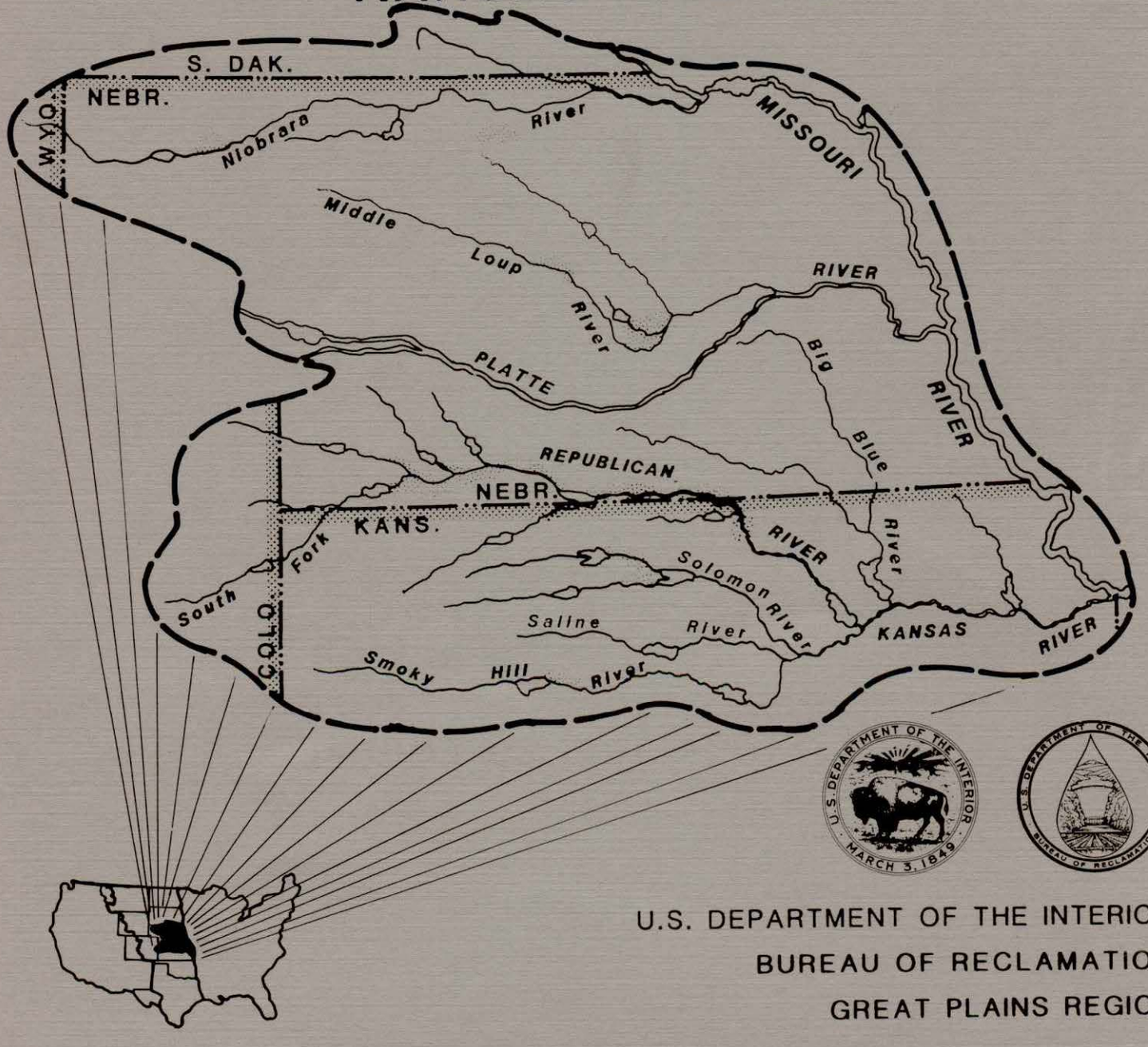
ANNUAL OPERATING PLANS

CALENDAR YEARS
1992-1993

NIOBRARA, LOWER PLATTE, AND KANSAS RIVER BASINS



U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
GREAT PLAINS REGION

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BILLINGS, MONTANA

ANNUAL OPERATING PLANS

NIOBRARA, LOWER PLATTE, AND KANSAS RIVER BASINS

CALENDAR YEAR--1992
OPERATIONS

CALENDAR YEAR--1993
OUTLOOK

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SYNOPSIS

General

This year is the 40th 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 314,600 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. Replacement of the PMSC will be completed in 1993.

The Headlines 92 that follows this synopsis is indicative of the awareness of the local people of the natural resource development and conservation in the Niobrara, Lower Platte, and Kansas River Basins.

1992 Summary

Climatic Conditions

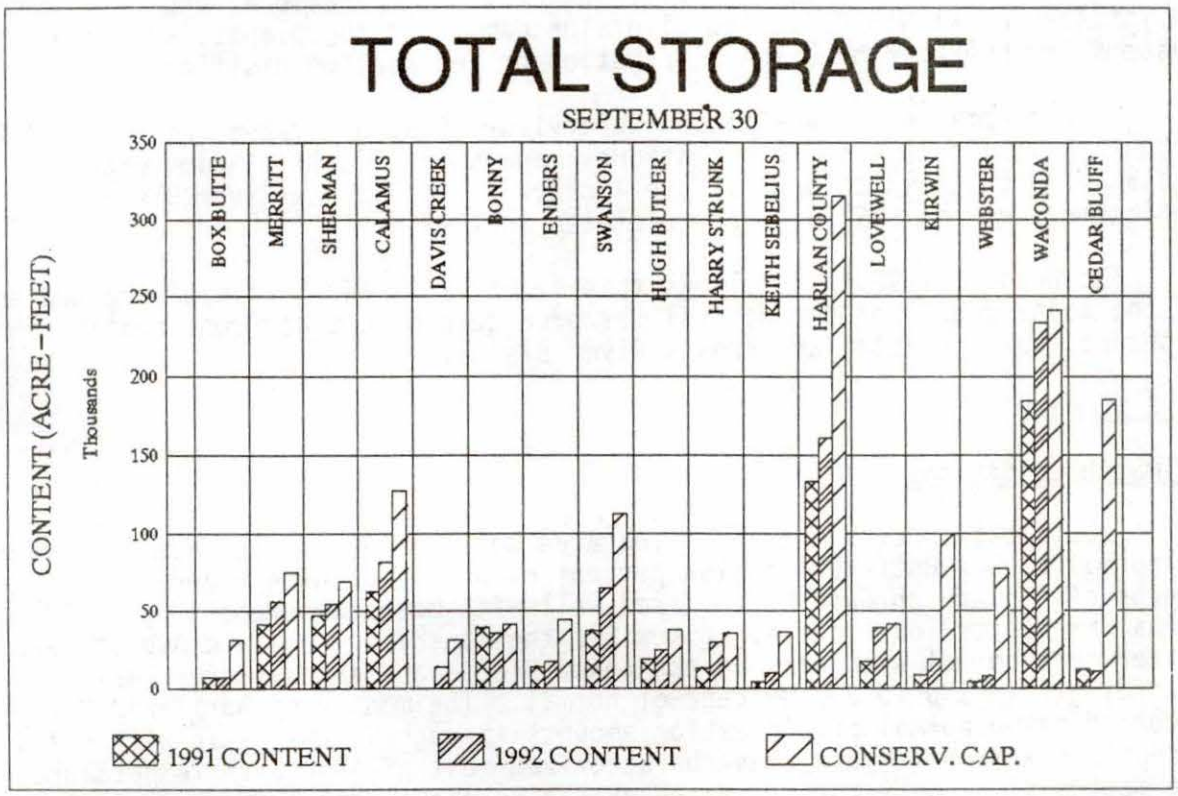
Precipitation over the operating area during 1992 ranged from 92 percent of normal at Box Butte Dam to 150 percent of normal at Glen Elder Dam. The months of January through March fared well with most dams reporting well above normal precipitation amounts. Likewise, the months of July and August were wetter than normal with dams in the Lower Platte and Kansas River Basins recording from 130 to 240 percent of normal. The months of April and May recorded below normal precipitation amounts throughout the basin with a few exceptions. Mild temperatures characterized most of 1992 with temperatures for the months of January through March averaging above normal and temperatures for the months of June through August averaging below normal. Most of the projects area experienced a late freeze on May 26th, with freezing and near freezing temperatures recorded from the 26th through the 30th. Damage to crops ranged from very little to a replanting of some fields of corn, milo, or soybeans. Damage varied greatly from field to field and within the same field. Timely precipitation and cool temperatures reduced water demands throughout the project for the entire irrigation season. Irrigation releases began a week to ten days later than normal. Crops matured later than normal due to the cool temperatures resulting in a much later harvest than normal.

Storage Reservoirs

1. Conservation Operations. The 1992 inflow was below the dry-year forecast at Enders Reservoir. Harlan County, Hugh Butler, and Harry Strunk Lakes and Box Butte, Merritt, Bonny, Kirwin, Webster, and Cedar Bluff Reservoirs had inflows between the dry- and normal-year forecasts. Swanson, Keith Sebelius and Waconda Lakes along with Lovewell and Calamus Reservoirs had inflows between the normal- and wet-year forecasts.

Carryover storage in the Nebraska-Kansas Projects reservoirs at the end of September was approximately 204,000 acre-feet (AF) more than it was in 1991. The mild temperatures along with timely precipitation reduced water demands on the reservoirs during the 1992 irrigation season. The amount of water diverted was one of the lowest on record. Storage in Cedar Bluff Reservoir remained at a historical low.

The following summarized graph shows a comparison of 1991 and 1992 reservoir storage and total conservation storage for all reservoirs in the Niobrara, Lower Platte, and Kansas River Basins.



2. Flood Control Operations. The total 1992 flood control benefits accrued by the operation of the Nebraska-Kansas Projects facilities was $22,843,000. Operation of Glen Elder Dam and storage in Waconda Lake reduced local and downstream damages by $17,535,000 alone. The accumulative total of flood control benefits for the years 1951 through 1992 by facilities in this report total $99,788,000 (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 facilities can be found in table 7.

Water Service

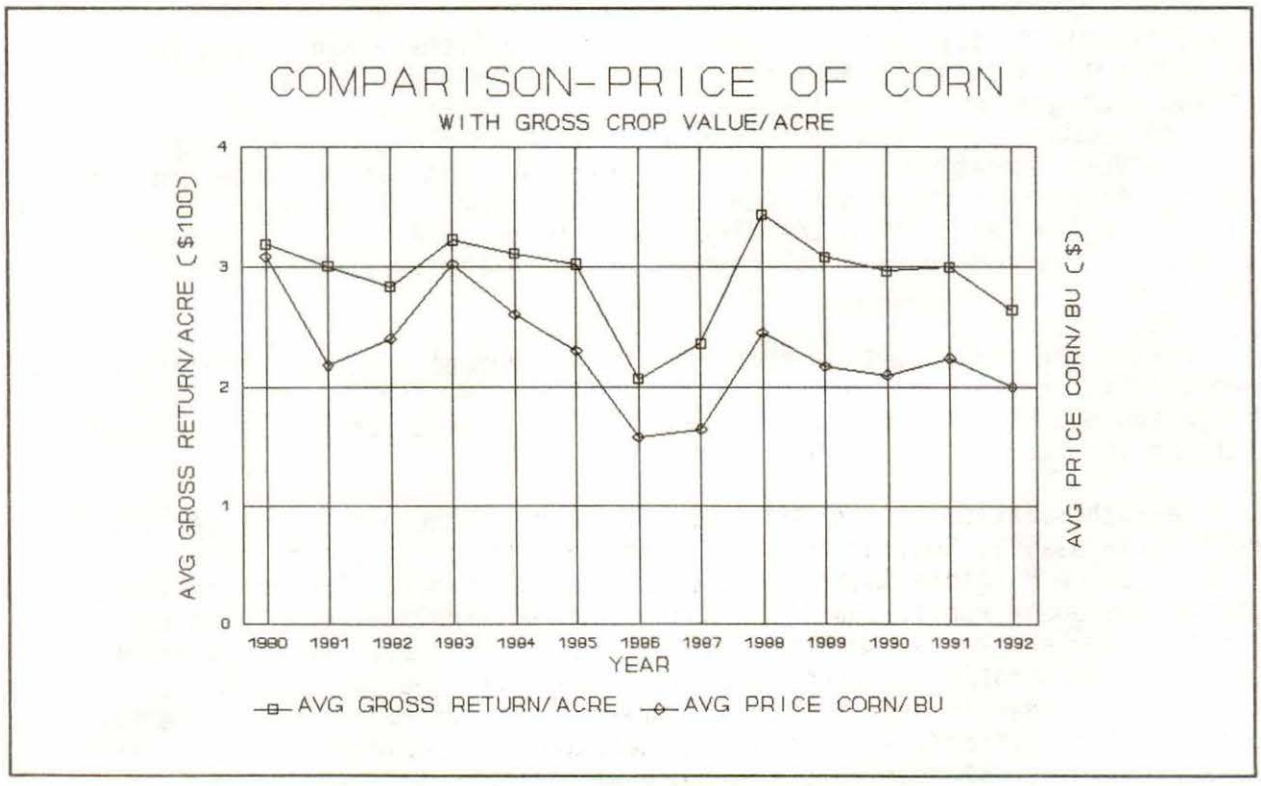
There were 281,696 AF of water diverted to irrigate 239,603 acres of projects lands in 10 of the 15 irrigation districts (see tables 3 and 6). This is an average of 1.18 AF/Ac. The project water supply was either inadequate or limited for 129,925 acres of the total project lands. This includes lands in Mirage Flats, Frenchman Valley, H&RW, Nebraska and Kansas Bostwick, Almena, Kirwin, Webster, and Cedar Bluff Irrigation Districts. No project water was available to Almena, Kirwin, Webster, and Cedar Bluff Irrigation Districts and none was required for the Glen Elder Irrigation District. The project water supplies for the other units mentioned in this report were adequate in 1992.

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 use of the Arcadia Diversion Dam, the Middle Loup Public Power and Irrigation District diverted 30,489 AF to irrigate 14,302 acres of non-project lands. These diversions were made under natural-flow water rights granted by the state of Nebraska.

Irrigation Production

The 1992 crop yields from lands receiving project water were higher than 1991 for all districts except Mirage Flats, Ainsworth, Farwell, and Twin Loups. Corn, the principal crop, increased from an average of 135 bushels per acre to 138 bushels per acre. The unit price for corn and soybeans was slightly lower than in 1991. The total gross crop value for districts receiving project water was $63,165,802. The average gross crop value per acre decreased from $299.50 to $263.63 during 1992. The following graph compares corn prices with the gross crop value per acre.



The following summary shows the comparison of corn yields for each irrigation district. Mirage Flats, Ainsworth, Farwell, and Twin Loups Irrigation Districts experienced significant crop losses due to hail damage in 1992.

Irrigation District	Corn Yield (bu/acre) 1991	1992	Percent Change
Mirage Flats	125	111	-11.2
Ainsworth	141	129	-8.5
Sargent	132	135	+2.3
Farwell	137	117	-14.6
Twin Loups	134	109	-18.7
Frenchman Valley	144	155	+7.6
H&RW	138	143	+3.6
Frenchman-Cambridge	142	143	+0.7
Almena	*	*	---
Bostwick in Nebraska	135	167	+23.7
Kansas-Bostwick	111	166	+49.6
Kirwin	*	*	---
Webster	145	*	---
Cedar Bluff	*	*	---
Glen Elder	---	*	---
Average of Districts Reporting	135	138	+2.2

*No project water supplied; not included in averages.

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 area. These guidelines outline a program which considers public use, fisheries, fish habitat, and improved communication and coordination. The Nebraska-Kansas Projects 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 1992 season, normal reservoir operations were favorable for recreation and fish and wildlife uses. Late in the season, irrigation operations lowered reservoir levels at some reservoirs, thereby limiting the recreation benefits.

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 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 surface water line 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. In its first full year of operations in 1992, the hatchery produced 10.5 million fish.

1993 Outlook

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.

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, Swanson, Hugh Butler, Harry Strunk, Keith Sebelius, Harlan County, Lovewell, Kirwin, and Webster. The irrigation districts affected are Mirage Flats; Sargent and Farwell; Frenchman Valley and H&RW; Frenchman-Cambridge; Almena; Nebraska and Kansas Bostwick; and Kirwin and Webster; respectively. If 1993 is a dry year, 195,600 of the total 267,500 acres estimated to be irrigated (73 percent) will have an inadequate water supply.

Under most probable inflow conditions, it is also expected that Almena, Frenchman Valley, H&RW, Webster, Mirage Flats, Sargent, and Farwell Irrigation Districts would experience some shortages to irrigation demands from Keith Sebelius Lake and Enders, Webster, Box Butte, and Sherman Reservoirs. Irrigators in several districts (Mirage Flats, Kirwin, Webster, Almena, Frenchman Valley, and H&RW) plan to use water from private wells to supplement the project water supply. The municipal and rural water district water supply requirements will be met under all three inflow forecast conditions for all units except Cedar Bluff. Under a share-shortage procedure adopted for the extremely low storage conditions presently occurring at Cedar Bluff, the city of Russell could experience shortages in dry-year inflow forecast conditions.

During 1993, 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, and Lovewell Reservoirs along with Harry Strunk and Waconda Lakes would fill during 1993. Bonny Reservoir will fill under most probable inflow conditions.

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 '92

State team on drought is activated

Water rule revisions foreseen

■ Nelson says feds responding to call for fewer mandates to states.

Irrigation harms Sandhills according to state study

West-central Nebraska farmers also suffering drought

Fight Looms With Kansas Over Water

Water budget includes funds for Harlan County

Winter storm slashes state

'A million dollar rain'

Storms answer Nebraska farmers' prayers

Praying for more rain

Dry April puts squeeze on western Nebraska irrigation

Irrigation District approves water rights, transfers

Area crops damaged by freeze

Area receives good soaking

Well Registrations Head to 11-Year High

Report: Groundwater levels continued to decline across Nebraska in 1991

UNL Ag Communications

Wildlife Wins Right to Get Platte Water

McCOOK DAILY GAZETTE

Grapefruit sized hail is reported

Davis Creek will open in a year, official says

Endangered Species Win Water Right

Colorado farmers sue NRD for return of water rights

Harlan County Reservoir Plan Would Let Lake Drop 2 Feet

Omaha World-Herald

Republican Basin projects low on water

Irrigation Water Rights Almost Taken Away

Cool, wet weather hinders row crops

Water in Republican valley subject of $34,800 project

Irrigation districts would pay if conservation behind schedule

Big water projects dwindle in Nebraska

Nebraska Panhandle farmers hold back on irrigation, hope for rain

Kansas complaint may foretel water-quality battles

Groundwater, surface water link is topic

■ State water official sees conflicts in cross-border flows of tainted water.

'An Important Water Bill for West'

District Cuts Harlan Irrigation Projection

CHAPTER I - INTRODUCTION

Purpose of This Report

This AOP advises water users, cooperating agencies, and other interested groups or persons of the actual operations during 1992 and serves as a guideline for the 1993 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 area. 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 during 1993. 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 and the larger portion of the Kirwin Reservoir lands.

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 equalled 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 1990 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 1990 were used to better represent present inflows. Inflow records from 1967 through 1990 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 1990 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 carryover 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 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 and Davis Creek Dams during 1993. Following completion of the North Loup Project distribution works the responsibility for the operation and maintenance of Virginia Smith Dam and Davis Creek Dam will be transferred to the district.

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. Glen Elder Irrigation District signed a contract with Reclamation prior to the 1992 irrigation season for a water supply from Waconda Lake. The Cedar Bluff Irrigation District will be allowed to disband due to a reformulation of the project in 1992. 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.

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.

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.

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 of Cedar Bluff Reservoir. This acquisition had been contingent upon the Congressional passage of legislation authorizing the reformulation of the Cedar Bluff Unit. Legislation was passed by the Congress and signed into law by the President on October 30, 1992, which allowed the State of Kansas to purchase a portion of the conservation space at Cedar Bluff Reservoir by December 31, 1992. Water rights from the U.S. Fish and Wildlife Service and the Cedar Bluff Irrigation District may be transferred to the state this year. 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 1993 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.

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 1983 to 1992, the project water supply averaged 14,334 AF, which is about 1.23 acre-foot per irrigable acre. This amount is 1.09 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 upfront payment which is being used to improve the efficiency of the project's delivery system.

Reclamation continues to work on the Box Butte Dam Early Warning System (EWS) with cooperation from the Mirage Flats Irrigation District and the Region 23 Emergency Management Agency. A data collection platform (DCP) and a telephone were installed in the outlet works control house in May of 1992. The DCP will monitor reservoir elevation and outflow and will be used as a detection component of the EWS. The EWS is scheduled to be completed in 1993.

1992 Summary

The flows of the Niobrara River plus the carryover storage in Box Butte Reservoir were not adequate to provide a full water supply for the project lands. The total precipitation in the Mirage Flats area was 14.59 inches, which is 92 percent of normal. The total inflow (13,865 AF) was between the dry- and normal-year forecasts.

From July through September, diversions of 11,950 AF to the Mirage Flats Canal provided irrigation water for 10,595 acres, 91 percent of the service available acreage. The farm deliveries from the project water supply were 5,106 AF (0.44 acre-foot per irrigable acre), which is a delivery efficiency of 43 percent. The reservoir contained only 6,473 AF of water at the end of the irrigation season. Privately owned irrigation wells supplemented the project water supply. The gross crop value was $2,457,173, which is $46,742 less than the 1991 value.

1993 Outlook

The project water supply is expected to be inadequate in 1993 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 1993, 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 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 basic water supply for the district is 63,712 AF. If available, additional water can be purchased by the district as a supplemental supply.

1992 Summary

Precipitation, as recorded near Merritt Dam, totaled 18.12 inches, which was 94 percent of normal. The water supply was more than adequate to meet the project's irrigation requirement. There were 60,320 AF diverted from Merritt Reservoir into the Ainsworth Canal, with 34,541 AF delivered to the farm headgates (delivery efficiency of 57 percent). There were 33,729 acres of land irrigated in 1992. The gross crop value was $9,679,616, which is $3,152,167 less than the previous year. Two separate storms caused hail damage to district crops. The first storm resulted in a 90 percent loss to 5,120 acres while the second storm affected another 5,000 acres with a 20 percent loss.

The district executed several temporary water service contracts which provided a total of 115.4 AF of irrigation water from holding ponds located within the district's service area.

1993 Outlook

In 1992-93 winter months and future years, 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. An air-vacuum air-relief valve will be installed to replace the existing 2-inch

hand operated air valve during the spring examination of the outlet pipe. 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 1993 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.

1992 Summary

The precipitation over the Sargent Unit (23.49 inches at district headquarters) was 101 percent of normal. The irrigation diversions into the Sargent Canal totaled 15,664 AF (7,801 AF were delivered to the farm headgates--delivery efficiency 50 percent). The diversions exceeded the direct-flow water right for 3 days. There were 13,367 acres irrigated, and the gross crop value totaled $3,260,625, which is $239,001 less than in 1991. The irrigators grow corn as the principal crop, creating very high water demands in July and August. The demands cannot be met within canal capacity, so the district institutes a rationing process through the peak period, when necessary.

1993 Outlook

The Loup Basin Reclamation District estimates that 13,200 acres in the Sargent Unit will be irrigated in 1993. Under normal- and 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 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.

1992 Summary

The diversions from the Middle Loup River at Arcadia Diversion Dam were 30,489 AF to the Middle Loup Public Power and Irrigation District and 78,910 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 37 AF and the losses charged as a result of these deliveries totaled 4 AF.

Sherman Feeder Canal diversions into Sherman Reservoir were started on April 13th, and the conservation capacity was filled on May 30th. The precipitation at Sherman Dam was 20.97 inches, which is 95 percent of normal. Releases into the Farwell Canals totaled 49,718 AF (21,784 AF were delivered to the farm headgates--delivery efficiency 44 percent). The Farwell Irrigation District reported that 49,027 acres of land were irrigated in 1992. The gross crop value was $11,147,245, which is $2,662,370 less than in 1991. Approximately 20,000 acres of district lands experienced an average 80 percent loss to crops due to extensive hail damage. Sherman Feeder Canal was shut off September 5th.

Under an ongoing program the Farwell Irrigation District has installed a total of about 130 miles of pipe to replace open laterals including 5 miles this past year. Also, approximately 4 miles of plastic lining has been installed in canal reaches on the Farwell Canal system.

1993 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 normal- and dry-year inflow conditions, irrigation shortages are expected in 1993. 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. When completed, water will be diverted from the Calamus and North Loup Rivers. The plan provides for direct surface water service to 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 will 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 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. Inflows to the 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 during this time.

Initial filling of Davis Creek Reservoir continues and the reservoir is scheduled to be at full pool (top of active conservation) this spring. A 160-acre recreation area adjoining the reservoir will open between mid spring and early summer. This area will be managed by the Lower Loup Natural Resources District and will include a boat ramp, a handicapped fishing pier, a day-use area, a primitive camping area and shelter and a hiking path.

1992 Summary

Precipitation at Virginia Smith Dam was 30.82 inches which is 136 percent of normal. The inflow was 246,746 AF which was between the normal- and wet-year forecasts. There was 43,730 AF released to Mirdan Canal with 17,112 diverted for use above Davis Creek Reservoir. The farm headgate delivery was 7,223 AF which is a delivery efficiency of 42 percent. Davis Creek Reservoir diverted 7,141 AF into Fullerton Canal, with 2,789 AF delivered to the farm headgates (delivery efficiency of 39 percent). Land irrigated in 1992 totaled 18,810 acres above Davis Creek Reservoir and 7,833 acres below. The gross crop value was $5,345,262 which is $77,722 less than the 1991 value. A severe storm resulted in extensive hail damage throughout the North Loup Valley with approximately 17,500 acres of district lands receiving an average of 85 percent

loss to crops. As required, bypasses of the inflows were made during July, August, and September. The Calamus Fish Hatchery used approximately 8,490 AF of bypassed natural flow and storage from Calamus Reservoir during 1992. During this first year of full operation the hatchery produced 10.5 million fish.

Construction of the Fullerton Canal - Section 1 and the Elba System was completed in May. Construction of Fullerton Canal - Sections 2 and 3 continued during 1992, and construction began on Kent Canal and Diversion Structure in May. Following completion of the asphaltic concrete paving of the county road relocation and the placement of a concrete boat ramp, second stage filling of Davis Creek Reservoir began in August and reached the target elevation of 2056.0 feet in September.

1993 Outlook

Calamus Reservoir will be held at the present elevation of approximately 2240.00 feet until ice-out, at which time the reservoir will be rapidly filled to an elevation of 2243.50 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 be filled to about elevation 2240.00 feet.

Water has been declared available to serve all irrigable acres with service from the Mirdan, Geranium and Scotia Canals and Lateral Systems. It is estimated that approximately 27,800 acres will be irrigated from Mirdan, Geranium, and Scotia Canals. Water supplies will be sufficient to meet the full dry-year requirements.

Filling of Davis Creek Reservoir will be completed this spring with flows from Calamus Reservoir through Mirdan Canal. Construction of Fullerton Canal and pipelines, Sections 2 and 3 and Kent Canal and Diversion Structure are scheduled to be completed in calendar year 1993.

The fish hatchery has been completed and will be in full operation again this year.

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 hunting conditions each fall.

1992 Summary

The 18.52 inches of precipitation during 1992 was 111 percent of normal. The inflow (14,831 AF) to Bonny Reservoir was between the dry- and normal-year forecasts.

As directed by the Colorado Water Commissioner, 1,454 AF of reservoir inflows from the South Fork of the Republican River and Landsman Creek were passed through Bonny Reservoir into Hale Ditch. In addition, the Colorado Department of Natural Resources requested storage releases of 2,417 AF for irrigation purposes into Hale Ditch.

1993 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 river outlet pipe at Bonny Dam is scheduled for repair sometime between September 15, 1993 and May 15, 1994. Operation of the river outlet works will be impeded during the repair work. Bids are expected to be received and an award made this summer for the outlet works repair along with the construction of an additional toe drain.

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.

1992 Summary

The 23.15 inches of precipitation at Enders Dam was 125 percent of normal. The 1992 inflow into Enders Reservoir (19,495 AF) was below the dry-year forecast. Due to extensive groundwater pumping above the reservoir, the inflow was only 32 percent of the average historical preconstruction runoff at the Enders Dam site (60,700 AF from 1929-1947). This year was the 25th consecutive year with below-normal inflows in which the conservation pool did not fill. A total of 2,823 AF of water was conserved between the 1991 and 1992 irrigation seasons by pumping seepage back into the reservoir. Irrigation releases began July 3rd and were stopped on August 18th.

The farm delivery averaged about 0.31 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 8,477 acres received water in 1992, and the H&RW Irrigation District reports 11,305 acres, which are 88 and 98 percent, respectively, of the lands with service available. Farm delivery efficiency was 29 and 37 percent respectively for the two districts. The gross crop value for Frenchman Valley Irrigation District was $2,282,567, which is a decrease of $26,927 from the previous year. The gross crop value for the H&RW Irrigation District was $2,886,582, which is a decrease of $45,174 from the previous year.

1993 Outlook

The fall and early winter inflows into Enders Reservoir were below the dry-year forecast. If reasonable minimum inflow conditions prevail, the project water supply is expected to experience a shortage of about 62,900 AF. Most probable inflow conditions are expected to be inadequate by 18,700 AF, to irrigate the 8,500 acres in the Frenchman Valley Irrigation District and 10,500 acres in the H&RW Irrigation District. Approximately 3,000 AF are expected to be conserved by pumping seepage water back into the 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 with pipe laterals which has significantly increased both system and on-farm efficiencies.

1992 Summary

The precipitation of 21.05 inches at Trenton Dam was 107 percent of normal. The inflow of 68,135 AF to Swanson Lake was between the normal- and wet-year forecasts. The reservoir's conservation pool did not fill in 1992, with the maximum water surface elevation of 2745.53 feet reached on June 23rd. At the beginning of the 1992 irrigation season (June 23rd), there was 82,895 AF of water stored in Swanson Lake, which is 29,319 AF below the top of conservation capacity. This 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 20,194 AF into Meeker-Driftwood Canal to irrigate 16,001 acres and 7,325 AF into Bartley Canal for 6,365 acres.

The precipitation of 22.83 inches at Red Willow Dam was 117 percent of normal, while the inflow of 17,576 AF into Hugh Butler Lake was between the dry- and normal-year forecasts. The reservoir's maximum water surface elevation for the year was 2573.63 feet, reached on June 23rd (8.17 feet below top of conservation). The water supply was adequate to meet the diversion requirements for Red Willow Canal. The district diverted 5,509 AF of water to irrigate 4,766 acres of land served by Red Willow Canal.

The precipitation of 20.36 inches was 100 percent of normal at Medicine Creek Dam, while the inflow of 34,233 AF was between the dry- and normal-year forecasts. The reservoir's conservation pool did not fill during 1992 with the maximum water surface elevation for the year of 2365.69 feet reached on December 16th. This was only the second year since initial filling in 1951 that the reservoir's conservation pool did not fill. Spring releases were not required to defer flows from overtopping the uncontrolled spillway until after the walleye spawning period. Early spring releases had been made in cooperation with the Nebraska Game and Parks Commission in four of the previous six years. The water supply was adequate and 22,404 AF of water was diverted to irrigate 16,380 acres of land served by the Cambridge Canal.

The 1992 gross crop value from the lands served by Meeker-Driftwood, Bartley, Red Willow, and Cambridge Canals was $12,037,913 which is $850,906 less than in 1991.

1993 Outlook

Forecasts show that carryover storage, streamflow gains, plus reasonable minimum inflows for the three lakes supplying the Frenchman-Cambridge Irrigation District will be inadequate to meet the full dry-year irrigation requirement with a shortage of possibly 17,500 AF.

It is estimated that 15,600 acres will be served from the Meeker-Driftwood Canal; 16,300 acres will be served from the Cambridge Canal; 4,700 acres will be served from the Red Willow Canal; and 6,200 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.

1992 Summary

The precipitation at Norton Dam was 30.58 inches, which is 128 percent of normal. The total inflow was 8,621 AF, which was between normal- and wet-year forecasts. Due to low water levels, no irrigation releases were made in 1992. Privately owned irrigation wells were utilized for the 22nd consecutive year to meet irrigation demands.

The city of Norton used 443 AF of municipal water during 1992.

The maximum content of Keith Sebelius Lake for the year was 10,369 AF, which was reached on August 11, 1992. This maximum content was 5,085 AF above the bottom of active storage. By the end of the year approximately 4,595 AF of water remained in the active pool.

1993 Outlook

The district expects to deliver water to 5,100 acres if an adequate water supply is available. If 1993 is a dry year without significant run-off producing storms above Keith Sebelius Lake, it is anticipated that significant irrigation shortages of 14,500 AF would occur. If normal inflow into the lake and normal rainfall over the irrigated area occur in 1993, a shortage of 3,500 AF may be experienced.

Requirements for the city of Norton are expected to be met in full in 1993.

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 5 cfs or zero. 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.

1992 Summary - Bostwick Division - Harlan County Lake Operations

The precipitation at Harlan County Dam totaled 26.35 inches of rainfall, which is 118 percent of normal. The inflow (105,893 AF) was between the dry- and normal-year forecasts. No release was required during January, February, or December in accordance to the environmental assessment and the annual operating plan because of the low reservoir level. The highest water surface elevation for the year was 1933.70 feet which was reached on June 22nd (12.30 feet below the top of conservation). At the end of irrigation season (September 5th) 160,755 AF of storage remained in Harlan County Lake. Harlan County Lake prevented $1,159,000 of downstream flood damages during 1992.

The Corps of Engineers and Reclamation, with input from others, developed a 1992 operation plan that designated a minimum Harlan County Lake elevation of 1927.0 feet. This plan provided for sharing increased inflows among all beneficiaries of the lake should they occur, by both raising the minimum pool elevation and increasing irrigation releases. During 1992, irrigation requirements were less than anticipated due to above normal precipitation in the irrigation region downstream of Harlan County Lake. As a result, the lake

was lowered only to elevation 1931.9 feet rather than elevation 1927.0 feet allowed by the 1992 operation plan.

Placement of the extension of riprap protection on the face of Harlan County Dam was completed in 1992. Placement began in the fall of 1991 and was funded by the Bureau of Reclamation. The riprap extension will allow the Corps of Engineers, when authorized, to operate at lower lake levels during severe drought conditions without dam safety risk.

The 29,239 irrigated acres of the Bostwick District in Nebraska and the Kansas-Bostwick District above Lovewell Dam had a limited water supply. However, reduced irrigation requirements due to well above normal precipitation allowed an ample water supply to the irrigated acreage. A total of 27,876 AF (approximately 49 percent of total inflow) was delivered to Lovewell Reservoir through the Courtland Canal.

1992 Summary - Bostwick Division - Nebraska

The Bostwick Irrigation District in Nebraska diverted 25,471 AF for the irrigation of 19,359 acres. Irrigators operated with a limited supply as a full water supply could not be delivered to these acreages. The gross crop value was $6,447,991, which is $611,246 more than in 1991.

1992 Summary - Bostwick Division - Kansas

The 1992 precipitation at Lovewell Dam totaled 36.91 inches, which was 133 percent of normal, it's second highest annual precipitation total ever recorded. Lovewell Reservoir's conservation space filled on March 28th. Three feet of flood pool storage was utilized in 1992 because of the limited water supply within the Bostwick Division.

During July a series of storms produced 10.07 inches of precipitation at Lovewell Dam, the greatest in 37 years of record. These storms resulted in Lovewell Reservoir peaking at 4.19 feet into the flood pool on July 25th. A river release was started on the 22nd to lower the reservoir level to elevation 1585.6 feet (three feet into flood pool). A maximum discharge of 600 cfs was being released at the end of July and was discontinued on August 1st. A 250 cfs river release was resumed on August 18th and boosted to 500 cfs on August 26th to drop the reservoir storage from the flood pool. Irrigation demands were minimal and not sufficient to lower the reservoir pool. The reservoir storage dropped from the flood pool on September 3rd and the river release of 500 cfs was shut off from Lovewell Dam. The Corps of Engineers estimated the reservoir reduced local and downstream damages by $3,252,000.

The Kansas-Bostwick Irrigation District diverted a total of 20,323 AF to serve 9,880 acres above Lovewell Dam and 13,709 acres below Lovewell Dam. Due to the anticipation of water shortages and few alternative water sources, substantially less acres were planted in the Kansas-Bostwick area in 1992. Well above normal precipitation combined with the limited water supply resulted in an ample supply for the reduced acreage. The gross crop value was $7,620,828, which is $91,732 less than the previous year.

A section of Courtland Feeder Canal is being reshaped and lined with a polyethylene membrane to reduce seepage loss. Phase I work included 1.3 miles of the canal prism. Work began in early September and was essentially complete by the end of November.

1993 Outlook - Bostwick Division

The Bostwick Irrigation District in Nebraska and the Kansas-Bostwick Irrigation District No. 2 expect to deliver water to 18,000 and 25,000 acres, respectively. The Kansas-Bostwick acreage is substantially less than previous years and can be attributed to the anticipation of water shortages and few alternative water sources. 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. District management will again be operating with a limited water supply to each irrigable acre.

The Corps of Engineers and Reclamation, with input from others, developed a 1993 operation plan that designated a minimum Harlan County Lake elevation of 1928.5 feet. However, the plan provides for sharing increased inflows among all beneficiaries of the lake should they occur, by both raising the minimum pool elevation and increasing irrigation releases as indicated by the following table.

1928.5 minimum. Depending on inflow, up to 88,000 AF can be released for irrigation.

1928.8 minimum if inflows allow 92,000 AF to be released for irrigation.

1929.2 minimum if inflows allow 95,000 AF to be released for irrigation.

1930.4 minimum if inflows allow 100,000 AF to be released for irrigation.

1932.6 minimum if inflows allow 100,000 AF to be released for irrigation.

1932.8 minimum if inflows allow 114,000 AF to be released for irrigation.

Up to three feet of flood pool storage will be utilized at Lovewell Reservoir prior to the irrigation season. This additional storage will help alleviate the expected irrigation shortages in the Bostwick Division. Natural flow in the Republican River will be diverted into Lovewell Reservoir via Courtland Canal if necessary in filling the reservoir. Construction of the Phase 2 lining in a section of Upper Courtland Canal will prevent the diversion of Republican River natural flow into Lovewell Reservoir from September 3rd through November 11th.

CHAPTER IV - SMOKY HILL RIVER BASIN

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.

1992 Summary

The precipitation totaled 30.24 inches, which was 131 percent of normal. The inflow (15,598 AF) was equal to the normal-year forecast. The reservoir prevented $591,000 in flood damages as determined by the Corps of Engineers. Due to low reservoir conditions no project water was released for irrigation. Irrigators in the district continued to pump water from private wells to enable irrigation of some project lands.

1993 Outlook

The district estimates that 7,000 acres may be irrigated in 1993. Normal precipitation and normal forecasted inflows from the North Fork of the Solomon River would be adequate to irrigate these lands. However, under dry-year forecasts, a shortage of about 9,200 AF may be experienced.

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.

1992 Summary

In 1992, the precipitation at Webster Dam was 112 percent of normal (25.85 inches). The inflow of 8,034 AF was between the dry- and normal-year forecasts. The Corps of Engineers determined that the reservoir prevented $303,000 in flood damages.

At the beginning of the irrigation season, the carryover storage was determined by Reclamation and the district to be inadequate for irrigation. The last year that no project water was delivered from the reservoir was 1985. Although Osborne Canal was not in operation during the season, irrigators with private wells provided water for part of the project lands.

1993 Outlook

The carryover storage and the flows in the South Fork of the Solomon River are expected to be inadequate under dry- or normal-year forecasts to irrigate 4,500 acres in the district in 1993. Under dry-year inflows a shortage of 16,700 AF may be experienced. A shortage of 2,100 AF may be experienced with normal-year forecasts.

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 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 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.

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 provides winter food and cover for wildlife and fish with spawning habitat in the spring when these areas are inundated.

1992 Summary

The precipitation at Glen Elder Dam was 150 percent of normal (37.64 inches), the third highest ever recorded at the dam. A June 5th storm that moved over the North Fork of the Solomon River increased the reservoir level of Waconda Lake by 1.20 feet. On June 15th a severe thunderstorm located near Waconda Lake spawned several tornados and produced 2.79 inches of precipitation at the dam. This storm system increased the water level in

Waconda Lake another 1.20 feet with an estimated peak inflow of 11,300 cfs on the 16th. Waconda Lake storage increased 39,100 AF during the month. Glen Elder Dam received another 7.90 inches of precipitation during July. The reservoir level at Waconda Lake peaked on July 30th, 1.49 feet into the flood pool. A river release of 500 cfs was started on the 30th and increased to 1,000 cfs on the 31st. The river release was scaled down from 1,000 cfs to 100 cfs from August 19th through the 21st as the reservoir storage dropped from the flood pool. The Corps of Engineers determined that the reservoir reduced local and downstream damages by $17,535,000. The inflow (170,989 AF) was between normal- and wet-year forecasts.

No storage releases were made for the City of Beloit or bypassed for quality control as directed by the State Water Commissioner. Controlled releases of 67,931 AF were made during 1992. This amount includes inflow bypassed during the irrigation season which was sufficient in meeting all irrigation demands including demands for Glen Elder Irrigation District. Releases of 577 AF were made to the Mitchell County Rural Water District No. 2. The reservoir was wintered near the top of the conservation pool at the request of the State of Kansas Department of Wildlife and Parks.

1993 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 a 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 1993. 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. To minimize ice damage, the reservoir will be regulated to maintain a constant level during the months the reservoir is ice-covered. Waconda Lake will be operated with a stable or slowly rising pool early in the year and refilled with available inflows starting in late spring of 1993. 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 Reservoir storage and Smoky Hill River flows had provided a water supply for the 6,800 acres in the Cedar Bluff Irrigation District. No water has been available for delivery to the district since 1978. The State of Kansas Department of Wildlife and Parks acquired the use and control of portions of the reservoir conservation capacity at the end of 1992. This acquisition had been contingent upon the Congressional passage of legislation authorizing the reformulation of the Cedar Bluff Unit. Legislation was passed in October, which provides for the transfer of water rights from the U.S. Fish and Wildlife Service and the Cedar Bluff Irrigation District to the State of Kansas. Under this legislation the State of Kansas paid the United States $365,424 prior to December 31, 1992, for control of a portion of the conservation pool. The reformulation of the Cedar Bluff Unit will allow the Irrigation District to disband. If required Cedar Bluff storage furnishes a maximum of 2,000 AF each year for the city of Russell, Kansas.

Following several years of below-normal inflows, a share-shortage procedure was adopted July 31, 1981. Separate pools were established for each user with inflow, outflow, and evaporation allocated on a monthly basis. Inflow and initial pool allocations were made on the basis of perfected maximum annual usage with the maximum accumulated storage being that allowed by each user's water right. Water rights from the U.S. Fish and Wildlife Service and the Cedar Bluff Irrigation District may be transferred to the state this year. A decision on how the rights will be maintained by the state will be made after some consultation between the agencies.

1992 Summary

The precipitation at Cedar Bluff Dam was 24.54 inches which is 120 percent of normal. The inflow (2,484 AF) was slightly greater than the dry-year forecast. This year's high content of 12,148 AF was reached on January 14th and was 23,172 AF below the bottom of active storage. Cedar Bluff Reservoir recorded an historical low reservoir level of 2091.78 feet from November 9th through the 19th. Due to continuing low water levels, no irrigation releases were made in 1992 (14th consecutive year). The state of Kansas used the fish hatchery facility to rear canadian geese with 3 AF released to the facility. No releases were made for the city of Russell.

1993 Outlook

The reservoir elevation of 2091.89 feet on December 31, 1992, remains in the inactive pool, with only 1,858 AF of storage above the dead pool. The Kansas Department of Wildlife and Parks estimates that nearly the same amount of water will be used in the operations of the fish hatchery facility during 1993, as was used in 1992.

TABLE 1

RESERVOIR DATA – NIOBRARA, LOWER PLATTE AND KANSAS RIVER BASINS

RESERVOIR		CAPACITY ALLOCATIONS 1/ DEAD	LIVE CONSERVATION Inactive	LIVE CONSERVATION Active	FLOOD CONTROL
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 3/	– Elevation Ft.	1885.0	1927.0	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/ Harlan County Lake data revised and placed in use January 1, 1990.

SUMMARY OF 1992 OPERATIONS

MIRAGE FLATS PROJECT

BOX BUTTE RESERVOIR / MIRAGE FLATS CANAL

Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	1,361	56	85	0.35	13,019	0	0
Feb.	1,807	52	112	0.25	14,662	0	0
Mar.	2,254	67	213	0.86	16,636	0	0
Apr.	1,456	68	365	0.44	17,659	0	0
May	208	65	342	1.59	17,460	0	0
June	692	67	379	3.90	17,706	0	0
July	185	4,350	344	3.42	13,197	5,067	1,530
Aug.	1,711	6,105	364	1.66	8,439	5,943	3,031
Sep.	75	910	447	0.23	7,157	940	545
Oct.	1,240	48	184	1.38	8,165	0	0
Nov.	1,587	42	110	0.51	9,600	0	0
Dec.	1,289	52	69	0.00	10,768	0	0
TOTAL	13,865	11,882	3,014	14.59	--	11,950	5,106

NOTE.--Mirage Flats Canal: Acres irrigated 1992 -- 10,595

SANDHILLS DIVISION
AINSWORTH UNIT

MERRITT RESERVOIR / AINSWORTH CANAL

Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Release To Canal (AF)	Delivered To Farms (AF)
Jan.	12,551	12,040	240	0.80	68,831	0	0
Feb.	13,088	12,783	305	0.63	68,831	0	0
Mar.	14,524	11,306	429	2.19	71,620	0	0
Apr.	13,121	9,223	737	0.83	74,781	0	0
May	12,922	12,113	809	0.60	74,781	4,955	835
June	14,759	13,775	984	4.83	74,781	3,960	280
July	15,767	27,485	870	3.75	62,193	24,438	16,297
Aug.	14,333	22,774	746	2.07	53,006	19,686	13,610
Sep.	14,297	10,324	733	1.14	56,246	7,281	3,519
Oct.	14,245	3,092	739	0.47	66,660	0	0
Nov.	13,032	10,407	454	0.67	68,831	0	0
Dec.	12,937	12,889	319	0.14	68,560	0	0
TOTAL	165,576	158,211	7,365	18.12	--	60,320	34,541

NOTE.--Ainsworth Canal: Acres irrigated 1992 -- 33,729

MIDDLE LOUP DIVISION

SARGENT UNIT / SARGENT CANAL; MIDDLE LOUP UNIT 1/ MIDDLE LOUP PUBLIC POWER CANALS; FARWELL UNIT / SHERMAN RESERVOIR; FARWELL CANALS

Month	Diversions To Canal (AF)	Delivered To Farms (AF)	Diversions To Canals (AF)	Diversions To Sherman Feeder Canal (AF)	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Release To Canals (AF)	Delivered To Farms (AF)
Jan.	0	0	0	0	627	1,309	252	1.60	49,650	0	0
Feb.	0	0	0	0	683	1,291	311	0.76	48,731	0	0
Mar.	0	0	0	0	1,163	1,309	543	3.39	48,042	0	0
Apr.	0	0	0	11,330	9,346	1,303	917	0.34	55,168	0	0
May	0	0	3,082	19,460	16,780	1,533	1,050	2.06	69,365	0	0
June	1,367	58	4,824	15,710	12,263	11,298	965	1.98	69,365	9,620	176
July	7,190	3,762	9,849	23,870	21,844	23,730	952	3.49	66,527	22,386	11,331
Aug.	5,397	3,400	9,126	2,940	4,635	17,853	831	3.54	52,478	16,788	9,903
Sep.	1,710	581	3,608	5,600	4,316	1,688	677	0.88	54,429	924	374
Oct.	0	0	0	0	632	1,083	768	1.85	53,210	0	0
Nov.	0	0	0	0	272	1,303	411	0.66	51,768	0	0
Dec.	0	0	0	0	594	1,309	233	0.42	50,820	0	0
TOTAL	15,664	7,801	30,489	78,910	73,155	65,009	7,910	20.97	--	49,718	21,784

1/ Non-Project. Includes 37 a.f. diverted from Sherman Feeder Canal and 4 a.f. loss.

NOTE.--Sargent Canal: Acres irrigated 1992 -- 13,367

Middle Loup P.P. Canals: Acres irrigated 1992 -- 14,302

Farwell Canals: Acres irrigated 1992 -- 49,027

NORTH LOUP DIVISION

CALAMUS RESERVOIR / ABOVE DAVIS CREEK MIRDAN CANAL / BELOW DAVIS CREEK FULLERTON CANAL

Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Release to Calamus Fish Hatch. (AF)	Release to Canal (AF)	Canal Use (AF)	Delivered To Farms (AF)	Release To Canal (AF)	Delivered To Farms (AF)
Jan.	21,200	20,382	449	2.04	108,843	1,493	0	0	0	0	0
Feb.	18,799	17,776	561	0.93	109,305	1,584	0	0	0	0	0
Mar.	24,147	7,962	1,039	2.51	124,451	695	0	0	0	0	0
Apr.	20,252	17,835	1,760	0.76	125,108	557	0	0	0	0	0
May	16,792	12,159	1,519	2.63	128,222	392	6,470	1,910	572	0	0
June	18,331	22,203	1,707	4.74	122,643	358	3,582	2,371	188	373	0
July	21,452	31,547	2,267	4.24	110,281	357	10,495	6,635	3,930	3,993	2,170
Aug.	24,716	33,780	2,400	6.25	98,817	451	10,417	4,444	2,218	2,099	619
Sep.	20,307	35,748	1,972	2.78	81,404	395	12,766	1,752	315	676	0
Oct.	21,544	7,137	1,139	2.08	94,672	1,053	0	0	0	0	0
Nov.	19,835	5,724	678	1.00	108,105	537	0	0	0	0	0
Dec.	19,371	18,545	411	0.86	108,520	618	0	0	0	0	0
TOTAL	246,746	230,798	15,902	30.82	--	8,490	43,730	17,112	7,223	7,141	2,789

NOTE.--Mirdan Canal: Acres irrigated 1992 -- 18,810

Fullerton Canal: Acres irrigated 1992 -- 7,833

TABLE 2
SUMMARY OF 1992 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.	1,768	307	189	1.33	42,203	0
Feb.	1,068	2,159	222	0.69	40,890	0
Mar.	1,552	1,224	328	1.50	40,890	0
Apr.	1,581	898	802	0.36	40,771	337
May	641	1,199	1,003	0.40	39,210	738
June	1,306	745	801	4.00	38,970	298
July	1,065	1,439	1,016	2.70	37,580	979
Aug.	1,388	1,425	874	5.11	36,669	963
Sep.	734	936	947	0.68	35,520	489
Oct.	950	520	575	0.89	35,375	67
Nov.	1,374	417	348	0.78	35,984	0
Dec.	1,404	430	195	0.08	36,763	0
TOTAL	14,831	11,699	7,300	18.52	--	3,871

TABLE 2
SUMMARY OF 1992 OPERATIONS

FRENCHMAN–CAMBRIDGE DIVISION
FRENCHMAN UNIT

	ENDERS RESERVOIR					CULBERTSON CANAL		CULBERTSON EXT.CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	1,609	61	72	1.65	19,046	0	0	0	0
Feb.	1,561	58	86	1.08	20,463	0	0	0	0
Mar.	1,756	61	160	1.97	21,998	0	0	0	0
Apr.	1,374	60	404	0.24	22,908	1,763	0	0	0
May	842	61	585	0.75	23,104	2,132	86	0	0
June	1,334	60	444	3.36	23,934	2,120	61	226	0
July	2,656	8,019	501	5.27	18,070	1,521	1,254	5,533	1,919
Aug.	2,835	4,019	389	6.39	16,497	1,384	1,162	3,886	1,694
Sep.	1,284	60	429	0.45	17,292	0	0	0	0
Oct.	1,320	61	243	1.22	18,308	0	0	0	0
Nov.	1,447	60	165	0.61	19,530	0	0	0	0
Dec.	1,477	61	86	0.16	20,860	0	0	0	0
TOTAL	19,495	12,641	3,564	23.15	--	8,920	2,563	9,645	3,613

NOTE.--Culbertson Canal: Acres irrigated 1992 -- 8,477
Culbertson Extension Canal: Acres irrigated 1992 -- 11,305

FRENCHMAN–CAMBRIDGE DIVISION (Continued)
MEEKER–DRIFTWOOD UNIT

	SWANSON LAKE					MEEKER–DRIFTWOOD		BARTLEY CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Release To Canal (AF)	Delivered To Farms (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	7,418	61	246	1.67	55,749	0	0	0	0
Feb.	9,801	58	320	1.05	65,172	0	0	0	0
Mar.	10,944	61	557	1.88	75,498	0	0	0	0
Apr.	6,586	60	1,238	0.42	80,786	0	0	0	0
May	2,059	61	1,957	1.12	80,827	0	0	0	0
June	5,287	1,954	1,473	2.82	82,687	1,068	0	434	0
July	3,239	19,529	1,734	4.34	64,663	12,052	7,196	3,059	1,452
Aug.	7,475	6,238	1,418	5.60	64,482	5,241	2,249	2,885	1,846
Sep.	3,519	2,317	1,491	0.55	64,193	1,833	1,178	947	630
Oct.	2,394	61	916	0.82	65,610	0	0	0	0
Nov.	4,708	60	624	0.48	69,634	0	0	0	0
Dec.	4,705	61	320	0.30	73,958	0	0	0	0
TOTAL	68,135	30,521	12,294	21.05	--	20,194	10,623	7,325	3,928

NOTE.--Meeker–Driftwood Canal: Acres irrigated 1992 -- 16,001
Bartley Canal: Acres irrigated 1992 -- 6,365

FRENCHMAN–CAMBRIDGE DIVISION (Continued)
RED WILLOW UNIT

	HUGH BUTLER LAKE					RED WILLOW CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	1,492	246	82	1.30	22,579	0	0
Feb.	1,587	230	98	1.30	23,838	0	0
Mar.	1,722	246	165	2.40	25,149	0	0
Apr.	1,081	238	452	0.49	25,540	0	0
May	867	246	646	0.93	25,515	0	0
June	1,598	651	477	3.90	25,985	381	0
July	1,759	2,523	635	4.76	24,586	2,221	1,087
Aug.	3,561	2,493	517	5.86	25,137	1,879	1,327
Sep.	879	1,260	530	0.25	24,226	1,028	872
Oct.	911	246	305	1.14	24,586	0	0
Nov.	1,091	238	194	0.09	25,245	0	0
Dec.	1,028	246	92	0.41	25,935	0	0
TOTAL	17,576	8,863	4,193	22.83	--	5,509	3,286

NOTE.--Red Willow Canal: Acres irrigated 1992 -- 4,766

FRENCHMAN–CAMBRIDGE DIVISION (Continued)
CAMBRIDGE UNIT

	HARRY STRUNK LAKE					CAMBRIDGE CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	3,042	25	98	1.40	23,057	0	0
Feb.	2,861	29	115	0.97	25,774	0	0
Mar.	3,291	32	195	1.96	28,838	0	0
Apr.	2,842	30	551	0.21	31,099	0	0
May	2,478	31	858	1.07	32,688	0	0
June	2,790	836	633	4.83	34,009	851	35
July	2,379	5,730	749	3.37	29,909	9,272	5,310
Aug.	4,813	4,430	682	3.77	29,610	9,675	6,927
Sep.	1,794	1,010	721	0.26	29,673	2,606	1,850
Oct.	2,691	70	551	1.64	31,743	0	0
Nov.	2,537	18	270	0.47	33,992	0	0
Dec.	2,715	1,907	131	0.41	34,669	0	0
TOTAL	34,233	14,148	5,554	20.36	--	22,404	14,122

NOTE.--Cambridge Canal: Acres irrigated 1992 -- 16,380

TABLE 2
SUMMARY OF 1992 OPERATIONS

KANASKA DIVISION
ALMENA UNIT
KEITH SEBELIUS LAKE

Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Release To City Of Norton (AF)	ALMENA CANAL Diversions To Canal (AF)	ALMENA CANAL Delivered To Farms (AF)
Jan.	193	24	35	1.47	4,191	24	0	0
Feb.	153	23	42	0.89	4,279	23	0	0
Mar.	308	25	71	2.83	4,491	25	0	0
Apr.	270	34	188	0.61	4,539	34	0	0
May	153	62	292	1.22	4,338	61	0	0
June	228	43	209	4.03	4,314	43	0	0
July	2,315	47	317	8.14	6,265	47	0	0
Aug.	4,285	41	360	5.03	10,149	41	0	0
Sep.	25	50	393	1.83	9,731	50	0	0
Oct.	171	40	236	3.05	9,626	40	0	0
Nov.	224	29	142	0.60	9,679	29	0	0
Dec.	296	26	70	0.88	9,879	26	0	0
TOTAL	8,621	444	2,355	30.58	--	443	0	0

NOTE.--Almena Canal: Due to the shortage of storage water in Keith Sebelius Lake, Almena Canal was not in operation during the 1992 irrigation season.

BOSTWICK DIVISION
FRANKLIN UNIT
HARLAN COUNTY LAKE
Data from Corps of Engineers

Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	FRANKLIN CANAL Release To Canal (AF)	FRANKLIN CANAL Delivered To Farms (AF)	NAPONEE CANAL Release To Canal (AF)	NAPONEE CANAL Delivered To Farms (AF)
Jan.	9,025	0	635	1.22	145,967	0	0	0	0
Feb.	8,935	0	518	1.11	154,384	0	0	0	0
Mar.	13,047	0	1,004	2.69	166,427	0	0	0	0
Apr.	8,241	0	1,855	0.19	172,813	0	0	0	0
May	3,064	0	3,162	2.00	172,715	0	0	0	0
June	7,684	2,186	2,505	4.72	175,708	119	0	0	0
July	9,949	13,955	3,519	6.77	168,183	3,538	841	303	125
Aug.	17,651	19,330	3,997	2.67	162,507	9,387	2,992	779	462
Sep.	5,593	2,917	4,520	0.97	160,663	1,564	683	57	14
Oct.	7,773	0	3,023	2.90	165,413	0	0	0	0
Nov.	7,626	0	2,037	0.36	171,002	0	0	0	0
Dec.	7,305	0	1,135	0.75	177,172	0	0	0	0
TOTAL	105,893	38,388	27,910	26.35	--	14,608	4,516	1,139	601

NOTE.--Franklin Canal: Acres irrigated 1992 -- 9,556 Naponee Canal: Acres irrigated 1992 -- 1,399

BOSTWICK DIVISION (Continued)
SUPERIOR-COURTLAND UNIT

Month	FRANKLIN PUMP CANAL Diverted To Canal (AF)	FRANKLIN PUMP CANAL Delivered To Farms (AF)	SUPERIOR CANAL Diverted To Canal (AF)	SUPERIOR CANAL Delivered To Farms (AF)	Total Diversion (AF)	COURTLAND CANAL -- ABOVE LOVEWELL NEBRASKA USE Total (AF)	NEBRASKA USE Delivered To Farms (AF)	KANSAS USE Diversion To Canal (AF)	KANSAS USE Delivered To Farms (AF)
Jan.	0	0	0	0	5,677	0	0	0	0
Feb.	0	0	0	0	5,401	0	0	0	0
Mar.	0	0	0	0	5,533	0	0	0	0
Apr.	0	0	0	0	5,832	0	0	0	0
May	0	0	0	0	4,077	0	0	0	0
June	15	0	626	2	6,273	77	41	926	113
July	507	257	2,871	646	7,837	323	249	4,300	656
Aug.	1,148	781	3,313	730	6,148	385	282	3,004	382
Sep.	117	56	300	44	463	42	37	19	13
Oct.	0	0	0	0	0	0	0	0	0
Nov.	0	0	0	0	0	0	0	0	0
Dec.	0	0	0	0	0	0	0	0	0
	1,787	1,094	7,110	1,422	47,241	827	609	8,249	1,164

NOTE.--Franklin Pump Canal:
Acres irrigated 1992 -- 2,034
Superior Canal:
Acres irrigated 1992 -- 4,847

NOTE.--Courtland Canal--Nebraska Use:
Acres irrigated 1992 -- 1,523
Courtland Canal--Kansas Use:
Acres irrigated 1992 -- 9,880

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.	1,110	4,508	5,618	6	152	1.57	33,480	0	0
Feb.	198	4,308	4,506	12	204	0.53	37,770	0	0
Mar.	628	4,669	5,297	12	375	2.48	42,680	0	0
Apr.	522	4,858	5,380	18	802	1.28	47,240	0	0
May	(579)	3,577	2,998	25	1,253	1.53	48,960	0	0
June	1,606	1,998	3,604	2,813	991	3.38	48,760	3,297	473
July	14,070	1,799	15,869	10,897	1,152	10.07	52,580	5,401	1,976
Aug.	4,063	1,549	5,612	13,475	1,117	3.93	43,600	3,332	439
Sep.	1,803	610	2,413	6,344	779	4.64	38,890	44	32
Oct.	1,726	0	1,726	12	444	4.16	40,160	0	0
Nov.	1,336	0	1,336	12	444	2.03	41,040	0	0
Dec.	2,038	0	2,038	6	212	1.31	42,860	0	0
TOTAL	28,521	27,876	56,397	33,632	7,925	36.91	--	12,074	2,920

NOTE.-- Courtland Canal below Lovewell: Acres irrigated 1992 -- 13,709

TABLE 2
SUMMARY OF 1992 OPERATIONS

SOLOMON DIVISION
KIRWIN UNIT

KIRWIN RESERVOIR

Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	KIRWIN CANAL Release To Canal (AF)	KIRWIN CANAL Delivered To Farms (AF)
Jan.	116	0	62	1.34	8,563	0	0
Feb.	70	0	79	0.55	8,554	0	0
Mar.	493	0	128	2.81	8,919	0	0
Apr.	873	0	287	0.44	9,505	0	0
May	262	0	458	1.61	9,309	0	0
June	2,824	0	369	6.10	11,764	0	0
July	5,150	0	572	6.59	16,342	0	0
Aug.	3,212	0	604	2.72	18,950	0	0
Sep.	544	0	589	1.46	18,905	0	0
Oct.	674	0	351	4.18	19,228	0	0
Nov.	634	0	247	1.47	19,615	0	0
Dec.	746	0	123	0.97	20,238	0	0
TOTAL	15,598	0	3,869	30.24	--	0	0

NOTE.--Kirwin Canal: Due to the shortage of storage water in Kirwin Reservoir, Kirwin Canal was not in operation during the 1992 irrigation season.

SOLOMON DIVISION (Continued)
WEBSTER UNIT

WEBSTER RESERVOIR

Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	OSBORNE CANAL Diversions To Canal (AF)	OSBORNE CANAL Delivered To Farms (AF)
Jan.	171	0	62	1.36	4,698	0	0
Feb.	125	0	74	1.14	4,749	0	0
Mar.	499	0	128	3.80	5,120	0	0
Apr.	1,038	0	279	0.45	5,879	0	0
May	153	0	438	1.95	5,594	0	0
June	257	0	330	2.66	5,521	0	0
July	1,574	0	415	5.08	6,680	0	0
Aug.	1,474	0	442	3.90	7,712	0	0
Sep.	1,018	0	461	0.83	8,269	0	0
Oct.	121	0	264	2.88	8,126	0	0
Nov.	726	0	182	1.12	8,670	0	0
Dec.	878	0	96	0.68	9,452	0	0
TOTAL	8,034	0	3,171	25.85	--	0	0

NOTE.--Due to the shortage of storage water in Webster Reservoir, Osborne Canal was not in operation during the 1992 irrigation season.

SOLOMON DIVISION (Continued)
GLEN ELDER UNIT

WACONDA LAKE

Month	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.	2,706	970	695	1.09	181,839	0	0	0	923	47
Feb.	2,268	911	836	0.74	182,360	0	0	0	863	48
Mar.	3,871	973	1,441	2.16	183,817	0	0	0	922	51
Apr.	7,510	944	3,234	1.55	187,149	0	0	0	893	51
May	3,686	979	5,206	2.24	184,650	0	0	0	923	56
June	44,233	913	4,248	7.99	223,722	0	0	0	869	44
July	45,477	2,365	6,850	7.90	259,984	0	0	0	2,314	51
Aug.	26,013	40,308	6,114	3.15	239,575	0	0	0	40,259	49
Sep.	4,929	5,045	5,780	2.70	233,679	0	0	0	4,998	47
Oct.	10,701	4,348	3,220	4.87	236,812	0	0	0	4,304	44
Nov.	5,412	4,206	1,960	1.79	236,058	0	0	0	4,165	41
Dec.	14,184	6,546	980	1.46	242,716	0	0	0	6,498	48
TOTAL	170,990	68,508	40,564	37.64	--	0	0	0	67,931	577

SMOKY HILL DIVISION
ELLIS UNIT

CEDAR BLUFF RESERVOIR

Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	STORAGES 1/ Fish and Wildlife (AF)	STORAGES 1/ City of Russell (AF)	STORAGES 1/ Irrigation (AF)	Release To Fish Hatchery (AF)
Jan.	217	0	109	1.23	12,088	528	313	2,986	0
Feb.	0	0	168	0.53	11,920	505	299	2,855	0
Mar.	199	0	187	1.73	11,932	511	300	2,860	0
Apr.	111	3	437	0.15	11,603	465	273	2,604	3
May	157	0	584	2.56	11,176	409	238	2,268	0
June	566	0	426	4.58	11,316	439	248	2,368	0
July	377	0	627	3.81	11,066	409	227	2,169	0
Aug.	172	0	513	4.10	10,725	361	199	1,904	0
Sep.	347	0	622	2.10	10,450	325	177	1,687	0
Oct.	0	0	397	1.29	10,053	266	145	1,381	0
Nov.	247	0	181	1.81	10,119	278	150	1,430	0
Dec.	91	0	91	0.65	10,119	279	150	1,429	0
TOTAL	2,484	3	4,342	24.54	--	--	--	--	3

1/ Total Storage = 8,261 A.F. + Fish & Wildlife + City of Russell + Irrigation.

NOTE.--Cedar Bluff Canal: Due to the shortage of storage water in Cedar Bluff Reservoir, Cedar Bluff Canal was not in operation during the 1992 irrigation season.
No releases were made for the City of Russell, Kansas.

