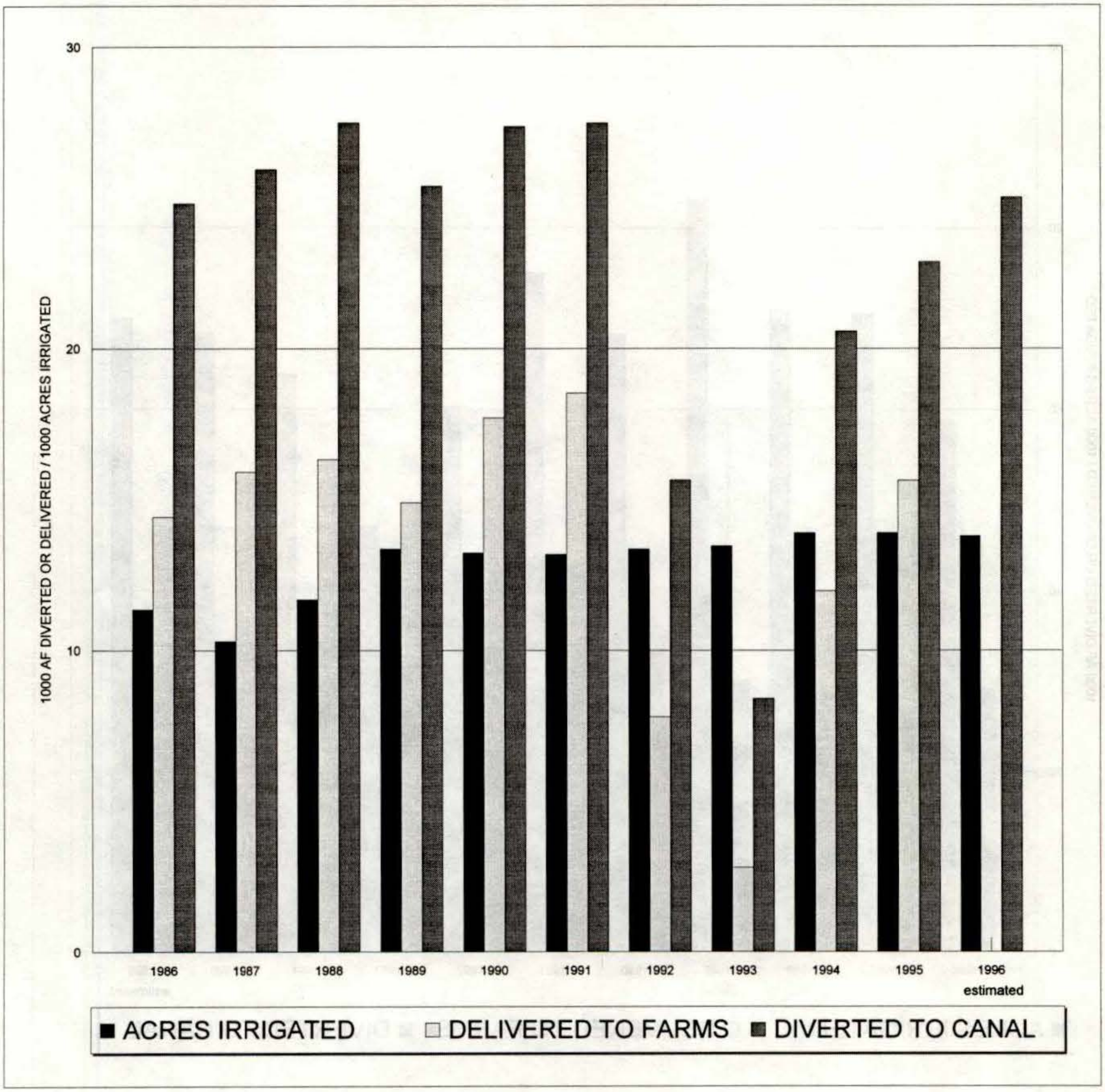

| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 2.01 | 2.62 | 2.47 | 2.77 | 2.04 | 2.25 | 1.79 | 1.44 | 1.87 | 2.00 |
| DELIVERED af/acr | 1.30 | 1.77 | 1.63 | 1.94 | 1.31 | 1.56 | 1.02 | 0.79 | 1.18 | 1.37 |
| EFFICIENCY | 65% | 68% | 66% | 70% | 65% | 70% | 57% | 55% | 63% | 68% |

| FORECASTED SHORTAGES (1996) | |
|---|---|
| DRY YEAR | 0 AF |
| NORMAL YEAR | 0 AF |

EXHIBIT 20

# SARGENT IRRIGATION DISTRICT

CANAL DIV., FARM DEL., AND ACRES IRRIG.




| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 2.18 | 2.52 | 2.35 | 1.90 | 2.07 | 2.08 | 1.17 | 0.62 | 1.48 | 1.64 |
| DELIVERED af/acr | 1.27 | 1.54 | 1.40 | 1.12 | 1.34 | 1.40 | 0.58 | 0.21 | 0.86 | 1.13 |
| EFFICIENCY | 58% | 61% | 59% | 59% | 65% | 67% | 50% | 33% | 58% | 68% |

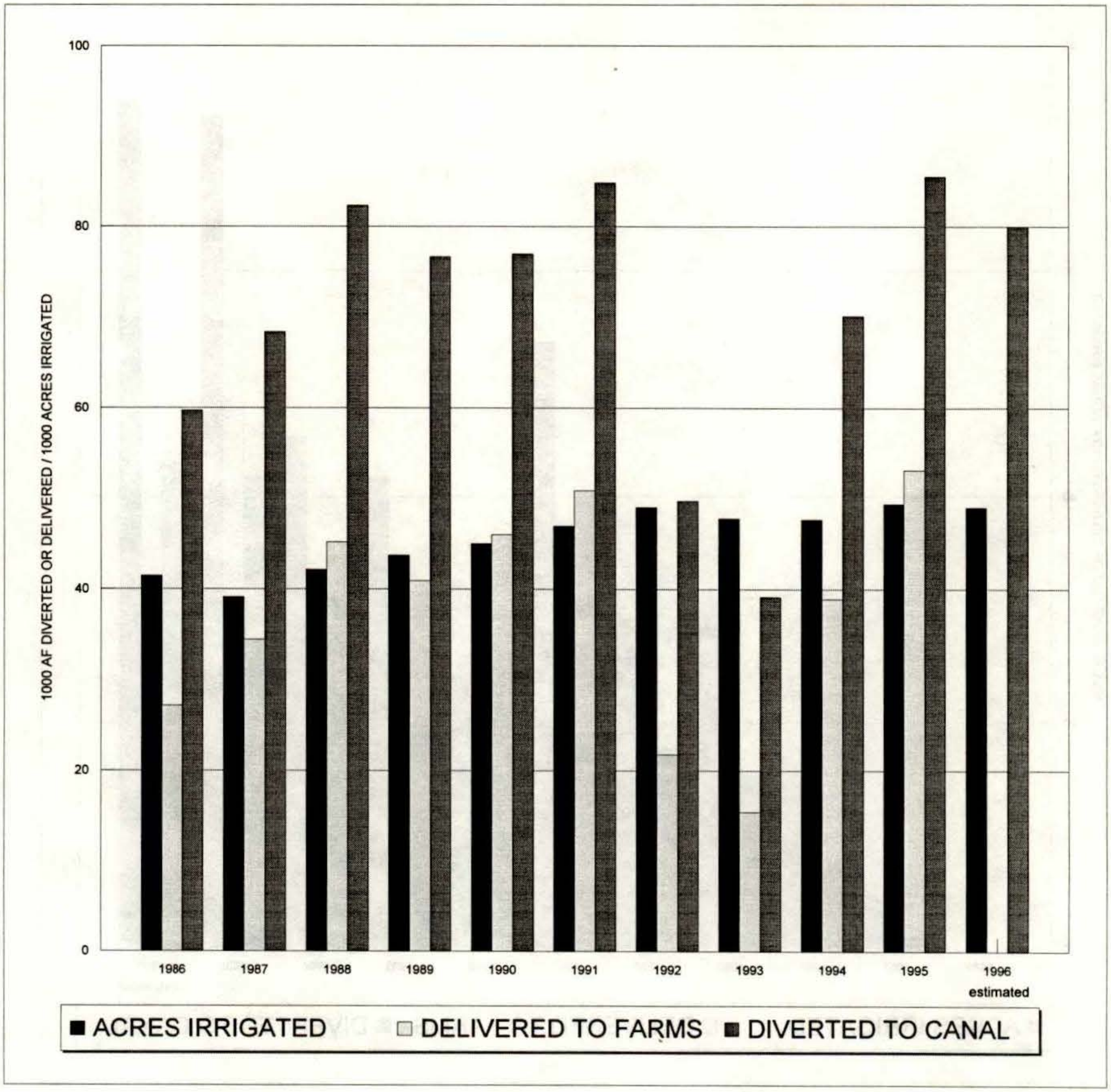
FORECASTED SHORTAGES (1996)

| | |
|---|---|
| DRY YEAR | 3,600 AF |
| NORMAL YEAR | 0 AF |

EXHIBIT 21

# FARWELL IRRIGATION DISTRICT

CANAL DIV., FARM DEL., AND ACRES IRRIG.




| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 1.44 | 1.75 | 1.96 | 1.75 | 1.71 | 1.81 | 1.01 | 0.82 | 1.47 | 1.73 |
| DELIVERED af/acr | 0.65 | 0.88 | 1.07 | 0.93 | 1.02 | 1.08 | 0.44 | 0.32 | 0.82 | 1.08 |
| EFFICIENCY | 45% | 50% | 55% | 53% | 60% | 60% | 44% | 39% | 55% | 62% |

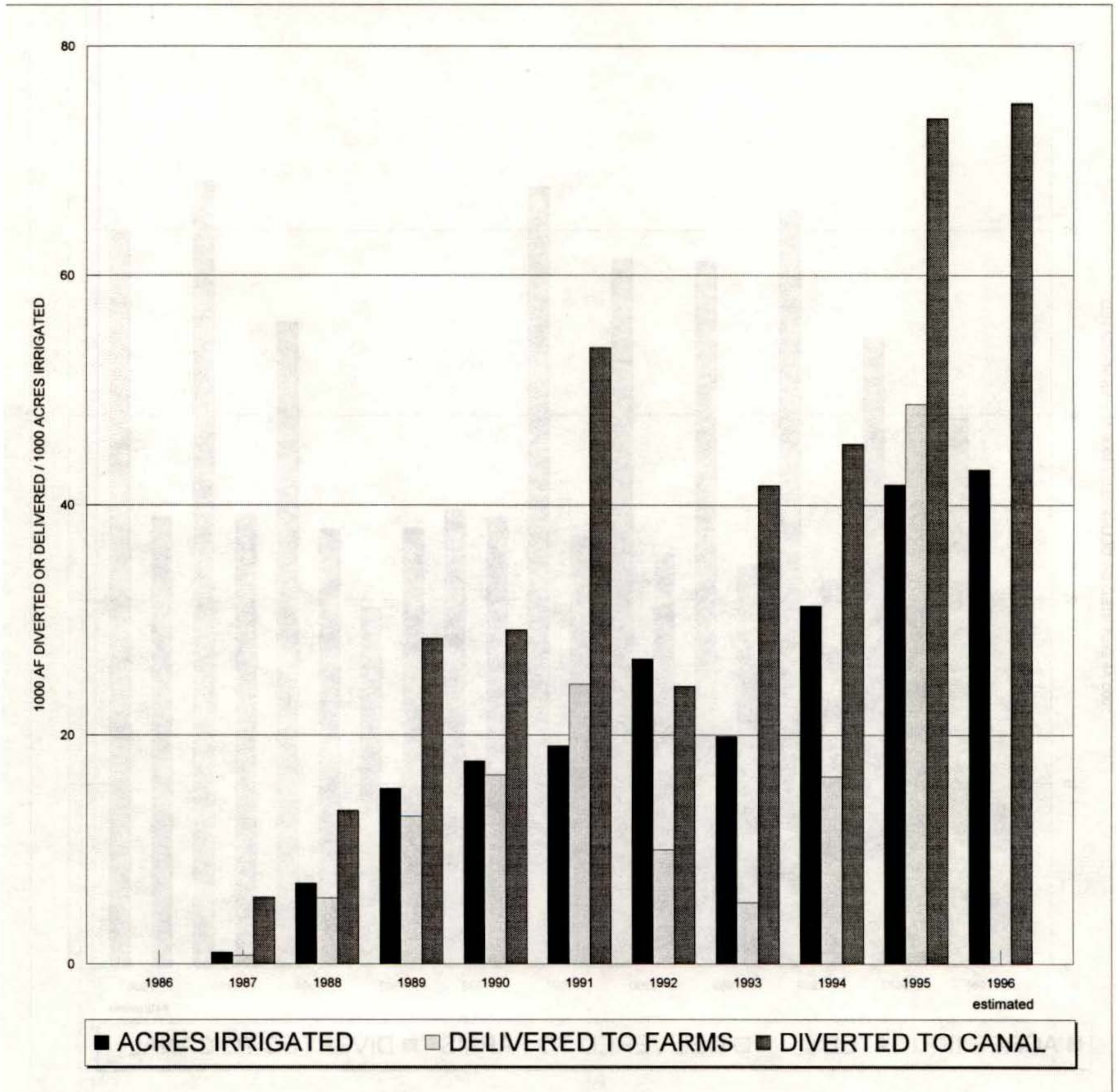
FORECASTED SHORTAGES (1996)

| | |
|---|---|
| DRY YEAR | 13,000 AF |
| NORMAL YEAR | 0 AF |

EXHIBIT 22

# TWIN LOUPS IRRIGATION DISTRICT

CANAL DIV., FARM DEL., AND ACRES IRRIG.




| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | ERR | 5.63 | 1.90 | 1.85 | 1.64 | 2.81 | 0.91 | 2.10 | 1.45 | 1.76 |
| DELIVERED af/acr | ERR | 0.73 | 0.82 | 0.84 | 0.93 | 1.28 | 0.38 | 0.27 | 0.52 | 1.17 |
| EFFICIENCY | ERR | 13% | 43% | 45% | 57% | 46% | 41% | 13% | 36% | 66% |

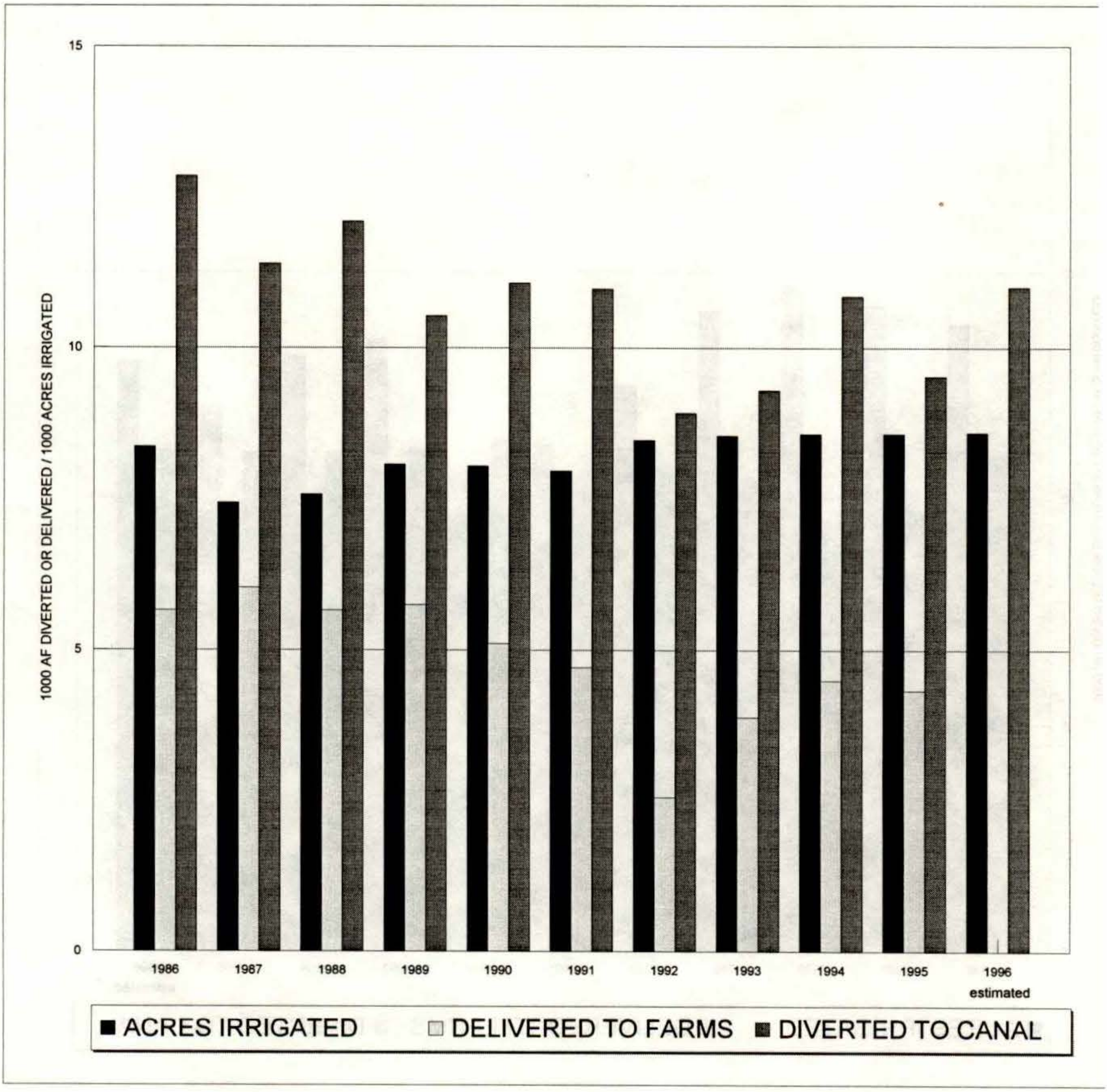
FORECASTED SHORTAGES (1996)

