ANNUAL OPERATING PLANS

CALENDAR YEARS
1985-1986

NIOBRARA, LOWER PLATTE, AND KANSAS RIVER BASINS

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
MISSOURI BASIN REGION

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BILLINGS, MONTANA

ANNUAL OPERATING PLANS

NIOBRARA, LOWER PLATTE, AND KANSAS RIVER BASINS

CALENDAR YEAR--1985 OPERATIONS

CALENDAR YEAR--1986 OUTLOOK

CONTENTS

LIST OF TABLES (all following page 22)

General

This year is the thirty-third 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 16 dams and reservoirs that are located in Colorado, Nebraska, and Kansas. These reservoirs, together with 10 diversion dams, 10 pumping plants, and 22 canal systems, serve approximately 273,000 acres of project lands in Nebraska and Kansas. In addition to irrigation, municipal, and industrial water, these features serve flood control, recreation, and fish and wildlife purposes. Calamus Dam located on the Calamus River has been completed and the filling process started last fall. This reservoir will eventually provide irrigation water for an additional 53,000 acres. 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 (Bureau), state of Colorado, or the Corps of Engineers. Calamus Dam is presently operated by the Bureau. The diversion dams, pumping plants, and canal systems are operated by either irrigation or reclamation districts.

A Programmable Master-Station Supervisory Control System located at McCook is used to assist in operational management of all eleven dams under the Bureau's jurisdiction that are located in the Kansas River Basin.

The Headlines 85 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.

1985 Summary

Climatic Conditions

The total precipitation over the operating area during 1985 ranged from 76 percent of normal at Box Butte Reservoir to 147 percent of normal at Kirwin Reservoir. The temperatures were slightly below normal during most of the growing season. Precipitation delayed harvesting of crops for 2 to 4 weeks in most project areas.

Storage Reservoirs

1. Conservation Operations. The 1985 inflows were below the dry-year forecast at Box Butte, Sherman, Bonny, Enders, Webster and Cedar Bluff Reservoirs and Hugh Butler and Harry Strunk Lakes. Swanson, Keith Sebelius, Waconda, and Harlan County Lakes and Kirwin Reservoir had inflows between the dry- and normal-year forecasts. Merritt and Lovewell Reservoirs had inflows between the normal- and wet-year forecasts.

The following summarized data shows a comparison of 1984 and 1985 carryover storage for all reservoirs in the Niobrara, Lower Platte, and Kansas River Basins.

RESERVOIR DATA SEPTEMBER 30

Reservoir 1/	1984 Elevation (feet)	1984 Storage (acre-ft)	1985 Elevation (feet)	1985 Storage (acre-ft)	Conservation Capacity Elevation (feet)	Conservation Capacity Storage (acre-ft)
Box Butte	3979.97	3,701	3975.58	2,018	4007.00	31,060
Merritt	2938.20	54,143	2939.20	56,487	2946.00	74,486
Sherman	2153.10	45,806	2156.20	52,966	2162.30	69,076
Bonny	3669.05	35,596	3668.38	34,354	3672.00	41,340
Enders	3089.90	15,740	3088.84	14,823	3112.30	44,480
Swanson	2743.01	72,747	2741.69	67,716	2752.00	112,214
Hugh Butler	2574.78	27,520	2573.55	25,972	2581.80	37,776
Harry Strunk	2355.27	19,941	2356.97	21,968	2366.10	35,705
Keith Sebelius	2279.46	4,755	2280.12	5,118	2304.30	35,935
Harlan County	1937.16	225,093	1939.32	247,773	1946.00	327,639
Lovewell	1577.42	28,130	1580.94	36,940	1582.60	41,690
Kirwin	1696.88	9,665	1705.31	20,846	1729.25	99,435
Webster	1866.43	12,613	1867.42	14,038	1892.45	77,371
Waconda	1449.04	167,948	1452.27	201,855	1455.60	241,460
Cedar Bluff	2100.61	21,926	2098.86	19,150	2144.00	185,090

1/ Filling of Calamus Reservoir began in October, 1985.

2. Flood Control Operations. The total 1985 flood control benefits accrued by the operation of the Nebraska-Kansas Projects dams was $534,000. The accumulative total of flood control benefits for the years 1951 through 1985 by facilities in this report total $52,435,000 (see table 5). To date no benefits have been accrued by the operation of Box Butte, Merritt, or Sherman Dams.

Water Service

There were 377,374 acre-feet of water diverted to irrigate 216,067 acres of projects lands in 9 of the 13 irrigation districts (see tables 3 and 6). The project water supply was inadequate for 65,250 acres of the total project lands. This includes lands in Mirage Flats, Frenchman Valley, H&RW, Almena, Kirwin, Webster, and Cedar Bluff Irrigation Districts. No project water was available for delivery to Almena, Cedar Bluff, Kirwin and Webster Irrigation Districts. The project water supplies for the other units mentioned in this report were adequate in 1985.

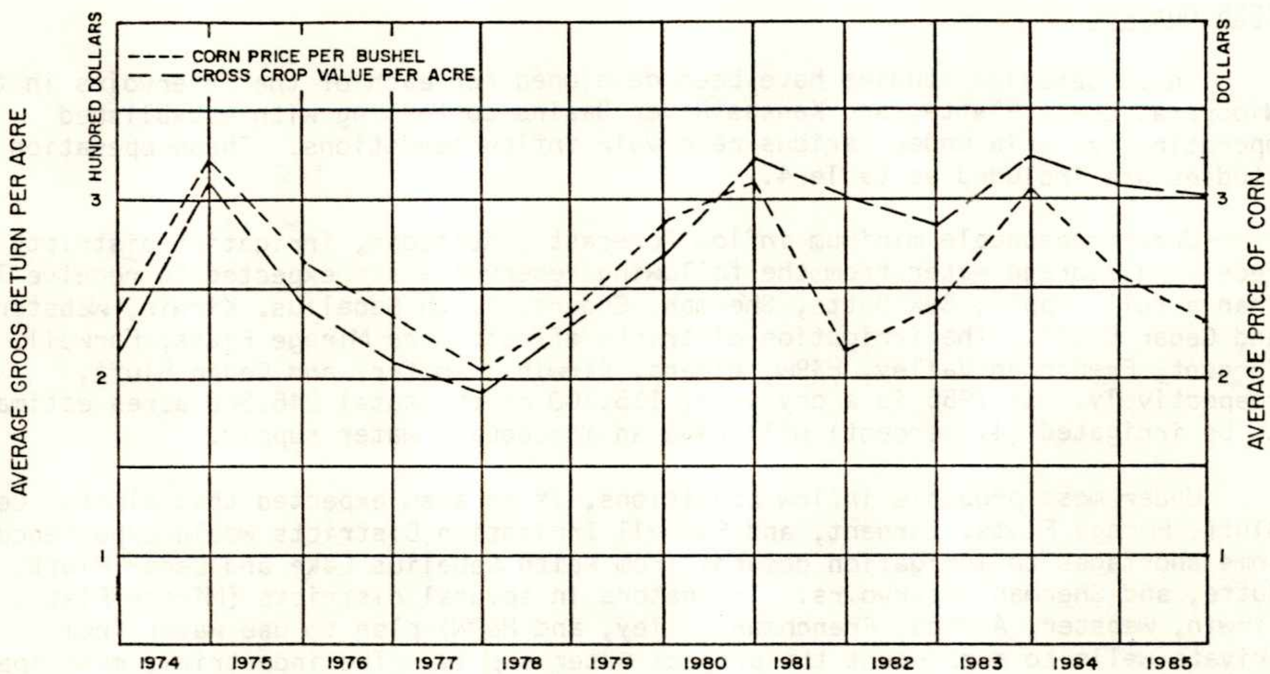
The water requirements of three municipalities, one rural water district, one industrial company, and a fish hatchery facility were furnished from storage releases or natural flows.

Under a long-term contract with the Bureau for use of the Arcadia Diversion Dam, the Middle Loup Public Power and Irrigation District diverted 27,383 acre-feet to irrigate 14,276 acres of non-project lands. These diversions were made under natural-flow water rights granted by the state of Nebraska.

Irrigation Production

The 1985 crop yields from lands receiving project water were higher than 1984 for all units except Mirage Flats and Ainsworth. Corn, the principal crop, increased from an average of about 129 bushels per acre to slightly over 130 bushels per acre. Unit prices for all commodities were generally lower than those in 1984. The average gross crop value per acre decreased from $310.96 to $302.03 during 1985. The following graph compares corn prices with the gross crop value per acre.

COMPARISON OF PRICE OF CORN WITH GROSS CROP VALUE PER ACRE



The following summary shows the comparison of corn yields for each irrigation district.

Irrigation District	Corn Yield (bu/acre) 1984	1985
Ainsworth	140	125
Mirage Flats	133	117
Sargent	122	125
Farwell	120	135
Frenchman Valley	138	142
H&RW	129	137
Frenchman-Cambridge	119	120
Bostwick in Nebraska	126	132
Kansas-Bostwick	139	141
Kirwin	122	*
Webster	*	*
Cedar Bluff	*	*
Almena	*	*
Average of District Reporting	129	130

* No project water supplied; not included in averages.

Fish and Wildlife and Recreation Benefits

During the early part of the 1985 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.

1986 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 as table 4.

Under reasonable minimum inflow forecast conditions, irrigation districts receiving storage water from the following reservoirs are expected to receive less than a full supply: Box Butte, Sherman, Enders, Keith Sebelius, Kirwin, Webster and Cedar Bluff. The irrigation districts affected are Mirage Flats, Farwell, Sargent, Frenchman Valley, H&RW, Almena, Kirwin, Webster, and Cedar Bluff, respectively. If 1986 is a dry year, 115,100 of the total 246,360 acres estimated to be irrigated (47 percent) will have an inadequate water supply.

Under most probable inflow conditions, it is also expected that Almena, Cedar Bluff, Mirage Flats, Sargent, and Farwell Irrigation Districts would experience some shortages to irrigation demands from Keith Sebelius Lake and Cedar Bluff, 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 industrial, 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 currently extremely low storage conditions at Cedar Bluff, the city of Russell will experience shortages in dry-year inflow forecast conditions.

During 1986, 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. The Bureau will also make Waconda Lake storage water available under temporary water service contracts.

Even under reasonable minimum inflow conditions, the conservation pools at Merritt, Sherman, and Lovewell Reservoirs and Harry Strunk Lake will fill during 1986. Swanson, Harlan County, and Waconda Lakes will also 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. The Bureau 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 85

Water management plan gets support

Norden Dam is dead

Bureau of Reclamation supports state plan

LOCAL

Levels are below capacity at seven area reservoirs

McCOOK, NEBRASKA 69001, MONDAY, SEPTEMBER 30, 1985

Earliest recorded snow covers area

State Officials to Rewrite Groundwater Standards

Ground-water use, misuse has become concern to many

Area reservoir levels all gain during December

'State water goals, guidelines necessary'

McCOOK DAILY GAZETTE

McCOOK, NEBRASKA 69001, THURSDAY, MAY 30, 1985

Storms cause wide damage in area

Reservoir releases may be made early again

Irrigation chiefs blast Enders rejection

Cool, damp weather greets fall's arrival

LOCAL

Water levels at area reservoirs decrease

Planner Tells Water Conference Widespread Shortage May Occur

Researchers Searching for Methods to Prolong Life of Ogallala Aquifer

Area lakes post record turnouts

McCOOK, NEBRASKA 69001, WEDNESDAY, NOVEMBER 6, 1985

Platte River diversion plan denied

Officials say North Loup project in need of more federal funds

SPORTS

Fingerlings added to reservoir

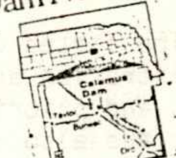
Enders decision 'destroys irrigation'

McCOOK, NEBRASKA 69001, WEDNESDAY, JANUARY 9, 1985

Heavy snow continues to clog area

$352 Million Project at Burwell

Calamus Dam Nears Completion



Tax on Water Is Proposed In New Study

Tours help McCook tell anglers story of area lakes

Water conference planned March 5

Dam vital to area

Shortage brings water war

Basin Offices Merge in Billings

Water levels continue to climb at area lakes

50 years later, memories of Republican flood still vivid

November '85: Cold Turkey of Century

More Back Conservation as Water Competition Sharpens

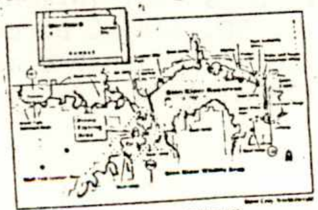
Ground-water management plan nearing final stages

Exon, Zorinsky to add flood control to Platte River irrigation projects

Lake facilities upgraded

Water levels fall during June at area reservoirs

Glen Elder Offers Some of Hottest Fishing on Ice



Thunderstorm concentrates on immediate McCook area

States Are Praised For Efforts to Solve Conflicts on Water

Water projects slashed from bill

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 1985 and serves as a guideline for the 1986 operations. This report also describes the responsibilities of the Bureau, Corps of Engineers, and the irrigation and reclamation districts in the Niobrara, Lower Platte, and Kansas River Basins.

Operational Responsibilities

The Bureau is responsible for irrigation operations at all federal reservoirs in the Nebraska-Kansas Projects area. The Bureau 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 the Bureau. In addition to irrigation and flood control, these reservoirs provide recreation, fish and wildlife, municipal, and industrial benefits.

By contractual arrangements with the Bureau, 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 the Bureau. In addition, the appropriate irrigation or reclamation districts are responsible for operating and maintaining Box Butte, Merritt, and Sherman Dams and Reservoirs. The Corps of Engineers operates and maintains Harlan County Dam and Lake. The state of Colorado provides operational guidelines for Bonny Reservoir. The Bureau operates and maintains 12 dams and reservoirs in the Lower Platte, Republican, Solomon, and Smoky Hill River Basins.

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 federal lands around the reservoir.

The Bureau 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 curve to be reasonable maximum (wet year), most probable (normal year), and reasonable minimum (dry year) inflow conditions, respectively.

Inflow records from 1956 through 1984 were used for the analysis.

Reservoir Operations

All operations are scheduled for optimum benefits of the authorized project functions. Monthly, or as often as runoff and weather conditions dictate, the Bureau 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 multipurpose reservoirs, diversion dams, pump stations, and canal systems. The 16 storage facilities now in operation are listed below.

Constructed by the Bureau

1. Operated by irrigation or reclamation districts--Box Butte and Merritt Dam in the Niobrara River Basin and Sherman Dam in the Lower Platte River Basin.

2. Operated by the Bureau--Bonny, Trenton, Enders, Red Willow, Medicine Creek, Norton, Lovewell, Kirwin, Webster, Glen Elder, and Cedar Bluff Dams in the Kansas River Basin, and Calamus Dam in the Lower Platte River Basin.

Constructed and Operated by the Corps of Engineers

1. Harlan County Dam in the Kansas River Basin.

Irrigation and Reclamation Districts

Thirteen irrigation districts and two reclamation districts in the Niobrara, Lower Platte, and Kansas River Basins have contracted with the Bureau for water supply and irrigation facilities. The Sargent and Farwell Irrigation Districts have contracted their O&M responsibilities to the Loup Basin Reclamation District.

The contracted irrigation season for the Mirage Flats Irrigation District is April through September. The contracted irrigation season for Frenchman Valley, H&RW, Frenchman-Cambridge, and Cedar Bluff Irrigation Districts is from May 1 through October 15. For all other districts, the contracted irrigation season is from May 1 through September 30.

Municipal and Industrial Water

Three municipalities, one oil company, 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.

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.

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 Reservoir in the Lower Platte River Basin. The regulated outflow will also benefit farmers, ranchers, industries, 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 1976 to 1985, the project water supply averaged 15,638 acre-feet, which is about 1.34 acre-foot per irrigable acre. This amount is 0.98 acre-foot per acre short of the average diversion requirement of 2.32 acre-feet 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 by 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.

1985 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 11.58 inches, which is 76 percent of normal. The total inflow (16,101 acre-feet) was below the dry-year forecast.

From June through August, diversions of 15,297 acre-feet to the Mirage Flats Canal provided irrigation water for 10,828 acres, 93 percent of the service available acreage. The farm deliveries from the project water supply were 6,941 acre-feet (0.60 acre-foot per irrigable acre), which is a delivery efficiency of 45 percent. Privately owned irrigation wells supplemented the project water supply. The gross crop value was $2,848,620 which is $283,295 less than the 1984 value.

1986 Outlook

The project water supply is expected to be inadequate in 1986 like it has been for the last several years. The water supply will be inadequate since there was not any available carryover storage at the end of last irrigation season, and the inflow has been between the dry- and normal-year rates since the end of the 1985 irrigation season. In the spring, the district will announce to their water users the amount of water that will be available from storage in Box Butte Reservoir. However, the district plans for the irrigators to continue the use of water from privately owned irrigation wells as a supplemental supply. In 1986, 10,800 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. The reservoir is then slowly filled. This operation greatly enhances the spring fish spawn. Flows of up to 15 cubic feet per second normally occur below Merritt Dam.

The basic water supply for the district is 63,712 acre-feet. If available, additional water can be purchased by the district as a supplemental supply.

1985 Summary

Precipitation, as recorded near Merritt Dam, totaled 19.59 inches of rainfall, which was 112 percent of normal. The water supply was more than adequate to meet the project's irrigation requirement. There were 69,185 acre-feet diverted from Merritt Reservoir into the Ainsworth Canal, with 45,593 acre-feet delivered to the farm headgates (delivery efficiency of 66 percent). There were 31,427 acres of land irrigated in 1985. The gross crop value was $11,817,247, which is $221,415 less than the previous year.

The district executed several temporary water service contracts which provided a total of 204.12 acre-feet of irrigation water from holding ponds located within the district's service area.

1986 Outlook

Merritt Reservoir will be regulated to maintain an elevation 2.0 feet below the top of conservation capacity during the 1985-86 winter months.

In 1985-86 winter months and future years, the reservoir will be regulated to maintain elevation 2944.0 feet. This elevation is within the newly 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 slowly fill the conservation capacity during the spring months. The reservoir will be filled to approximately elevation 2944.6 feet by the end of April and filled to the top of conservation pool by late May. The water supply is expected to be adequate in 1986 for the irrigation of 31,500 acres.

Sargent Unit, Middle Loup Division in Nebraska

General

The Sargent Irrigation District has contracted with the Loup Basin Reclamation District for the O&M of the Milburn Diversion Dam and the Sargent Canal system which serves 13,363 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 198 cubic feet per second 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 storage releases from Sherman Reservoir.

1985 Summary

The precipitation over the Sargent Unit (20.89 inches at district headquarters) was 89 percent of normal. The irrigation diversions into the Sargent Canal totaled 24,975 acre-feet (13,585 acre-feet were delivered to the farm headgates--delivery efficiency 54 percent). The diversions exceeded the direct-flow water right for 22 days. There were 12,636 acres irrigated, and the gross crop value totaled $3,223,679, which is $348,999 less than in 1984. 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.

1986 Outlook

The Loup Basin Reclamation District estimates that 13,000 acres in the Sargent Unit will be irrigated in 1986. Under dry-year conditions, some shortages could occur. The Farwell and Sargent Irrigation Districts are required to share shortages in accordance with their contract.

Farwell Unit, Middle Loup Division in Nebraska

General

The Loup Basin Reclamation District operates and maintains 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 Pubic Power and Irrigation District under 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 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. This seeding prevents wind erosion. It also provides 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 mid-June. 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 cubic feet per second, flows will be diverted through Sherman Feeder Canal into Sherman Reservoir. Flood control benefits can be accrued to Sherman Reservoir by such operations.

1985 Summary

The diversions from the Middle Loup River at Arcadia Diversion Dam were 27,383 acre-feet to the Middle Loup Pubic Power and Irrigation District and

75,378 acre-feet 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 will divert water directly to the Number 4 Canal.

Sherman Feeder Canal diversions into Sherman Reservoir were started on April 8, and the conservation capacity was filled on June 10. The precipitation at Sherman Dam was 28.05 inches, which is 135 percent of normal. Releases into the Farwell Canals totaled 54,177 acre-feet (22,626 acre-feet were delivered to the farm headgates--delivery efficiency 42 percent). The Farwell Irrigation District reported that 46,095 acres of land were irrigated in 1985. The gross crop value was $13,744,482, which is $605,473 more than in 1984. Sherman Feeder Canal was shut off August 22.

The Farwell Irrigation District has installed a total of 52 miles of pipe to replace open lateral.

1986 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 1986. 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 Calamus Dam and Reservoir, Kent Diversion Dam, Davis Creek Dam and Reservoir, five principal canals, one major and one small pumping plant and numerous laterals. The first irrigation water is scheduled to be delivered in 1987.

1985 Summary

Construction of Calamus dam was essentially completed by October. Flows from the Calamus River were bypassed through the dam until October when a portion of the inflows were diverted to commence filling of the reservoir. On October 31, 1985, there was 4,385 acre-feet of water in storage; 7,048 acre-feet in storage on November 30; and 11,225 acre-feet in storage on December 31, 1985.

On November 14, 1985 a Public Information Meeting was held at Burwell, Nebraska with information presented by Bureau and State of Nebraska personnel. Information was presented concerning the projected operations of Calamus Dam over the next three years; the developement of the fisheries and recreation facilities and the Emergency Preparedness Plan.

There were no releases made for irrigation purposes during 1985.

1986 Outlook

Calamus Reservoir will be used to store off-season Calamus River flows for later release to irrigate project lands.

The reservoir will be filled in three stages with the first stage being a water surface elevation of 2,227 feet (content 58,251 acre-feet) by June, 1986. It is anticipated that this elevation will be reached near the end of May. The reservoir will be held at this elevation until July 1 when all inflow to the reservoir will be bypassed until the end of September. During this time the water surface elevation will probably experience a slight decrease due to evaporation and the complete bypass of inflow.

The second stage of filling begins on October 1 with a target water surface elevation of approximately 2,234 feet (content 82,671 acre feet) by the end of December and an elevation of 2,236 feet (content 90,605 acre-feet) by June 1987.

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, municipal, industrial, and irrigation purposes.

Bonny Reservoir storage is transferred as required to Swanson Lake where releases into the Republican River are regulated to meet the industrial needs of Rex Monahan Oil Company for waterflood operations in the Sleepy Hollow Oil Field south of Bartley, Nebraska.

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 affords excellent hunting conditions each fall.

1985 Summary

The 15.00 inches of precipitation during 1985 was 92 percent of normal. The inflow (15,223 acre-feet) to Bonny Reservoir was below the dry-year forecast. Normal releases to maintain a constant water surface elevation during the icing season were made between January 21 and March 5. Releases were also made from December 5 through December 31. As directed by the Colorado Water Commissioner, 598 acre-feet 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 2,106 acre-feet for industrial or irrigation purposes into Hale Ditch.

1986 Outlook

Rex Monahan Oil Company will have an adequate water supply in 1986. Water stored in Bonny Reservoir will also be available for sale to Hale Ditch and other private irrigators under short-term water service contracts executed with the state.

Releases will be made each winter to maintain a constant elevation during the period when the reservoir has ice along the face of the dam.

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.

1985 Summary

The 16.47 inches of precipitation at Enders Dam was 88 percent of normal. The 1985 inflow into Enders Reservoir (25,515 acre-feet) was below the dry-year forecast. Due to extensive groundwater pumping above the reservoir, the inflow was only 42 percent of the average historical preconstruction runoff at the Enders damsite (60,700 acre-feet from 1929-1947). This year was the eighteenth consecutive year with below-normal inflows in which the conservation pool did not fill. A total of 3,074 acre-feet of water was conserved between the 1984 and 1985 irrigation seasons by pumping seepage back into the reservoir. Irrigation releases were stopped on September 1.

The farm delivery averaged about 0.62 of a foot 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 8,540 acres received water in 1985, and the H&RW Irrigation District reports 11,108 acres, which are 89 and 97 percent, respectively, of the lands with service available. The gross crop value for Frenchman Valley Irrigation District was $2,525,221 which is a decrease of $250,284 from the previous year. The gross crop value for the H&RW Irrigation District was $3,032,450, which is an increase of $8,678 from the previous year.

1986 Outlook

The fall and early winter inflows into Enders Reservoir were below the dry-year forecast. If reasonable minimum runoff conditions prevail, the project water supply is expected to be inadequate to irrigate 8,600 acres in the Frenchman Valley Irrigation District and 10,200 acres in the H&RW Irrigation District. Approximately 3,000 acre-feet 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 flows of the Republican River and Red Willow and Medicine Creeks.

1985 Summary

The precipitation of 18.99 inches at Trenton Dam was 98 percent of normal. The inflow of 59,263 acre-feet to Swanson Lake was between dry- and normal-year forecasts. The reservoir's conservation pool was filled on May 14, with the maximum water surface elevation of 2752.94 feet reached on June 8. At the beginning of the 1985 irrigation season (June 6), there was 116,757 acre-feet of water stored in Swanson Lake, which is 4,543 acre-feet above the top of conservation capacity. This storage, river flows, and the inflows furnished full water supplies to project lands served by the Meeker-Driftwood and Bartley Canal systems. The Frenchman-Cambridge Irrigation District diverted 31,212 acre-feet into Meeker-Driftwood Canal to irrigate 15,839 acres and 8,879 acre-feet into Bartley Canal for 6,281 acres.

The precipitation of 19.15 inches at Red Willow Dam was 97 percent of normal, while the inflow of 16,484 acre-feet into Hugh Butler Lake was below the dry-year forecast. The reservoir's maximum water surface elevation for the year was 2580.67 feet, reached on May 30 (1.13 foot below top of conservation). The water supply was adequate to meet the diversion requirements for Red Willow Canal. The district diverted 8,108 acre-feet of water to irrigate 4,776 acres of land served by Red Willow Canal.

The precipitation of 17.93 inches was 93 percent of normal at Medicine Creek Dam, while the inflow of 35,320 acre-feet was below the dry-year forecast. The reservoir's conservation pool was filled on March 2 with the maximum water surface elevation for the year of 2367.46 feet reached on May 17. The water supply was adequate and 24,657 acre-feet of water was diverted to irrigate 16,492 acres of land served by the Cambridge Canal.