TABLE 3

ACRES IRRIGATED IN 1992 AND ESTIMATES FOR 1993

Irrigation District and Canal	Acres With Service Available	Acres Irrigated in 1992	Estimated Acres to be Irrigated in 1993
Mirage Flats Irrigation District			
Mirage Flats Canal	11,662	10,595	11,000
Ainsworth Irrigation District			
Ainsworth Canal	34,539	33,729	34,000
Sargent Irrigation District			
Sargent Canal	13,922	13,367	13,200
Farwell Irrigation District			
Farwell Canal	50,051	49,027	50,000
Twin Loups Irrigation District			
Above Davis Creek	34,012	18,810	27,800
Below Davis Creek	8,000	7,833	4,700
Total Twin Loups Irrigation District	42,012	26,643	32,500
Frenchman Valley Irrigation District			
Culbertson Canal	9,600	8,477	8,500
H & RW Irrigation District			
Culbertson Extension Canal	11,490	11,305	10,500
Frenchman–Cambridge Irrigation District			
Meeker–Driftwood Canal	16,476	16,001	15,600
Red Willow Canal	4,932	4,766	4,700
Bartley Canal	6,539	6,365	6,200
Cambridge Canal	17,053	16,380	16,300
Total Frenchman–Cambridge Irrigation District	45,000	43,512	42,800
Almena Irrigation District			
Almena Canal	5,763	0	5,100
Bostwick Irrigation District in Nebraska			
Franklin Canal	11,116	9,556	8,800
Naponee Canal	1,737	1,399	1,300
Franklin Pump Canal	2,091	2,034	1,900
Superior Canal	5,863	4,847	4,800
Courtland Canal (Nebraska)	1,980	1,523	1,200
Total Bostwick Irrigation Dist. in Nebraska	22,787	19,359	18,000
Kansas–Bostwick Irrigation District			
Courtland Canal above Lovewell	13,550	9,880	5,700
Courtland Canal below Lovewell	28,338	13,709	19,300
Total Kansas–Bostwick Irrigation District	41,888	23,589	25,000
Kirwin Irrigation District			
Kirwin Canal	11,435	0	7,000
Webster Irrigation District			
Osborne Canal	8,500	0	4,500
Glen Elder Irrigation District	6,000	0	5,400
TOTAL PROJECT USES	314,649	239,603	267,500
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	330,349	254,605	282,500

BOX BUTTE RESERVOIR OPERATION ESTIMATES - 1993

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	18.	1.1	1.06	.1	2.	.1	.0	.0	3991.6	11.7	.9
FEB	25.	1.4	1.32	.1	2.	.1	.0	.0	3992.8	12.9	1.2
MAR	34.	2.1	2.33	.2	2.	.1	.0	.0	3994.6	14.7	1.8
APR	25.	1.5	3.79	.3	2.	.1	.0	.0	3995.6	15.8	1.1
MAY	16.	1.0	5.85	.5	2.	.1	.0	.0	3996.0	16.2	.4
JUN	0.	.0	7.15	.5	168.	10.0	.0	.0	3983.7	5.7	-10.5
JUL	0.	.0	7.83	.3	216.	13.3	.0	10.7	3977.9	2.8	-2.9
AUG	10.	.6	6.19	.2	218.	13.4	.0	13.0	3977.9	2.8	.0
SEP	12.	.7	5.39	.2	59.	3.5	.0	3.0	3977.9	2.8	.0
OCT	10.	.6	3.08	.1	2.	.1	.0	.0	3978.9	3.2	.4
NOV	22.	1.3	1.67	.1	2.	.1	.0	.0	3981.2	4.3	1.1
DEC	20.	1.2	.97	.0	2.	.1	.0	.0	3983.2	5.4	1.1
TOTAL		11.5	46.63	2.6		41.0	.0	26.7			-5.4
					MOST PROBABLE INFLOW CONDITIONS						
JAN	26.	1.6	1.06	.1	2.	.1	.0	.0	3992.1	12.2	1.4
FEB	34.	1.9	1.32	.1	2.	.1	.0	.0	3993.8	13.9	1.7
MAR	46.	2.8	2.33	.2	2.	.1	.0	.0	3996.2	16.4	2.5
APR	37.	2.2	3.79	.4	2.	.1	.0	.0	3997.6	18.1	1.7
MAY	26.	1.6	4.73	.5	2.	.1	.0	.0	3998.5	19.1	1.0
JUN	5.	.3	6.01	.6	29.	1.7	.0	.0	3996.8	17.1	-2.0
JUL	2.	.1	6.55	.5	210.	12.9	.0	.0	3980.1	3.8	-13.3
AUG	21.	1.3	5.75	.2	211.	13.0	.0	10.9	3977.9	2.8	-1.0
SEP	22.	1.3	4.21	.1	32.	1.9	.0	.7	3977.9	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	41.47	3.0		30.3	.0	11.6			-3.4
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	33.	2.0	1.06	.1	2.	.1	.0	.0	3992.5	12.6	1.8
FEB	45.	2.5	1.32	.1	2.	.1	.0	.0	3994.8	14.9	2.3
MAR	55.	3.4	2.33	.2	2.	.1	.0	.0	3997.6	18.0	3.1
APR	52.	3.1	3.79	.4	2.	.1	.0	.0	3999.7	20.6	2.6
MAY	41.	2.5	3.49	.4	2.	.1	.0	.0	4001.2	22.6	2.0
JUN	89.	5.3	4.48	.5	8.	.5	.0	.0	4004.3	26.9	4.3
JUL	54.	3.3	5.40	.6	176.	10.8	.0	.0	3998.2	18.8	-8.1
AUG	37.	2.3	4.40	.4	168.	10.3	.0	.0	3990.1	10.4	-8.4
SEP	34.	2.0	2.84	.2	13.	.8	.0	.0	3991.2	11.4	1.0
OCT	33.	2.0	3.08	.2	2.	.1	.0	.0	3993.0	13.1	1.7
NOV	42.	2.5	1.67	.1	2.	.1	.0	.0	3995.3	15.4	2.3
DEC	34.	2.1	.97	.1	2.	.1	.0	.0	3997.0	17.3	1.9
TOTAL		33.0	34.83	3.3		23.2	.0	.0			6.5

MERRITT RESERVOIR OPERATION ESTIMATES - 1993

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	198.	12.2	1.05	.2	.0	11.8	192.	11.8	.0	.0	2944.0	68.8	.2
FEB	216.	12.0	1.33	.3	.0	11.7	211.	11.7	.0	.0	2944.0	68.8	.0
MAR	228.	14.0	1.85	.4	.0	10.8	176.	10.8	.0	.0	2945.0	71.6	2.8
APR	224.	13.3	3.08	.7	.0	10.8	182.	10.8	.0	.0	2945.6	73.4	1.8
MAY	213.	13.1	5.36	1.3	6.1	4.6	174.	10.7	.0	.0	2946.0	74.5	1.1
JUN	210.	12.5	6.29	1.5	11.6	1.0	212.	12.6	.0	.0	2945.4	72.9	-1.6
JUL	211.	13.0	7.20	1.5	39.2	1.0	654.	40.2	.0	.0	2933.5	44.2	-28.7
AUG	208.	12.8	6.36	.7	39.2	1.0	654.	40.2	.0	.0	2911.7	16.1	-28.1
SEP	205.	12.2	5.29	.3	12.2	1.0	222.	13.2	.0	.0	2910.1	14.8	-1.3
OCT	220.	13.5	3.50	.3	.0	1.0	16.	1.0	.0	.0	2922.4	27.0	12.2
NOV	215.	12.8	2.00	.2	.0	1.0	17.	1.0	.0	.0	2930.4	38.6	11.6
DEC	210.	12.9	1.39	.2	.0	1.0	16.	1.0	.0	.0	2936.5	50.3	11.7
TOTAL		154.3	44.70	7.6	108.3	56.7		165.0	.0	.0			-18.3
						MOST PROBABLE INFLOW CONDITIONS							
JAN	231.	14.2	1.05	.2	.0	13.8	224.	13.8	.0	.0	2944.0	68.8	.2
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	267.	15.9	3.08	.7	.0	15.2	255.	15.2	.0	.0	2945.0	71.6	.0
MAY	250.	15.4	4.17	1.0	3.1	8.4	187.	11.5	.0	.0	2946.0	74.5	2.9
JUN	237.	14.1	5.52	1.3	6.5	1.0	126.	7.5	5.3	.0	2946.0	74.5	.0
JUL	241.	14.8	6.20	1.4	29.6	1.0	498.	30.6	.0	.0	2939.5	57.3	-17.2
AUG	249.	15.3	5.32	.9	30.3	1.0	509.	31.3	.0	.0	2931.4	40.4	-16.9
SEP	247.	14.7	4.26	.6	10.2	1.0	188.	11.2	.0	.0	2933.0	43.3	2.9
OCT	250.	15.4	3.50	.6	.0	1.0	16.	1.0	.0	.0	2939.4	57.1	13.8
NOV	237.	14.1	2.00	.4	.0	2.0	34.	2.0	.0	.0	2944.0	68.8	11.7
DEC	231.	14.2	1.39	.3	.0	13.9	226.	13.9	.0	.0	2944.0	68.8	.0
TOTAL		177.7	39.67	8.1	79.7	84.4		164.1	5.3	.0			.2
						REASONABLE MAXIMUM INFLOW CONDITIONS							
JAN	267.	16.4	1.05	.2	.0	16.0	260.	16.0	.0	.0	2944.0	68.8	.2
FEB	286.	15.9	1.33	.3	.0	15.6	281.	15.6	.0	.0	2944.0	68.8	.0
MAR	299.	18.4	1.85	.4	.0	15.2	247.	15.2	.0	.0	2945.0	71.6	2.8
APR	313.	18.6	3.08	.7	.0	17.9	301.	17.9	.0	.0	2945.0	71.6	.0
MAY	299.	18.4	3.47	.8	1.4	13.3	239.	14.7	.0	.0	2946.0	74.5	2.9
JUN	279.	16.6	4.59	1.1	5.8	1.0	114.	6.8	8.7	.0	2946.0	74.5	.0
JUL	294.	18.1	5.41	1.3	20.8	1.0	355.	21.8	.0	.0	2944.2	69.5	-5.0
AUG	316.	19.4	4.36	1.0	18.4	1.0	316.	19.4	.0	.0	2943.9	68.5	-1.0
SEP	287.	17.1	3.48	.8	4.4	11.6	269.	16.0	.0	.0	2944.0	68.8	.3
OCT	278.	17.1	3.50	.8	.0	16.3	265.	16.3	.0	.0	2944.0	68.8	.0
NOV	260.	15.5	2.00	.5	.0	15.0	252.	15.0	.0	.0	2944.0	68.8	.0
DEC	252.	15.5	1.39	.3	.0	15.2	247.	15.2	.0	.0	2944.0	68.8	.0
TOTAL		207.0	35.51	8.2	50.8	139.1		189.9	8.7	.0			.2

SHERMAN RESERVOIR OPERATION ESTIMATES - 1993

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	2154.6	49.2	-1.6
FEB	0.	.0	1.62	.3	23.	1.3	.0	.0	2153.9	47.6	-1.6
MAR	0.	.0	2.86	.5	21.	1.3	.0	.0	2153.1	45.8	-1.8
APR	254.	15.1	4.63	.9	22.	1.3	.0	.0	2158.5	58.7	12.9
MAY	493.	30.3	5.19	1.2	304.	18.7	.0	.0	2162.3	69.1	10.4
JUN	524.	31.2	6.44	1.3	1131.	67.3	.0	.0	2145.9	31.7	-37.4
JUL	153.	9.4	7.45	.8	1090.	67.0	.0	37.2	2129.0	10.5	-21.2
AUG	246.	15.1	6.59	.5	1085.	66.7	.0	52.1	2129.0	10.5	.0
SEP	523.	31.1	4.88	.4	489.	29.1	.0	.0	2130.8	12.1	1.6
OCT	582.	35.8	3.77	.5	18.	1.1	.0	.0	2153.3	46.3	34.2
NOV	0.	.0	2.05	.4	22.	1.3	.0	.0	2152.5	44.6	-1.7
DEC	0.	.0	1.18	.2	21.	1.3	.0	.0	2151.8	43.1	-1.5
TOTAL		168.0	47.96	7.3		257.7	.0	89.3			-7.7
					MOST PROBABLE INFLOW CONDITIONS						
JAN	0.	.0	1.30	.3	21.	1.3	.0	.0	2154.6	49.2	-1.6
FEB	0.	.0	1.62	.3	23.	1.3	.0	.0	2153.9	47.6	-1.6
MAR	2.	.1	2.86	.5	21.	1.3	.0	.0	2153.1	45.9	-1.7
APR	168.	10.0	4.63	.9	22.	1.3	.0	.0	2156.5	53.7	7.8
MAY	289.	17.8	4.25	.9	24.	1.5	.0	.0	2162.3	69.1	15.4
JUN	511.	30.4	4.97	1.2	491.	29.2	.0	.0	2162.3	69.1	.0
JUL	376.	23.1	5.84	1.1	1070.	65.8	.0	.0	2141.9	25.3	-43.8
AUG	449.	27.6	4.99	.5	1026.	63.1	.0	21.2	2129.0	10.5	-14.8
SEP	499.	29.7	3.69	.4	190.	11.3	.0	.0	2144.0	28.5	18.0
OCT	418.	25.7	3.77	.6	18.	1.1	.0	.0	2156.0	52.5	24.0
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		164.4	41.15	7.3		179.8	.0	21.2			-1.5
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	11.	.7	1.30	.3	21.	1.3	.0	.0	2154.9	49.9	-.9
FEB	23.	1.3	1.62	.3	23.	1.3	.0	.0	2154.8	49.6	-.3
MAR	83.	5.1	2.86	.6	21.	1.3	.0	.0	2156.1	52.8	3.2
APR	118.	7.0	4.63	1.0	22.	1.3	.0	.0	2158.0	57.5	4.7
MAY	250.	15.4	3.45	.8	49.	3.0	.0	.0	2162.3	69.1	11.6
JUN	338.	20.1	3.84	.9	323.	19.2	.0	.0	2162.3	69.1	.0
JUL	359.	22.1	4.54	.9	893.	54.9	.0	.0	2148.0	35.4	-33.7
AUG	397.	24.4	3.77	.5	522.	32.1	.0	.0	2143.1	27.2	-8.2
SEP	301.	17.9	2.49	.4	139.	8.3	.0	.0	2148.5	36.4	9.2
OCT	291.	17.9	3.77	.7	18.	1.1	.0	.0	2156.0	52.5	16.1
NOV	13.	.8	2.05	.4	22.	1.3	.0	.0	2155.6	51.6	-.9
DEC	16.	1.0	1.18	.2	21.	1.3	.0	.0	2155.4	51.1	-.5
TOTAL		133.7	35.50	7.0		126.4	.0	.0			.3

CALAMUS RESERVOIR OPERATION ESTIMATES - 1993

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	293.	18.0	1.17	.4	.0	17.6	286.	17.6	.0	.0	2240.1	108.5	.0
FEB	277.	15.4	1.46	.6	.0	14.8	266.	14.8	.0	.0	2240.1	108.5	.0
MAR	330.	20.3	2.58	1.0	8.1	5.7	224.	13.8	.0	.0	2241.3	114.0	5.5
APR	297.	17.7	4.18	1.7	2.1	3.0	86.	5.1	.0	.0	2243.5	124.9	10.9
MAY	311.	19.1	5.43	2.3	13.2	3.1	265.	16.3	.0	.0	2243.6	125.4	.5
JUN	308.	18.3	8.41	3.6	9.7	3.1	215.	12.8	.0	.0	2244.0	127.3	1.9
JUL	268.	16.5	8.54	3.4	23.5	16.5	651.	40.0	.0	.0	2238.3	100.4	-26.9
AUG	291.	17.9	6.97	2.3	23.6	17.9	675.	41.5	.0	.0	2231.8	74.5	-25.9
SEP	274.	16.3	6.31	1.8	16.4	16.3	550.	32.7	.0	.0	2226.4	56.3	-18.2
OCT	260.	16.0	3.40	.9	.0	3.1	50.	3.1	.0	.0	2230.1	68.3	12.0
NOV	262.	15.6	1.85	.6	.0	3.0	50.	3.0	.0	.0	2233.4	80.3	12.0
DEC	268.	16.5	1.07	.4	.0	3.1	50.	3.1	.0	.0	2236.6	93.3	13.0
TOTAL		207.6	51.37	19.0	96.6	107.2		203.8	.0	.0			-15.2
					MOST PROBABLE INFLOW CONDITIONS								
JAN	329.	20.2	1.17	.4	.0	19.8	322.	19.8	.0	.0	2240.1	108.5	.0
FEB	331.	18.4	1.46	.6	.0	17.8	321.	17.8	.0	.0	2240.1	108.5	.0
MAR	369.	22.7	2.58	1.0	1.8	14.4	263.	16.2	.0	.0	2241.3	114.0	5.5
APR	345.	20.5	4.18	1.7	4.9	3.0	133.	7.9	.0	.0	2243.5	124.9	10.9
MAY	384.	23.6	3.45	1.5	14.7	7.4	359.	22.1	.0	.0	2243.5	124.9	.0
JUN	328.	19.5	5.52	2.3	2.3	12.4	247.	14.7	.0	.0	2244.0	127.4	2.5
JUL	327.	20.1	6.47	2.6	15.6	20.1	581.	35.7	.0	.0	2240.3	109.2	-18.2
AUG	324.	19.9	6.06	2.2	17.0	19.9	600.	36.9	.0	.0	2235.8	90.0	-19.2
SEP	299.	17.8	5.01	1.6	10.4	17.8	474.	28.2	.0	.0	2232.8	78.0	-12.0
OCT	299.	18.4	3.40	1.1	.0	3.1	50.	3.1	.0	.0	2236.4	92.2	14.2
NOV	319.	19.0	1.85	.7	.0	3.0	50.	3.0	.0	.0	2239.9	107.5	15.3
DEC	317.	19.5	1.07	.4	.0	18.6	303.	18.6	.0	.0	2240.0	108.0	.5
TOTAL		239.6	42.22	16.1	66.7	157.3		224.0	.0	.0			-.5
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	366.	22.5	1.17	.4	.0	22.1	359.	22.1	.0	.0	2240.1	108.5	.0
FEB	380.	21.1	1.46	.6	.0	20.5	369.	20.5	.0	.0	2240.1	108.5	.0
MAR	499.	30.7	2.58	1.0	.0	24.2	394.	24.2	.0	.0	2241.3	114.0	5.5
APR	462.	27.5	4.18	1.7	6.6	8.3	250.	14.9	.0	.0	2243.5	124.9	10.9
MAY	441.	27.1	2.82	1.2	14.7	11.2	421.	25.9	.0	.0	2243.5	124.9	.0
JUN	355.	21.1	4.32	1.8	.4	16.4	282.	16.8	.0	.0	2244.0	127.4	2.5
JUL	376.	23.1	5.57	2.3	7.8	23.1	503.	30.9	.0	.0	2242.0	117.3	-10.1
AUG	356.	21.9	5.47	2.1	9.3	21.9	507.	31.2	.0	.0	2239.5	105.9	-11.4
SEP	366.	21.8	3.58	1.3	1.0	21.8	383.	22.8	.0	.0	2239.0	103.6	-2.3
OCT	361.	22.2	3.40	1.3	.0	18.7	304.	18.7	.0	.0	2239.5	105.8	2.2
NOV	351.	20.9	1.85	.7	.0	18.0	303.	18.0	.0	.0	2240.0	108.0	2.2
DEC	358.	22.0	1.07	.4	.0	21.6	351.	21.6	.0	.0	2240.0	108.0	.0
TOTAL		281.9	37.47	14.8	39.8	227.8		267.6	.0	.0			-.5

DAVIS CREEK RESERVOIR OPERATION ESTIMATES - 1993

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	0.	.0	.0	.0	2050.8	10.6	-.1
FEB	0.	.0	1.62	.1	0.	.0	.0	.0	2050.7	10.5	-.1
MAR	132.	8.1	2.86	.2	0.	.0	.0	.0	2062.7	18.4	7.9
APR	35.	2.1	4.63	.3	0.	.0	.0	.0	2065.0	20.2	1.8
MAY	197.	12.1	5.19	.4	11.	.7	.0	.0	2076.0	31.2	11.0
JUN	0.	.0	6.44	.6	66.	3.9	.0	.0	2071.9	26.7	-4.5
JUL	0.	.0	7.45	.6	98.	6.0	.0	.0	2064.9	20.1	-6.6
AUG	0.	.0	6.59	.4	104.	6.4	.0	.0	2055.6	13.3	-6.8
SEP	0.	.0	4.88	.2	91.	5.4	.0	.0	2045.0	7.7	-5.6
OCT	0.	.0	3.77	.1	0.	.0	.0	.0	2044.8	7.6	-.1
NOV	0.	.0	2.05	.1	0.	.0	.0	.0	2044.6	7.5	-.1
DEC	0.	.0	1.18	.0	0.	.0	.0	.0	2044.6	7.5	.0
TOTAL		22.3	47.96	3.1		22.4	.0	.0			-3.2
					MOST PROBABLE INFLOW CONDITIONS						
JAN	0.	.0	1.30	.1	0.	.0	.0	.0	2050.8	10.6	-.1
FEB	0.	.0	1.62	.1	0.	.0	.0	.0	2050.7	10.5	-.1
MAR	29.	1.8	2.86	.1	0.	.0	.0	.0	2053.7	12.2	1.7
APR	82.	4.9	4.63	.3	0.	.0	.0	.0	2060.7	16.8	4.6
MAY	239.	14.7	4.25	.3	0.	.0	.0	.0	2076.0	31.2	14.4
JUN	20.	1.2	4.97	.5	12.	.7	.0	.0	2076.0	31.2	.0
JUL	0.	.0	5.84	.5	72.	4.4	.0	.0	2071.5	26.3	-4.9
AUG	0.	.0	4.99	.4	78.	4.8	.0	.0	2066.0	21.1	-5.2
SEP	0.	.0	3.69	.3	66.	3.9	.0	.0	2060.8	16.9	-4.2
OCT	0.	.0	3.77	.2	0.	.0	.0	.0	2060.6	16.7	-.2
NOV	0.	.0	2.05	.1	0.	.0	.0	.0	2060.4	16.6	-.1
DEC	0.	.0	1.18	.1	0.	.0	.0	.0	2060.3	16.5	-.1
TOTAL		22.6	41.15	3.0		13.8	.0	.0			5.8
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	0.	.0	1.30	.1	0.	.0	.0	.0	2050.8	10.6	-.1
FEB	0.	.0	1.62	.1	0.	.0	.0	.0	2050.7	10.5	-.1
MAR	0.	.0	2.86	.1	0.	.0	.0	.0	2050.5	10.4	-.1
APR	111.	6.6	4.63	.2	0.	.0	.0	.0	2060.7	16.8	6.4
MAY	239.	14.7	3.45	.3	0.	.0	.0	.0	2076.0	31.2	14.4
JUN	7.	.4	3.84	.4	0.	.0	.0	.0	2076.0	31.2	.0
JUL	0.	.0	4.54	.4	55.	3.4	.0	.0	2072.5	27.4	-3.8
AUG	0.	.0	3.77	.3	62.	3.8	.0	.0	2068.4	23.3	-4.1
SEP	0.	.0	2.49	.2	0.	.0	.0	.0	2068.2	23.1	-.2
OCT	0.	.0	3.77	.3	0.	.0	.0	.0	2067.8	22.8	-.3
NOV	0.	.0	2.05	.2	0.	.0	.0	.0	2067.6	22.6	-.2
DEC	0.	.0	1.18	.1	0.	.0	.0	.0	2067.5	22.5	-.1
TOTAL		21.7	35.50	2.7		7.2	.0	.0			11.8

BONNY RESERVOIR OPERATION ESTIMATES - 1993

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	1.16	.2	.0	.5	8.	.5	.0	.0	3670.1	37.5	.7
FEB	23.	1.3	1.35	.2	.0	.4	7.	.4	.0	.0	3670.4	38.2	.7
MAR	21.	1.3	1.95	.3	.0	.5	8.	.5	.0	.0	3670.7	38.7	.5
APR	24.	1.4	5.64	.9	.0	.4	7.	.4	.0	.0	3670.7	38.8	.1
MAY	26.	1.6	7.10	1.2	.4	.5	15.	.9	.0	.0	3670.5	38.3	-.5
JUN	12.	.7	8.51	1.4	.3	.4	12.	.7	.0	.0	3669.7	36.9	-1.4
JUL	5.	.3	9.21	1.4	1.0	.5	24.	1.5	.0	.0	3668.3	34.3	-2.6
AUG	0.	.0	8.13	1.2	.6	.5	18.	1.1	.0	.0	3667.1	32.0	-2.3
SEP	0.	.0	7.30	1.1	.3	.4	12.	.7	.0	.0	3666.0	30.2	-1.8
OCT	7.	.4	5.17	.7	.2	.5	11.	.7	.0	.0	3665.4	29.2	-1.0
NOV	17.	1.0	2.24	.3	.0	.4	7.	.4	.0	.0	3665.6	29.5	.3
DEC	20.	1.2	1.41	.2	.0	.5	8.	.5	.0	.0	3665.9	30.0	.5
TOTAL		10.6	59.17	9.1	2.8	5.5		8.3	.0	.0			-6.8
MOST PROBABLE INFLOW CONDITIONS													
JAN	28.	1.7	1.11	.2	.0	.5	8.	.5	.0	.0	3670.2	37.8	1.0
FEB	31.	1.7	1.25	.2	.0	.4	7.	.4	.0	.0	3670.8	38.9	1.1
MAR	33.	2.0	1.93	.3	.0	.5	8.	.5	.0	.0	3671.4	40.1	1.2
APR	35.	2.1	4.53	.8	.0	.4	7.	.4	.0	.0	3671.8	41.0	.9
MAY	37.	2.3	5.73	1.0	.1	.5	10.	.6	.4	.0	3672.0	41.3	.3
JUN	25.	1.5	6.92	1.2	.3	.4	12.	.7	.0	.0	3671.8	40.9	-.4
JUL	16.	1.0	8.27	1.4	.7	.5	20.	1.2	.0	.0	3671.0	39.3	-1.6
AUG	7.	.4	6.92	1.1	.6	.5	18.	1.1	.0	.0	3670.1	37.5	-1.8
SEP	5.	.3	5.34	.8	.3	.4	12.	.7	.0	.0	3669.4	36.3	-1.2
OCT	15.	.9	3.64	.6	.1	.5	10.	.6	.0	.0	3669.3	36.0	-.3
NOV	27.	1.6	2.24	.4	.0	.4	7.	.4	.0	.0	3669.7	36.8	.8
DEC	26.	1.6	1.33	.2	.0	.5	8.	.5	.0	.0	3670.2	37.7	.9
TOTAL		17.1	49.21	8.2	2.1	5.5		7.6	.4	.0			.9
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	36.	2.2	1.08	.2	.0	.5	8.	.5	.0	.0	3670.5	38.3	1.5
FEB	40.	2.2	1.18	.2	.0	.4	7.	.4	.0	.0	3671.3	39.9	1.6
MAR	44.	2.7	1.88	.3	.0	1.0	16.	1.0	.0	.0	3672.0	41.3	1.4
APR	55.	3.3	3.26	.6	.0	.4	7.	.4	2.3	.0	3672.0	41.3	.0
MAY	63.	3.9	4.63	.8	.2	.5	11.	.7	2.4	.0	3672.0	41.3	.0
JUN	89.	5.3	5.38	.9	.2	.4	10.	.6	3.8	.0	3672.0	41.3	.0
JUL	42.	2.6	6.20	1.1	.4	.5	15.	.9	.6	.0	3672.0	41.3	.0
AUG	65.	4.0	5.78	1.0	.4	.5	15.	.9	2.1	.0	3672.0	41.3	.0
SEP	49.	2.9	4.19	.7	.2	.4	10.	.6	1.6	.0	3672.0	41.3	.0
OCT	34.	2.1	2.42	.4	.2	.5	11.	.7	1.0	.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	36.	2.2	1.23	.2	.0	.5	8.	.5	1.5	.0	3672.0	41.3	.0
TOTAL		35.7	39.47	6.8	1.6	6.0		7.6	16.8	.0			4.5

ENDERS RESERVOIR OPERATION ESTIMATES - 1993

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	33.	2.0	.95	.1	0.	.0	.0	.0	3096.8	22.8	1.9
FEB	32.	1.8	1.03	.1	0.	.0	.0	.0	3098.3	24.5	1.7
MAR	29.	1.8	1.77	.2	0.	.0	.0	.0	3099.6	26.1	1.6
APR	30.	1.8	5.29	.5	0.	.0	.0	.0	3100.7	27.4	1.3
MAY	31.	1.9	6.55	.7	63.	3.9	.0	.0	3098.5	24.7	-2.7
JUN	27.	1.6	7.86	.6	254.	15.1	.0	.0	3083.3	10.6	-14.1
JUL	28.	1.7	8.51	.5	533.	32.8	.0	31.0	3082.4	10.0	-.6
AUG	28.	1.7	7.65	.4	540.	33.2	.0	31.9	3082.4	10.0	.0
SEP	29.	1.7	5.61	.3	0.	.0	.0	.0	3084.5	11.4	1.4
OCT	29.	1.8	4.26	.3	0.	.0	.0	.0	3086.5	12.9	1.5
NOV	30.	1.8	1.96	.1	0.	.0	.0	.0	3088.6	14.6	1.7
DEC	29.	1.8	1.16	.1	0.	.0	.0	.0	3090.5	16.3	1.7
TOTAL		21.4	52.60	3.9		85.0	.0	62.9			-4.6
					MOST PROBABLE INFLOW CONDITIONS						
JAN	47.	2.9	.88	.1	0.	.0	.0	.0	3097.6	23.7	2.8
FEB	45.	2.5	.95	.1	0.	.0	.0	.0	3099.6	26.1	2.4
MAR	41.	2.5	1.73	.2	0.	.0	.0	.0	3101.5	28.4	2.3
APR	44.	2.6	4.50	.5	0.	.0	.0	.0	3103.1	30.5	2.1
MAY	44.	2.7	5.31	.6	15.	.9	.0	.0	3104.0	31.7	1.2
JUN	42.	2.5	6.62	.7	72.	4.3	.0	.0	3102.1	29.2	-2.5
JUL	59.	3.6	7.47	.6	358.	22.0	.0	.0	3082.7	10.2	-19.0
AUG	46.	2.8	6.40	.4	346.	21.3	.0	18.7	3082.4	10.0	-.2
SEP	50.	3.0	4.57	.3	39.	2.3	.0	.0	3083.0	10.4	.4
OCT	46.	2.8	3.03	.2	0.	.0	.0	.0	3086.6	13.0	2.6
NOV	45.	2.7	1.96	.1	0.	.0	.0	.0	3089.7	15.6	2.6
DEC	47.	2.9	1.06	.1	0.	.0	.0	.0	3092.7	18.4	2.8
TOTAL		33.5	44.48	3.9		50.8	.0	18.7			-2.5
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	72.	4.4	.81	.1	0.	.0	.0	.0	3098.9	25.2	4.3
FEB	68.	3.8	.90	.1	0.	.0	.0	.0	3101.9	28.9	3.7
MAR	60.	3.7	1.67	.2	0.	.0	.0	.0	3104.5	32.4	3.5
APR	62.	3.7	3.44	.4	0.	.0	.0	.0	3106.8	35.7	3.3
MAY	67.	4.1	4.50	.6	0.	.0	.0	.0	3109.1	39.2	3.5
JUN	91.	5.4	5.52	.8	0.	.0	.0	.0	3111.9	43.8	4.6
JUL	104.	6.4	6.57	.9	198.	12.2	.0	.0	3107.7	37.1	-6.7
AUG	83.	5.1	5.24	.6	203.	12.5	.0	.0	3102.0	29.1	-8.0
SEP	89.	5.3	3.47	.4	0.	.0	.0	.0	3105.6	34.0	4.9
OCT	75.	4.6	2.23	.3	0.	.0	.0	.0	3108.5	38.3	4.3
NOV	74.	4.4	1.96	.3	0.	.0	.0	.0	3111.1	42.4	4.1
DEC	73.	4.5	.97	.1	0.	.0	2.3	.0	3112.3	44.5	2.1
TOTAL		55.4	37.28	4.8		24.7	2.3	.0			23.6

SWANSON LAKE OPERATION ESTIMATES - 1993

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	CONT 1000 AF	RESERVOIR CHANGE 1000 AF
					REASONABLE MINIMUM INFLOW CONDITIONS								
JAN	50.	3.1	.92	.3	.0	.1	2.	.1	.0	.0	2744.0	76.7	2.7
FEB	95.	5.3	1.06	.4	.0	.1	2.	.1	.0	.0	2745.2	81.5	4.8
MAR	111.	6.8	1.76	.6	.0	.1	2.	.1	.0	.0	2746.6	87.6	6.1
APR	97.	5.8	5.47	2.0	.0	.1	2.	.1	.0	.0	2747.5	91.3	3.7
MAY	80.	4.9	6.60	2.4	.0	.1	2.	.1	.0	.0	2748.0	93.7	2.4
JUN	54.	3.2	7.60	2.7	9.8	1.9	197.	11.7	.0	.0	2745.4	82.5	-11.2
JUL	11.	.7	8.96	2.7	19.2	15.8	569.	35.0	.0	.0	2735.1	45.5	-37.0
AUG	2.	.1	7.90	1.5	18.7	20.0	629.	38.7	.0	7.0	2720.0	12.4	-33.1
SEP	0.	.0	5.92	.7	2.2	2.7	82.	4.9	.0	4.8	2719.4	11.6	-.8
OCT	0.	.0	3.93	.4	.0	.1	2.	.1	.0	.0	2719.0	11.1	-.5
NOV	20.	1.2	2.01	.2	.0	.1	2.	.1	.0	.0	2719.7	12.0	.9
DEC	44.	2.7	1.16	.1	.0	.1	2.	.1	.0	.0	2721.4	14.5	2.5
TOTAL		33.8	53.29	14.0	49.9	41.2		91.1	.0	11.8			-59.5
					MOST PROBABLE INFLOW CONDITIONS								
JAN	96.	5.9	.88	.3	.0	.1	2.	.1	.0	.0	2744.7	79.5	5.5
FEB	142.	7.9	.97	.3	.0	.1	2.	.1	.0	.0	2746.5	87.0	7.5
MAR	155.	9.5	1.73	.6	.0	.1	2.	.1	.0	.0	2748.5	95.8	8.8
APR	163.	9.7	4.59	1.8	.0	.1	2.	.1	.0	.0	2750.2	103.6	7.8
MAY	158.	9.7	5.16	2.1	.0	.1	2.	.1	.0	.0	2751.8	111.1	7.5
JUN	119.	7.1	6.50	2.6	4.2	.1	72.	4.3	.0	.0	2751.8	111.3	.2
JUL	54.	3.3	7.58	2.9	13.7	5.7	316.	19.4	.0	.0	2747.7	92.3	-19.0
AUG	31.	1.9	6.62	2.3	14.4	6.2	335.	20.6	.0	.0	2742.6	71.3	-21.0
SEP	5.	.3	4.90	1.5	2.8	1.5	72.	4.3	.0	.0	2741.2	65.8	-5.5
OCT	18.	1.1	3.06	.9	.0	.1	2.	.1	.0	.0	2741.2	65.9	.1
NOV	69.	4.1	2.01	.6	.0	.1	2.	.1	.0	.0	2742.1	69.3	3.4
DEC	73.	4.5	1.09	.3	.0	.1	2.	.1	.0	.0	2743.2	73.4	4.1
TOTAL		65.0	45.09	16.2	35.1	14.3		49.4	.0	.0			-.6
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	120.	7.4	.85	.3	.0	.1	2.	.1	.0	.0	2745.1	81.0	7.0
FEB	184.	10.2	.92	.3	.0	.1	2.	.1	.0	.0	2747.4	90.8	9.8
MAR	220.	13.5	1.68	.6	.0	.1	2.	.1	.0	.0	2750.2	103.6	12.8
APR	276.	16.4	3.44	1.4	.0	6.4	108.	6.4	.0	.0	2752.0	112.2	8.6
MAY	291.	17.9	4.23	1.7	.0	.1	2.	.1	16.1	.0	2752.0	112.2	.0
JUN	250.	14.9	5.33	2.2	3.0	.1	52.	3.1	9.6	.0	2752.0	112.2	.0
JUL	200.	12.3	6.52	2.7	8.9	3.6	203.	12.5	.0	.0	2751.4	109.3	-2.9
AUG	81.	5.0	5.52	2.2	7.5	3.5	179.	11.0	.0	.0	2749.7	101.1	-8.2
SEP	104.	6.2	3.77	1.5	1.4	.1	25.	1.5	.0	.0	2750.3	104.3	3.2
OCT	133.	8.2	2.18	.9	.0	.1	2.	.1	.0	.0	2751.9	111.5	7.2
NOV	143.	8.5	2.01	.8	.0	.1	2.	.1	6.9	.0	2752.0	112.2	.7
DEC	112.	6.9	.99	.4	.0	.1	2.	.1	6.4	.0	2752.0	112.2	.0
TOTAL		127.4	37.44	15.0	20.8	14.4		35.2	39.0	.0			38.2

HUGH BUTLER LAKE OPERATION ESTIMATES - 1993

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	.83	.1	5.	.3	.0	.0	2574.0	26.5	.6
FEB	22.	1.2	.97	.1	5.	.3	.0	.0	2574.6	27.3	.8
MAR	23.	1.4	1.67	.2	5.	.3	.0	.0	2575.3	28.2	.9
APR	22.	1.3	5.64	.6	5.	.3	.0	.0	2575.6	28.6	.4
MAY	23.	1.4	7.01	.8	5.	.3	.0	.0	2575.8	28.9	.3
JUN	20.	1.2	8.39	.9	44.	2.6	.0	.0	2574.1	26.6	-2.3
JUL	15.	.9	9.38	.9	114.	7.0	.0	.0	2568.0	19.6	-7.0
AUG	11.	.7	8.02	.6	158.	9.7	.0	.4	2557.9	10.4	-9.2
SEP	7.	.4	6.08	.4	20.	1.2	.0	.9	2557.5	10.1	-.3
OCT	15.	.9	4.62	.3	5.	.3	.0	.0	2557.9	10.4	.3
NOV	17.	1.0	1.93	.1	5.	.3	.0	.0	2558.7	11.0	.6
DEC	18.	1.1	1.09	.1	5.	.3	.0	.0	2559.5	11.7	.7
TOTAL		12.5	55.63	5.1		22.9	.0	1.3			-14.2
					MOST PROBABLE INFLOW CONDITIONS						
JAN	21.	1.3	.78	.1	5.	.3	.0	.0	2574.2	26.8	.9
FEB	29.	1.6	.88	.1	5.	.3	.0	.0	2575.1	28.0	1.2
MAR	31.	1.9	1.64	.2	5.	.3	.0	.0	2576.2	29.4	1.4
APR	34.	2.0	4.99	.6	5.	.3	.0	.0	2577.0	30.5	1.1
MAY	34.	2.1	5.72	.7	5.	.3	.0	.0	2577.8	31.6	1.1
JUN	34.	2.0	6.90	.8	29.	1.7	.0	.0	2577.4	31.1	-.5
JUL	24.	1.5	7.72	.9	70.	4.3	.0	.0	2574.7	27.4	-3.7
AUG	24.	1.5	6.70	.7	70.	4.3	.0	.0	2571.8	23.9	-3.5
SEP	20.	1.2	5.10	.5	20.	1.2	.0	.0	2571.4	23.4	-.5
OCT	21.	1.3	3.35	.3	5.	.3	.0	.0	2572.0	24.1	.7
NOV	22.	1.3	1.93	.2	5.	.3	.0	.0	2572.7	24.9	.8
DEC	23.	1.4	.99	.1	5.	.3	.0	.0	2573.5	25.9	1.0
TOTAL		19.1	46.70	5.2		13.9	.0	.0			.0
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	29.	1.8	.76	.1	5.	.3	.0	.0	2574.6	27.3	1.4
FEB	40.	2.2	.84	.1	5.	.3	.0	.0	2576.0	29.1	1.8
MAR	49.	3.0	1.58	.2	5.	.3	.0	.0	2577.8	31.6	2.5
APR	49.	2.9	3.62	.4	5.	.3	.0	.0	2579.3	33.8	2.2
MAY	50.	3.1	4.78	.6	5.	.3	.0	.0	2580.7	36.0	2.2
JUN	66.	3.9	5.32	.7	18.	1.1	.3	.0	2581.8	37.8	1.8
JUL	55.	3.4	6.33	.9	42.	2.6	.0	.0	2581.7	37.7	-.1
AUG	42.	2.6	5.68	.8	42.	2.6	.0	.0	2581.3	36.9	-.8
SEP	37.	2.2	3.91	.5	15.	.9	.0	.0	2581.7	37.7	.8
OCT	31.	1.9	2.17	.3	5.	.3	1.2	.0	2581.8	37.8	.1
NOV	30.	1.8	1.93	.3	5.	.3	1.2	.0	2581.8	37.8	.0
DEC	28.	1.7	.89	.1	5.	.3	1.3	.0	2581.8	37.8	.0
TOTAL		30.5	37.81	5.0		9.6	4.0	.0			11.9

HARRY STRUNK LAKE OPERATION ESTIMATES - 1993

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	41.	2.5	.88	.1	37.	2.3	.0	.0	2365.6	34.8	.1
FEB	47.	2.6	.95	.1	45.	2.5	.0	.0	2365.6	34.8	.0
MAR	50.	3.1	1.63	.2	47.	2.9	.0	.0	2365.6	34.8	.0
APR	55.	3.3	5.64	.9	25.	1.5	.0	.0	2366.1	35.7	.9
MAY	52.	3.2	6.86	1.1	2.	.1	2.0	.0	2366.1	35.7	.0
JUN	45.	2.7	8.11	1.1	202.	12.1	.0	.0	2359.4	25.2	-10.5
JUL	24.	1.5	9.00	.8	276.	17.0	.0	.0	2343.0	8.9	-16.3
AUG	33.	2.0	7.85	.5	24.	5.9	.0	4.4	2343.0	8.9	.0
SEP	24.	1.4	6.05	.4	17.	1.0	.0	.0	2343.0	8.9	.0
OCT	34.	2.1	4.35	.3	2.	.1	.0	.0	2345.4	10.6	1.7
NOV	40.	2.4	1.89	.1	2.	.1	.0	.0	2348.1	12.8	2.2
DEC	41.	2.5	1.05	.1	2.	.1	.0	.0	2350.1	15.1	2.3
TOTAL		29.3	54.26	5.7		45.6	2.0	4.4			-19.6
					MOST PROBABLE INFLOW CONDITIONS						
JAN	52.	3.2	.81	.1	49.	3.0	.0	.0	2365.6	34.8	.1
FEB	63.	3.5	.85	.1	61.	3.4	.0	.0	2365.6	34.8	.0
MAR	60.	3.7	1.59	.2	57.	3.5	.0	.0	2365.6	34.8	.0
APR	69.	4.1	4.78	.7	42.	2.5	.0	.0	2366.1	35.7	.9
MAY	70.	4.3	5.46	.8	2.	.1	3.4	.0	2366.1	35.7	.0
JUN	71.	4.2	6.79	1.0	64.	3.8	.0	.0	2365.8	35.1	-.6
JUL	80.	4.9	7.77	1.0	233.	14.3	.0	.0	2359.1	24.7	-10.4
AUG	52.	3.2	6.57	.6	228.	14.0	.0	.0	2348.6	13.3	-11.4
SEP	35.	2.1	4.89	.4	24.	1.4	.0	.0	2349.0	13.6	.3
OCT	44.	2.7	3.22	.2	2.	.1	.0	.0	2351.6	16.0	2.4
NOV	49.	2.9	1.89	.2	2.	.1	.0	.0	2354.1	18.6	2.6
DEC	47.	2.9	.95	.1	2.	.1	.0	.0	2356.4	21.3	2.7
TOTAL		41.7	45.57	5.4		46.3	3.4	.0			-13.4
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	65.	4.0	.76	.1	62.	3.8	.0	.0	2365.6	34.8	.1
FEB	94.	5.2	.82	.1	92.	5.1	.0	.0	2365.6	34.8	.0
MAR	93.	5.7	1.52	.2	89.	5.5	.0	.0	2365.6	34.8	.0
APR	87.	5.2	3.65	.6	62.	3.7	.0	.0	2366.1	35.7	.9
MAY	104.	6.4	4.66	.7	2.	.1	5.6	.0	2366.1	35.7	.0
JUN	168.	10.0	5.52	.8	24.	1.4	7.8	.0	2366.1	35.7	.0
JUL	124.	7.6	6.55	1.0	135.	8.3	.0	.0	2365.2	34.0	-1.7
AUG	96.	5.9	5.59	.8	124.	7.6	.0	.0	2363.7	31.5	-2.5
SEP	59.	3.5	3.70	.5	2.	.1	.0	.0	2365.4	34.4	2.9
OCT	62.	3.8	2.44	.4	49.	3.0	.0	.0	2365.6	34.8	.4
NOV	66.	3.9	1.89	.3	61.	3.6	.0	.0	2365.6	34.8	.0
DEC	59.	3.6	.85	.1	57.	3.5	.0	.0	2365.6	34.8	.0
TOTAL		64.8	37.95	5.6		45.7	13.4	.0			.1

KEITH SEBELIUS OPERATIONS ESTIMATES - 1993

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	.85	.1	2.	.1	.0	.0	2286.4	9.7	-.2
FEB	2.	.1	.99	.1	2.	.1	.0	.0	2286.3	9.6	-.1
MAR	3.	.2	1.71	.1	2.	.1	.0	.0	2286.3	9.6	.0
APR	3.	.2	5.73	.4	2.	.1	.0	.0	2286.0	9.3	-.3
MAY	7.	.4	7.38	.5	2.	.1	.0	.0	2285.7	9.1	-.2
JUN	3.	.2	8.70	.5	82.	4.9	.0	.4	2278.6	4.3	-4.8
JUL	0.	.0	9.98	.4	109.	6.7	.0	6.5	2277.3	3.7	-0.6
AUG	0.	.0	8.66	.3	109.	6.7	.0	6.5	2276.2	3.2	-.5
SEP	0.	.0	6.22	.2	17.	1.0	.0	0.9	2275.5	2.9	-.3
OCT	0.	.0	5.12	.2	2.	.1	.0	.0	2274.7	2.6	-.3
NOV	0.	.0	1.96	.1	2.	.1	.0	.1	2274.4	2.5	-.1
DEC	2.	.1	1.06	.0	2.	.1	.0	.1	2274.7	2.6	.1
TOTAL		1.2	58.36	2.9		20.1	.0	14.5			-7.3
					MOST PROBABLE INFLOW CONDITIONS						
JAN	3.	.2	.82	.1	2.	.1	.0	.0	2286.6	9.9	.0
FEB	5.	.3	.95	.1	2.	.1	.0	.0	2286.8	10.0	.1
MAR	5.	.3	1.69	.1	2.	.1	.0	.0	2286.9	10.1	.1
APR	8.	.5	5.06	.4	2.	.1	.0	.0	2286.9	10.1	.0
MAY	15.	.9	5.73	.4	2.	.1	.0	.0	2287.3	10.5	.4
JUN	10.	.6	7.24	.5	8.	.5	.0	.0	2286.9	10.1	-.4
JUL	13.	.8	8.38	.5	86.	5.3	.0	.0	2280.1	5.1	-5.0
AUG	5.	.3	7.11	.3	70.	4.3	.0	3.5	2278.6	4.3	-0.8
SEP	2.	.1	5.26	.2	2.	.1	.0	.0	2278.2	4.1	-.2
OCT	2.	.1	3.60	.1	2.	.1	.0	.0	2278.0	4.0	-.1
NOV	3.	.2	1.96	.1	2.	.1	.0	.0	2278.0	4.0	.0
DEC	3.	.2	1.02	.0	2.	.1	.0	.0	2278.2	4.1	.1
TOTAL		4.5	48.82	2.8		11.0	.0	3.5			-5.8
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	5.	.3	.79	.1	2.	.1	.0	.0	2286.8	10.0	.1
FEB	11.	.6	.91	.1	2.	.1	.0	.0	2287.2	10.4	.4
MAR	15.	.9	1.67	.1	2.	.1	.0	.0	2288.0	11.1	.7
APR	20.	1.2	4.31	.4	2.	.1	.0	.0	2288.7	11.8	.7
MAY	31.	1.9	4.80	.4	2.	.1	.0	.0	2290.0	13.2	1.4
JUN	42.	2.5	5.63	.5	2.	.1	.0	.0	2291.7	15.1	1.9
JUL	63.	3.9	6.76	.7	26.	1.6	.0	.0	2293.0	16.7	1.6
AUG	57.	3.5	5.85	.6	28.	1.7	.0	.0	2293.9	17.9	1.2
SEP	39.	2.3	4.11	.5	2.	.1	.0	.0	2295.1	19.6	1.7
OCT	24.	1.5	2.58	.3	2.	.1	.0	.0	2295.9	20.7	1.1
NOV	7.	.4	1.96	.2	2.	.1	.0	.0	2296.0	20.8	.1
DEC	7.	.4	.96	.1	2.	.1	.0	.0	2296.1	21.0	.2
TOTAL		19.4	40.33	4.0		4.3	.0	.0			11.1

HARLAN COUNTY LAKE OPERATION ESTIMATES - 1993

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	75.	4.6	.74	.6	0.	.0	.0	.0	1934.0	181.2	4.0
FEB	130.	7.2	.94	.8	0.	.0	.0	.0	1934.7	187.6	6.4
MAR	200.	12.3	1.63	1.4	0.	.0	.0	.0	1935.8	198.5	10.9
APR	187.	11.1	5.36	4.5	0.	.0	.0	.0	1936.4	205.1	6.6
MAY	207.	12.7	6.43	5.5	46.	2.8	.0	.0	1936.8	209.5	4.4
JUN	138.	8.2	7.90	6.6	345.	20.5	.0	.0	1935.0	190.6	-18.9
JUL	85.	5.2	9.05	7.0	808.	49.7	.0	.0	1929.4	139.1	-51.5
AUG	89.	5.5	7.95	5.3	603.	37.1	.0	29.9	1928.5	132.1	-7.0
SEP	3.	.2	5.57	3.6	79.	4.7	.0	4.7	1928.1	128.7	-3.4
OCT	5.	.3	4.31	2.7	0.	.0	.0	.0	1927.7	126.3	-2.4
NOV	57.	3.4	1.89	1.2	0.	.0	.0	.0	1928.0	128.5	2.2
DEC	67.	4.1	.97	.6	0.	.0	.0	.0	1928.5	132.0	3.5
TOTAL		74.8	52.74	39.8		114.8	.0	34.6			-45.2
					MOST PROBABLE INFLOW CONDITIONS						
JAN	135.	8.3	.71	.6	0.	.0	.0	.0	1934.4	184.9	7.7
FEB	218.	12.1	.88	.7	0.	.0	.0	.0	1935.6	196.3	11.4
MAR	289.	17.8	1.60	1.4	0.	.0	.0	.0	1937.2	212.7	16.4
APR	311.	18.5	4.40	3.9	0.	.0	.0	.0	1938.5	227.3	14.6
MAY	359.	22.1	5.22	4.8	0.	.0	.0	.0	1940.1	244.6	17.3
JUN	218.	13.0	6.45	6.0	52.	3.1	.0	.0	1940.5	248.5	3.9
JUL	203.	12.5	7.36	6.7	449.	27.6	.0	.0	1938.5	226.7	-21.8
AUG	153.	9.4	6.20	5.4	398.	24.5	.0	.0	1936.5	206.2	-20.5
SEP	119.	7.1	4.73	4.0	45.	2.7	.0	.0	1936.6	206.6	.4
OCT	109.	6.7	3.23	2.8	0.	.0	.0	.0	1936.9	210.5	3.9
NOV	109.	6.5	1.89	1.6	0.	.0	.0	.0	1937.4	215.4	4.9
DEC	117.	7.2	.92	.8	10.	.6	.0	.0	1938.0	221.2	5.8
TOTAL		141.2	43.59	38.7		58.5	.0	.0			44.0
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	185.	11.4	.69	.6	0.	.0	.0	.0	1934.7	188.0	10.8
FEB	367.	20.4	.85	.7	0.	.0	.0	.0	1936.7	207.7	19.7
MAR	504.	31.0	1.55	1.4	0.	.0	.0	.0	1939.5	237.3	29.6
APR	516.	30.7	3.47	3.3	0.	.0	.0	.0	1941.9	264.7	27.4
MAY	696.	42.8	4.32	4.4	0.	.0	.0	.0	1945.1	303.1	38.4
JUN	508.	30.2	5.08	5.5	42.	2.5	10.2	.0	1946.0	315.1	12.0
JUL	384.	23.6	5.71	6.3	156.	9.6	7.7	.0	1946.0	315.1	.0
AUG	306.	18.8	4.85	5.4	122.	7.5	5.9	.0	1946.0	315.1	.0
SEP	207.	12.3	3.82	4.2	5.	.3	7.8	.0	1946.0	315.1	.0
OCT	156.	9.6	2.32	2.6	0.	.0	7.0	.0	1946.0	315.1	.0
NOV	168.	10.0	1.89	2.1	0.	.0	7.9	.0	1946.0	315.1	.0
DEC	184.	11.3	.87	1.0	0.	.0	10.3	.0	1946.0	315.1	.0
TOTAL		252.1	35.42	37.5		19.9	56.8	.0			137.9

LOVEWELL RESERVOIR OPERATION ESTIMATES - 1993

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	.0	0.	.0	.71	.2	0.	.0	.0	.0	1582.9	42.7	-.2
FEB	.2	.0	4.	.2	.89	.2	0.	.0	.0	.0	1582.9	42.7	.0
MAR	.4	2.3	44.	2.7	1.56	.4	0.	.0	.0	.0	1583.7	45.0	2.3
APR	.6	3.6	71.	4.2	4.59	1.2	0.	.0	.0	.0	1584.6	48.0	3.0
MAY	.8	4.9	93.	5.7	5.78	1.6	13.	.8	.0	.0	1585.6	51.3	3.3
JUN	.3	1.2	25.	1.5	7.05	1.9	116.	6.9	.0	.0	1583.3	44.0	-7.3
JUL	.1	8.5	140.	8.6	8.37	1.7	517.	31.8	.0	.0	1573.0	19.1	-24.9
AUG	.0	1.2	20.	1.2	7.33	1.1	307.	18.9	.0	16.5	1571.7	16.8	-2.3
SEP	.0	.5	8.	.5	5.03	.7	35.	2.1	.0	2.1	1571.6	16.6	-.2
OCT	.0	.0	0.	.0	3.61	.5	0.	.0	.0	.0	1571.3	16.1	-.5
NOV	.0	1.6	27.	1.6	1.82	.3	0.	.0	.0	.0	1572.1	17.4	1.3
DEC	.0	3.7	60.	3.7	.90	.1	0.	.0	.0	.0	1574.0	21.0	3.6
TOTAL	2.4	27.5		29.9	47.64	9.9		60.5	.0	18.6			-21.9
					MOST PROBABLE INFLOW CONDITIONS								
JAN	.5	.0	8.	.5	.69	.2	0.	.0	.0	.0	1583.1	43.2	.3
FEB	1.4	.0	25.	1.4	.83	.2	0.	.0	.0	.0	1583.5	44.4	1.2
MAR	2.2	.0	36.	2.2	1.53	.4	0.	.0	.0	.0	1584.0	46.2	1.8
APR	2.1	.7	47.	2.8	3.84	1.0	0.	.0	.0	.0	1584.6	48.0	1.8
MAY	3.3	1.7	81.	5.0	4.75	1.3	7.	.4	.0	.0	1585.6	51.3	3.3
JUN	5.2	1.2	108.	6.4	5.87	1.7	69.	4.1	.6	.0	1585.6	51.3	.0
JUL	3.5	1.2	76.	4.7	6.73	1.7	377.	23.2	.0	.0	1578.7	31.1	-20.2
AUG	.7	1.2	31.	1.9	5.71	1.0	239.	14.7	.0	.0	1572.0	17.3	-13.8
SEP	.3	1.3	27.	1.6	3.91	.6	25.	1.5	.0	.0	1571.7	16.8	-.5
OCT	.5	.0	8.	.5	2.62	.4	0.	.0	.0	.0	1571.8	16.9	.1
NOV	.5	1.6	35.	2.1	1.82	.3	0.	.0	.0	.0	1572.8	18.7	1.8
DEC	.6	3.7	70.	4.3	.85	.1	0.	.0	.0	.0	1575.0	22.9	4.2
TOTAL	20.8	12.6		33.4	39.15	8.9		43.9	.6	.0			-20.0
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	3.5	.0	57.	3.5	.67	.2	0.	.0	.0	.0	1584.0	46.2	3.3
FEB	5.3	.0	95.	5.3	.81	.2	0.	.0	3.3	.0	1584.6	48.0	1.8
MAR	12.4	.0	202.	12.4	1.50	.4	0.	.0	12.0	.0	1584.6	48.0	.0
APR	9.2	.0	155.	9.2	3.13	.9	0.	.0	8.3	.0	1584.6	48.0	.0
MAY	14.3	.0	233.	14.3	3.72	1.0	7.	.4	9.6	.0	1585.6	51.3	3.3
JUN	7.9	1.2	153.	9.1	4.75	1.4	39.	2.3	5.4	.0	1585.6	51.3	.0
JUL	11.3	1.2	203.	12.5	5.49	1.5	163.	10.0	10.6	.0	1582.6	41.7	-9.6
AUG	11.2	1.2	202.	12.4	4.19	1.0	125.	7.7	3.7	.0	1582.6	41.7	.0
SEP	10.7	.6	190.	11.3	2.91	.7	13.	.8	9.8	.0	1582.6	41.7	.0
OCT	11.3	.0	184.	11.3	1.77	.4	0.	.0	10.9	.0	1582.6	41.7	.0
NOV	5.8	.0	97.	5.8	1.82	.5	0.	.0	5.3	.0	1582.6	41.7	.0
DEC	4.7	.0	76.	4.7	.81	.2	0.	.0	4.5	.0	1582.6	41.7	.0
TOTAL	107.6	4.2		111.8	31.57	8.4		21.2	83.4	.0			-1.2

KIRWIN RESERVOIR OPERATION ESTIMATES - 1993

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	MONTH CONT 1000 AF	RESERVOIR CHANGE 1000 AF
					REASONABLE MINIMUM INFLOW CONDITIONS						
JAN	0.	.0	.81	.1	0.	.0	.0	.0	1704.8	20.1	-.1
FEB	4.	.2	1.04	.1	0.	.0	.0	.0	1704.9	20.2	.1
MAR	10.	.6	1.69	.2	0.	.0	.0	.0	1705.1	20.6	.4
APR	3.	.2	4.73	.6	0.	.0	.0	.0	1704.9	20.2	-.4
MAY	20.	1.2	5.93	.8	0.	.0	.0	.0	1705.1	20.6	.4
JUN	7.	.4	7.08	.9	54.	3.2	.0	.0	1702.7	16.9	-3.7
JUL	2.	.1	8.37	.9	143.	8.8	.0	2.5	1697.0	9.8	-7.1
AUG	0.	.0	7.57	.6	109.	6.7	.0	6.7	1696.3	9.2	-.6
SEP	0.	.0	5.24	.4	0.	.0	.0	.0	1695.8	8.8	-.4
OCT	0.	.0	4.00	.3	0.	.0	.0	.0	1695.5	8.5	-.3
NOV	0.	.0	1.91	.1	0.	.0	.0	.0	1695.4	8.4	-.1
DEC	0.	.0	1.00	.1	0.	.0	.0	.0	1695.2	8.3	-.1
TOTAL		2.7	49.37	5.1		18.7	.0	9.2			-11.9
					MOST PROBABLE INFLOW CONDITIONS						
JAN	10.	.6	.76	.1	0.	.0	.0	.0	1705.2	20.7	.5
FEB	18.	1.0	.98	.1	0.	.0	.0	.0	1705.7	21.6	.9
MAR	29.	1.8	1.67	.2	0.	.0	.0	.0	1706.7	23.2	1.6
APR	49.	2.9	4.00	.6	0.	.0	.0	.0	1707.9	25.5	2.3
MAY	50.	3.1	4.84	.8	0.	.0	.0	.0	1709.2	27.8	2.3
JUN	35.	2.1	6.11	1.0	35.	2.1	.0	.0	1708.6	26.8	-1.0
JUL	39.	2.4	6.93	1.0	98.	6.0	.0	.0	1706.1	22.2	-4.6
AUG	11.	.7	6.01	.8	75.	4.6	.0	.0	1703.1	17.5	-4.7
SEP	3.	.2	4.21	.5	0.	.0	.0	.0	1702.9	17.2	-.3
OCT	2.	.1	2.92	.4	0.	.0	.0	.0	1702.7	16.9	-.3
NOV	5.	.3	1.91	.2	0.	.0	.0	.0	1702.8	17.0	.1
DEC	7.	.4	.96	.1	0.	.0	.0	.0	1703.0	17.3	.3
TOTAL		15.6	41.30	5.8		12.7	.0	.0			-2.9
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	23.	1.4	.74	.1	0.	.0	.0	.0	1705.7	21.5	1.3
FEB	58.	3.2	.95	.1	0.	.0	.0	.0	1707.5	24.6	3.1
MAR	68.	4.2	1.65	.3	0.	.0	.0	.0	1709.5	28.5	3.9
APR	74.	4.4	3.36	.6	0.	.0	.0	.0	1711.3	32.3	3.8
MAY	133.	8.2	4.12	.9	0.	.0	.0	.0	1714.1	39.6	7.3
JUN	183.	10.9	4.91	1.3	22.	1.3	.0	.0	1716.9	47.9	8.3
JUL	99.	6.1	5.75	1.6	60.	3.7	.0	.0	1717.1	48.7	.8
AUG	220.	13.5	4.70	1.4	46.	2.8	.0	.0	1719.7	58.0	9.3
SEP	133.	7.9	3.29	1.1	0.	.0	.0	.0	1721.5	64.8	6.8
OCT	76.	4.7	2.09	.7	0.	.0	.0	.0	1722.5	68.8	4.0
NOV	49.	2.9	1.91	.7	0.	.0	.0	.0	1723.1	71.0	2.2
DEC	39.	2.4	.90	.3	0.	.0	.0	.0	1723.5	73.1	2.1
TOTAL		69.8	34.37	9.1		7.8	.0	.0			52.9

WEBSTER RESERVOIR OPERATION ESTIMATES - 1993

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	.88	.1	0.	.0	.0	.0	1863.9	9.4	-.1
FEB	2.	.1	1.03	.1	0.	.0	.0	.0	1863.9	9.4	.0
MAR	2.	.1	1.77	.2	0.	.0	.0	.0	1863.8	9.3	-.1
APR	8.	.5	5.31	.5	0.	.0	.0	.0	1863.8	9.3	.0
MAY	20.	1.2	6.48	.6	0.	.0	.0	.0	1864.3	9.9	.6
JUN	2.	.1	8.11	.7	77.	4.6	.0	.6	1860.0	5.3	-4.6
JUL	0.	.0	9.26	.7	148.	9.1	.0	9.1	1859.2	4.6	-.7
AUG	0.	.0	8.30	.6	114.	7.0	.0	7.0	1858.4	4.0	-.6
SEP	0.	.0	5.88	.4	0.	.0	.0	.0	1857.9	3.6	-.4
OCT	0.	.0	4.54	.3	0.	.0	.0	.0	1857.5	3.3	-.3
NOV	0.	.0	1.96	.1	0.	.0	.0	.0	1857.3	3.2	-.1
DEC	0.	.0	1.08	.1	0.	.0	.0	.0	1857.2	3.1	-.1
TOTAL		2.0	54.60	4.4		20.7	.0	16.7			-6.4
MOST PROBABLE INFLOW CONDITIONS											
JAN	5.	.3	.84	.1	0.	.0	.0	.0	1864.2	9.7	.2
FEB	16.	.9	.97	.1	0.	.0	.0	.0	1864.8	10.5	.8
MAR	31.	1.9	1.76	.2	0.	.0	.0	.0	1866.1	12.2	1.7
APR	39.	2.3	4.31	.5	0.	.0	.0	.0	1867.4	14.0	1.8
MAY	44.	2.7	5.28	.7	0.	.0	.0	.0	1868.7	16.0	2.0
JUN	34.	2.0	6.83	.9	37.	2.2	.0	.0	1868.0	14.9	-1.1
JUL	8.	.5	7.71	.8	106.	6.5	.0	.0	1862.8	8.1	-6.8
AUG	11.	.7	6.66	.6	81.	5.0	.0	2.1	1860.0	5.3	-2.8
SEP	0.	.0	4.92	.4	0.	.0	.0	.0	1859.5	4.9	-.4
OCT	2.	.1	3.37	.2	0.	.0	.0	.0	1859.4	4.8	-.1
NOV	2.	.1	1.96	.1	0.	.0	.0	.0	1859.4	4.8	.0
DEC	5.	.3	1.04	.1	0.	.0	.0	.0	1859.6	5.0	.2
TOTAL		11.8	45.65	4.7		13.7	.0	2.1			-4.5
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	24.	1.5	.81	.1	0.	.0	.0	.0	1865.1	10.9	1.4
FEB	41.	2.3	.93	.1	0.	.0	.0	.0	1866.8	13.1	2.2
MAR	50.	3.1	1.74	.2	0.	.0	.0	.0	1868.7	16.0	2.9
APR	106.	6.3	3.52	.5	0.	.0	.0	.0	1872.1	21.8	5.8
MAY	102.	6.3	4.45	.7	0.	.0	.0	.0	1875.0	27.4	5.6
JUN	77.	4.6	5.45	1.0	0.	.0	.0	.0	1876.7	31.0	3.6
JUL	124.	7.6	6.50	1.2	52.	3.2	.0	.0	1878.1	34.2	3.2
AUG	88.	5.4	5.43	1.1	36.	2.2	.0	.0	1879.0	36.3	2.1
SEP	37.	2.2	3.65	.7	0.	.0	.0	.0	1879.6	37.8	1.5
OCT	39.	2.4	2.33	.5	0.	.0	.0	.0	1880.3	39.7	1.9
NOV	27.	1.6	1.96	.4	0.	.0	.0	.0	1880.8	40.9	1.2
DEC	20.	1.2	1.00	.2	0.	.0	.0	.0	1881.2	41.9	1.0
TOTAL		44.5	37.77	6.7		5.4	.0	.0			32.4

WACONDA LAKE OPERATION ESTIMATES - 1993

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	33.	2.0	.0	.0	1455.6	241.5	-1.2
FEB	40.	2.2	.95	1.0	22.	1.2	.0	.0	1455.6	241.5	.0
MAR	44.	2.7	1.67	1.8	15.	.9	.0	.0	1455.6	241.5	.0
APR	52.	3.1	5.65	5.9	2.	.1	.0	.0	1455.4	238.6	-2.9
MAY	86.	5.3	6.78	7.1	2.	.1	.0	.0	1455.2	236.7	-1.9
JUN	84.	5.0	8.62	8.9	35.	2.1	.0	.0	1454.7	230.7	-6.0
JUL	41.	2.5	10.50	10.5	99.	6.1	.0	.0	1453.5	216.6	-14.1
AUG	33.	2.0	9.14	8.7	99.	6.1	.0	.0	1452.4	203.8	-12.8
SEP	2.	.1	6.59	6.1	35.	2.1	.0	.0	1451.7	195.7	-8.1
OCT	2.	.1	4.70	4.2	2.	.1	.0	.0	1451.3	191.5	-4.2
NOV	22.	1.3	1.89	1.7	2.	.1	.0	.0	1451.3	191.0	-.5
DEC	18.	1.1	.95	.8	11.	.7	.0	.0	1451.2	190.6	-.4
TOTAL		27.0	58.22	57.5		21.6	.0	.0			-52.1
					MOST PROBABLE INFLOW CONDITIONS						
JAN	50.	3.1	.73	.8	57.	3.5	.0	.0	1455.6	241.5	-1.2
FEB	106.	5.9	.88	.9	90.	5.0	.0	.0	1455.6	241.5	.0
MAR	148.	9.1	1.65	1.7	120.	7.4	.0	.0	1455.6	241.5	.0
APR	155.	9.2	4.70	4.9	2.	.1	4.2	.0	1455.6	241.5	.0
MAY	233.	14.3	5.44	5.7	2.	.1	8.5	.0	1455.6	241.5	.0
JUN	200.	11.9	7.15	7.5	25.	1.5	2.9	.0	1455.6	241.5	.0
JUL	143.	8.8	8.52	8.9	70.	4.3	.0	.0	1455.3	237.1	-4.4
AUG	125.	7.7	7.20	7.4	70.	4.3	.0	.0	1454.9	233.1	-4.0
SEP	124.	7.4	5.33	5.5	25.	1.5	.0	.0	1455.0	233.5	.4
OCT	85.	5.2	3.51	3.6	2.	.1	.0	.0	1455.1	235.0	1.5
NOV	45.	2.7	1.89	2.0	2.	.1	.0	.0	1455.1	235.6	.6
DEC	55.	3.4	.93	1.0	39.	2.4	.0	.0	1455.1	235.6	.0
TOTAL		88.7	47.93	49.9		30.3	15.6	.0			-7.1
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	168.	10.3	.69	.7	176.	10.8	.0	.0	1455.6	241.5	-1.2
FEB	319.	17.7	.84	.9	303.	16.8	.0	.0	1455.6	241.5	.0
MAR	677.	41.6	1.61	1.7	649.	39.9	.0	.0	1455.6	241.5	.0
APR	716.	42.6	3.80	4.0	2.	.1	38.5	.0	1455.6	241.5	.0
MAY	620.	38.1	4.63	4.9	2.	.1	33.1	.0	1455.6	241.5	.0
JUN	654.	38.9	5.73	6.0	2.	.1	32.8	.0	1455.6	241.5	.0
JUL	652.	40.1	6.52	6.8	2.	.1	33.2	.0	1455.6	241.5	.0
AUG	346.	21.3	5.82	6.1	2.	.1	15.1	.0	1455.6	241.5	.0
SEP	412.	24.5	4.18	4.4	2.	.1	20.0	.0	1455.6	241.5	.0
OCT	259.	15.9	2.55	2.7	2.	.1	13.1	.0	1455.6	241.5	.0
NOV	158.	9.4	1.89	2.0	2.	.1	7.3	.0	1455.6	241.5	.0
DEC	151.	9.3	.88	.9	2.	.1	8.3	.0	1455.6	241.5	.0
TOTAL		309.7	39.14	41.1		68.4	201.4	.0			-1.2

CEDAR BLUFF RESERVOIR OPERATION ESTIMATES - 1993

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	1.06	.1	0.	.0	.0	.0	2091.7	10.0	-.1
FEB	0.	.0	1.18	.1	0.	.0	.0	.0	2091.6	9.9	-.1
MAR	0.	.0	1.92	.2	0.	.0	.0	.0	2091.5	9.7	-.2
APR	5.	.3	6.51	.5	0.	.0	.0	.0	2091.3	9.5	-.2
MAY	10.	.6	7.87	.7	3.	.2	.0	.0	2091.0	9.2	-.3
JUN	5.	.3	9.39	.7	3.	.2	.0	.0	2090.4	8.6	-.6
JUL	0.	.0	11.13	.8	11.	.7	.0	.7	2089.5	7.8	-.8
AUG	0.	.0	9.68	.7	11.	.7	.0	.7	2088.6	7.1	-.7
SEP	0.	.0	7.57	.5	3.	.2	.0	.2	2088.0	6.6	-.5
OCT	0.	.0	6.25	.4	0.	.0	.0	.0	2087.5	6.2	-.4
NOV	0.	.0	2.07	.1	0.	.0	.0	.0	2087.3	6.1	-.1
DEC	0.	.0	1.19	.1	0.	.0	.0	.0	2087.2	6.0	-.1
TOTAL		1.2	65.82	4.9		2.0	.0	1.6			-4.1
					MOST PROBABLE INFLOW CONDITIONS						
JAN	2.	.1	.95	.1	0.	.0	.0	.0	2091.8	10.1	.0
FEB	9.	.5	1.06	.1	0.	.0	.0	.0	2092.2	10.5	.4
MAR	10.	.6	1.90	.2	0.	.0	.0	.0	2092.6	10.9	.4
APR	24.	1.4	5.29	.5	0.	.0	.0	.0	2093.4	11.8	.9
MAY	31.	1.9	6.29	.6	2.	.1	.0	.0	2094.4	13.0	1.2
JUN	27.	1.6	7.84	.8	2.	.1	.0	.0	2094.9	13.7	.7
JUL	20.	1.2	9.12	1.0	10.	.6	.0	.0	2094.6	13.3	-.4
AUG	16.	1.0	7.76	.8	7.	.4	.0	.0	2094.4	13.1	-.2
SEP	2.	.1	6.17	.6	2.	.1	.0	.0	2094.0	12.5	-.6
OCT	2.	.1	4.44	.4	0.	.0	.0	.0	2093.7	12.2	-.3
NOV	0.	.0	2.07	.2	0.	.0	.0	.0	2093.5	12.0	-.2
DEC	0.	.0	1.11	.1	0.	.0	.0	.0	2093.5	11.9	-.1
TOTAL		8.5	54.00	5.4		1.3	.0	.0			1.8
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	18.	1.1	.86	.1	0.	.0	.0	.0	2092.8	11.1	1.0
FEB	29.	1.6	.97	.1	0.	.0	.0	.0	2094.0	12.6	1.5
MAR	68.	4.2	1.86	.2	0.	.0	.0	.0	2097.1	16.6	4.0
APR	91.	5.4	4.10	.5	0.	.0	.0	.0	2100.3	21.5	4.9
MAY	91.	5.6	4.93	.7	2.	.1	.0	.0	2103.1	26.3	4.8
JUN	153.	9.1	6.21	1.0	2.	.1	.0	.0	2107.3	34.3	8.0
JUL	250.	15.4	7.55	1.5	2.	.1	.0	.0	2113.3	48.1	13.8
AUG	127.	7.8	6.36	1.4	0.	.0	.0	.0	2115.8	54.5	6.4
SEP	61.	3.6	4.78	1.1	0.	.0	.0	.0	2116.7	57.0	2.5
OCT	62.	3.8	3.05	.7	0.	.0	.0	.0	2117.7	60.1	3.1
NOV	27.	1.6	2.07	.5	0.	.0	.0	.0	2118.1	61.2	1.1
DEC	21.	1.3	1.00	.3	0.	.0	.0	.0	2118.4	62.2	1.0
TOTAL		60.5	43.74	8.1		.3	.0	.0			52.1

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

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

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

HUGH BUTLER

Year	$ Damages Prevented	Cumulative Total
1962	2,000	2,000
1965	137,000	139,000
1967	42,000	181,000

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

KEITH SEBELIUS

Year	$ Damages Prevented	Cumulative Total
1966	132,000	132,000
1967	885,000	1,017,000
1972	498,000	1,515,000

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

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

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

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

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

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

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

NOTE: Construction cost of storage dams -- $208,954,130. The reservoirs upstream from Harlan County Lake have not received benefits for damages prevented since 1972.