| | |
|---|---|
| DRY YEAR | 0 AF |
| NORMAL YEAR | 0 AF |

EXHIBIT 23

# FRENCHMAN VALLEY IRRIGATION DISTRICT

CANAL DIV., FARM DEL., AND ACRES IRRIG.




| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 1.54 | 1.53 | 1.60 | 1.30 | 1.38 | 1.38 | 1.05 | 1.09 | 1.26 | 1.11 |
| DELIVERED af/acr | 0.68 | 0.81 | 0.75 | 0.71 | 0.63 | 0.59 | 0.30 | 0.45 | 0.52 | 0.50 |
| EFFICIENCY | 44% | 53% | 47% | 55% | 46% | 43% | 29% | 42% | 41% | 45% |

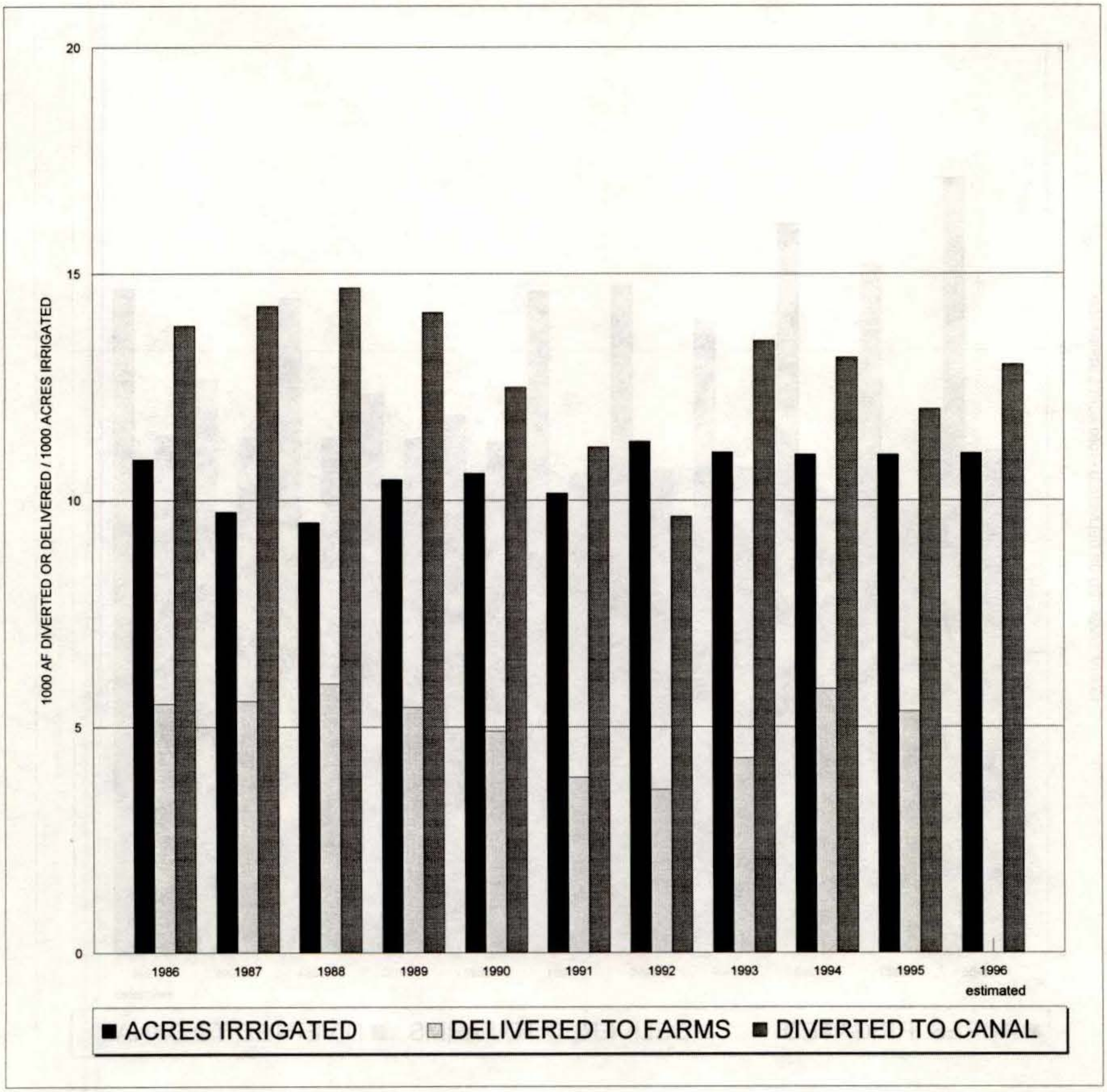
FORECASTED SHORTAGES (1996)

| | |
|---|---|
| DRY YEAR | 28,800 AF |
| NORMAL YEAR | 7,500 AF |

EXHIBIT 24

# H AND RW IRRIGATION DISTRICT

CANAL DIV., FARM DEL., AND ACRES IRRIG.