The Frenchman-Cambridge Rehabilitation and Betterment Program for placing laterals in pipe was continued during 1985. Pipe lateral installations on the Bartley and Red Willow Canal systems have been completed. Work is in progress on the Cambridge and Meeker-Driftwood Canal systems and 105 miles of pipe have been placed through 1985. The $5,500,000 of Rehabilitation and Betterment Loan funds have been expended and completion of the pipe laterals will be accomplished with District funds prior to the 1987 irrigation season. The pipe lateral installations reduce system losses and the time required for O&M activities.

The 1985 gross crop value from the lands served by Meeker-Driftwood, Bartley, Red Willow, and Cambridge Canals was $12,601,676, which is $90,808 more than in 1984.

1986 Outlook

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

It is estimated that 16,160 acres will be served from the Meeker-Driftwood Canal; 16,720 acres will be served from the Cambridge Canal; 4,790 acres will be served from the Red Willow Canal; and 6,290 acres will be served from the Bartley Canal.

No surplus storage is expected to be available for sale as a supplemental supply to non-project lands in 1986.

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 acre-feet from Keith Sebelius Lake.

1985 Summary

The precipitation at Norton Dam was 25.08 inches, which is 123 percent of normal. The total inflow was 3,121 acre-feet, which was about the dry-year forecast. The district did not request any irrigation releases from storage; however, the district used water from privately owned irrigation wells for the fifteenth consecutive year. This was the fifth consecutive year the district has not received project water.

The city of Norton used 527 acre-feet of municipal water during 1985.

The maximum content of Keith Sebelius Lake for the year was 5,916 acre-feet, which was reached on May 29, 1985.

1986 Outlook

The district expects to deliver water to 5,200 acres if an adequate water supply is available. If 1986 is a dry year without significant run-off producing storms above Keith Sebelius Lake, it is anticipated that no irrigation releases will be made. If normal inflow into the lake and normal rainfall over the irrigated area occur in 1986, a shortage of 3,200 acre-feet may be experienced.

Requirements for the city of Norton are expected to be met in full in 1986.

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 13,350 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 28,538 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 are in the Kansas-Bostwick Irrigation District.

In accordance with the off-season flow alternative outlined in the Bureau's final environmental assessment dated December 16, 1983, releases will be 10 cubic feet per second 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 cubic feet per second or zero. At the request of the state of Nebraska, releases of 30 cubic feet per second for a maximum 5-day period may be made to relieve icing conditions in the river. An interagency study is being conducted to collect baseline data to determine the effect different release rates have on ice cover in the river channel below Harlan County Dam. When the Corp completes their operation and maintenance environmental impact statement for Harlan County Lake, the Field Working Agreement and the Statement of Objectives for Harlan County Lake will be revised.

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

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

<u>1985 Summary - Bostwick Division - Harlan County Lake Operations</u>

The precipitation at Harlan County Dam totaled 21.28 inches of rainfall, which is 102 percent of normal. The inflow (149,077 acre-feet) was between the dry- and normal-year forecasts. Releases of 10 cubic feet per second were made during January, February, and December according to the environmental assessment and the annual operating plan. The highest water surface elevation for the year was 1945.32 feet which was reached on June 11 (0.68 feet below the top of conservation). At the end of irrigation season (September 30) 247,773 acre-feet of storage remained in Harlan County Lake.

The 33,496 irrigated acres in the Bostwick Division in Nebraska and Kansas above Lovewell Dam were furnished a full water supply. In addition, 19,223 acre-feet (approximately 22 percent of total inflow) were delivered to Lovewell Reservoir through the Courtland Canal.

<u>1985 Summary - Bostwick Division - Nebraska</u>

The Bostwick Irrigation District in Nebraska diverted 51,553 acre-feet for the irrigation of 20,635 acres. The gross crop value was $6,384,090, which is $425,637 less than in 1984.

<u>1985 Summary - Bostwick Division - Kansas</u>

The 1985 precipitation at Lovewell Dam totaled 34.39 inches of rainfall, which was 139 percent of normal. The reservoir's conservation space filled on March 7. The maximum elevation of the water surface was 1587.44 feet, which was reached on May 16. Releases were made from the flood control pool during May, June, and August. The reservoir was full at the end of irrigation season so releases were made to draw the reservoir down approximately two feet to provide storage space for winter runoff.

The Kansas-Bostwick Irrigation District diverted a total of 60,331 acre-feet to serve 12,861 acres above Lovewell Dam and 18,549 acres below Lovewell Dam. The gross crop value was $9,082,294, which is $839,631 less than the previous year.

1986 Outlook - Bostwick Division

The Bostwick Irrigation District in Nebraska and the Kansas-Bostwick Irrigation District No. 2 expect to deliver water to 20,600 and 35,200 acres, respectively. The storage in Harlan County Lake and Lovewell Reservoir and flows of the Republican River and White Rock Creek are expected to furnish an adequate water supply for the Bostwick lands.

Inflow to Lovewell Reservoir from the Courtland Canal will start as necessary to allow for filling the reservoir from natural flow in the Republican River without storage releases from Harlan County Lake.

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.

1985 Summary

The precipitation totaled 32.88 inches, which was 147 percent of normal. The inflow (17,237 acre-feet) was between the dry- and normal-year forecast. 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.

1986 Outlook

The district estimates that 7,000 acres may be irrigated in 1986 if irrigation water is available. 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 3,000 acre-feet 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.

1985 Summary

In 1985, the precipitation at Webster Dam was 98 percent of normal (23.29 inches). The inflow of 6,355 acre-feet was below the dry-year forecast.

On May 1 at the beginning of the irrigation season, the carryover storage was determined by the Bureau and the district to be inadequate for irrigation. Irrigators with private wells provided water for part of the project lands, although Osborne Canal was not in operation during the season.

1986 Outlook

The carryover storage and the flows in the South Fork of the Solomon River are expected to be adequate under normal- or wet-year forecasts to irrigate 4,500 acres in the district in 1986. However, if below dry-year inflows continue a severe shortage may be experienced.

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 the Bureau. Releases are made for the city of Beloit, temporary short-term water service contracts, and water right administration. The water service contract with Beloit, Kansas, provides for the annual use of up to 2,000 acre-feet 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 WCH&T Rural Water District No. 2 provides for use of storage water as available from Waconda Lake. Water usage is not to exceed 1,009 acre-feet per calendar year.

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. This level will be varied from 0 to 5 feet below the top of conservation capacity.

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.

1985 Summary

The precipitation at Glen Elder Dam was 92 percent of normal (23.35 inches). The inflow (93,032 acre-feet) was between dry- and normal-year forecasts. Storage releases of 148 acre-feet were made for Beloit and 4,480 acre-feet was bypassed for quality control as directed by the State Water Commissioner. Other controlled releases were 13,369 acre-feet. This amount includes 1,520 acre-feet purchased by irrigators under temporary contracts. Releases of 592 acre-feet were made to the WCH&T Rural Water District No. 2.

1986 Outlook

The municipal requirement of Beloit and the requirements of the WCH&T 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. Waconda Lake storage water will be available to natural flow appropriators under short-term water service contracts. To minimize ice damage, the reservoir will be regulated to maintain a constant level during the months the reservoir is ice-covered.

During 1986, Waconda Lake will be operated with a stable or slowly rising pool early in the year. Under dry- or normal-year conditions, the lake will be maintained at about 3.0 to 4.0 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 provide a water supply for the 6,800 acres in the Cedar Bluff Irrigation District. If required Cedar Bluff storage also furnishes a maximum of 2,000 acre-feet 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.

1985 Summary

The precipitation was 22.79 inches which is 103 percent of normal. The inflow (3,868 acre-feet) was below the dry-year forecast. The year's high content of 22,257 acre-feet was reached on February 26 and was 13,063 acre-feet below the bottom of active storage. Due to continuing low water levels, no irrigation releases were made in 1985 (seventh consecutive year). The state of Kansas used the fish hatchery facility with 341 acre-feet released to the facility. No releases were made for the city of Russell.

1986 Outlook

The reservoir elevation of 2098.65 feet on December 31, 1985, is in the inactive pool. With dry-year inflows, the total irrigation demand of 21,100 acre-feet would be shorted. With normal-year conditions, a serious shortage of about 12,500 acre-feet would be experienced. Unless significant runoff producing storms occur in early spring, no irrigation releases are anticipated. The fish hatchery facility is expected to use approximately 300 acre-feet of water.

A P P E N D I X

TABLE 1
RESERVOIR DATA - NIOBRARA, LOWER PLATTE AND KANSAS RIVER BASINS

RESERVOIR		DEAD	LIVE CONSERVATION Inactive	LIVE CONSERVATION Active	FLOOD CONTROL
		CAPACITY ALLOCATIONS 1/			
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	---
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	86,630
	Net Acre-feet	6,313	4,137	27,326	48,854
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	134,740
	Net Acre-feet	2,718	2,566	30,651	98,805
Harlan County Lake	- Elevation Ft.	1885.0	1927.0	1946.0	1973.5
	Total Acre-feet	0	134,661	327,639	825,782
	Net Acre-feet	0	134,661	192,978	498,143
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.)		55,224	331,839	1,582,157	3,936,730
Total Net Acre-feet		55,224	276,615	1,250,318	2,354,573

1/ Includes space for sediment storage.

TABLE 2
SUMMARY OF 1985 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.	1,634	56	69	0.27	10,482	0	0
Feb.	1,345	52	79	0.00	11,696	0	0
Mar.	2,488	61	154	0.15	13,969	0	0
Apr.	1,361	58	358	0.94	14,914	0	0
May	1,118	60	556	1.77	15,416	0	0
June	0	3,102	1,027	0.95	11,287	3,057	1,124
July	1,098	8,055	423	2.00	3,907	7,972	3,677
Aug.	1,131	4,167	142	0.61	729	4,268	2,140
Sept.	1,388	46	53	2.25	2,018	0	0
Oct.	1,965	45	135	0.98	3,803	0	0
Nov.	1,060	46	53	1.51	4,764	0	0
Dec.	1,513	48	61	0.15	6,168	0	0
TOTAL	16,101	15,796	3,110	11.58	---	15,297	6,941

NOTE.--Mirage Flats Canal:
Acres irrigated 1985 -- 10,828

SANDHILLS DIVISION
AINSWORTH UNIT

	MERRITT RESERVOIR					AINSWORTH 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.	15,271	15,025	246	0.42	68,831	0	0
Feb.	15,196	14,331	307	0.05	69,389	0	0
Mar.	17,913	17,482	431	0.60	69,389	0	0
Apr.	15,991	8,091	740	1.35	76,549	0	0
May	16,532	18,678	1,637	2.26	72,766	3,441	379
June	14,044	16,106	1,315	2.30	69,389	11,763	6,421
July	15,2[illegible]3	34,207	1,321	2.81	49,074	32,431	25,265
Aug.	17,654	15,008	930	3.47	50,790	13,663	8,357
Sept.	16,317	9,600	1,020	3.26	56,487	7,887	5,171
Oct.	16,644	3,546	754	0.89	68,831	0	0
Nov.	14,550	14,499	322	1.37	68,560	0	0
Dec.	15,370	14,777	322	0.81	68,831	0	0
TOTAL	190,695	181,350	9,345	19.59	---	69,185	45,593

NOTE.--Ainsworth Canal:
Acres irrigated 1985 -- 31,427

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)	Diversion 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	426	1,309	86	0.12	52,241	0	0
Feb.	0	0	0	0	463	1,291	119	0.38	51,294	0	0
Mar.	0	0	0	0	595	1,309	233	0.63	50,347	0	0
Apr.	0	0	0	13,821	10,879	1,303	428	4.07	59,495	0	0
May	0	0	1,990	11,242	11,848	1,533	1,022	5.40	68,788	0	0
June	2,212	194	5,248	13,486	11,284	9,796	1,200	3.33	69,076	7,970	309
July	12,492	6,854	10,602	18,722	18,119	29,304	1,216	5.64	56,675	27,902	13,941
Aug.	8,174	5,539	6,252	18,107	16,907	12,440	864	1.70	60,278	11,857	4,083
Sept.	2,097	998	3,291	0	484	7,146	650	4.70	52,966	6,448	4,293
Oct.	0	0	0	0	646	1,083	761	1.15	51,768	0	0
Nov.	0	0	0	0	233	1,303	114	0.54	50,584	0	0
Dec.	0	0	0	0	488	1,309	113	0.39	49,650	0	0
TOTAL	24,975	13,585	27,383	75,378	72,372	69,126	6,806	28.05	---	54,177	22,626

1/ Non-Project.

NOTE.--Sargent Canal:
Acres irrigated 1985 -- 12,636

Middle Loup P. P. Canals:
Acres irrigated 1985 -- 14,276

Farwell Canals:
Acres irrigated 1985 -- 46,095

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)	Industrial Uses (AF) 1/
Jan.	1,561	772	180	0.39	37,847	0	1
Feb.	1,732	1,444	193	0.45	37,942	0	0
Mar.	1,453	545	310	0.37	38,540	0	0
Apr.	1,687	395	762	0.95	39,070	0	0
May	2,170	375	905	3.91	39,960	0	0
June	540	774	1,145	1.24	38,581	397	0
July	1,486	1,569	1,203	3.73	37,295	1,208	0
Aug.	146	1,206	990	0.58	35,245	873	0
Sept.	296	563	624	1.43	34,354	226	0
Oct.	1,244	335	408	0.82	34,855	0	0
Nov.	1,169	215	345	0.60	35,464	0	0
Dec.	1,739	1,197	189	0.53	35,817	0	0
TOTAL	15,223	9,390	7,254	15.00	---	2,704	1

1/ Total use for calendar year was 0.39 acre-feet.

TABLE 2
SUMMARY OF 1985 OPERATIONS

FRENCHMAN-CAMBRIDGE DIVISION
FRENCHMAN UNIT

MONTH	ENDERS RESERVOIR Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	CULBERTSON CANAL Diversions To Canal (AF)	Delivered To Farms (AF)	CULBERTSON EXT. CANAL Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	2,415	61	84	0.31	24,660	0	0	0	0
Feb.	2,159	56	93	0.09	26,670	0	0	0	0
Mar.	1,806	61	183	0.31	28,232	0	0	0	0
Apr.	2,069	60	449	2.27	29,792	1,567	91	0	0
May	1,928	61	561	2.94	31,098	1,869	284	1,503	0
June	1,437	2,623	728	0.86	29,184	1,175	531	2,395	46
July	2,799	9,693	725	5.36	21,565	3,130	2,100	5,990	2,350
Aug.	2,204	10,276	446	0.80	13,047	4,075	2,737	6,604	3,828
Sept.	2,091	77	238	1.53	14,823	272	97	420	105
Oct.	2,334	61	146	0.76	16,950	0	0	0	0
Nov.	2,100	60	159	0.41	18,831	0	0	0	0
Dec.	2,173	61	83	0.83	20,860	0	0	0	0
TOTAL	25,515	23,150	3,895	16.47	---	12,088	5,840	16,912	6,329

NOTE:--Culbertson Canal:
Acres irrigated 1985 -- 8,540

Culbertson Extension Canal:
Acres irrigated 1985 -- 11,108

FRENCHMAN-CAMBRIDGE DIVISION (Continued)
MEEKER-DRIFTWOOD UNIT

MONTH	SWANSON LAKE Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	MEEKER-DRIFTWOOD Diversions To Canal (AF)	Delivered To Farms (AF)	BARTLEY CANAL Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	5,781	61	311	0.89	87,929	0	0	0	0
Feb.	9,081	56	342	0.24	96,612	0	0	0	0
Mar.	8,052	61	664	0.55	103,939	0	0	0	0
Apr.	7,624	60	1,734	2.86	109,769	0	0	0	0
May	8,414	61	1,820	2.77	116,302	0	0	0	0
June	1,437	5,830	2,479	1.74	109,430	3,555	553	1,227	83
July	2,240	19,826	2,664	2.63	89,180	12,054	7,213	3,146	2,225
Aug.	606	17,712	1,984	0.67	70,090	12,918	9,401	3,698	2,944
Sept.	2,224	3,297	1,301	3.83	67,716	2,685	1,613	808	579
Oct.	4,153	187	675	1.47	71,007	0	0	0	0
Nov.	4,292	60	651	0.60	74,588	0	0	0	0
Dec.	5,359	61	327	0.74	79,559	0	0	0	0
TOTAL	59,263	47,272	14,952	18.99	---	31,212	18,780	8,879	5,831

NOTE:--Meeker-Driftwood Canal:
Acres irrigated 1985 -- 15,839

Bartley Canal:
Acres irrigated 1985 -- 6,281

FRENCHMAN-CAMBRIDGE DIVISION (Continued)
RED WILLOW UNIT

MONTH	HUGH BUTLER LAKE Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	RED WILLOW CANAL Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	685	249	89	0.44	30,599	0	0
Feb.	1,848	235	101	0.23	32,111	0	0
Mar.	2,407	249	203	0.48	34,066	0	0
Apr.	1,748	236	625	2.79	34,953	0	0
May	1,904	230	712	2.76	35,915	0	0
June	1,158	1,954	901	4.14	34,218	1,154	188
July	1,039	3,669	833	2.57	30,755	3,129	1,989
Aug.	1,007	4,618	653	1.14	26,491	3,252	2,406
Sept.	853	1,008	364	2.09	25,972	573	396
Oct.	1,483	260	196	1.74	26,999	0	0
Nov.	1,042	240	205	0.40	27,596	0	0
Dec.	1,310	246	96	0.37	28,564	0	0
TOTAL	16,484	13,194	4,978	19.15	---	8,108	4,979

NOTE:--Red Willow Canal:
Acres irrigated 1985 -- 4,776

FRENCHMAN-CAMBRIDGE DIVISION (Continued)
CAMBRIDGE UNIT

MONTH	HARRY STRUNK LAKE Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	CAMBRIDGE CANAL Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	3,276	49	103	0.54	31,312	0	0
Feb.	4,324	31	120	0.11	35,485	0	0
Mar.	3,183	930	250	0.74	37,488	0	0
Apr.	3,568	2,136	797	2.74	38,123	0	0
May	4,167	3,558	879	2.67	37,853	0	0
June	3,402	2,927	1,126	3.98	37,202	3,474	249
July	2,273	6,883	1,065	2.08	31,527	8,538	5,361
Aug.	1,306	9,157	733	0.44	22,943	10,460	6,924
Sept.	1,718	2,291	402	2.93	21,968	2,185	1,134
Oct.	2,873	47	257	1.06	24,537	0	0
Nov.	2,435	51	216	0.17	26,705	0	0
Dec.	2,795	49	106	0.47	29,345	0	0
TOTAL	35,320	28,109	6,054	17.93	---	24,657	13,668

NOTE:--Cambridge Canal:
Acres irrigated 1985 -- 16,492

TABLE 2
SUMMARY OF 1985 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)
Jan.	155	42	37	1.01	4,847	42
Feb.	322	37	43	0.33	5,089	36
Mar.	232	38	82	1.62	5,201	35
Apr.	482	46	252	3.88	5,385	46
May	846	40	281	5.70	5,910	40
June	132	72	366	1.61	5,604	72
July	296	83	409	3.76	5,408	83
Aug.	269	58	282	1.85	5,337	58
Sep.	40	43	216	2.94	5,118	43
Oct.	120	26	129	1.77	5,083	25
Nov.	93	24	93	0.47	5,059	24
Dec.	134	23	46	0.14	5,124	23
TOTAL	3,121	532	2,236	25.08	---	527

NOTE.--Almena Canal:
Due to the shortage of storage water in Keith Sebelius Lake, Almena Canal was not in operation during the 1985 irrigation season.

BOSTWICK DIVISION
FRANKLIN UNIT

MONTH	HARLAN COUNTY LAKE Data from Corps of Engineers 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.	8,539	1,151	916	0.75	249,268	0	0	0	0
Feb.	15,917	802	643	0.10	263,740	0	0	0	0
Mar.	16,314	20	738	0.50	279,296	0	0	0	0
Apr.	14,926	0	2,747	2.46	291,475	0	0	0	0
May	28,740	0	3,636	5.66	316,579	0	0	0	0
June	9,937	10,106	4,580	1.93	311,830	2,493	493	457	263
July	14,390	47,284	6,052	1.85	272,884	13,270	6,315	1,542	914
Aug.	5,256	25,518	4,417	0.99	248,205	11,109	4,142	1,254	611
Sep.	10,056	5,910	4,578	4.56	247,773	3,336	1,029	217	78
Oct.	9,878	8	2,705	2.22	254,938	0	0	0	0
Nov.	7,319	0	2,382	0.08	259,875	0	0	0	0
Dec.	7,805	886	1,216	0.18	265,578	0	0	0	0
TOTAL	149,077	91,685	34,610	21.28	---	30,208	11,979	3,470	1,866

NOTE.--Franklin Canal:
Acres irrigated 1985 -- 10,388

Naponee Canal:
Acres irrigated 1985 -- 1,570

BOSTWICK DIVISION (Continued)
SUPERIOR-COURTLAND UNIT

MONTH	FRANKLIN PUMP CANAL Diversions To Canal (AF)	FRANKLIN PUMP CANAL Delivered To Farms (AF)	SUPERIOR CANAL Diversions To Canal (AF)	SUPERIOR CANAL Delivered To Farms (AF)	COURTLAND CANAL - ABOVE LOVEWELL Total Diversion (AF)	NEBRASKA USE Total (AF)	NEBRASKA USE Delivered To Farms (AF)	KANSAS USE Diversions To Canal (AF)	KANSAS USE Delivered To Farms (AF)
Jan.	0	0	0	0	0	0	0	0	0
Feb.	0	0	0	0	0	0	0	0	0
Mar.	0	0	0	0	0	0	0	0	0
Apr.	0	0	0	0	0	0	0	0	0
May	0	0	0	0	2,787	0	0	0	0
June	74	23	1,190	175	9,869	4	3	6,374	1,417
July	1,504	1,105	7,376	3,186	25,409	810	570	11,066	6,504
Aug.	1,135	710	4,711	1,156	10,195	352	219	4,993	2,069
Sep.	92	22	564	65	2,482	63	48	696	302
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
TOTAL	2,805	1,860	13,841	4,582	50,742	1,229	840	23,129	10,292

NOTE.--Franklin Pump Canal:
Acres irrigated 1985 -- 2,028
Superior Canal:
Acres irrigated 1985 -- 5,189

NOTE.--Courtland Canal--Nebraska Use:
Acres irrigated 1985 -- 1,460
Courtland Canal--Kansas Use:
Acres irrigated 1985 -- 12,861

BOSTWICK DIVISION (Continued)
COURTLAND UNIT

MONTH	LOVEWELL RESERVOIR 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.	1,250	7	153	1.06	37,600	0	0
Feb.	3,640	8	192	0.30	41,040	0	0
Mar.	2,003	9	384	1.41	42,650	0	0
Apr.	3,521	8	843	4.10	45,320	0	0
May	21,720	15,312	1,348	6.20	50,380	760	0
June	6,485	8,935	1,360	2.10	46,570	5,613	1,074
July	17,061	23,972	1,419	6.32	38,240	24,264	15,160
Aug.	19,150	14,192	878	5.35	42,320	4,310	747
Sep.	3,830	8,609	601	4.71	36,940	2,255	718
Oct.	2,383	368	465	2.09	38,490	0	0
Nov.	2,117	23	434	0.51	40,150	0	0
Dec.	2,528	11	197	0.24	42,470	0	0
TOTAL	85,688	71,454	8,274	34.39	---	37,202	17,699

NOTE.--Courtland Canal below Lovewell:
Acres irrigated 1985 -- 18,549

TABLE 2
SUMMARY OF 1985 OPERATIONS

SOLOMON DIVISION
KIRWIN UNIT
KIRWIN RESERVOIR

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)
Jan.	266	0	63	0.86	10,048
Feb.	865	0	84	0.87	10,829
Mar.	1,214	0	159	1.41	11,884
Apr.	1,118	0	446	2.67	12,556
May	4,149	0	517	5.25	16,188
June	536	0	662	1.81	16,062
July	1,102	0	864	7.02	16,300
Aug.	4,926	0	652	2.11	20,574
Sep.	818	0	546	7.58	20,846
Oct.	1,008	0	252	2.85	21,602
Nov.	603	0	266	0.40	21,939
Dec.	632	0	125	0.05	22,446
TOTAL	17,237	0	4,636	32.88	---

NOTE.--Kirwin Canal:
Due to a shortage of storage water in Kirwin Reservoir, Kirwin Canal was not in operation during the 1985 irrigation season.

SOLOMON DIVISION (Continued)
WEBSTER UNIT
WEBSTER RESERVOIR

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)
Jan.	0	0	111	1.55	12,571
Feb.	122	0	109	0.22	12,584
Mar.	784	0	208	0.90	13,160
Apr.	1,257	0	511	3.46	13,906
May	2,538	0	673	3.02	15,771
June	475	0	869	0.58	15,377
July	280	0	892	4.94	14,765
Aug.	450	0	705	3.53	14,510
Sep.	14	0	486	3.18	14,038
Oct.	111	0	228	1.25	13,921
Nov.	14	0	239	0.33	13,696
Dec.	310	0	205	0.33	13,801
TOTAL	6,355	0	5,236	23.29	---

NOTE.--Osborne Canal:
Due to the shortage of storage water in Webster Reservoir, Osborne Canal was not in operation during the 1985 irrigation season.

SOLOMON DIVISION (Continued)
GLEN ELDER UNIT

	WACONDA LAKE					OUTFLOW TO RIVER			
						City of Beloit			
MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Storage Release (AF)	Quality Bypass (AF)	Other Controlled Releases 1/ (AF)	Release To W.C.H.&T. R.W.D. No. 2 (AF)
Jan.	3,617	817	595	0.79	172,859	0	0	769	48
Feb.	11,688	737	722	0.34	183,088	0	0	693	44
Mar.	6,328	821	1,446	0.60	187,149	0	770	0	51
Apr.	9,890	791	4,150	4.44	192,098	0	744	0	47
May	29,306	748	5,079	3.45	215,577	0	688	0	60
June	4,047	1,530	6,496	1.95	211,598	0	506	967	57
July	6,724	4,785	8,303	2.42	205,234	148	0	4,571	66
Aug.	7,553	4,027	5,215	3.27	203,545	0	0	3,981	46
Sep.	4,442	1,815	4,317	3.27	201,855	0	198	1,571	46
Oct.	4,541	839	2,350	2.25	203,207	0	800	0	39
Nov.	1,677	814	1,764	0.45	202,306	0	774	0	40
Dec.	3,219	865	778	0.12	203,882	0	0	817	48
TOTAL	93,032	18,589	41,215	23.35	---	148	4,480	13,369	592

1/ Includes releases for water right administration and 1,520 acre-feet delivered under temporary contracts.