TABLE 6

WATER DIVERTED IN 1992 AND THE ESTIMATED DIVERSION FOR 1993

(Units – Acre–Feet)

Irrigation District and Canal	1992 Irrigation Operations From	To	10–Year Average Diversion (1982–91)	1992 Diversion	Estimated Diversion in 1993
Mirage Flats Irrigation District					
Mirage Flats Canal	7/09	9/06	14,432	11,950	13,000
Ainsworth Irrigation District					
Ainsworth Canal	5/06	9/30	67,240	60,320	80,000
Sargent Irrigation District					
Sargent Canal	6/19	9/23	25,676	15,664	25,000
Farwell Irrigation District					
Farwell Canal	6/05	9/05	73,140	49,718	78,000
Twin Loups Irrigation District					
Above Davis Creek	5/04	9/25	--	17,112	70,000
Below Davis Creek	6/15	9/16	--	7,141	14,000
Total Twin Loups Irrigation District			--	24,253	84,000
Frenchman Valley Irrigation District					
Culbertson Canal	4/08	8/26	11,680	8,920	11,000
H & RW Irrigation District					
Culbertson Extension Canal	6/25	8/26	15,802	9,645	10,000
Frenchman–Cambridge Irrigation District					
Meeker–Driftwood Canal	6/22	9/12	30,028	20,194	27,000
Red Willow Canal	6/24	9/11	8,392	5,509	8,000
Bartley Canal	6/23	9/11	9,036	7,325	9,000
Cambridge Canal	6/23	9/11	27,960	22,404	26,000
Total Frenchman–Cambridge Irrigation District			75,416	55,432	70,000
Almena Irrigation District					
Almena Canal	No irrigation in 1992		987	0	4,000
Bostwick Irrigation District in Nebraska					
Franklin Canal	6/30	9/05	27,478	14,608	21,000
Naponee Canal	7/04	9/03	2,974	1,139	2,300
Franklin Pump Canal	6/29	9/04	3,167	1,787	2,600
Superior Canal	6/22	9/04	14,672	7,110	11,500
Courtland Canal (Nebraska)	1/01	9/04	1,824	827	2,000
Total Bostwick Irrigation District in Nebraska			50,115	25,471	39,400
Kansas–Bostwick Irrigation District					
Courtland Canal above Lovewell	1/01	9/04	25,970	8,249	24,000
Courtland Canal below Lovewell	6/08	9/01	47,523	12,074	46,000
Total Kansas–Bostwick Irrigation District			73,493	20,323	70,000
Kirwin Irrigation District					
Kirwin Canal	No irrigation in 1992		8,405	0	12,000
Webster Irrigation District					
Osborne Canal	No irrigation in 1992		5,099	0	3,000
Glen Elder Irrigation District	No project water in 1992		--	--	10,000
Cedar Bluff Irrigation District					
Cedar Bluff Canal	No irrigation in 1992		0	0	0
TOTAL			421,485	281,696	509,400

TABLE 7
NEBRASKA–KANSAS PROJECTS OFFICE
Summary of Precipitation, Reservoir Storage and Inflows

CALENDAR YEAR 1992

Reservoir	Total Precip. Inches	Percent Of Average %	Storage 12–31–91 AF	Storage 12–31–92 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	14.59	92	11,799	10,768	(1,031)	18,000	JUL 8	6,473	SEP 6	13,865	76
Merritt	18.12	94	68,560	68,560	0	75,075	JUN 19	51,221	AUG 24	165,576	93
Sherman	20.97	95	50,584	50,820	236	69,653	JUL 1	47,143	APR 12	73,155	44
Calamus	30.82	136	108,474	108,520	46	128,995	JUN 6	81,289	OCT 1	246,746	103
Davis Creek	----	---	2,791	10,696	7,905	14,142	SEP 25	1,974	MAY 9	----	---
Bonny	18.52	111	40,931	36,763	(4,168)	42,654	FEB 11	35,302	OCT 25	14,831	87
Enders	23.15	125	17,570	20,860	3,290	23,946	JUL 1	15,382	AUG 18	19,495	58
Swanson	21.05	107	48,638	73,958	25,320	82,895	JUN 23	48,984	JAN 1	68,135	105
Hugh Butler	22.83	117	21,415	25,935	4,520	26,071	JUN 23	21,492	JAN 1	17,576	92
Harry Strunk	20.36	100	20,138	34,669	14,531	34,957	DEC 16	20,277	JAN 1	34,233	82
Keith Sebelius	30.58	128	4,057	9,879	5,822	10,369	AUG 11	4,082	JAN 1	8,621	192
Harlan County	26.35	118	137,580	177,172	39,592	177,957	JUN 22	138,222	JAN 1	105,893	75
Lovewell	36.91	133	28,020	42,860	14,840	55,550	JUL 25	28,360	JAN 1	56,397	117
Kirwin	30.24	131	8,509	20,238	11,729	20,238	DEC 30	8,518	FEB 11	15,598	100
Webster	25.85	112	4,589	9,452	4,863	9,452	DEC 31	4,640	JAN 4	8,034	68
Waconda	37.64	150	180,798	242,716	61,918	261,054	AUG 10	181,214	JAN 1	170,990	193
Cedar Bluff	24.54	120	11,980	10,119	(1,861)	12,148	JAN 15	10,000	NOV 9	2,484	29