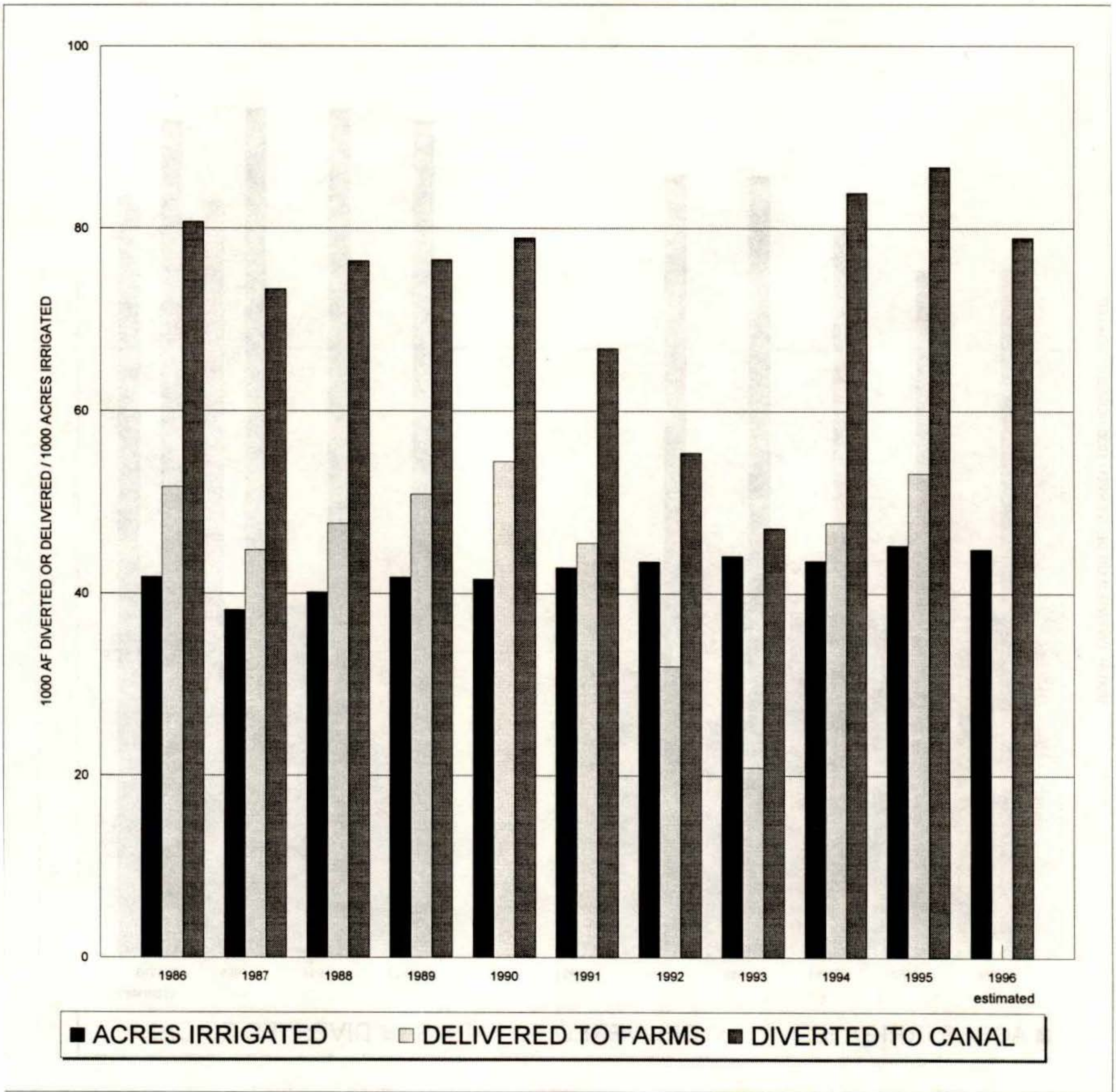

| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 1.27 | 1.47 | 1.55 | 1.35 | 1.18 | 1.10 | 0.85 | 1.22 | 1.19 | 1.09 |
| DELIVERED af/acr | 0.50 | 0.57 | 0.63 | 0.52 | 0.46 | 0.38 | 0.32 | 0.39 | 0.53 | 0.48 |
| EFFICIENCY | 40% | 39% | 41% | 38% | 39% | 35% | 37% | 32% | 44% | 44% |

FORECASTED SHORTAGES (1996)

| | |
|---|---|
| DRY YEAR | 37,000 AF |
| NORMAL YEAR | 11,300 AF |

# FRENCHMAN-CAMBRIDGE IRRIGATION DISTRICT

CANAL DIV., FARM DEL., AND ACRES IRRIG.




| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 1.93 | 1.92 | 1.90 | 1.83 | 1.90 | 1.56 | 1.27 | 1.07 | 1.93 | 1.92 |
| DELIVERED af/acr | 1.24 | 1.17 | 1.19 | 1.22 | 1.31 | 1.06 | 0.73 | 0.47 | 1.09 | 1.17 |
| EFFICIENCY | 64% | 61% | 62% | 66% | 69% | 68% | 58% | 44% | 57% | 61% |

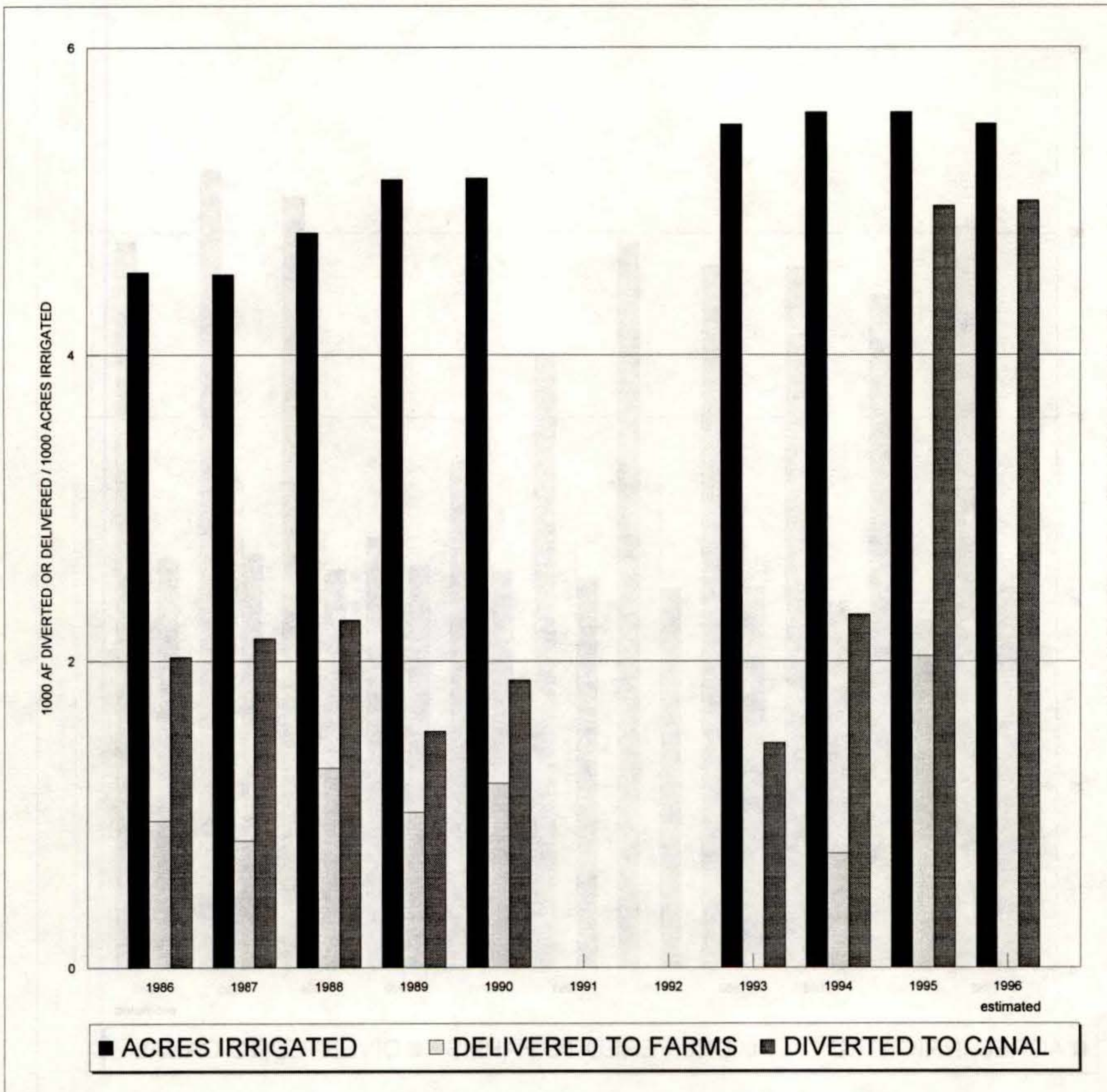
FORECASTED SHORTAGES (1996)

| | |
|---|---|
| DRY YEAR | 0 AF |
| NORMAL YEAR | 0 AF |

EXHIBIT 26

# ALMENA IRRIGATION DISTRICT

CANAL DIV., FARM DEL., AND ACRES IRRIG.