SMOKY HILL DIVISION
ELLIS UNIT
CEDAR BLUFF RESERVOIR

						STORAGES 1/			
MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Fish & Wildlife (AF)	City of Russell (AF)	Irrigation (AF)	Release To Fish Hatchery (AF)
Jan.	223	0	127	1.45	22,054	1,799	1,142	10,852	0
Feb.	290	0	138	0.34	22,206	1,827	1,154	10,964	0
Mar.	1	52	293	0.73	21,862	1,737	1,130	10,734	52
Apr.	549	114	797	1.78	21,500	1,609	1,108	10,522	114
May	565	125	833	2.51	21,107	1,473	1,083	10,290	125
June	98	47	1,018	1.24	20,140	1,325	1,005	9,549	47
July	1,266	3	1,215	7.27	20,188	1,388	1,003	9,536	3
Aug.	356	0	794	1.79	19,750	1,353	964	9,172	0
Sep.	69	0	669	4.11	19,150	1,285	914	8,690	0
Oct.	283	0	389	0.91	19,044	1,284	904	8,595	0
Nov.	57	0	261	0.48	18,840	1,262	897	8,430	0
Dec.	111	0	126	0.18	18,825	1,265	885	8,414	0
TOTAL	3,868	341	6,660	22.79	---	---	---	---	341

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 1985 irrigation season.
No releases were made for the City of Russell, Kansas.

TABLE 3
ACRES IRRIGATED IN 1985 AND ESTIMATES FOR 1986

Irrigation District and Canal	Acres With Service Available	Acres Irrigated in 1985	Estimated Acres to be Irrigated in 1986
Mirage Flats Irrigation District			
Mirage Flats Canal	11,662	10,828	10,800
Ainsworth Irrigation District			
Ainsworth Canal	34,539	31,427	31,500
Sargent Irrigation District			
Sargent Canal	13,363	12,636	13,000
Farwell Irrigation District			
Farwell Canal	50,051	46,095	49,000
Frenchman Valley Irrigation District			
Culbertson Canal	9,600	8,540	8,600
H & RW Irrigation District			
Culbertson Extension Canal	11,490	11,108	10,200
Frenchman-Cambridge Irrigation District			
Meeker-Driftwood Canal	16,476	15,839	16,160
Red Willow Canal	4,932	4,776	4,790
Bartley Canal	6,539	6,281	6,290
Cambridge Canal	17,053	16,492	16,720
Total Frenchman-Cambridge Irrigation Dist.	45,000	43,388	43,960
Almena Irrigation District			
Almena Canal	5,763	0	5,200
Bostwick Irrigation District in Nebraska			
Franklin Canal	11,116	10,388	10,100
Naponee Canal	1,737	1,570	1,700
Franklin Pump Canal	2,091	2,028	2,050
Superior Canal	5,863	5,189	5,150
Courtland Canal (Nebr.)	1,980	1,460	1,600
Total Bostwick Irrigation Dist. in Nebr.	22,787	20,635	20,600
Kansas-Bostwick Irrigation District			
Courtland Canal above Lovewell	13,350	12,861	11,700
Courtland Canal below Lovewell	28,538	18,549	23,500
Total Kansas-Bostwick Irrigation District	41,888	31,410	35,200
Kirwin Irrigation District			
Kirwin Canal	11,435	0	7,000
Webster Irrigation District			
Osborne Canal	8,500	0	4,500
Cedar Bluff Irrigation District			
Cedar Bluff Canal	6,800	0	6,800
TOTAL PROJECT USES	272,878	216,067	246,360
Non-Project Uses			
Middle Loup Public Power & I.D. Canals	15,000	14,276	14,400
Hale Ditch	700	700	700
TOTAL NON-PROJECT USES	15,700	14,976	15,100
TOTAL PROJECT AND NON-PROJECT	288,578	231,043	261,460

BOX BUTTE RESERVOIR OPERATION ESTIMATES - 1986

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	NET EVAPORATION INCHES	NET 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	24.	1.5	1.09	.1	2.	.1	.0	.0	3986.5	7.5	1.3
FEB	34.	1.9	1.15	.1	2.	.1	.0	.0	3988.7	9.2	1.7
MAR	42.	2.6	2.07	.2	2.	.1	.0	.0	3991.4	11.5	2.3
APR	34.	2.0	3.76	.3	27.	1.6	.0	.0	3991.5	11.6	.1
MAY	23.	1.4	6.32	.5	55.	3.4	.0	.0	3988.6	9.1	-2.5
JUN	17.	1.0	7.22	.4	57.	3.4	.0	.0	3984.7	6.3	-2.8
JUL	13.	.8	8.60	.4	161.	9.9	.0	5.5	3976.5	2.3	-4.0
AUG	15.	.9	7.98	.2	163.	10.0	.0	9.3	3976.5	2.3	.0
SEP	13.	.8	5.81	.2	84.	5.0	.0	4.4	3976.5	2.3	.0
OCT	16.	1.0	4.64	.1	2.	.1	.0	.0	3978.6	3.1	.8
NOV	27.	1.6	2.97	.1	2.	.1	.0	.0	3981.5	4.5	1.4
DEC	28.	1.7	1.39	.1	2.	.1	.0	.0	3984.2	6.0	1.5
TOTAL		17.2	53.00	2.7		33.9	.0	19.2			-.2
MOST PROBABLE INFLOW CONDITIONS											
JAN	29.	1.8	.99	.1	2.	.1	.0	.0	3986.9	7.8	1.6
FEB	40.	2.2	1.04	.1	2.	.1	.0	.0	3989.4	9.8	2.0
MAR	49.	3.0	1.89	.1	2.	.1	.0	.0	3992.5	12.6	2.8
APR	40.	2.4	3.41	.3	20.	1.2	.0	.0	3993.4	13.5	.9
MAY	26.	1.6	5.71	.5	18.	1.1	.0	.0	3993.4	13.5	.0
JUN	20.	1.2	6.54	.5	40.	2.4	.0	.0	3991.7	11.8	-1.7
JUL	16.	1.0	7.80	.5	138.	8.5	.0	.0	3980.1	3.8	-8.0
AUG	16.	1.0	7.23	.2	140.	8.6	.0	6.3	3976.5	2.3	-1.5
SEP	17.	1.0	5.24	.1	40.	2.4	.0	1.5	3976.5	2.3	.0
OCT	18.	1.1	4.19	.1	2.	.1	.0	.0	3978.9	3.2	.9
NOV	32.	1.9	2.70	.1	2.	.1	.0	.0	3982.3	4.9	1.7
DEC	33.	2.0	1.26	.1	2.	.1	.0	.0	3985.3	6.7	1.8
TOTAL		20.2	48.00	2.7		24.8	.0	7.8			.5
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	36.	2.2	.91	.1	2.	.1	.0	.0	3987.4	8.2	2.0
FEB	50.	2.8	.95	.1	2.	.1	.0	.0	3990.6	10.8	2.6
MAR	60.	3.7	1.72	.1	2.	.1	.0	.0	3994.2	14.3	3.5
APR	49.	2.9	3.12	.3	10.	.6	.0	.0	3996.1	16.3	2.0
MAY	34.	2.1	5.25	.5	13.	.8	.0	.0	3996.8	17.1	.8
JUN	25.	1.5	6.00	.6	27.	1.6	.0	.0	3996.2	16.4	-.7
JUL	20.	1.2	7.14	.6	104.	6.4	.0	.0	3990.4	10.6	-5.8
AUG	21.	1.3	6.63	.4	102.	6.3	.0	.0	3982.8	5.2	-5.4
SEP	20.	1.2	4.82	.2	29.	1.7	.0	.0	3981.5	4.5	-.7
OCT	23.	1.4	3.85	.2	2.	.1	.0	.0	3983.5	5.6	1.1
NOV	39.	2.3	2.46	.1	2.	.1	.0	.0	3986.8	7.7	2.1
DEC	41.	2.5	1.15	.1	2.	.1	.0	.0	3989.7	10.0	2.3
TOTAL		25.1	44.00	3.3		18.0	.0	.0			3.8

MERRITT RESERVOIR OPERATION ESTIMATES - 1986

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	NET EVAPORATION INCHES	NET 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	192.	11.8	1.13	.3	187.	11.5	.0	.0	2944.0	68.8	.0
FEB	212.	11.8	1.43	.3	207.	11.5	.0	.0	2944.0	68.8	.0
MAR	236.	14.5	1.99	.5	228.	14.0	.0	.0	2944.0	68.8	.0
APR	235.	14.0	3.31	.8	192.	11.4	.0	.0	2944.6	70.6	1.8
MAY	218.	13.4	4.79	1.1	98.	6.0	2.4	.0	2946.0	74.5	3.9
JUN	208.	12.4	6.20	1.5	155.	9.2	1.7	.0	2946.0	74.5	.0
JUL	210.	12.9	8.03	1.7	667.	41.0	.0	.0	2933.7	44.7	-29.8
AUG	210.	12.9	7.33	.8	667.	41.0	.0	.0	2911.3	15.8	-28.9
SEP	208.	12.4	5.39	.4	133.	7.9	.0	.0	2915.9	19.9	4.1
OCT	208.	12.8	3.76	.4	16.	1.0	.0	.0	2925.6	31.3	11.4
NOV	207.	12.3	2.15	.3	17.	1.0	.0	.0	2932.4	42.3	11.0
DEC	203.	12.5	1.49	.3	16.	1.0	.0	.0	2937.9	53.5	11.2
TOTAL		153.7	47.00	8.4		156.5	4.1	.0			-15.3
MOST PROBABLE INFLOW CONDITIONS											
JAN	216.	13.3	1.07	.2	213.	13.1	.0	.0	2944.0	68.8	.0
FEB	239.	13.3	1.34	.3	234.	13.0	.0	.0	2944.0	68.8	.0
MAR	267.	16.4	1.87	.4	260.	16.0	.0	.0	2944.0	68.8	.0
APR	266.	15.8	3.10	.7	224.	13.3	.0	.0	2944.6	70.6	1.8
MAY	247.	15.2	4.48	1.1	127.	7.8	2.4	.0	2946.0	74.5	3.9
JUN	237.	14.1	5.80	1.4	123.	7.3	5.4	.0	2946.0	74.5	.0
JUL	236.	14.5	7.50	1.7	493.	30.3	.0	.0	2939.4	57.0	-17.5
AUG	236.	14.5	6.85	1.2	493.	30.3	.0	.0	2931.2	40.0	-17.0
SEP	235.	14.0	5.04	.8	101.	6.0	.0	.0	2935.0	47.2	7.2
OCT	234.	14.4	3.52	.7	16.	1.0	.0	.0	2940.6	59.9	12.7
NOV	234.	13.9	2.02	.4	77.	4.6	.0	.0	2944.0	68.8	8.9
DEC	228.	14.0	1.41	.3	223.	13.7	.0	.0	2944.0	68.8	.0
TOTAL		173.4	44.00	9.2		156.4	7.8	.0			.0
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	241.	14.8	.94	.2	237.	14.6	.0	.0	2944.0	68.8	.0
FEB	266.	14.8	1.19	.3	261.	14.5	.0	.0	2944.0	68.8	.0
MAR	294.	18.1	1.65	.4	288.	17.7	.0	.0	2944.0	68.8	.0
APR	294.	17.5	2.75	.6	254.	15.1	.0	.0	2944.6	70.6	1.8
MAY	273.	16.8	3.97	.9	114.	7.0	5.0	.0	2946.0	74.5	3.9
JUN	262.	15.6	5.15	1.2	81.	4.8	9.6	.0	2946.0	74.5	.0
JUL	263.	16.2	6.66	1.6	324.	19.9	.0	.0	2944.1	69.2	-5.3
AUG	263.	16.2	6.08	1.4	324.	19.9	.0	.0	2942.2	64.1	-5.1
SEP	262.	15.6	4.47	1.0	166.	9.9	.0	.0	2944.0	68.8	4.7
OCT	260.	16.0	3.12	.7	249.	15.3	.0	.0	2944.0	68.8	.0
NOV	260.	15.5	1.78	.4	254.	15.1	.0	.0	2944.0	68.8	.0
DEC	254.	15.6	1.24	.3	249.	15.3	.0	.0	2944.0	68.8	.0
TOTAL		192.7	39.00	9.0		169.1	14.6	.0			.0

SHERMAN RESERVOIR OPERATION ESTIMATES - 1986

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	NET EVAPORATION INCHES	NET 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	.65	.1	21.	1.3	.0	.0	2154.2	48.3	-1.4
FEB	0.	.0	.71	.1	23.	1.3	.0	.0	2153.6	46.9	-1.4
MAR	0.	.0	1.59	.3	21.	1.3	.0	.0	2152.9	45.3	-1.6
APR	252.	15.0	3.85	.8	22.	1.3	.0	.0	2158.3	58.2	12.9
MAY	215.	13.2	3.74	.8	24.	1.5	.0	.0	2162.3	69.1	10.9
JUN	277.	16.5	4.67	1.1	259.	15.4	.0	.0	2162.3	69.1	.0
JUL	47.	2.9	7.91	1.3	1210.	74.4	.0	14.2	2129.0	10.5	-58.6
AUG	197.	12.1	7.12	.5	1205.	74.1	.0	62.5	2129.0	10.5	.0
SEP	424.	25.2	4.27	.4	245.	14.6	.0	.0	2138.6	20.7	10.2
OCT	177.	10.9	4.16	.5	18.	1.1	.0	.0	2144.9	30.0	9.3
NOV	0.	.0	2.26	.3	22.	1.3	.0	.0	2143.9	28.4	-1.6
DEC	0.	.0	.79	.1	21.	1.3	.0	.0	2143.0	27.0	-1.4
TOTAL		95.8	41.72	6.3		188.9	.0	76.7			-22.7
MOST PROBABLE INFLOW CONDITIONS											
JAN	0.	.0	.43	.1	21.	1.3	.0	.0	2154.2	48.3	-1.4
FEB	0.	.0	.60	.1	23.	1.3	.0	.0	2153.6	46.9	-1.4
MAR	0.	.0	1.19	.2	21.	1.3	.0	.0	2152.9	45.4	-1.5
APR	235.	14.0	2.08	.4	22.	1.3	.0	.0	2158.1	57.7	12.3
MAY	218.	13.4	2.22	.5	24.	1.5	.0	.0	2162.3	69.1	11.4
JUN	141.	8.4	3.32	.8	128.	7.6	.0	.0	2162.3	69.1	.0
JUL	194.	11.9	5.59	1.0	883.	54.3	.0	.0	2142.2	25.7	-43.4
AUG	309.	19.0	5.12	.5	862.	53.0	.0	19.3	2129.0	10.5	-15.2
SEP	464.	27.6	3.23	.3	129.	7.7	.0	.0	2144.9	30.1	19.6
OCT	0.	.0	3.81	.5	18.	1.1	.0	.0	2144.0	28.5	-1.6
NOV	0.	.0	1.76	.2	22.	1.3	.0	.0	2143.0	27.0	-1.5
DEC	0.	.0	.58	.1	21.	1.3	.0	.0	2142.1	25.6	-1.4
TOTAL		94.3	29.93	4.7		133.0	.0	19.3			-24.1
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	0.	.0	.21	.0	21.	1.3	.0	.0	2154.3	48.4	-1.3
FEB	0.	.0	.32	.1	23.	1.3	.0	.0	2153.6	47.0	-1.4
MAR	0.	.0	.42	.1	21.	1.3	.0	.0	2153.0	45.6	-1.4
APR	218.	13.0	.59	.1	22.	1.3	.0	.0	2157.9	57.2	11.6
MAY	220.	13.5	.39	.1	24.	1.5	.0	.0	2162.3	69.1	11.9
JUN	97.	5.8	.91	.2	94.	5.6	.0	.0	2162.3	69.1	.0
JUL	384.	23.6	4.82	1.1	605.	37.2	.0	.0	2156.8	54.4	-14.7
AUG	207.	12.7	4.02	.7	584.	35.9	.0	.0	2145.2	30.5	-23.9
SEP	454.	27.0	2.14	.4	96.	5.7	.0	.0	2155.5	51.4	20.9
OCT	0.	.0	3.37	.7	18.	1.1	.0	.0	2154.8	49.6	-1.8
NOV	0.	.0	.40	.1	22.	1.3	.0	.0	2154.2	48.2	-1.4
DEC	0.	.0	.24	.0	21.	1.3	.0	.0	2153.6	46.9	-1.3
TOTAL		95.6	17.83	3.6		94.8	.0	.0			-2.8

CALAMUS RESERVOIR OPERATION ESTIMATES - 1986

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	NET EVAPORATION INCHES	NET 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	267.	16.4	.65	.1	101.	6.2	.0	.0	2210.8	21.3	10.1
FEB	288.	16.0	.71	.1	119.	6.6	.0	.0	2216.4	30.6	9.3
MAR	309.	19.0	1.59	.3	140.	8.6	.0	.0	2220.7	40.7	10.1
APR	304.	18.1	3.85	.9	123.	7.3	.0	.0	2224.4	50.6	9.9
MAY	294.	18.1	3.74	.9	155.	9.5	.0	.0	2227.0	58.3	7.7
JUN	289.	17.2	4.67	1.2	269.	16.0	.0	.0	2227.0	58.3	.0
JUL	254.	15.6	7.91	2.0	254.	15.6	.0	.0	2226.4	56.3	-2.0
AUG	254.	15.6	7.12	1.8	254.	15.6	.0	.0	2225.8	54.5	-1.8
SEP	262.	15.6	4.27	1.1	262.	15.6	.0	.0	2225.4	53.4	-1.1
OCT	263.	16.2	4.16	1.1	93.	5.7	.0	.0	2228.4	62.8	9.4
NOV	269.	16.0	2.26	.6	99.	5.9	.0	.0	2231.2	72.3	9.5
DEC	260.	16.0	.79	.2	89.	5.5	.0	.0	2234.0	82.6	10.3
TOTAL		199.8	41.72	10.3		118.1	.0	.0			71.4
MOST PROBABLE INFLOW CONDITIONS											
JAN	286.	17.6	.43	.0	122.	7.5	.0	.0	2210.8	21.3	10.1
FEB	308.	17.1	.60	.1	139.	7.7	.0	.0	2216.4	30.6	9.3
MAR	330.	20.3	1.19	.2	163.	10.0	.0	.0	2220.7	40.7	10.1
APR	328.	19.5	2.08	.5	153.	9.1	.0	.0	2224.4	50.6	9.9
MAY	317.	19.5	2.22	.6	182.	11.2	.0	.0	2227.0	58.3	7.7
JUN	311.	18.5	3.32	.9	296.	17.6	.0	.0	2227.0	58.3	.0
JUL	272.	16.7	5.59	1.4	272.	16.7	.0	.0	2226.6	56.9	-1.4
AUG	272.	16.7	5.12	1.3	272.	16.7	.0	.0	2226.1	55.6	-1.3
SEP	281.	16.7	3.23	.8	281.	16.7	.0	.0	2225.9	54.8	-.8
OCT	283.	17.4	3.81	1.0	137.	8.4	.0	.0	2228.4	62.8	8.0
NOV	287.	17.1	1.76	.5	119.	7.1	.0	.0	2231.2	72.3	9.5
DEC	278.	17.1	.58	.2	107.	6.6	.0	.0	2234.0	82.6	10.3
TOTAL		214.2	29.93	7.5		135.3	.0	.0			71.4
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	320.	19.7	.21	.0	156.	9.6	.0	.0	2210.8	21.3	10.1
FEB	346.	19.2	.32	.0	178.	9.9	.0	.0	2216.4	30.6	9.3
MAR	371.	22.8	.42	.1	205.	12.6	.0	.0	2220.7	40.7	10.1
APR	366.	21.8	.59	.1	198.	11.8	.0	.0	2224.4	50.6	9.9
MAY	355.	21.8	.39	.1	228.	14.0	.0	.0	2227.0	58.3	7.7
JUN	346.	20.6	.91	.2	343.	20.4	.0	.0	2227.0	58.3	.0
JUL	306.	18.8	4.82	1.2	306.	18.8	.0	.0	2226.6	57.1	-1.2
AUG	306.	18.8	4.02	1.0	306.	18.8	.0	.0	2226.3	56.1	-1.0
SEP	316.	18.8	2.14	.5	316.	18.8	.0	.0	2226.1	55.6	-.5
OCT	316.	19.4	3.37	.9	184.	11.3	.0	.0	2228.4	62.8	7.2
NOV	323.	19.2	.40	.1	161.	9.6	.0	.0	2231.2	72.3	9.5
DEC	312.	19.2	.24	.1	143.	8.8	.0	.0	2234.0	82.6	10.3
TOTAL		240.1	17.83	4.3		164.4	.0	.0			71.4

BONNY RESERVOIR OPERATION ESTIMATES - 1986

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	NET EVAPORATION INCHES	NET EVAPORATION 1000 AF	RELEASE REQUIREMENT HALE 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	21.	1.3	1.45	.2	.0	1.1	18.	1.1	.0	.0	3669.1	35.8	.0
FEB	22.	1.2	1.55	.2	.0	1.0	18.	1.0	.0	.0	3669.1	35.8	.0
MAR	24.	1.5	2.45	.4	.0	.3	5.	.3	.0	.0	3669.6	36.6	.8
APR	25.	1.5	4.30	.7	.3	.3	10.	.6	.0	.0	3669.7	36.8	.2
MAY	39.	2.4	5.35	.8	.9	.3	20.	1.2	.0	.0	3669.9	37.2	.4
JUN	32.	1.9	6.95	1.1	.9	.3	20.	1.2	.0	.0	3669.7	36.8	-.4
JUL	24.	1.5	8.30	1.3	.9	.3	20.	1.2	.0	.0	3669.1	35.8	-1.0
AUG	15.	.9	7.00	1.1	.8	.3	18.	1.1	.0	.0	3668.4	34.5	-1.3
SEP	12.	.7	5.20	.8	.6	.3	15.	.9	.0	.0	3667.9	33.5	-1.0
OCT	15.	.9	5.05	.8	.5	.3	13.	.8	.0	.0	3667.5	32.8	-.7
NOV	22.	1.3	3.05	.5	.3	.3	10.	.6	.0	.0	3667.6	33.0	.2
DEC	21.	1.3	1.85	.3	.0	1.0	16.	1.0	.0	.0	3667.6	33.0	.0
TOTAL		16.4	52.50	8.2	5.2	5.8		11.0	.0	.0			-2.8
MOST PROBABLE INFLOW CONDITIONS													
JAN	26.	1.6	1.20	.2	.0	1.4	23.	1.4	.0	.0	3669.1	35.8	.0
FEB	27.	1.5	1.40	.2	.0	1.3	23.	1.3	.0	.0	3669.1	35.8	.0
MAR	33.	2.0	1.85	.3	.0	.3	5.	.3	.0	.0	3669.9	37.2	1.4
APR	34.	2.0	2.80	.4	.4	.3	12.	.7	.0	.0	3670.4	38.1	.9
MAY	52.	3.2	3.00	.5	.6	.3	15.	.9	.0	.0	3671.3	39.9	1.8
JUN	42.	2.5	4.60	.8	.6	.3	15.	.9	.0	.0	3671.7	40.7	.8
JUL	29.	1.8	6.25	1.1	.4	.3	11.	.7	.0	.0	3671.7	40.7	.0
AUG	21.	1.3	6.10	1.0	.4	.3	11.	.7	.0	.0	3671.5	40.3	-.4
SEP	15.	.9	4.30	.7	.6	.3	15.	.9	.0	.0	3671.1	39.6	-.7
OCT	20.	1.2	4.55	.7	.6	.3	15.	.9	.0	.0	3670.9	39.2	-.4
NOV	27.	1.6	2.80	.5	.2	.3	8.	.5	.0	.0	3671.2	39.8	.6
DEC	26.	1.6	1.55	.3	.0	1.3	21.	1.3	.0	.0	3671.2	39.8	.0
TOTAL		21.2	40.40	6.7	3.8	6.7		10.5	.0	.0			4.0
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	44.	2.7	.90	.1	.0	2.6	42.	2.6	.0	.0	3669.1	35.8	.0
FEB	47.	2.6	1.25	.2	.0	2.4	43.	2.4	.0	.0	3669.1	35.8	.0
MAR	52.	3.2	1.35	.2	.0	.3	5.	.3	.0	.0	3670.6	38.5	2.7
APR	55.	3.3	2.40	.4	.3	.3	10.	.6	.0	.0	3671.7	40.8	2.3
MAY	86.	5.3	2.05	.3	.5	.3	13.	.8	3.7	.0	3672.0	41.3	.5
JUN	69.	4.1	2.50	.4	.2	.3	8.	.5	3.2	.0	3672.0	41.3	.0
JUL	50.	3.1	5.05	.9	.2	.3	8.	.5	1.7	.0	3672.0	41.3	.0
AUG	36.	2.2	4.00	.7	.4	.3	11.	.7	.8	.0	3672.0	41.3	.0
SEP	24.	1.4	3.20	.5	.4	.3	12.	.7	.2	.0	3672.0	41.3	.0
OCT	33.	2.0	3.40	.6	.3	.3	10.	.6	.8	.0	3672.0	41.3	.0
NOV	47.	2.8	2.60	.4	.3	.3	10.	.6	1.8	.0	3672.0	41.3	.0
DEC	44.	2.7	1.30	.2	.0	.3	5.	.3	2.2	.0	3672.0	41.3	.0
TOTAL		35.4	30.00	4.9	2.6	8.0		10.6	14.4	.0			5.5