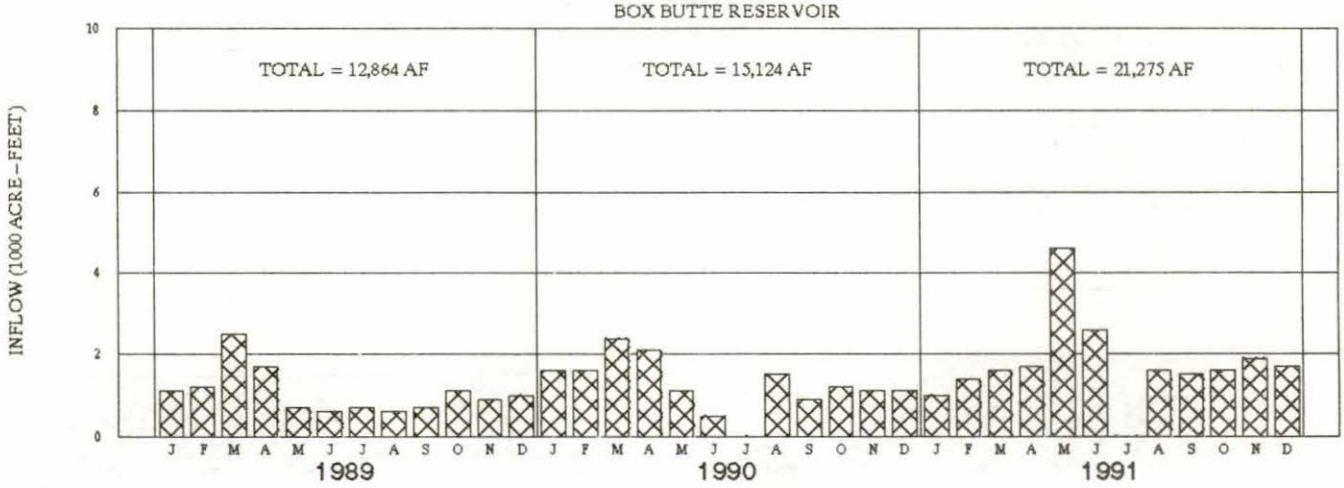
EXHIBIT 1A

BOX BUTTE RESERVOIR

OPERATION

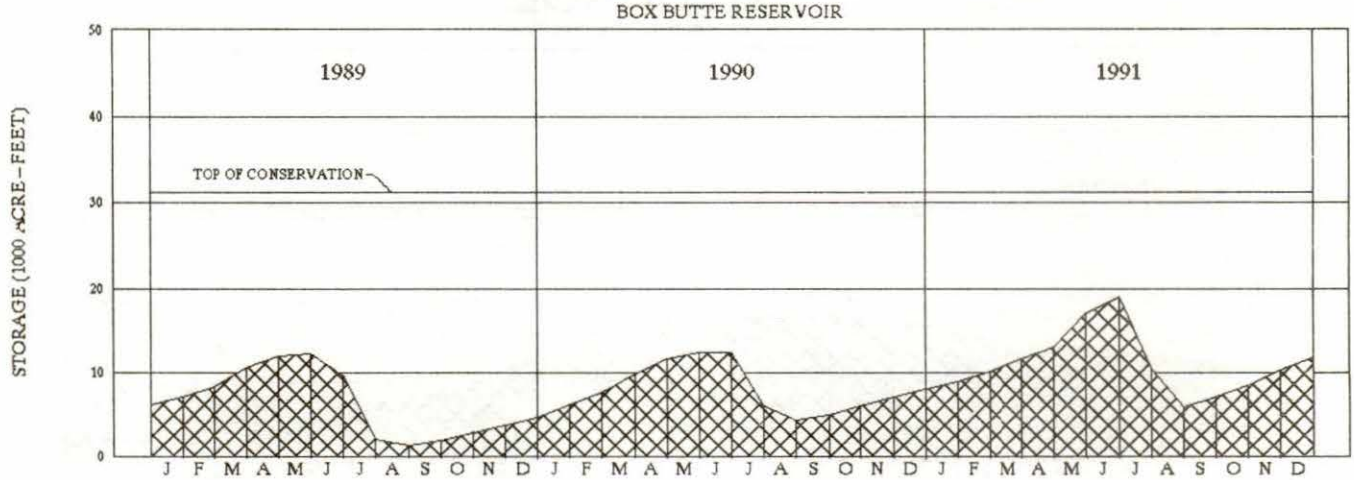
INFLOW

BOX BUTTE RESERVOIR



STORAGE

BOX BUTTE RESERVOIR



OUTFLOW

BOX BUTTE RESERVOIR

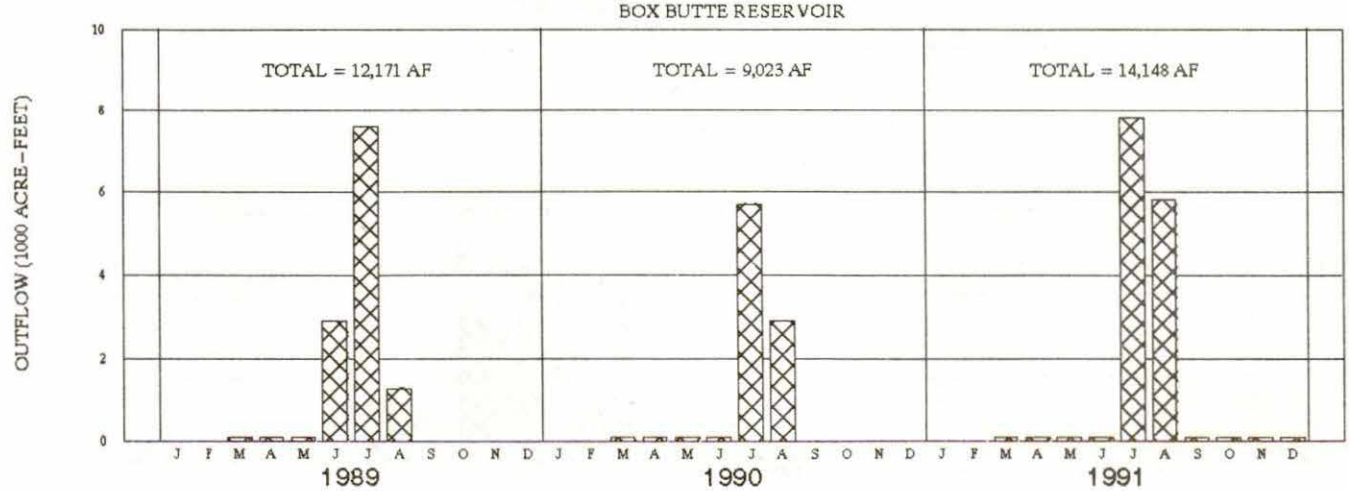


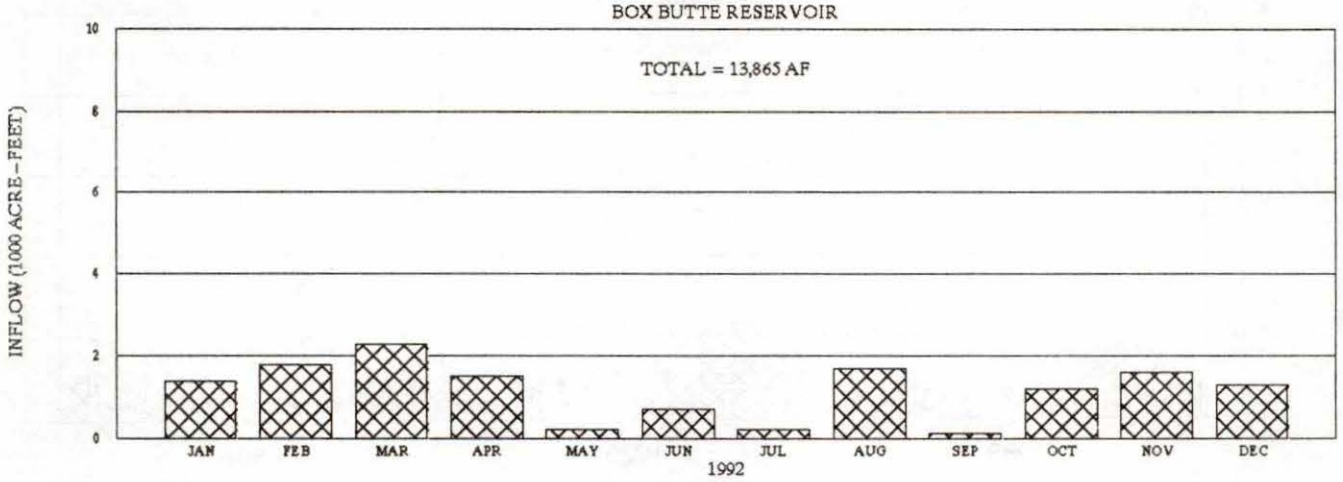
EXHIBIT 1B

BOX BUTTE RESERVOIR

1992 OPERATION

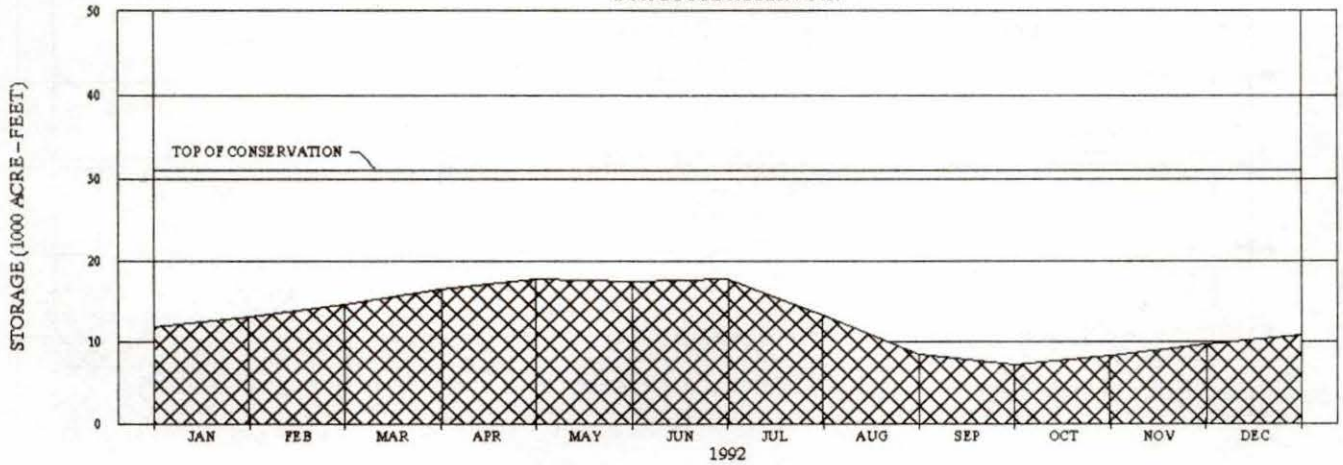
INFLOW

BOX BUTTE RESERVOIR



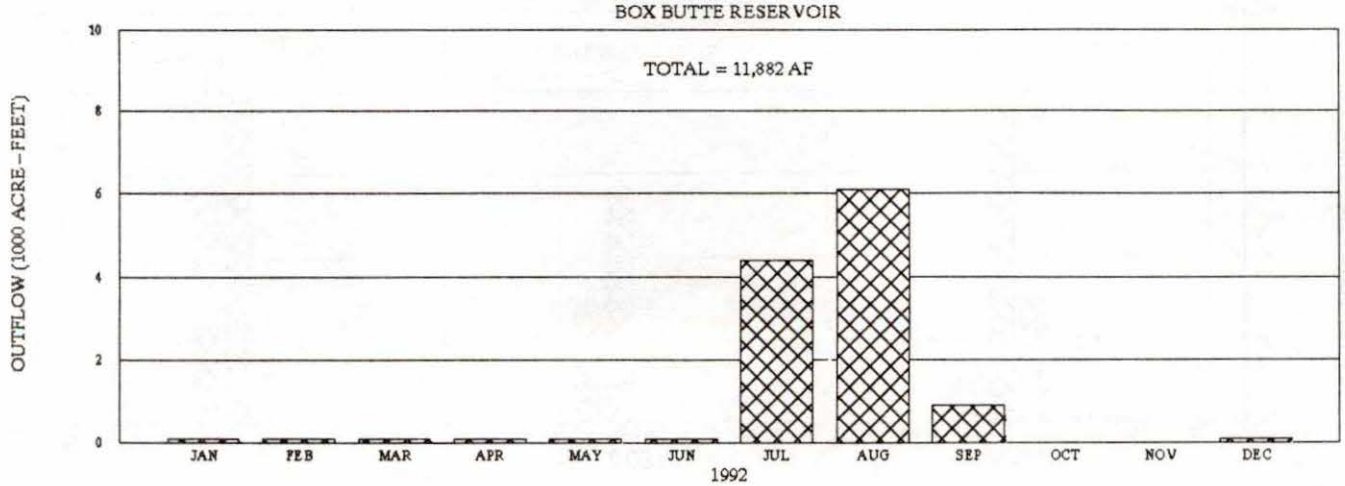
STORAGE

BOX BUTTE RESERVOIR



OUTFLOW

BOX BUTTE RESERVOIR

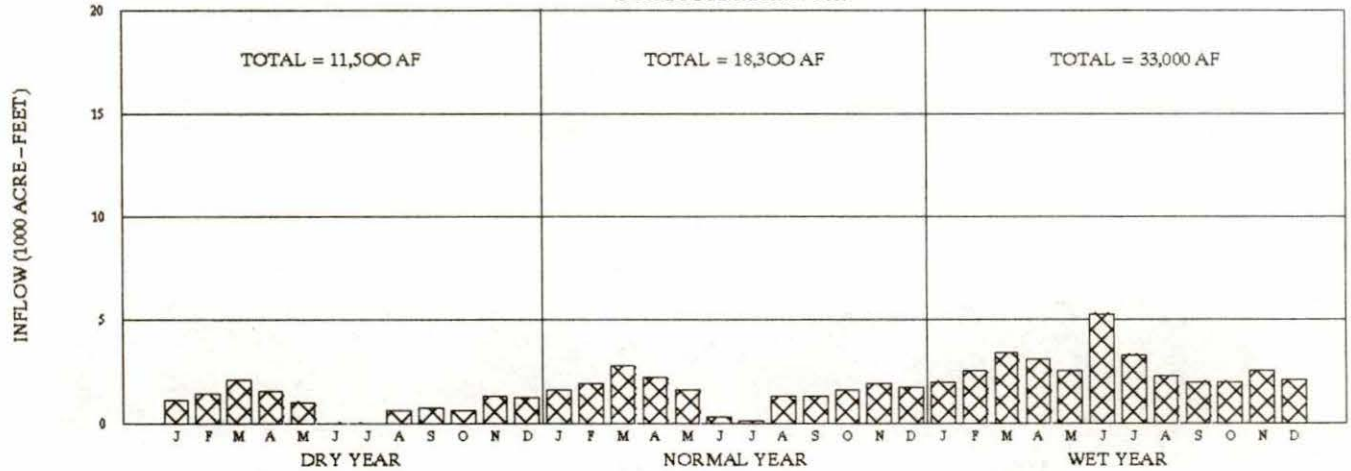


BOX BUTTE RESERVOIR

1993 OPERATION PLAN

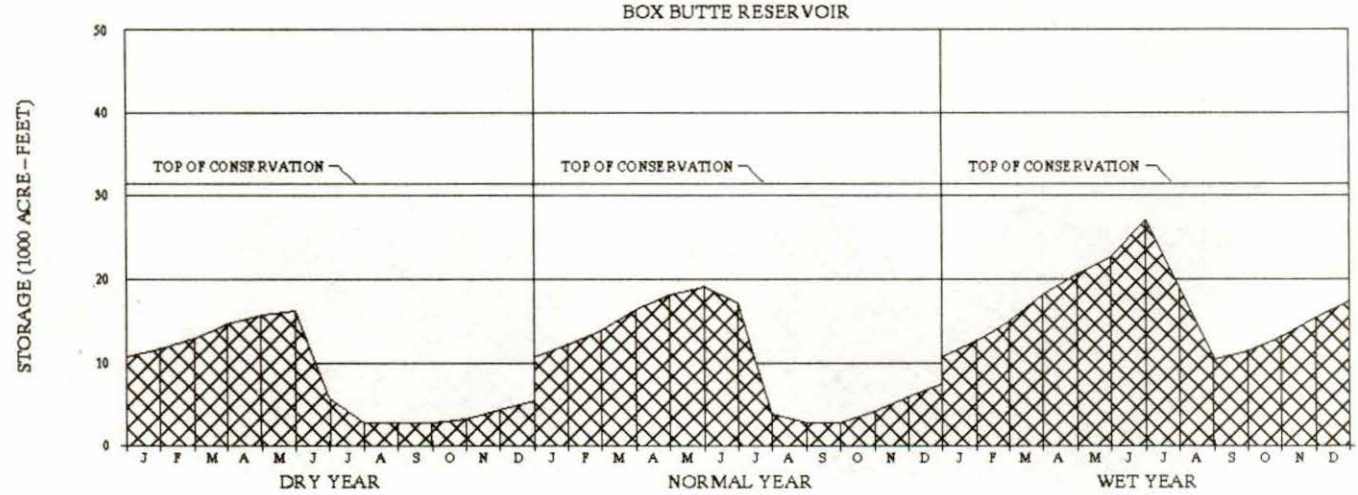
INFLOW

BOX BUTTE RESERVOIR



STORAGE

BOX BUTTE RESERVOIR



OUTFLOW

BOX BUTTE RESERVOIR

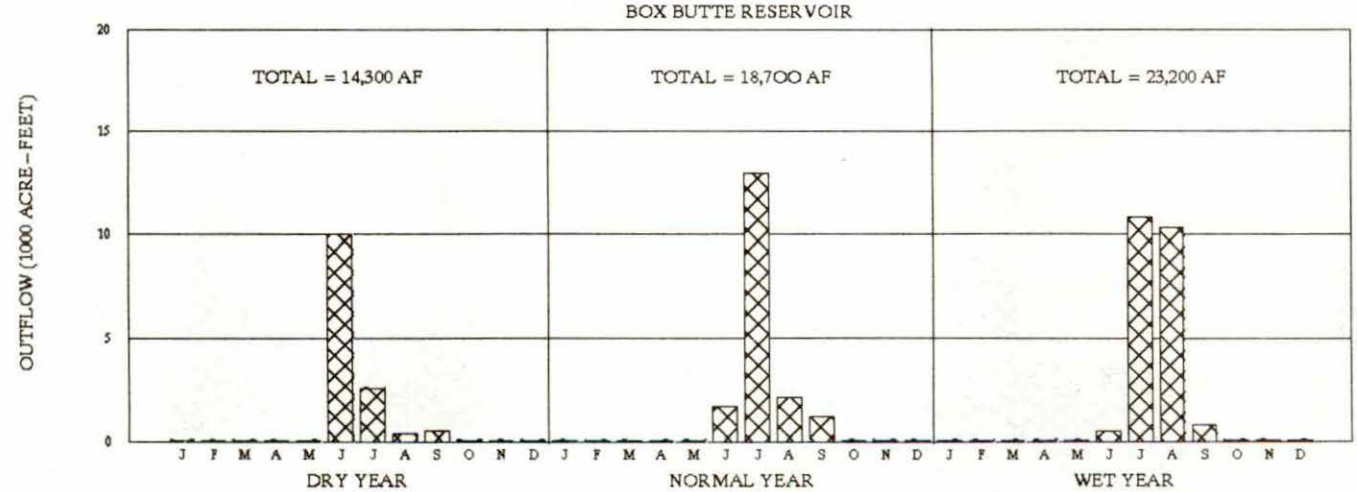


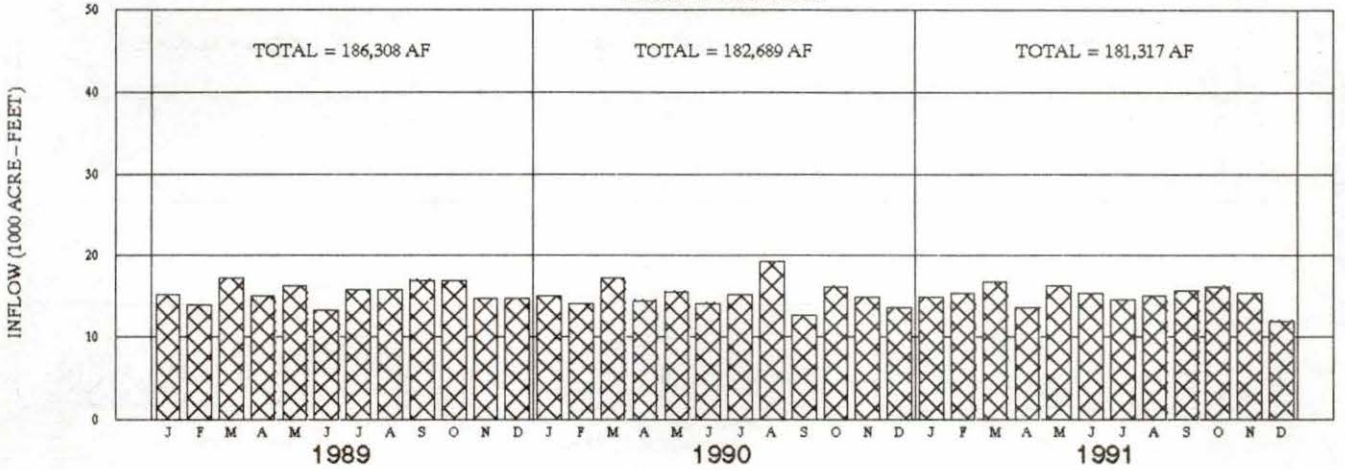
EXHIBIT 2A

MERRITT RESERVOIR

OPERATION

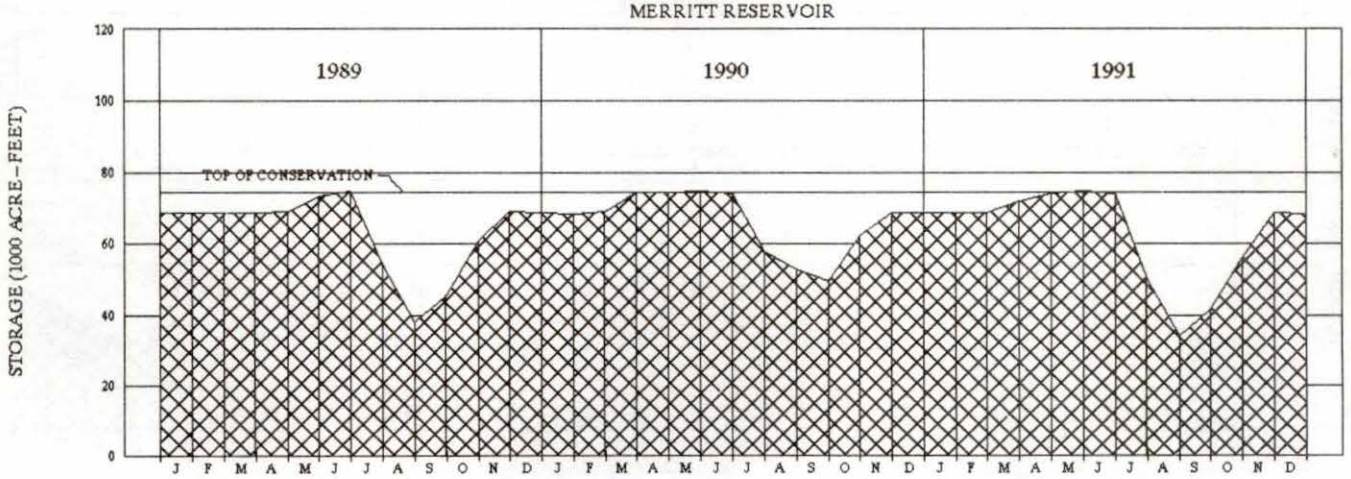
INFLOW

MERRITT RESERVOIR



STORAGE

MERRITT RESERVOIR



OUTFLOW

MERRITT RESERVOIR

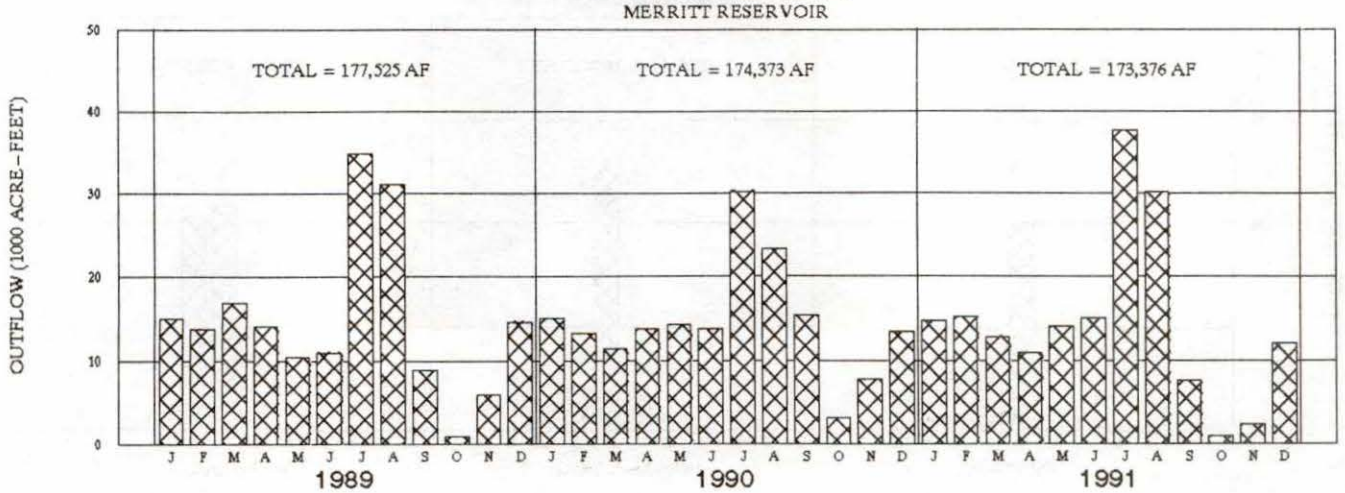


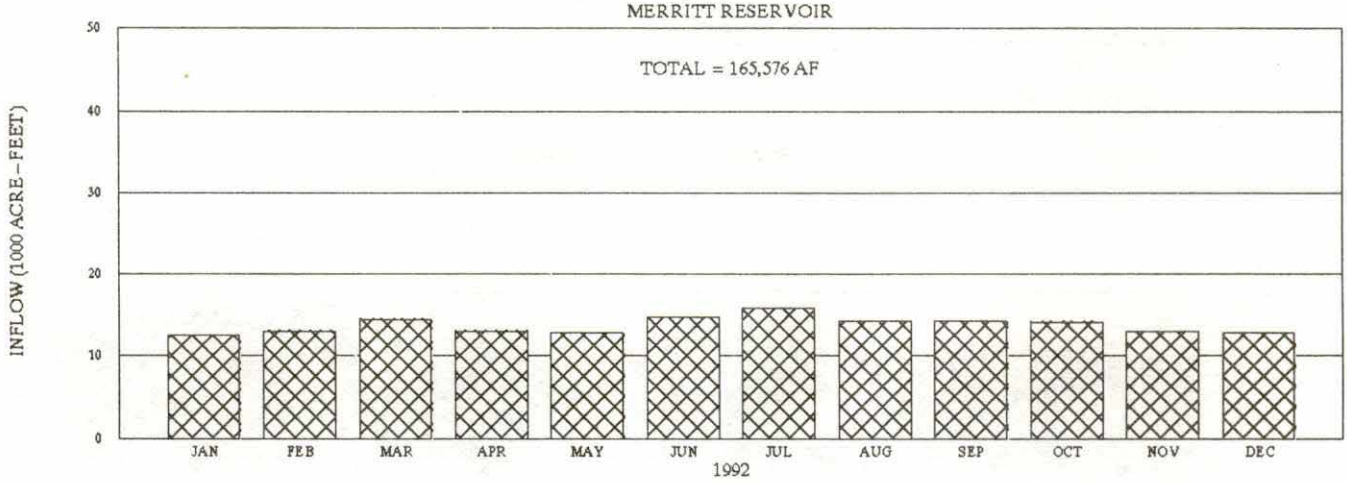
EXHIBIT 2B

MERRITT RESERVOIR

1992 OPERATION

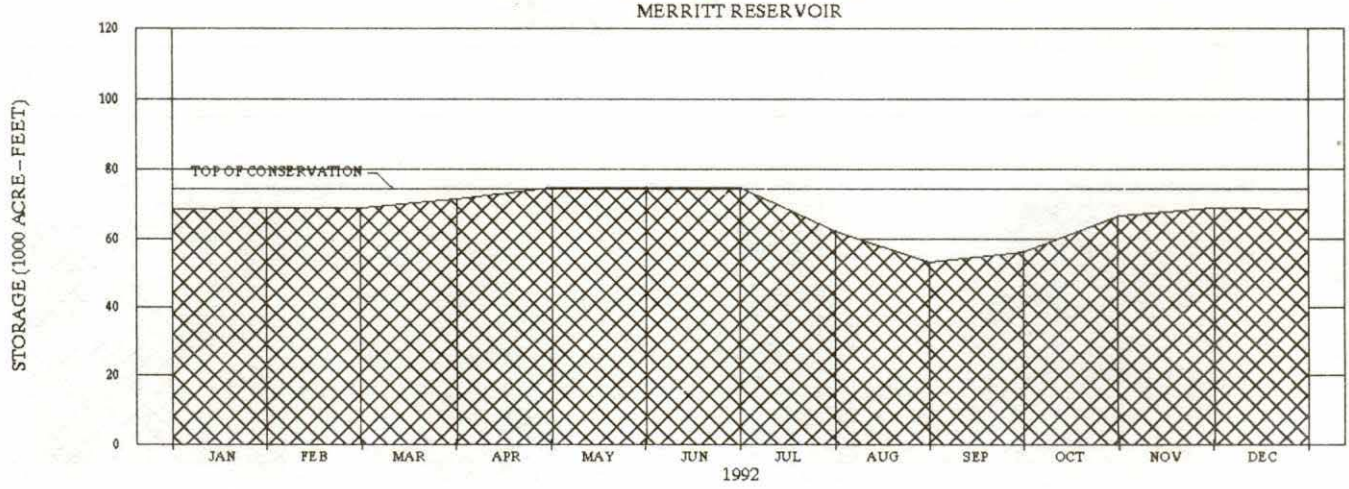
INFLOW

MERRITT RESERVOIR



STORAGE

MERRITT RESERVOIR



OUTFLOW

MERRITT RESERVOIR

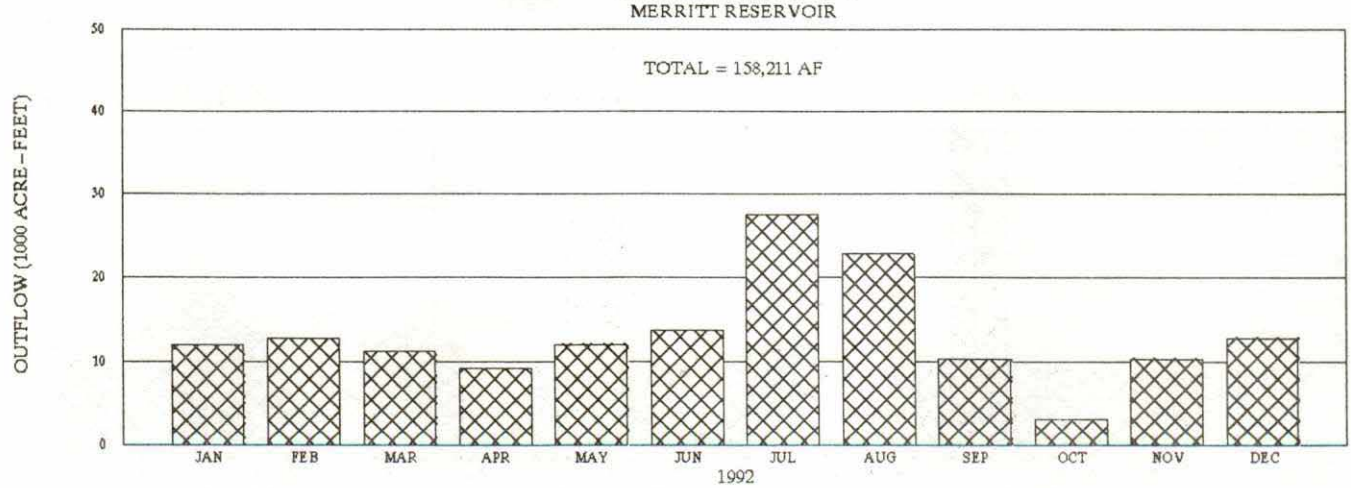


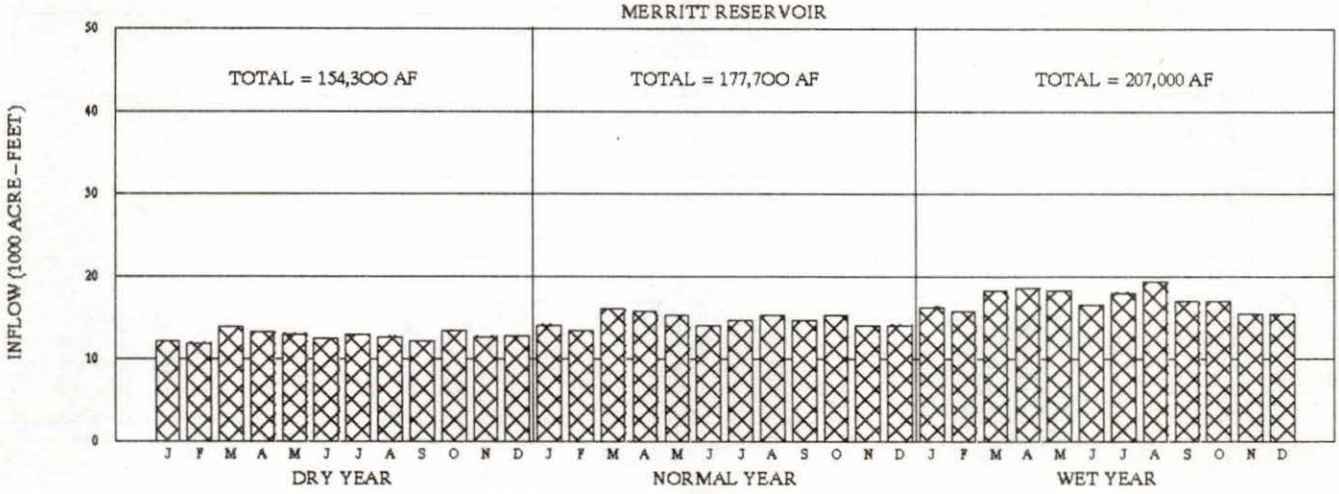
EXHIBIT 2C

MERRITT RESERVOIR

1993 OPERATION PLAN

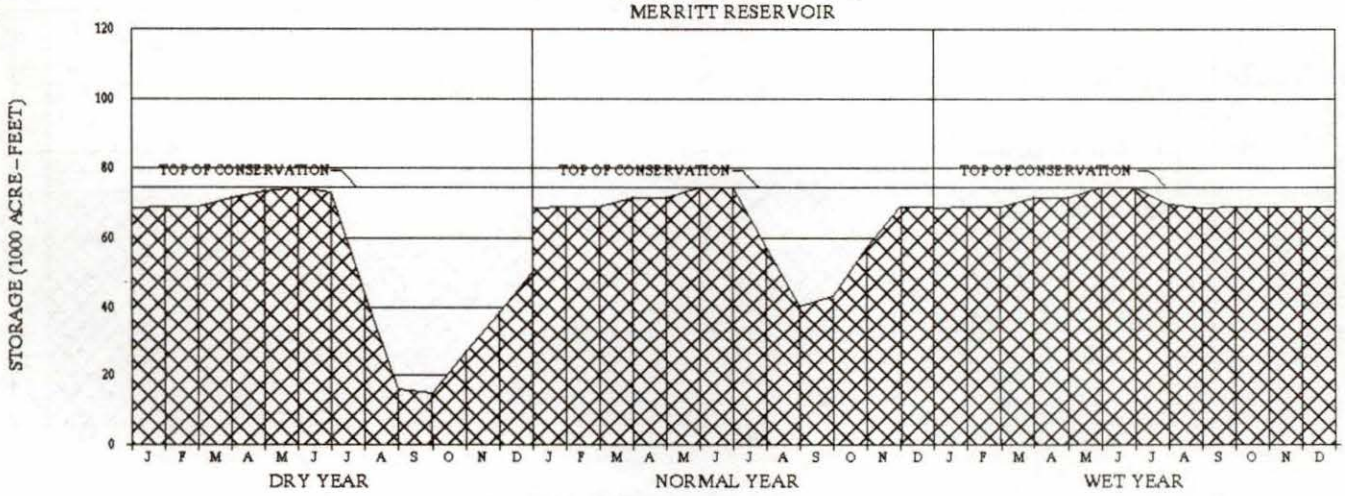
INFLOW

MERRITT RESERVOIR



STORAGE

MERRITT RESERVOIR



OUTFLOW

MERRITT RESERVOIR

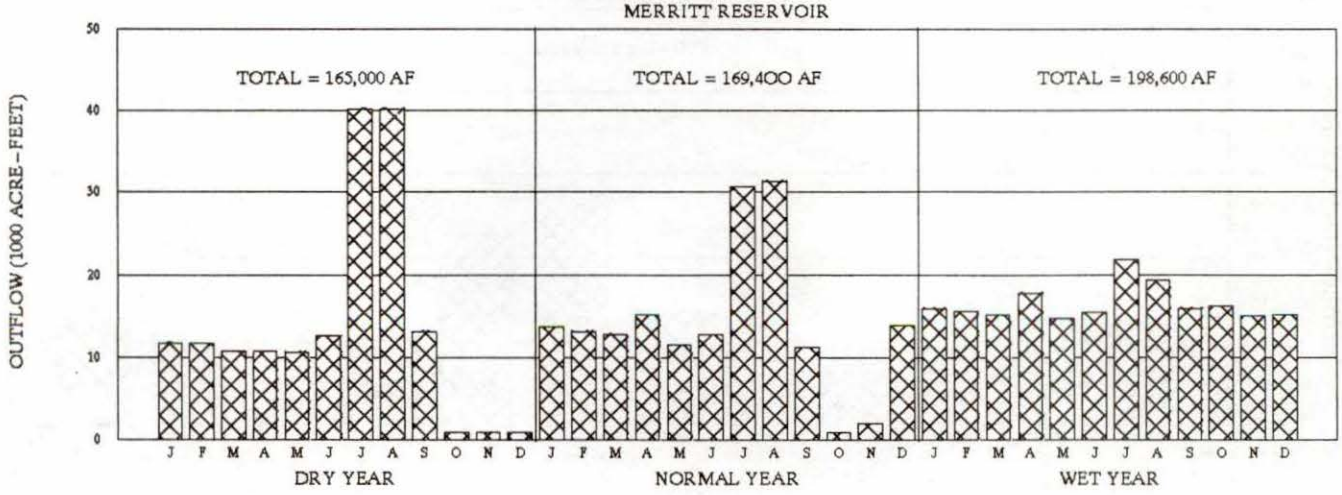


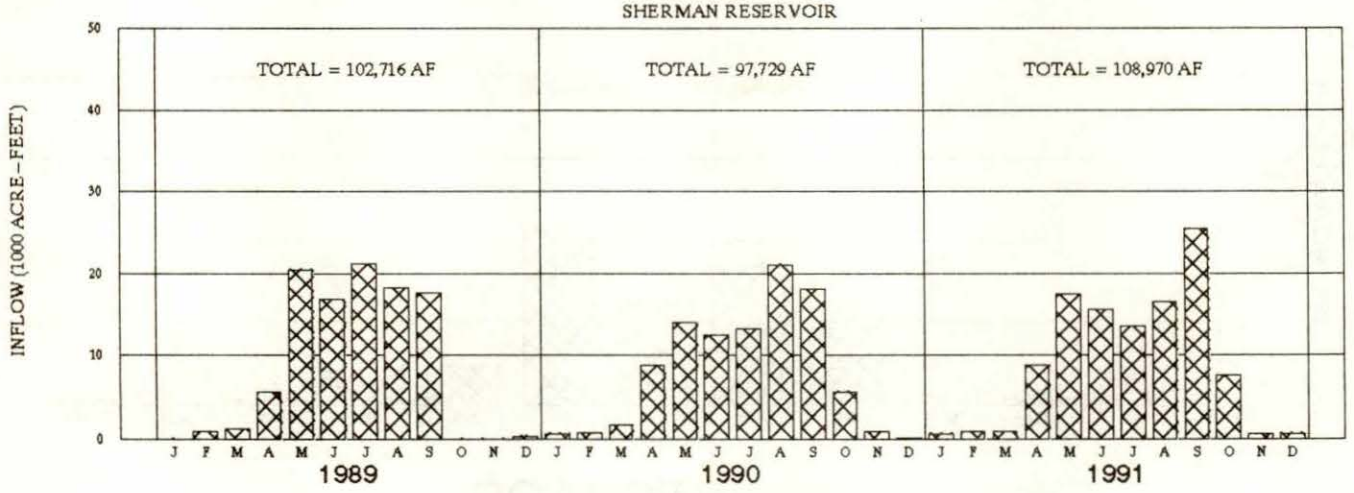
EXHIBIT 3A

SHERMAN RESERVOIR

OPERATION

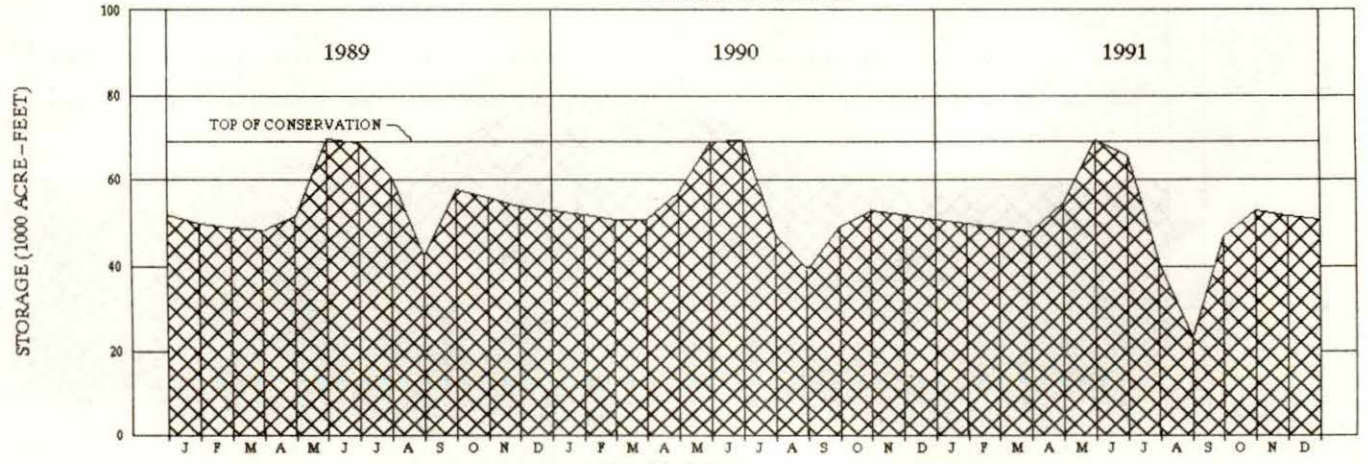
INFLOW

SHERMAN RESERVOIR



STORAGE

SHERMAN RESERVOIR



OUTFLOW

SHERMAN RESERVOIR

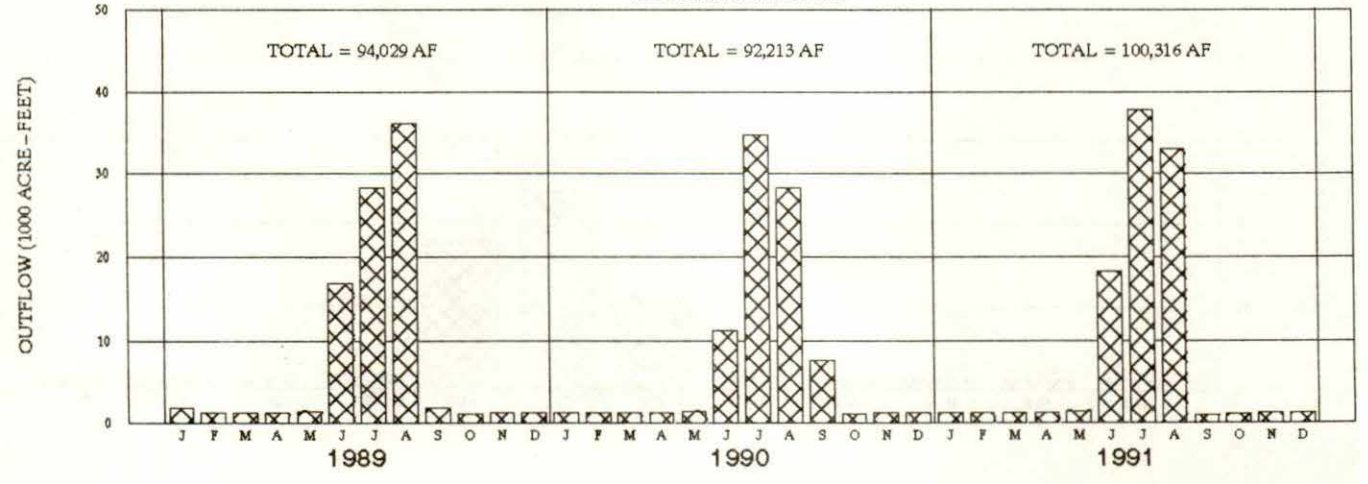


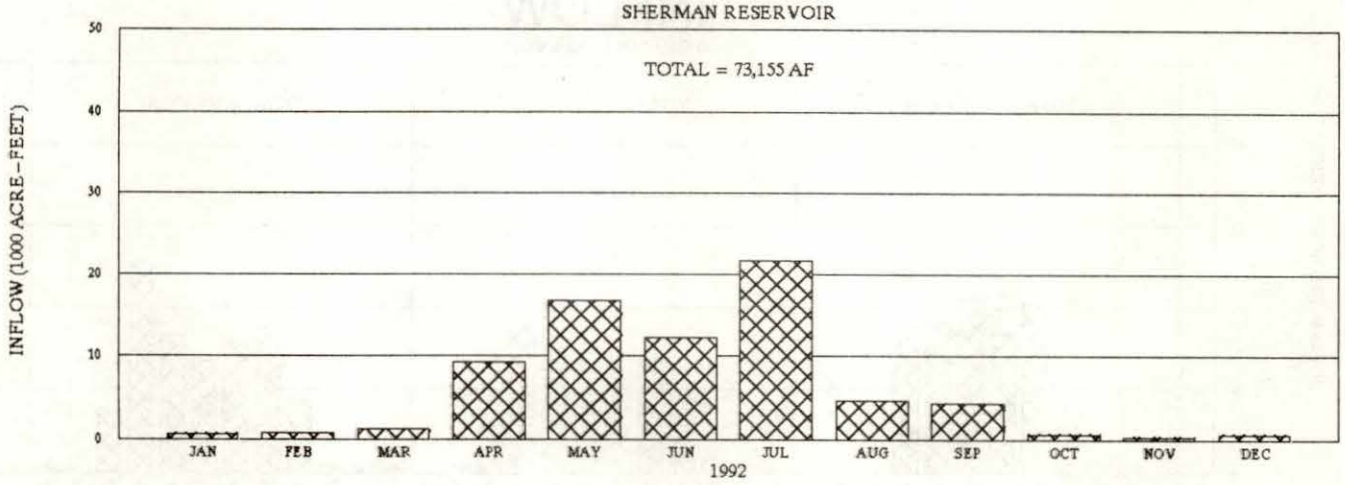
EXHIBIT 3B

SHERMAN RESERVOIR

1992 OPERATION

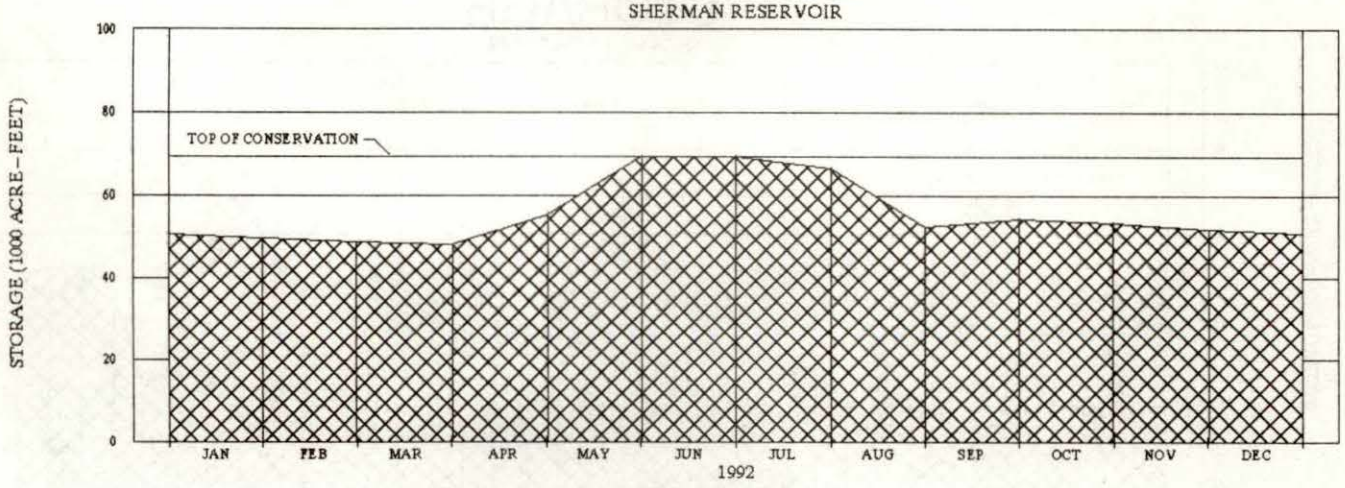
INFLOW

SHERMAN RESERVOIR



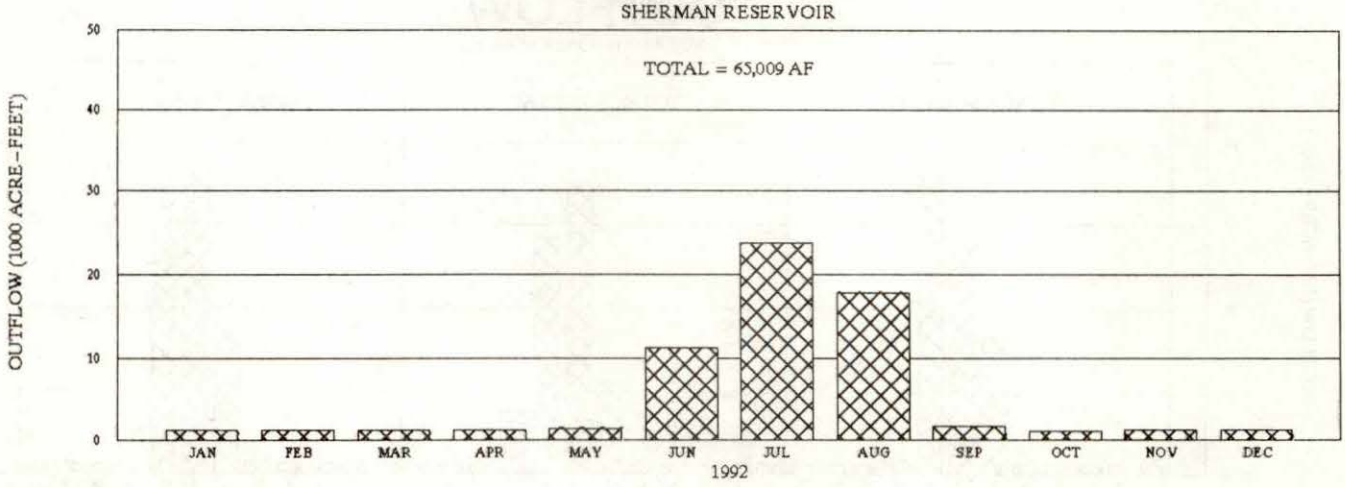
STORAGE

SHERMAN RESERVOIR



OUTFLOW

SHERMAN RESERVOIR

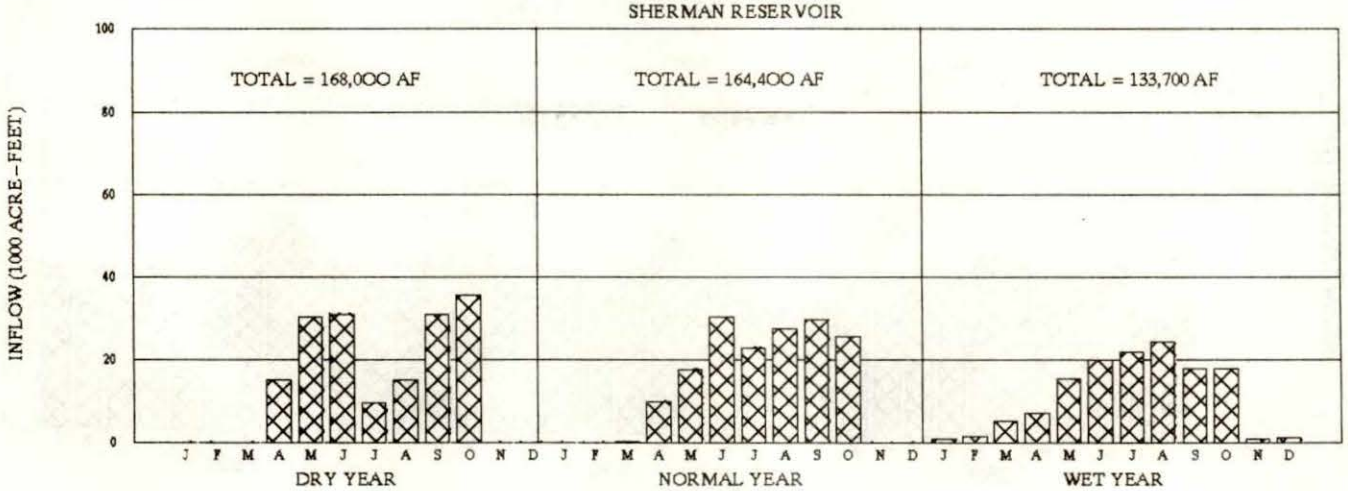


SHERMAN RESERVOIR

1993 OPERATION PLAN

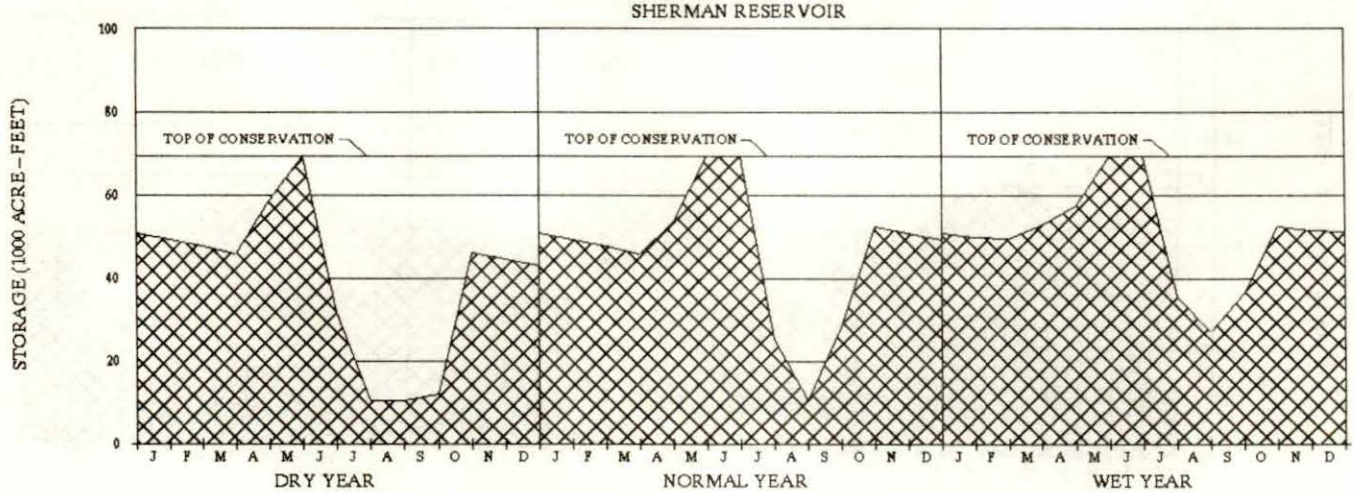
INFLOW

SHERMAN RESERVOIR



STORAGE

SHERMAN RESERVOIR



OUTFLOW

SHERMAN RESERVOIR

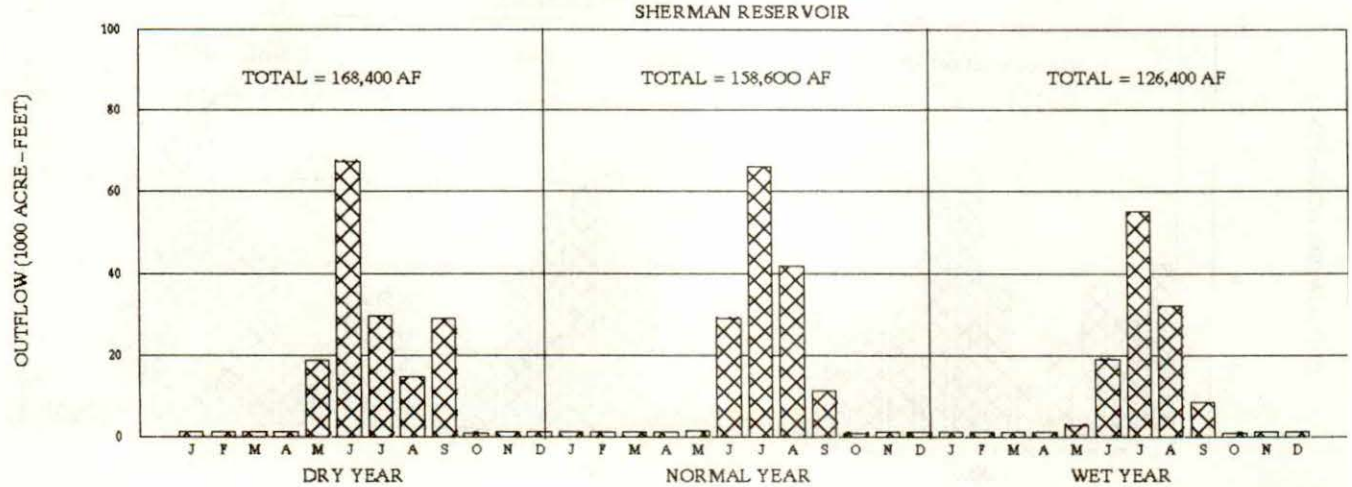


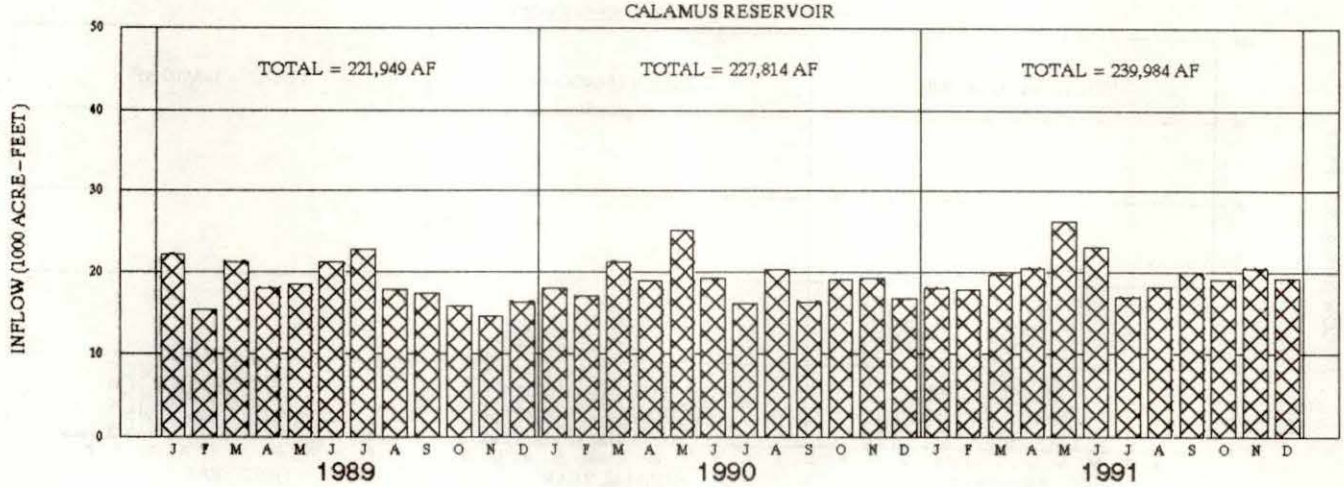
EXHIBIT 4A

CALAMUS RESERVOIR

OPERATION

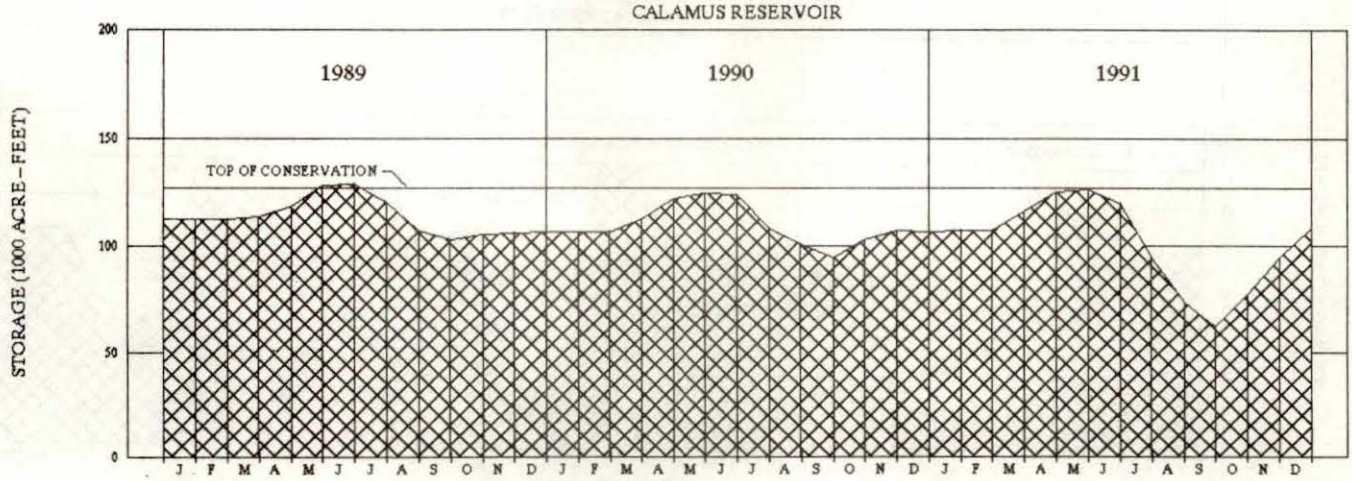
INFLOW

CALAMUS RESERVOIR



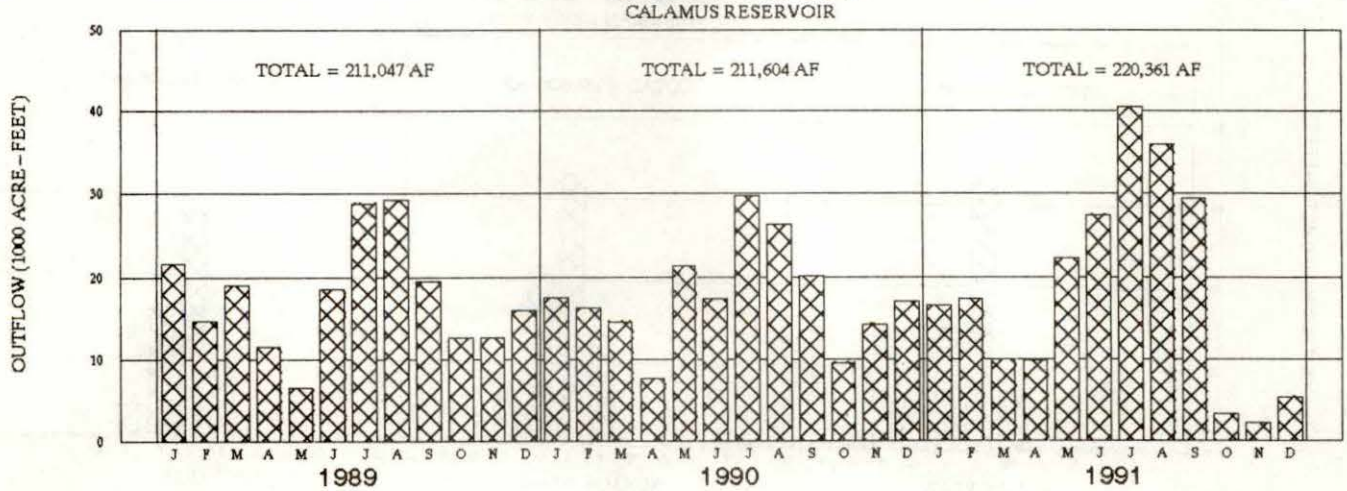
STORAGE

CALAMUS RESERVOIR



OUTFLOW

CALAMUS RESERVOIR

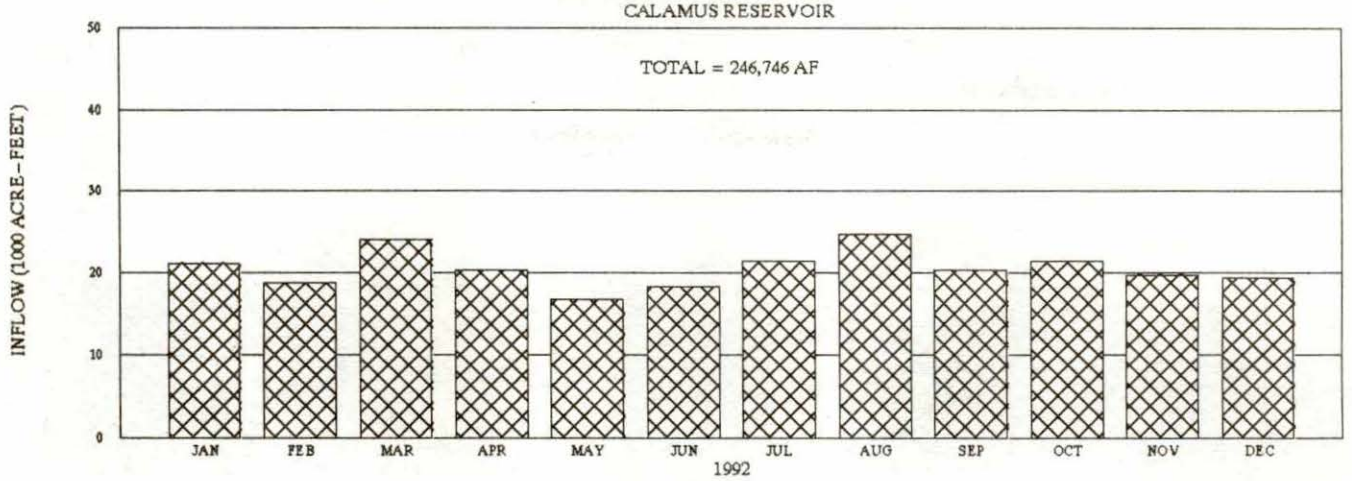


CALAMUS RESERVOIR

1992 OPERATION

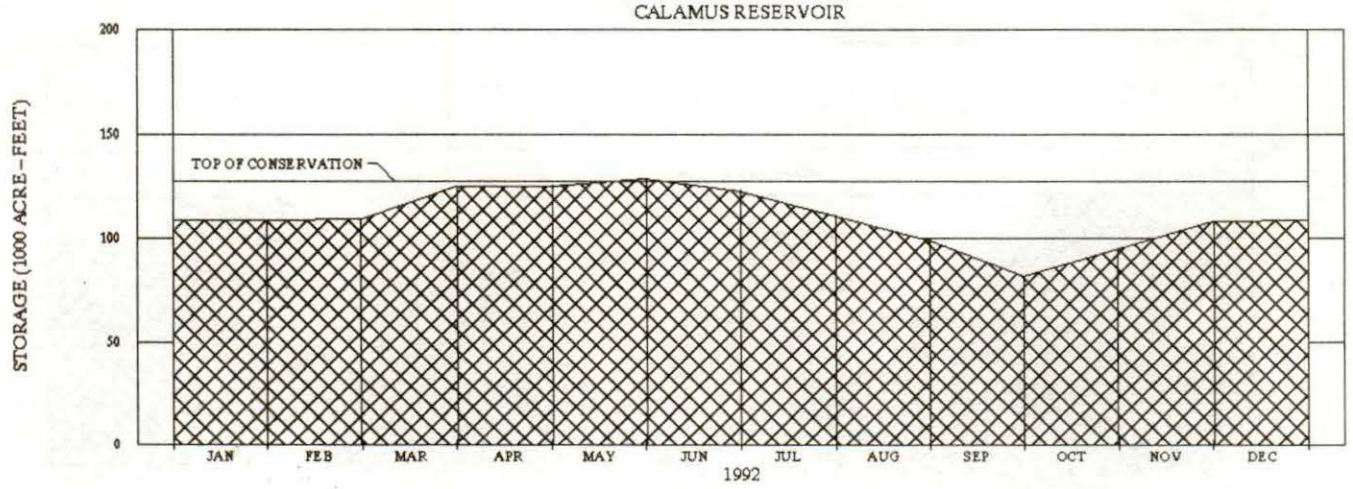
INFLOW

CALAMUS RESERVOIR



STORAGE

CALAMUS RESERVOIR



OUTFLOW

CALAMUS RESERVOIR

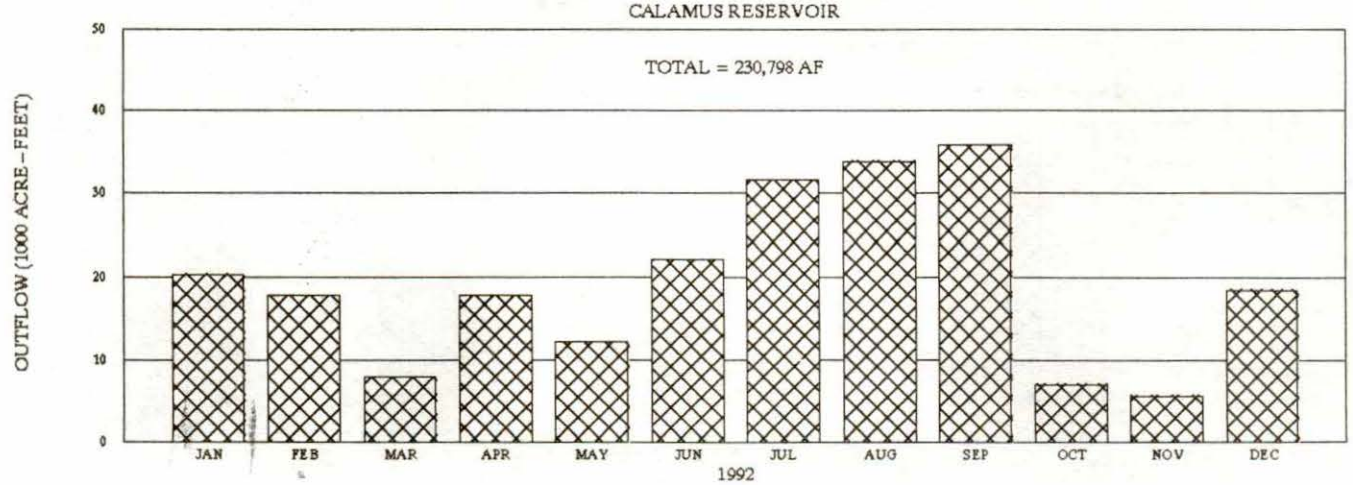


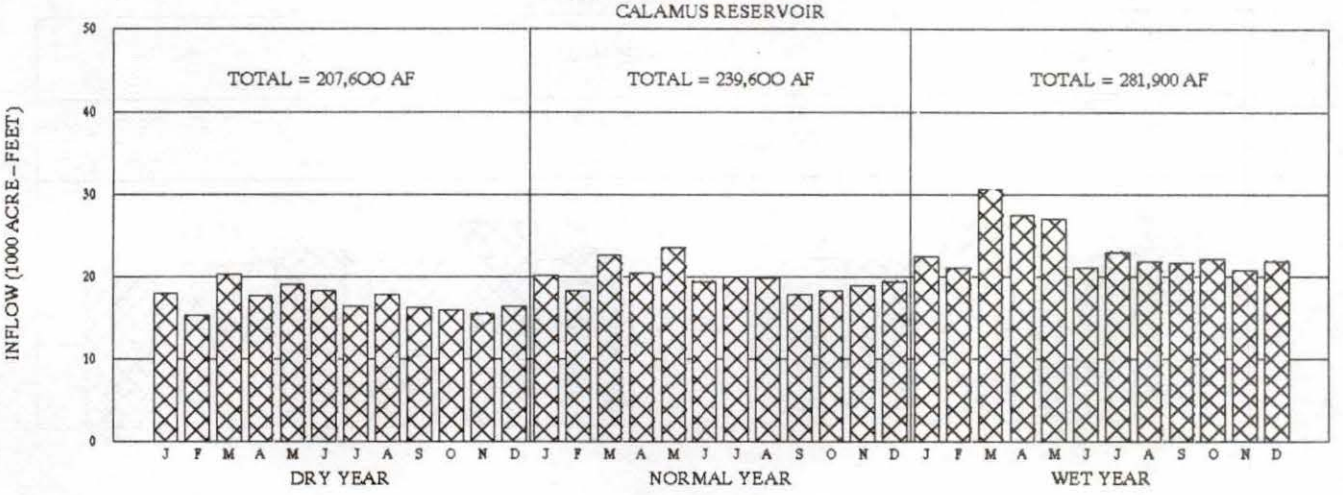
EXHIBIT 4C

CALAMUS RESERVOIR

1993 OPERATION PLAN

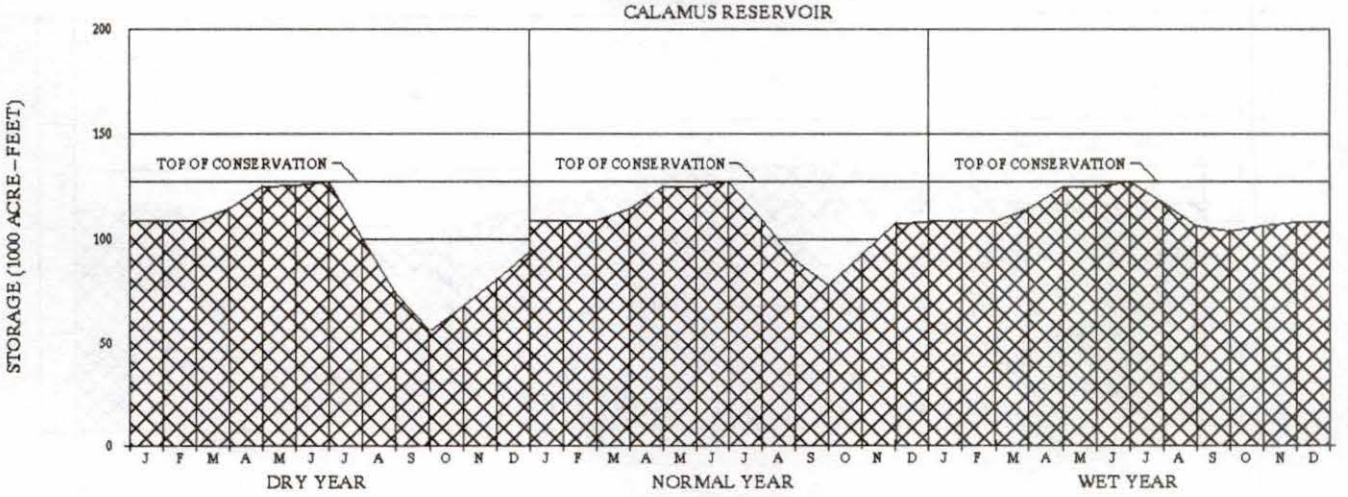
INFLOW

CALAMUS RESERVOIR



STORAGE

CALAMUS RESERVOIR



OUTFLOW

CALAMUS RESERVOIR

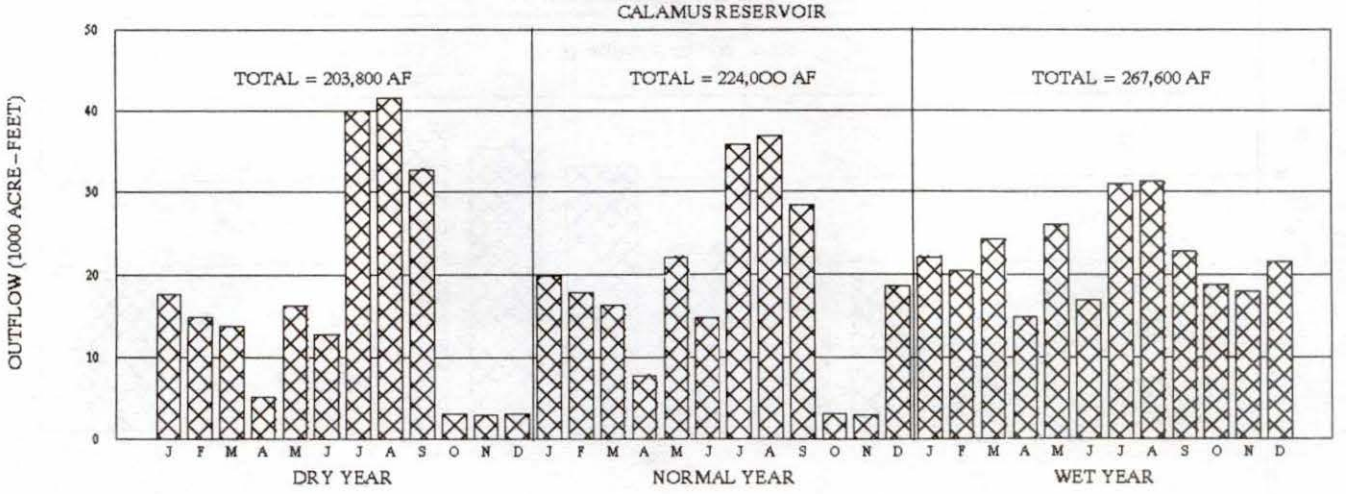


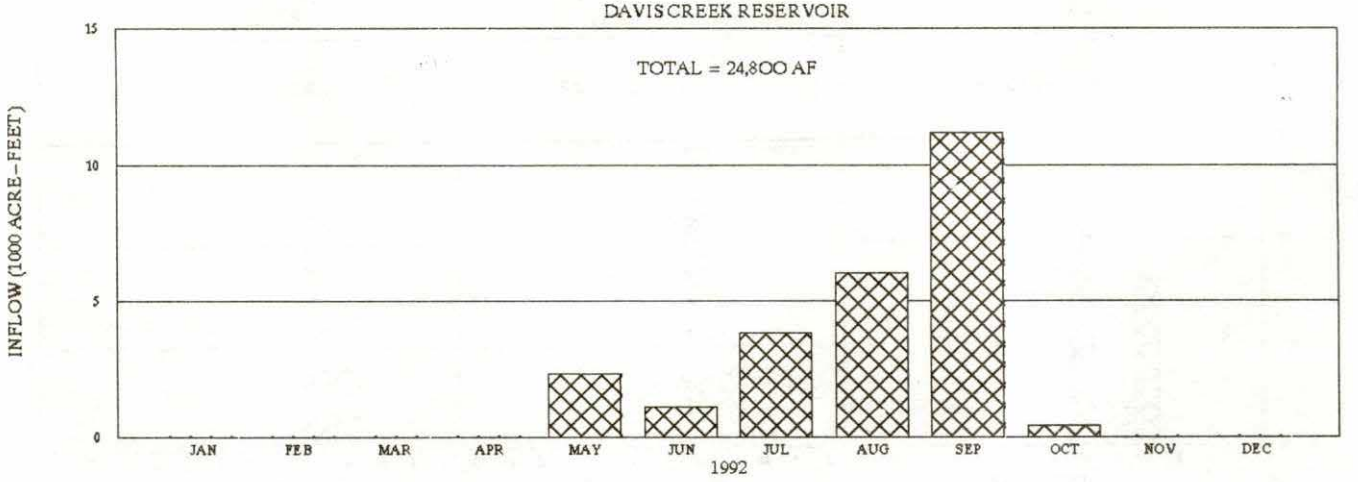
EXHIBIT 5B

DAVIS CREEK RESERVOIR

1992 OPERATION

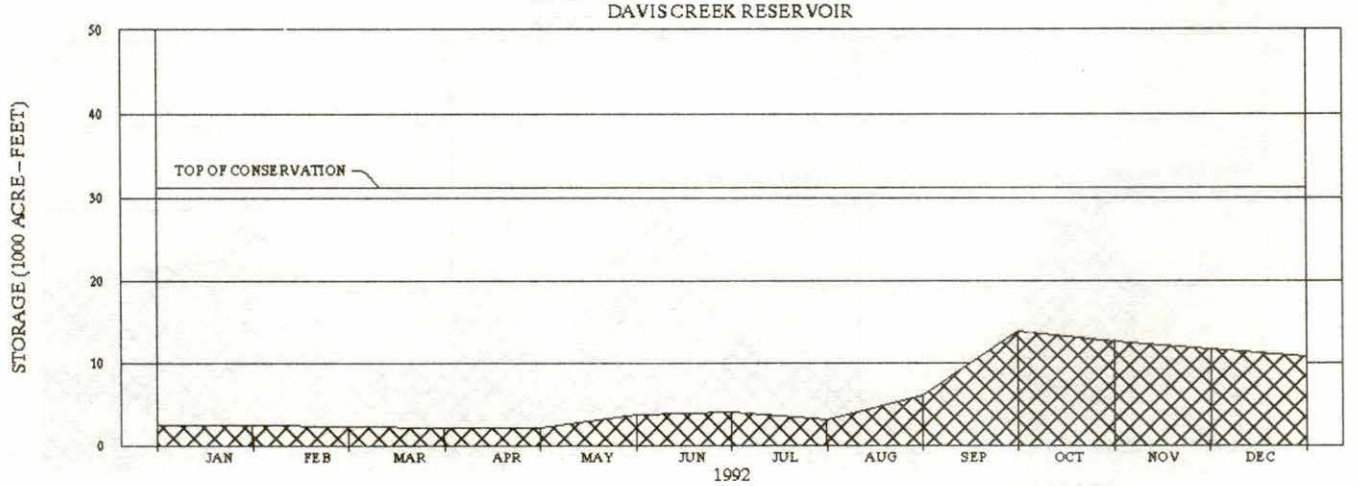
INFLOW

DAVIS CREEK RESERVOIR



STORAGE

DAVIS CREEK RESERVOIR



OUTFLOW

DAVIS CREEK RESERVOIR

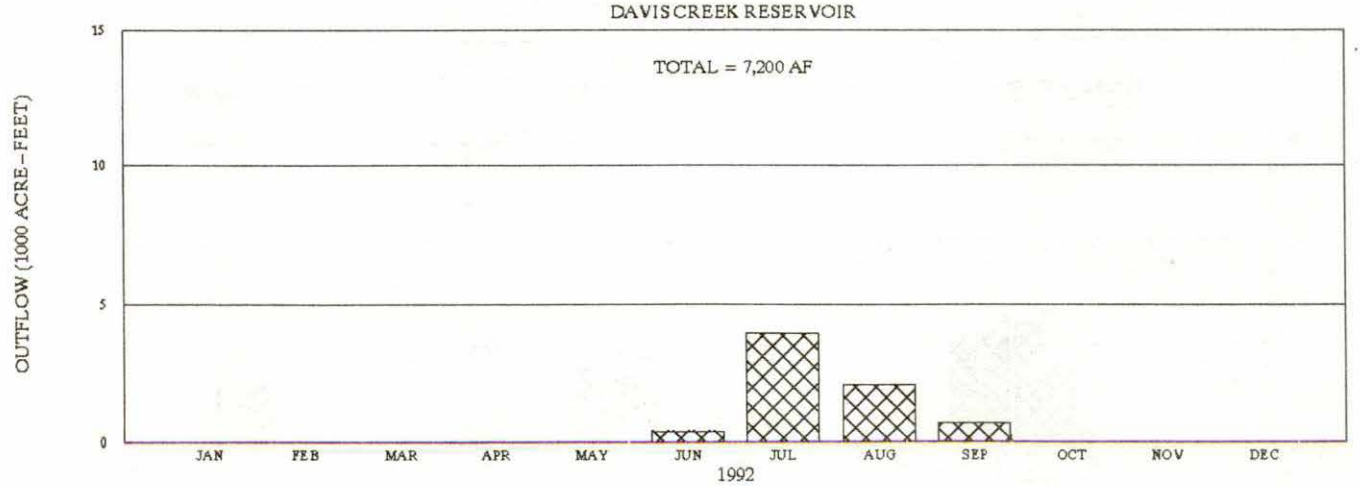


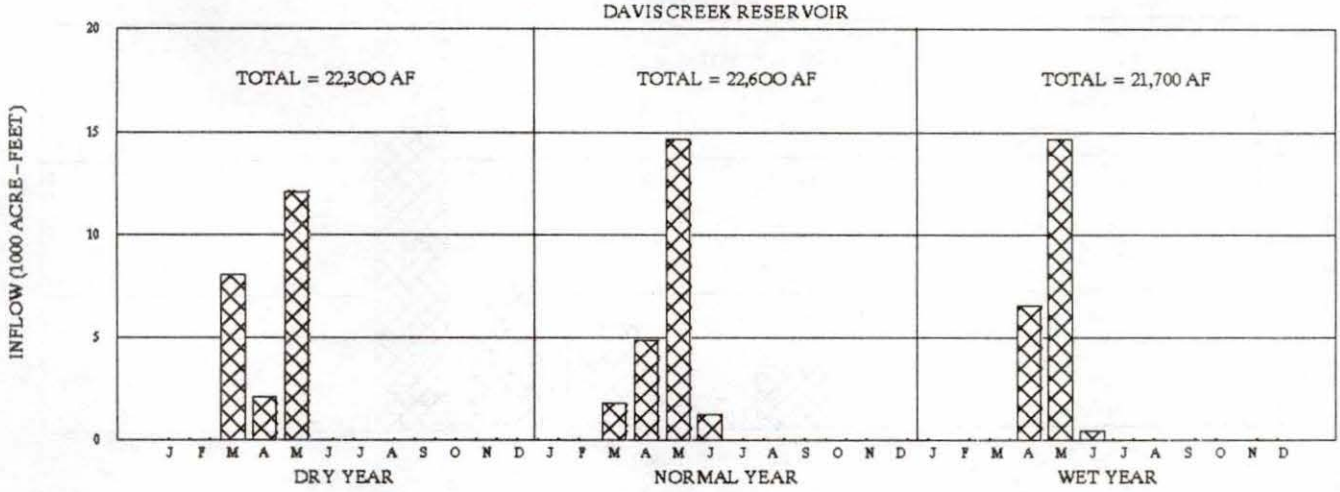
EXHIBIT 5C

DAVIS CREEK RESERVOIR

1993 OPERATION PLAN

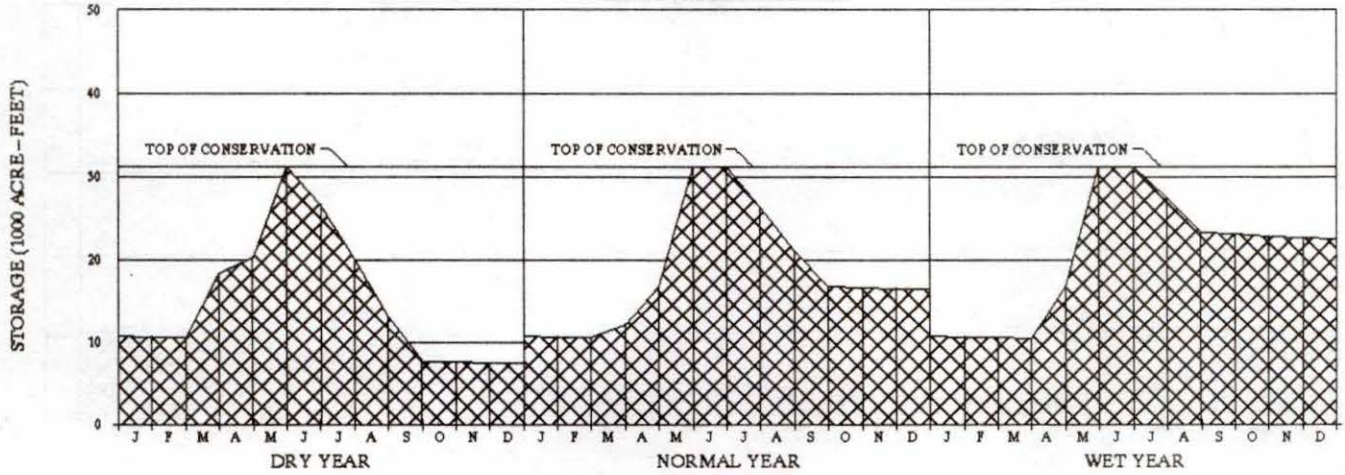
INFLOW

DAVIS CREEK RESERVOIR



STORAGE

DAVIS CREEK RESERVOIR



OUTFLOW

DAVIS CREEK RESERVOIR

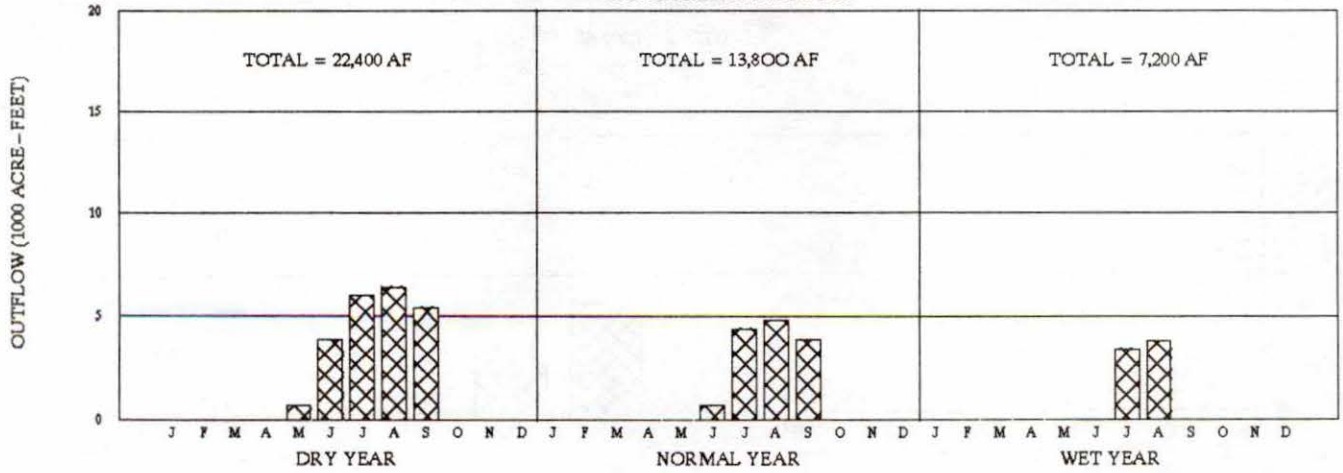


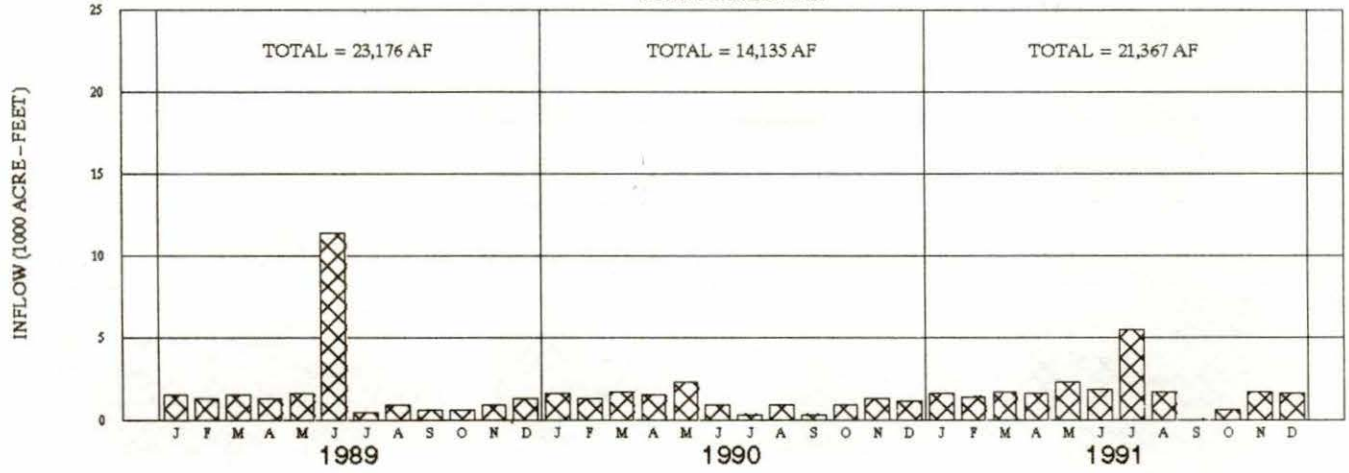
EXHIBIT 6A

BONNY RESERVOIR

OPERATION

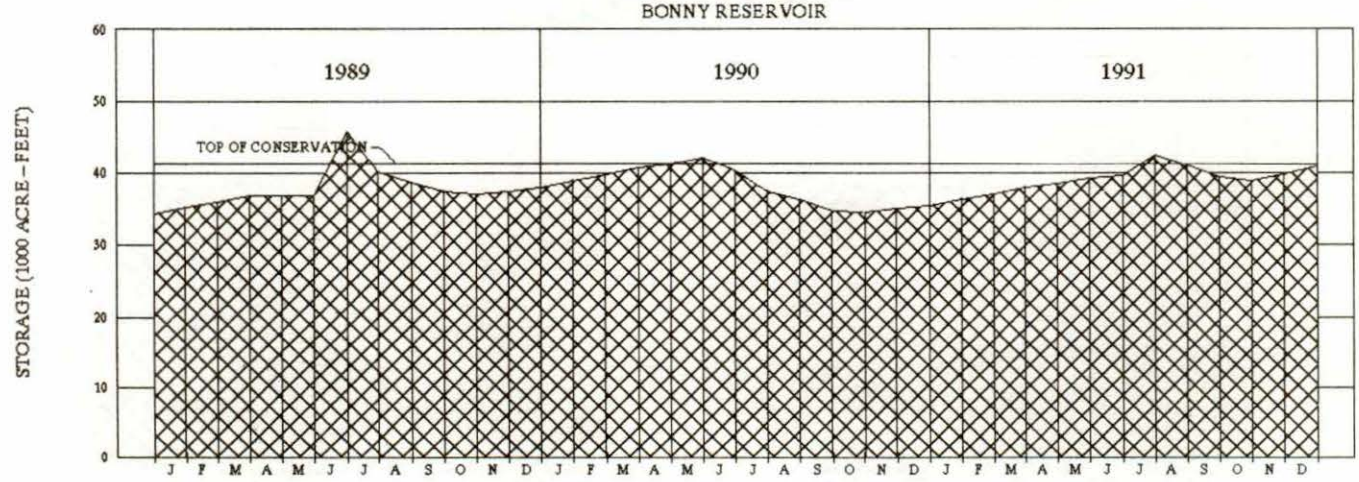
INFLOW

BONNY RESERVOIR



STORAGE

BONNY RESERVOIR



OUTFLOW