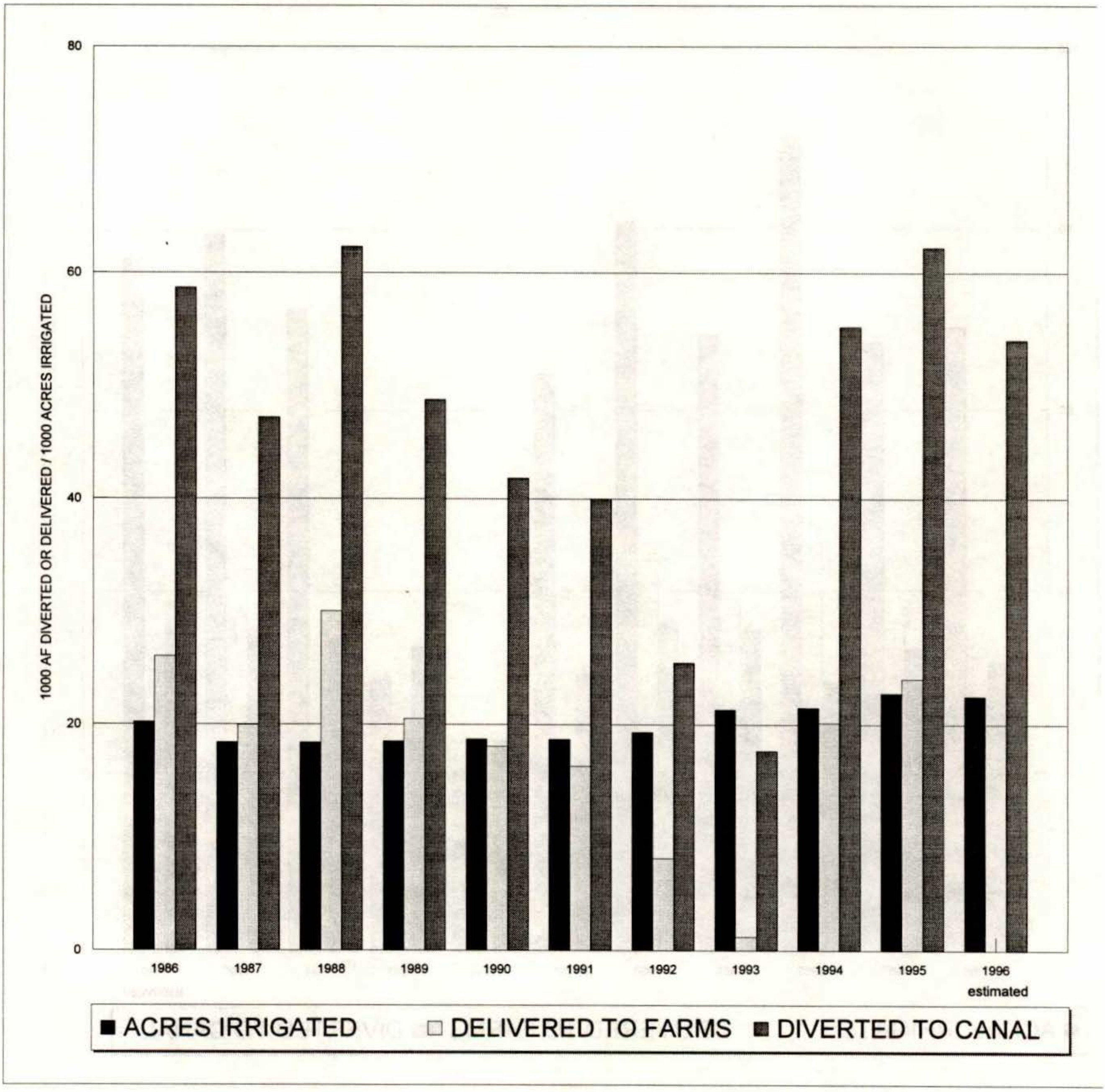

| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 0.45 | 0.48 | 0.47 | 0.30 | 0.36 | 0.00 | 0.00 | 0.27 | 0.41 | 0.89 |
| DELIVERED af/acr | 0.21 | 0.18 | 0.27 | 0.20 | 0.23 | 0.00 | 0.00 | 0.00 | 0.13 | 0.37 |
| EFFICIENCY | 48% | 39% | 57% | 66% | 64% | 0% | 0% | 0% | 32% | 41% |

FORECASTED SHORTAGES (1996)

| | |
|---|---|
| DRY YEAR | 8,400 AF |
| NORMAL YEAR | 0 AF |

# BOSTWICK IRRIGATION DISTRICT - NEBRASKA

CANAL DIV., FARM DEL., AND ACRES IRRIG.



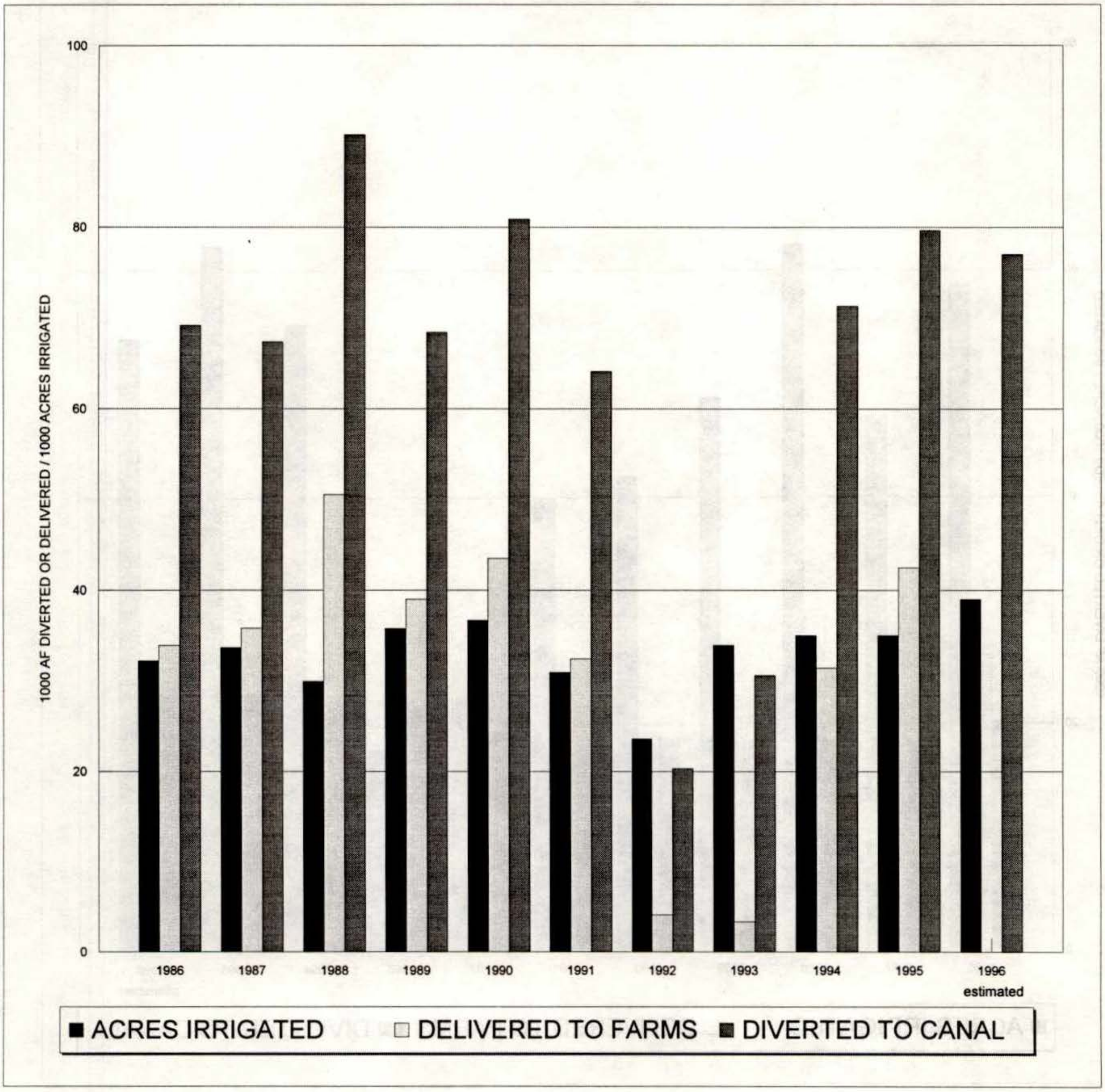

| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 2.90 | 2.56 | 3.38 | 2.63 | 2.23 | 2.14 | 1.32 | 0.83 | 2.57 | 2.73 |
| DELIVERED af/acr | 1.29 | 1.08 | 1.63 | 1.11 | 0.97 | 0.88 | 0.43 | 0.06 | 0.94 | 1.05 |
| EFFICIENCY | 44% | 42% | 48% | 42% | 43% | 41% | 32% | 7% | 36% | 39% |

| FORECASTED SHORTAGES (1996) | |
|---|---|
| DRY YEAR | 26,000 AF |
| NORMAL YEAR | 0 AF |

EXHIBIT 28

# KANSAS-BOSTWICK IRRIGATION DISTRICT

CANAL DIV., FARM DEL., AND ACRES IRRIG.