ENDERS RESERVOIR OPERATION ESTIMATES - 1986

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	NET EVAPORATION INCHES	NET 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	42.	2.6	1.05	.1	0.	.0	.0	.0	3097.4	23.4	2.5
FEB	43.	2.4	1.20	.1	0.	.0	.0	.0	3099.3	25.7	2.3
MAR	42.	2.6	1.95	.2	3.	.2	.0	.0	3101.1	27.9	2.2
APR	39.	2.3	4.10	.4	3.	.2	.0	.0	3102.4	29.6	1.7
MAY	39.	2.4	4.65	.5	50.	3.1	.0	.0	3101.5	28.4	-1.2
JUN	44.	2.6	5.25	.6	59.	3.5	.0	.0	3100.3	26.9	-1.5
JUL	39.	2.4	8.60	.7	322.	19.8	.0	1.2	3082.4	10.0	-16.9
AUG	37.	2.3	6.85	.4	303.	18.6	.0	16.7	3082.4	10.0	.0
SEP	40.	2.4	5.50	.3	114.	6.8	.0	4.7	3082.4	10.0	.0
OCT	37.	2.3	4.60	.3	2.	.1	.0	.0	3085.2	11.9	1.9
NOV	42.	2.5	2.65	.2	0.	.0	.0	.0	3088.1	14.2	2.3
DEC	41.	2.5	1.20	.1	0.	.0	.0	.0	3090.8	16.6	2.4
TOTAL		29.3	47.60	3.9		52.3	.0	22.6			-4.3
MOST PROBABLE INFLOW CONDITIONS											
JAN	52.	3.2	.75	.1	0.	.0	.0	.0	3097.9	24.0	3.1
FEB	54.	3.0	.95	.1	0.	.0	.0	.0	3100.3	26.9	2.9
MAR	54.	3.3	1.35	.1	3.	.2	.0	.0	3102.6	29.9	3.0
APR	49.	2.9	2.60	.3	3.	.2	.0	.0	3104.4	32.3	2.4
MAY	52.	3.2	3.00	.4	11.	.7	.0	.0	3105.9	34.4	2.1
JUN	57.	3.4	3.55	.4	13.	.8	.0	.0	3107.4	36.6	2.2
JUL	52.	3.2	5.90	.7	229.	14.1	.0	.0	3098.7	25.0	-11.6
AUG	47.	2.9	6.50	.5	242.	14.9	.0	.0	3086.0	12.5	-12.5
SEP	50.	3.0	3.45	.2	49.	2.9	.0	.0	3085.8	12.4	-.1
OCT	49.	3.0	4.30	.3	0.	.0	.0	.0	3089.2	15.1	2.7
NOV	52.	3.1	2.30	.2	0.	.0	.0	.0	3092.3	18.0	2.9
DEC	52.	3.2	.90	.1	0.	.0	.0	.0	3095.3	21.1	3.1
TOTAL		37.4	35.55	3.4		33.8	.0	.0			.2
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	63.	3.9	.55	.1	0.	.0	.0	.0	3098.5	24.7	3.8
FEB	63.	3.5	.30	.0	0.	.0	.0	.0	3101.3	28.2	3.5
MAR	63.	3.9	.95	.1	3.	.2	.0	.0	3104.0	31.8	3.6
APR	59.	3.5	.80	.1	3.	.2	.0	.0	3106.3	35.0	3.2
MAY	60.	3.7	1.25	.2	3.	.2	.0	.0	3108.5	38.3	3.3
JUN	67.	4.0	2.40	.3	3.	.2	.0	.0	3110.7	41.8	3.5
JUL	59.	3.6	4.35	.6	130.	8.0	.0	.0	3107.5	36.8	-5.0
AUG	54.	3.3	4.50	.5	145.	8.9	.0	.0	3103.2	30.7	-6.1
SEP	57.	3.4	2.30	.3	20.	1.2	.0	.0	3104.6	32.6	1.9
OCT	55.	3.4	3.35	.4	0.	.0	.0	.0	3106.7	35.6	3.0
NOV	61.	3.6	1.90	.2	0.	.0	.0	.0	3108.9	39.0	3.4
DEC	60.	3.7	.65	.1	0.	.0	.0	.0	3111.2	42.6	3.6
TOTAL		43.5	23.30	2.9		18.9	.0	.0			21.7

SWANSON LAKE OPERATION ESTIMATES - 1986

MONTH	UNDEPLETED INFLOW 1000 AF	UPSTREAM DEPLETIONS 1000 AF	DEPLETED INFLOW MEAN CFS	DEPLETED INFLOW 1000 AF	NET EVAPORATION INCHES	NET 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	3.4	.0	55.	3.4	1.05	.4	2.	.1	.0	.0	2745.4	82.5	2.9
FEB	4.9	.0	88.	4.9	1.20	.4	2.	.1	.0	.0	2746.5	86.9	4.4
MAR	7.4	.0	120.	7.4	1.95	.7	2.	.1	.0	.0	2748.0	93.5	6.6
APR	6.8	.0	114.	6.8	3.85	1.4	2.	.1	.0	.0	2749.2	98.8	5.3
MAY	7.2	.0	117.	7.2	4.10	1.6	102.	6.3	.0	.0	2749.0	98.1	-.7
JUN	6.4	.0	108.	6.4	5.20	2.0	118.	7.0	.0	.0	2748.4	95.5	-2.6
JUL	5.0	.0	81.	5.0	7.70	2.7	353.	21.7	.0	.0	2743.9	76.1	-19.4
AUG	3.4	.0	55.	3.4	6.90	2.1	348.	21.4	.0	.0	2738.4	56.0	-20.1
SEP	1.7	.0	29.	1.7	5.25	1.4	200.	11.9	.0	.0	2734.7	44.4	-11.6
OCT	2.0	.0	33.	2.0	4.60	1.1	63.	3.9	.0	.0	2733.7	41.4	-3.0
NOV	3.2	.0	54.	3.2	2.70	.7	2.	.1	.0	.0	2734.5	43.8	2.4
DEC	3.2	.0	52.	3.2	1.30	.3	2.	.1	.0	.0	2735.4	46.6	2.8
TOTAL	54.6	.0		54.6	45.80	14.8		72.8	.0	.0			-33.0
MOST PROBABLE INFLOW CONDITIONS													
JAN	5.1	.0	83.	5.1	.75	.3	2.	.1	.0	.0	2745.9	84.3	4.7
FEB	7.5	.0	135.	7.5	1.00	.4	2.	.1	.0	.0	2747.5	91.3	7.0
MAR	11.2	.0	182.	11.2	1.40	.5	2.	.1	.0	.0	2749.8	101.9	10.6
APR	10.2	.0	171.	10.2	2.40	1.0	2.	.1	.0	.0	2751.7	111.0	9.1
MAY	10.8	.0	176.	10.8	2.10	.9	23.	1.4	7.3	.0	2752.0	112.2	1.2
JUN	9.5	.0	160.	9.5	3.70	1.5	27.	1.6	6.4	.0	2752.0	112.2	.0
JUL	7.6	.0	124.	7.6	6.10	2.4	270.	16.6	.0	.0	2749.6	100.8	-11.4
AUG	5.1	.0	83.	5.1	5.70	2.1	301.	18.5	.0	.0	2746.1	85.3	-15.5
SEP	2.5	.0	42.	2.5	3.40	1.2	89.	5.3	.0	.0	2745.1	81.3	-4.0
OCT	3.0	.0	49.	3.0	4.30	1.5	26.	1.6	.0	.0	2745.1	81.2	-.1
NOV	4.7	.0	79.	4.7	2.10	.7	2.	.1	.0	.0	2746.1	85.1	3.9
DEC	4.8	.0	78.	4.8	1.10	.4	2.	.1	.0	.0	2747.0	89.4	4.3
TOTAL	82.0	.0		82.0	34.05	12.9		45.6	13.7	.0			9.8
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	8.6	.0	140.	8.6	.55	.2	2.	.1	.0	.0	2746.7	87.9	8.3
FEB	12.7	.0	229.	12.7	.60	.2	2.	.1	.0	.0	2749.5	100.3	12.4
MAR	18.9	.0	307.	18.9	.60	.2	2.	.1	6.7	.0	2752.0	112.2	11.9
APR	17.4	.0	292.	17.4	.60	.2	2.	.1	17.1	.0	2752.0	112.2	.0
MAY	18.3	.0	298.	18.3	.80	.3	13.	.8	17.2	.0	2752.0	112.2	.0
JUN	16.1	.0	271.	16.1	1.90	.8	17.	1.0	14.3	.0	2752.0	112.2	.0
JUL	13.0	.0	211.	13.0	4.00	1.6	146.	9.0	2.4	.0	2752.0	112.2	.0
AUG	8.6	.0	140.	8.6	5.00	2.0	169.	10.4	.0	.0	2751.2	108.4	-3.8
SEP	4.1	.0	69.	4.1	2.40	1.0	30.	1.8	.0	.0	2751.5	109.7	1.3
OCT	5.1	.0	83.	5.1	3.80	1.5	15.	.9	.2	.0	2752.0	112.2	2.5
NOV	8.2	.0	138.	8.2	1.60	.7	2.	.1	7.4	.0	2752.0	112.2	.0
DEC	8.2	.0	133.	8.2	.65	.3	2.	.1	7.8	.0	2752.0	112.2	.0
TOTAL	139.2	.0		139.2	22.50	9.0		24.5	73.1	.0			32.6

HUGH BUTLER LAKE OPERATION ESTIMATES - 1986

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	NET EVAPORATION INCHES	NET 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	.92	.1	5.	.3	.0	.0	2576.1	29.3	.7
FEB	23.	1.3	1.11	.1	5.	.3	.0	.0	2576.8	30.2	.9
MAR	31.	1.9	2.01	.2	5.	.3	.0	.0	2577.8	31.6	1.4
APR	29.	1.7	4.39	.5	5.	.3	.0	.0	2578.4	32.5	.9
MAY	29.	1.8	4.45	.5	29.	1.8	.0	.0	2578.1	32.0	-.5
JUN	35.	2.1	7.01	.8	29.	1.7	.0	.0	2577.8	31.6	-.4
JUL	28.	1.7	8.45	1.0	76.	4.7	.0	.0	2574.8	27.6	-4.0
AUG	18.	1.1	6.73	.7	73.	4.5	.0	.0	2571.5	23.5	-4.1
SEP	18.	1.1	6.08	.6	37.	2.2	.0	.0	2570.0	21.8	-1.7
OCT	15.	.9	4.72	.4	13.	.8	.0	.0	2569.7	21.5	-.3
NOV	18.	1.1	2.63	.2	5.	.3	.0	.0	2570.3	22.1	.6
DEC	18.	1.1	1.20	.1	5.	.3	.0	.0	2570.9	22.8	.7
TOTAL		16.9	49.70	5.2		17.5	.0	.0			-5.8
MOST PROBABLE INFLOW CONDITIONS											
JAN	23.	1.4	.70	.1	5.	.3	.0	.0	2576.3	29.6	1.0
FEB	31.	1.7	.75	.1	5.	.3	.0	.0	2577.3	30.9	1.3
MAR	37.	2.3	1.35	.2	5.	.3	.0	.0	2578.5	32.7	1.8
APR	34.	2.0	2.70	.3	5.	.3	.0	.0	2579.5	34.1	1.4
MAY	34.	2.1	2.80	.4	15.	.9	.0	.0	2580.0	34.9	.8
JUN	44.	2.6	2.99	.4	13.	.8	.0	.0	2580.9	36.3	1.4
JUL	34.	2.1	6.09	.8	65.	4.0	.0	.0	2579.1	33.6	-2.7
AUG	23.	1.4	5.52	.7	70.	4.3	.0	.0	2576.6	30.0	-3.6
SEP	24.	1.4	3.81	.4	20.	1.2	.0	.0	2576.5	29.8	-.2
OCT	20.	1.2	3.88	.4	10.	.6	.0	.0	2576.6	30.0	.2
NOV	24.	1.4	1.84	.2	5.	.3	.0	.0	2577.3	30.9	.9
DEC	23.	1.4	.87	.1	5.	.3	.0	.0	2578.0	31.9	1.0
TOTAL		21.0	33.30	4.1		13.6	.0	.0			3.3
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	29.	1.8	.40	.0	5.	.3	.0	.0	2576.7	30.1	1.5
FEB	38.	2.1	.47	.1	5.	.3	.0	.0	2577.9	31.8	1.7
MAR	50.	3.1	.85	.1	5.	.3	.0	.0	2579.7	34.5	2.7
APR	45.	2.7	1.52	.2	5.	.3	.0	.0	2581.1	36.7	2.2
MAY	47.	2.9	1.78	.2	11.	.7	.9	.0	2581.8	37.8	1.1
JUN	57.	3.4	1.82	.2	12.	.7	2.5	.0	2581.8	37.8	.0
JUL	46.	2.8	3.42	.5	46.	2.8	.0	.0	2581.5	37.3	-.5
AUG	29.	1.8	4.12	.5	46.	2.8	.0	.0	2580.6	35.8	-1.5
SEP	30.	1.8	3.09	.4	13.	.8	.0	.0	2580.9	36.4	.6
OCT	28.	1.7	3.21	.4	7.	.4	.0	.0	2581.5	37.3	.9
NOV	30.	1.8	1.15	.2	5.	.3	.8	.0	2581.8	37.8	.5
DEC	29.	1.8	.77	.1	5.	.3	1.4	.0	2581.8	37.8	.0
TOTAL		27.7	22.60	2.9		10.0	5.6	.0			9.2

HARRY STRUNK LAKE OPERATION ESTIMATES - 1986

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	NET EVAPORATION INCHES	NET 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	37.	2.3	.76	.1	2.	.1	.0	.0	2363.6	31.4	2.1
FEB	54.	3.0	.89	.1	2.	.1	.0	.0	2365.3	34.2	2.8
MAR	65.	4.0	1.87	.3	2.	.1	2.1	.0	2366.1	35.7	1.5
APR	57.	3.4	4.23	.6	2.	.1	2.7	.0	2366.1	35.7	.0
MAY	67.	4.1	4.07	.6	57.	3.5	.0	.0	2366.1	35.7	.0
JUN	91.	5.4	5.02	.8	59.	3.5	1.1	.0	2366.1	35.7	.0
JUL	75.	4.6	8.41	1.1	220.	13.5	.0	.0	2359.8	25.7	-10.0
AUG	44.	2.7	7.42	.7	223.	13.7	.0	.0	2349.4	14.0	-11.7
SEP	34.	2.0	4.64	.3	103.	6.1	.0	.0	2344.0	9.6	-4.4
OCT	36.	2.2	4.52	.3	24.	1.5	.0	.0	2344.6	10.0	.4
NOV	39.	2.3	2.57	.2	2.	.1	.0	.0	2347.1	12.0	2.0
DEC	37.	2.3	1.10	.1	2.	.1	.0	.0	2349.6	14.1	2.1
TOTAL		38.3	45.50	5.2		42.4	5.9	.0			-15.2
MOST PROBABLE INFLOW CONDITIONS											
JAN	47.	2.9	.50	.1	2.	.1	.0	.0	2364.0	32.0	2.7
FEB	68.	3.8	.75	.1	2.	.1	.0	.0	2366.0	35.6	3.6
MAR	80.	4.9	1.40	.2	2.	.1	4.5	.0	2366.1	35.7	.1
APR	71.	4.2	2.29	.4	2.	.1	3.7	.0	2366.1	35.7	.0
MAY	83.	5.1	2.41	.4	2.	.1	4.6	.0	2366.1	35.7	.0
JUN	111.	6.6	3.57	.5	5.	.3	5.8	.0	2366.1	35.7	.0
JUL	91.	5.6	5.95	.8	171.	10.5	.0	.0	2362.7	30.0	-5.7
AUG	55.	3.4	5.33	.6	198.	12.2	.0	.0	2355.8	20.6	-9.4
SEP	42.	2.5	3.51	.3	34.	2.0	.0	.0	2356.0	20.8	.2
OCT	44.	2.7	4.14	.4	2.	.1	.0	.0	2357.8	23.0	2.2
NOV	50.	3.0	2.00	.2	2.	.1	.0	.0	2359.8	25.7	2.7
DEC	47.	2.9	.81	.1	2.	.1	.0	.0	2361.7	28.4	2.7
TOTAL		47.6	32.66	4.1		25.8	18.6	.0			-.9
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	70.	4.3	.25	.0	2.	.1	.0	.0	2364.9	33.5	4.2
FEB	101.	5.6	.40	.1	2.	.1	3.2	.0	2366.1	35.7	2.2
MAR	115.	7.1	.49	.1	2.	.1	6.9	.0	2366.1	35.7	.0
APR	103.	6.1	.65	.1	2.	.1	5.9	.0	2366.1	35.7	.0
MAY	119.	7.3	.42	.1	2.	.1	7.1	.0	2366.1	35.7	.0
JUN	161.	9.6	.98	.2	2.	.1	9.3	.0	2366.1	35.7	.0
JUL	135.	8.3	5.13	.8	91.	5.6	1.9	.0	2366.1	35.7	.0
AUG	80.	4.9	4.19	.6	106.	6.5	.0	.0	2364.9	33.5	-2.2
SEP	62.	3.7	2.33	.3	8.	.5	.7	.0	2366.1	35.7	2.2
OCT	65.	4.0	3.66	.6	2.	.1	3.3	.0	2366.1	35.7	.0
NOV	72.	4.3	.46	.1	2.	.1	4.1	.0	2366.1	35.7	.0
DEC	70.	4.3	.34	.1	2.	.1	4.1	.0	2366.1	35.7	.0
TOTAL		69.5	19.30	3.1		13.5	46.5	.0			6.4

KEITH SEBELIUS OPERATIONS ESTIMATES - 1986

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	NET EVAPORATION INCHES	NET EVAPORATION 1000 AF	RELEASE REQUIREMENT MEAN CFS	RELEASE REQUIREMENT 1000 AF	RESERVOIR SPILL 1000 AF	REQUIREMENT SHORTAGE 1000 AF	END OF MONTH ELEV FT	END OF MONTH CONT 1000 AF	RESERVOIR CHANGE 1000 AF
REASONABLE MINIMUM INFLOW CONDITIONS											
JAN	2.	.1	.95	.0	2.	.1	.0	.0	2280.1	5.1	.0
FEB	2.	.1	1.00	.0	2.	.1	.0	.0	2280.1	5.1	.0
MAR	5.	.3	1.98	.1	2.	.1	.0	.0	2280.2	5.2	.1
APR	2.	.1	4.34	.2	2.	.1	.0	.0	2279.9	5.0	-.2
MAY	5.	.3	4.10	.2	2.	.1	.0	.0	2279.9	5.0	.0
JUN	17.	1.0	7.86	.4	2.	.1	.0	.0	2280.7	5.5	.5
JUL	8.	.5	8.77	.4	104.	6.8	.0	5.3	2278.2	4.1	-1.4
AUG	3.	.2	7.38	.2	104.	6.4	.0	6.2	2277.7	3.9	-.2
SEP	3.	.2	6.12	.2	42.	2.5	.0	2.4	2277.5	3.8	-.1
OCT	2.	.1	4.66	.2	15.	.9	.0	.8	2277.1	3.6	-.2
NOV	2.	.1	2.62	.1	2.	.1	.0	.0	2276.8	3.5	-.1
DEC	2.	.1	1.22	0.0	2.	.1	.0	.0	2276.8	3.5	.0
TOTAL		3.1	51.00	2.0		17.4	.0	14.7			-1.6
MOST PROBABLE INFLOW CONDITIONS											
JAN	2.	.1	.80	.0	2.	.1	.0	.0	2280.1	5.1	.0
FEB	5.	.3	.85	.0	2.	.1	.0	.0	2280.4	5.3	.2
MAR	11.	.7	1.24	.1	2.	.1	.0	.0	2281.2	5.8	.5
APR	7.	.4	2.78	.1	2.	.1	.0	.0	2281.5	6.0	.2
MAY	13.	.8	2.55	.1	2.	.1	.0	.0	2282.4	6.6	.6
JUN	44.	2.6	3.85	.2	2.	.1	.0	.0	2285.5	8.9	2.3
JUL	23.	1.4	5.97	.4	67.	4.1	.0	.0	2281.2	5.8	-3.1
AUG	10.	.6	5.89	.2	75.	4.6	.0	2.6	2278.4	4.2	-1.6
SEP	12.	.7	4.38	.1	18.	1.1	.0	.5	2278.4	4.2	.0
OCT	5.	.3	4.14	.1	5.	.3	.0	.1	2278.4	4.2	.0
NOV	3.	.2	2.12	.1	2.	.1	.0	.0	2278.4	4.2	.0
DEC	3.	.2	1.03	.0	2.	.1	.0	.0	2278.6	4.3	.1
TOTAL		8.3	35.60	1.4		10.9	.0	3.2			-.8
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	7.	.4	.50	.0	2.	.1	.0	.0	2280.6	5.4	.3
FEB	16.	.9	.52	.0	2.	.1	.0	.0	2281.9	6.2	.8
MAR	36.	2.2	.54	.0	2.	.1	.0	.0	2284.7	8.3	2.1
APR	20.	1.2	1.43	.1	2.	.1	.0	.0	2286.0	9.3	1.0
MAY	39.	2.4	1.16	.1	2.	.1	.0	.0	2288.4	11.5	2.2
JUN	134.	8.0	2.52	.2	2.	.1	.0	.0	2294.9	19.2	7.7
JUL	73.	4.5	4.42	.6	13.	.8	.0	.0	2296.9	22.3	3.1
AUG	31.	1.9	5.23	.7	31.	1.9	.0	.0	2296.5	21.6	-.7
SEP	34.	2.0	3.07	.4	2.	.1	.0	.0	2297.4	23.1	1.5
OCT	18.	1.1	2.72	.4	2.	.1	.0	.0	2297.8	23.7	.6
NOV	7.	.4	1.25	.2	2.	.1	.0	.0	2297.9	23.8	.1
DEC	8.	.5	.64	.1	2.	.1	.0	.0	2298.1	24.1	.3
TOTAL		25.5	24.00	2.8		3.7	.0	.0			19.0

HARLAN COUNTY LAKE OPERATION ESTIMATES - 1986

MONTH	UNDEPLETED INFLOW 1000 AF	UPSTREAM DEPLETIONS 1000 AF	DEPLETED INFLOW MEAN CFS	DEPLETED INFLOW 1000 AF	NET EVAPORATION INCHES	NET 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	5.3	.0	86.	5.3	.90	.9	10.	.6	.0	.0	1941.2	269.4	3.8
FEB	8.9	.0	160.	8.9	.78	.8	11.	.6	.0	.0	1941.9	276.9	7.5
MAR	14.7	.0	239.	14.7	1.74	1.7	0.	.0	.0	.0	1943.0	289.9	13.0
APR	13.0	.0	218.	13.0	4.70	4.8	0.	.0	.0	.0	1943.7	298.1	8.2
MAY	16.9	.0	275.	16.9	4.38	4.5	202.	12.4	.0	.0	1943.7	298.1	.0
JUN	26.4	.0	444.	26.4	6.60	6.9	170.	10.1	.0	.0	1944.4	307.5	9.4
JUL	13.6	.0	221.	13.6	9.71	9.8	660.	40.6	.0	.0	1941.4	270.7	-36.8
AUG	9.0	.0	146.	9.0	8.41	7.6	722.	44.4	.0	.0	1937.4	227.7	-43.0
SEP	6.6	.0	111.	6.6	5.56	4.7	259.	15.4	.0	.0	1936.1	214.2	-13.5
OCT	6.1	.0	99.	6.1	4.52	3.7	0.	.0	.0	.0	1936.3	216.6	2.4
NOV	5.3	.0	89.	5.3	2.58	2.2	0.	.0	.0	.0	1936.6	219.7	3.1
DEC	5.1	.0	83.	5.1	1.12	.9	5.	.3	.0	.0	1937.0	223.6	3.9
TOTAL	130.9	.0		130.9	51.00	48.5		124.4	.0	.0			-42.0
					MOST PROBABLE INFLOW CONDITIONS								
JAN	9.2	.0	150.	9.2	.65	.6	10.	.6	.0	.0	1941.6	273.6	8.0
FEB	15.3	.0	275.	15.3	.61	.6	11.	.6	.0	.0	1942.8	287.7	14.1
MAR	25.3	.0	411.	25.3	1.13	1.2	0.	.0	.0	.0	1944.8	311.8	24.1
APR	22.3	.0	375.	22.3	1.31	1.4	0.	.0	5.1	.0	1946.0	327.6	15.8
MAY	29.1	.0	473.	29.1	3.27	3.6	24.	1.5	24.0	.0	1946.0	327.6	.0
JUN	45.5	.0	765.	45.5	5.46	6.0	29.	1.7	37.8	.0	1946.0	327.6	.0
JUL	23.4	.0	381.	23.4	7.70	8.4	431.	26.5	.0	.0	1945.1	316.1	-11.5
AUG	15.6	.0	254.	15.6	6.01	6.3	460.	28.3	.0	.0	1943.6	297.1	-19.0
SEP	11.5	.0	193.	11.5	4.47	4.6	97.	5.8	.0	.0	1943.7	298.2	1.1
OCT	10.6	.0	172.	10.6	3.43	3.6	0.	.0	.0	.0	1944.3	305.2	7.0
NOV	9.2	.0	155.	9.2	1.55	1.6	0.	.0	.0	.0	1944.8	312.8	7.6
DEC	8.9	.0	145.	8.9	.71	.8	10.	.6	.0	.0	1945.4	320.3	7.5
TOTAL	225.9	.0		225.9	36.30	38.7		65.6	66.9	.0			54.7
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	18.1	.0	294.	18.1	.00	.0	10.	.6	.0	.0	1942.4	283.1	17.5
FEB	30.2	.0	544.	30.2	.28	.3	11.	.6	.0	.0	1944.8	312.4	29.3
MAR	49.9	.0	812.	49.9	.70	.8	0.	.0	33.9	.0	1946.0	327.6	15.2
APR	44.0	.0	739.	44.0	.21	.2	0.	.0	43.8	.0	1946.0	327.6	.0
MAY	57.2	.0	930.	57.2	1.78	2.0	13.	.8	54.4	.0	1946.0	327.6	.0
JUN	89.7	.0	1507.	89.7	1.58	1.7	13.	.8	87.2	.0	1946.0	327.6	.0
JUL	46.1	.0	750.	46.1	6.53	7.2	99.	6.1	32.8	.0	1946.0	327.6	.0
AUG	30.8	.0	501.	30.8	3.43	3.8	104.	6.4	20.6	.0	1946.0	327.6	.0
SEP	22.7	.0	381.	22.7	3.84	4.2	25.	1.5	17.0	.0	1946.0	327.6	.0
OCT	20.9	.0	340.	20.9	2.28	2.5	0.	.0	18.4	.0	1946.0	327.6	.0
NOV	18.2	.0	306.	18.2	1.03	1.1	0.	.0	17.1	.0	1946.0	327.6	.0
DEC	17.6	.0	286.	17.6	.40	.4	10.	.6	16.6	.0	1946.0	327.6	.0
TOTAL	445.4	.0		445.4	22.06	24.2		17.4	341.8	.0			62.0