BONNY RESERVOIR

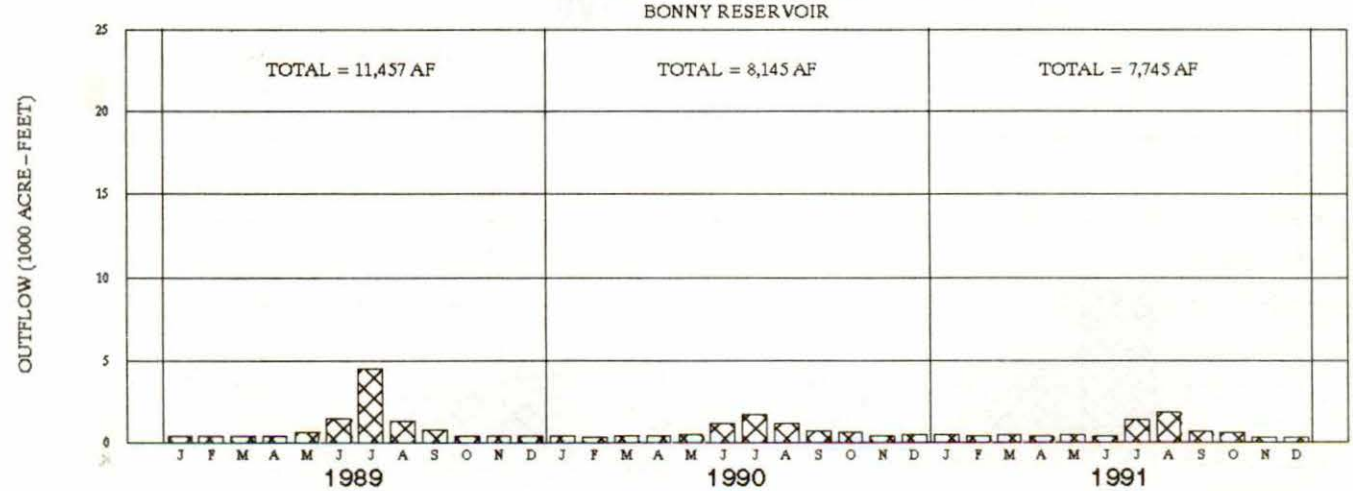


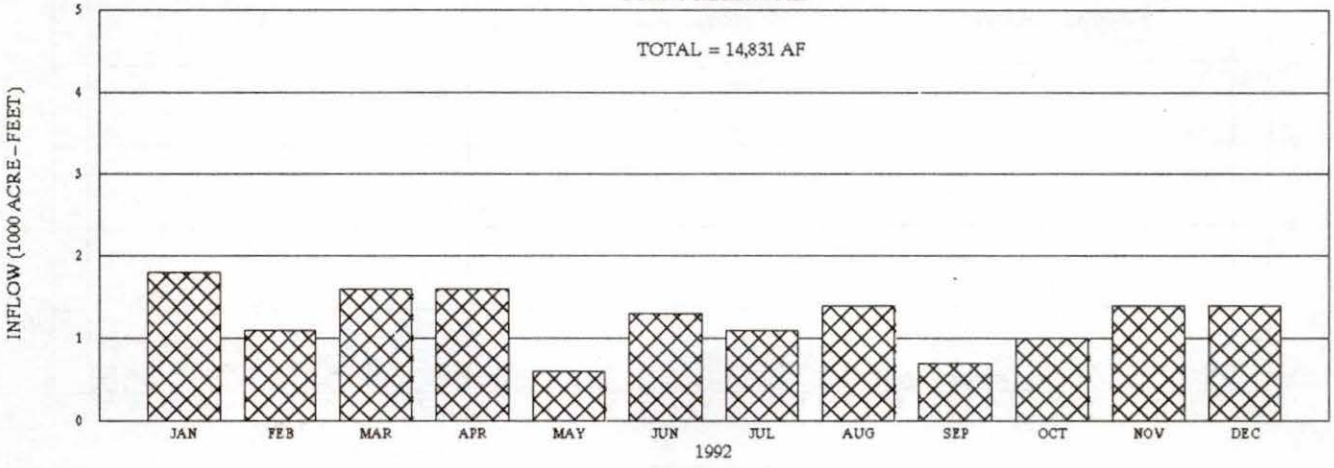
EXHIBIT 6B

BONNY RESERVOIR

1992 OPERATION

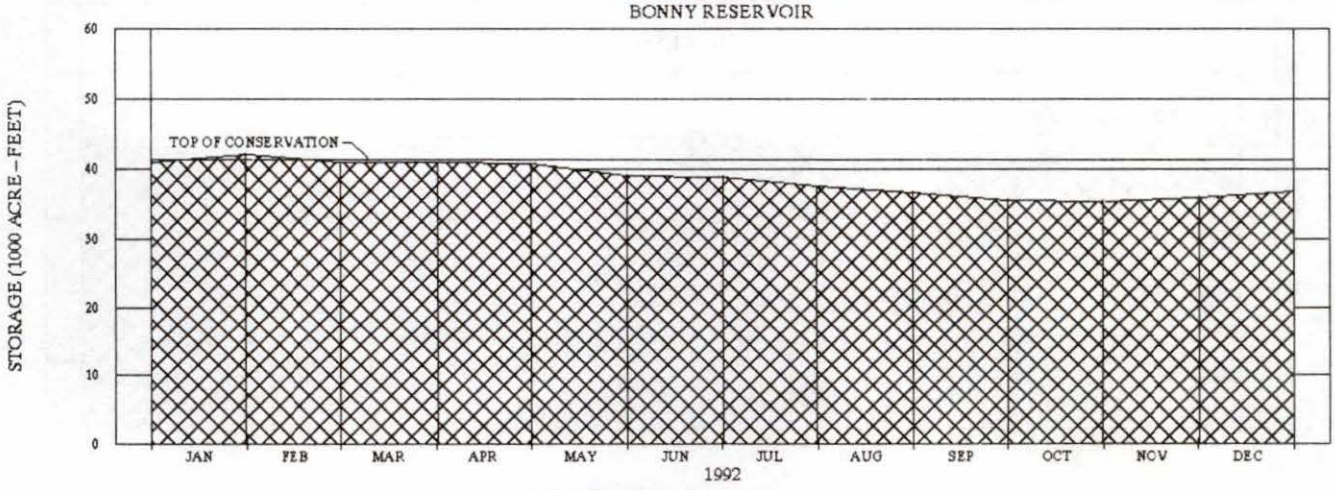
INFLOW

BONNY RESERVOIR



STORAGE

BONNY RESERVOIR



OUTFLOW

BONNY RESERVOIR

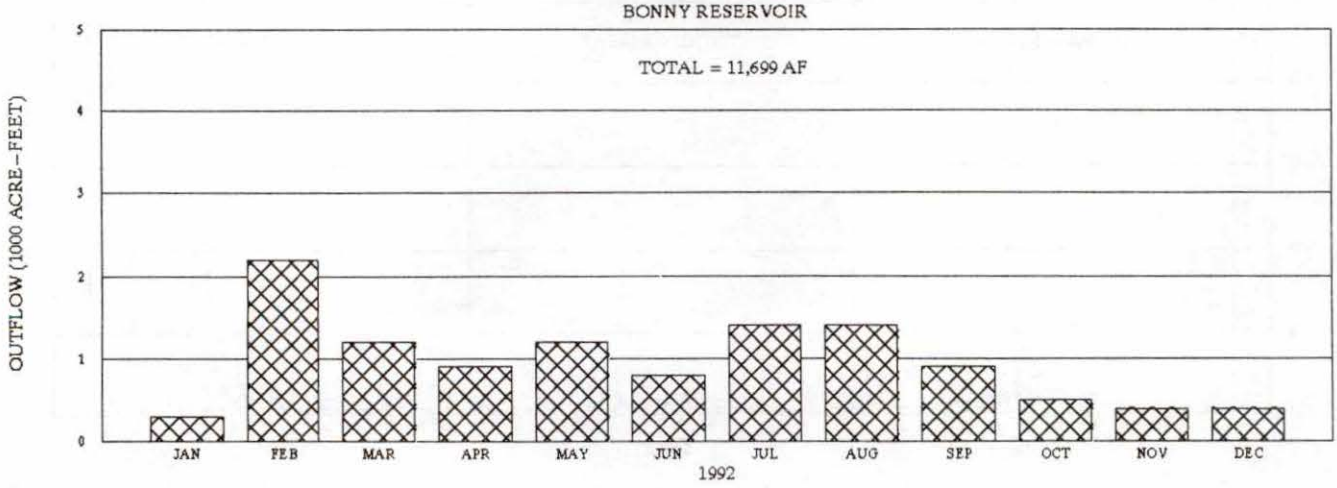


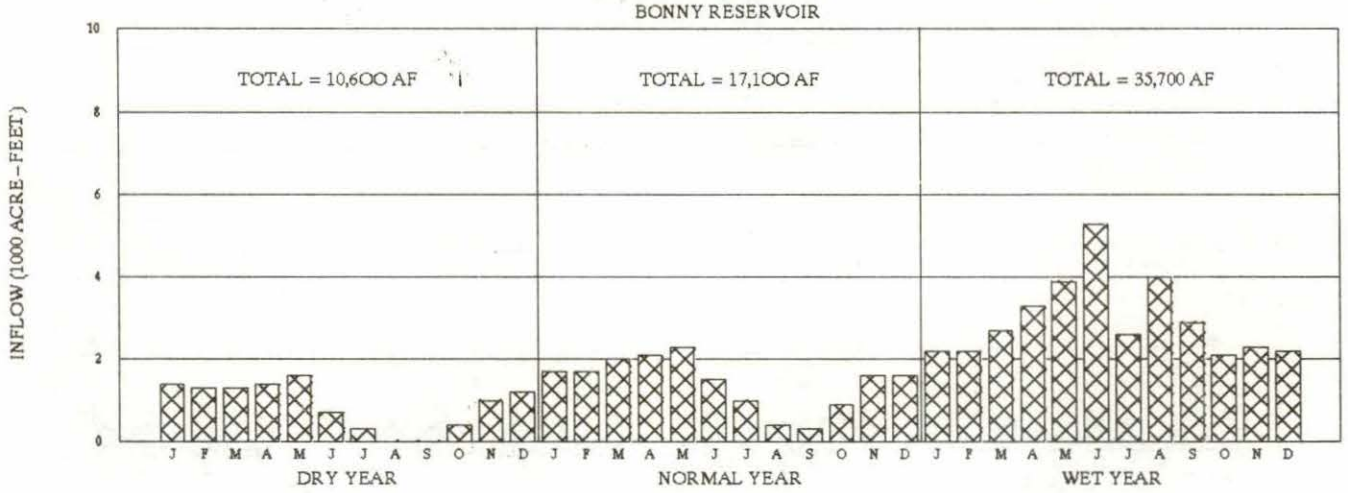
EXHIBIT 6C

BONNY RESERVOIR

1993 OPERATION PLAN

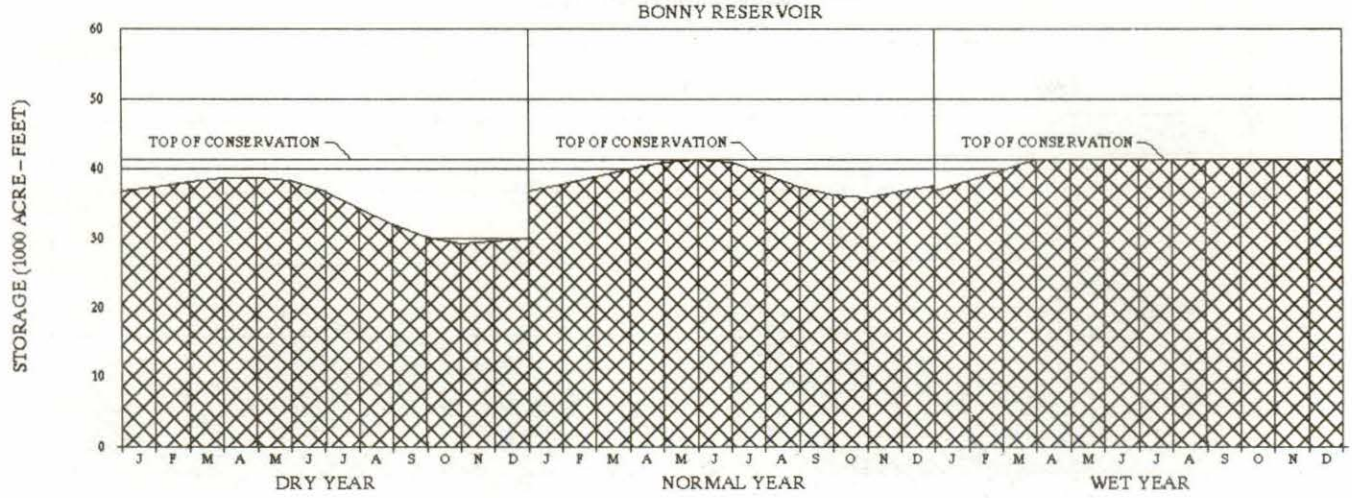
INFLOW

BONNY RESERVOIR



STORAGE

BONNY RESERVOIR



OUTFLOW

BONNY RESERVOIR

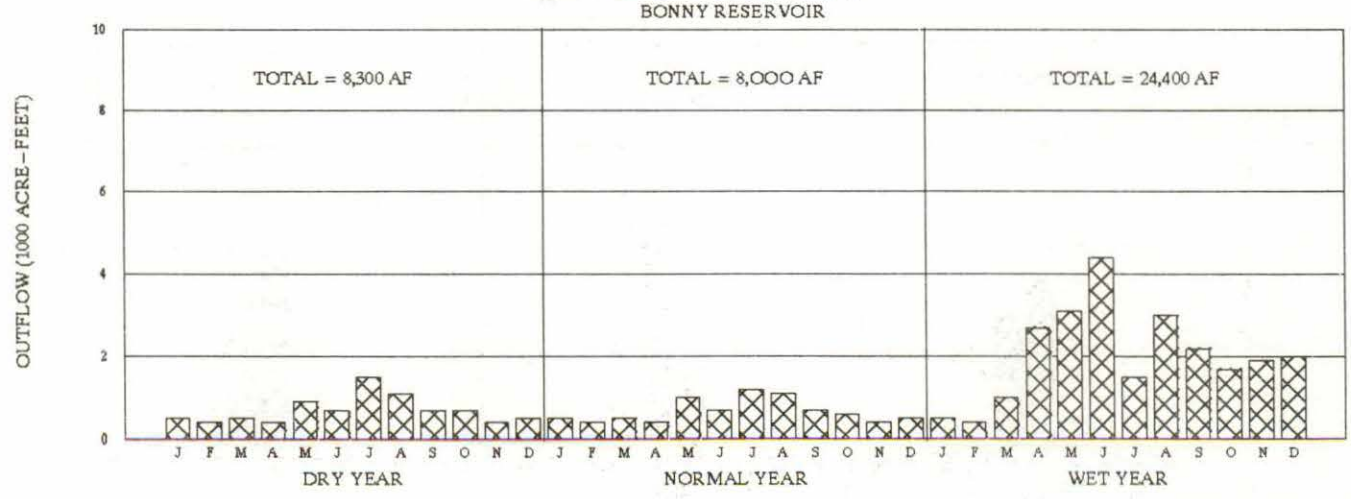


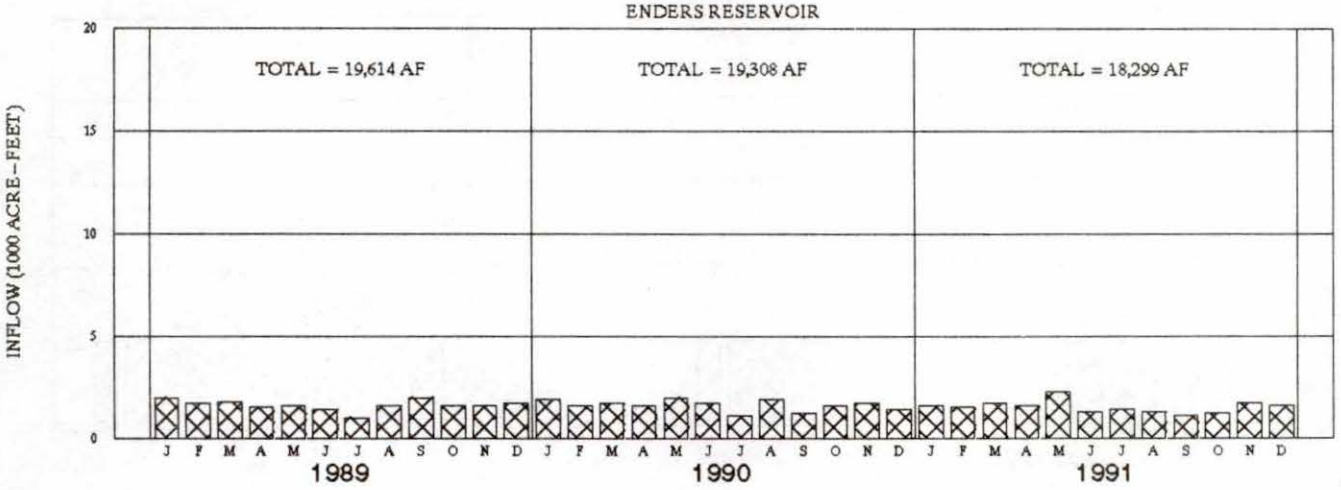
EXHIBIT 7A

ENDERS RESERVOIR

OPERATION

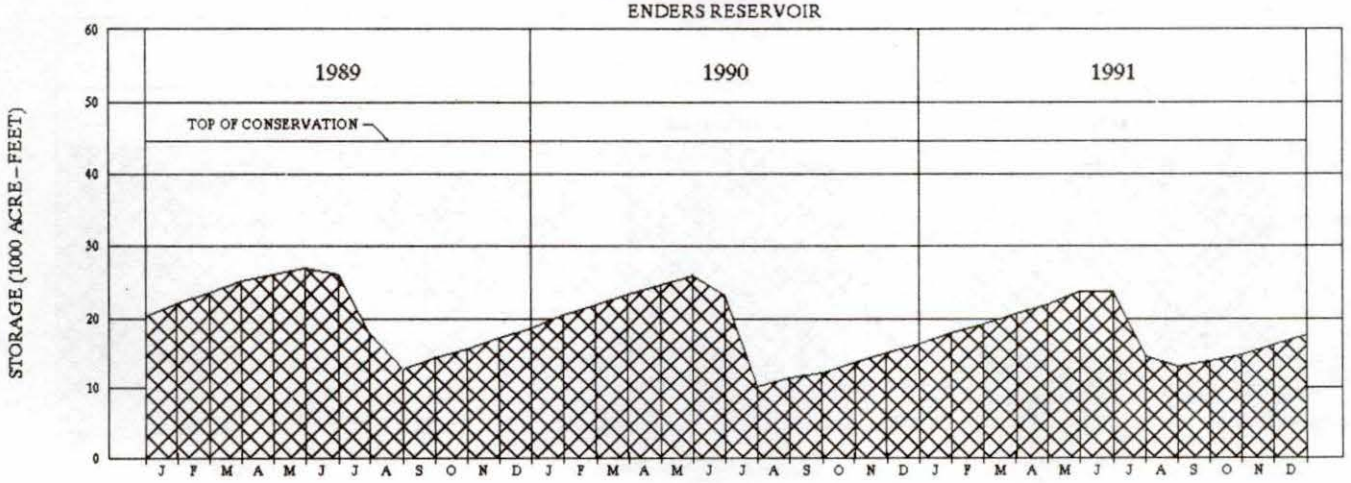
INFLOW

ENDERS RESERVOIR



STORAGE

ENDERS RESERVOIR



OUTFLOW

ENDERS RESERVOIR

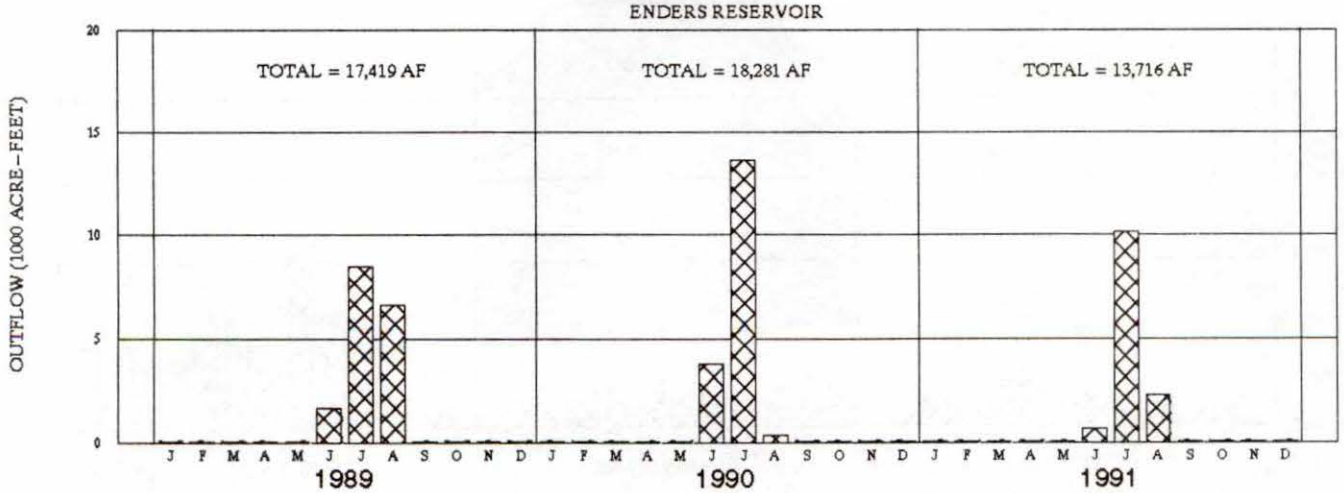


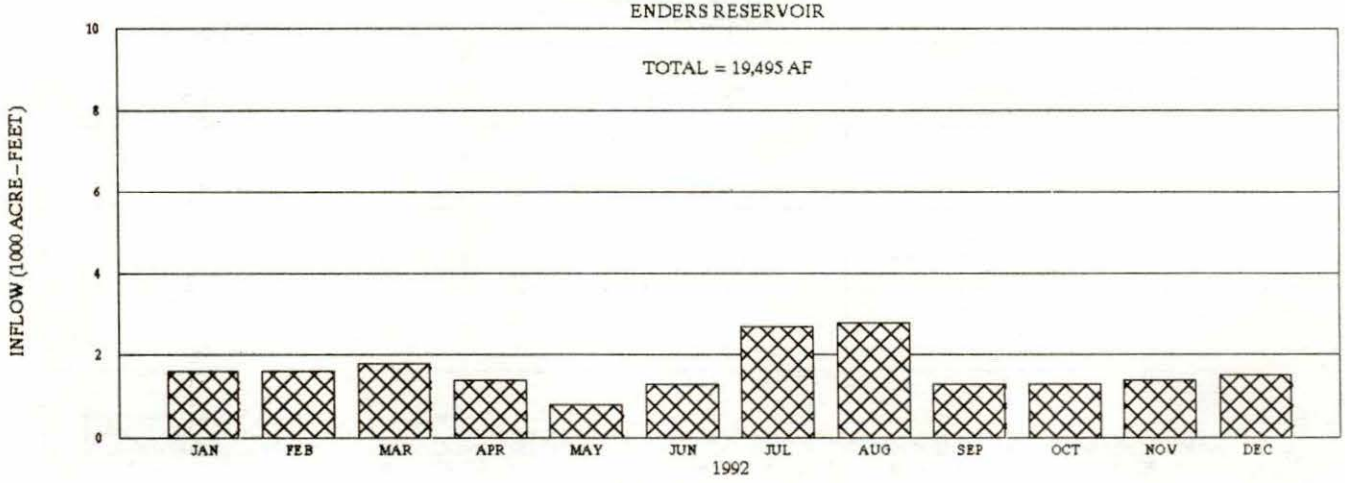
EXHIBIT 7B

ENDERS RESERVOIR

1992 OPERATION

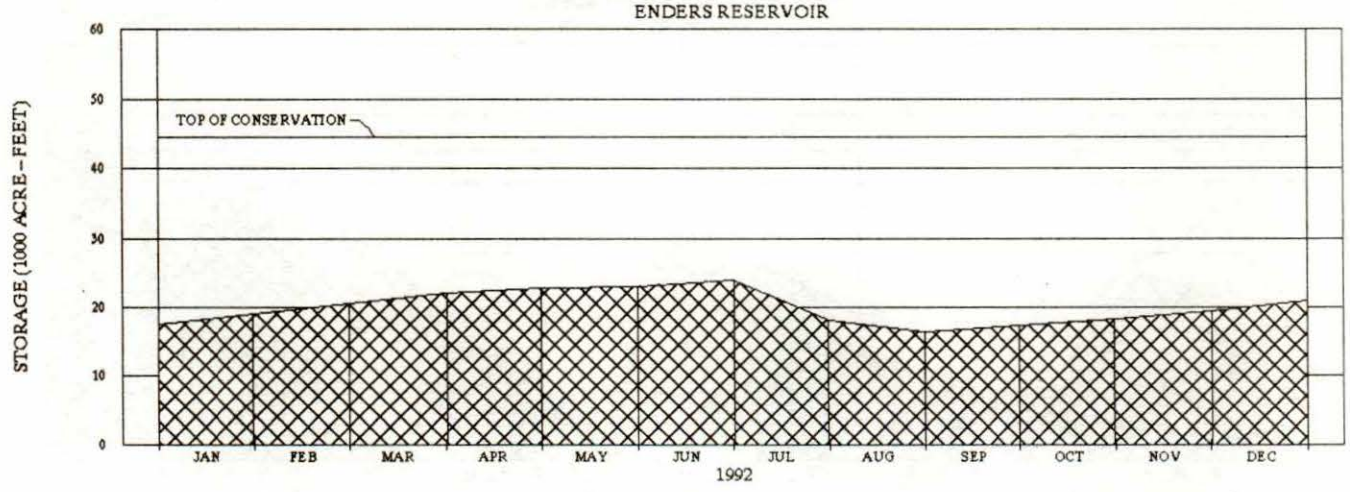
INFLOW

ENDERS RESERVOIR



STORAGE

ENDERS RESERVOIR



OUTFLOW

ENDERS RESERVOIR

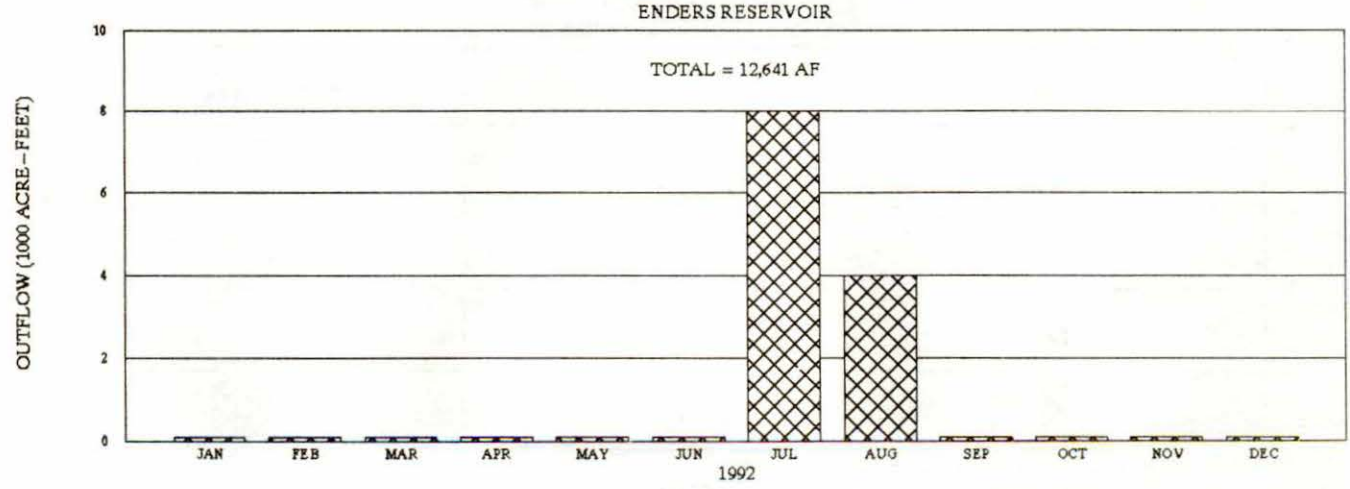


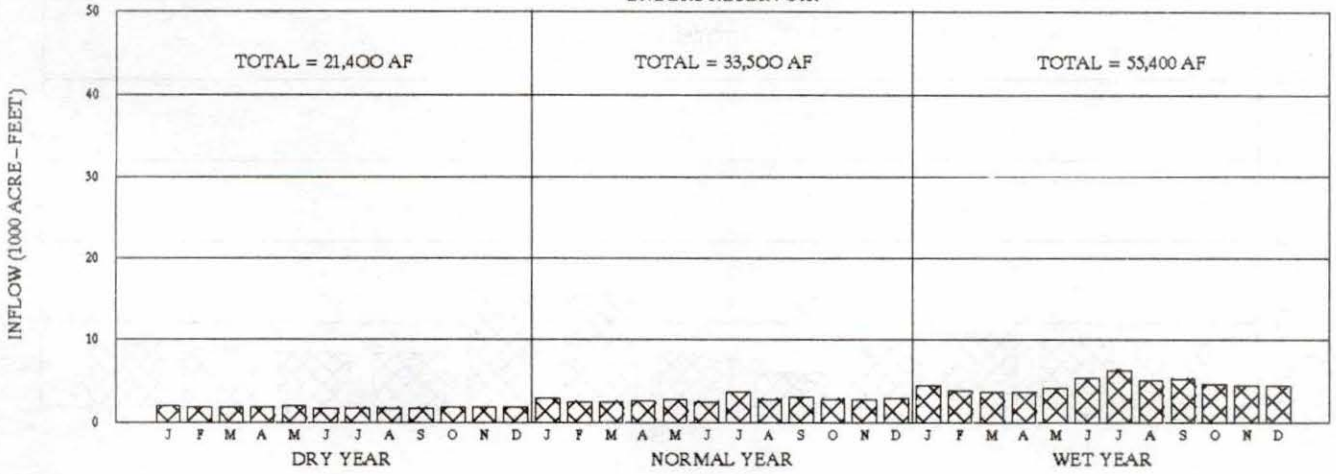
EXHIBIT 7C

ENDERS RESERVOIR

1993 OPERATION PLAN

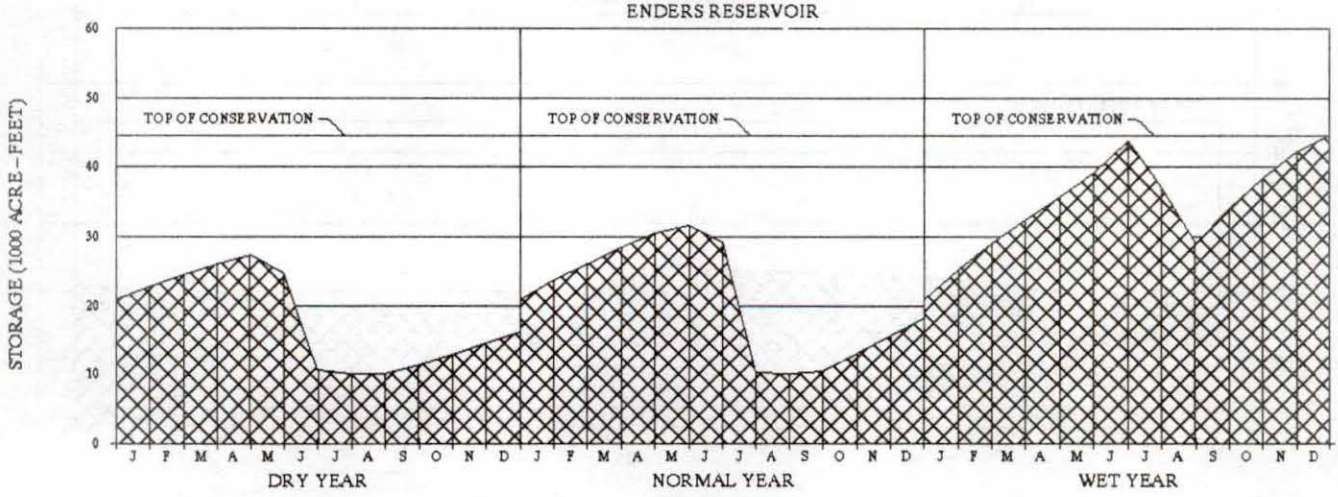
INFLOW

ENDERS RESERVOIR



STORAGE

ENDERS RESERVOIR



OUTFLOW

ENDERS RESERVOIR

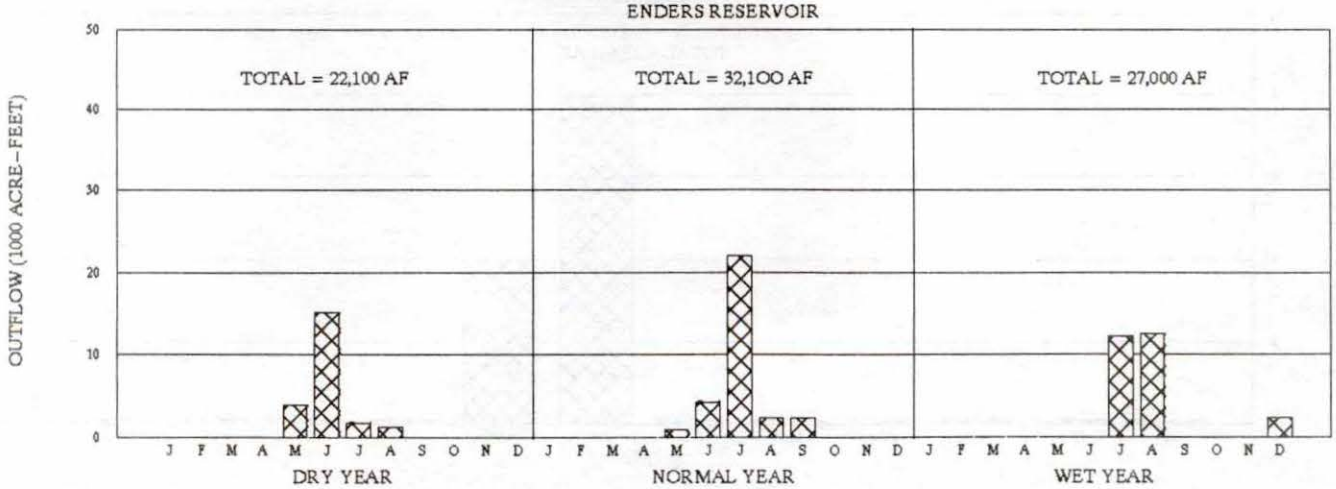


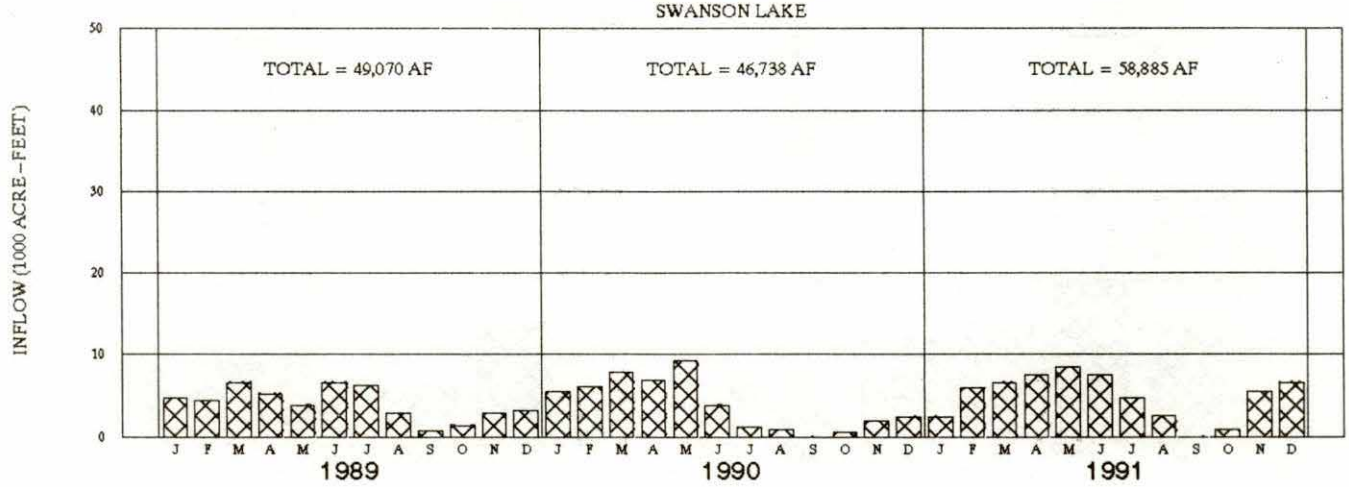
EXHIBIT 8A

SWANSON LAKE

OPERATION

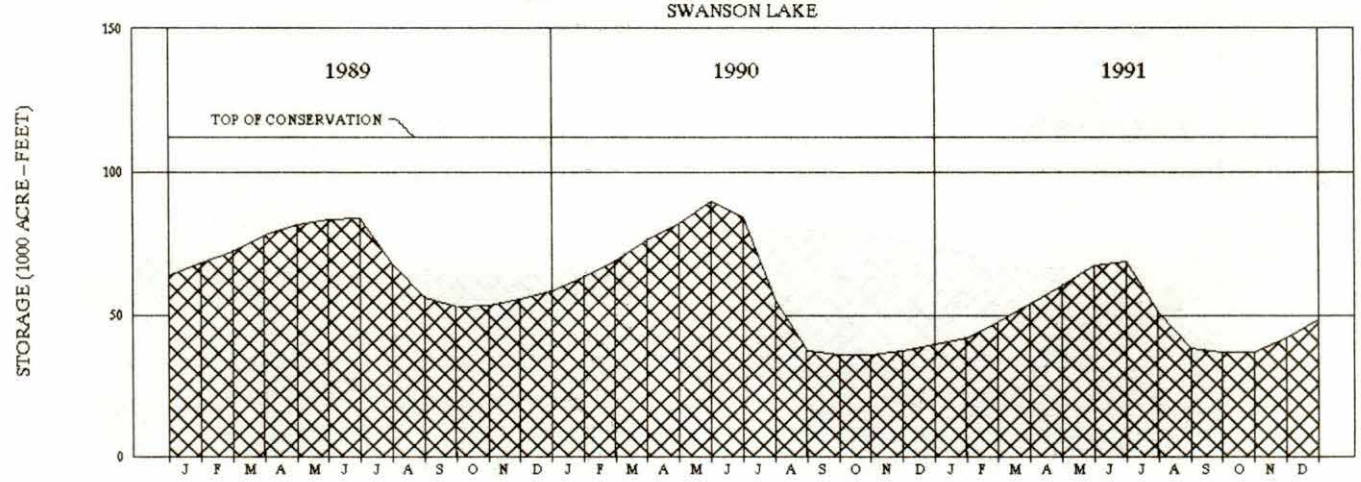
INFLOW

SWANSON LAKE



STORAGE

SWANSON LAKE



OUTFLOW

SWANSON LAKE

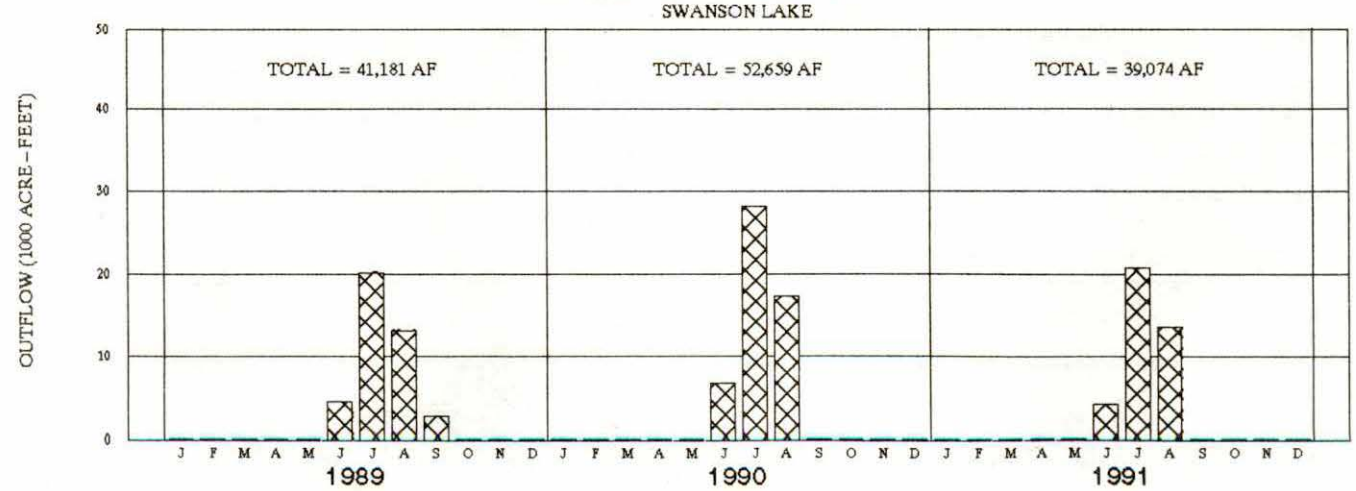
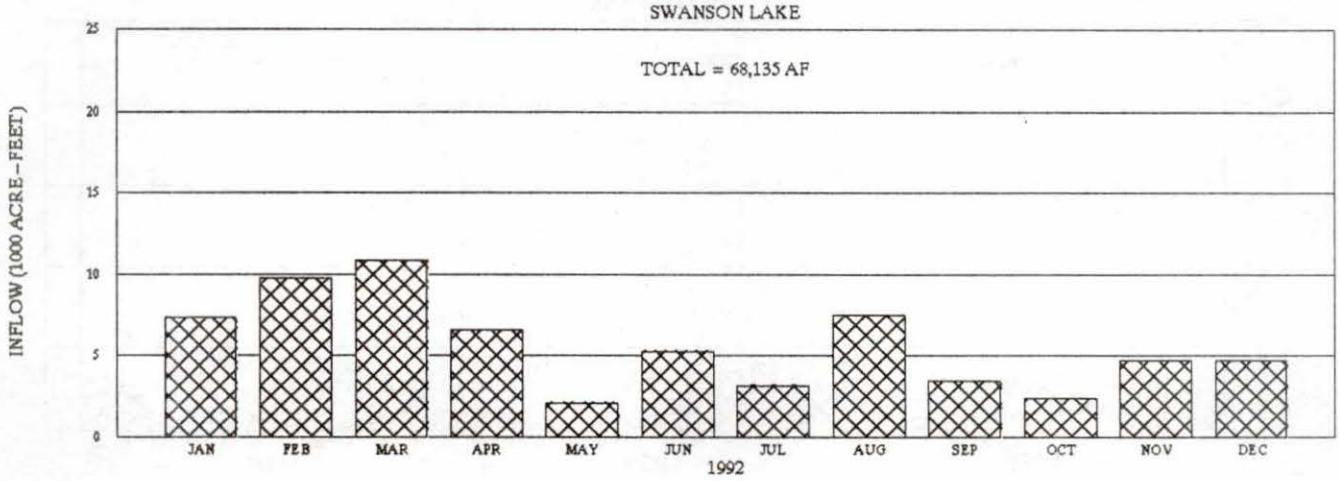


EXHIBIT 8B

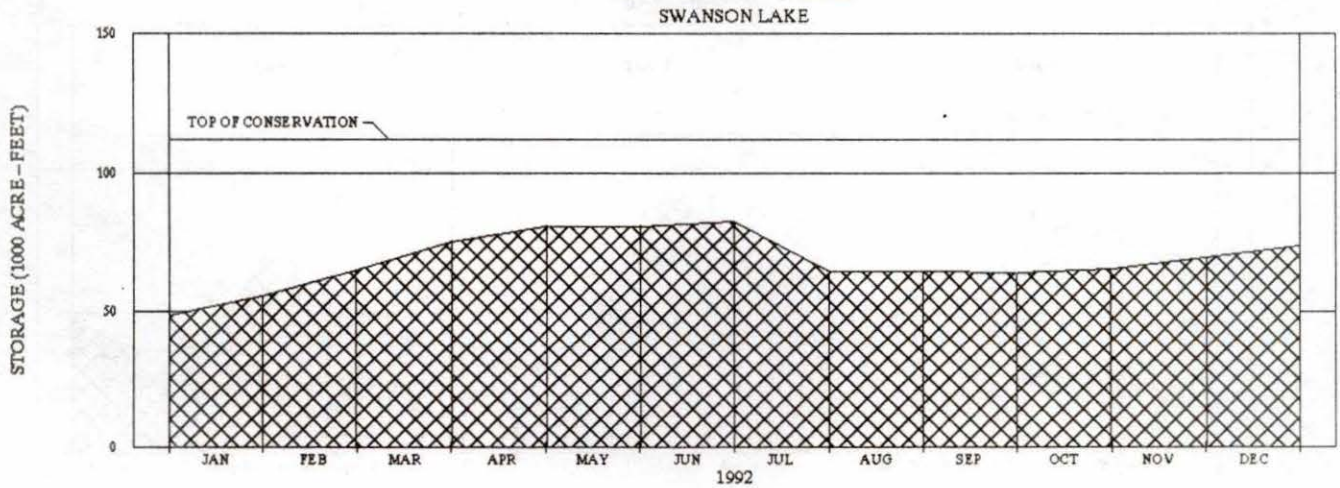
SWANSON LAKE

1992 OPERATION

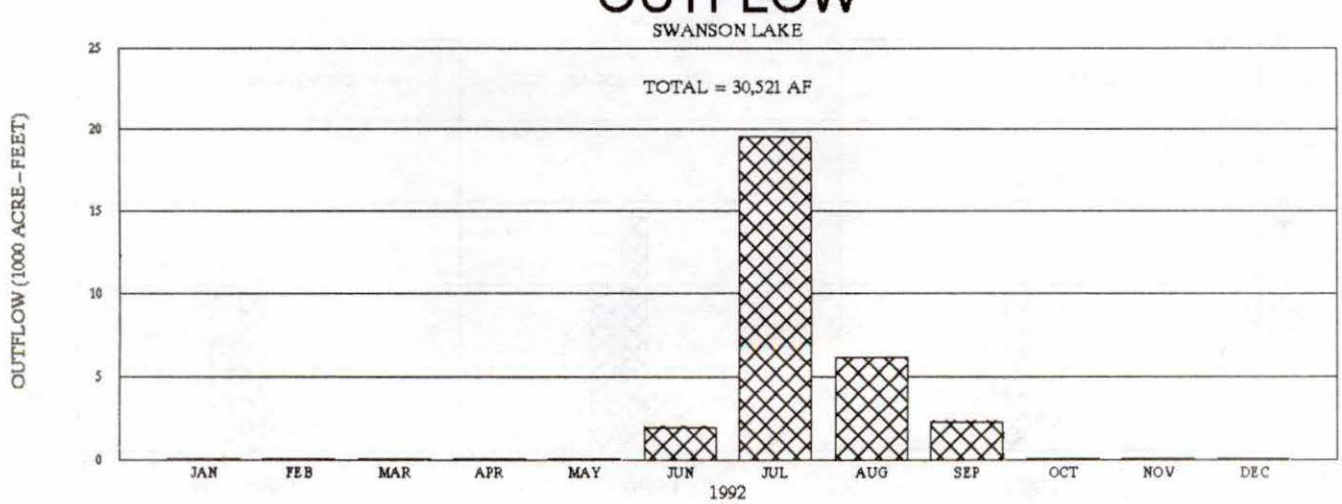
INFLOW



STORAGE



OUTFLOW

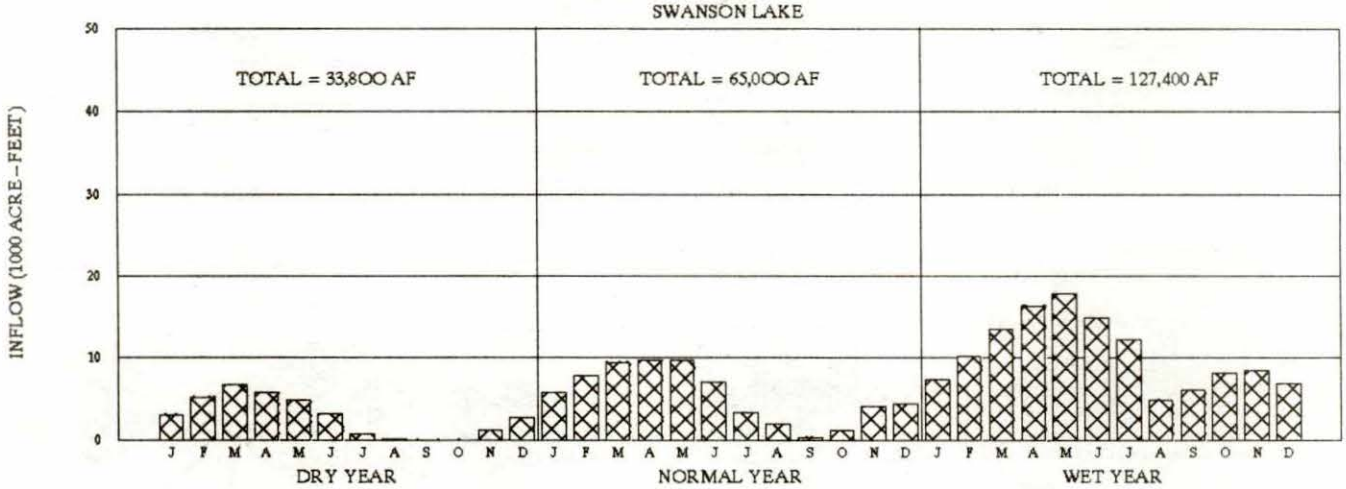


SWANSON LAKE

1993 OPERATION PLAN

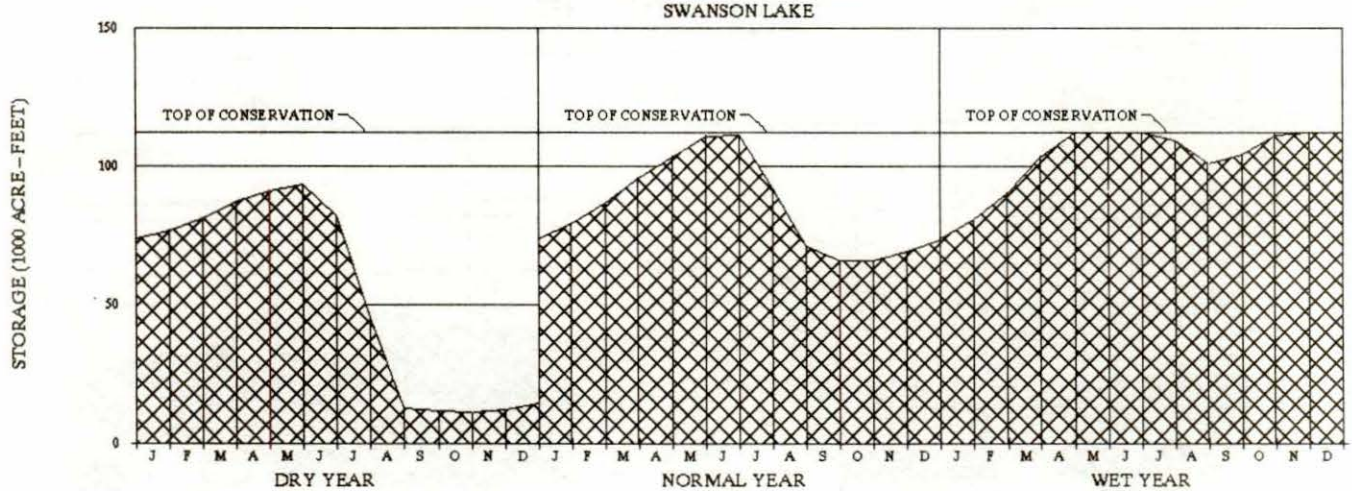
INFLOW

SWANSON LAKE



STORAGE

SWANSON LAKE



OUTFLOW

SWANSON LAKE

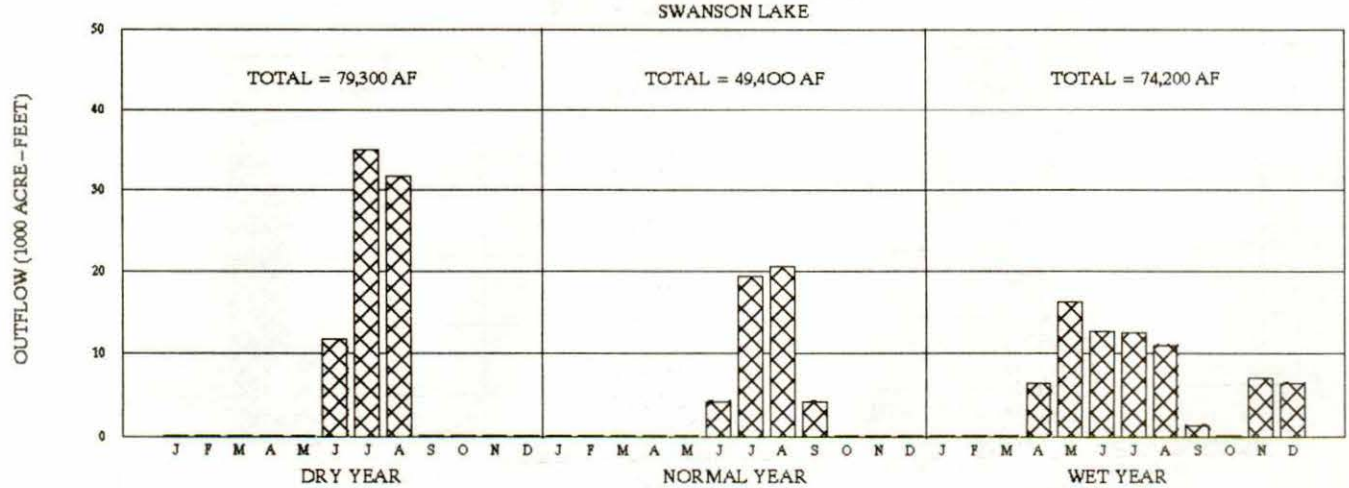


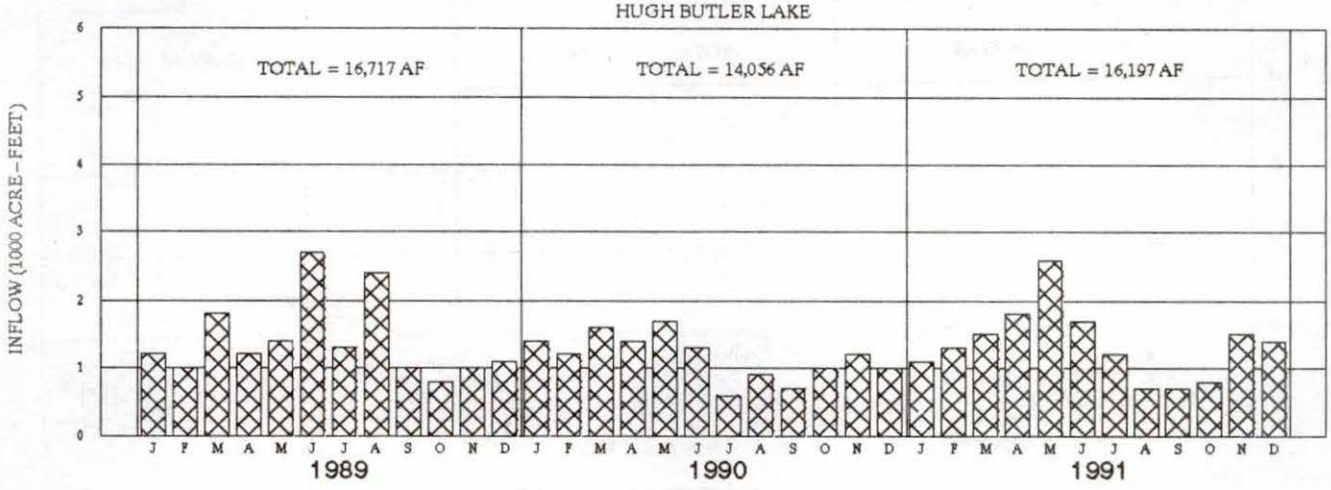
EXHIBIT 9A

HUGH BUTLER LAKE

OPERATION

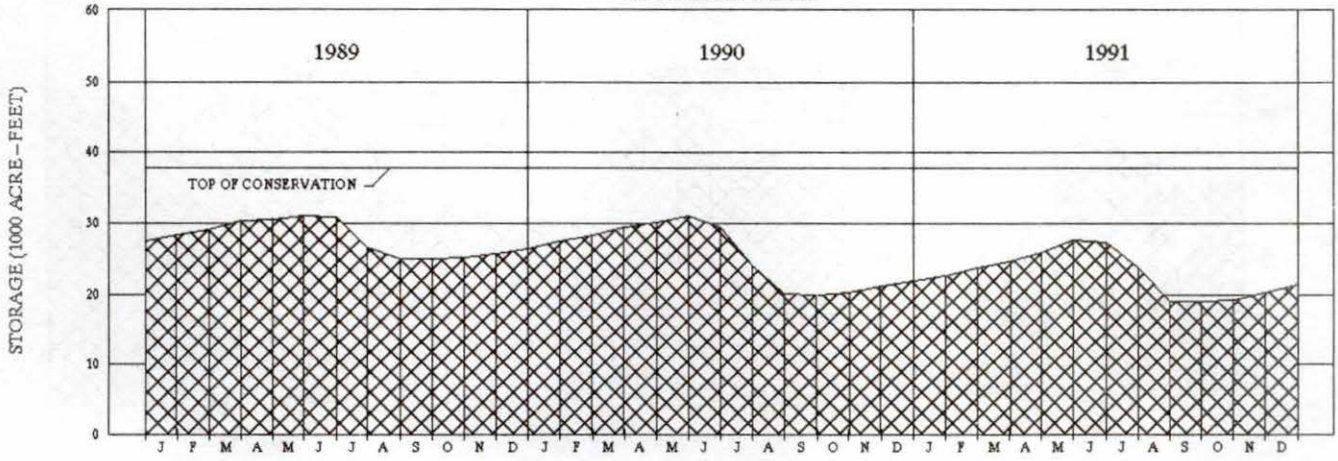
INFLOW

HUGH BUTLER LAKE



STORAGE

HUGH BUTLER LAKE



OUTFLOW

HUGH BUTLER LAKE

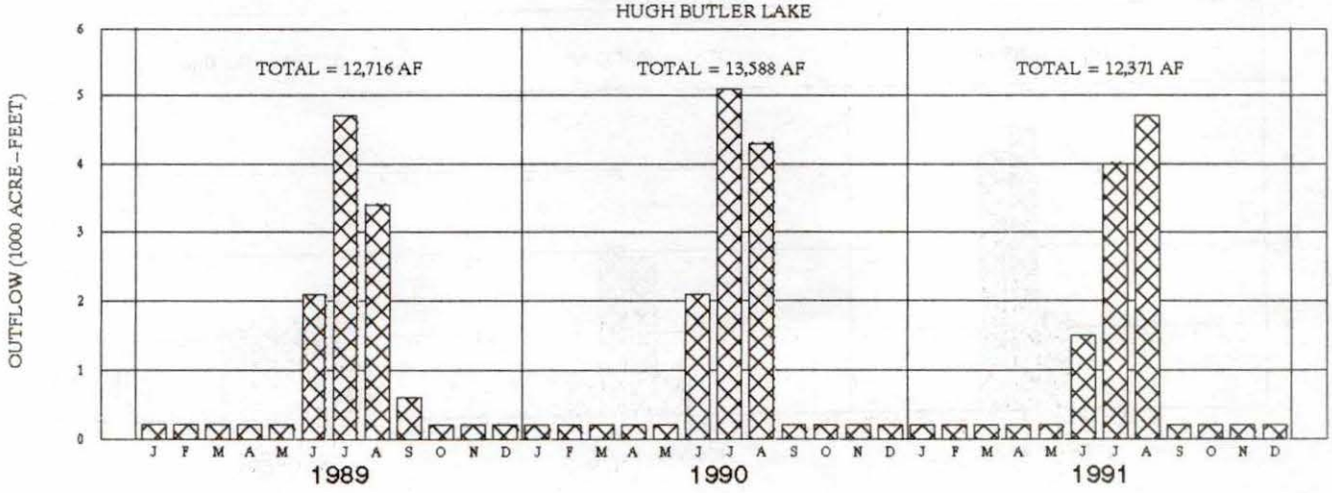


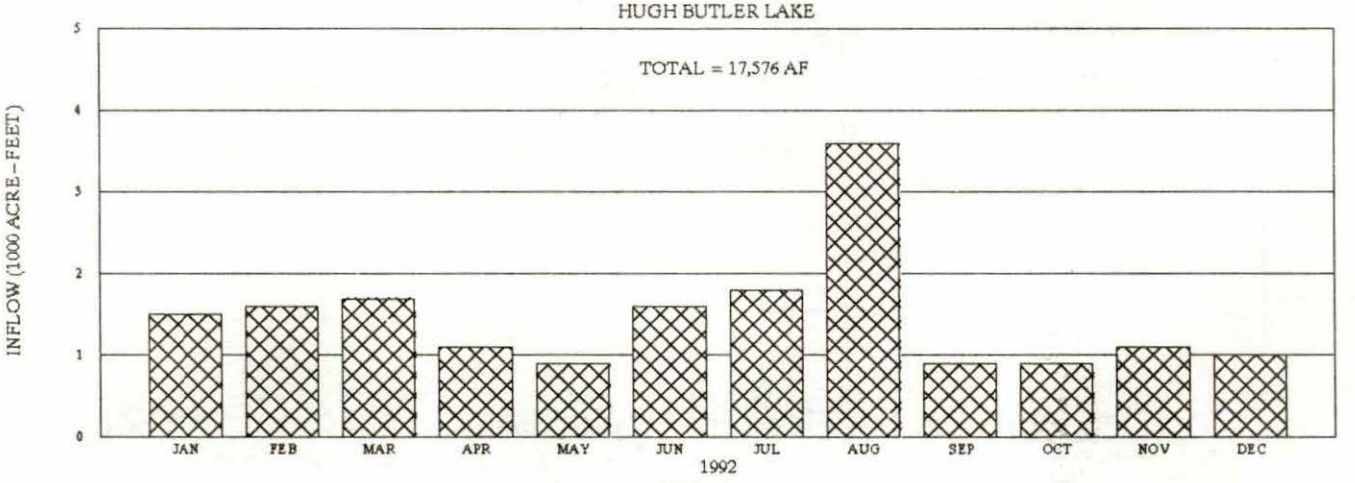
EXHIBIT 9B

HUGH BUTLER LAKE

1992 OPERATION

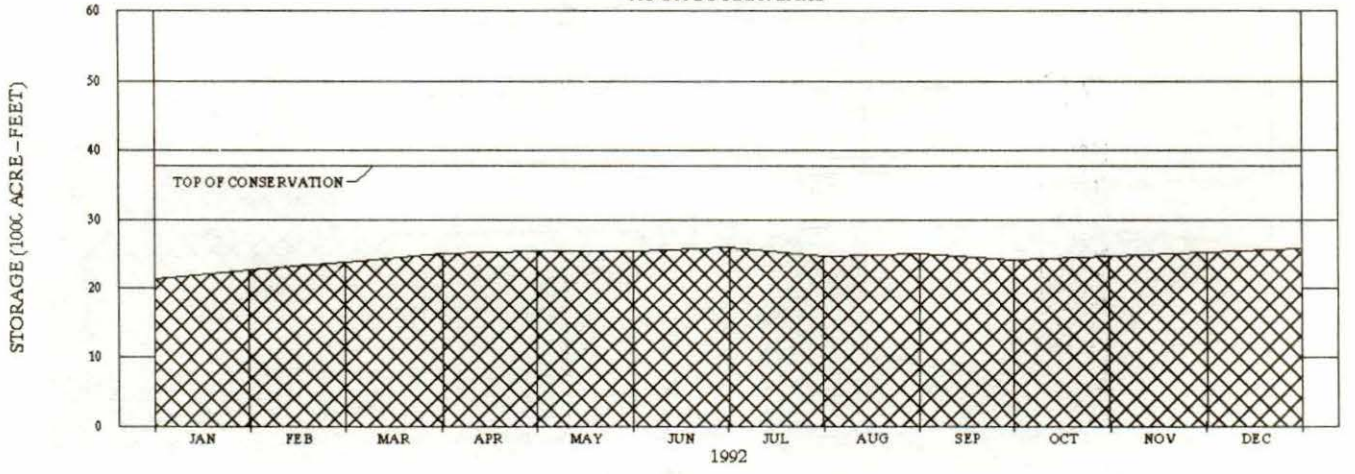
INFLOW

HUGH BUTLER LAKE



STORAGE

HUGH BUTLER LAKE



OUTFLOW

HUGH BUTLER LAKE

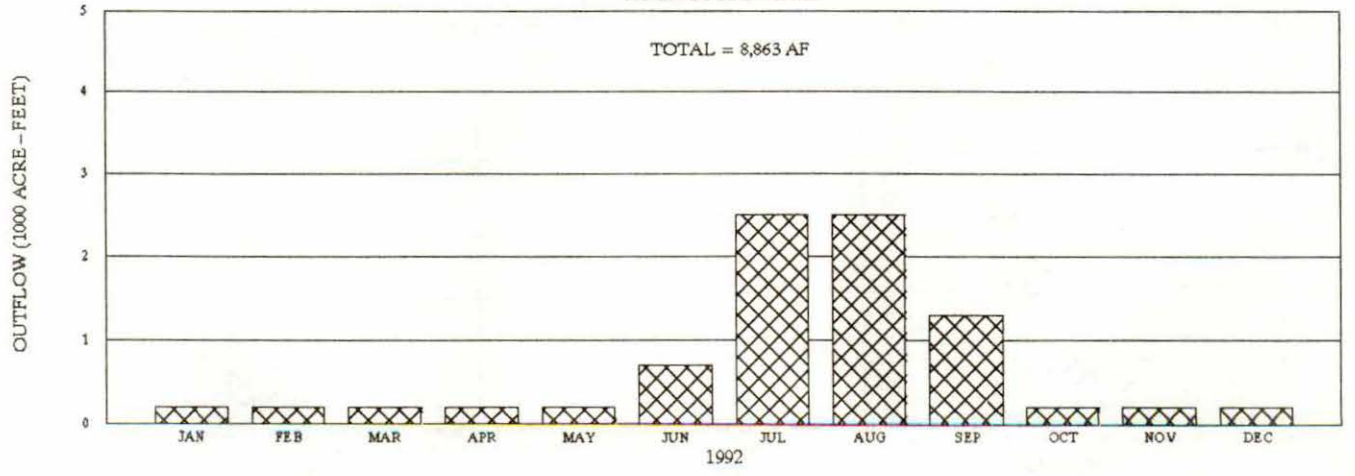


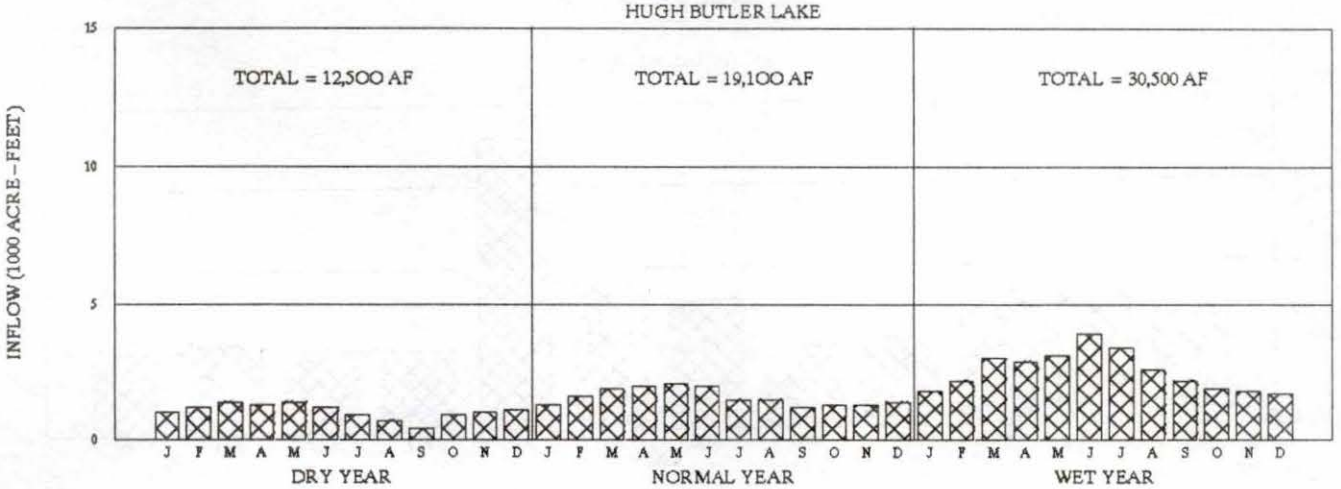
EXHIBIT 9C

HUGH BUTLER LAKE

1993 OPERATION PLAN

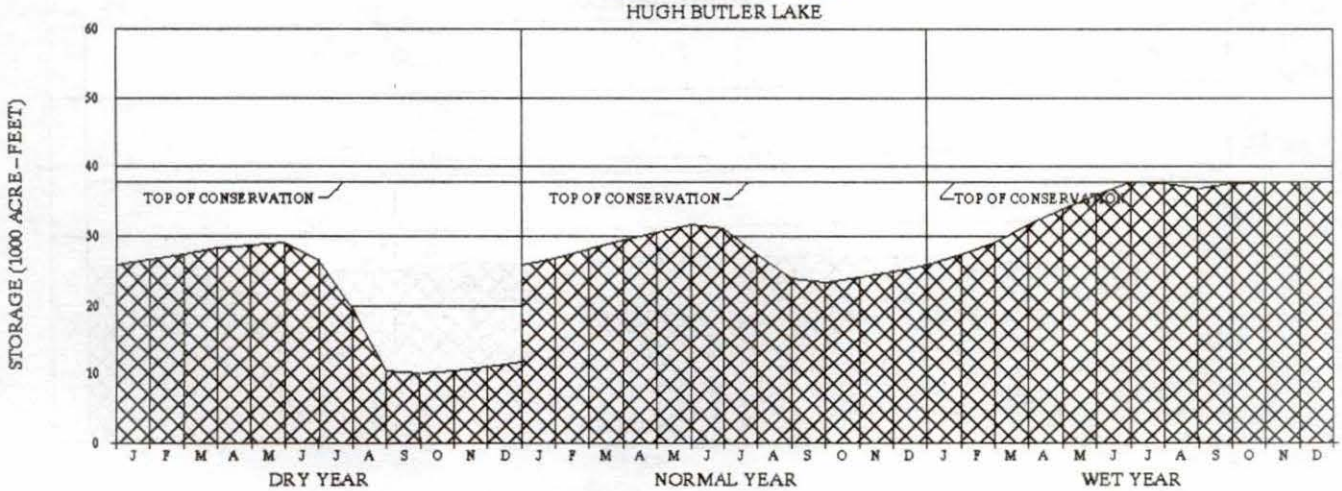
INFLOW

HUGH BUTLER LAKE



STORAGE

HUGH BUTLER LAKE



OUTFLOW

HUGH BUTLER LAKE

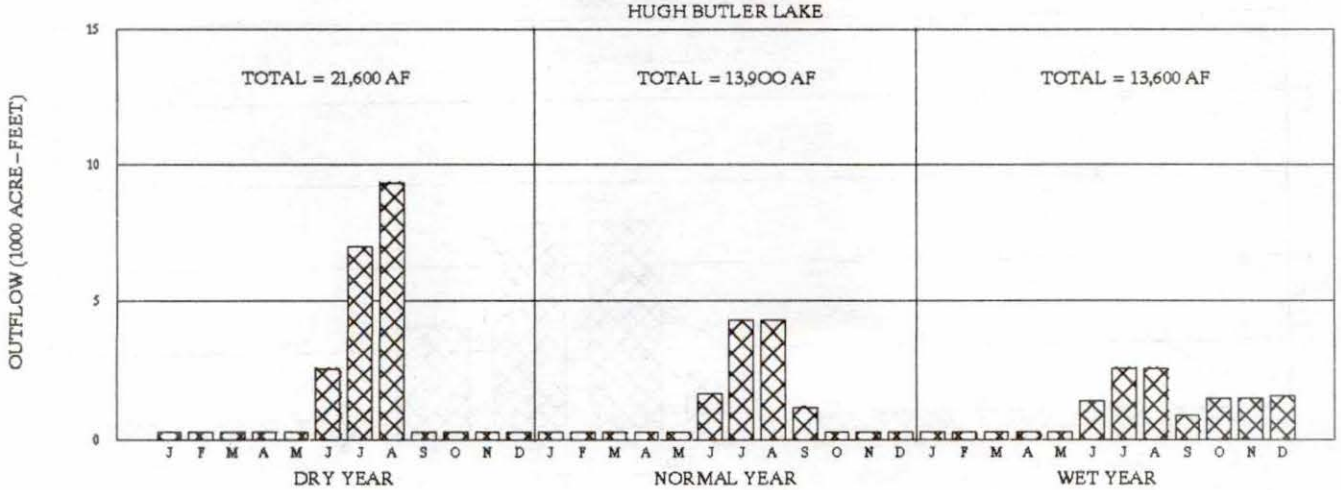


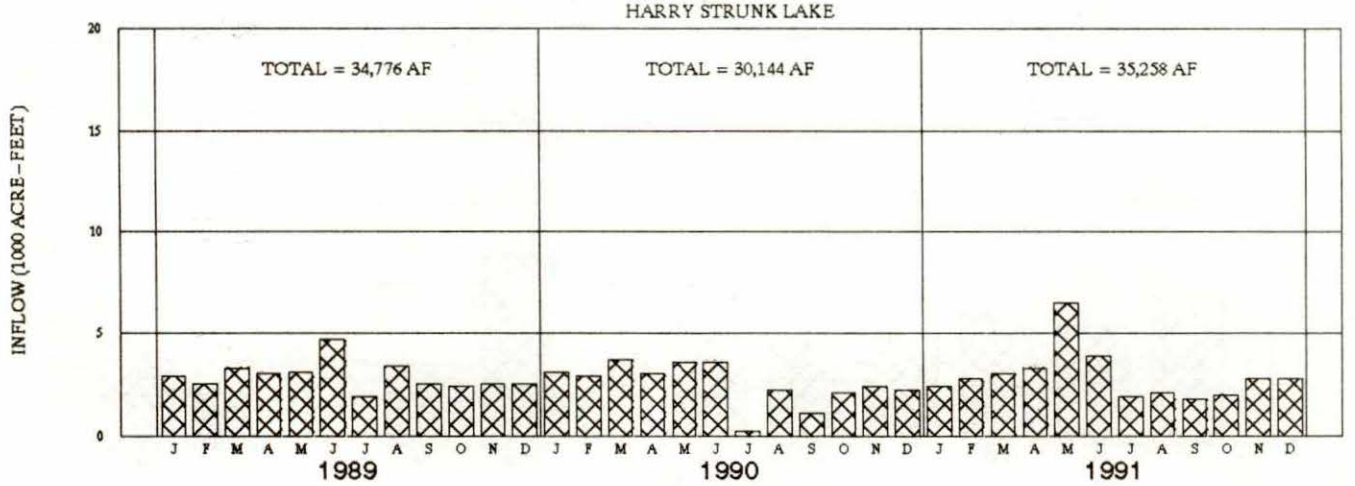
EXHIBIT 10A

HARRY STRUNK LAKE

OPERATION

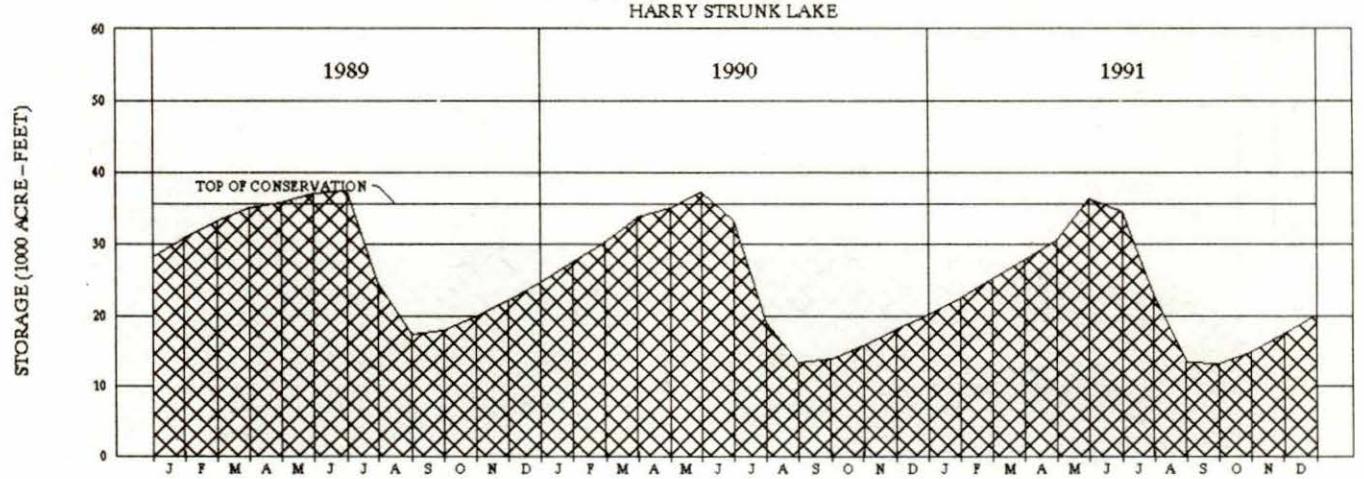
INFLOW

HARRY STRUNK LAKE



STORAGE

HARRY STRUNK LAKE



OUTFLOW

HARRY STRUNK LAKE

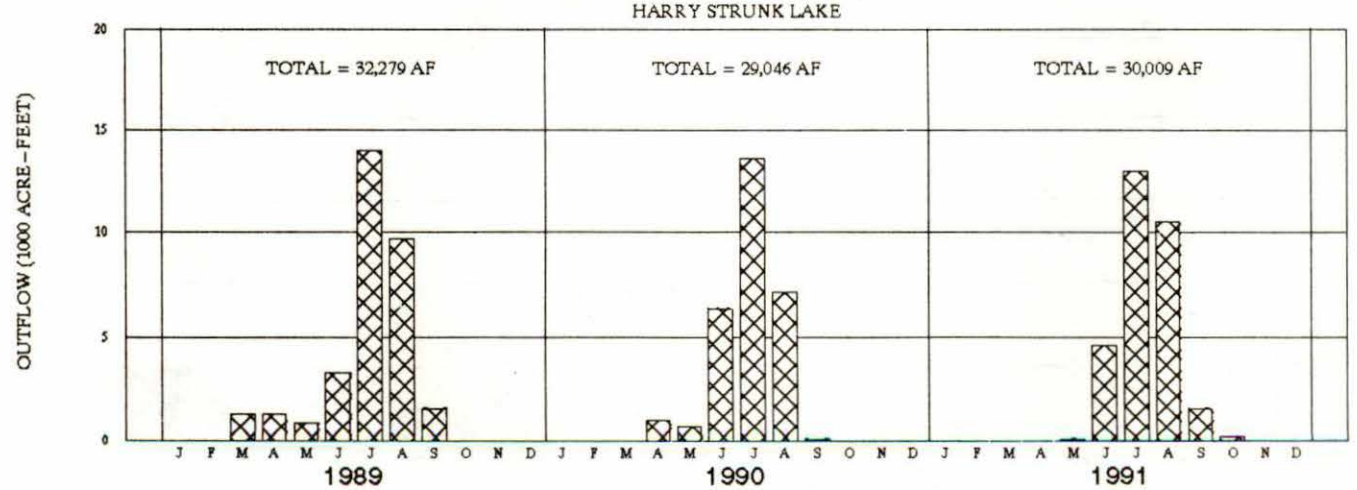


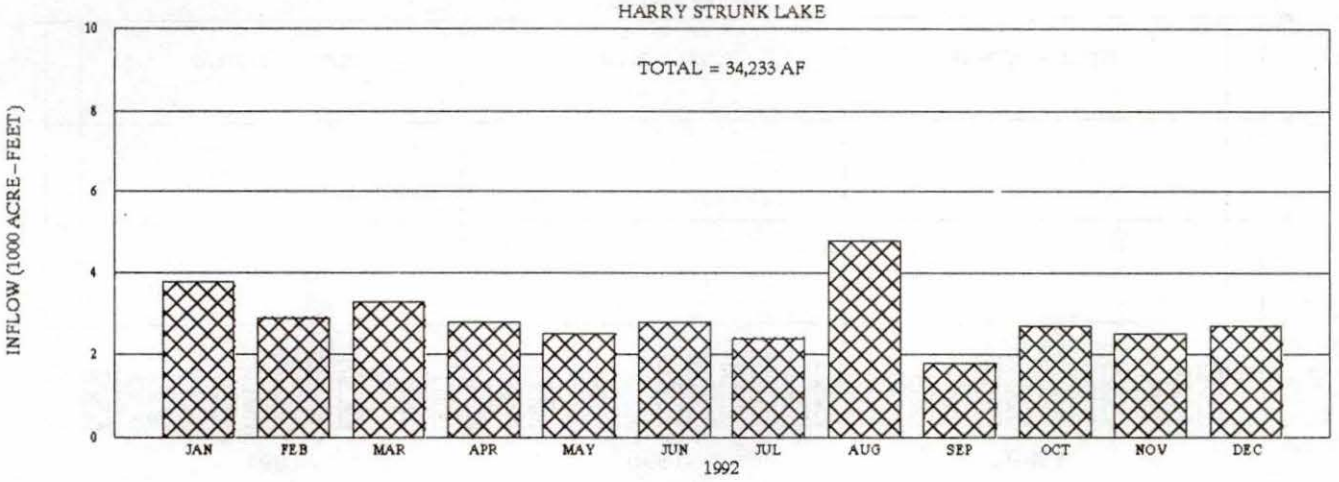
EXHIBIT 10B

HARRY STRUNK LAKE

1992 OPERATION

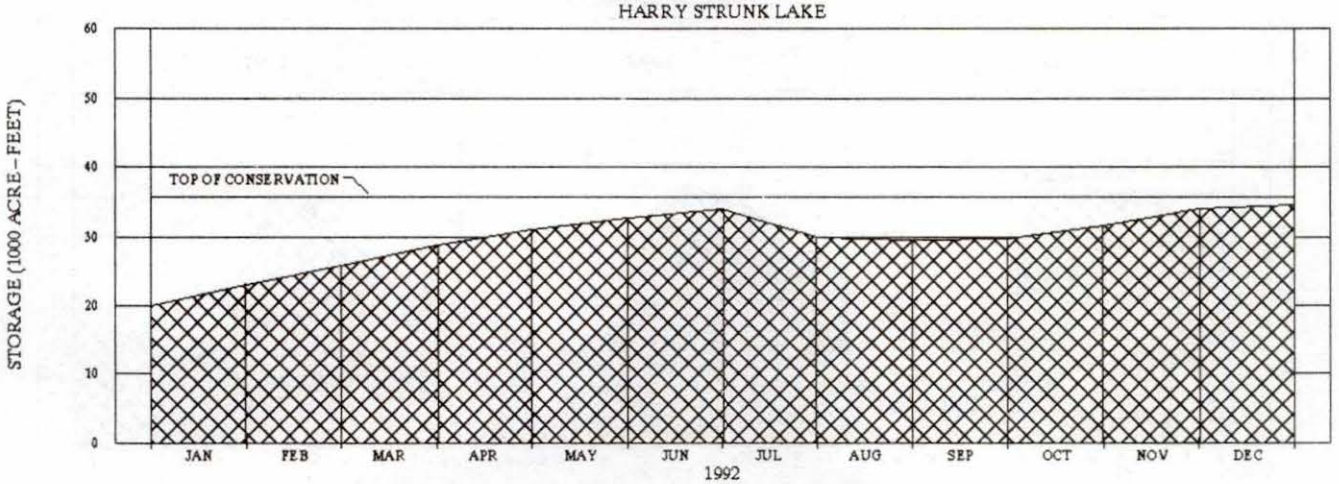
INFLOW

HARRY STRUNK LAKE



STORAGE

HARRY STRUNK LAKE



OUTFLOW

HARRY STRUNK LAKE

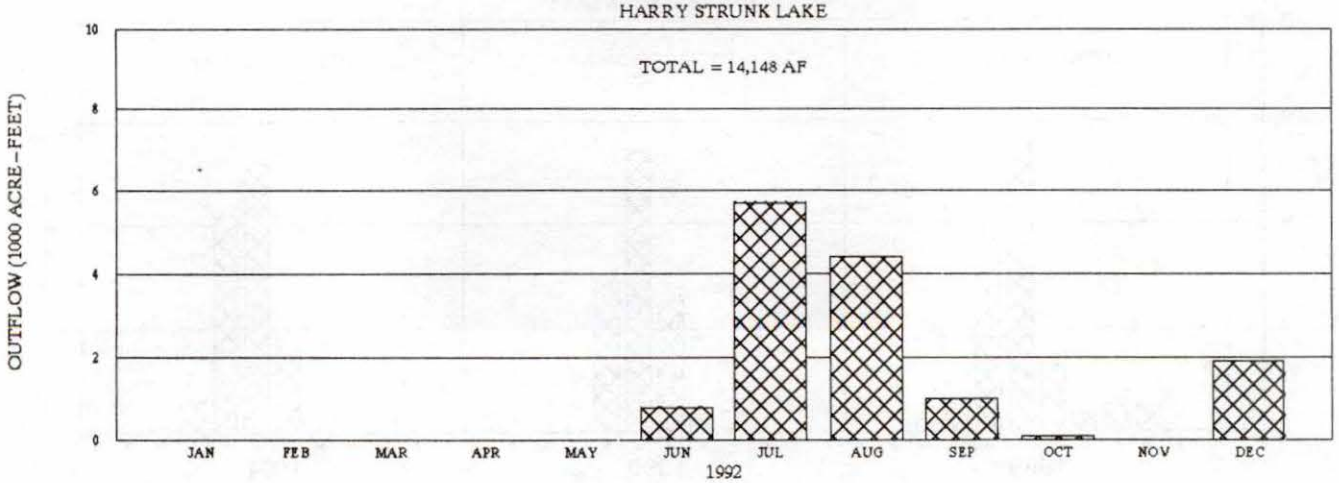


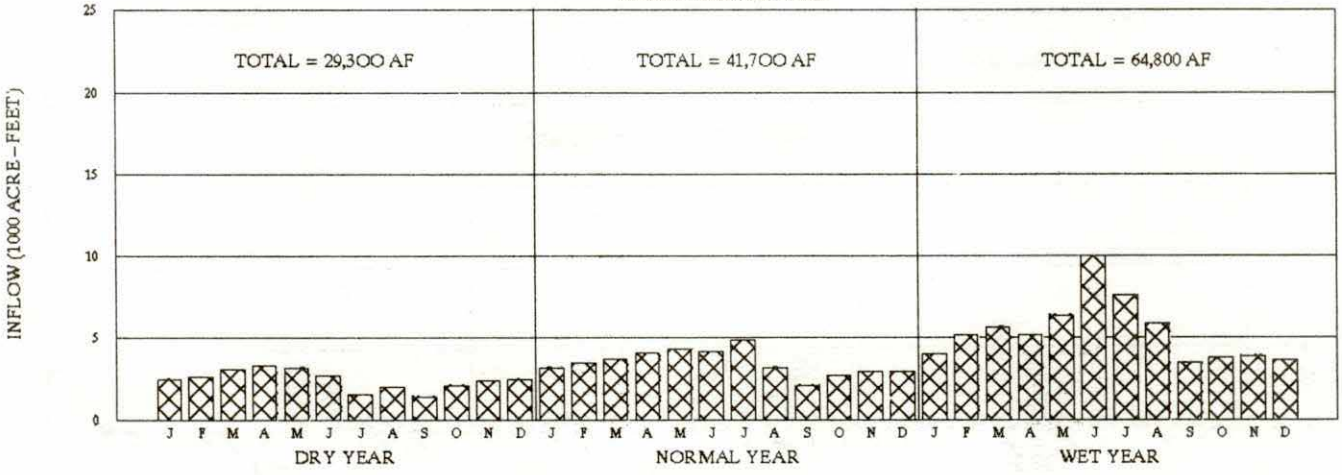
EXHIBIT 10C

HARRY STRUNK LAKE

1993 OPERATION PLAN

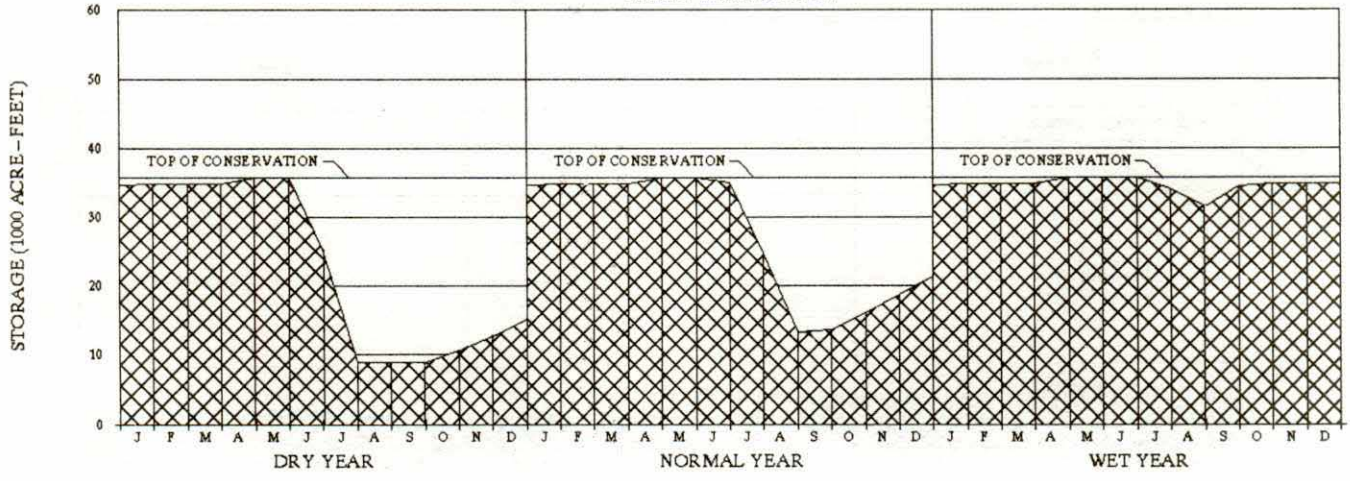
INFLOW

HARRY STRUNK LAKE



STORAGE

HARRY STRUNK LAKE



OUTFLOW

HARRY STRUNK LAKE

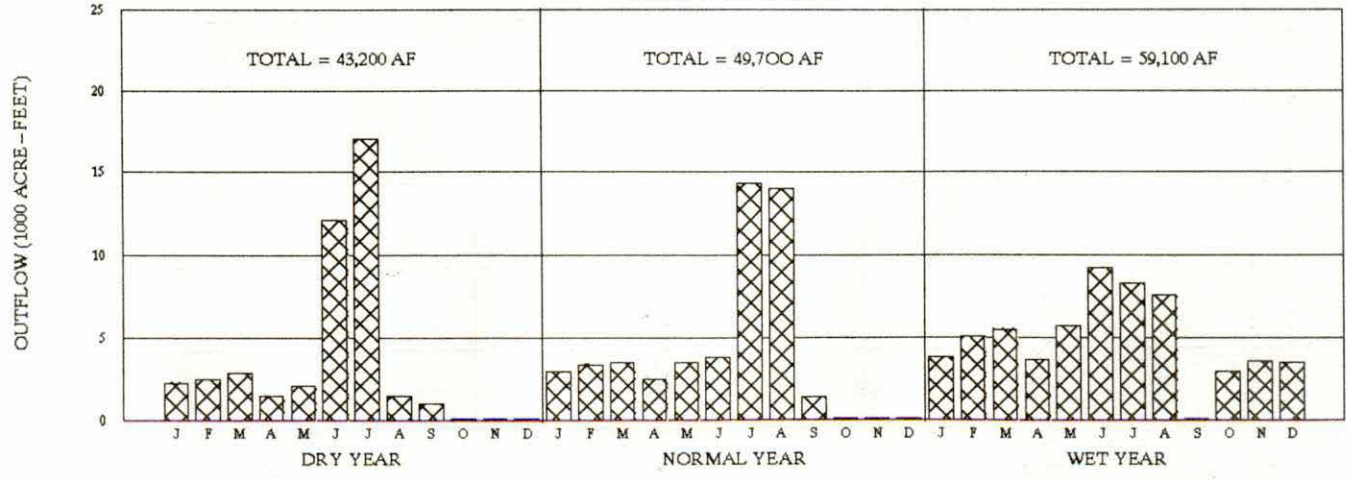


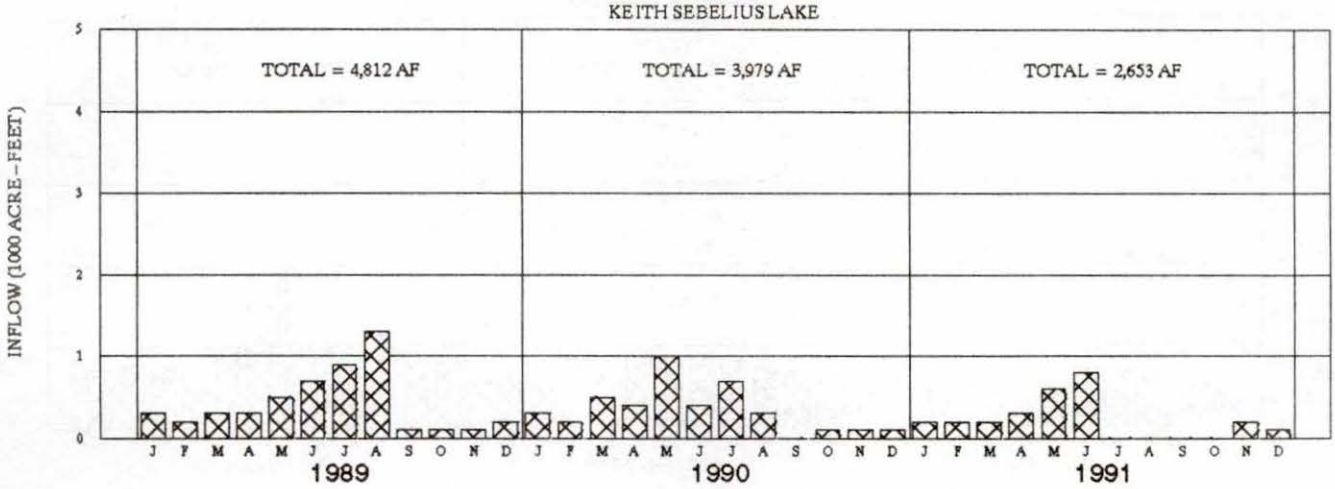
EXHIBIT 11A

KEITH SEBELIUS LAKE

OPERATION

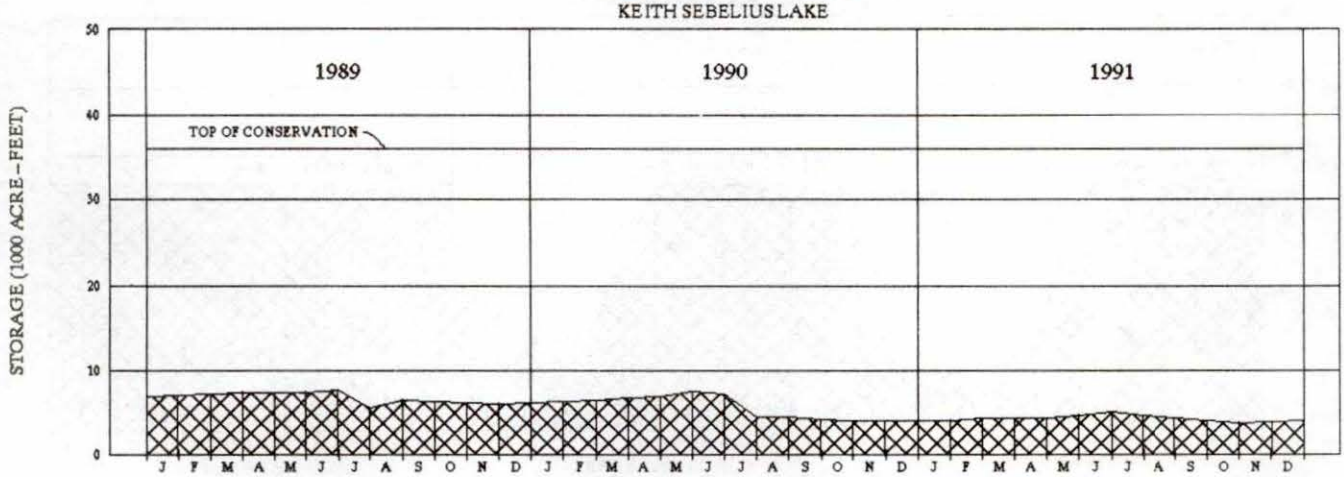
INFLOW

KEITH SEBELIUS LAKE



STORAGE

KEITH SEBELIUS LAKE



OUTFLOW

KEITH SEBELIUS LAKE

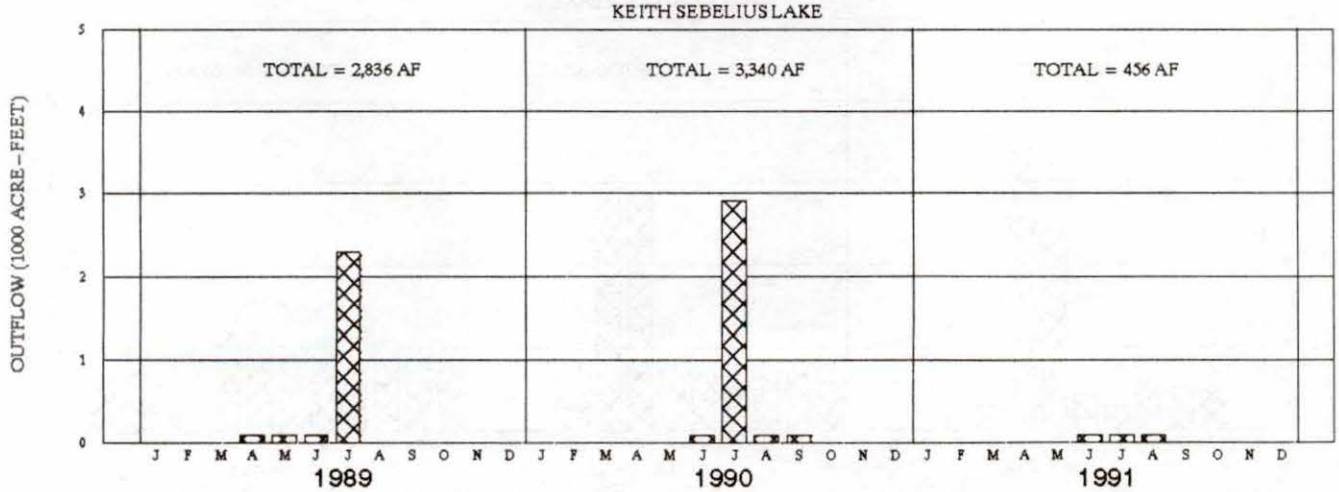
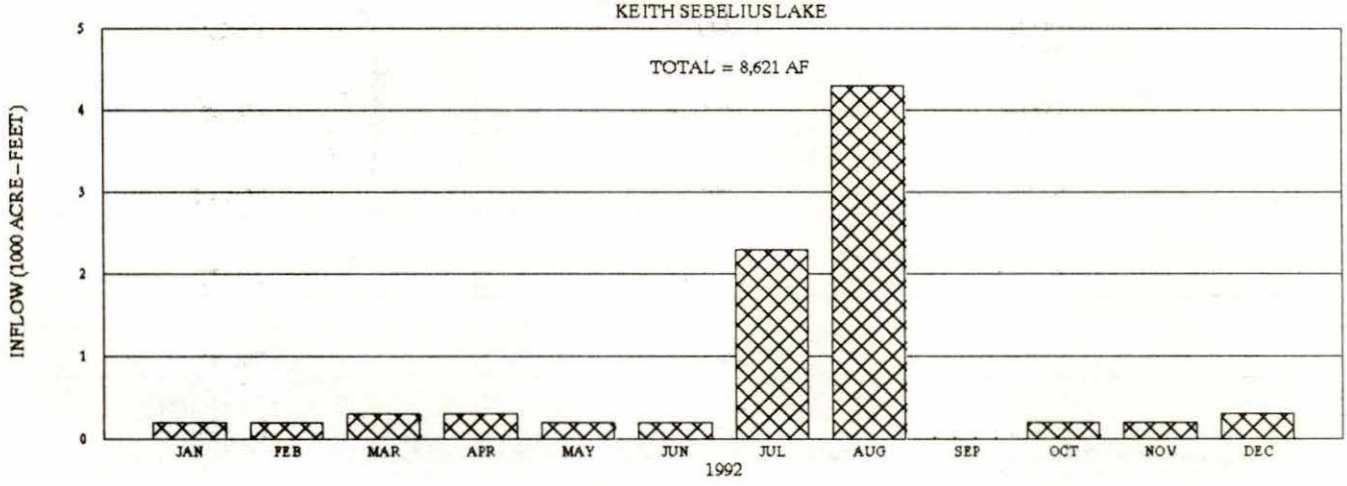