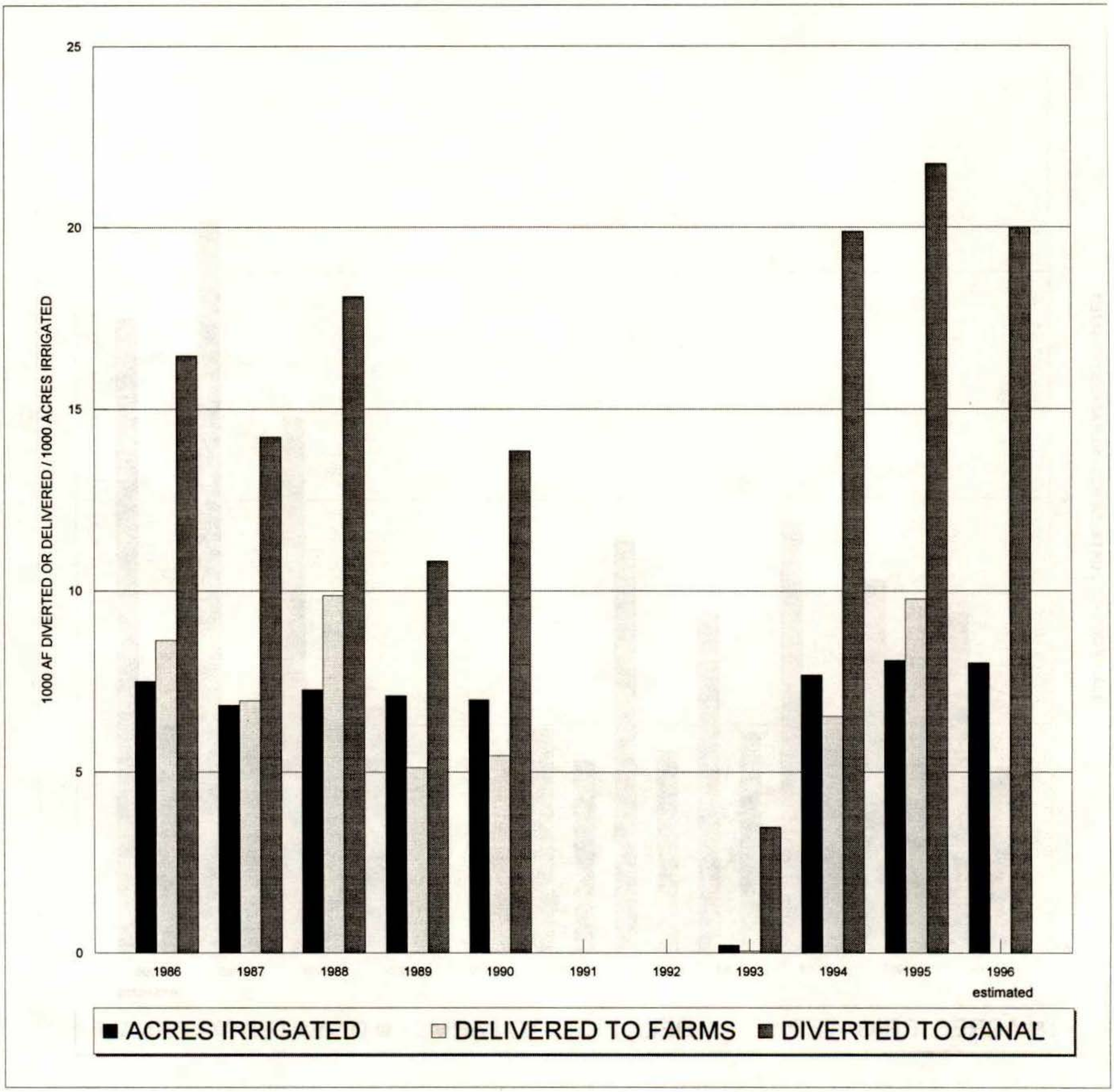

| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 2.15 | 2.00 | 3.02 | 1.92 | 2.21 | 2.08 | 0.86 | 0.90 | 2.04 | 2.28 |
| DELIVERED af/acr | 1.05 | 1.06 | 1.69 | 1.09 | 1.19 | 1.05 | 0.17 | 0.10 | 0.90 | 1.22 |
| EFFICIENCY | 49% | 53% | 56% | 57% | 54% | 50% | 20% | 11% | 44% | 53% |

FORECASTED SHORTAGES (1996)

| | |
|---|---|
| DRY YEAR | 38,200 AF |
| NORMAL YEAR | 0 AF |

# KIRWIN IRRIGATION DISTRICT

CANAL DIV., FARM DEL., AND ACRES IRRIG.




| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 2.20 | 2.08 | 2.49 | 1.52 | 1.98 | 0.00 | 0.00 | 16.86 | 2.59 | 2.69 |
| DELIVERED af/acr | 1.15 | 1.02 | 1.36 | 0.72 | 0.78 | 0.00 | 0.00 | 0.26 | 0.85 | 1.21 |
| EFFICIENCY | 52% | 49% | 55% | 47% | 39% | 0% | 0% | 2% | 33% | 45% |

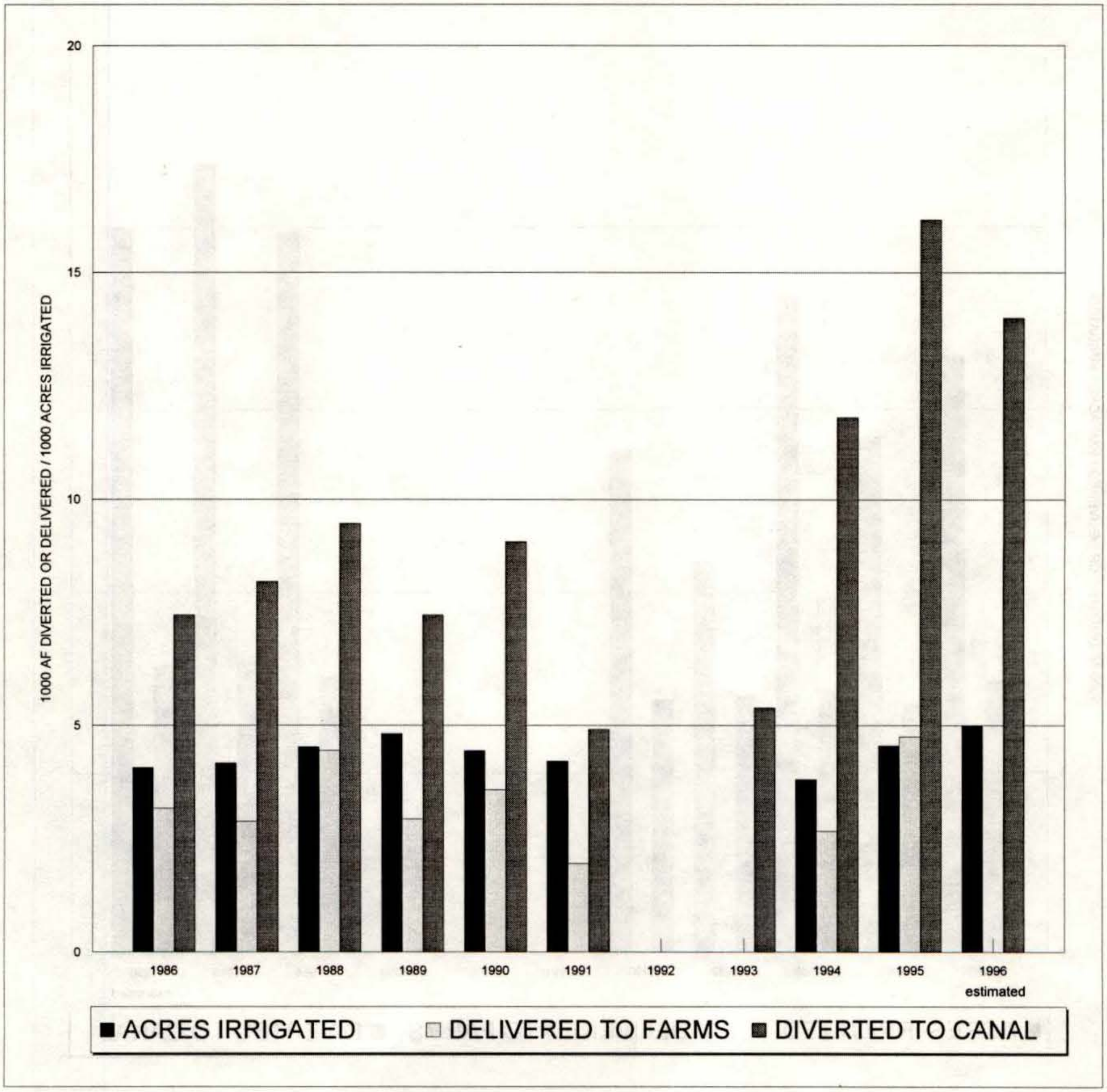
FORECASTED SHORTAGES (1996)

| | |
|---|---|
| DRY YEAR | 0 AF |
| NORMAL YEAR | 0 AF |

EXHIBIT 30

# WEBSTER IRRIGATION DISTRICT

CANAL DIV., FARM DEL., AND ACRES IRRIG.