LOVEWELL RESERVOIR OPERATION ESTIMATES - 1986

MONTH	WHITE ROCK CREEK INFLOW 1000 AF	COURTLAND CANAL INFLOW 1000 AF	TOTAL INFLOW MEAN CFS	TOTAL INFLOW 1000 AF	NET EVAPORATION INCHES	NET 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	.1	.0	2.	.1	.77	.0	0.	.0	.9	.0	1582.6	41.7	-.8
FEB	.6	.0	11.	.6	.75	.2	0.	.0	.4	.0	1582.6	41.7	.0
MAR	.8	.0	13.	.8	1.69	.4	0.	.0	.4	.0	1582.6	41.7	.0
APR	.8	.0	13.	.8	3.79	.9	0.	.0	.0	.0	1582.6	41.6	-.1
MAY	2.0	5.0	114.	7.0	3.55	.9	99.	6.1	.0	.0	1582.6	41.6	.0
JUN	4.2	3.4	128.	7.6	5.84	1.5	103.	6.1	.0	.0	1582.6	41.6	.0
JUL	2.8	12.0	241.	14.8	7.75	1.8	294.	18.1	.0	.0	1580.8	36.5	-5.1
AUG	1.5	10.6	197.	12.1	6.09	1.2	343.	21.1	.0	.0	1576.6	26.3	-10.2
SEP	1.4	1.2	44.	2.6	5.15	.9	155.	9.2	.0	.0	1572.9	18.8	-7.5
OCT	.8	.0	13.	.8	3.45	.5	0.	.0	.0	.0	1573.0	19.1	.3
NOV	.3	.0	5.	.3	2.37	.4	0.	.0	.0	.0	1573.0	19.0	-.1
DEC	.1	.0	2.	.1	.96	.1	0.	.0	.0	.0	1573.0	19.0	.0
TOTAL	15.4	32.2		47.6	42.16	8.8		60.6	1.7	.0			-23.5
					MOST PROBABLE INFLOW CONDITIONS								
JAN	.4	.0	7.	.4	.50	.1	0.	.0	1.1	.0	1582.6	41.7	-.8
FEB	1.6	.0	29.	1.6	.40	.1	0.	.0	1.5	.0	1582.6	41.7	.0
MAR	1.7	.0	28.	1.7	.92	.2	0.	.0	1.5	.0	1582.6	41.7	.0
APR	1.9	.0	32.	1.9	1.97	.5	0.	.0	1.4	.0	1582.6	41.7	.0
MAY	5.1	1.2	102.	6.3	1.58	.4	34.	2.1	3.8	.0	1582.6	41.7	.0
JUN	10.2	1.2	192.	11.4	1.75	.4	35.	2.1	8.9	.0	1582.6	41.7	.0
JUL	6.7	7.2	226.	13.9	5.22	1.2	283.	17.4	.0	.0	1581.0	37.0	-4.7
AUG	3.6	6.0	156.	9.6	4.22	.9	286.	17.6	.0	.0	1577.4	28.1	-8.9
SEP	3.5	1.2	79.	4.7	3.36	.6	76.	4.5	.0	.0	1577.2	27.7	-.4
OCT	2.0	.0	33.	2.0	2.09	.4	0.	.0	.0	.0	1577.9	29.3	1.6
NOV	.6	.0	10.	.6	1.41	.3	0.	.0	.0	.0	1578.0	29.6	.3
DEC	.4	.0	7.	.4	.43	.1	0.	.0	.0	.0	1578.2	29.9	.3
TOTAL	37.7	16.8		54.5	23.85	5.2		43.7	18.2	.0			-12.6
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	1.1	.0	18.	1.1	.16	.0	0.	.0	1.9	.0	1582.6	41.7	-.8
FEB	3.6	.0	65.	3.6	.26	.1	0.	.0	3.5	.0	1582.6	41.7	.0
MAR	4.3	.0	70.	4.3	.35	.1	0.	.0	4.2	.0	1582.6	41.7	.0
APR	4.4	.0	74.	4.4	.44	.1	0.	.0	4.3	.0	1582.6	41.7	.0
MAY	12.3	.0	200.	12.3	.54	.1	15.	.9	11.3	.0	1582.6	41.7	.0
JUN	24.1	.0	405.	24.1	-1.08	-.3	20.	1.2	23.2	.0	1582.6	41.7	.0
JUL	15.8	1.2	276.	17.0	4.30	1.1	138.	8.5	7.4	.0	1582.6	41.7	.0
AUG	8.7	1.2	161.	9.9	3.06	.8	138.	8.5	.6	.0	1582.6	41.7	.0
SEP	8.3	.0	139.	8.3	1.78	.4	35.	2.1	5.8	.0	1582.6	41.7	.0
OCT	4.8	.0	78.	4.8	1.49	.4	0.	.0	4.4	.0	1582.6	41.7	.0
NOV	1.6	.0	27.	1.6	1.00	.2	0.	.0	1.4	.0	1582.6	41.7	.0
DEC	1.1	.0	18.	1.1	-.15	.0	0.	.0	1.1	.0	1582.6	41.7	.0
TOTAL	90.1	2.4		92.5	12.15	3.0		21.2	69.1	.0			-.8

KIRWIN RESERVOIR OPERATION ESTIMATES - 1986

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	NET EVAPORATION INCHES	NET EVAPORATION 1000 AF	RELEASE REQUIREMENT MEAN CFS	RELEASE REQUIREMENT 1000 AF	RESERVOIR SPILL 1000 AF	REQUIREMENT SHORTAGE 1000 AF	END OF MONTH ELEV FT	END OF MONTH CONT 1000 AF	RESERVOIR CHANGE 1000 AF
REASONABLE MINIMUM INFLOW CONDITIONS											
JAN	2.	.1	.91	.1	0.	.0	.0	.0	1706.3	22.5	.0
FEB	7.	.4	1.04	.1	0.	.0	.0	.0	1706.5	22.8	.3
MAR	13.	.8	1.79	.3	0.	.0	.0	.0	1706.8	23.3	.5
APR	12.	.7	4.60	.7	0.	.0	.0	.0	1706.8	23.3	.0
MAY	23.	1.4	4.77	.7	31.	1.9	.0	.0	1706.0	22.1	-1.2
JUN	39.	2.3	6.32	.9	32.	1.9	.0	.0	1705.7	21.6	-.5
JUL	18.	1.1	8.80	1.1	91.	5.6	.0	.0	1702.1	16.0	-5.6
AUG	15.	.9	7.74	.8	106.	6.5	.0	.2	1697.0	9.8	-6.2
SEP	8.	.5	5.66	.5	47.	2.8	.0	2.8	1697.0	9.8	.0
OCT	7.	.4	4.61	.4	0.	.0	.0	.0	1697.0	9.8	.0
NOV	3.	.2	2.54	.2	0.	.0	.0	.0	1697.0	9.8	.0
DEC	2.	.1	1.22	.1	0.	.0	.0	.0	1697.0	9.8	.0
TOTAL		8.9	50.00	5.9		18.7	.0	3.0			-12.7
MOST PROBABLE INFLOW CONDITIONS											
JAN	8.	.5	.73	.1	0.	.0	.0	.0	1706.5	22.9	.4
FEB	22.	1.2	.77	.1	0.	.0	.0	.0	1707.1	24.0	1.1
MAR	36.	2.2	1.04	.2	0.	.0	.0	.0	1708.2	26.0	2.0
APR	32.	1.9	1.89	.3	0.	.0	.0	.0	1709.1	27.6	1.6
MAY	63.	3.9	3.60	.6	10.	.6	.0	.0	1710.4	30.3	2.7
JUN	109.	6.5	4.65	.9	10.	.6	.0	.0	1712.5	35.3	5.0
JUL	52.	3.2	6.33	1.3	81.	5.0	.0	.0	1711.2	32.2	-3.1
AUG	41.	2.5	5.56	1.0	81.	5.0	.0	.0	1709.6	28.7	-3.5
SEP	24.	1.4	4.25	.7	22.	1.3	.0	.0	1709.3	28.1	-.6
OCT	16.	1.0	3.59	.6	0.	.0	.0	.0	1709.5	28.5	.4
NOV	8.	.5	1.85	.3	0.	.0	.0	.0	1709.6	28.7	.2
DEC	8.	.5	.74	.1	0.	.0	.0	.0	1709.8	29.1	.4
TOTAL		25.3	35.00	6.2		12.5	.0	.0			6.6
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	20.	1.2	.45	.1	0.	.0	.0	.0	1706.9	23.6	1.1
FEB	58.	3.2	.50	.1	0.	.0	.0	.0	1708.6	26.7	3.1
MAR	98.	6.0	.56	.1	0.	.0	.0	.0	1711.4	32.6	5.9
APR	86.	5.1	.53	.1	0.	.0	.0	.0	1713.4	37.6	5.0
MAY	171.	10.5	1.68	.4	7.	.4	.0	.0	1716.7	47.3	9.7
JUN	294.	17.5	1.66	.5	7.	.4	.0	.0	1721.3	63.9	16.6
JUL	141.	8.7	5.47	1.8	50.	3.1	.0	.0	1722.2	67.7	3.8
AUG	106.	6.5	4.67	1.6	50.	3.1	.0	.0	1722.7	69.5	1.8
SEP	62.	3.7	2.75	.9	13.	.8	.0	.0	1723.2	71.5	2.0
OCT	47.	2.9	2.27	.8	0.	.0	.0	.0	1723.7	73.6	2.1
NOV	24.	1.4	1.02	.4	0.	.0	.0	.0	1723.9	74.6	1.0
DEC	21.	1.3	.54	.2	0.	.0	.0	.0	1724.2	75.7	1.1
TOTAL		68.0	22.10	7.0		7.8	.0	.0			53.2

WEBSTER RESERVOIR OPERATION ESTIMATES - 1986

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	NET EVAPORATION INCHES	NET 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	3.	.2	.96	.1	0.	.0	.0	.0	1867.3	13.9	.1
FEB	7.	.4	1.11	.1	0.	.0	.0	.0	1867.5	14.2	.3
MAR	13.	.8	2.08	.3	0.	.0	.0	.0	1867.8	14.7	.5
APR	13.	.8	4.92	.6	0.	.0	.0	.0	1868.0	14.9	.2
MAY	21.	1.3	4.75	.6	33.	2.0	.0	.0	1867.1	13.6	-1.3
JUN	32.	1.9	7.50	.9	49.	2.9	.0	.0	1865.7	11.7	-1.9
JUL	21.	1.3	9.04	.9	91.	5.6	.0	.0	1861.2	6.5	-5.2
AUG	13.	.8	8.08	.6	104.	6.4	.0	5.0	1860.0	5.3	-1.2
SEP	5.	.3	6.70	.5	61.	3.6	.0	3.6	1859.7	5.1	-.2
OCT	5.	.3	4.71	.3	0.	.0	.0	.0	1859.7	5.1	.0
NOV	3.	.2	2.45	.2	0.	.0	.0	.0	1859.7	5.1	.0
DEC	5.	.3	1.20	.1	0.	.0	.0	.0	1860.0	5.3	.2
TOTAL		8.6	53.50	5.2		20.5	.0	8.6			-8.5
MOST PROBABLE INFLOW CONDITIONS											
JAN	10.	.6	.67	.1	0.	.0	.0	.0	1867.6	14.3	.5
FEB	18.	1.0	.81	.1	0.	.0	.0	.0	1868.2	15.2	.9
MAR	29.	1.8	1.48	.2	0.	.0	.0	.0	1869.2	16.8	1.6
APR	32.	1.9	2.72	.4	0.	.0	.0	.0	1870.1	18.3	1.5
MAY	54.	3.3	3.13	.5	10.	.6	.0	.0	1871.4	20.5	2.2
JUN	81.	4.8	4.40	.7	10.	.6	.0	.0	1873.3	24.0	3.5
JUL	52.	3.2	7.02	1.1	81.	5.0	.0	.0	1871.7	21.1	-2.9
AUG	33.	2.0	5.72	.8	81.	5.0	.0	.0	1869.5	17.3	-3.8
SEP	15.	.9	4.69	.6	24.	1.4	.0	.0	1868.8	16.2	-1.1
OCT	15.	.9	3.37	.4	0.	.0	.0	.0	1869.1	16.7	.5
NOV	8.	.5	1.61	.2	0.	.0	.0	.0	1869.3	17.0	.3
DEC	10.	.6	.78	.1	0.	.0	.0	.0	1869.6	17.5	.5
TOTAL		21.5	36.40	5.2		12.6	.0	.0			3.7
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	33.	2.0	.53	.1	0.	.0	.0	.0	1868.5	15.7	1.9
FEB	63.	3.5	.48	.1	0.	.0	.0	.0	1870.6	19.1	3.4
MAR	99.	6.1	.70	.1	0.	.0	.0	.0	1873.8	25.1	6.0
APR	104.	6.2	1.00	.2	0.	.0	.0	.0	1876.7	31.1	6.0
MAY	177.	10.9	1.74	.3	0.	.0	.0	.0	1881.1	41.7	10.6
JUN	266.	15.8	.72	.2	0.	.0	.0	.0	1886.6	57.3	15.6
JUL	179.	11.0	5.63	1.5	37.	2.3	.0	.0	1888.8	64.5	7.2
AUG	106.	6.5	4.03	1.1	37.	2.3	.0	.0	1889.7	67.6	3.1
SEP	52.	3.1	3.75	1.1	0.	.0	.0	.0	1890.3	69.6	2.0
OCT	52.	3.2	2.83	.8	0.	.0	.0	.0	1891.0	72.0	2.4
NOV	30.	1.8	.99	.3	0.	.0	.0	.0	1891.4	73.5	1.5
DEC	31.	1.9	.60	.2	0.	.0	.0	.0	1891.9	75.2	1.7
TOTAL		72.0	23.00	6.0		4.6	.0	.0			61.4

WACONDA LAKE OPERATION ESTIMATES - 1986

MONTH	UNDEPLETED INFLOW 1000 AF	UPSTREAM DEPLETIONS 1000 AF	DEPLETED INFLOW MEAN CFS	DEPLETED INFLOW 1000 AF	NET EVAPORATION INCHES	NET 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	2.3	.0	37.	2.3	.89	.8	11.	.7	.0	.0	1452.5	204.7	.8
FEB	2.9	.0	52.	2.9	1.00	.9	36.	2.0	.0	.0	1452.5	204.7	.0
MAR	6.4	.0	104.	6.4	1.83	1.7	11.	.7	.0	.0	1452.9	208.7	4.0
APR	4.6	.0	77.	4.6	4.55	4.3	2.	.1	.0	.0	1452.9	208.9	.2
MAY	7.8	.0	127.	7.8	4.48	4.3	2.	.1	.0	.0	1453.2	212.3	3.4
JUN	11.5	.0	193.	11.5	6.57	6.4	35.	2.1	.0	.0	1453.4	215.3	3.0
JUL	6.2	.0	101.	6.2	8.05	7.7	99.	6.1	.0	.0	1452.8	207.7	-7.6
AUG	3.7	.0	60.	3.7	8.50	7.9	99.	6.1	.0	.0	1451.9	197.4	-10.3
SEP	5.4	.0	91.	5.4	6.19	5.6	35.	2.1	.0	.0	1451.6	195.1	-2.3
OCT	3.4	.0	55.	3.4	4.42	4.0	2.	.1	.0	.0	1451.6	194.4	-.7
NOV	2.0	.0	34.	2.0	2.46	2.2	2.	.1	.0	.0	1451.6	194.1	-.3
DEC	1.8	.0	29.	1.8	1.16	1.0	11.	.7	.0	.0	1451.6	194.2	.1
TOTAL	58.0	.0		58.0	50.10	46.8		20.9	.0	.0			-9.7
MOST PROBABLE INFLOW CONDITIONS													
JAN	5.2	.0	85.	5.2	.53	.5	76.	4.7	.0	.0	1452.4	203.9	.0
FEB	6.4	.0	115.	6.4	.63	.6	104.	5.8	.0	.0	1452.4	203.9	.0
MAR	14.2	.0	231.	14.2	.84	.8	11.	.7	.0	.0	1453.5	216.6	12.7
APR	10.1	.0	170.	10.1	2.90	2.9	2.	.1	.0	.0	1454.1	223.7	7.1
MAY	17.4	.0	283.	17.4	2.96	3.0	2.	.1	.0	.0	1455.3	238.0	14.3
JUN	25.7	.0	432.	25.7	3.32	3.5	25.	1.5	17.2	.0	1455.6	241.5	3.5
JUL	13.7	.0	223.	13.7	6.05	6.4	70.	4.3	3.0	.0	1455.6	241.5	.0
AUG	8.2	.0	133.	8.2	4.46	4.7	70.	4.3	.0	.0	1455.5	240.7	-.8
SEP	12.5	.0	210.	12.5	3.96	4.1	217.	12.9	.0	.0	1455.2	236.2	-4.5
OCT	7.5	.0	122.	7.5	3.24	3.3	286.	17.6	.0	.0	1454.1	222.8	-13.4
NOV	4.6	.0	77.	4.6	1.85	1.8	284.	16.9	.0	.0	1452.9	208.7	-14.1
DEC	3.8	.0	62.	3.8	.76	.7	50.	3.1	.0	.0	1452.9	208.7	.0
TOTAL	129.3	.0		129.3	31.50	32.3		72.0	20.2	.0			4.8
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	13.7	.0	223.	13.7	.36	.3	228.	14.0	.0	.0	1452.4	203.3	-.6
FEB	16.8	.0	303.	16.8	.21	.2	313.	17.4	.0	.0	1452.3	202.5	-.8
MAR	37.3	.0	607.	37.3	.34	.3	299.	18.4	.0	.0	1453.9	221.1	18.6
APR	26.9	.0	452.	26.9	1.39	1.4	301.	17.9	.0	.0	1454.6	228.7	7.6
MAY	46.0	.0	748.	46.0	.87	.9	2.	.1	32.2	.0	1455.6	241.5	12.8
JUN	67.6	.0	1136.	67.6	-.20	-.2	2.	.1	67.7	.0	1455.6	241.5	.0
JUL	35.9	.0	584.	35.9	4.46	4.7	2.	.1	31.1	.0	1455.6	241.5	.0
AUG	21.5	.0	350.	21.5	3.27	3.4	2.	.1	18.0	.0	1455.6	241.5	.0
SEP	31.8	.0	534.	31.8	2.29	2.4	2.	.1	29.3	.0	1455.6	241.5	.0
OCT	19.9	.0	324.	19.9	2.41	2.5	299.	18.4	.0	.0	1455.5	240.5	-1.0
NOV	12.1	.0	203.	12.1	.92	1.0	301.	17.9	.0	.0	1455.0	233.7	-6.8
DEC	10.0	.0	163.	10.0	.38	.4	156.	9.6	.0	.0	1455.0	233.7	.0
TOTAL	339.5	.0		339.5	16.70	17.3		114.1	178.3	.0			29.8

CEDAR BLUFF RESERVOIR OPERATION ESTIMATES - 1986

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	NET EVAPORATION INCHES	NET EVAPORATION 1000 AF	RELEASE REQUIREMENT MEAN CFS	RELEASE REQUIREMENT 1000 AF	RESERVOIR SPILL 1000 AF	REQUIREMENT SHORTAGE 1000 AF	END OF MONTH ELEV FT	END OF MONTH CONT 1000 AF	RESERVOIR CHANGE 1000 AF
					REASONABLE MINIMUM INFLOW CONDITIONS						
JAN	2.	.1	1.23	.2	3.	.2	.0	.0	2098.4	18.5	-.3
FEB	4.	.2	1.39	.2	4.	.2	.0	.0	2098.3	18.3	-.2
MAR	8.	.5	2.48	.3	5.	.3	.0	.0	2098.2	18.2	-.1
APR	8.	.5	5.30	.6	5.	.3	.0	.0	2097.9	17.8	-.4
MAY	20.	1.2	5.10	.6	39.	2.4	.0	2.1	2098.1	18.1	.3
JUN	30.	1.8	7.76	.9	39.	2.3	.0	2.1	2098.6	18.8	.7
JUL	24.	1.5	9.16	1.0	106.	6.5	.0	6.3	2098.8	19.1	.3
AUG	16.	1.0	8.88	1.0	111.	6.8	.0	6.3	2098.5	18.6	-.5
SEP	10.	.6	6.41	.7	69.	4.1	.0	3.2	2097.8	17.6	-1.0
OCT	5.	.3	4.93	.5	24.	1.5	.0	1.1	2097.4	17.0	-.6
NOV	2.	.1	2.90	.3	3.	.2	.0	.0	2097.1	16.6	-.4
DEC	2.	.1	1.46	.2	3.	.2	.0	.0	2096.9	16.3	-.3
TOTAL		7.9	57.00	6.5		25.0	.0	21.1			-2.5
					MOST PROBABLE INFLOW CONDITIONS						
JAN	5.	.3	1.08	.1	3.	.2	.0	.0	2098.6	18.8	.0
FEB	13.	.7	1.13	.1	4.	.2	.0	.0	2098.9	19.2	.4
MAR	29.	1.8	1.72	.2	5.	.3	.0	.0	2099.7	20.5	1.3
APR	29.	1.7	3.77	.5	5.	.3	.0	.0	2100.3	21.4	.9
MAY	65.	4.0	3.22	.4	16.	1.0	.0	.7	2102.2	24.7	3.3
JUN	108.	6.4	4.29	.6	17.	1.0	.0	.8	2105.3	30.3	5.6
JUL	83.	5.1	7.39	1.1	88.	5.4	.0	5.2	2107.2	34.1	3.8
AUG	54.	3.3	6.04	.9	102.	6.3	.0	4.8	2107.6	35.0	.9
SEP	30.	1.8	4.48	.6	30.	1.8	.0	.6	2107.6	35.0	.0
OCT	20.	1.2	3.73	.5	16.	1.0	.0	.4	2107.7	35.1	.1
NOV	5.	.3	2.46	.3	3.	.2	.0	.0	2107.6	34.9	-.2
DEC	5.	.3	1.20	.2	3.	.2	.0	.0	2107.5	34.8	-.1
TOTAL		26.9	40.51	5.5		17.9	.0	12.5			16.0
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	15.	.9	.92	.1	3.	.2	.0	.0	2099.0	19.4	.6
FEB	40.	2.2	.87	.1	4.	.2	.0	.0	2100.2	21.3	1.9
MAR	104.	6.4	1.20	.2	5.	.3	.0	.0	2103.6	27.2	5.9
APR	104.	6.2	2.32	.4	5.	.3	.0	.0	2106.5	32.7	5.5
MAY	228.	14.0	2.02	.4	13.	.8	.0	.0	2112.3	45.5	12.8
JUN	381.	22.7	1.25	.3	12.	.7	.0	.0	2120.0	67.2	21.7
JUL	294.	18.1	5.22	1.5	57.	3.5	.0	.0	2123.8	80.3	13.1
AUG	190.	11.7	4.25	1.3	65.	4.0	.0	.0	2125.5	86.7	6.4
SEP	109.	6.5	3.86	1.3	18.	1.1	.0	.0	2126.6	90.8	4.1
OCT	68.	4.2	2.56	.9	11.	.7	.0	.0	2127.2	93.4	2.6
NOV	22.	1.3	1.62	.6	3.	.2	.0	.0	2127.3	93.9	.5
DEC	18.	1.1	.92	.3	3.	.2	.0	.0	2127.5	94.5	.6
TOTAL		95.3	27.01	7.4		12.2	.0	.0			75.7

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

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

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

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

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

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

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

NOTE.--Construction cost of storage dams--$208,954,130.