EXHIBIT 11B

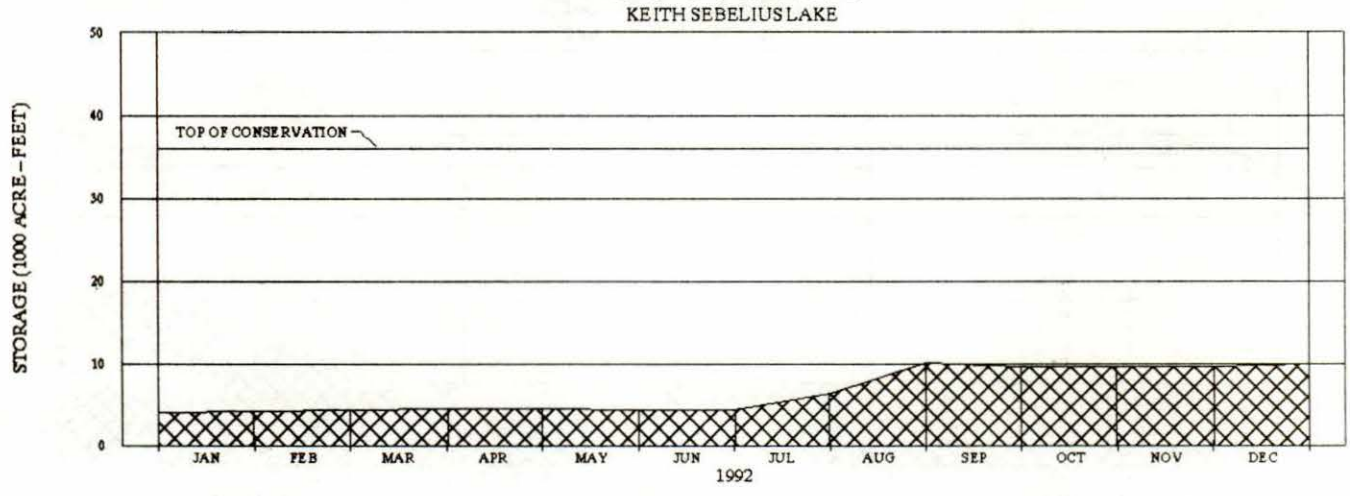
KEITH SEBELIUS LAKE

1992 OPERATION

INFLOW



STORAGE



OUTFLOW

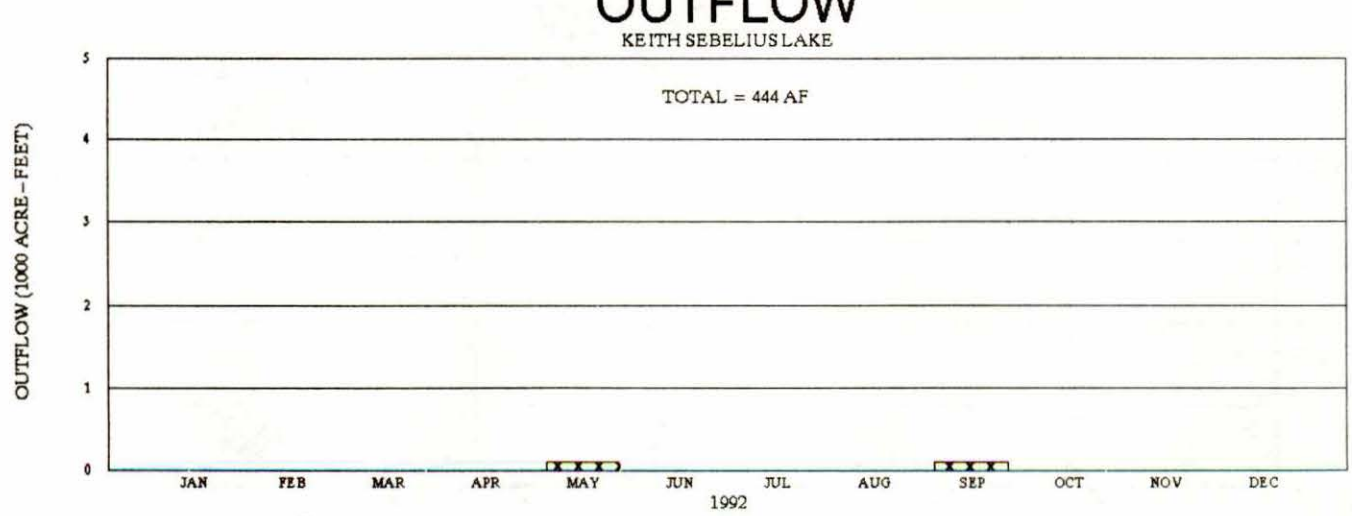


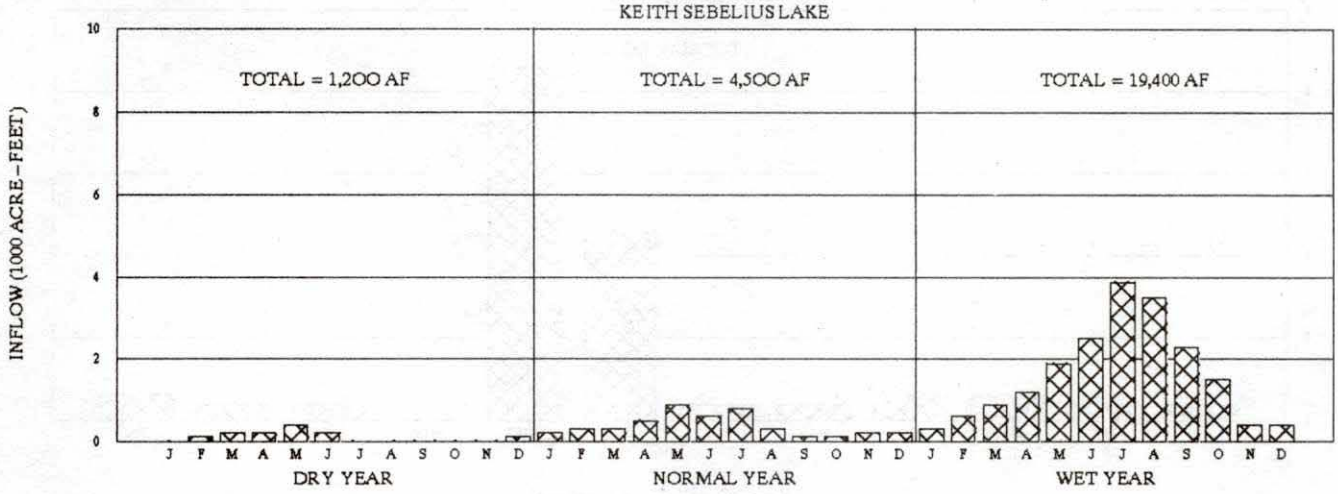
EXHIBIT 11C

KEITH SEBELIUS LAKE

1993 OPERATION PLAN

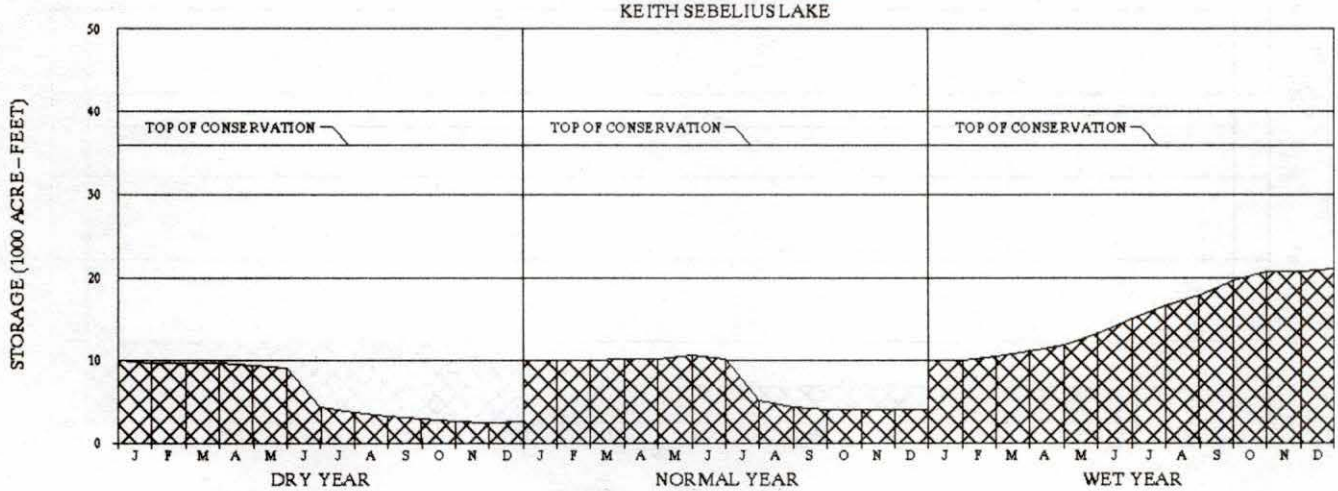
INFLOW

KEITH SEBELIUS LAKE



STORAGE

KEITH SEBELIUS LAKE



OUTFLOW

KEITH SEBELIUS LAKE

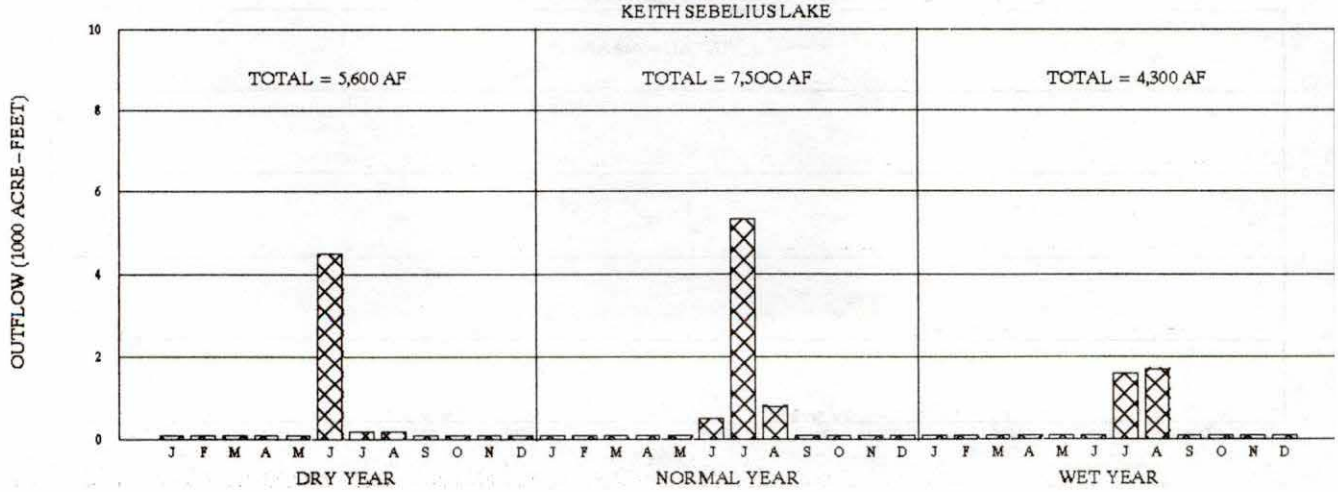


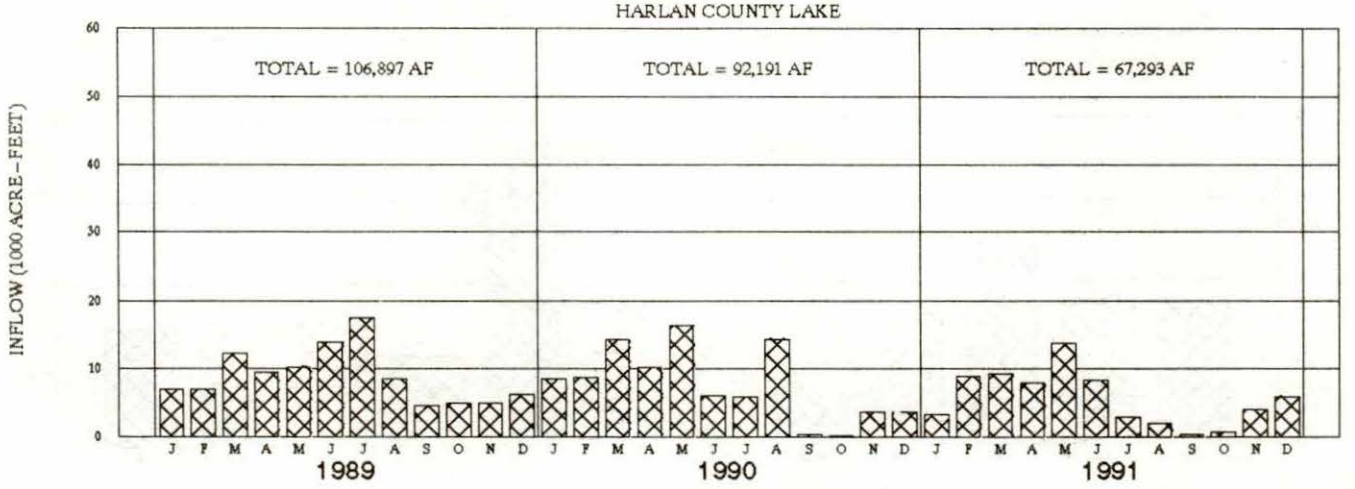
EXHIBIT 12A

HARLAN COUNTY LAKE

OPERATION

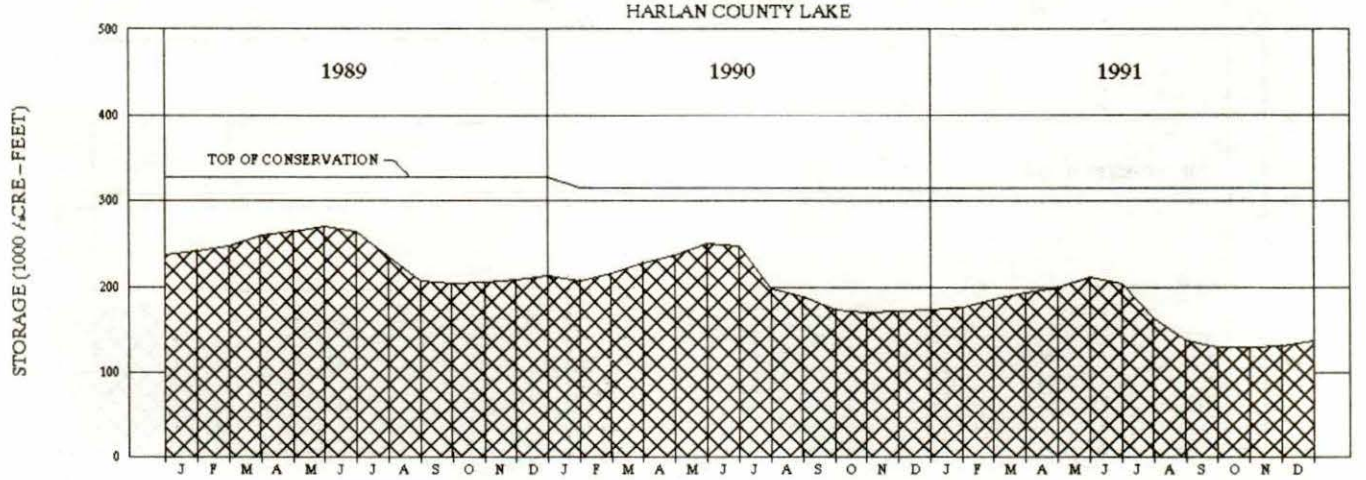
INFLOW

HARLAN COUNTY LAKE



STORAGE

HARLAN COUNTY LAKE



OUTFLOW

HARLAN COUNTY LAKE

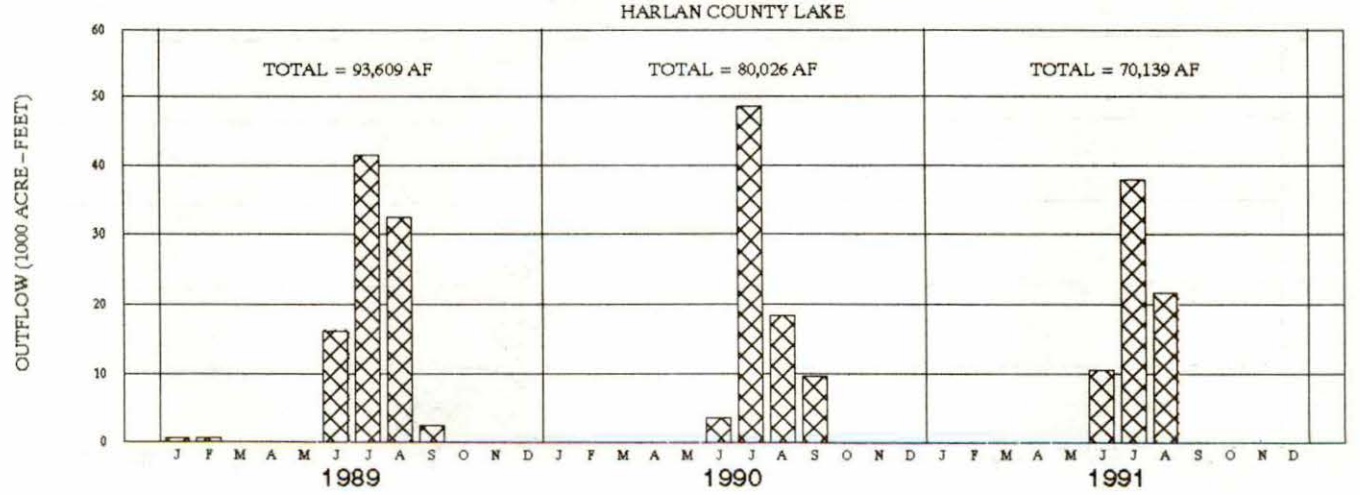
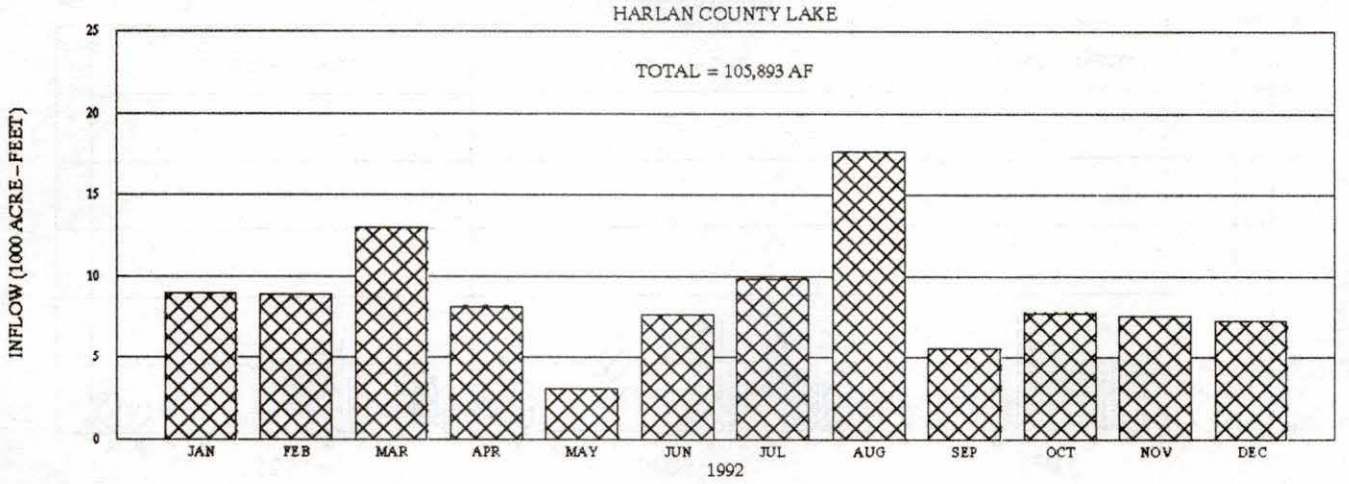