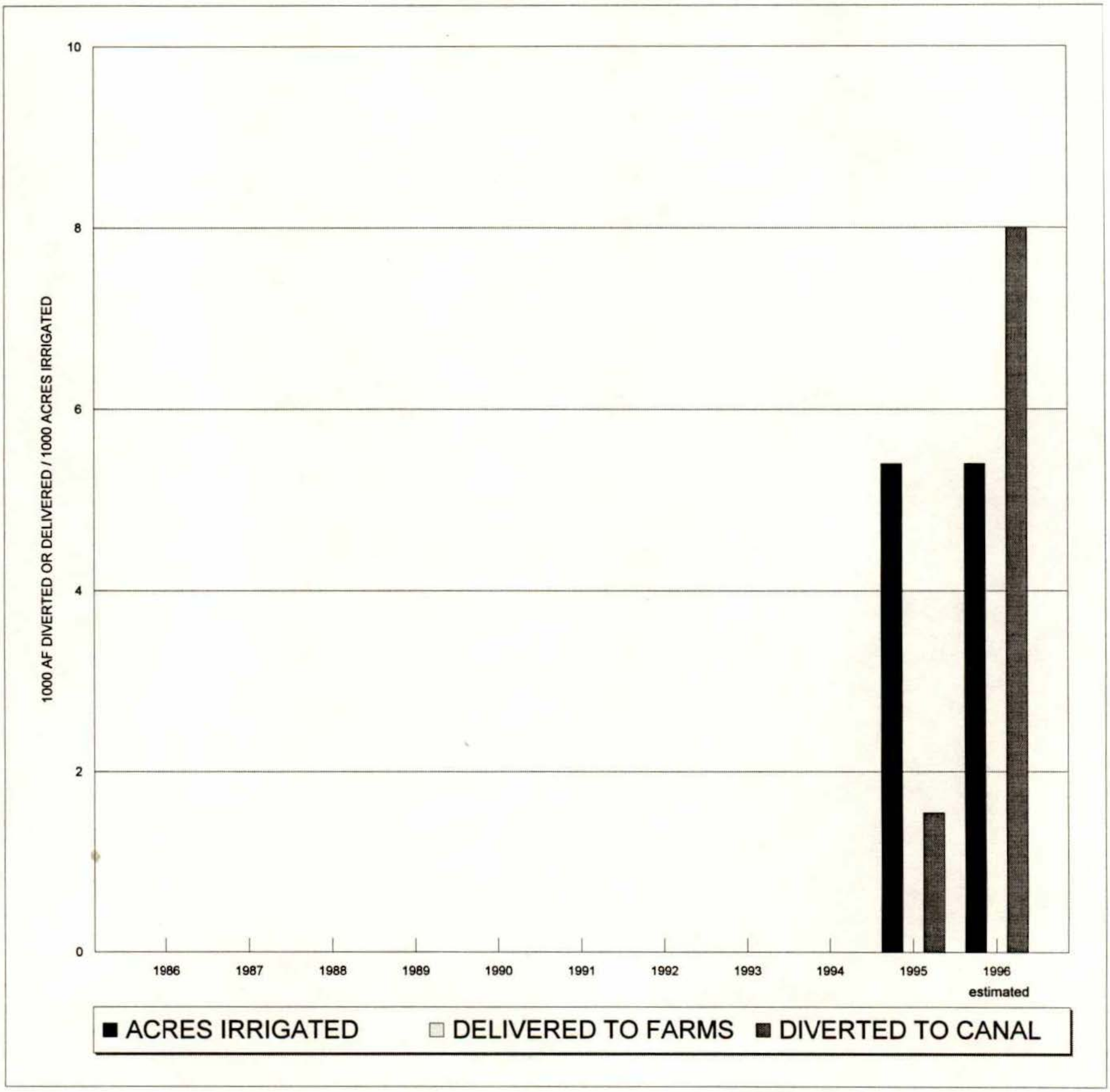

| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 1.83 | 1.97 | 2.09 | 1.55 | 2.04 | 1.17 | 0.00 | 0.00 | 3.09 | 3.55 |
| DELIVERED af/acr | 0.78 | 0.69 | 0.98 | 0.61 | 0.81 | 0.46 | 0.00 | 0.00 | 0.70 | 1.04 |
| EFFICIENCY | 43% | 35% | 47% | 39% | 39% | 40% | 0% | 0% | 23% | 29% |

FORECASTED SHORTAGES (1996)

| | |
|---|---|
| DRY YEAR | 0 AF |
| NORMAL YEAR | 0 AF |

# GLEN ELDER IRRIGATION DISTRICT

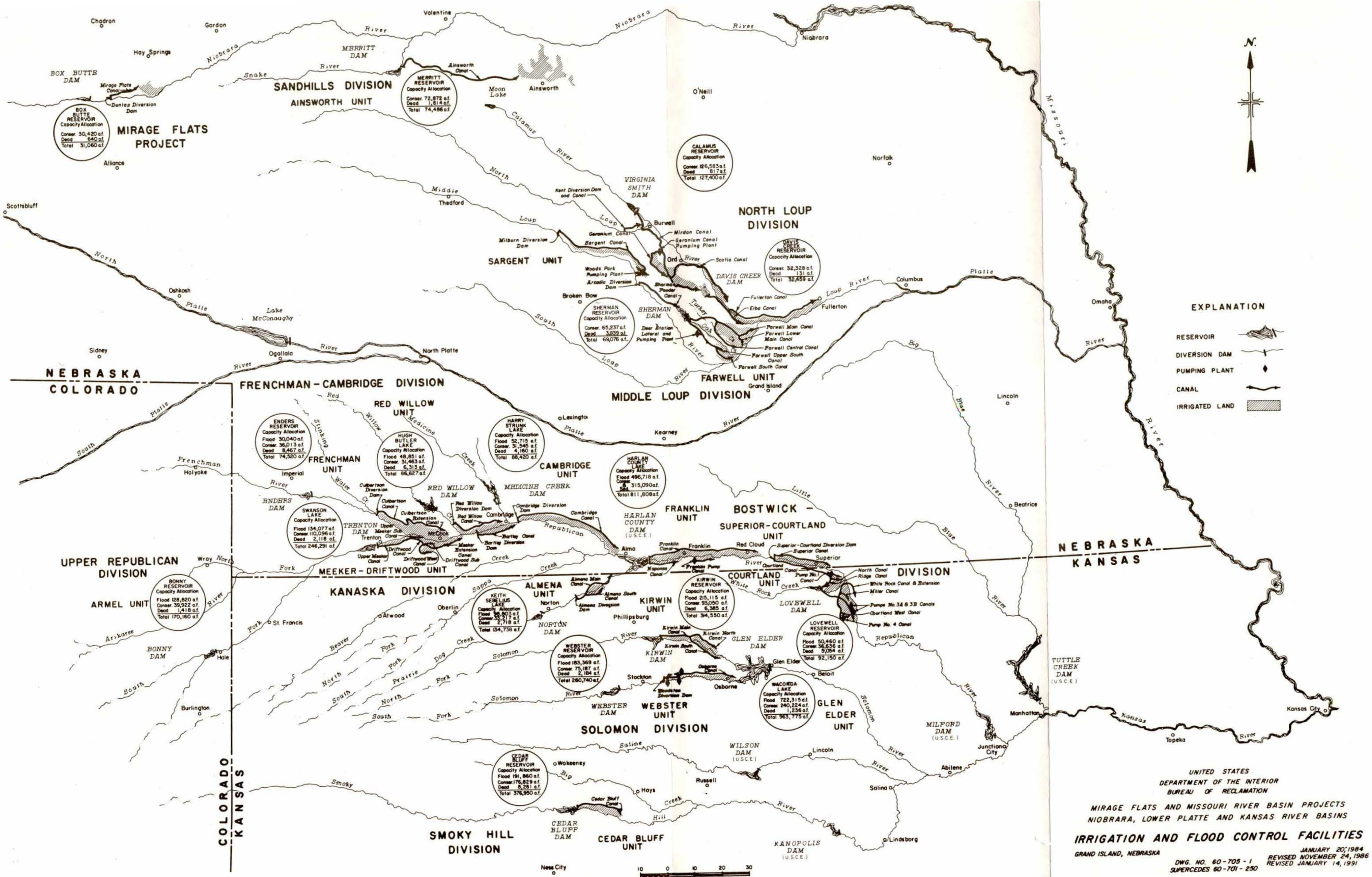
CANAL DIV., FARM DEL., AND ACRES IRRIG.




| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
|---|---|---|---|---|---|---|---|---|---|---|
| DIVERTED af/acre | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.29 |
| DELIVERED af/acr | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| EFFICIENCY | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |

FORECASTED SHORTAGES (1996)

| | |
|---|---|
| DRY YEAR | 0 AF |
| NORMAL YEAR | 0 AF |



SANDHILLS DIVISION
AINSWORTH UNIT
MERRITT DAM
MERRITT RESERVOIR Capacity Allocation Conser. 72,872 a.f. Dead 1,614 a.f. Total 74,486 a.f.
Ainsworth Canal
MIRAGE FLATS PROJECT
BOX BUTTE DAM
BOX BUTTE RESERVOIR Capacity Allocation Conser. 30,420 a.f. Dead 640 a.f. Total 31,060 a.f.
Mirage Flats Canal
Dunlap Diversion Dam
CALAMUS RESERVOIR Capacity Allocation Conser. 126,583 a.f. Dead 817 a.f. Total 127,400 a.f.
VIRGINIA SMITH DAM
Kent Diversion Dam and Canal
NORTH LOUP DIVISION
Mirdan Canal
Geranium Canal
Geranium Canal Pumping Plant
Scotia Canal
DAVIS CREEK RESERVOIR Capacity Allocation Conser. 32,328 a.f. Dead 131 a.f. Total 32,459 a.f.
DAVIS CREEK DAM
Milburn Diversion Dam
Sargent Canal
SARGENT UNIT
Woods Park Pumping Plant
Arcadia Diversion Dam
Sherman Feeder Canal
SHERMAN RESERVOIR Capacity Allocation Conser. 65,237 a.f. Dead 3,839 a.f. Total 69,076 a.f.
SHERMAN DAM
Deer Station Lateral and Pumping Plant
Fullerton Canal
Elba Canal
Farwell Main Canal
Farwell Lower Main Canal
Farwell Central Canal
Farwell Upper South Canal
Farwell South Canal
FARWELL UNIT
MIDDLE LOUP DIVISION
FRENCHMAN - CAMBRIDGE DIVISION
RED WILLOW UNIT
ENDERS RESERVOIR Capacity Allocation Flood 30,040 a.f. Conser. 36,013 a.f. Dead 8,467 a.f. Total 74,520 a.f.
HUGH BUTLER LAKE Capacity Allocation Flood 48,851 a.f. Conser. 31,463 a.f. Dead 6,313 a.f. Total 86,627 a.f.
HARRY STRUNK LAKE Capacity Allocation Flood 52,715 a.f. Conser. 31,545 a.f. Dead 4,160 a.f. Total 88,420 a.f.
HARLAN COUNTY LAKE Capacity Allocation Flood 496,718 a.f. Conser. & Sed. 315,090 a.f. Total 811,808 a.f.
FRENCHMAN UNIT
CAMBRIDGE UNIT
MEDICINE CREEK DAM
RED WILLOW DAM
ENDERS DAM
Culbertson Diversion Dam
Culbertson Canal
Culbertson Extension Canal
Red Willow Diversion Dam
Red Willow Canal
Cambridge Diversion Dam
Cambridge Canal
Bartley Canal
Bartley Diversion Dam
SWANSON LAKE Capacity Allocation Flood 134,077 a.f. Conser. 110,096 a.f. Dead 2,118 a.f. Total 246,291 a.f.
TRENTON DAM
Upper Meeker Sub Canal
Meeker Extension Canal
Driftwood Canal
Driftwood West Canal
Driftwood Sub Canal
Upper Meeker Canal
HARLAN COUNTY DAM (U.S.C.E.)
FRANKLIN UNIT
Franklin Canal
Franklin Pump Canal
Naponee Canal
BOSTWICK - SUPERIOR-COURTLAND UNIT
Superior-Courtland Diversion Dam
Superior Canal
Courtland Canal
COURTLAND UNIT
DIVISION
Pump No. 1 Canal
North Canal
Ridge Canal
White Rock Canal & Extension
Miller Canal
Pumps No. 3A & 3B Canals
Courtland West Canal
Pump No. 4 Canal
LOVEWELL DAM
LOVEWELL RESERVOIR Capacity Allocation Flood 50,460 a.f. Conser. 36,636 a.f. Dead 5,054 a.f. Total 92,150 a.f.
KIRWIN RESERVOIR Capacity Allocation Flood 215,115 a.f. Conser. 93,050 a.f. Dead 6,385 a.f. Total 314,550 a.f.
KIRWIN UNIT
KIRWIN DAM
Kirwin Main Canal
Kirwin North Canal
Kirwin South Canal
GLEN ELDER DAM
UPPER REPUBLICAN DIVISION
MEEKER - DRIFTWOOD UNIT
KANASKA DIVISION
ARMEL UNIT
BONNY RESERVOIR Capacity Allocation Flood 128,820 a.f. Conser. 39,922 a.f. Dead 1,418 a.f. Total 170,160 a.f.
BONNY DAM
ALMENA UNIT
Almena Main Canal
Almena South Canal
Almena Diversion Dam
KEITH SEBELIUS LAKE Capacity Allocation
NORTON DAM
WEBSTER RESERVOIR Capacity Allocation Flood 183,369 a.f. Conser. 75,187 a.f. Dead 2,184 a.f. Total 260,740 a.f.
WEBSTER DAM
WEBSTER UNIT
Osborne Canal
Stockton Diversion Dam
WACONDA LAKE Capacity Allocation Flood 722,315 a.f. Conser. 240,224 a.f. Dead 1,236 a.f. Total 963,775 a.f.
GLEN ELDER UNIT
SOLOMON DIVISION
TUTTLE CREEK DAM (U.S.C.E.)
MILFORD DAM (U.S.C.E.)
WILSON DAM (U.S.C.E.)
CEDAR BLUFF RESERVOIR Capacity Allocation Flood 191,860 a.f. Conser. 176,829 a.f. Dead 8,261 a.f. Total 376,950 a.f.
Cedar Bluff Canal
CEDAR BLUFF DAM
CEDAR BLUFF UNIT
SMOKY HILL DIVISION
KANOPOLIS DAM (U.S.C.E.)
NEBRASKA
COLORADO
KANSAS
Chadron
Gordon
Valentine
Hay Springs
Niobrara
Ainsworth
Moon Lake
O'Neill
Alliance
Norfolk
Scottsbluff
Thedford
Burwell
Ord
Broken Bow
Columbus
Fullerton
Omaha
Oshkosh
Lake McConaughy
Sidney
Ogallala
North Platte
Grand Island
Lincoln
Lexington
Kearney
Holyoke
Imperial
Trenton
McCook
Cambridge
Alma
Franklin
Red Cloud
Superior
Beatrice
Wray
St. Francis
Atwood
Oberlin
Norton
Phillipsburg
Hale
Stockton
Osborne
Glen Elder
Beloit
Burlington
Manhattan
Kansas City
Topeka
Junction City
Abilene
Wakeeney
Hays
Russell
Lincoln
Salina
Lindsborg
Ness City
Niobrara River
Snake River
Calamus River
North Loup
Middle Loup
Loup River
South Loup River
Turkey Cr.
Oak Cr.
North Platte
South Platte
Platte River
Missouri River
Big Blue River
Little Blue River
Red Willow
Medicine Creek
Stinking Water Cr.
Frenchman River
Republican
North Fork
South Fork
Arikaree River
Sappa Creek
Beaver Creek
Prairie Dog Creek
North Fork Solomon
South Fork Solomon
Solomon River
Saline River
Big Creek
Smoky Hill River
Kansas River
White Rock Creek
N.
EXPLANATION
RESERVOIR
DIVERSION DAM
PUMPING PLANT
CANAL
IRRIGATED LAND
10 0 10 20 30
SCALE OF MILES
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
MIRAGE FLATS AND MISSOURI RIVER BASIN PROJECTS
NIOBRARA, LOWER PLATTE AND KANSAS RIVER BASINS
IRRIGATION AND FLOOD CONTROL FACILITIES
GRAND ISLAND, NEBRASKA
JANUARY 20, 1984
REVISED NOVEMBER 24, 1986
REVISED JANUARY 14, 1991
DWG. NO. 60-705-1
SUPERCEDES 60-701-250