TABLE 6
WATER DIVERTED IN 1985 AND THE
ESTIMATED DIVERSION FOR 1986
(Units - Acre-feet)

Irrigation District and Canal	1985 Irrigation Operations From	To	10-Year Average Diversion (1975-84)	1985 Diversions	Estimated Diversion in 1986
Mirage Flats Irrigation District					
Mirage Flats Canal	6/18	8/26	15,594	15,297	11,000
Ainsworth Irrigation District					
Ainsworth Canal	5/5	9/22	67,015	69,185	70,000
Sargent Irrigation District					
Sargent Canal	6/16	9/15	26,211	24,975	25,000
Farwell Irrigation District					
Farwell Canal	6/14	9/10	87,208	54,177	80,000
Frenchman Valley Irrigation District					
Culbertson Canal	4/15	9/4	14,300	12,088	12,000
H & RW Irrigation District					
Culbertson Extension Canal	5/13	9/2	20,820	16,912	17,000
Frenchman-Cambridge Irrigation District					
Meeker-Driftwood Canal	6/6	9/13	32,175	31,212	31,000
Red Willow Canal	6/10	9/9	8,310	8,108	9,000
Bartley Canal	6/10	9/13	10,209	8,879	11,000
Cambridge Canal	6/3	9/13	30,539	24,657	31,000
Total Frenchman-Cambridge Irrigation District			81,233	72,856	82,000
Almena Irrigation District					
Almena Canal	No irrigation in 1985		1,980	0	0
Bostwick Irrigation District in Nebraska					
Franklin Canal	6/21	9/13	25,934	30,208	24,000
Naponee Canal	6/21	9/10	3,111	3,470	3,300
Franklin Pump Canal	6/27	9/4	2,953	2,805	3,700
Superior Canal	6/25	9/6	13,959	13,841	13,000
Courtland Canal (Nebraska)	5/20	9/12	1,829	1,229	2,300
Total Bostwick Irrigation District in Nebraska			47,786	51,553	46,300
Kansas-Bostwick Irrigation District					
Courtland Canal above Lovewell	5/25	9/30	26,039	23,129	26,000
Courtland Canal below Lovewell	5/8	9/12	48,752	37,202	50,000
Total Kansas-Bostwick Irrigation District			74,791	60,331	76,000
Kirwin Irrigation District					
Kirwin Canal	No irrigation in 1985		12,948	0	13,000
Webster Irrigation District					
Osborne Canal	No irrigation in 1985		7,854	0	7,000
Cedar Bluff Irrigation District					
Cedar Bluff Canal	No irrigation in 1985		6,673	0	0
TOTAL			464,413	377,374	439,300

EXHIBIT 1A

BOX BUTTE RESERVOIR OPERATION

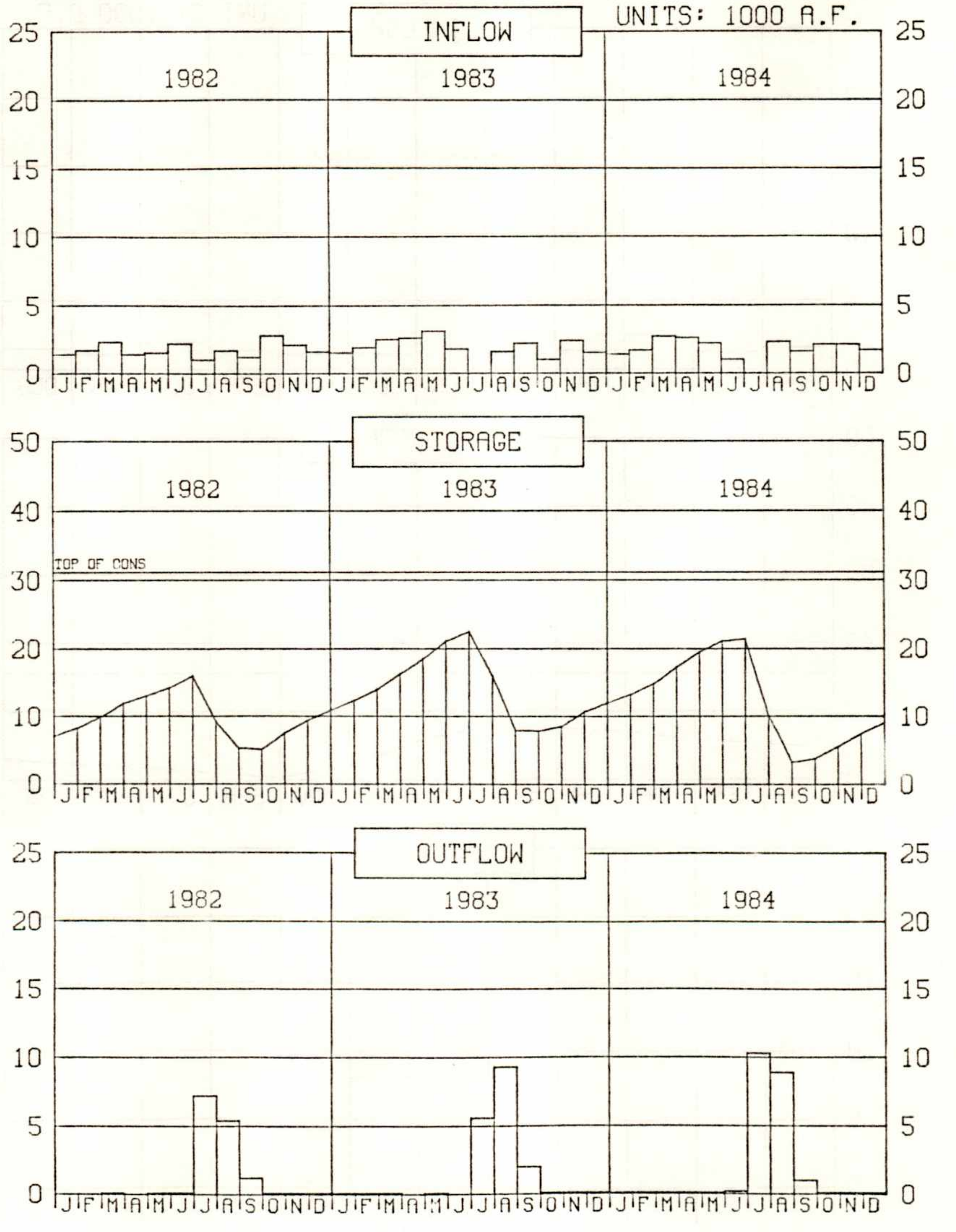


EXHIBIT 1B

BOX BUTTE RESERVOIR 1985 OPERATION

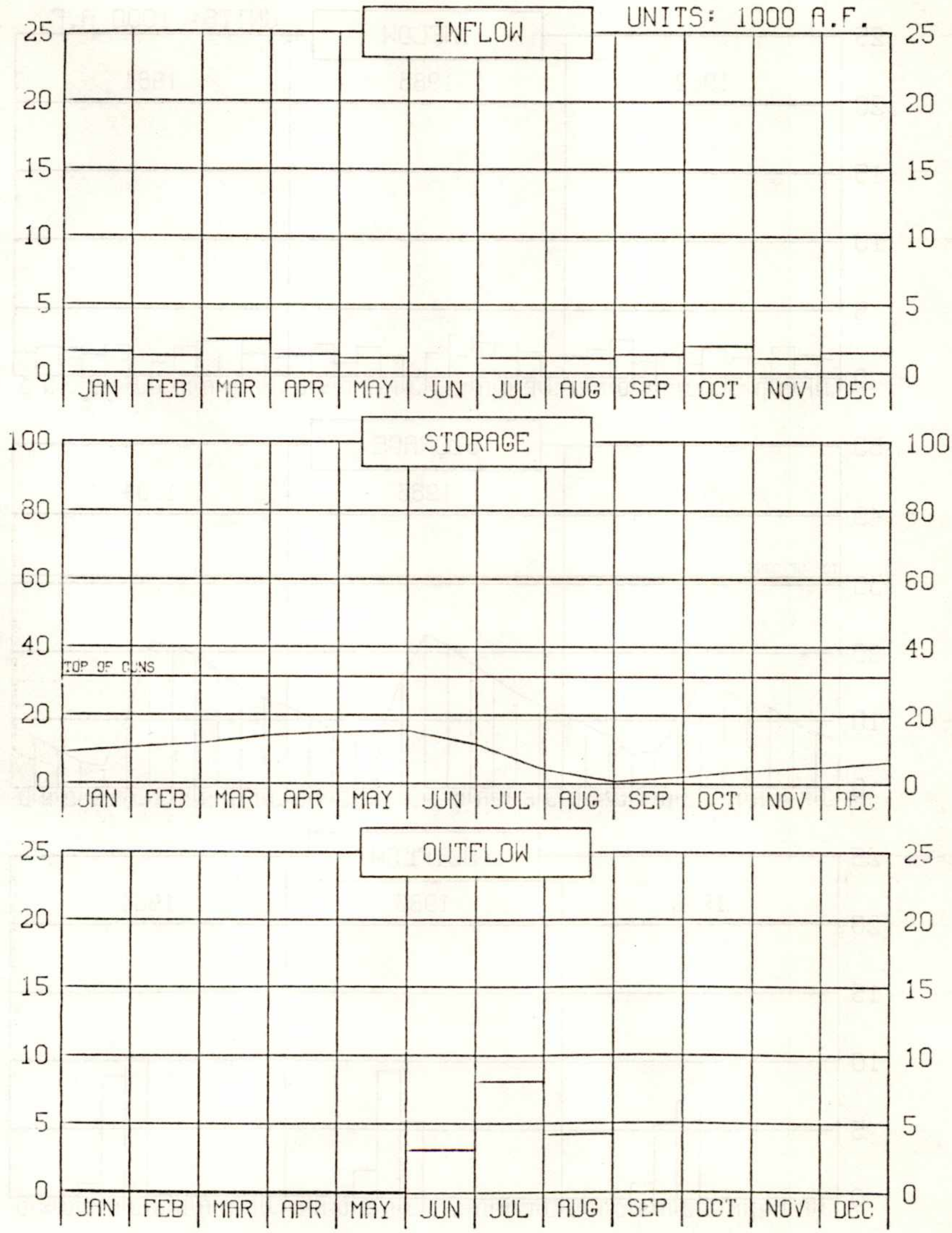


EXHIBIT 1C

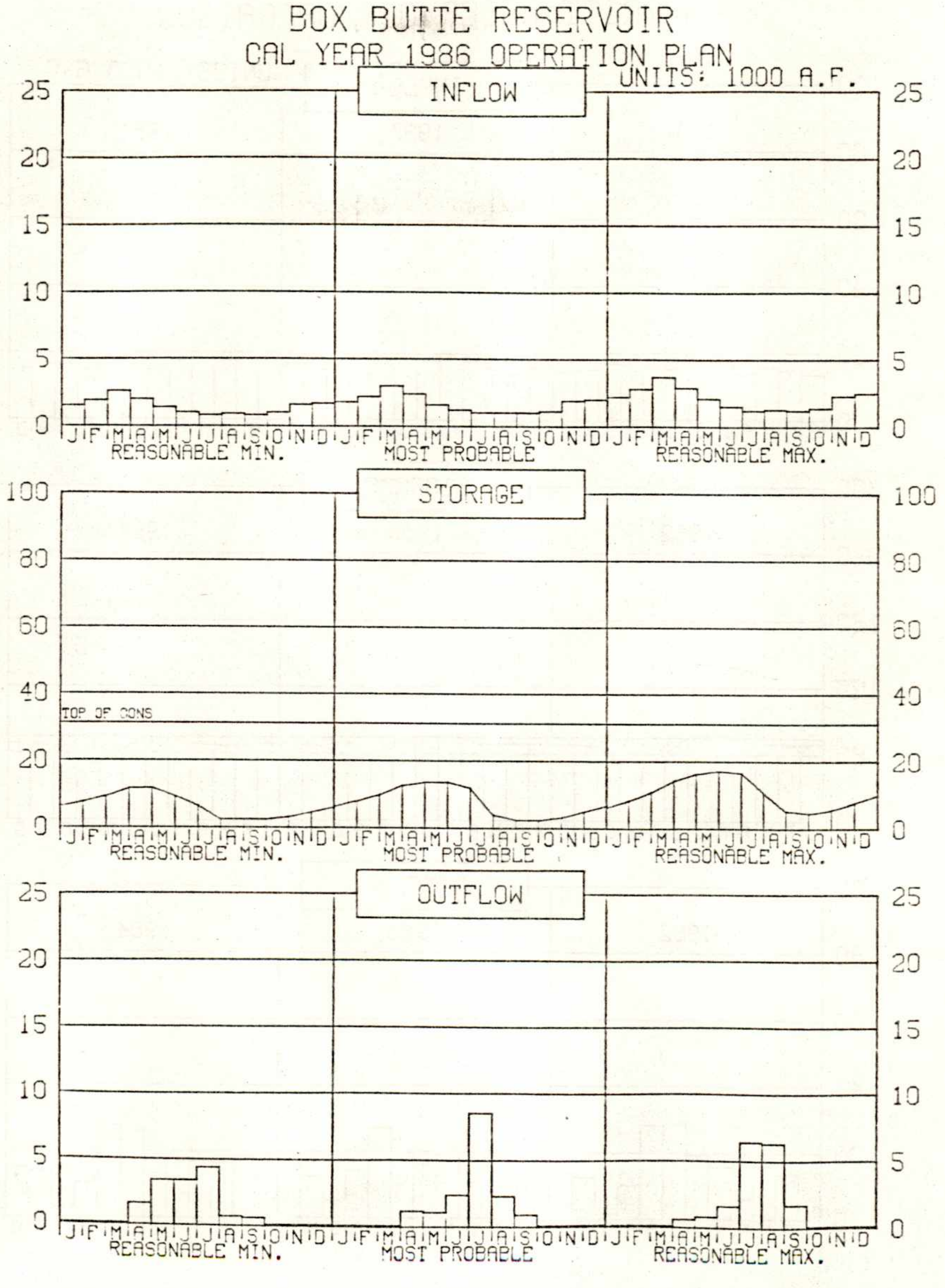
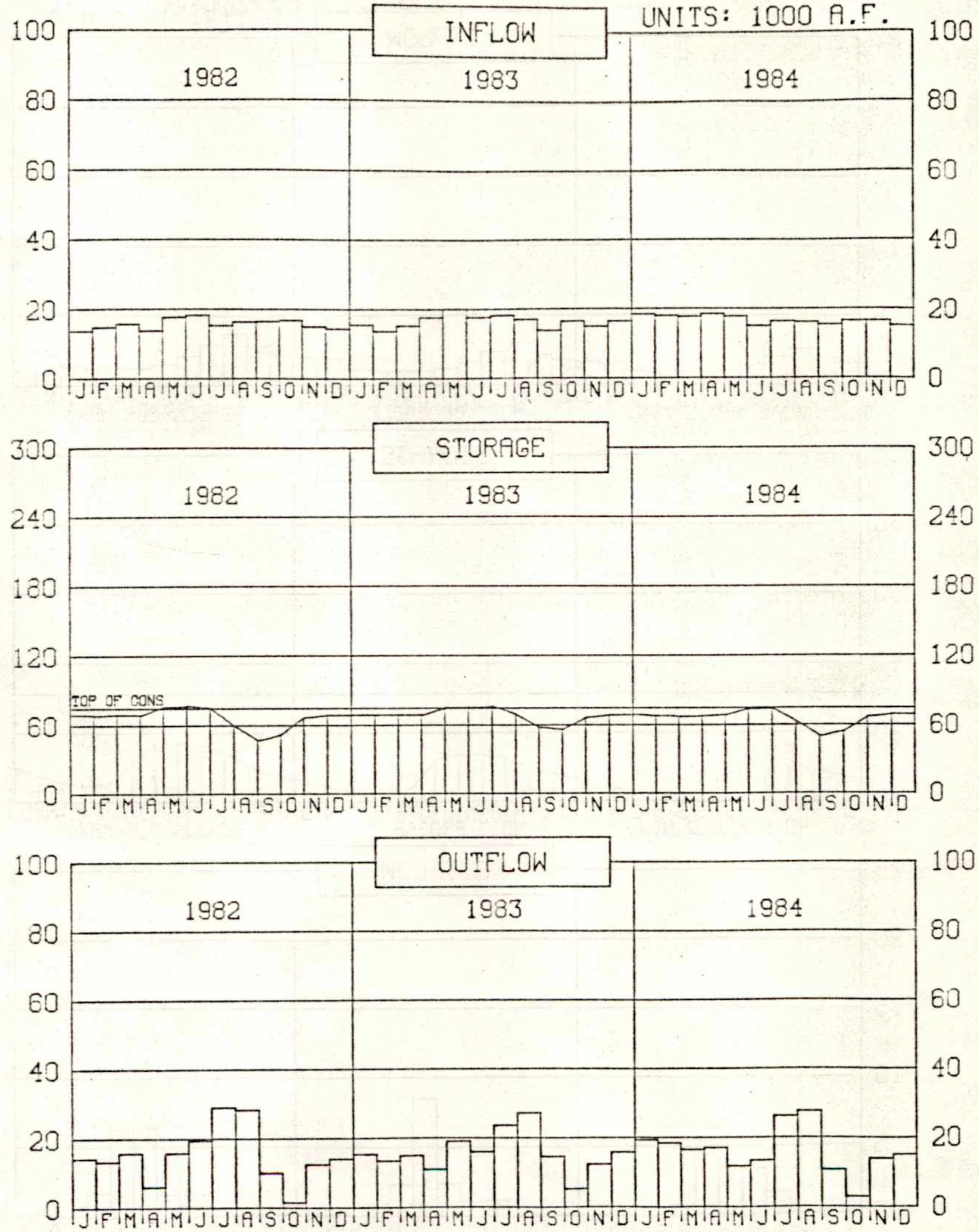
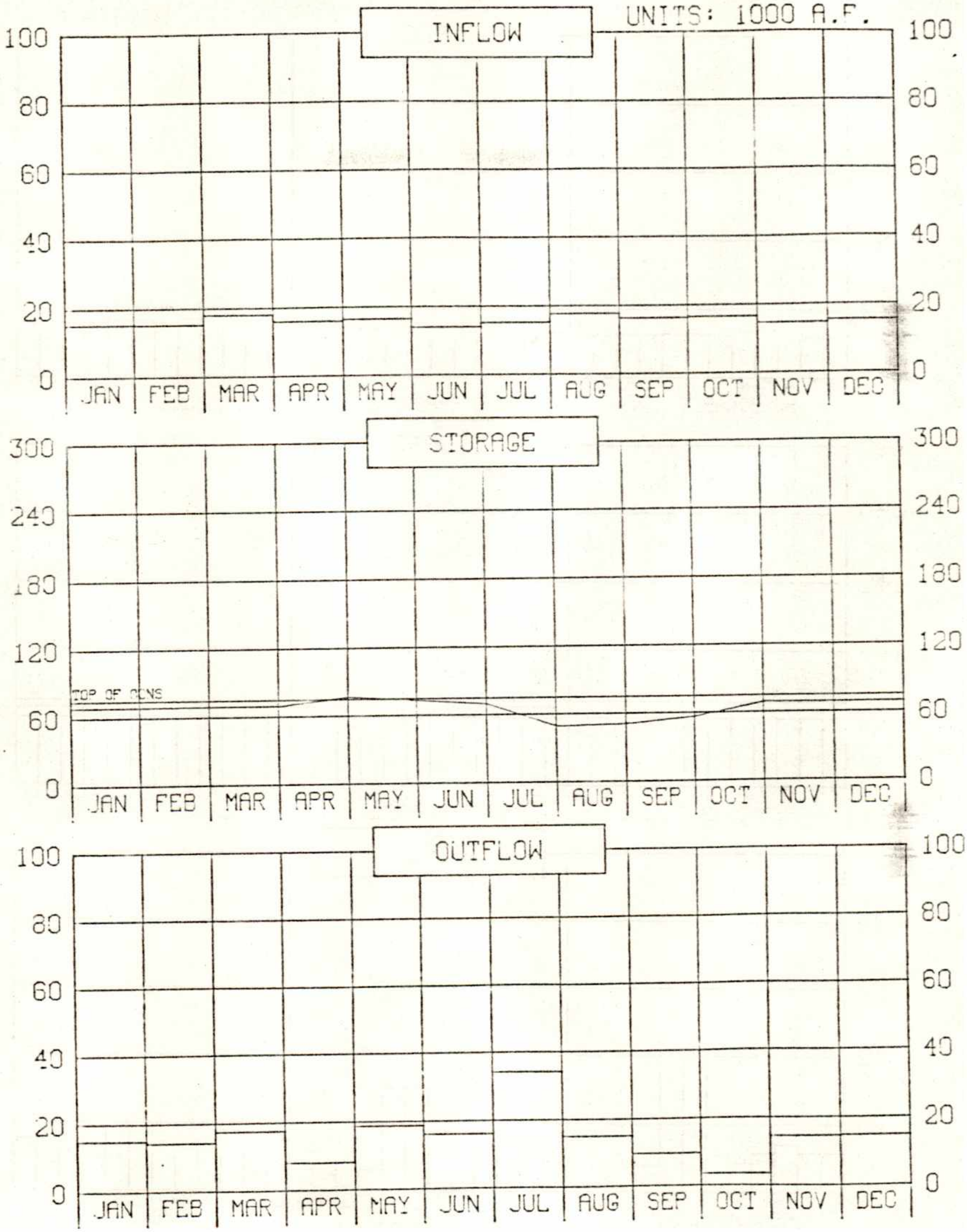

BOX BUTTE RESERVOIR
CAL YEAR 1986 OPERATION PLAN
UNITS: 1000 A.F.
INFLOW
STORAGE
TOP OF CONS
OUTFLOW
J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.
0
5
10
15
20
25
40
60
80
100

EXHIBIT 2A

MERRITT RESERVOIR OPERATION



MERRITT RESERVOIR 1985 OPERATION



MERRITT RESERVOIR

CAL YEAR 1986 OPERATION PLAN

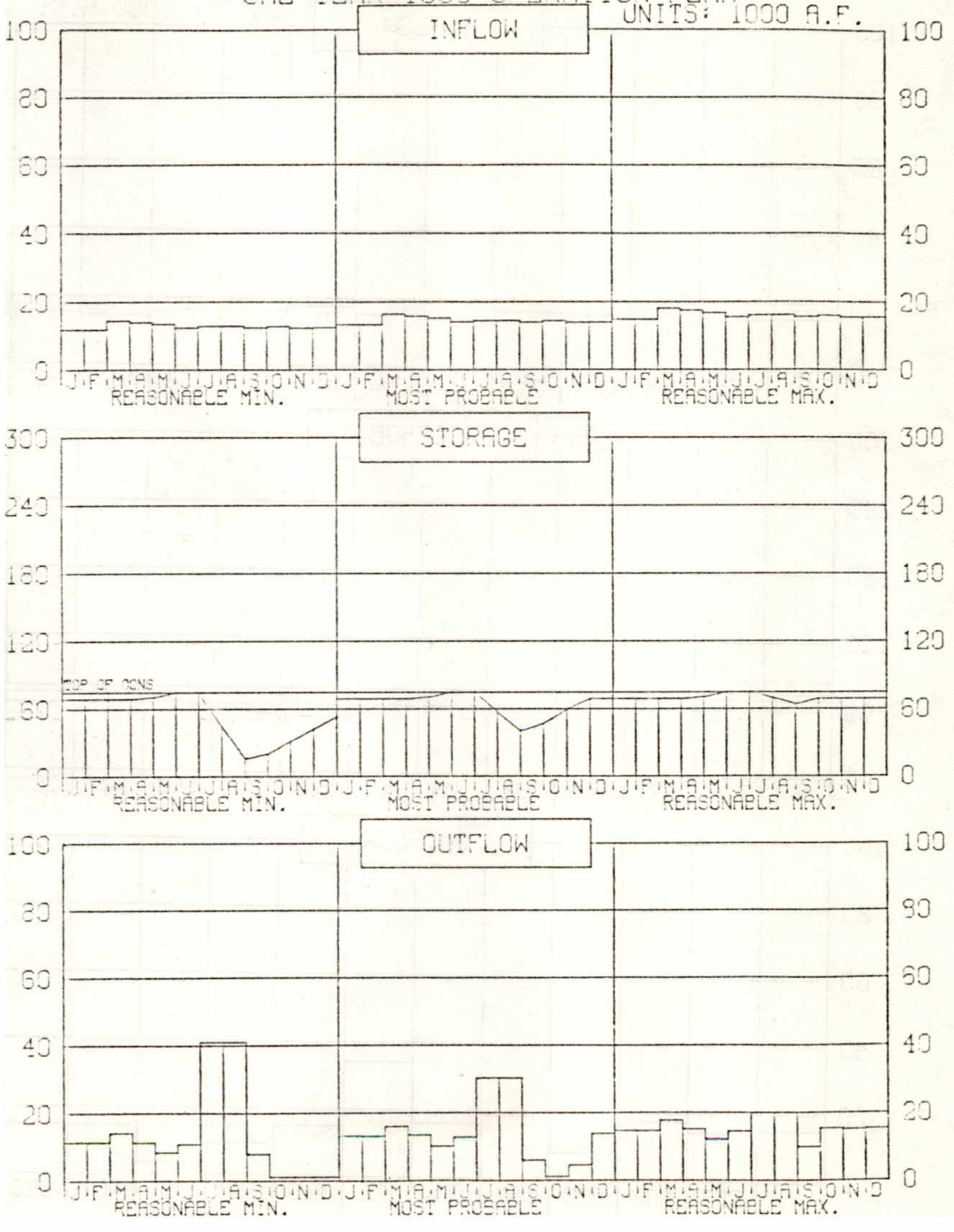
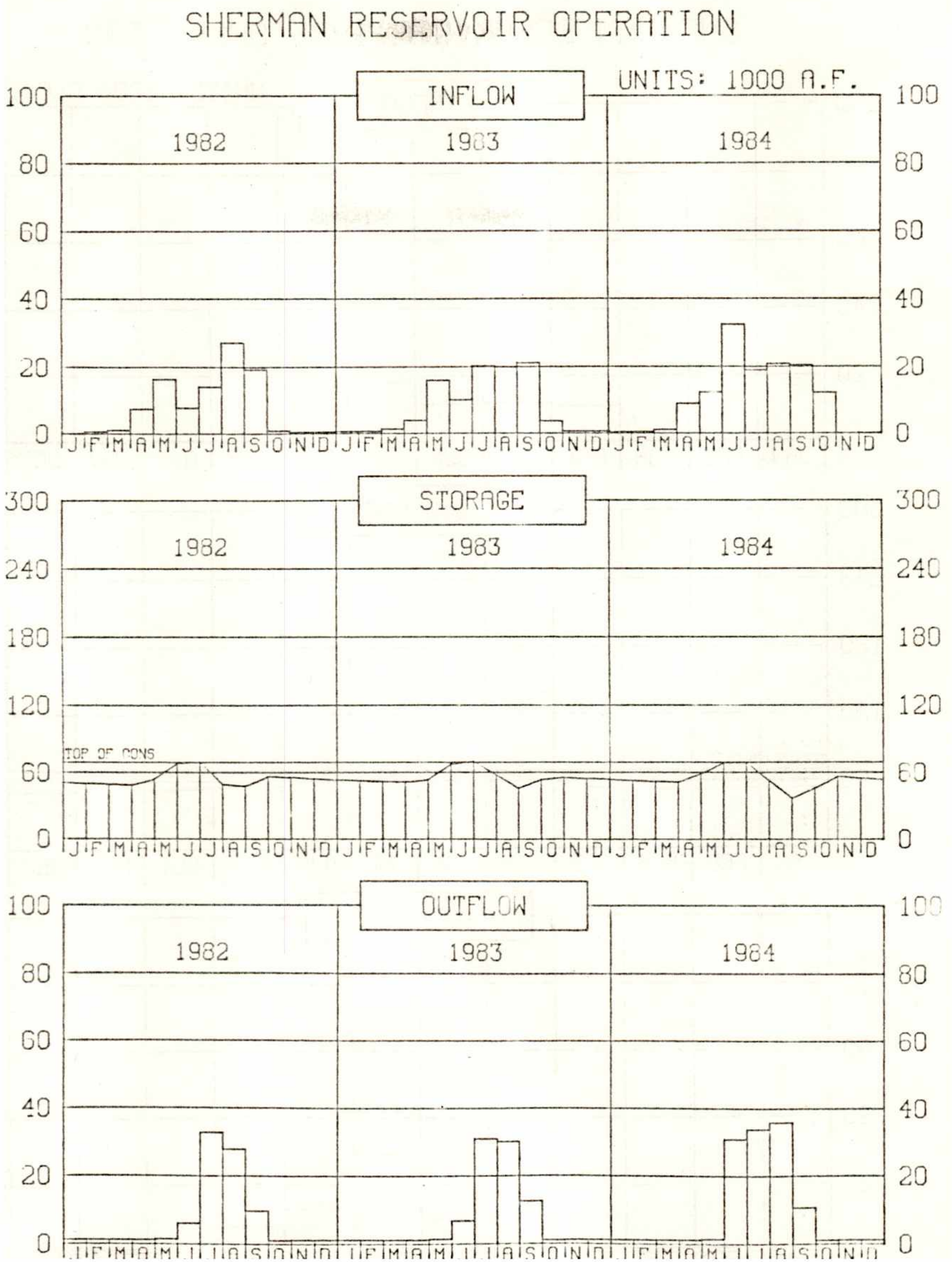
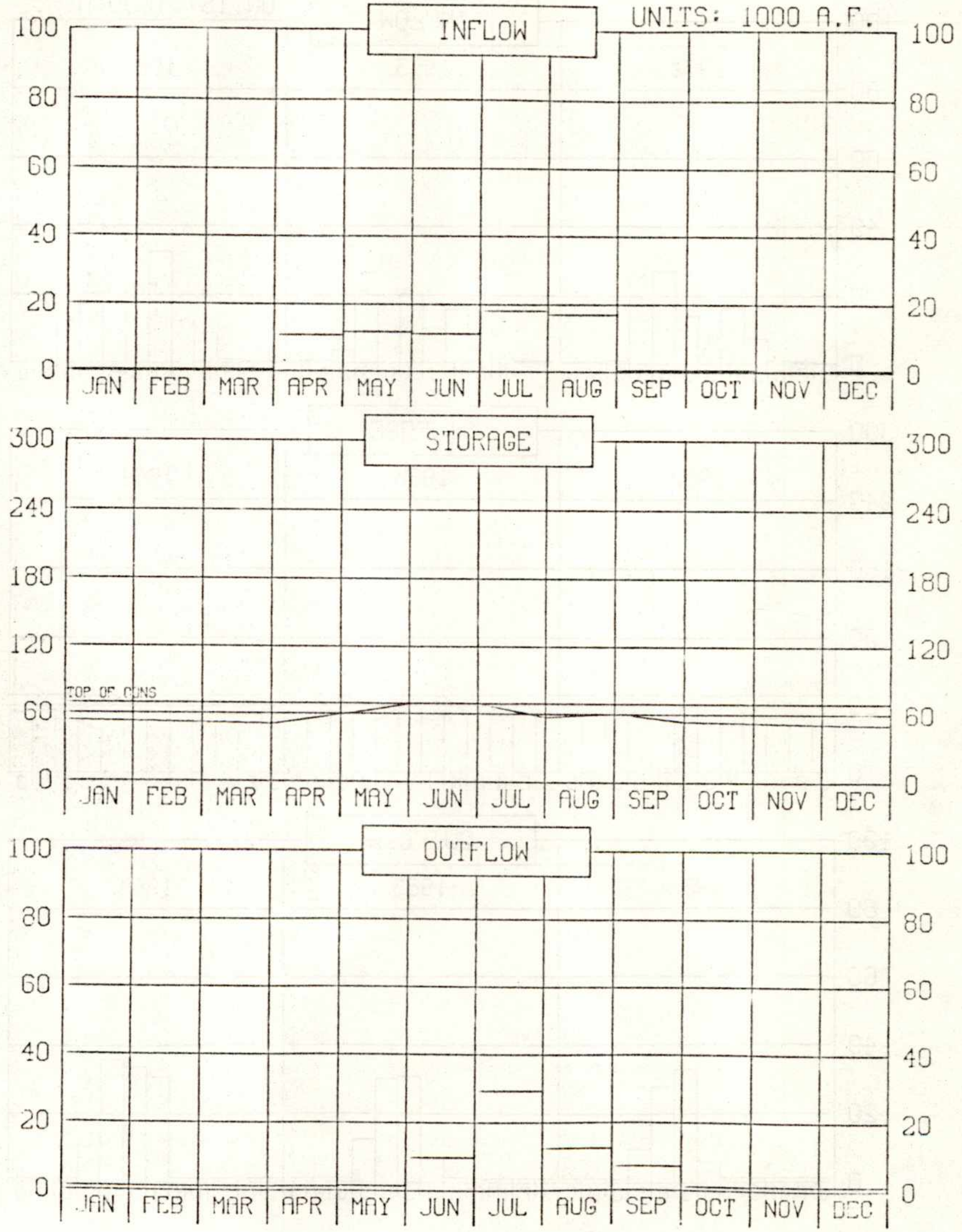