EXHIBIT 12B

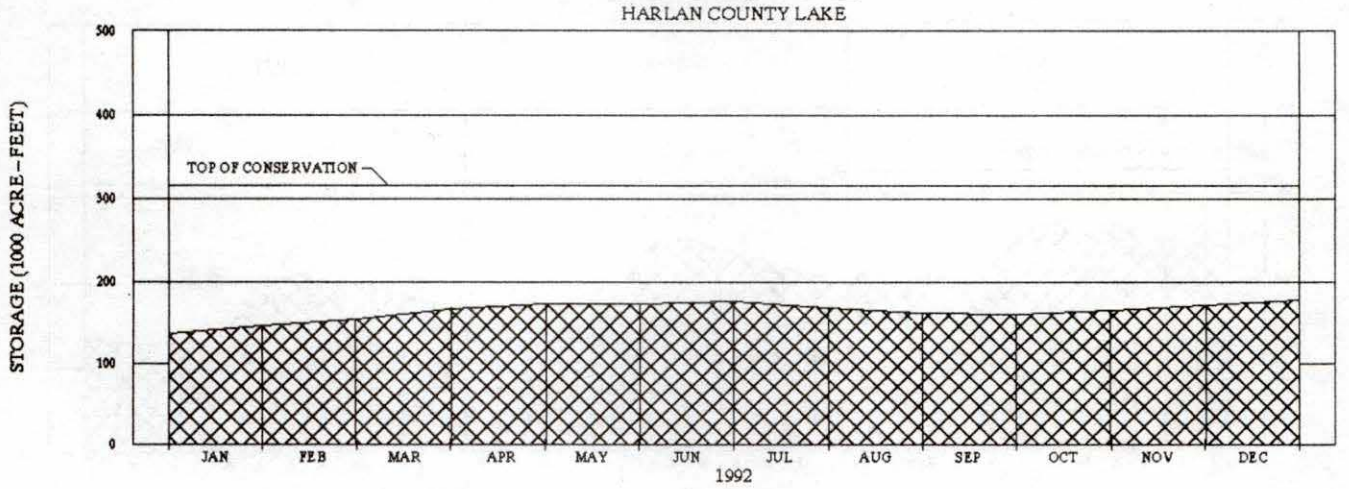
HARLAN COUNTY LAKE

1992 OPERATION

INFLOW



STORAGE



OUTFLOW

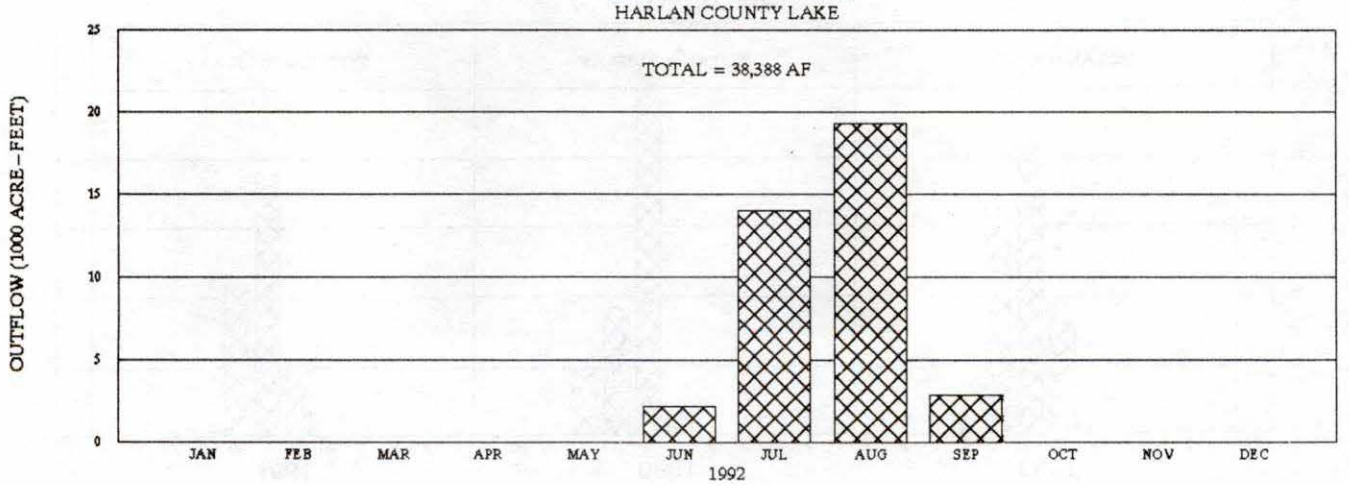


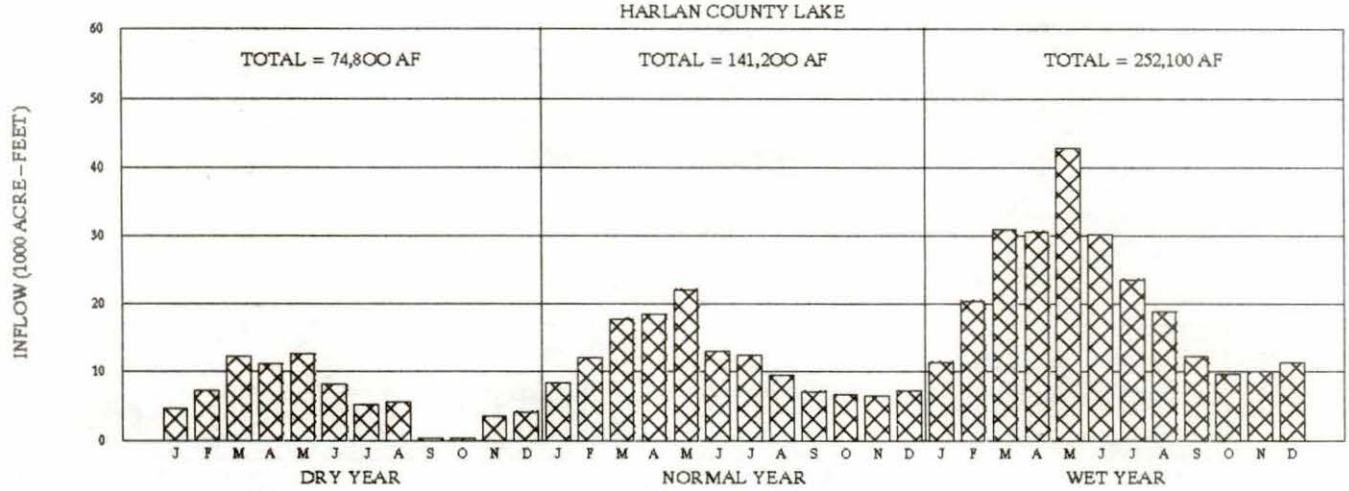
EXHIBIT 12C

HARLAN COUNTY LAKE

1993 OPERATION PLAN

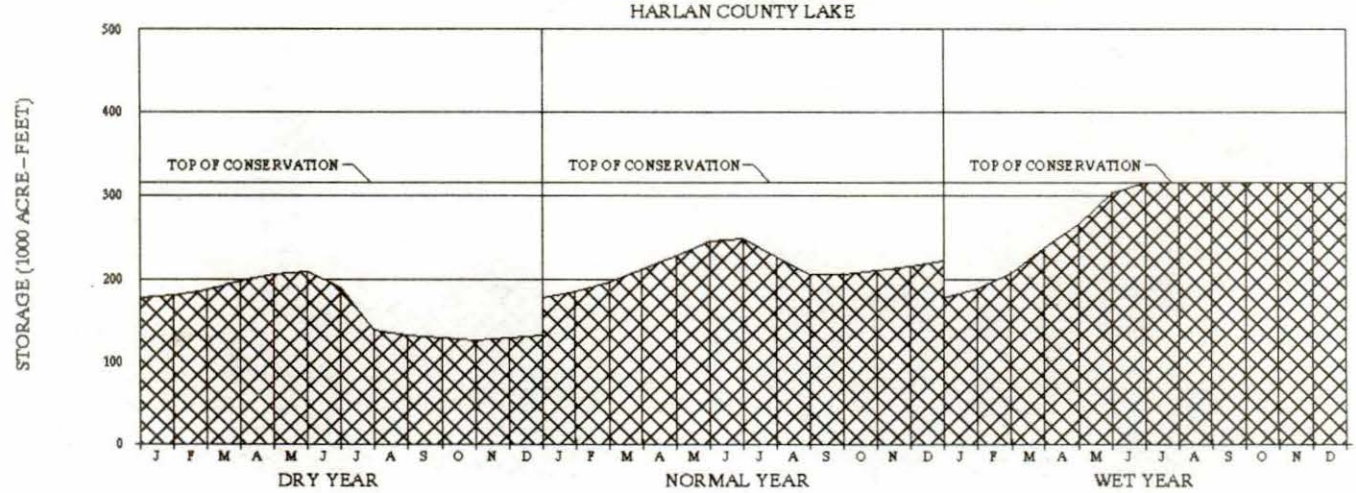
INFLOW

HARLAN COUNTY LAKE



STORAGE

HARLAN COUNTY LAKE



OUTFLOW

HARLAN COUNTY LAKE

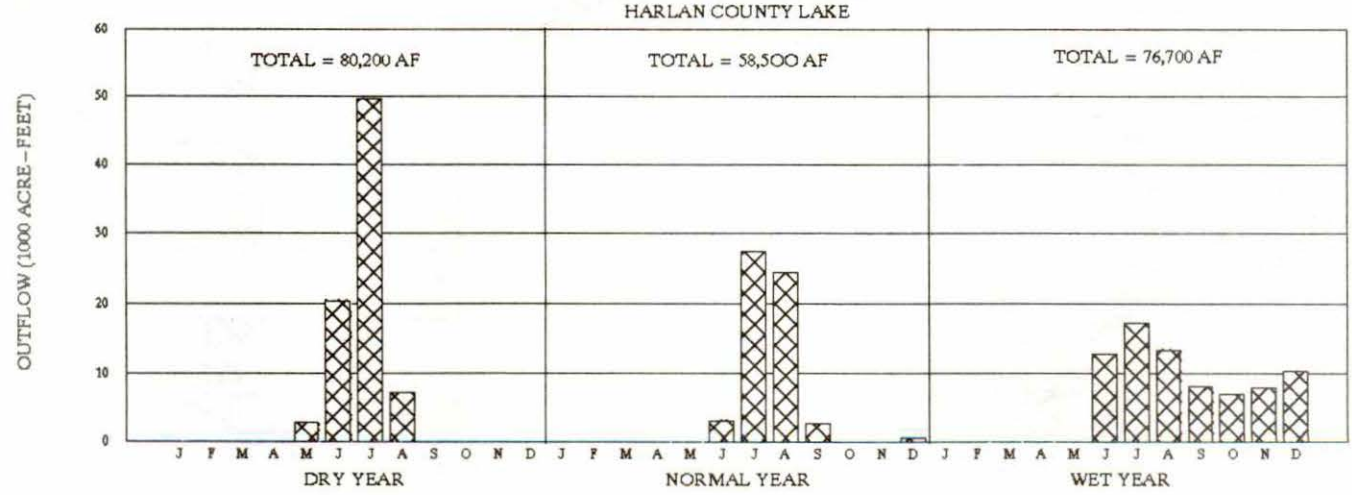


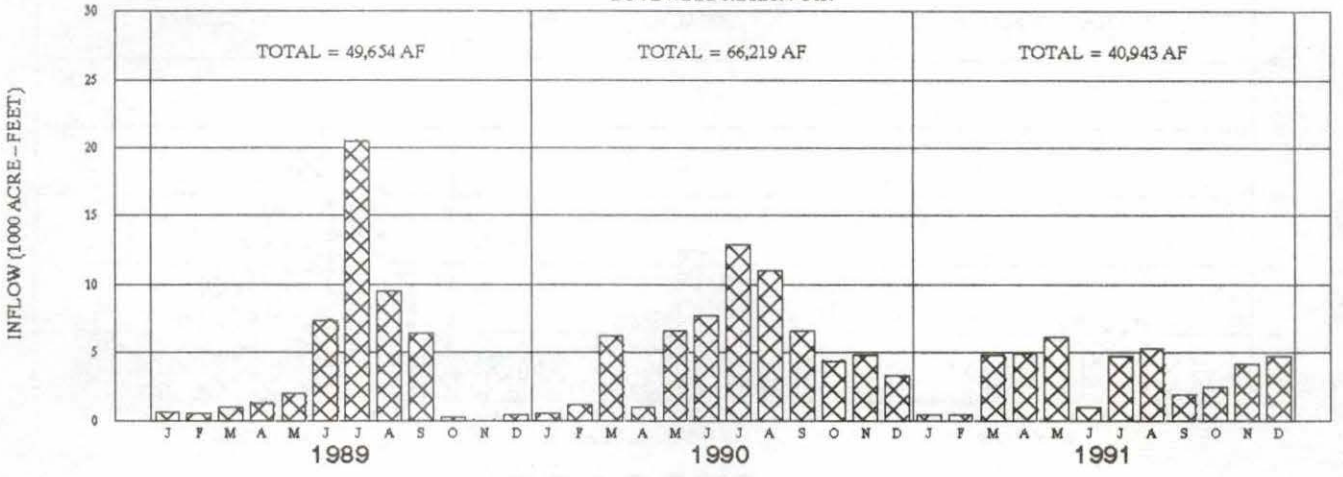
EXHIBIT 13A

LOVEWELL RESERVOIR

OPERATION

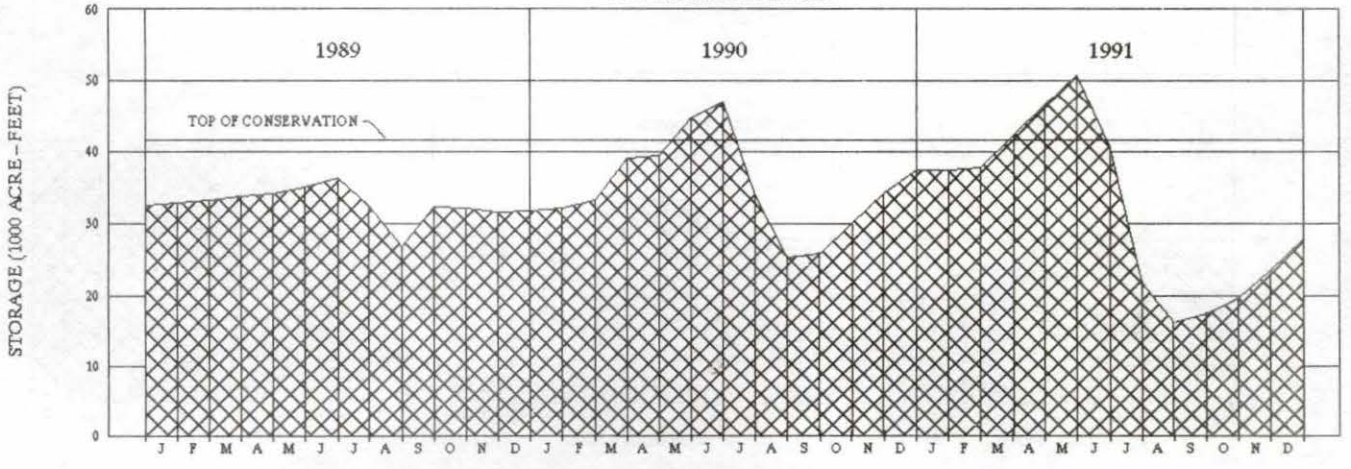
INFLOW

LOVEWELL RESERVOIR



STORAGE

LOVEWELL RESERVOIR



OUTFLOW

LOVEWELL RESERVOIR

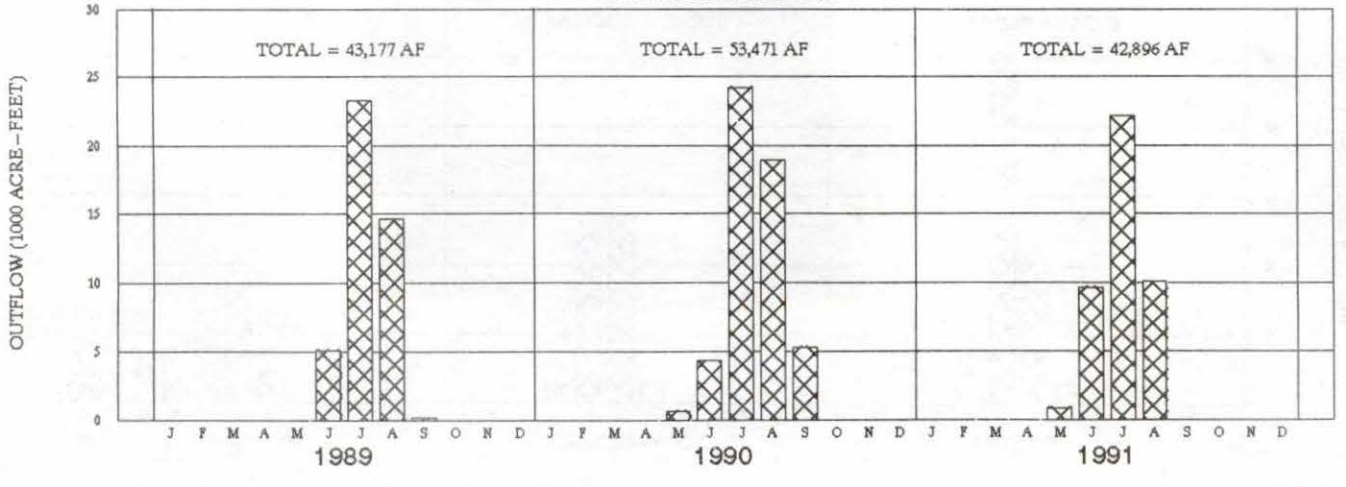


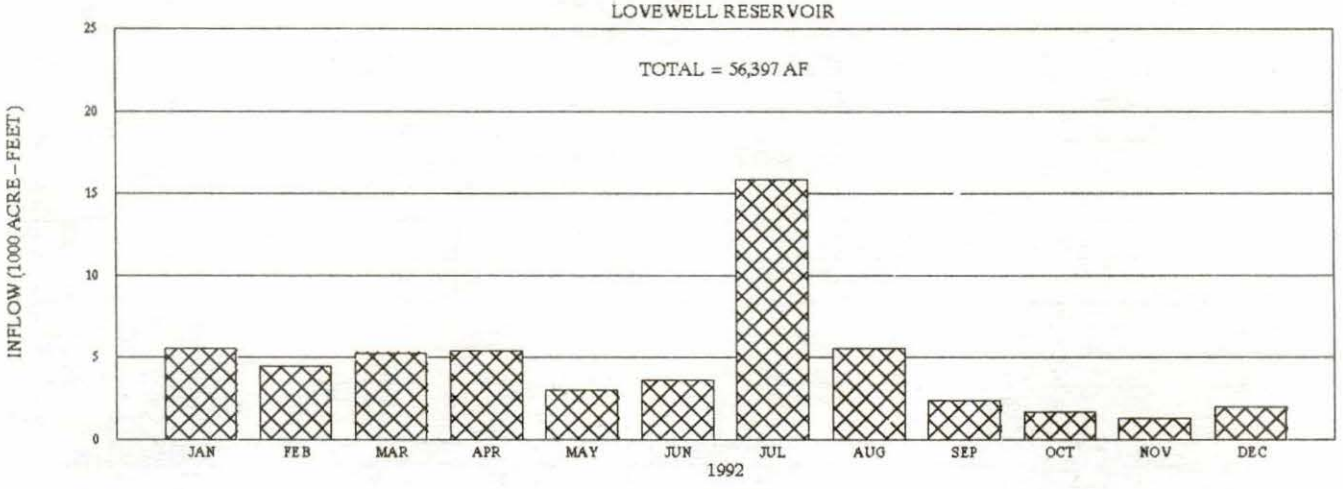
EXHIBIT 13B

LOVEWELL RESERVOIR

1992 OPERATION

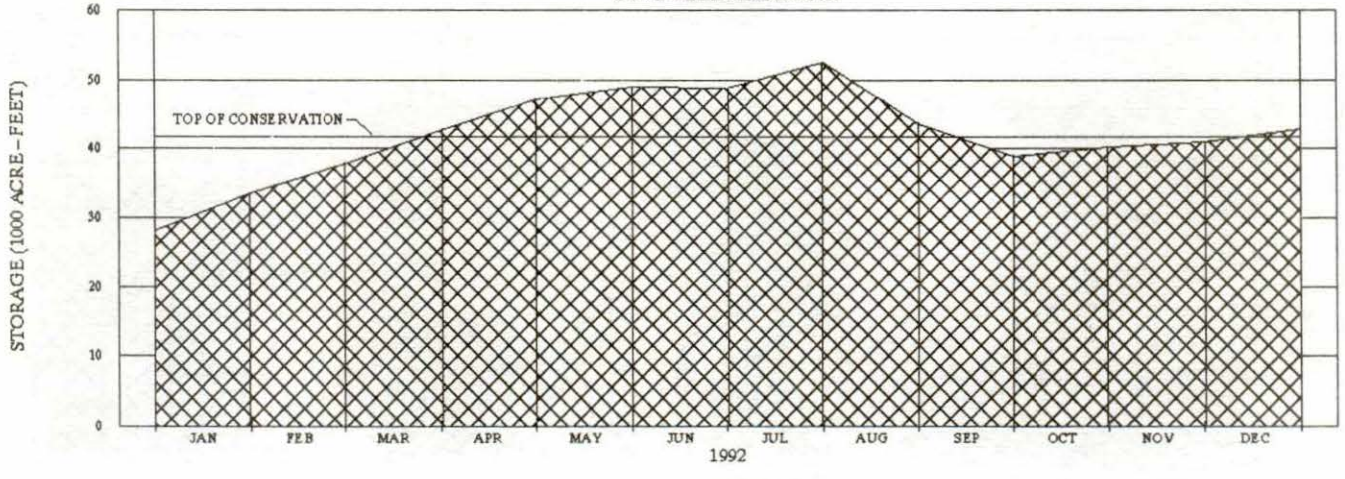
INFLOW

LOVEWELL RESERVOIR



STORAGE

LOVEWELL RESERVOIR



OUTFLOW

LOVEWELL RESERVOIR

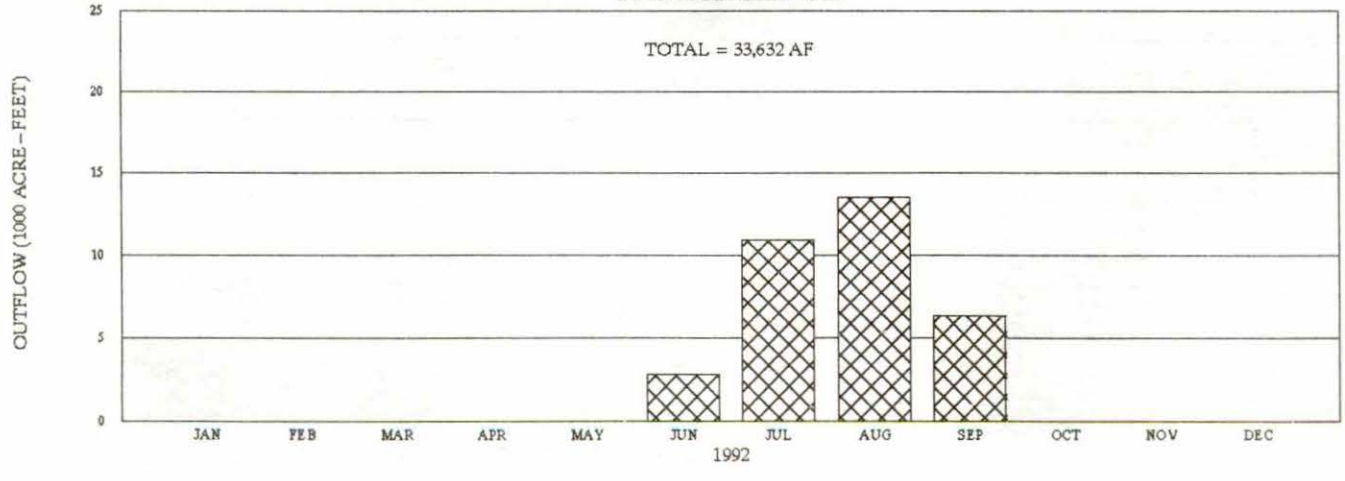


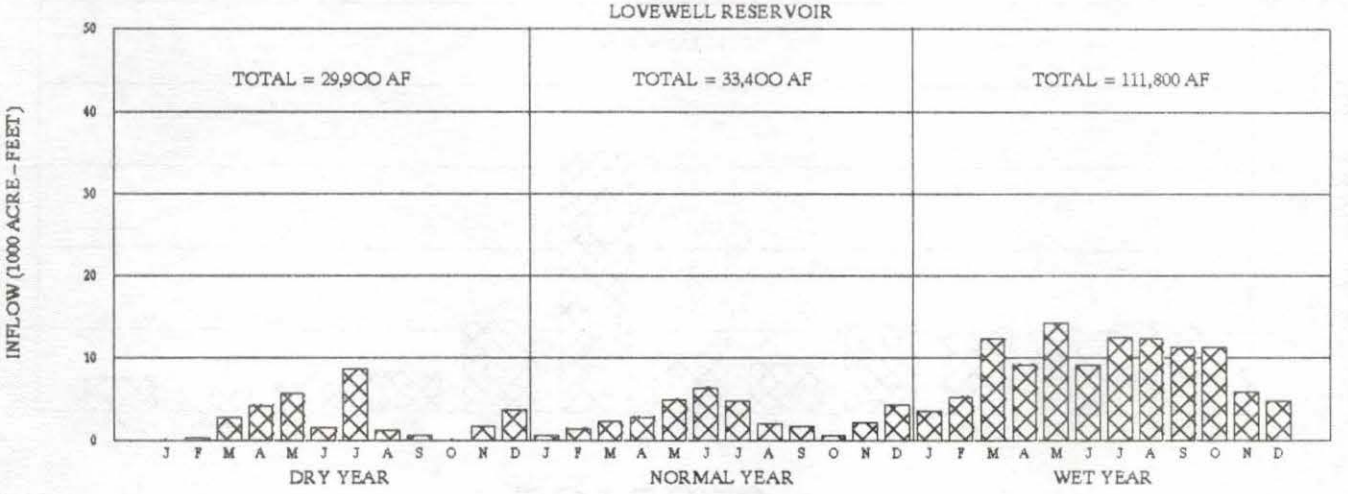
EXHIBIT 13C

LOVEWELL RESERVOIR

1993 OPERATION PLAN

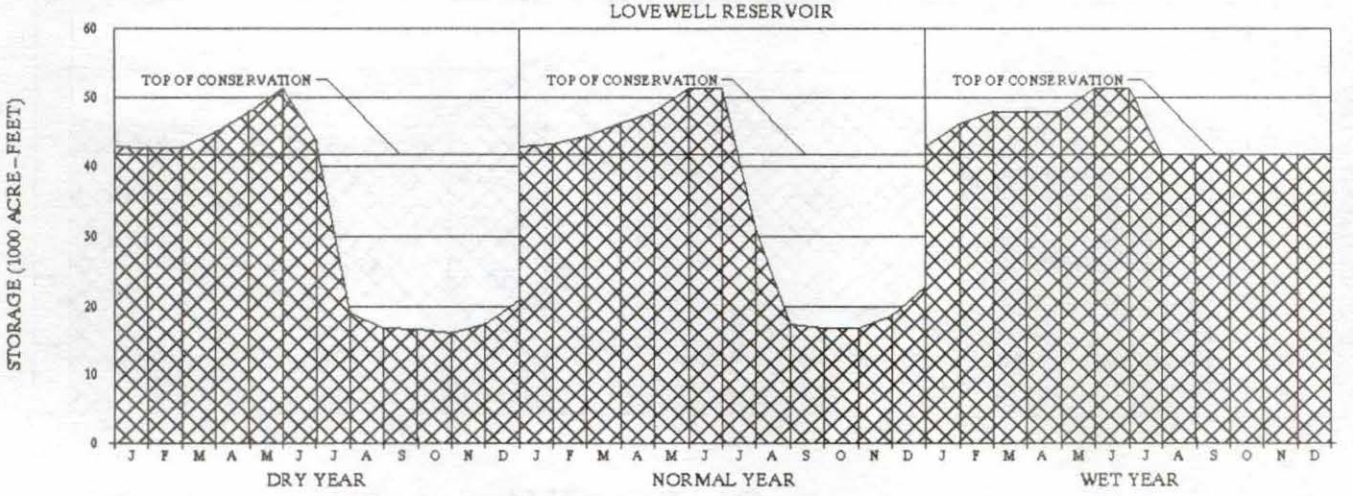
INFLOW

LOVEWELL RESERVOIR



STORAGE

LOVEWELL RESERVOIR



OUTFLOW

LOVEWELL RESERVOIR

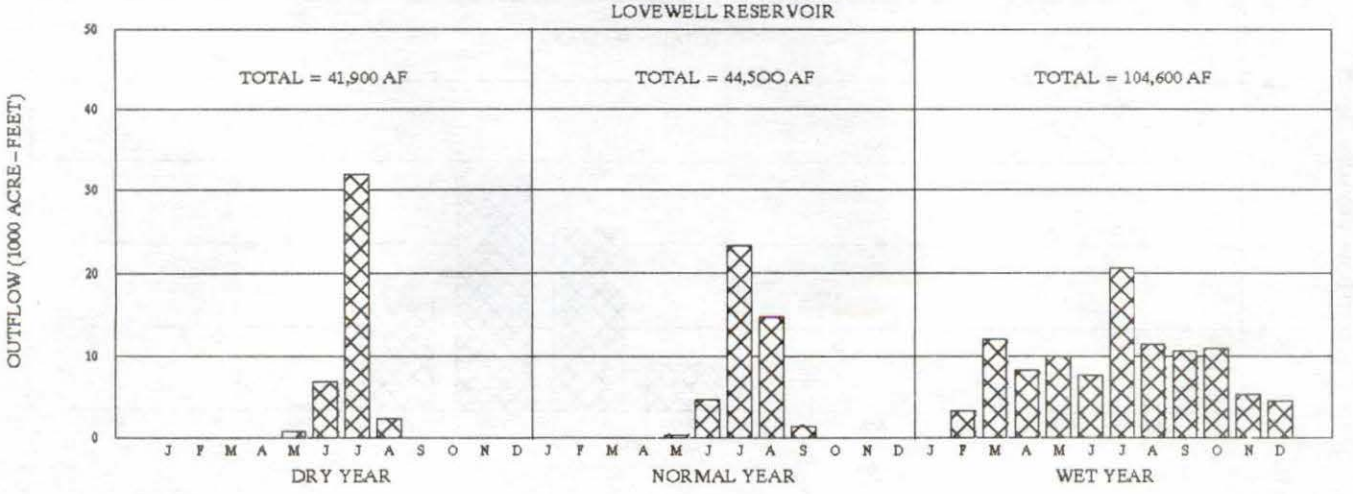


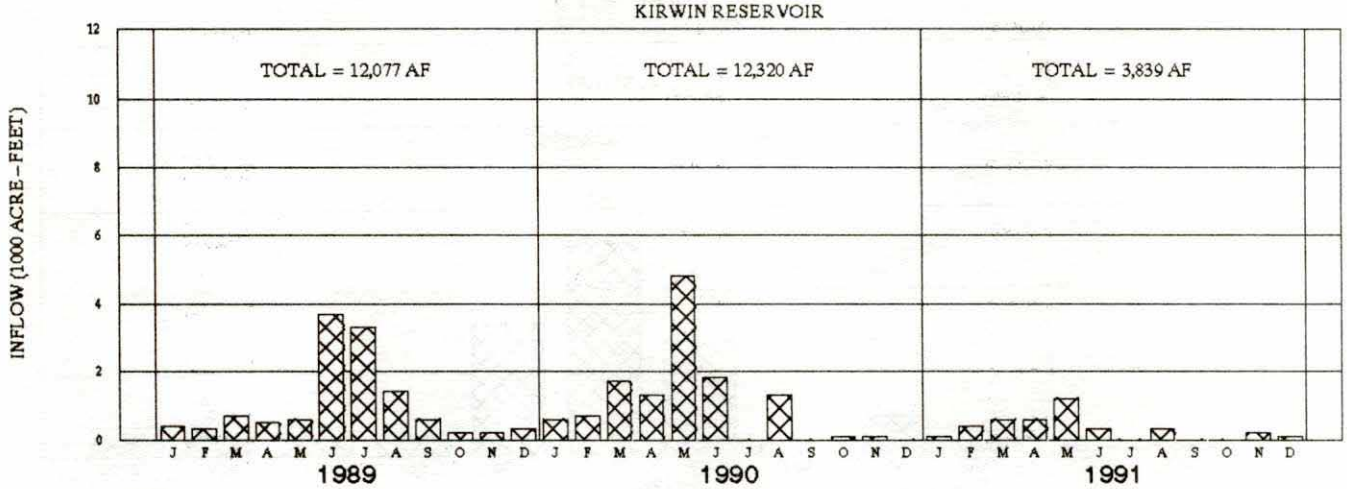
EXHIBIT 14A

KIRWIN RESERVOIR

OPERATION

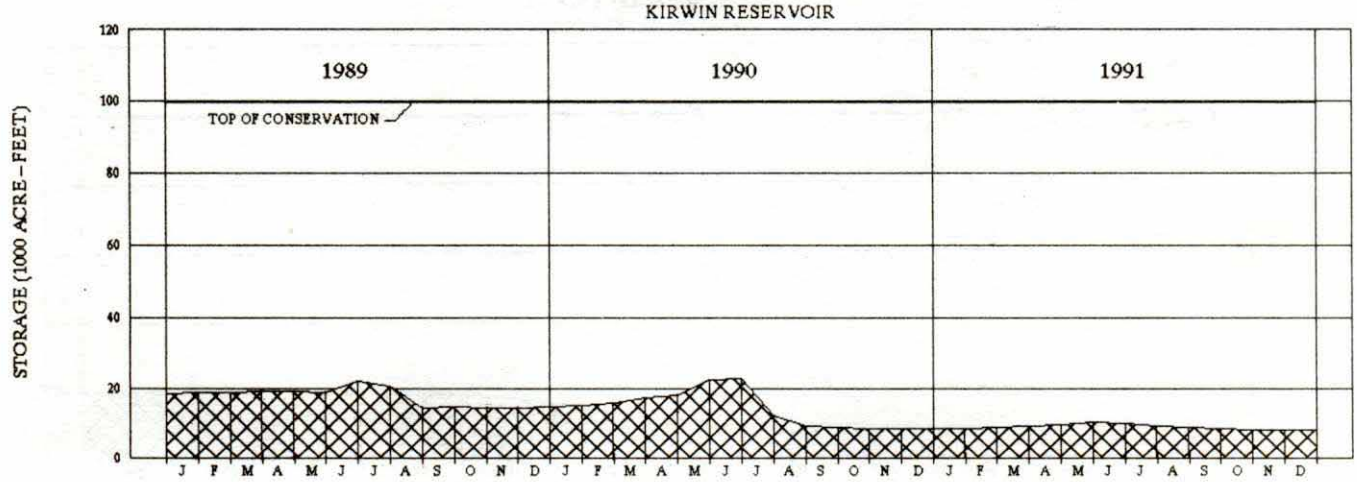
INFLOW

KIRWIN RESERVOIR



STORAGE

KIRWIN RESERVOIR



OUTFLOW

KIRWIN RESERVOIR

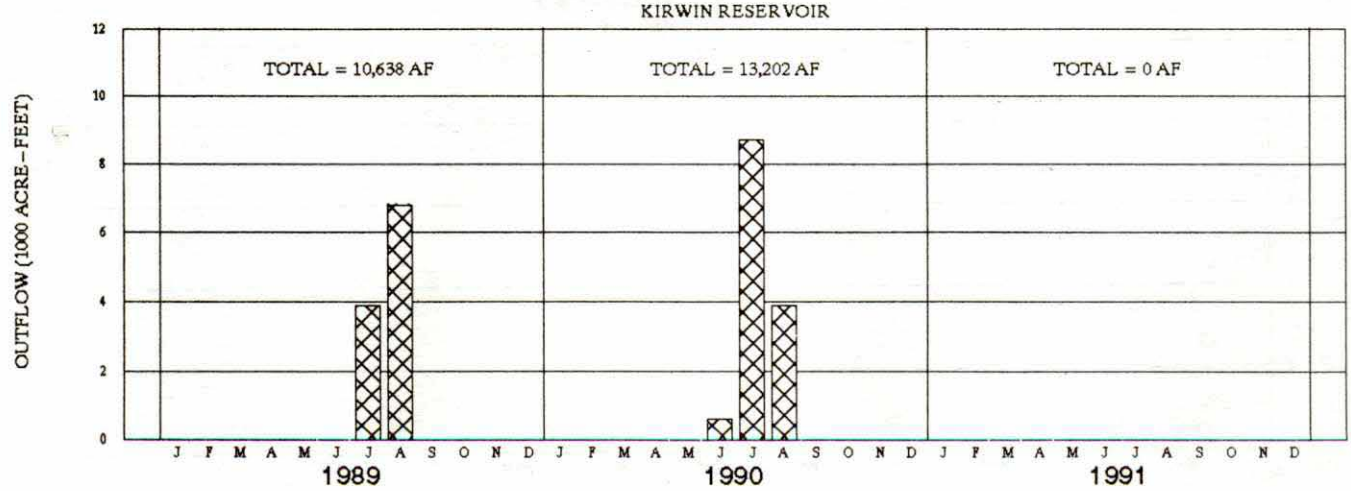


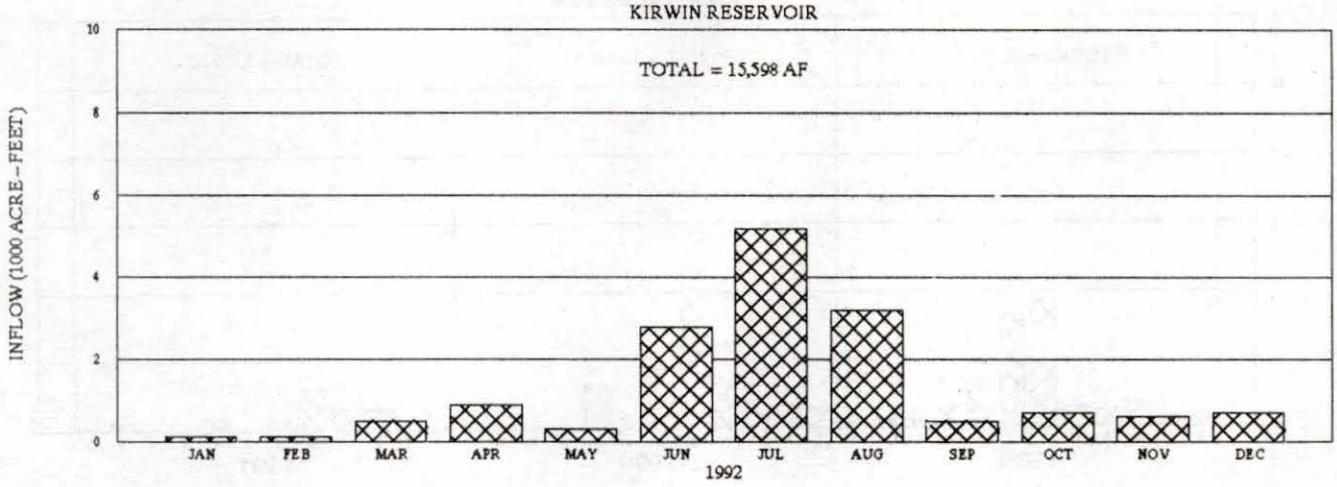
EXHIBIT 14B

KIRWIN RESERVOIR

1992 OPERATION

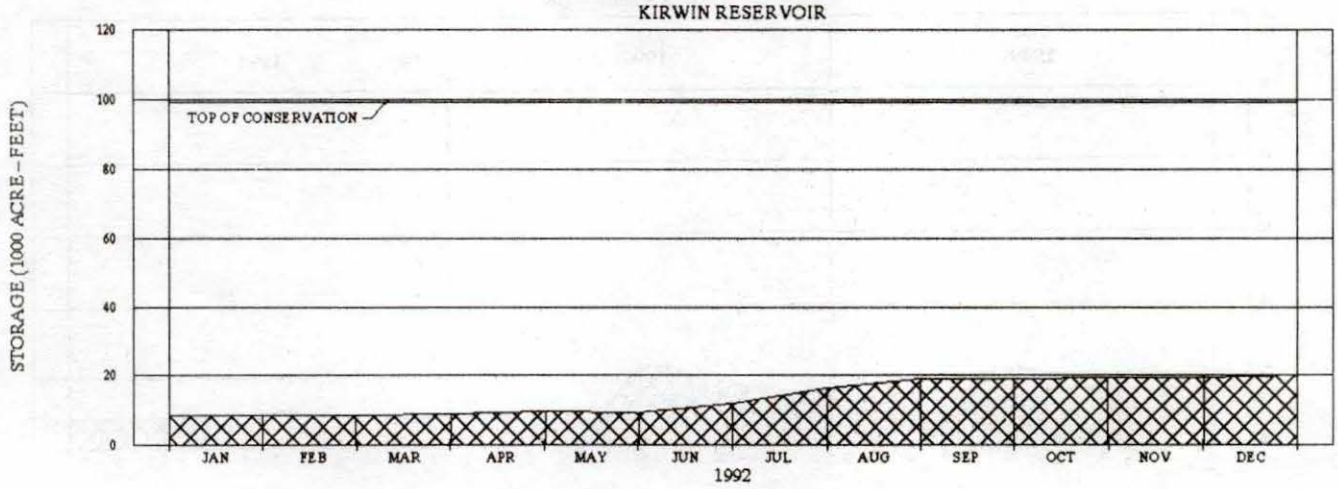
INFLOW

KIRWIN RESERVOIR



STORAGE

KIRWIN RESERVOIR



OUTFLOW

KIRWIN RESERVOIR

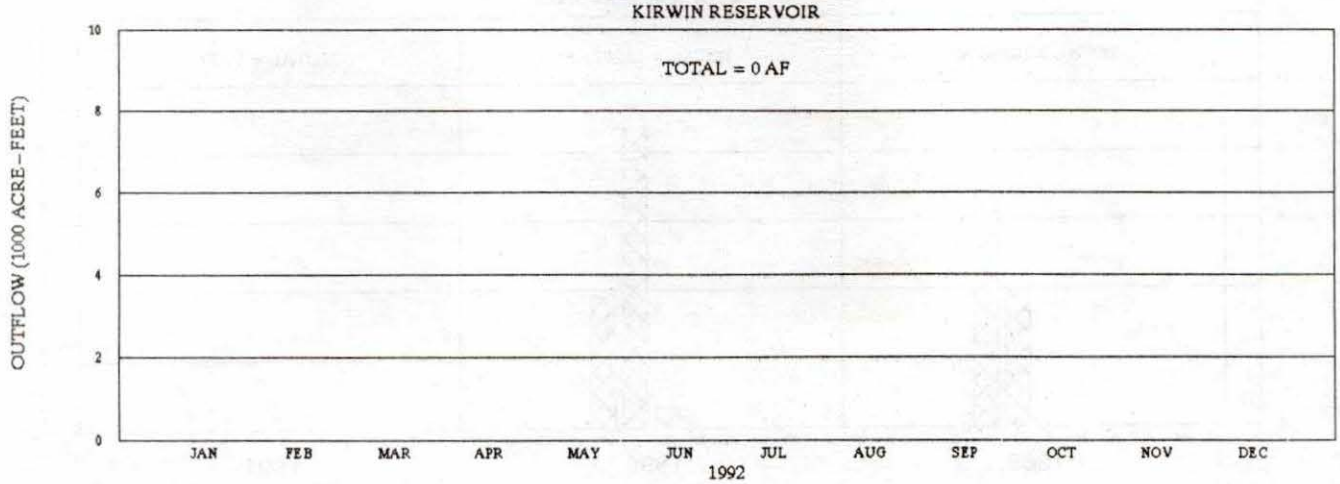


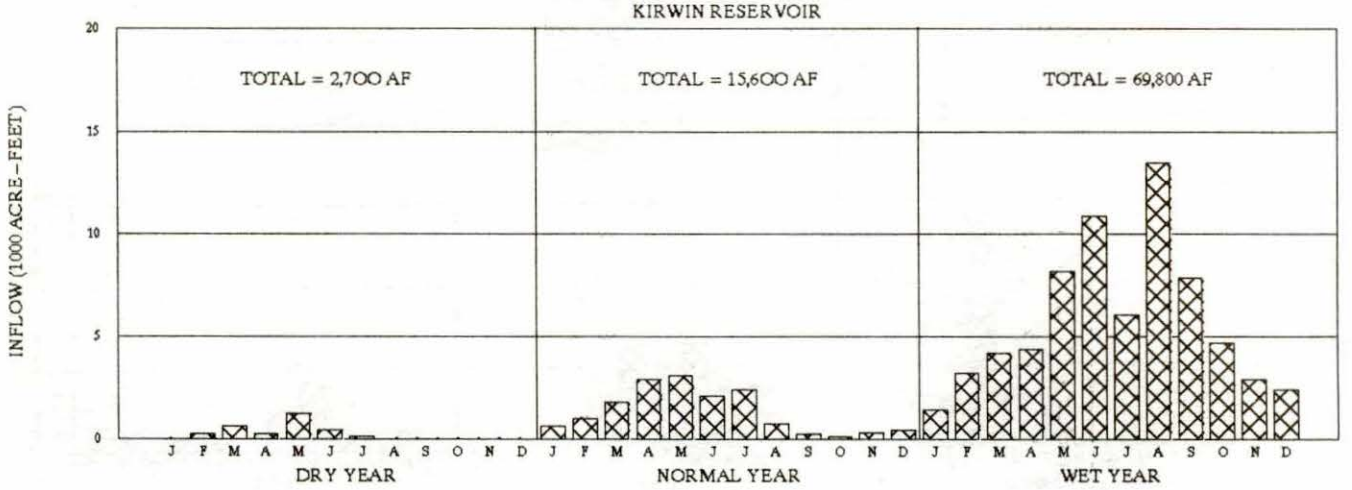
EXHIBIT 14C

KIRWIN RESERVOIR

1993 OPERATION PLAN

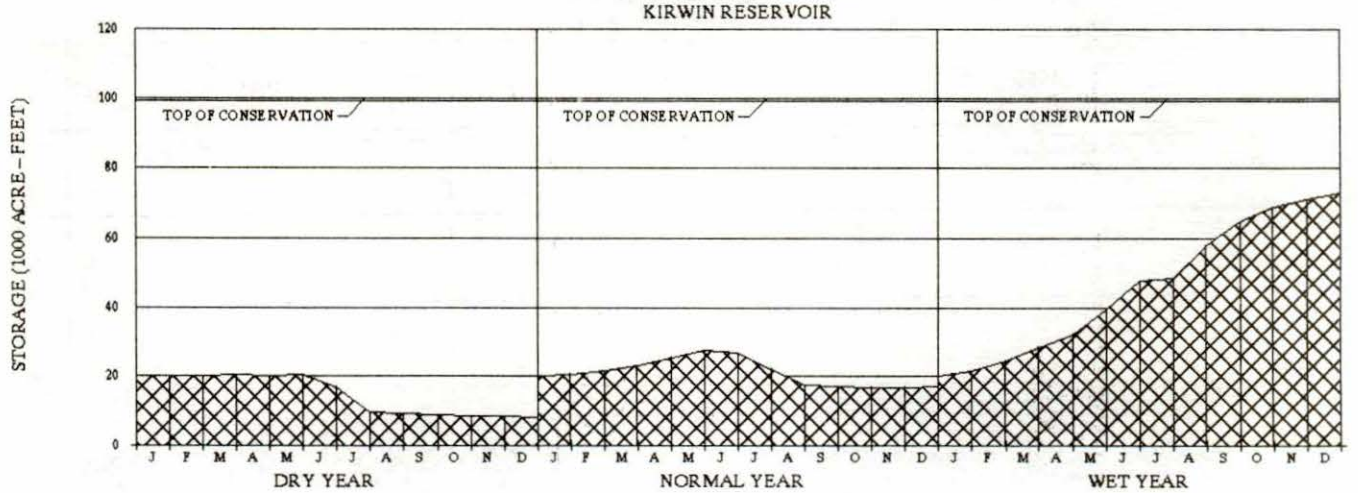
INFLOW

KIRWIN RESERVOIR



STORAGE

KIRWIN RESERVOIR



OUTFLOW

KIRWIN RESERVOIR

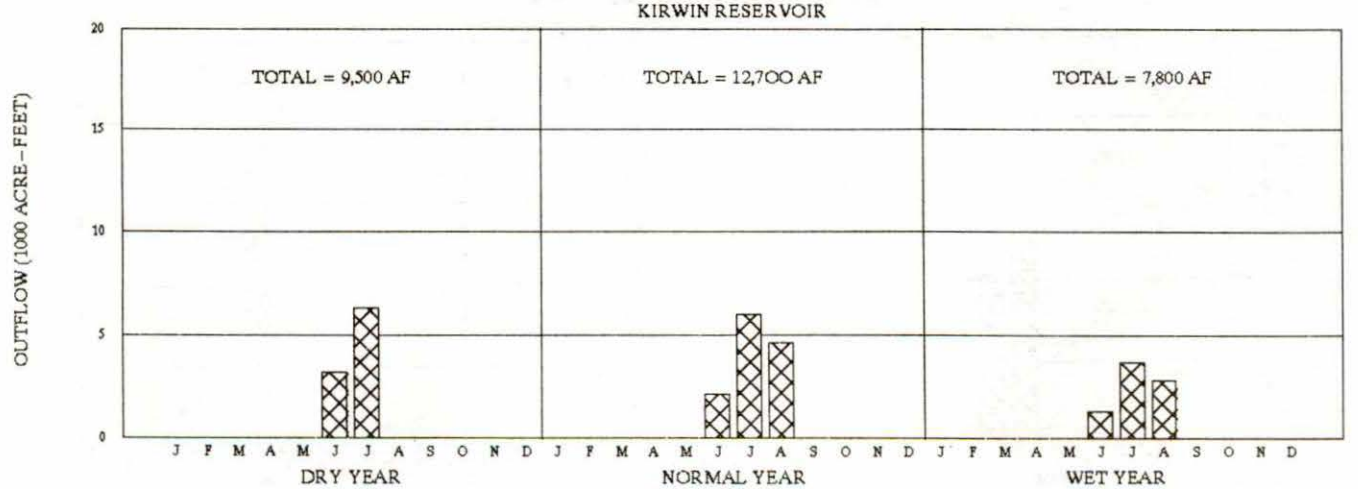


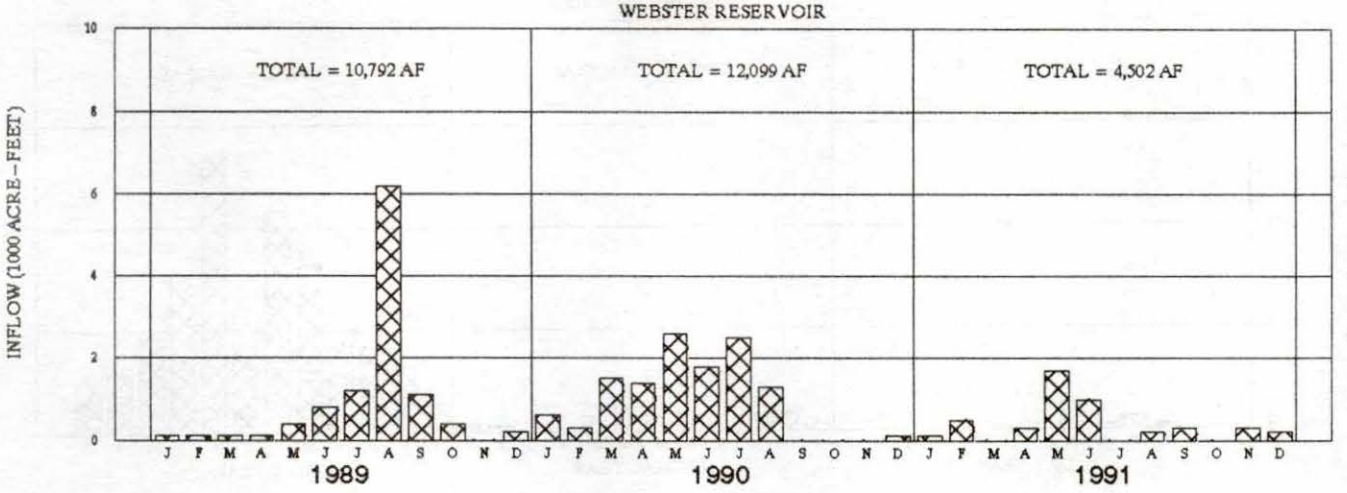
EXHIBIT 15A

WEBSTER RESERVOIR

OPERATION

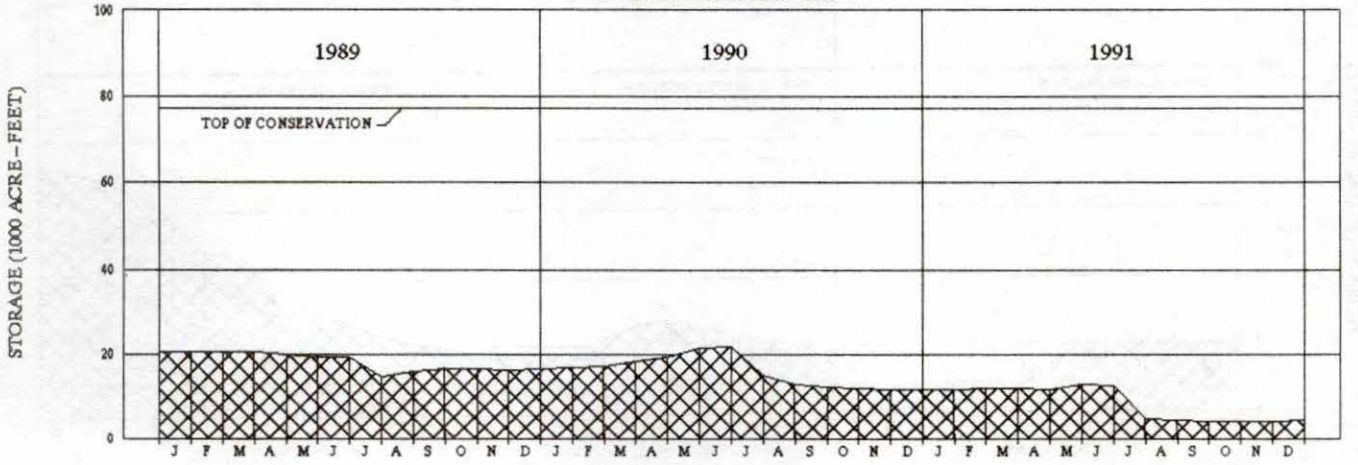
INFLOW

WEBSTER RESERVOIR



STORAGE

WEBSTER RESERVOIR



OUTFLOW

WEBSTER RESERVOIR

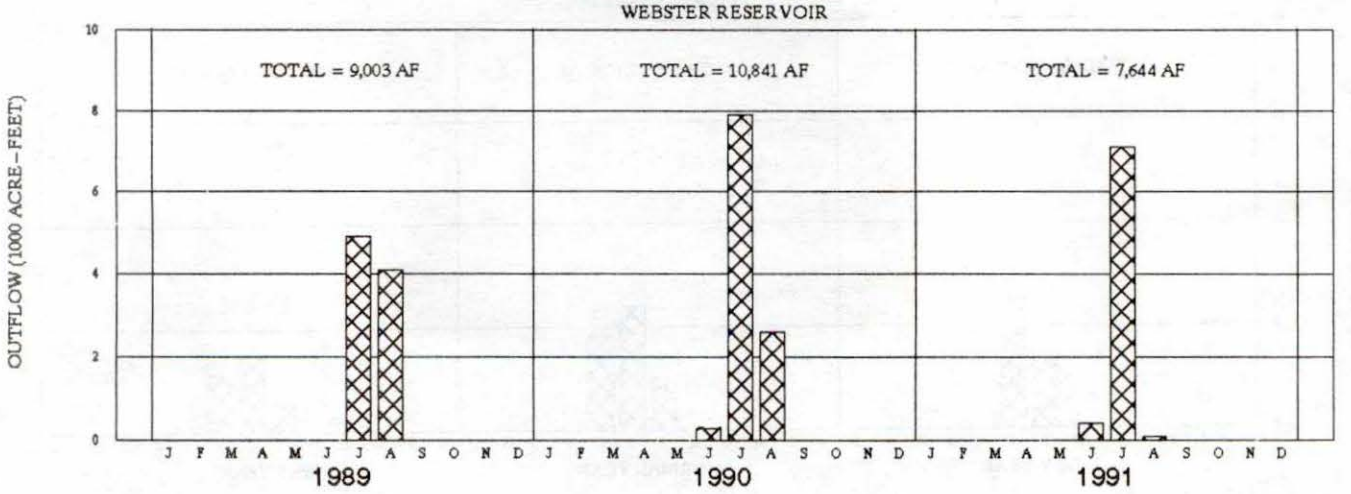


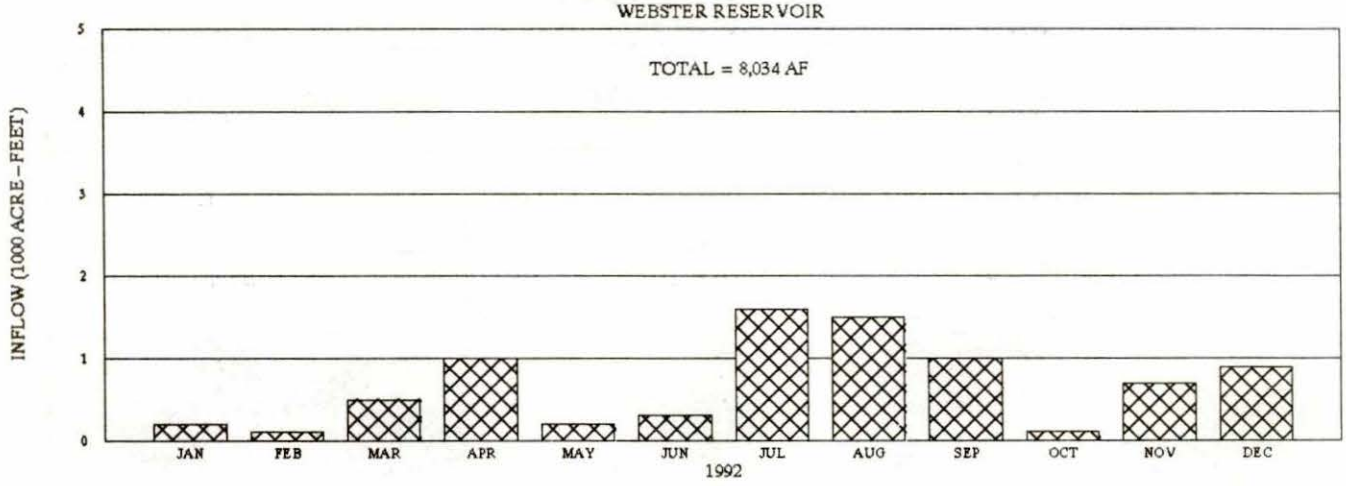
EXHIBIT 15B

WEBSTER RESERVOIR

1992 OPERATION

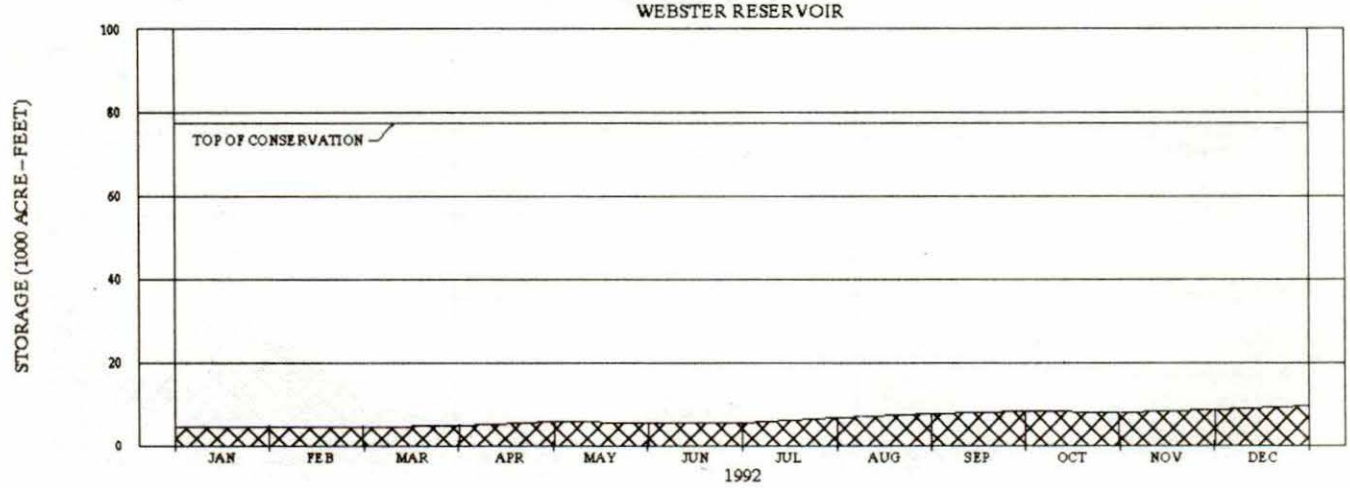
INFLOW

WEBSTER RESERVOIR



STORAGE

WEBSTER RESERVOIR



OUTFLOW

WEBSTER RESERVOIR

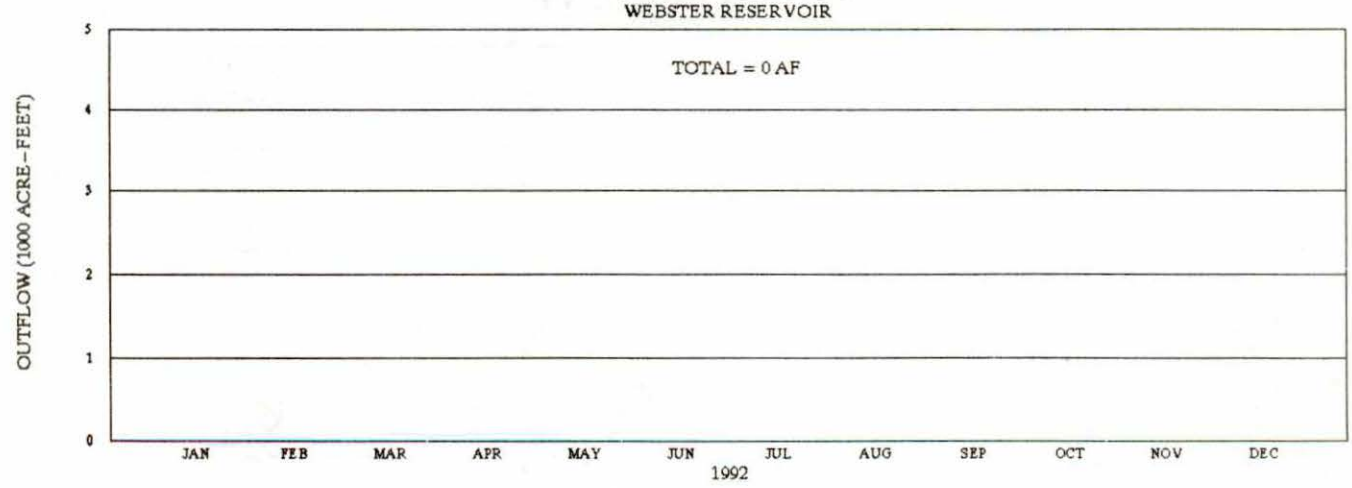


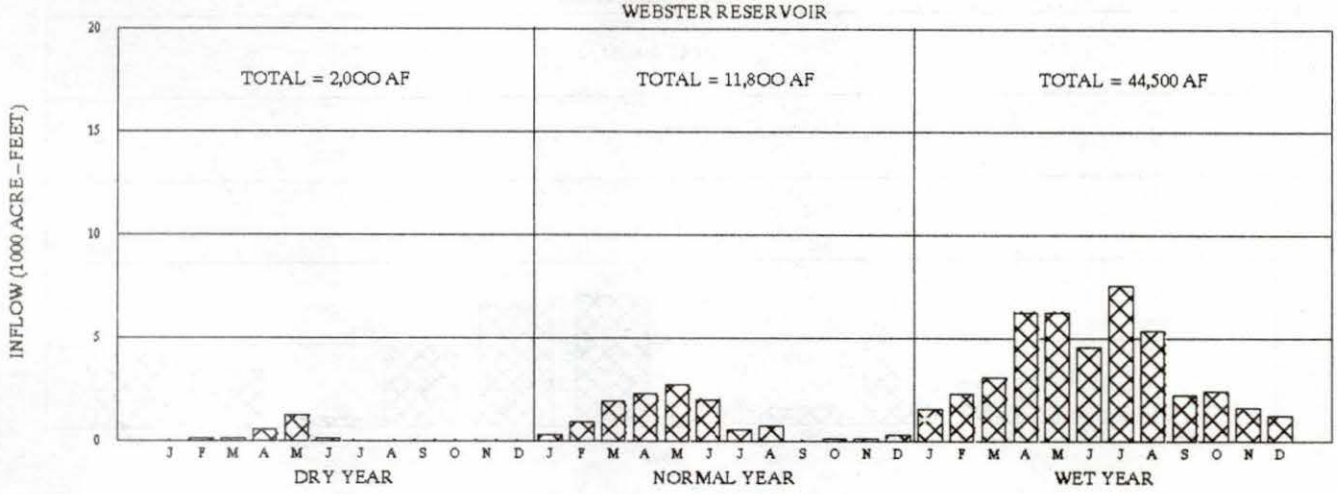
EXHIBIT 15C

WEBSTER RESERVOIR

1993 OPERATION PLAN

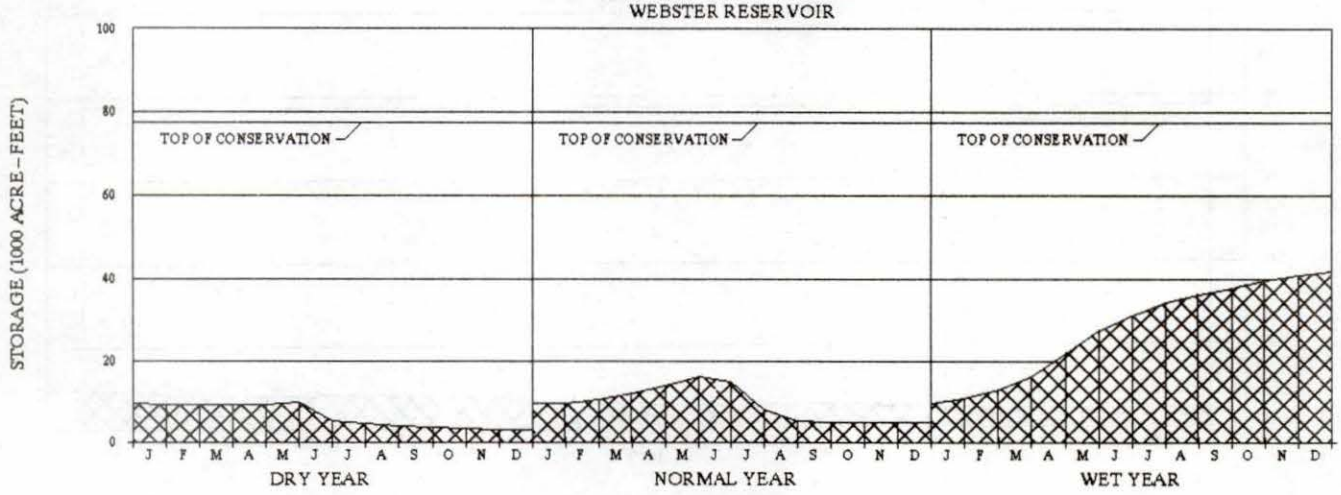
INFLOW

WEBSTER RESERVOIR



STORAGE

WEBSTER RESERVOIR



OUTFLOW

WEBSTER RESERVOIR

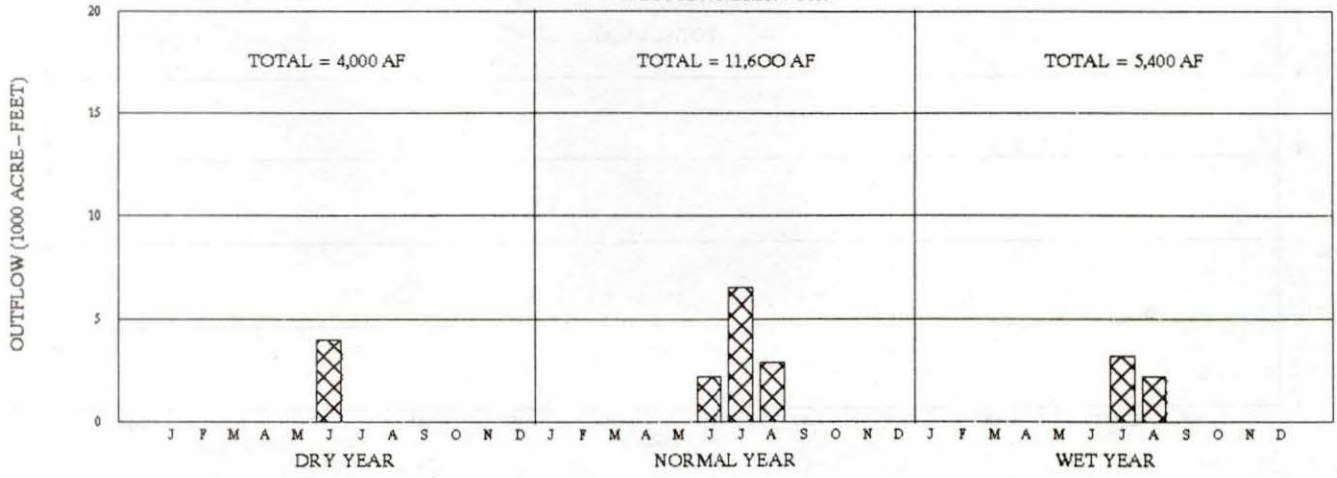


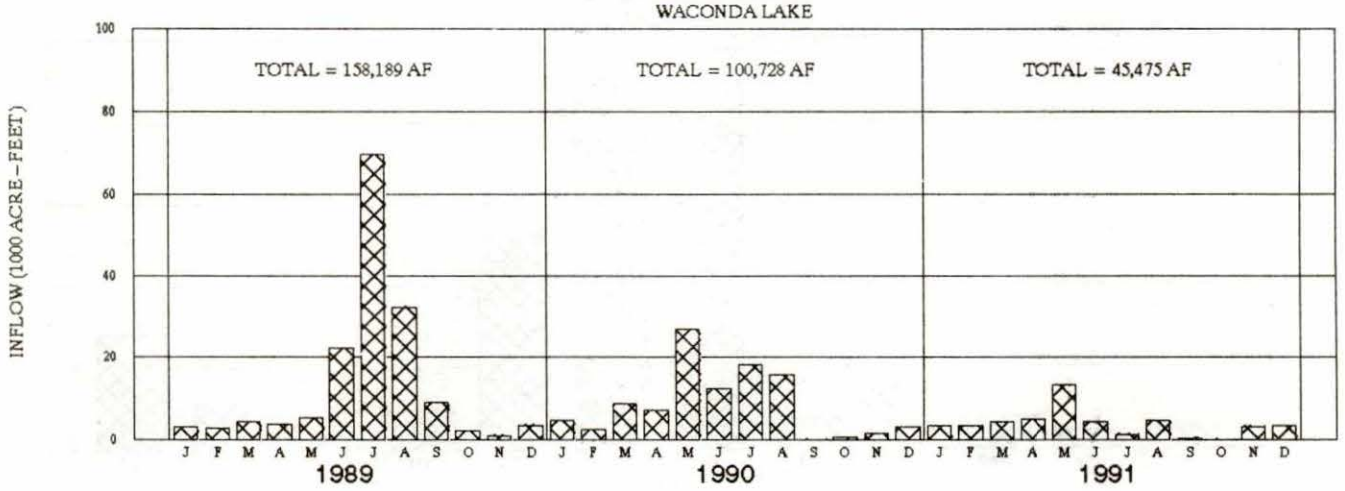
EXHIBIT 16A

WACONDA LAKE

OPERATION

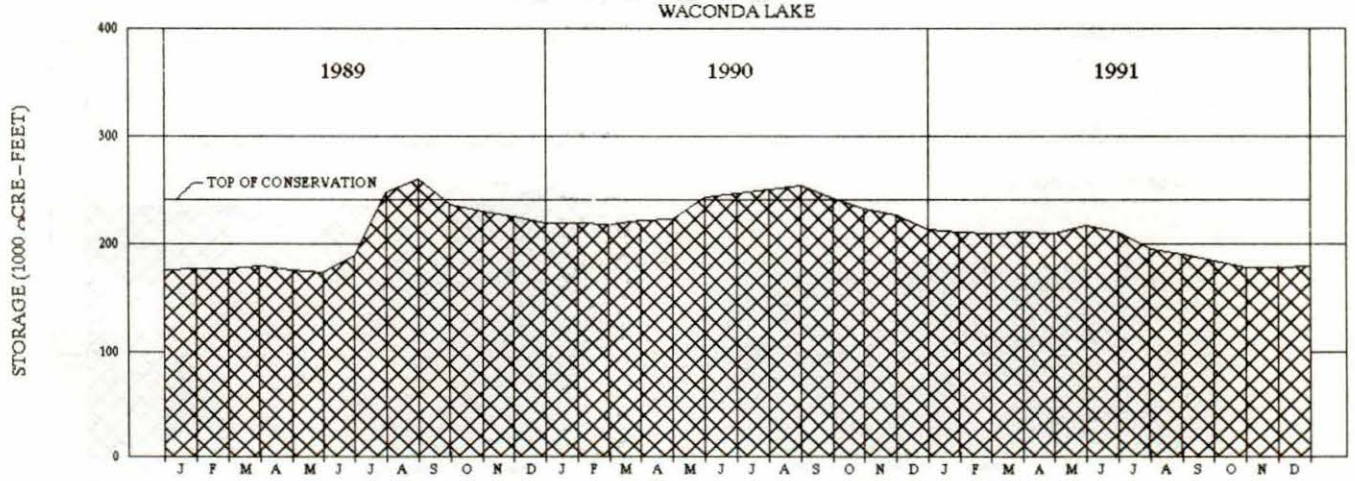
INFLOW

WACONDA LAKE



STORAGE

WACONDA LAKE



OUTFLOW

WACONDA LAKE

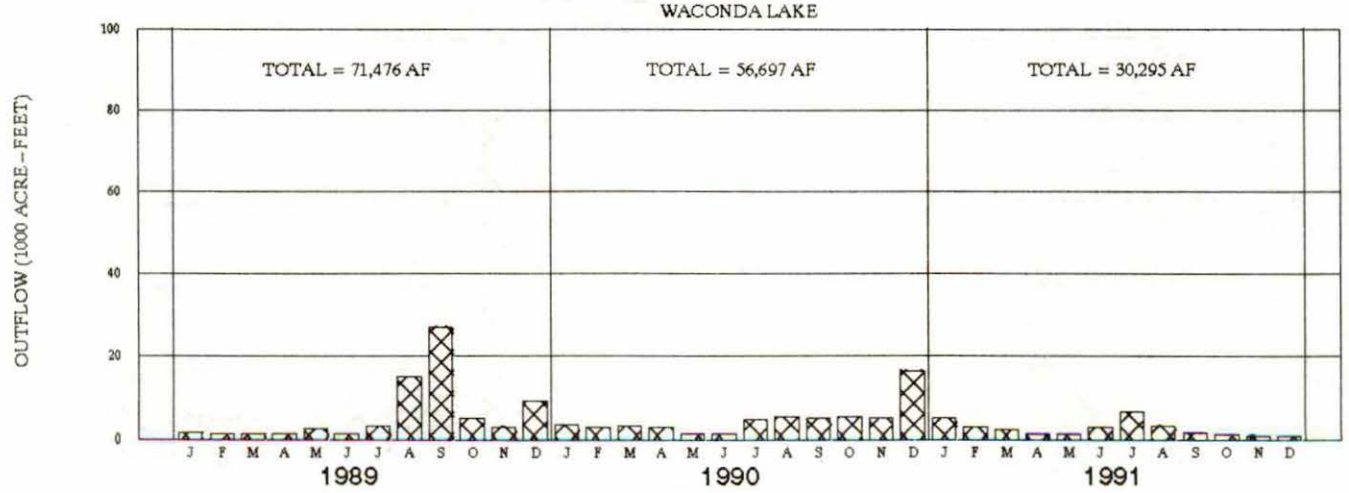
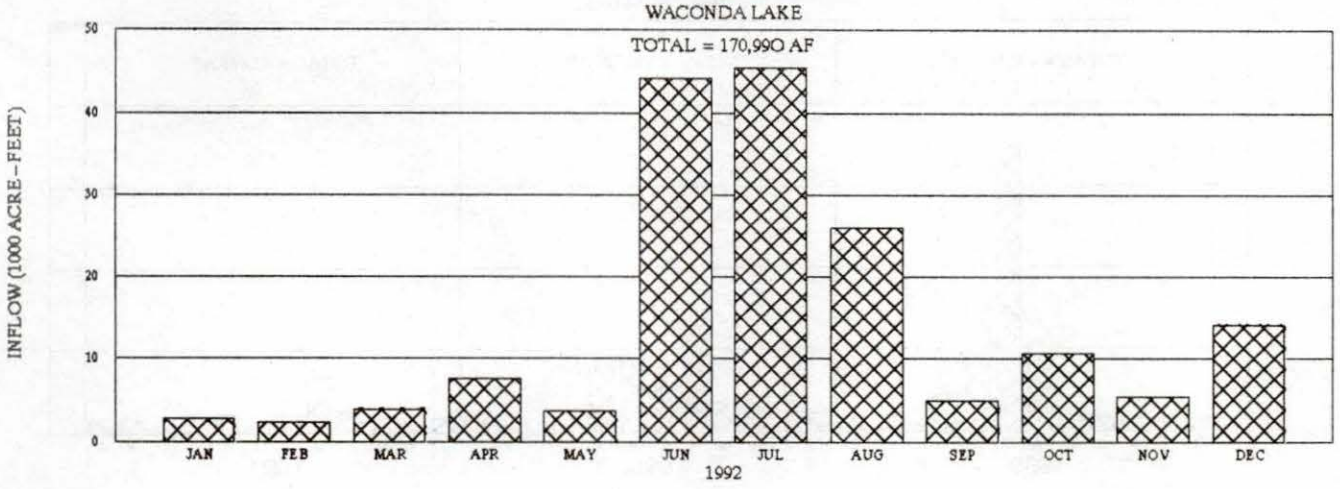


EXHIBIT 16B

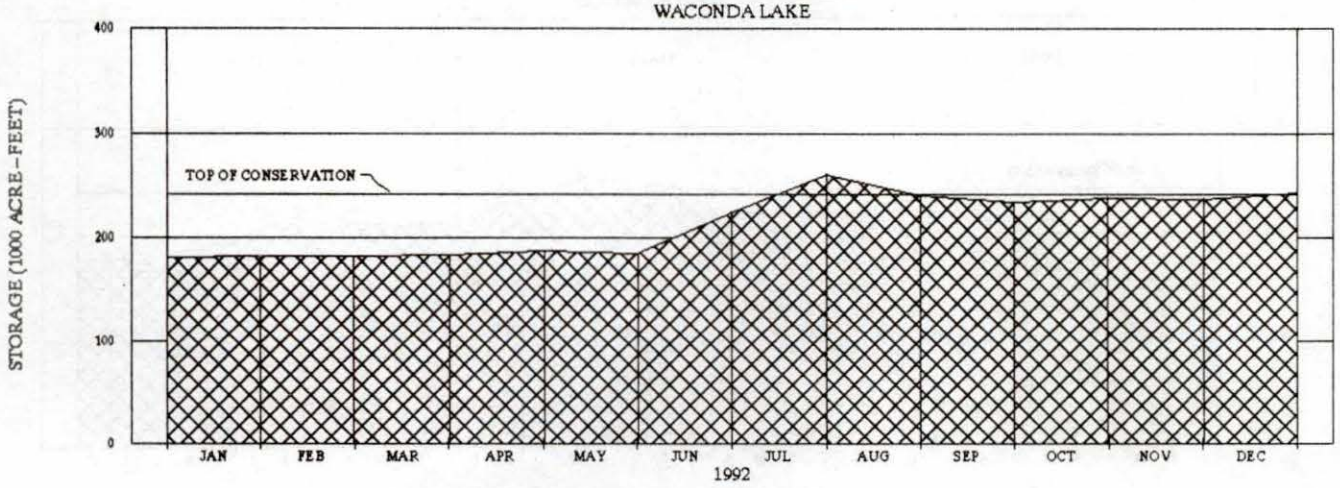
WACONDA LAKE

1992 OPERATION

INFLOW



STORAGE



OUTFLOW

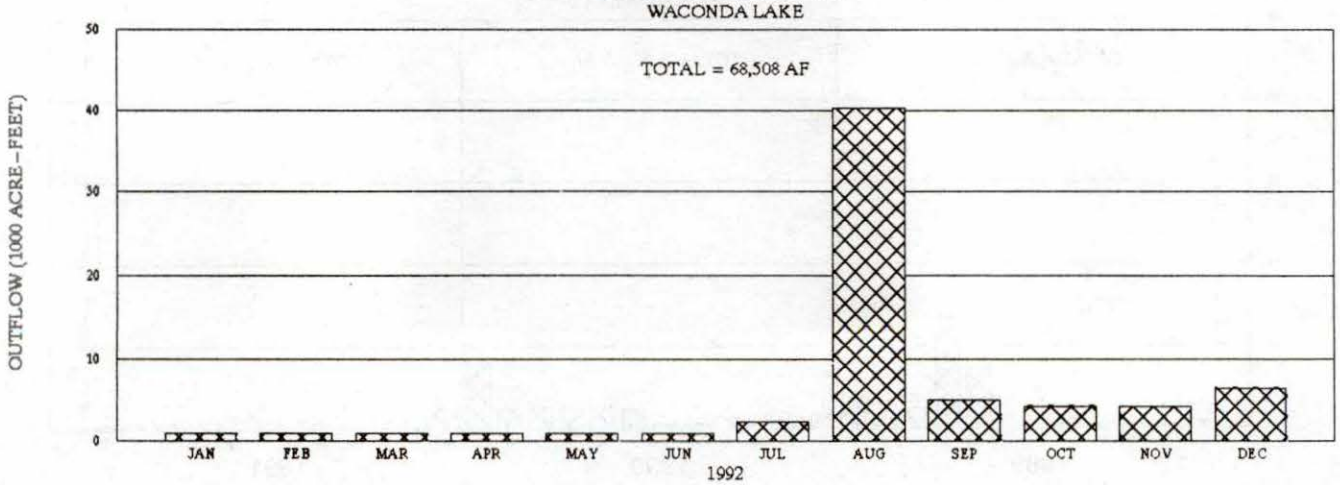
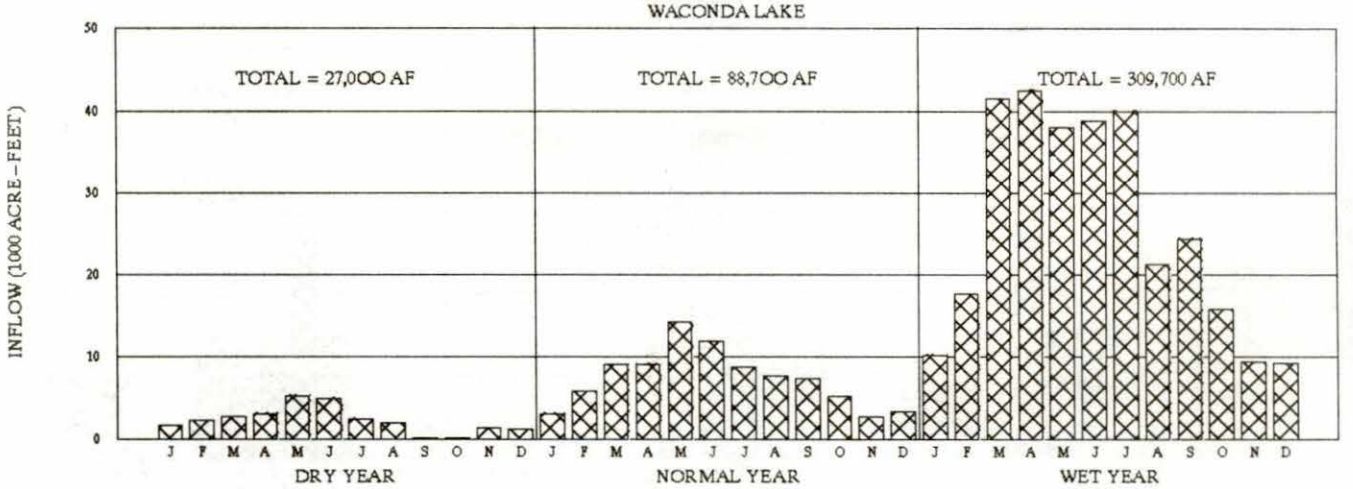


EXHIBIT 16C

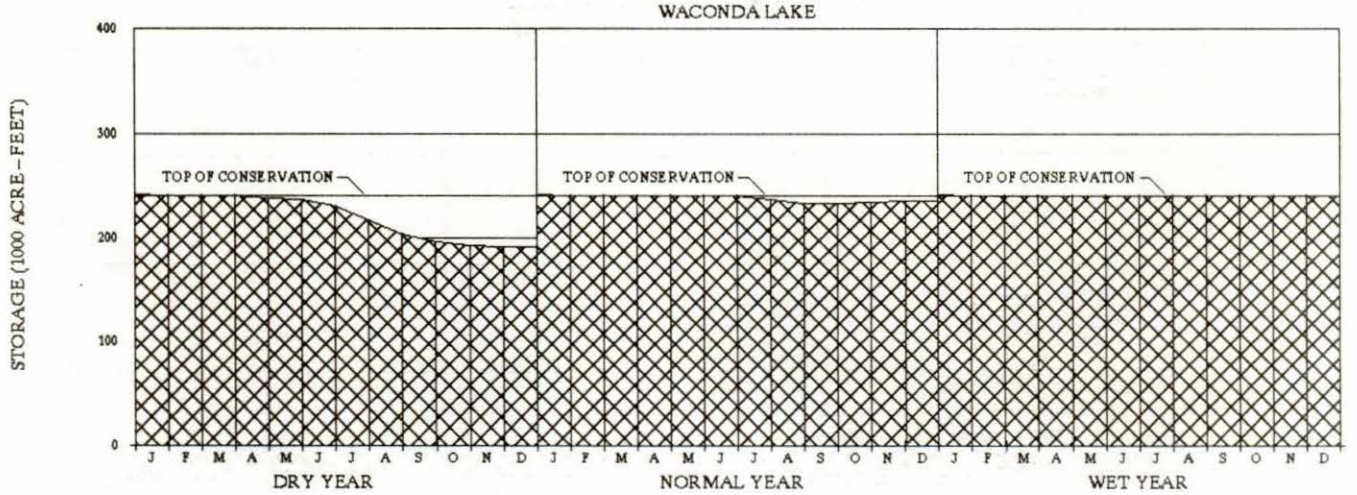
WACONDA LAKE

1993 OPERATION PLAN

INFLOW



STORAGE



OUTFLOW

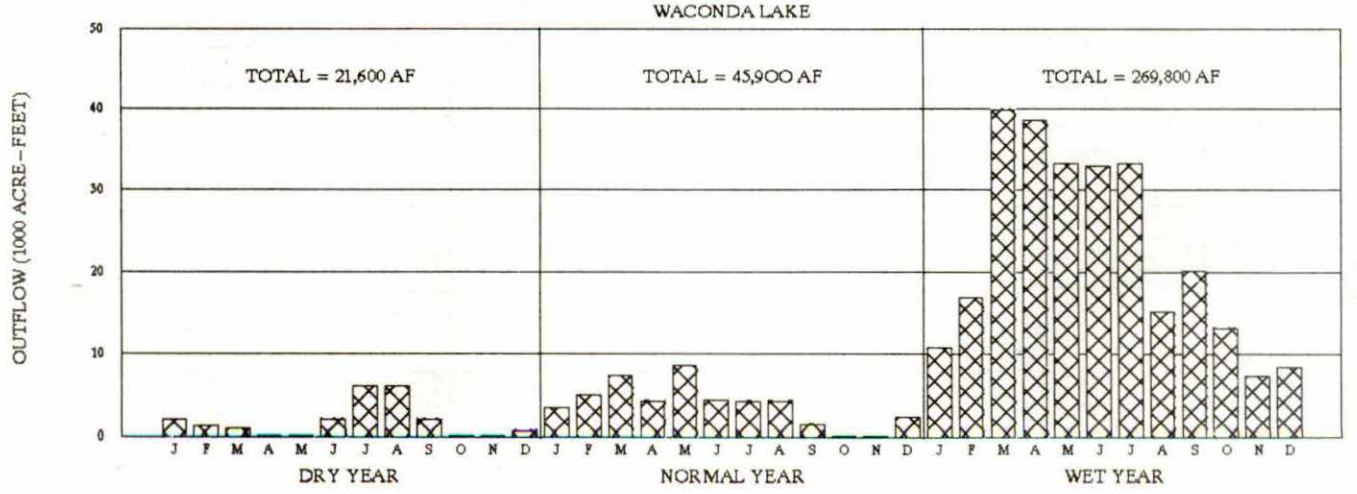


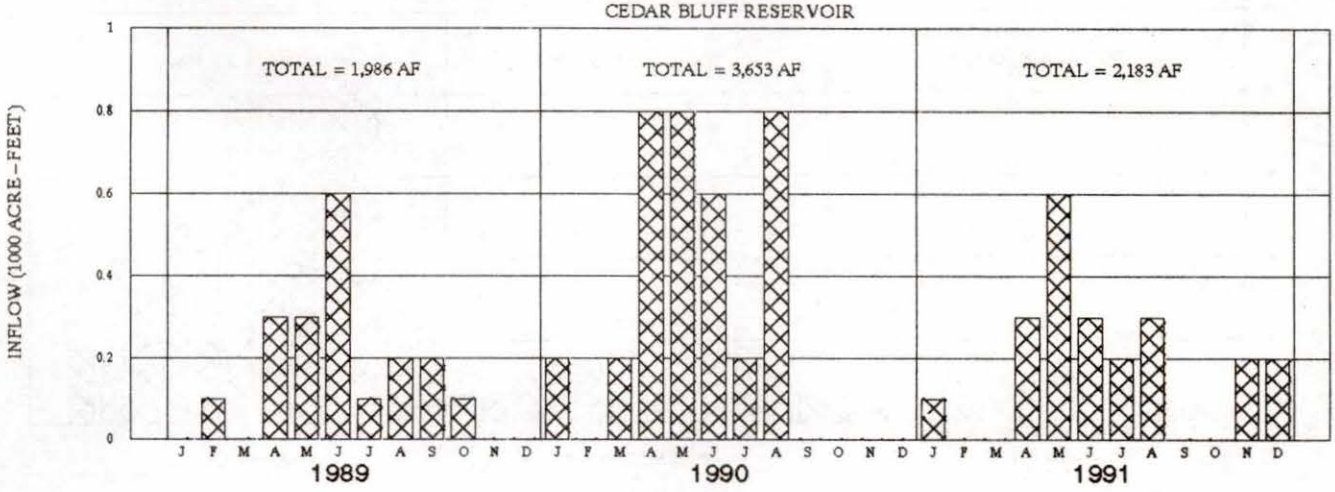
EXHIBIT 17A

CEDAR BLUFF RESERVOIR

OPERATION

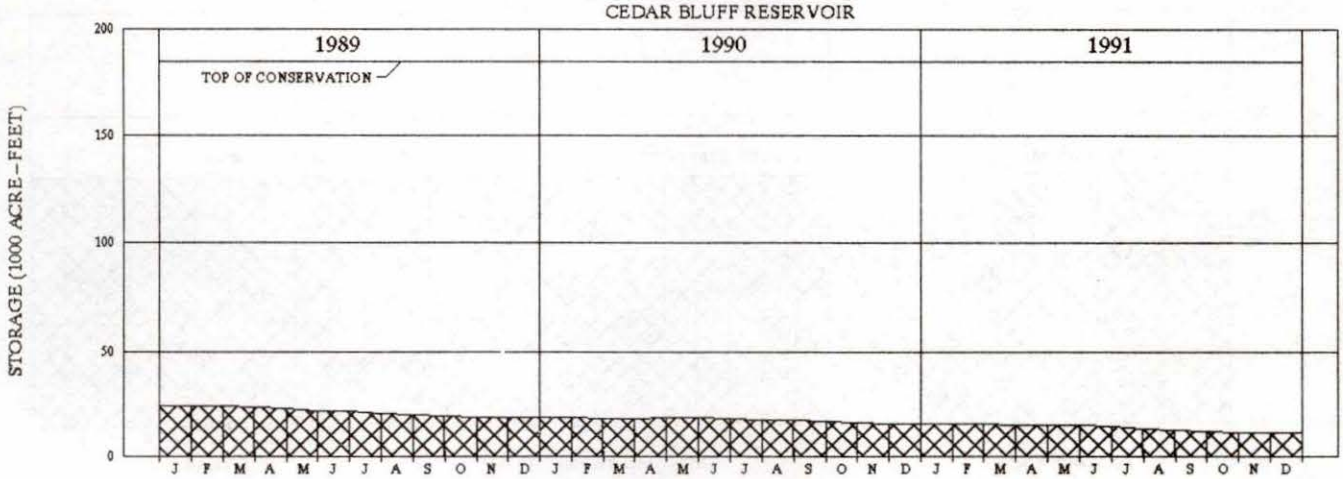
INFLOW

CEDAR BLUFF RESERVOIR



STORAGE

CEDAR BLUFF RESERVOIR



OUTFLOW

CEDAR BLUFF RESERVOIR

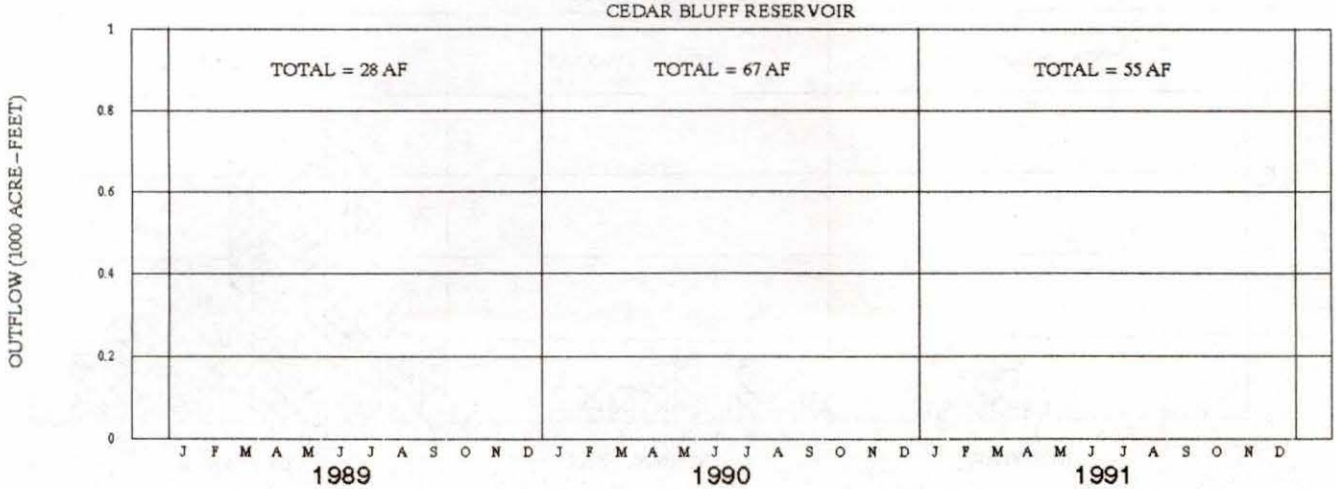


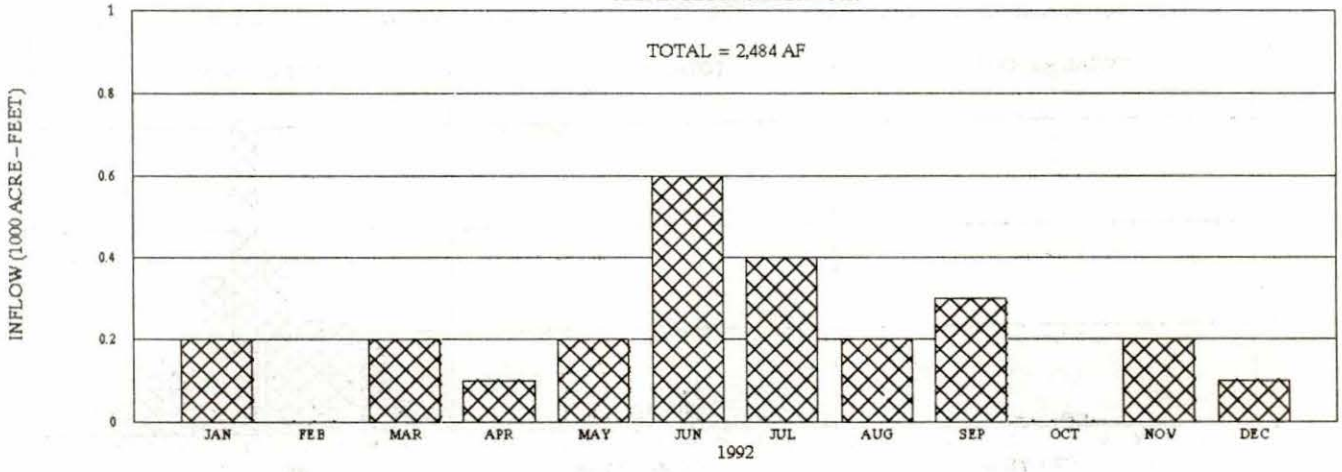
EXHIBIT 17B

CEDAR BLUFF RESERVOIR

1992 OPERATION

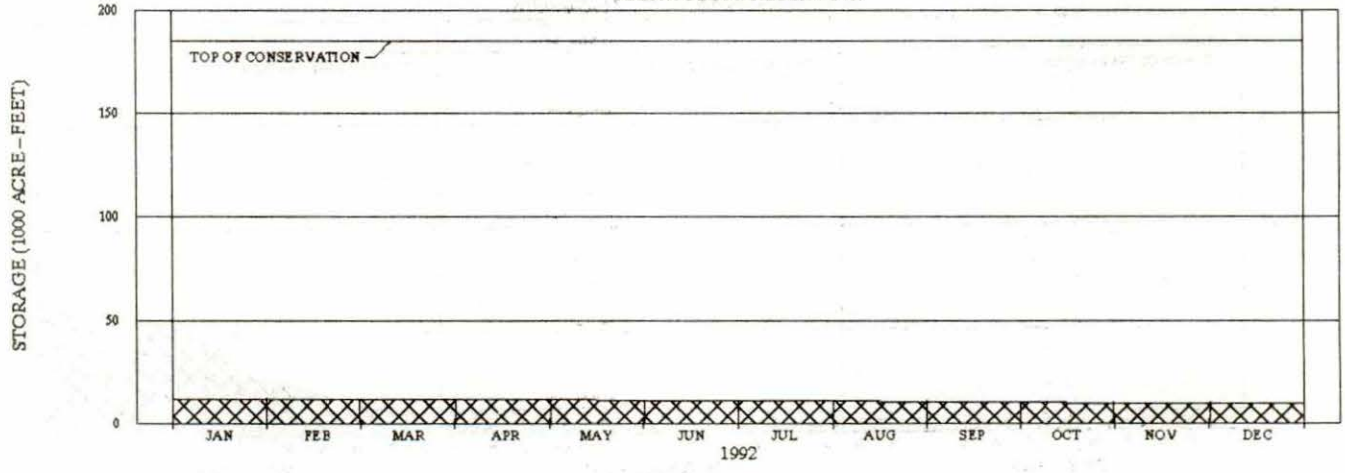
INFLOW

CEDAR BLUFF RESERVOIR



STORAGE

CEDAR BLUFF RESERVOIR



OUTFLOW

CEDAR BLUFF RESERVOIR

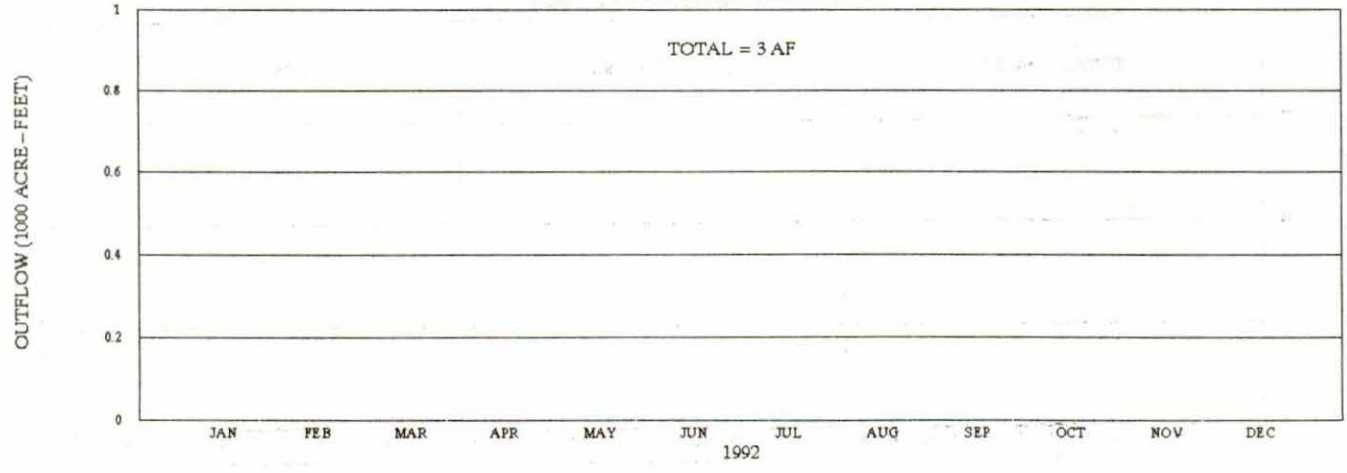


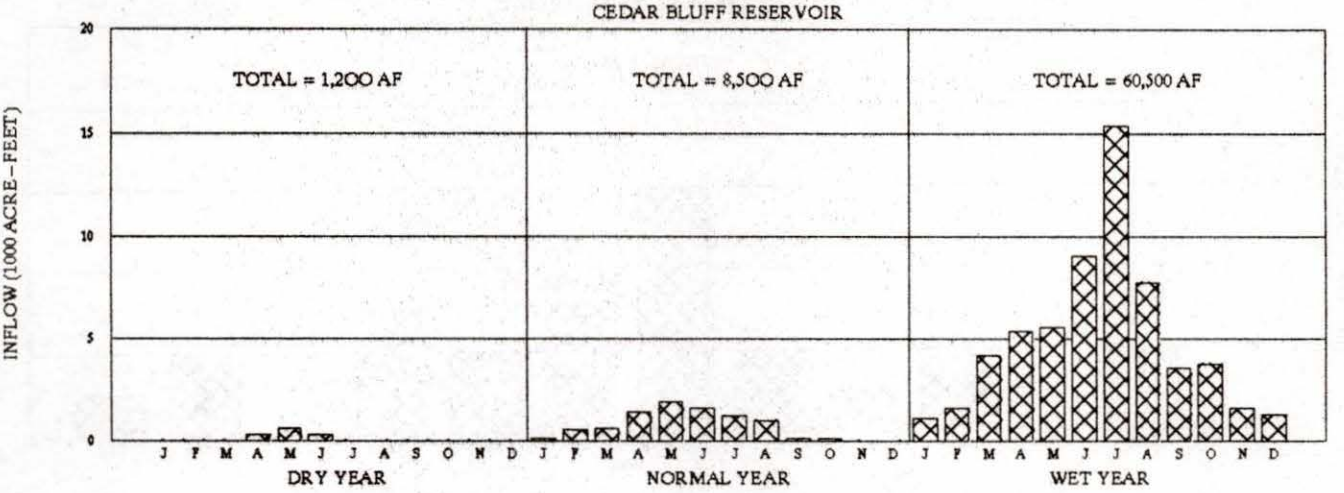
EXHIBIT 17C

CEDAR BLUFF RESERVOIR

1993 OPERATION PLAN

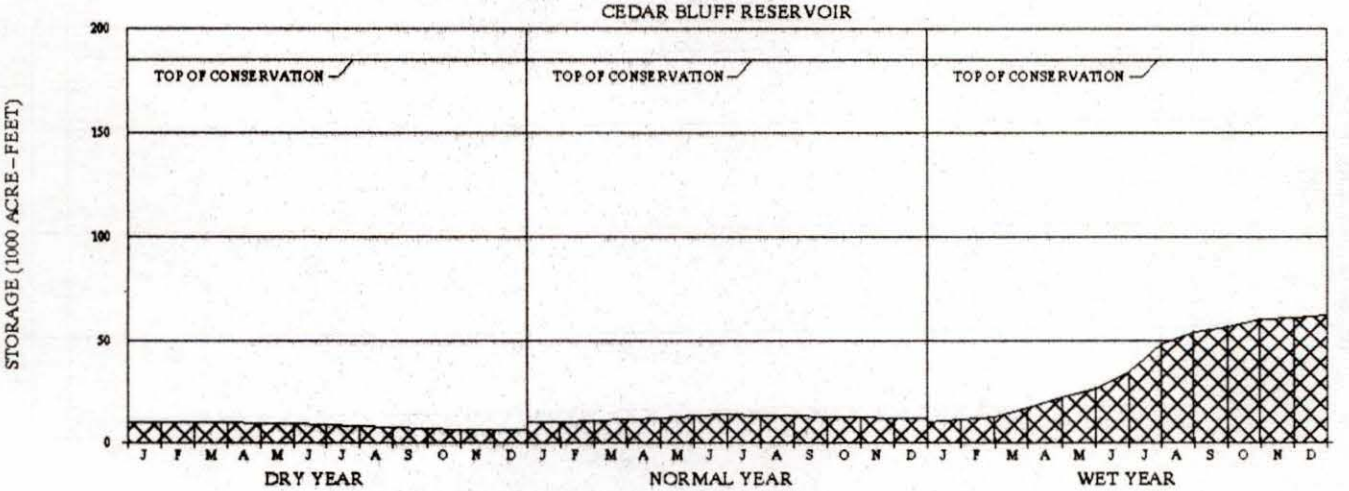
INFLOW

CEDAR BLUFF RESERVOIR



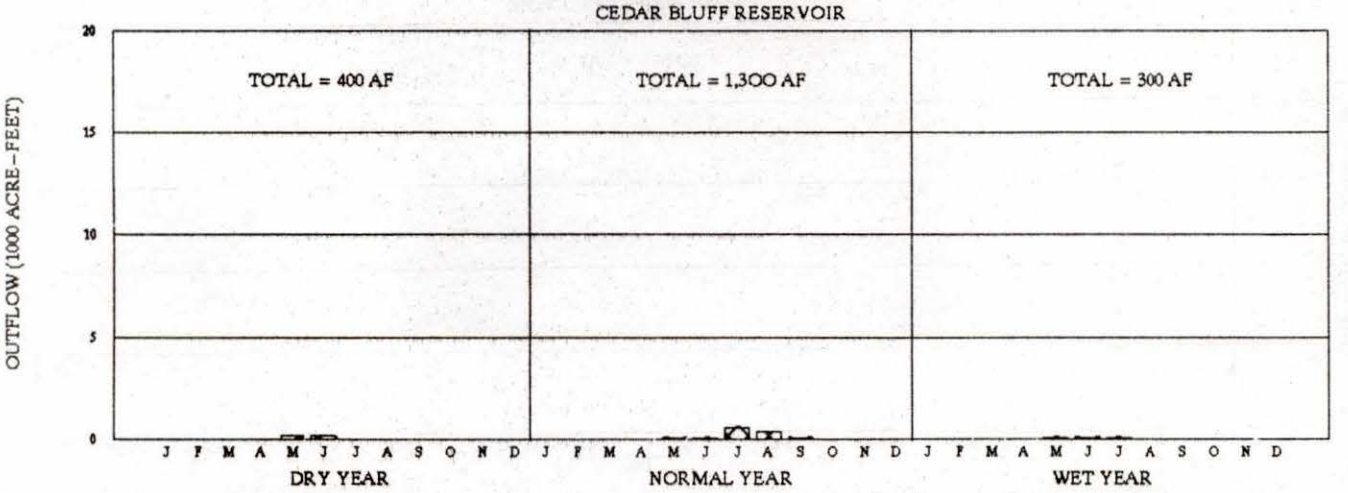
STORAGE

CEDAR BLUFF RESERVOIR



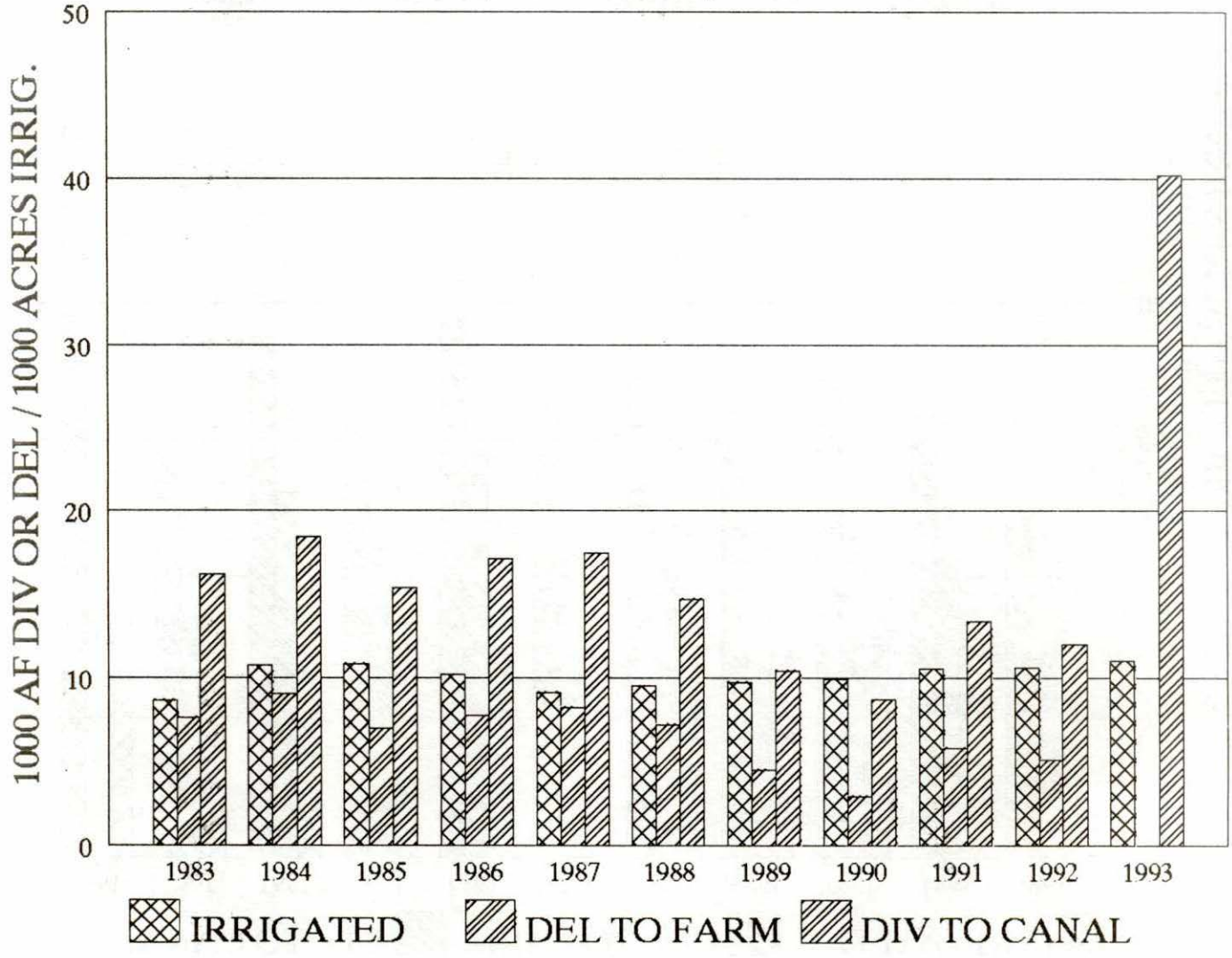
OUTFLOW

CEDAR BLUFF RESERVOIR



MIRAGE FLATS IRRIGATION DISTRICT

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



	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
AF/ACRE										
DIV	1.87	1.71	1.41	1.68	1.92	1.54	1.07	0.88	1.27	1.13
DEL	0.88	0.84	0.64	0.76	0.90	0.76	0.46	0.30	0.56	0.48
EFF(%)	47	49	45	45	47	49	43	34	44	43