EXHIBIT 3A


SHERMAN RESERVOIR OPERATION
UNITS: 1000 A.F.
INFLOW
1982
1983
1984
STORAGE
TOP OF CONS
OUTFLOW
J F M A M J J A S O N D

SHERMAN RESERVOIR 1985 OPERATION



SHERMAN RESERVOIR

CAL YEAR 1986 OPERATION PLAN

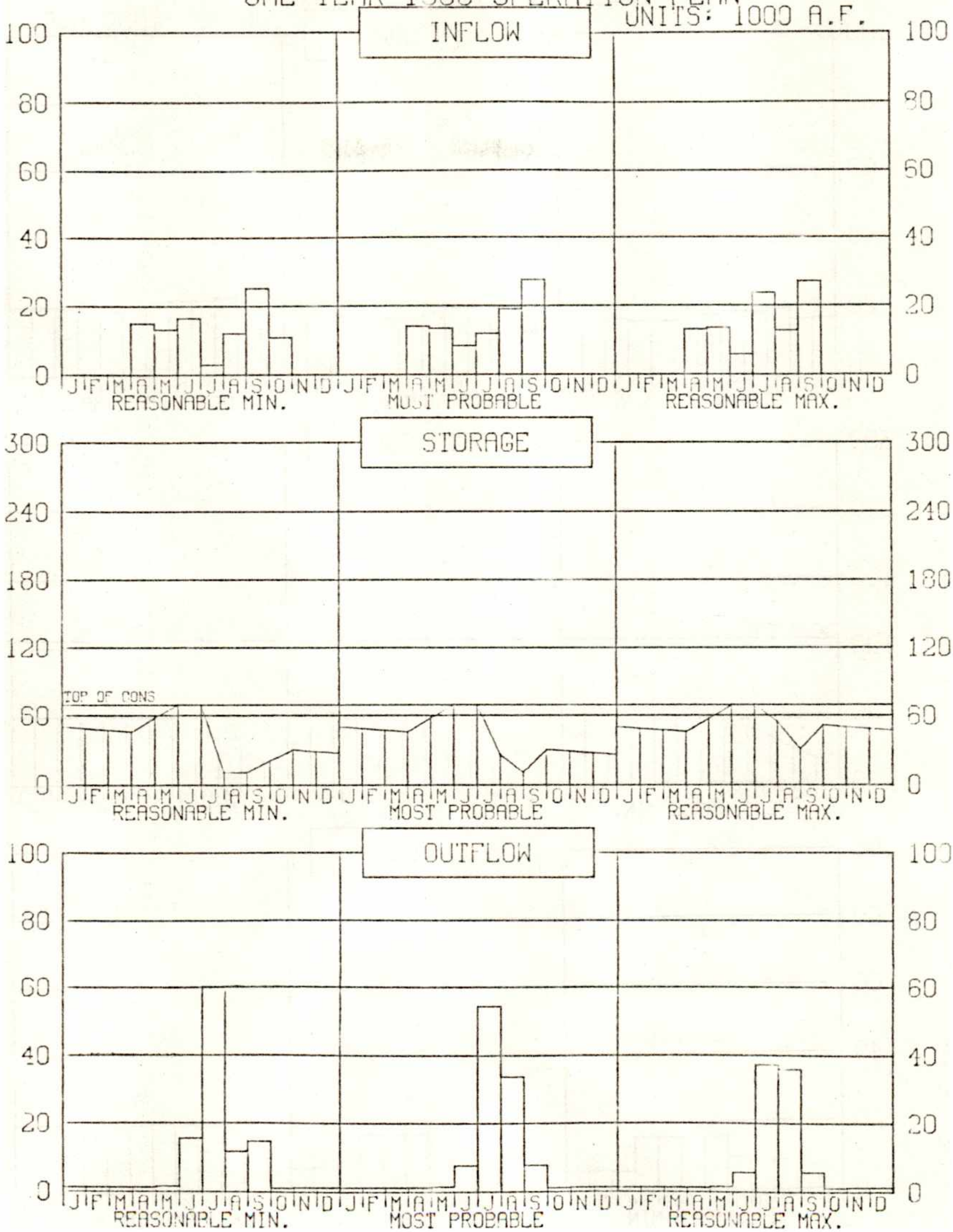


EXHIBIT 4C

CALAMUS RESERVOIR
CAL YEAR 1986 OPERATION PLAN

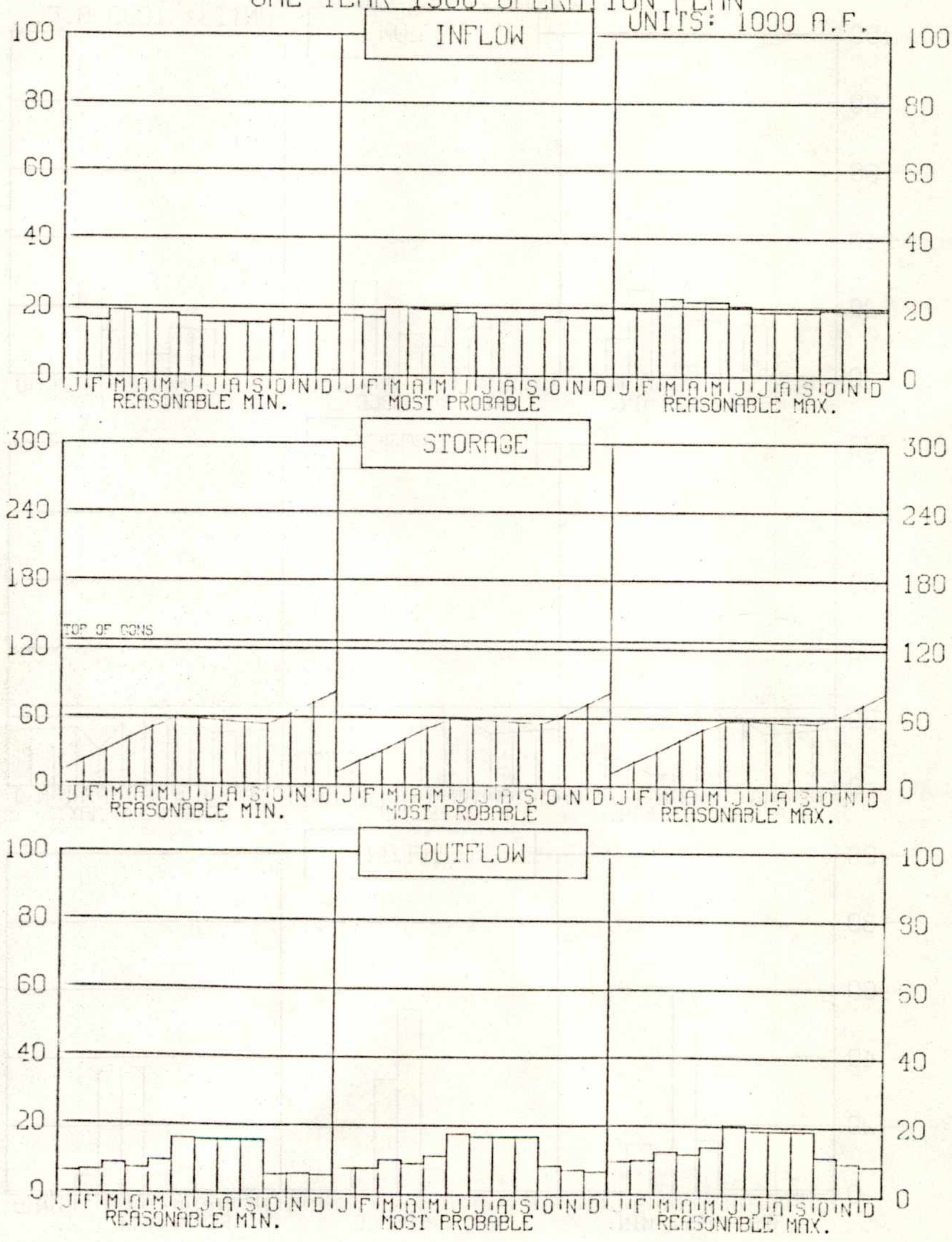


EXHIBIT 5A

BONNY RESERVOIR OPERATION

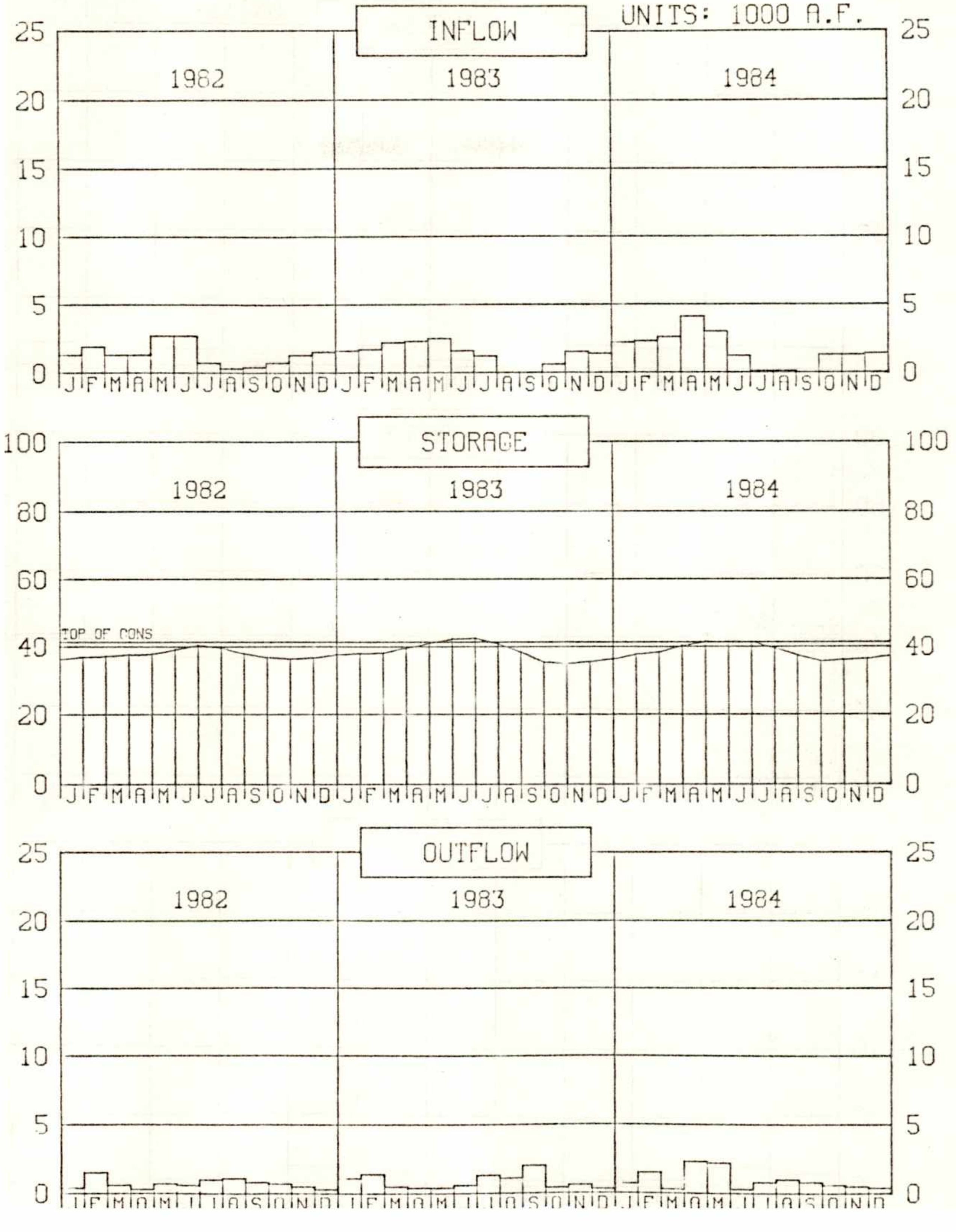


EXHIBIT 5B

BONNY RESERVOIR 1985 OPERATION

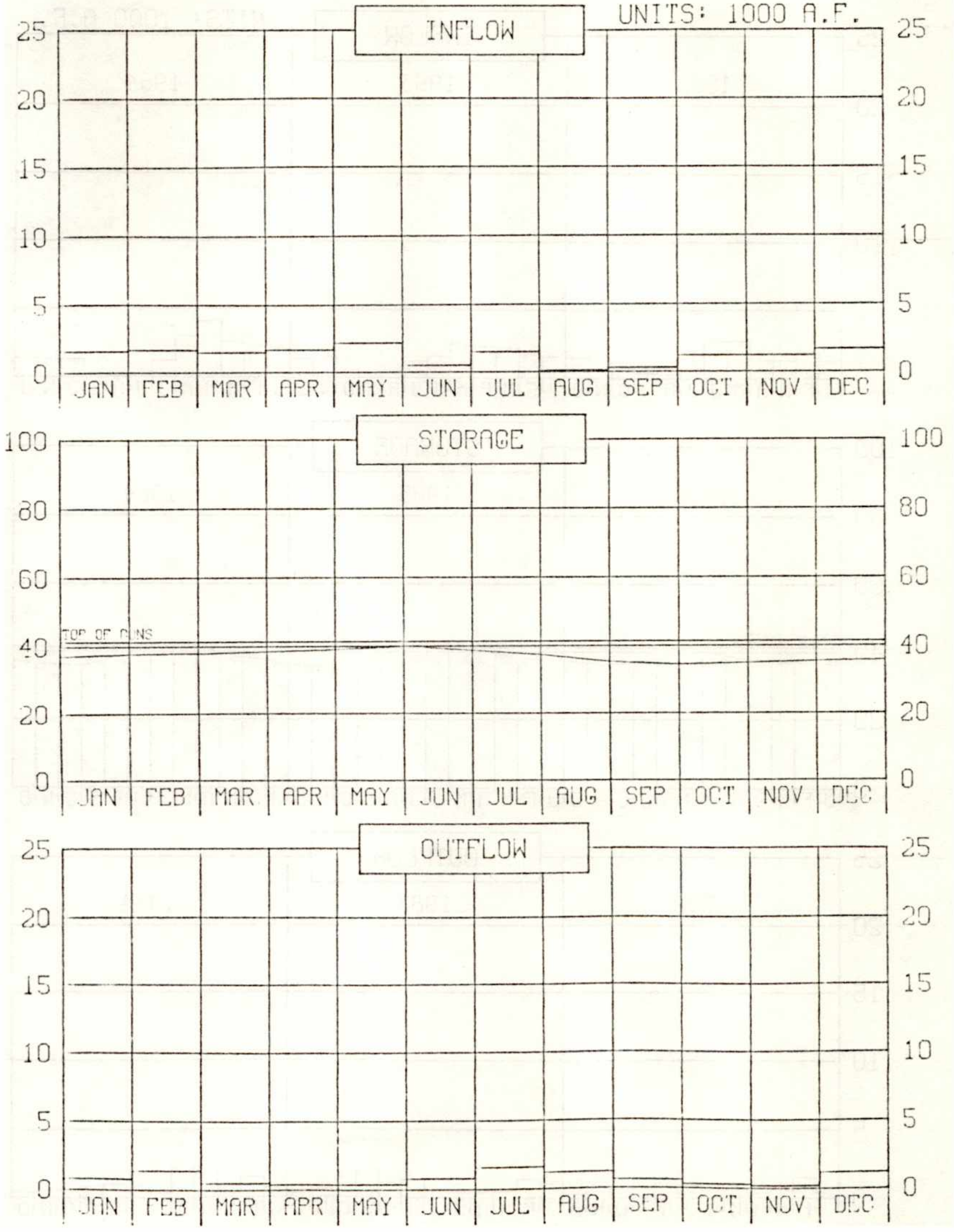
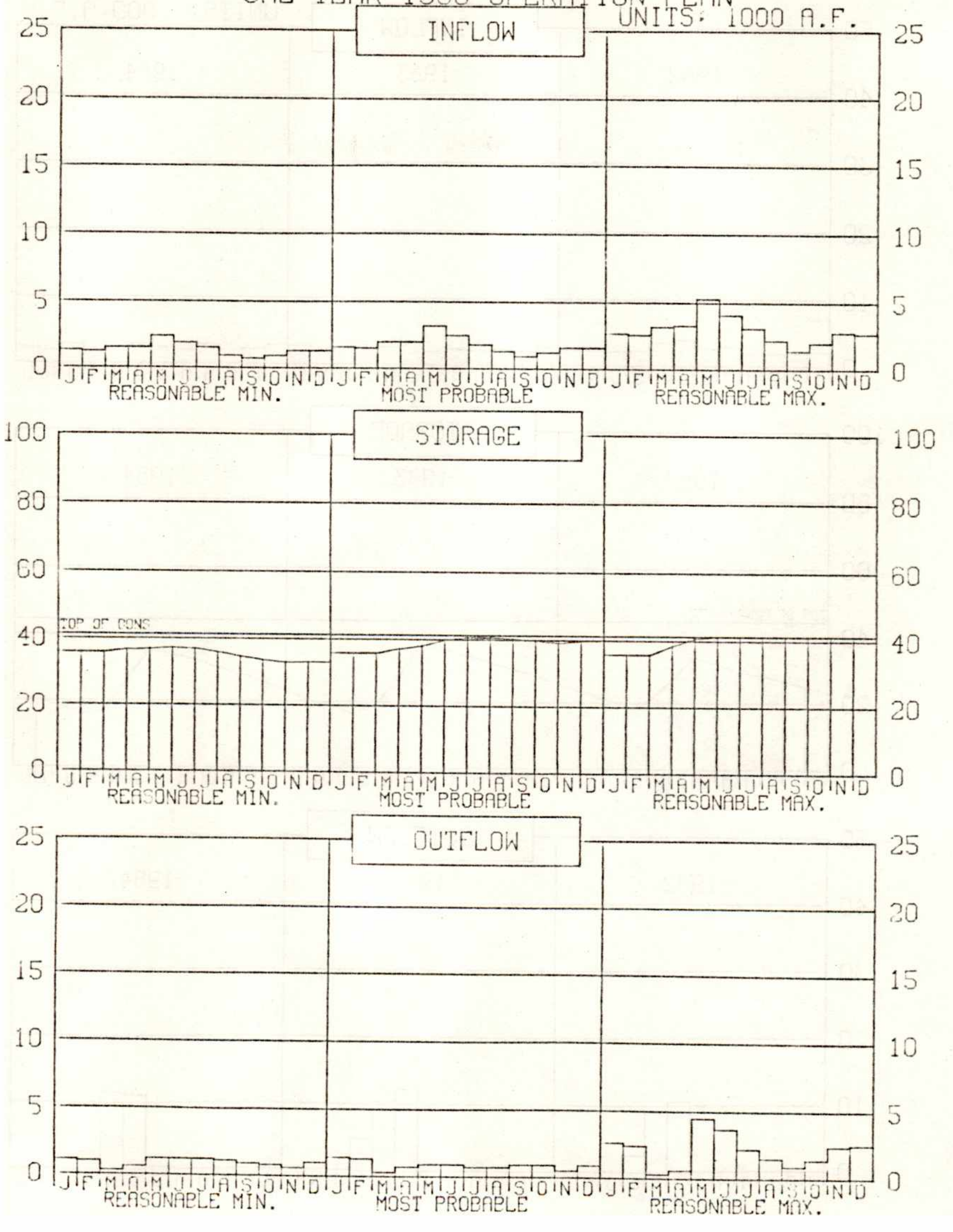