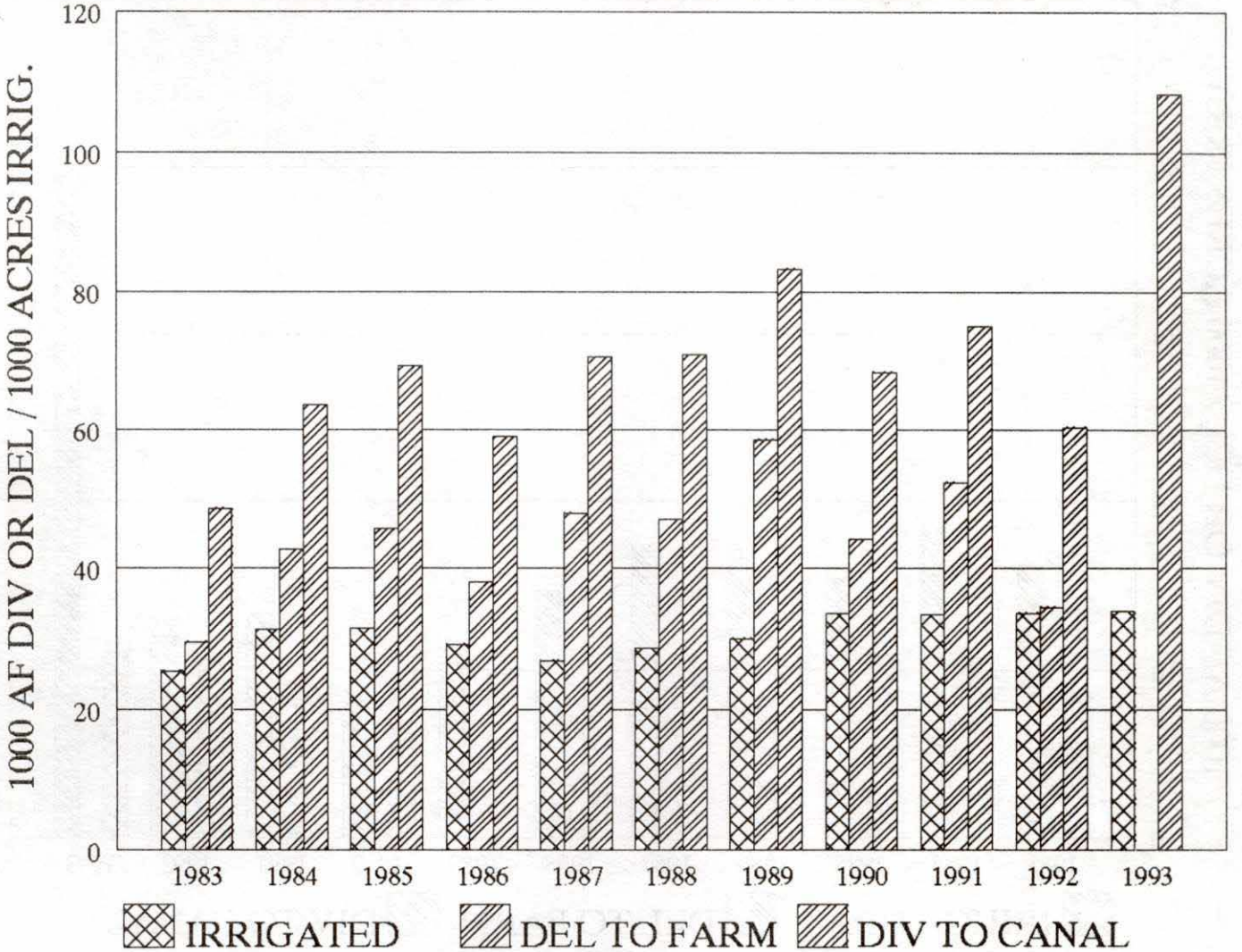
FORCASTED SHORAGES (SUBTRACT FROM DIV REQ)

DRY YEAR	26.7
NORMAL YEAR	11.6

EXHIBIT 19

AINSWORTH IRRIGATION DISTRICT

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



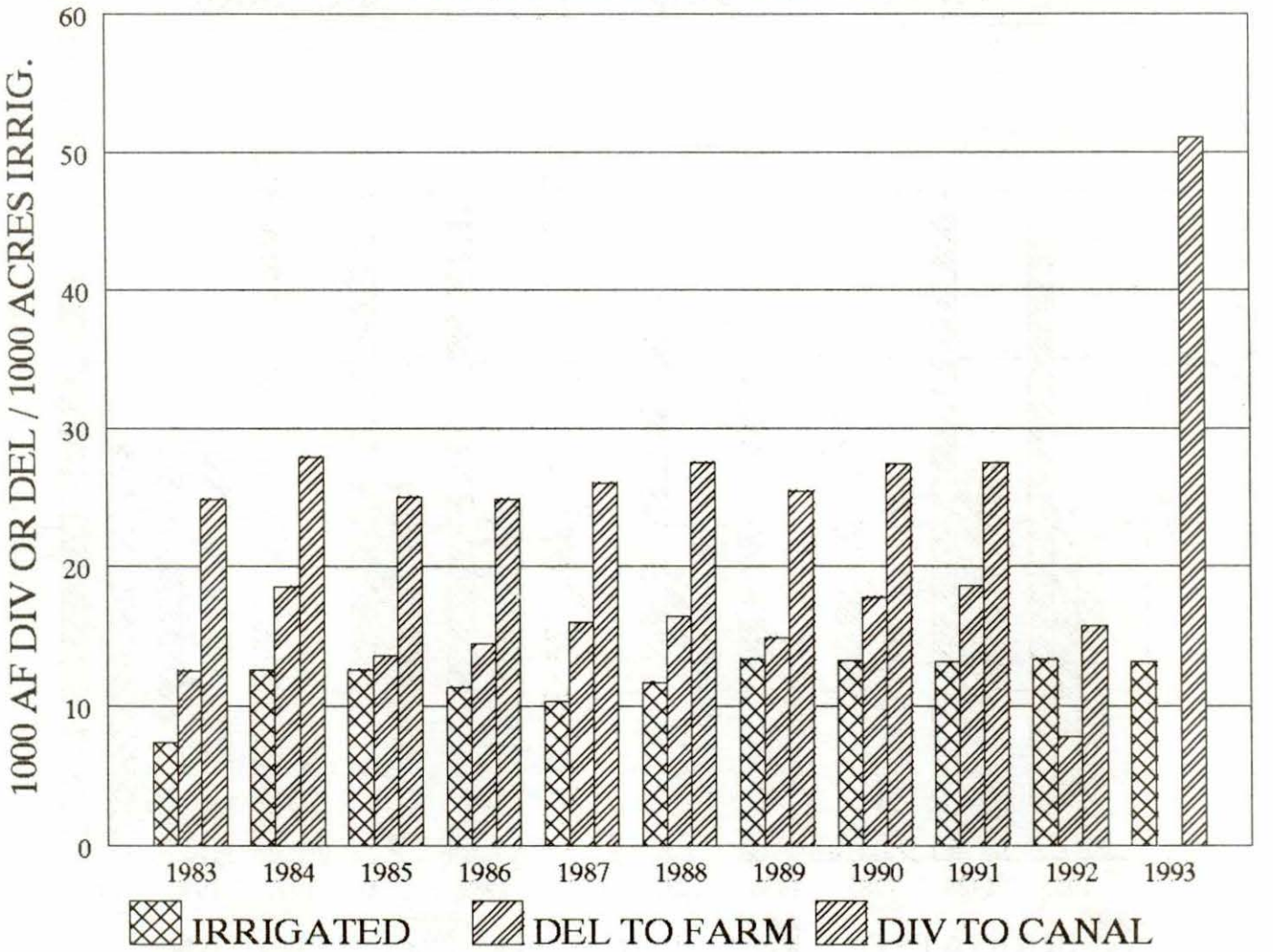
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
AF/ACRE										
DIV	1.90	2.03	2.20	2.01	2.62	2.47	2.77	2.04	2.25	1.79
DEL	1.16	1.36	1.45	1.30	1.77	1.63	1.94	1.31	1.56	1.02
EFF(%)	61	67	66	65	68	66	70	65	70	57

FORCASTED SHORAGES (SUBTRACT FROM DIV REQ)

DRY YEAR	0
NORMAL YEAR	0

SARGENT IRRIGATION DISTRICT

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



	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
AF/ACRE										
DIV	3.37	2.22	1.98	2.18	2.52	2.35	1.90	2.07	2.08	1.17
DEL	1.70	1.47	1.08	1.27	1.54	1.40	1.12	1.34	1.40	0.58
EFF(%)	51	66	54	58	61	59	59	65	67	50

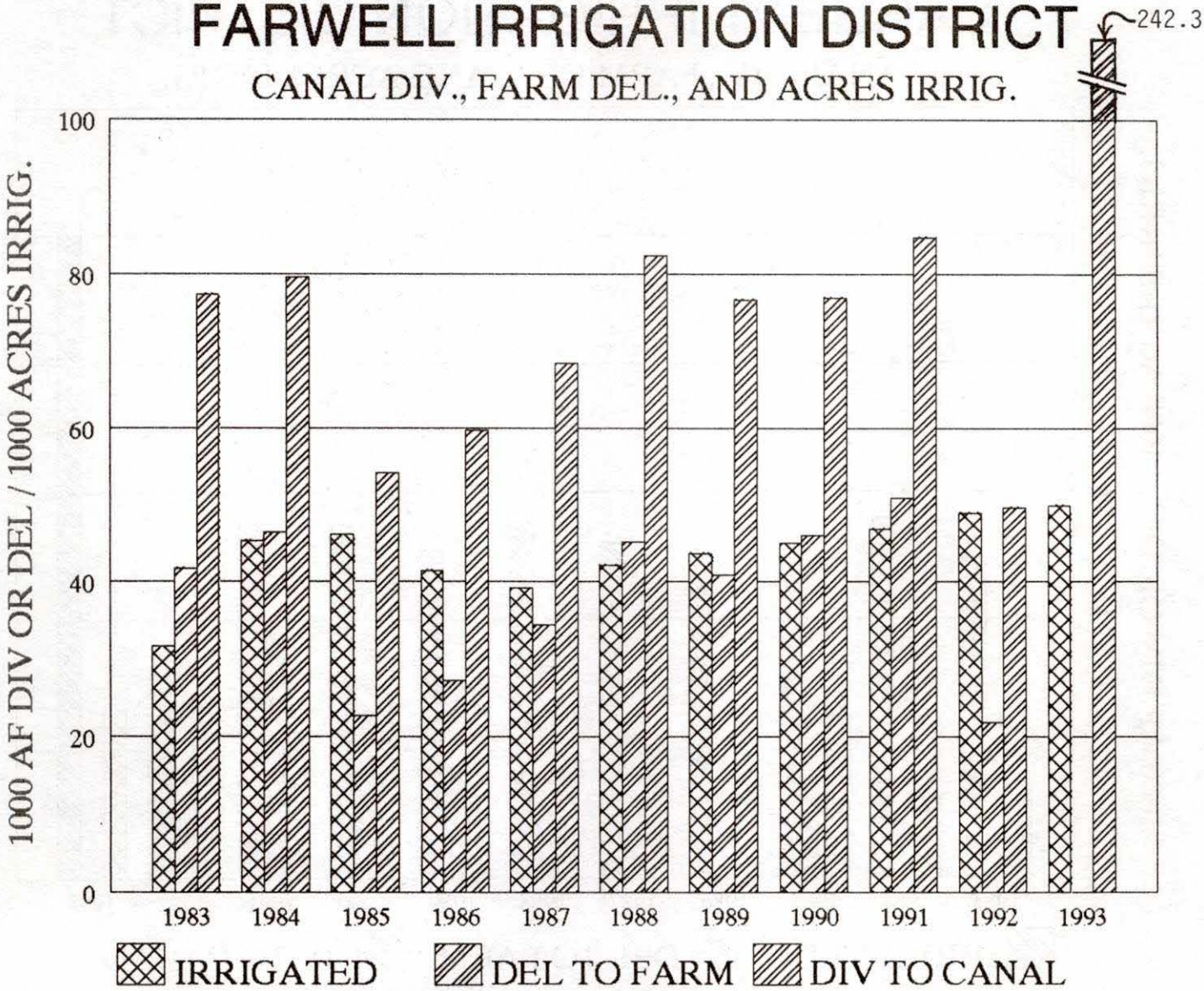
FORCASTED SHORAGES (SUBTRACT FROM DIV REQ)

DRY YEAR	23.6
NORMAL YEAR	5.6

EXHIBIT 21

FARWELL IRRIGATION DISTRICT

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



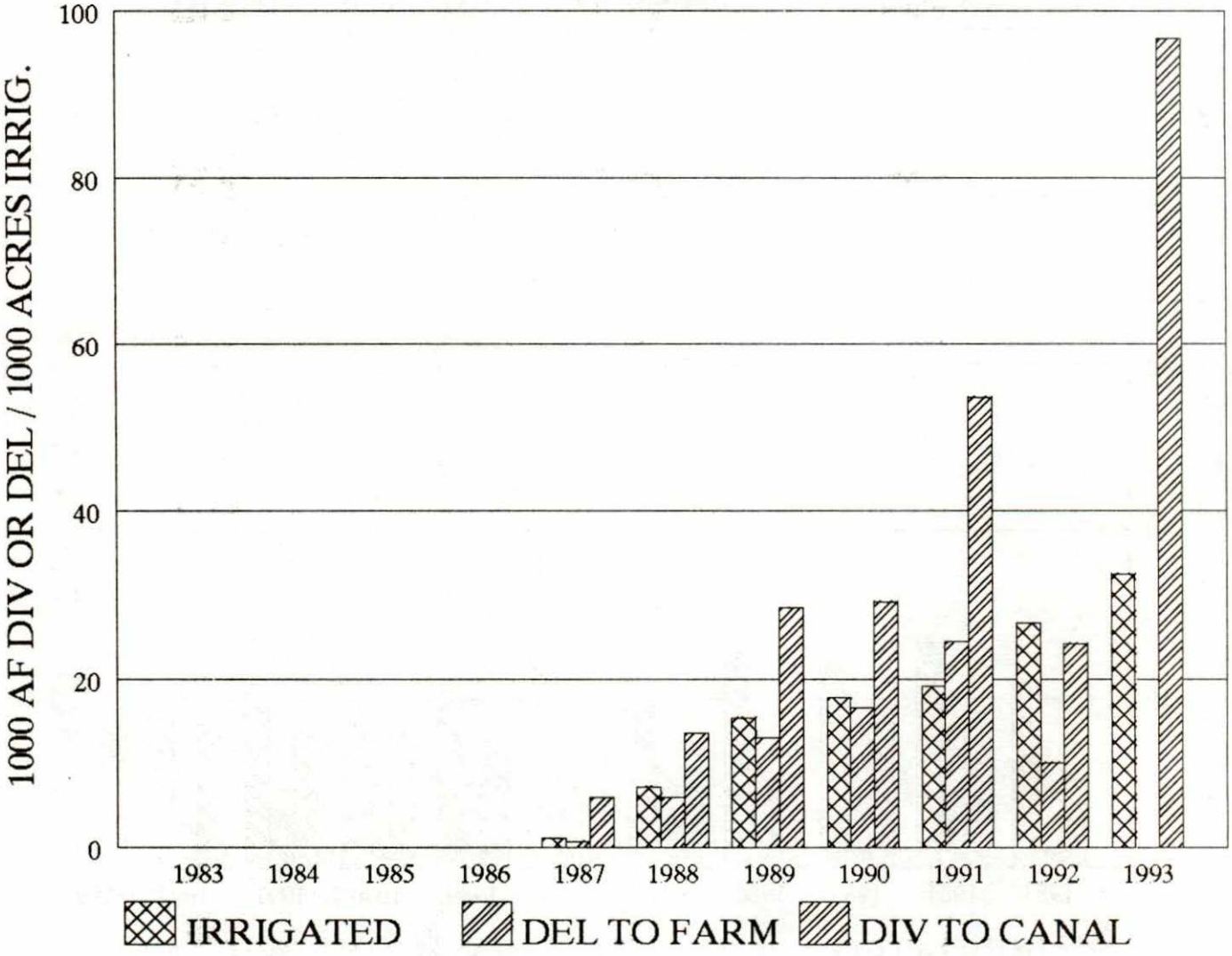
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
AF/ACRE										
DIV	2.45	1.76	1.18	1.44	1.75	1.96	1.75	1.71	1.81	1.01
DEL	1.32	1.03	0.49	0.65	0.88	1.07	0.93	1.02	1.08	0.44
EFF(%)	54	58	42	45	50	55	53	60	60	44

FORCASTED SHORAGES (SUBTRACT FROM DIV REQ)

DRY YEAR	89.3
NORMAL YEAR	21.2

TWIN LOUPS IRRIGATION DISTRICT

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



	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
AF/ACRE										
DIV	0.00	0.00	0.00	0.00	5.63	1.90	1.85	1.64	2.81	0.91
DEL	0.00	0.00	0.00	0.00	0.73	0.82	0.84	0.93	1.28	0.38
EFF(%)	0	0	0	0	13	43	45	57	46	41

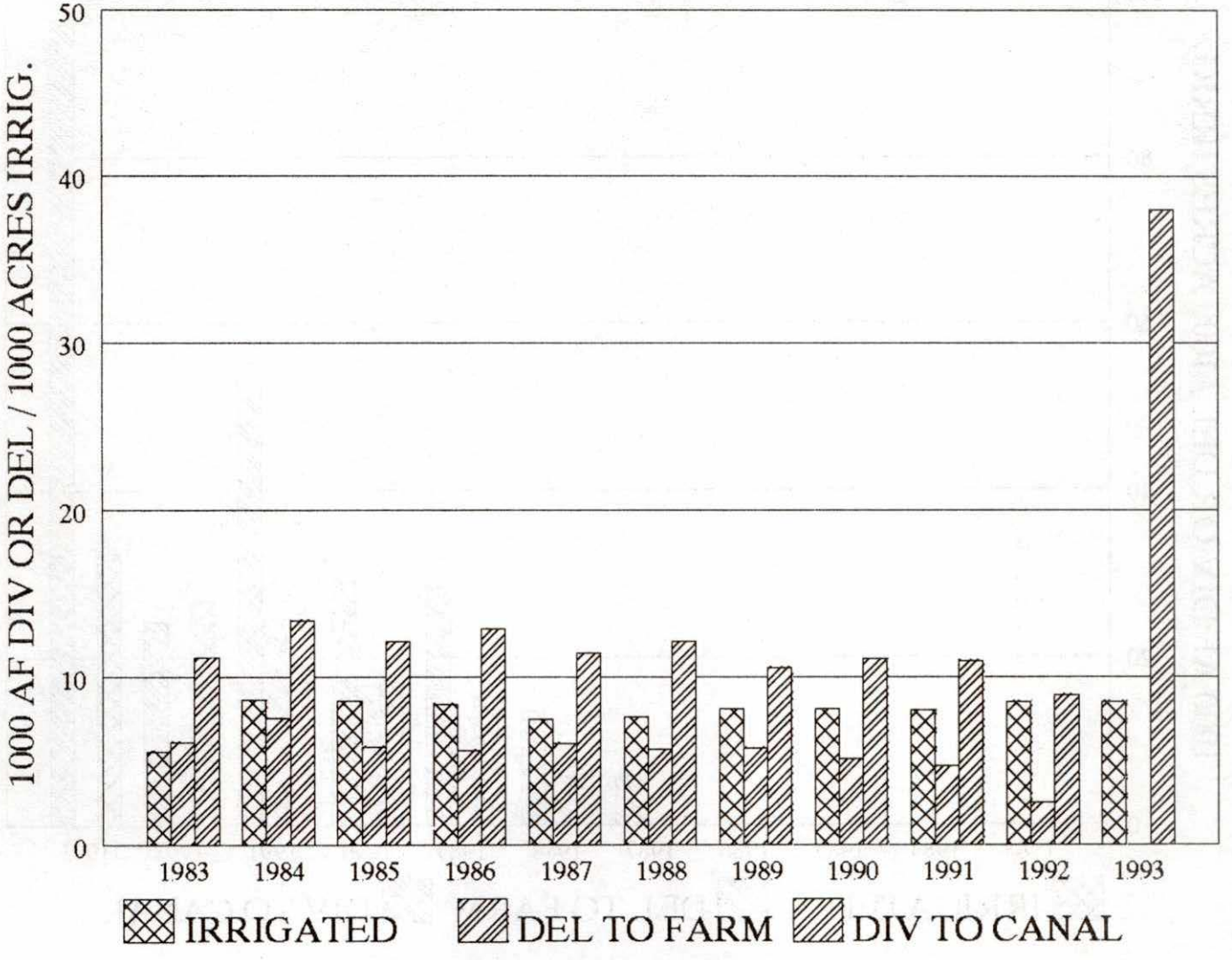
FORCASTED SHORAGES (SUBTRACT FROM DIV REQ)

DRY YEAR	0
NORMAL YEAR	0

EXHIBIT 23

FRENCHMAN VALLEY IRRIGATION DISTRICT

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



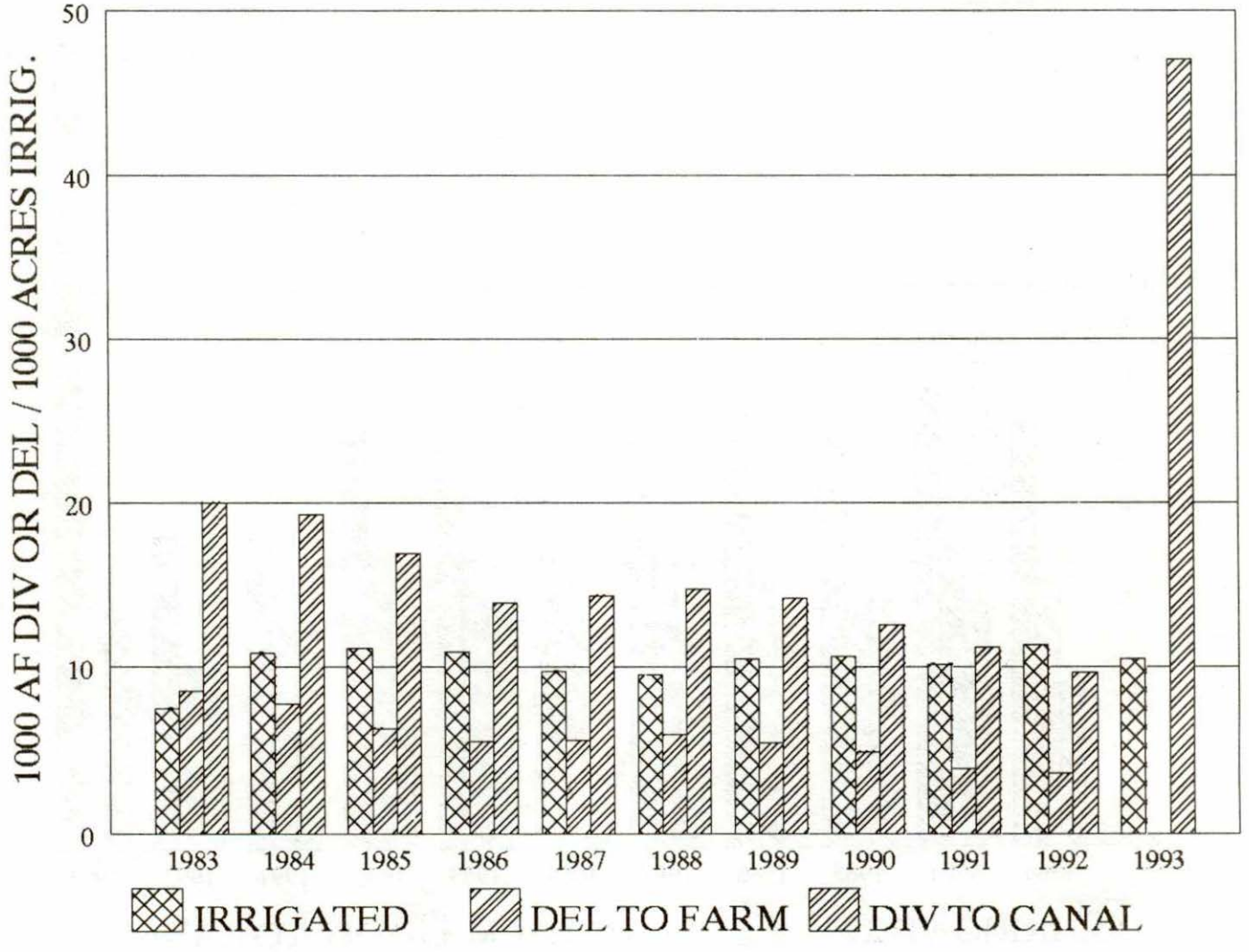
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
AF/ACRE										
DIV	2.00	1.55	1.42	1.54	1.53	1.60	1.30	1.38	1.38	1.05
DEL	1.09	0.87	0.68	0.68	0.81	0.75	0.71	0.63	0.59	0.30
EFF(%)	55	56	48	44	53	47	55	46	43	29

FORCASTED SHORAGES (SUBTRACT FROM DIV REQ)

DRY YEAR	28.1
NORMAL YEAR	8.4

H AND RW IRRIGATION DISTRICT

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



	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
AF/ACRE										
DIV	2.66	1.78	1.52	1.27	1.47	1.55	1.35	1.18	1.10	0.85
DEL	1.14	0.71	0.57	0.50	0.57	0.63	0.52	0.46	0.38	0.32
EFF(%)	43	40	37	40	39	41	38	39	35	37

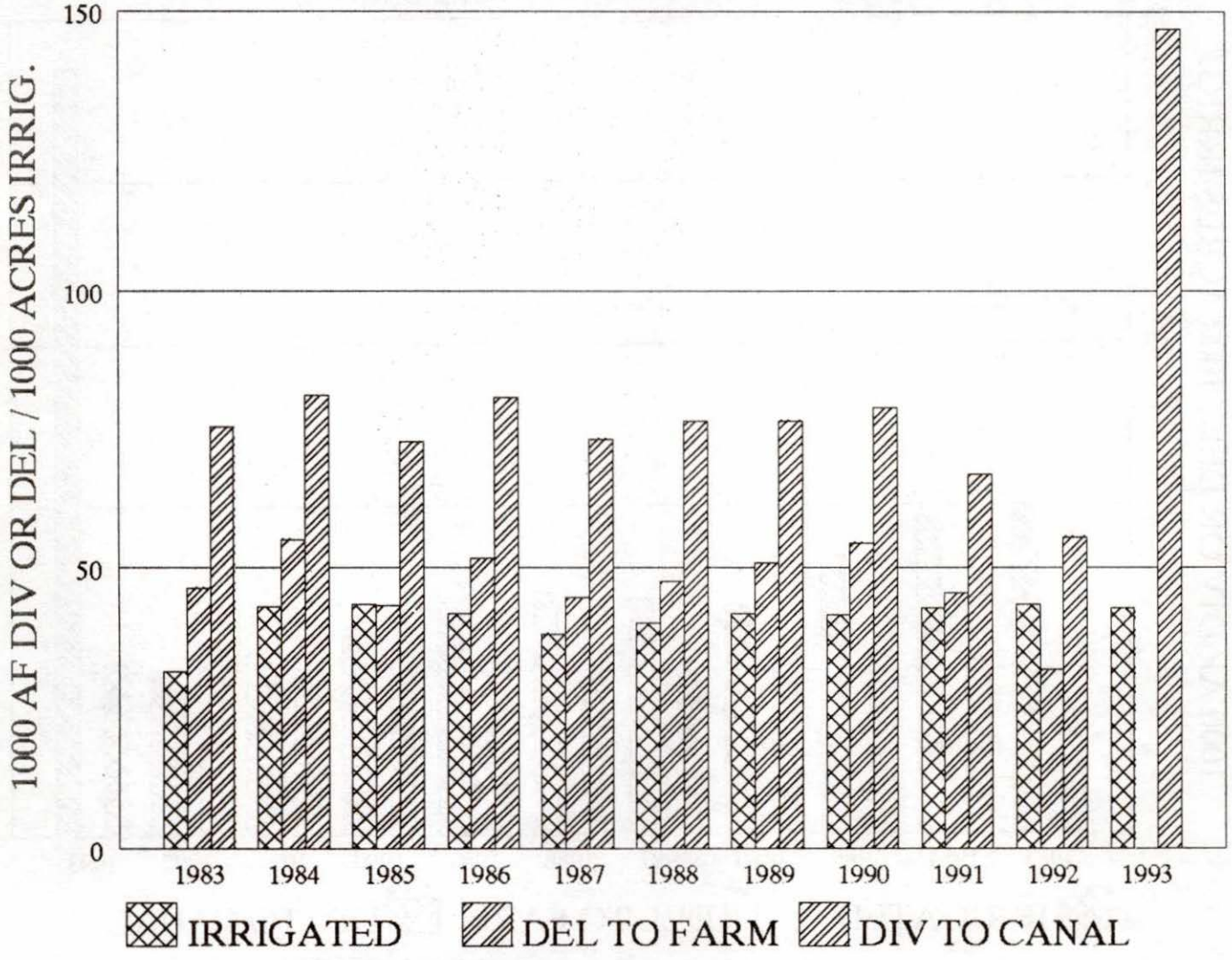
FORCASTED SHORAGES (SUBTRACT FROM DIV REQ)

DRY YEAR	34.8
NORMAL YEAR	10.3

EXHIBIT 25

FRENCHMAN CAMBRIDGE IRRIGATION DISTRICT

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



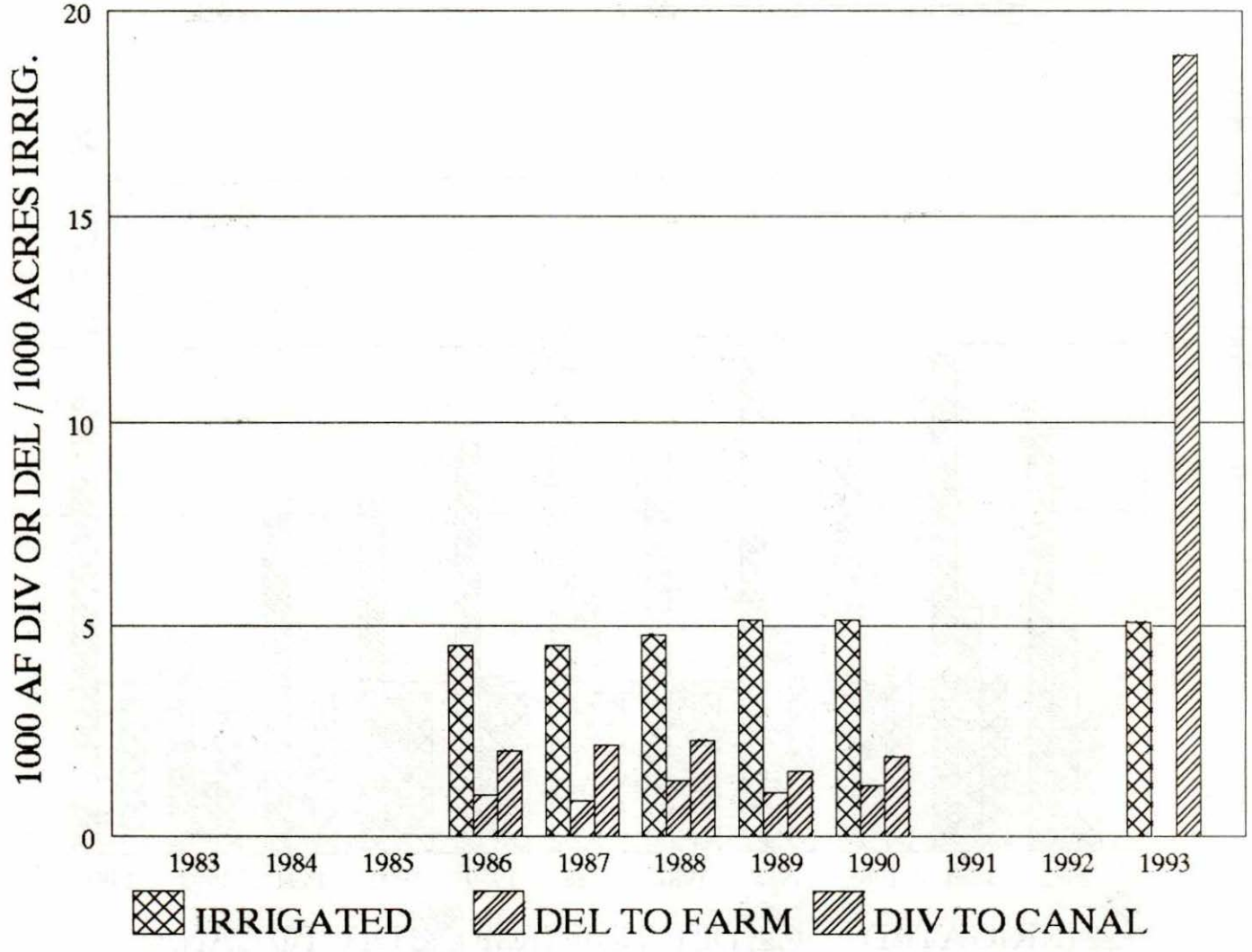
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
AF/ACRE										
DIV	2.39	1.89	1.68	1.93	1.92	1.90	1.83	1.90	1.56	1.27
DEL	1.47	1.28	1.00	1.24	1.17	1.19	1.22	1.31	1.06	0.73
EFF(%)	61	68	59	64	61	62	66	69	68	58

FORCASTED SHORAGES (SUBTRACT FROM DIV REQ)

DRY YEAR	17.5
NORMAL YEAR	0

ALMENA IRRIGATION DISTRICT

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



	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
AF/ACRE										
DIV	0.00	0.00	0.00	0.45	0.48	0.47	0.30	0.36	0.00	0.00
DEL	0.00	0.00	0.00	0.21	0.18	0.27	0.20	0.23	0.00	0.00
EFF(%)	0	0	0	48	39	57	66	64	0	0

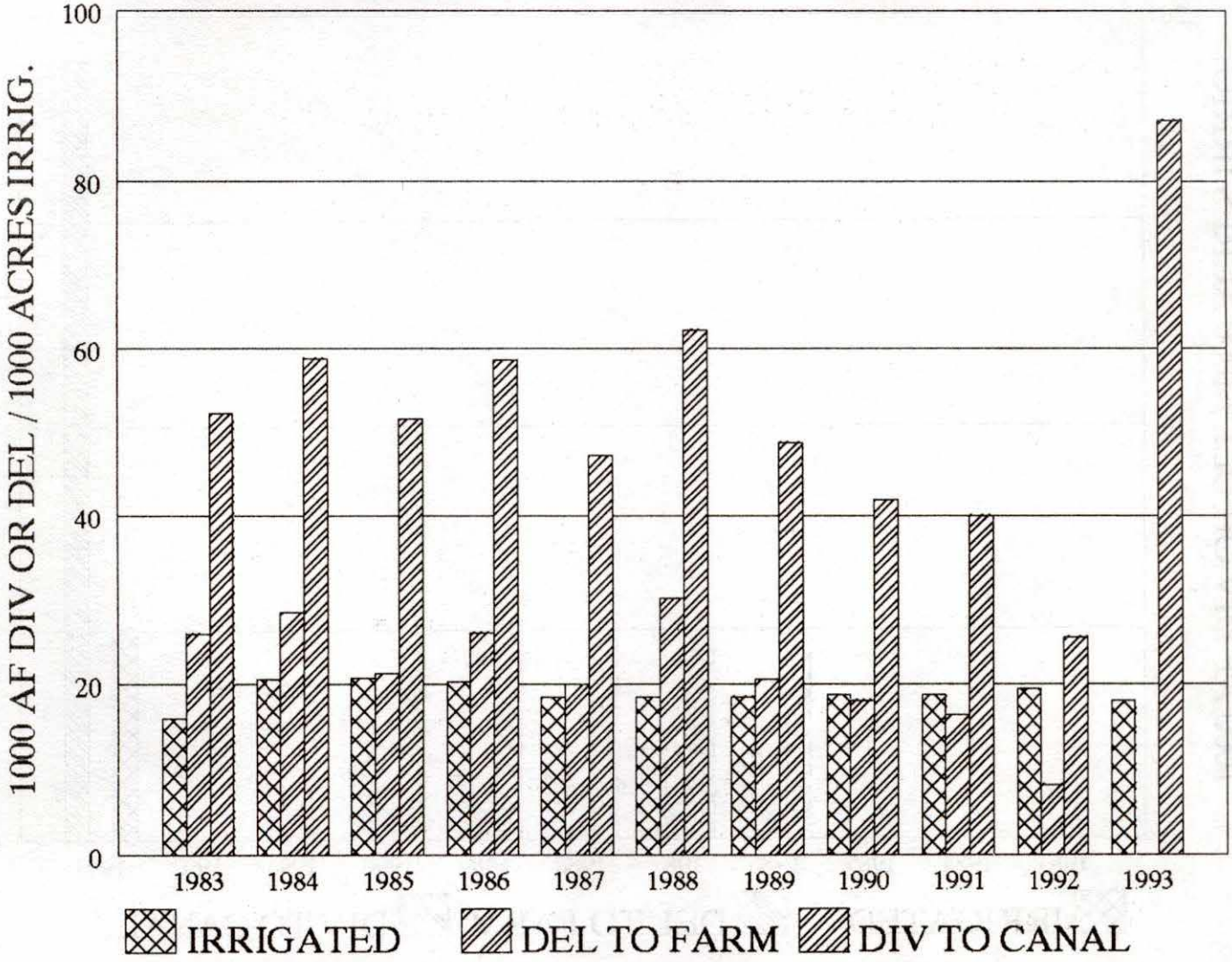
FORCASTED SHORAGES (SUBTRACT FROM DIV REQ)

DRY YEAR	14.3
NORMAL YEAR	3.5

EXHIBIT 27

BOSTWICK IRRIGATION DISTRICT – NEBRASKA

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



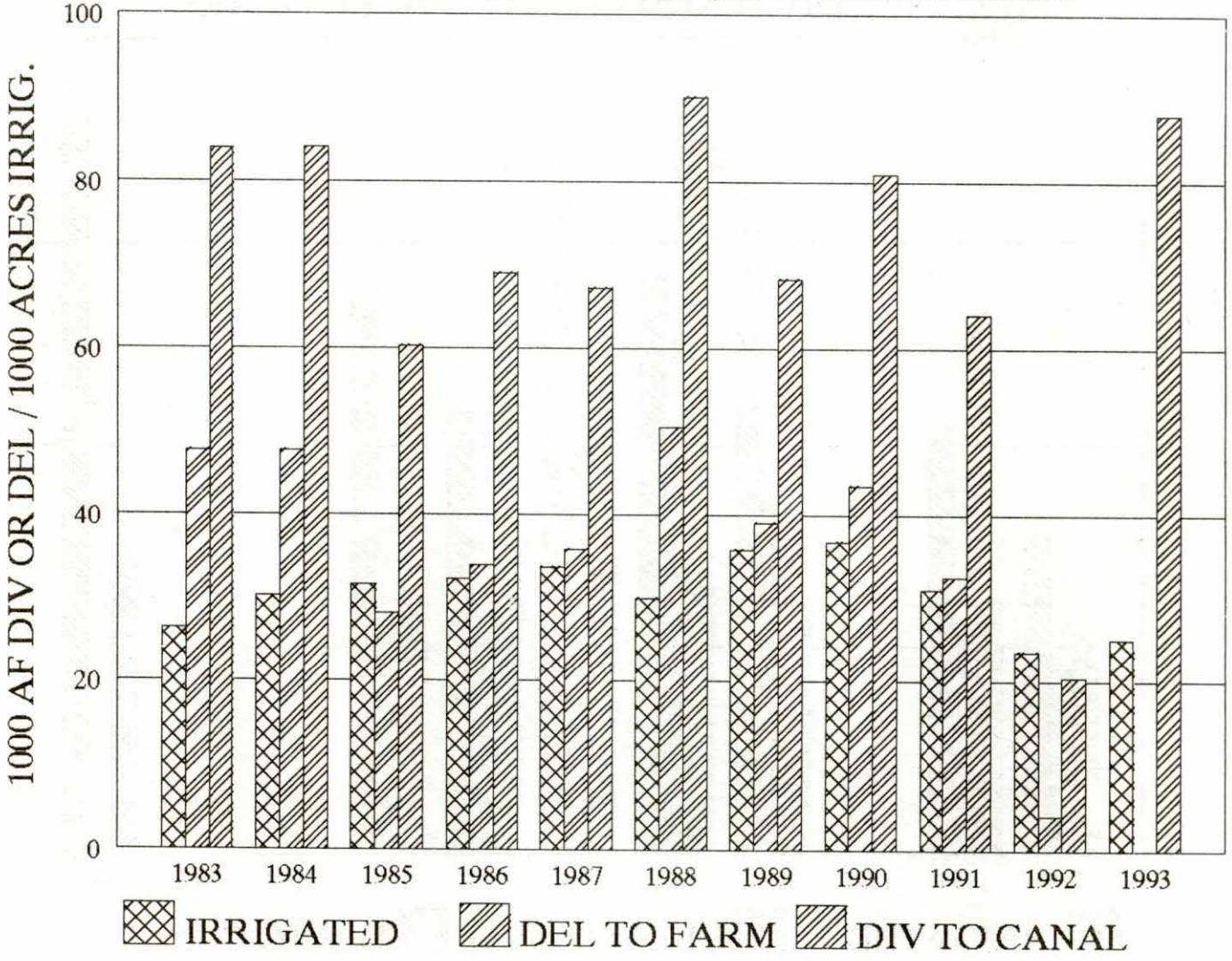
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
AF/ACRE										
DIV	3.27	2.88	2.50	2.90	2.56	3.38	2.63	2.23	2.14	1.32
DEL	1.62	1.39	1.02	1.29	1.08	1.63	1.11	0.97	0.88	0.43
EFF(%)	49	48	41	44	42	48	42	43	41	32

FORCASTED SHORAGES (SUBTRACT FROM DIV REQ)

DRY YEAR	26.3
NORMAL YEAR	0

KANSAS – BOSTWICK IRRIGATION DISTRICT

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



	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
AF/ACRE										
DIV	3.20	2.80	1.92	2.15	2.00	3.02	1.92	2.21	2.08	0.86
DEL	1.82	1.59	0.89	1.05	1.06	1.69	1.09	1.19	1.05	0.17
EFF(%)	57	57	46	49	53	56	57	54	50	20

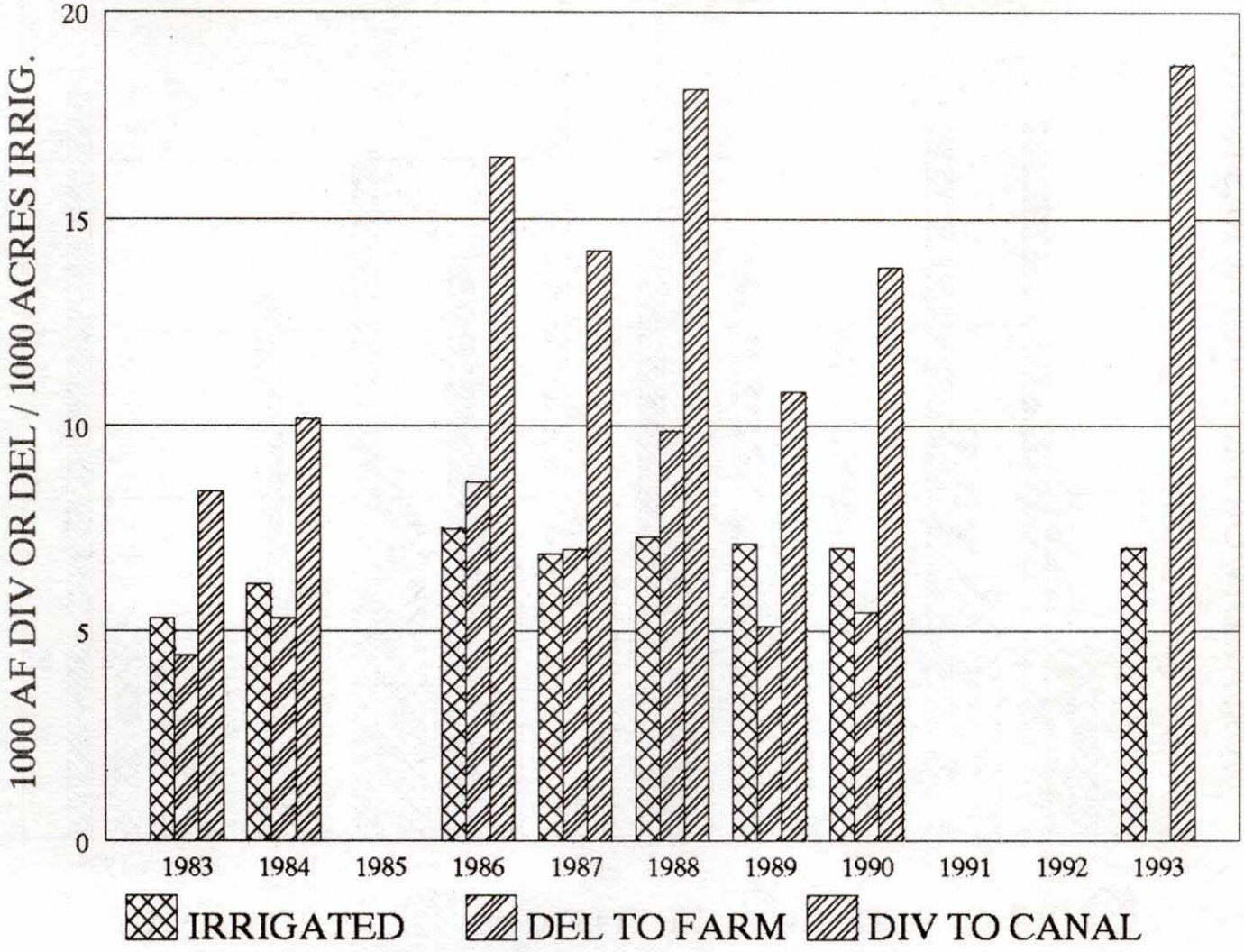
FORCASTED SHORAGES (SUBTRACT FROM DIV REQ)

DRY YEAR	26.9
NORMAL YEAR	0

EXHIBIT 29

KIRWIN IRRIGATION DISTRICT

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



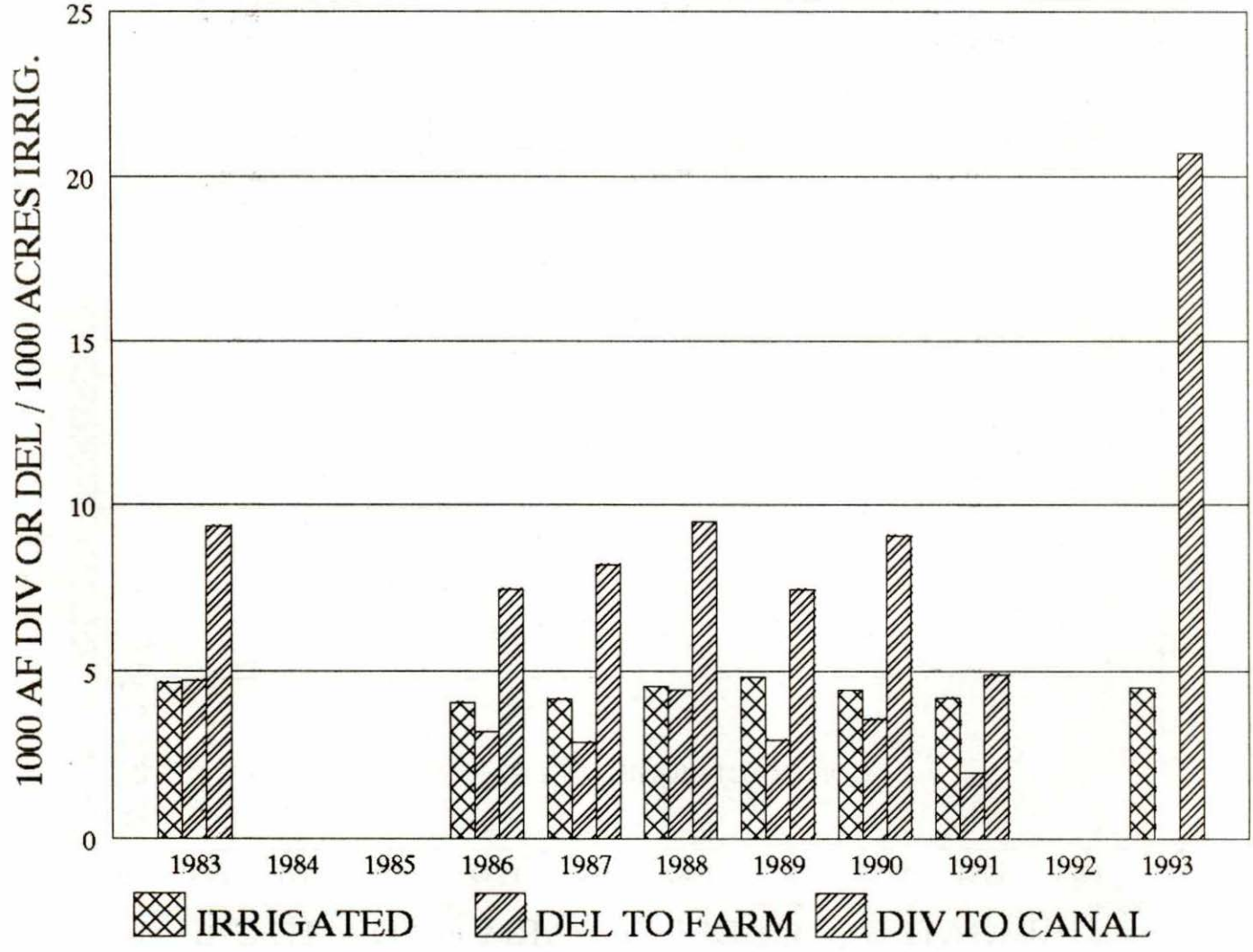
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
AF/ACRE										
DIV	1.58	1.66	0.00	2.20	2.08	2.49	1.52	1.98	0.00	0.00
DEL	0.83	0.87	0.00	1.15	1.02	1.36	0.72	0.78	0.00	0.00
EFF(%)	53	52	0	52	49	55	47	39	0	0

FORCASTED SHORAGES (SUBTRACT FROM DIV REQ)

DRY YEAR	9.2
NORMAL YEAR	0

WEBSTER IRRIGATION DISTRICT

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



	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
AF/ACRE										
DIV	2.01	0.00	0.00	1.83	1.97	2.09	1.55	2.04	1.17	0.00
DEL	1.02	0.00	0.00	0.78	0.69	0.98	0.61	0.81	0.46	0.00
EFF(%)	51	0	0	43	35	47	39	39	40	0

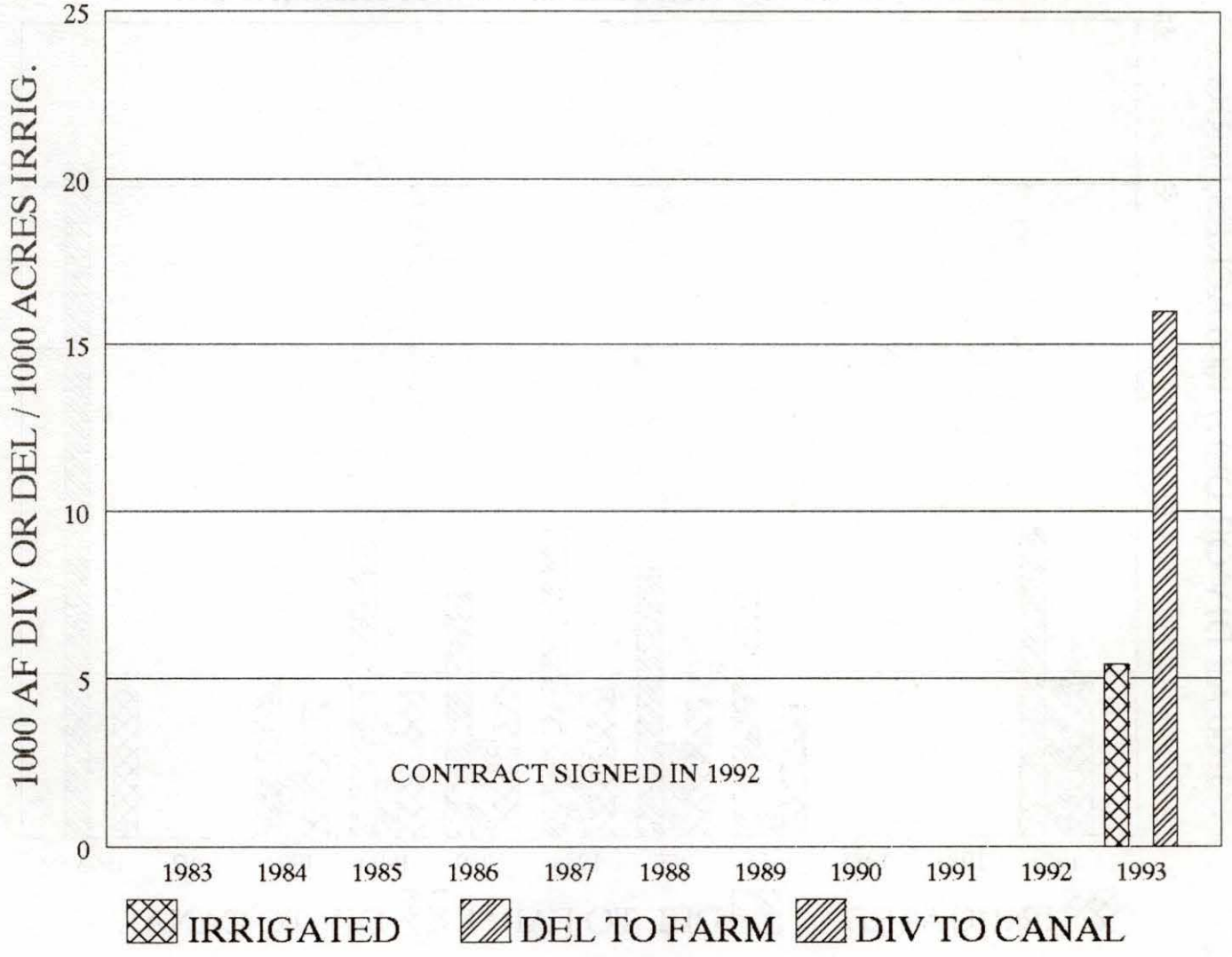
FORCASTED SHORAGES (SUBTRACT FROM DIV REQ)

DRY YEAR	16.7
NORMAL YEAR	2.1

EXHIBIT 31

GLEN ELDER IRRIGATION DISTRICT

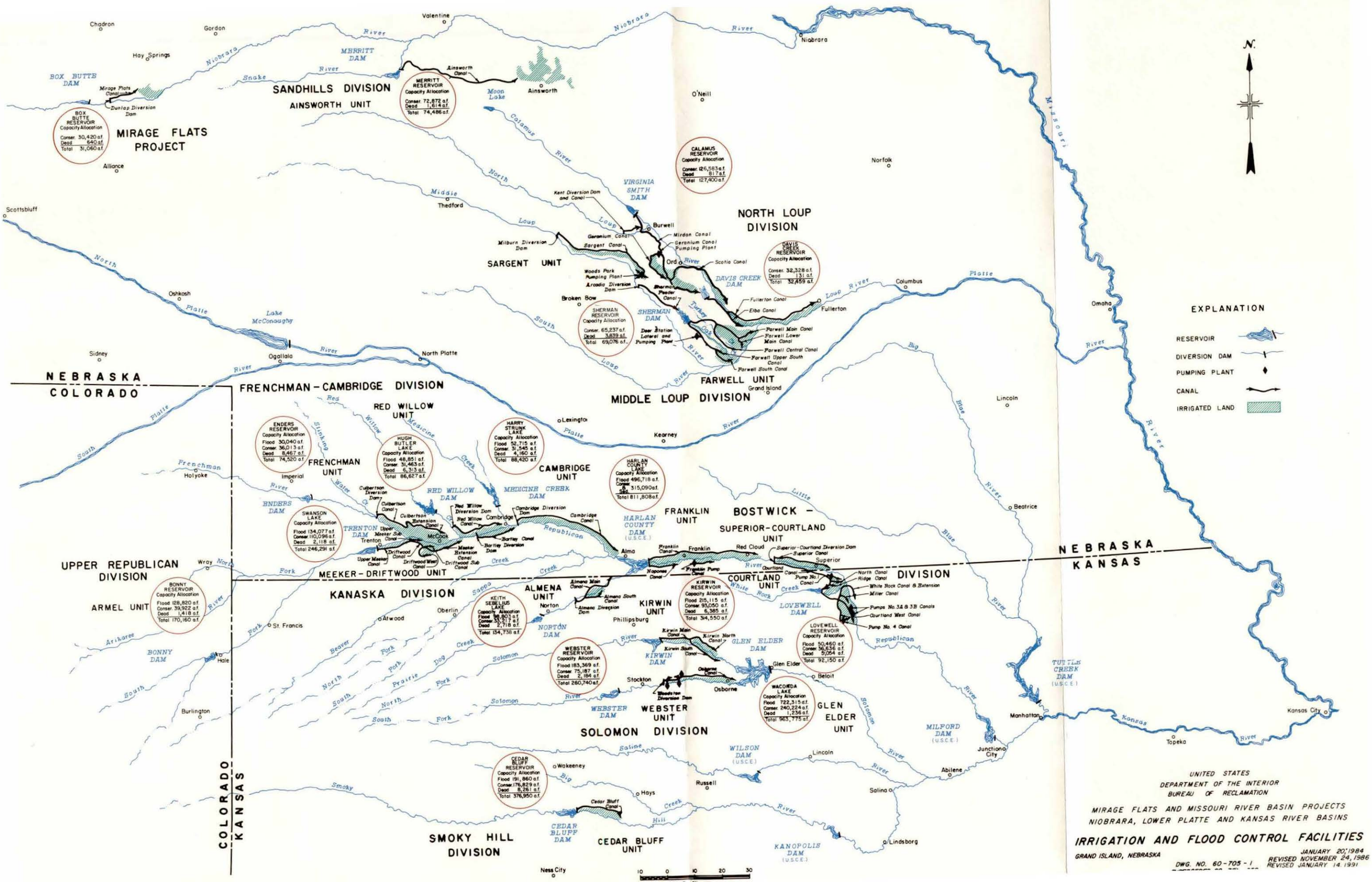
CANAL DIV., FARM DEL., AND ACRES IRRIG.



	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
AF/ACRE										
DIV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EFF(%)	0	0	0	0	0	0	0	0	0	0

FORCASTED SHORAGES (SUBTRACT FROM DIV REQ)

DRY YEAR	0
NORMAL YEAR	0



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

DWG. NO. 60-705-1

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REVISED JANUARY 14, 1991