EXHIBIT 5C

BONNY RESERVOIR

CAL YEAR 1986 OPERATION PLAN



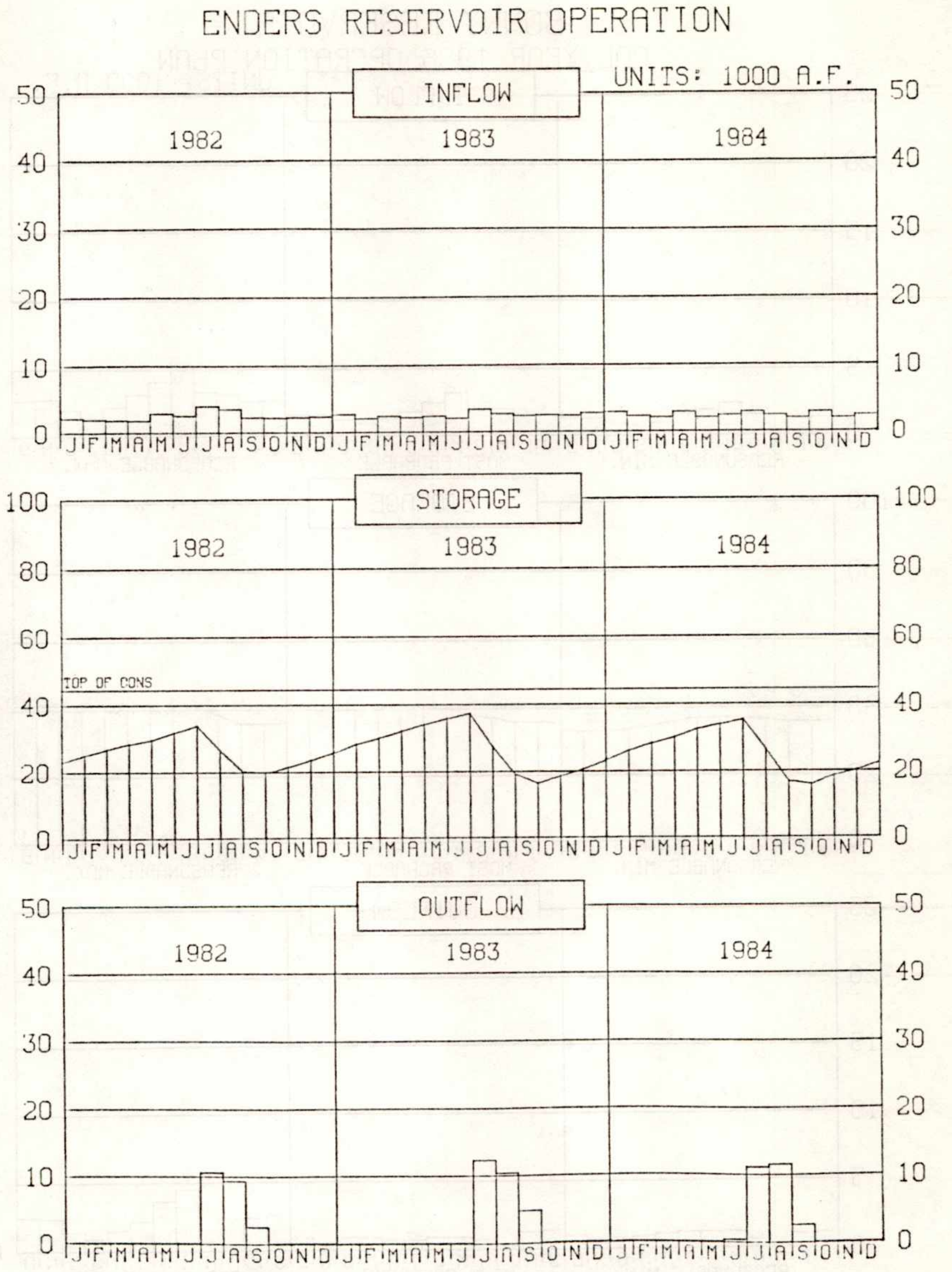

ENDERS RESERVOIR OPERATION
UNITS: 1000 A.F.
INFLOW
1982
1983
1984
STORAGE
TOP OF CONS
OUTFLOW
J F M A M J J A S O N D
0
10
20
30
40
50
60
80
100

EXHIBIT 6B

ENDERS RESERVOIR 1985 OPERATION

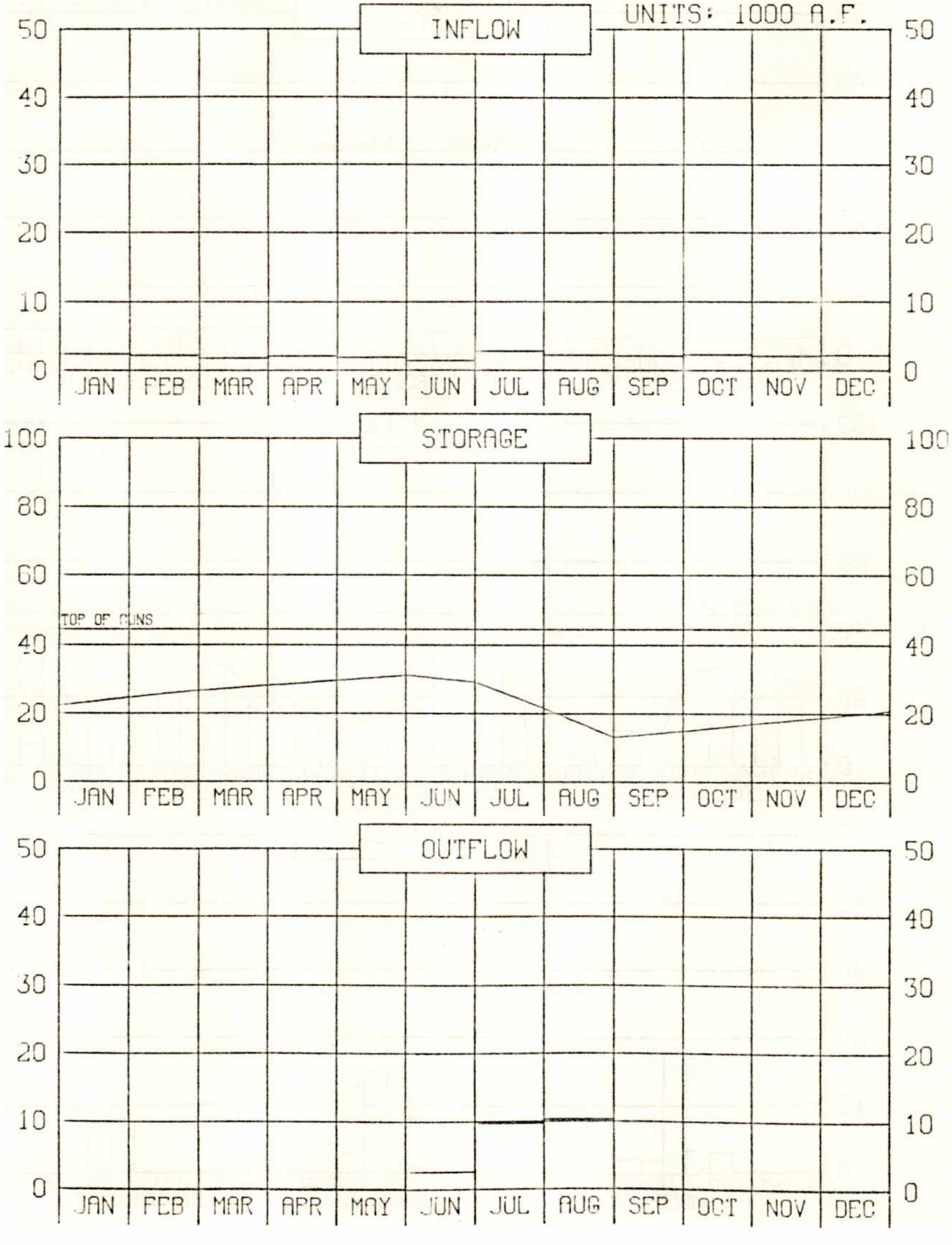
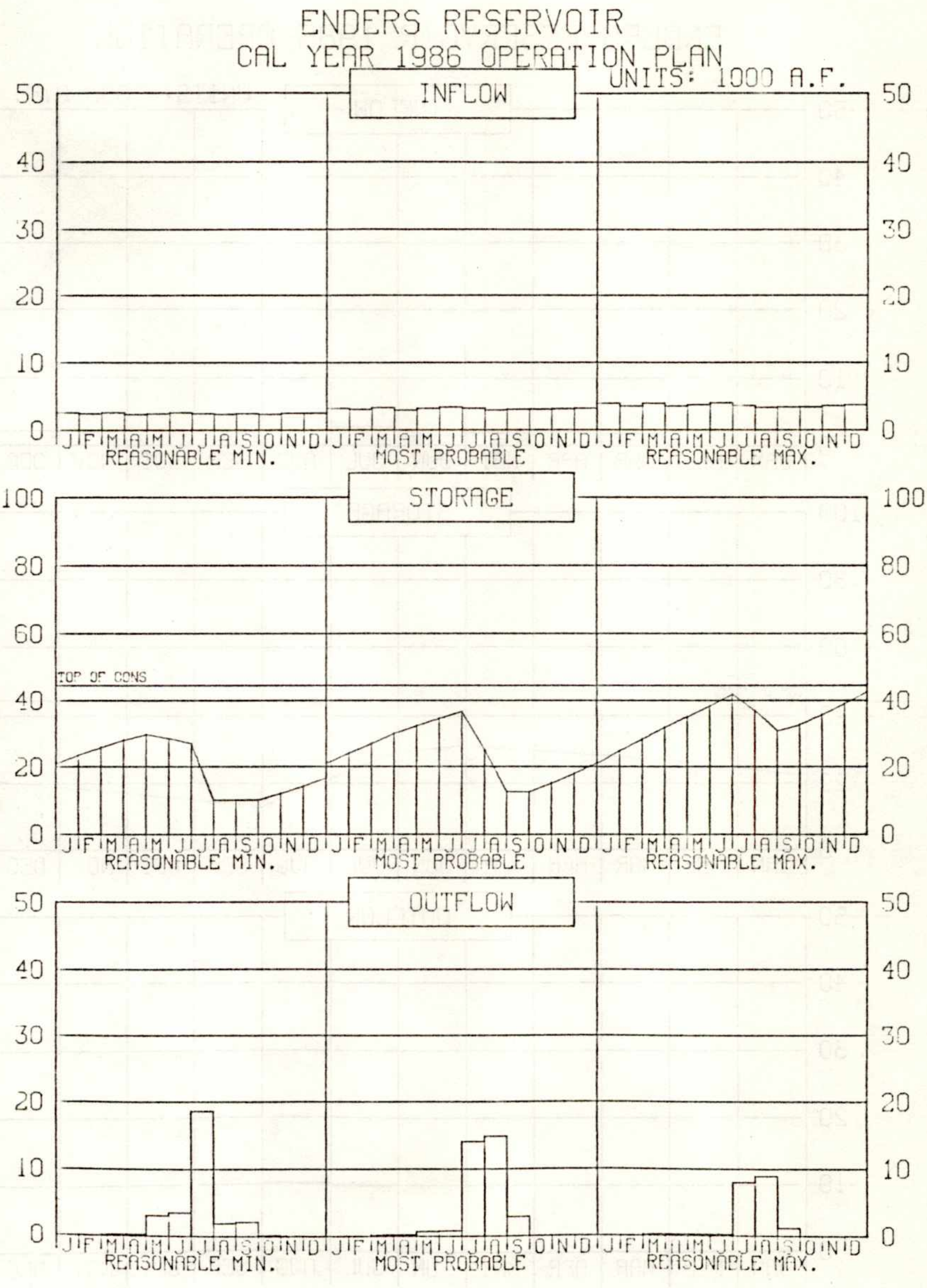


EXHIBIT 6C



ENDERS RESERVOIR
CAL YEAR 1986 OPERATION PLAN
UNITS: 1000 A.F.
INFLOW
50
40
30
20
10
0
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.
STORAGE
100
80
60
40
20
0
TOP OF CONS
OUTFLOW

EXHIBIT 7A

SWANSON LAKE OPERATION

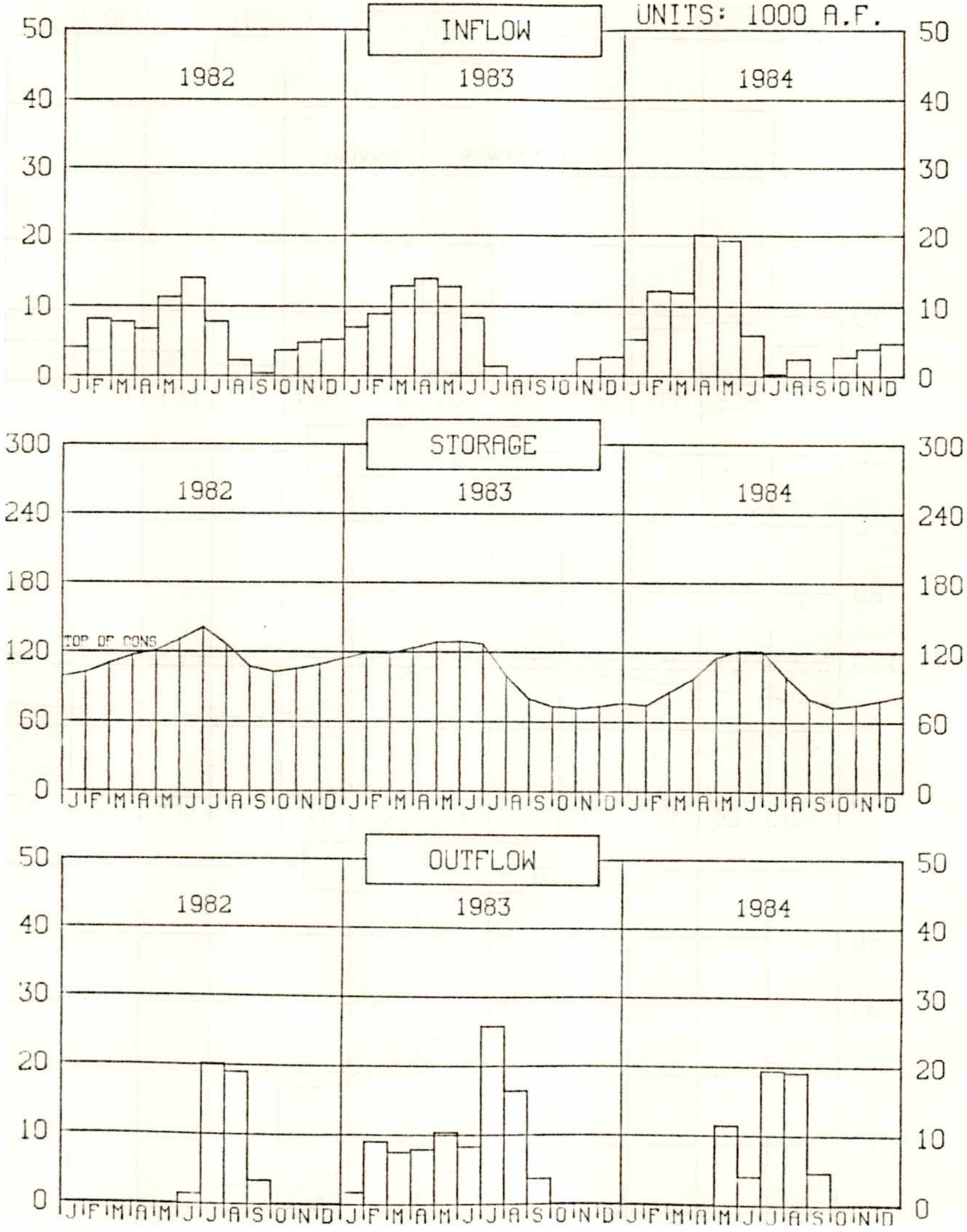
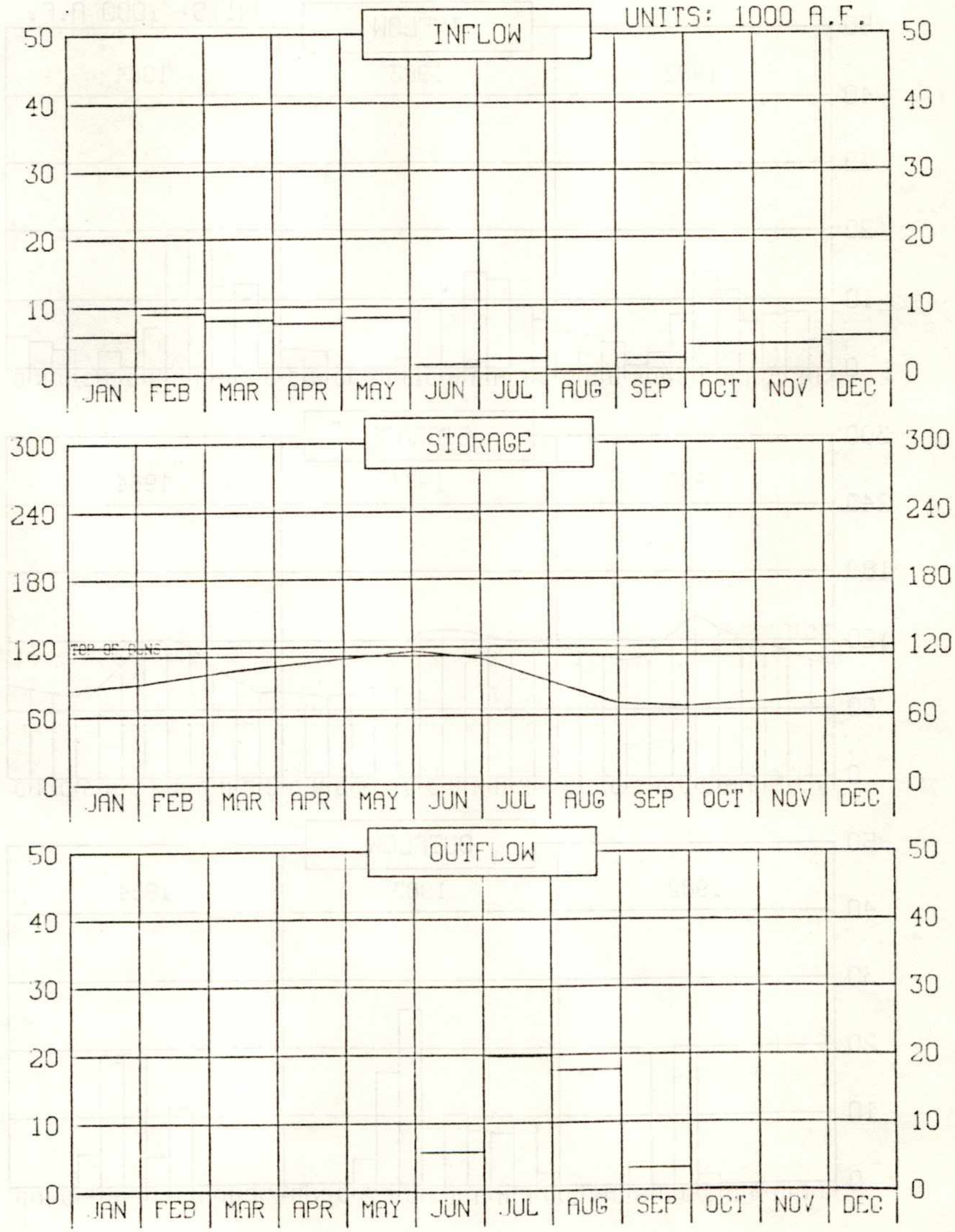


EXHIBIT 7B

SWANSON LAKE 1985 OPERATION



SWANSON LAKE
CAL YEAR 1986 OPERATION PLAN

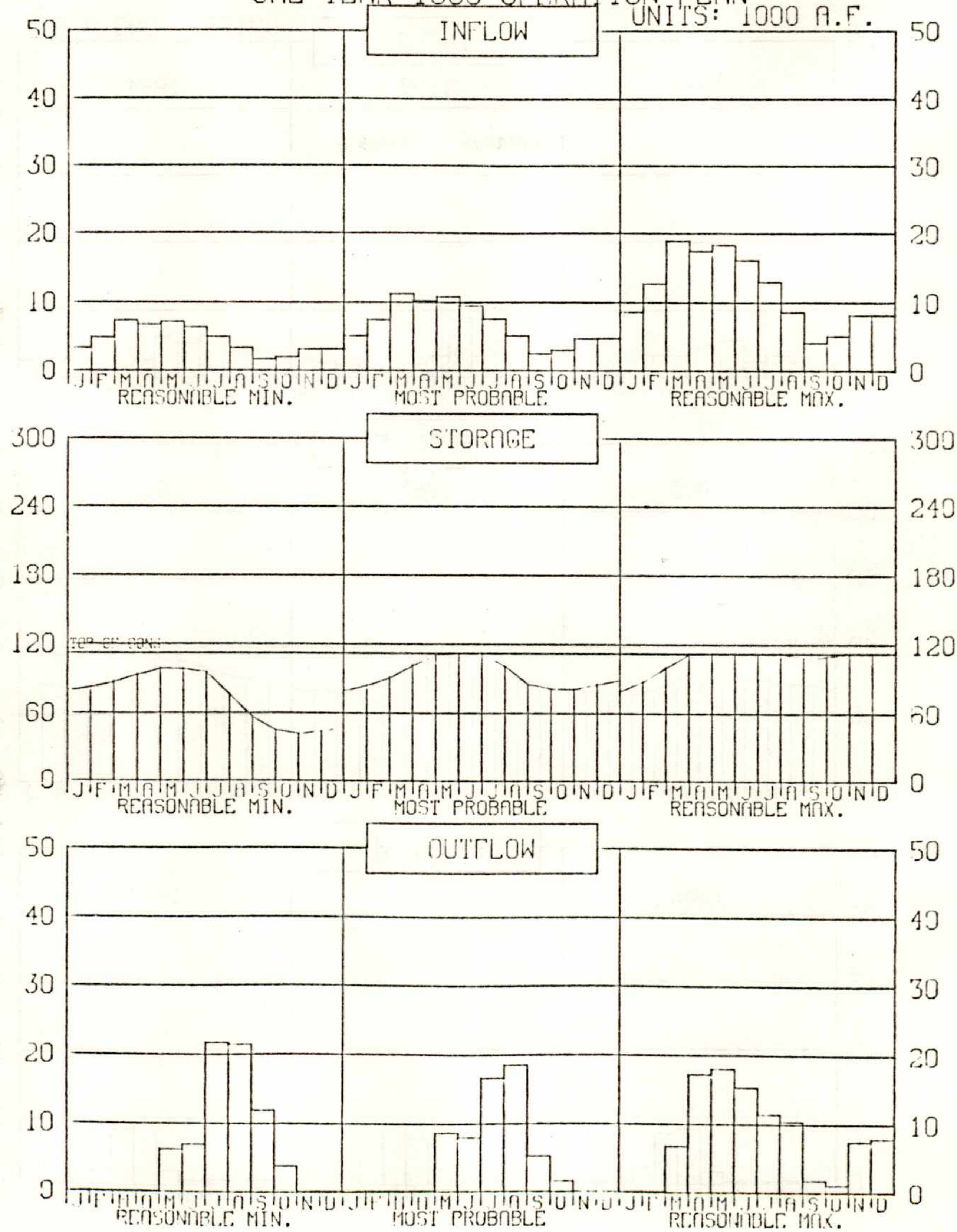
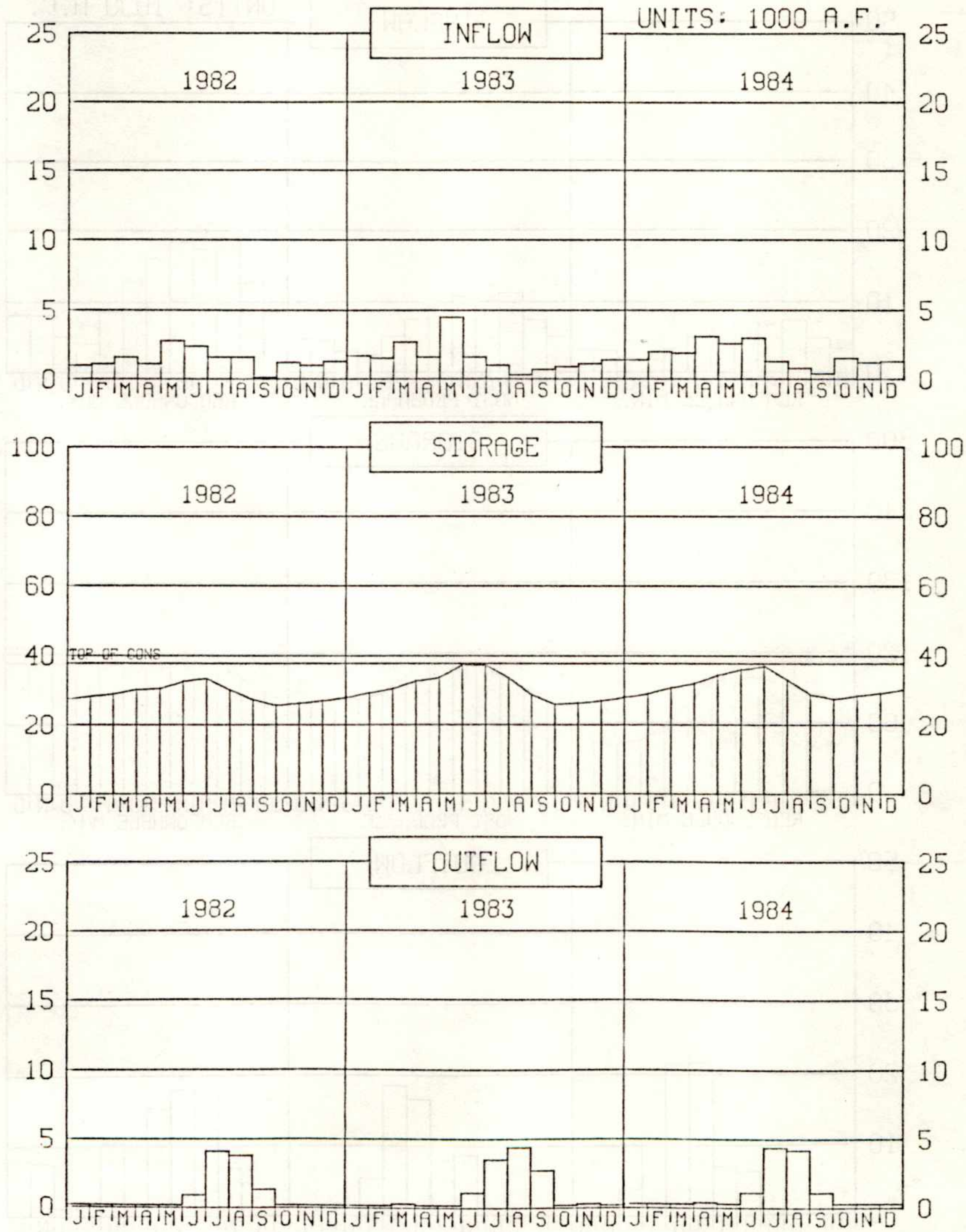


EXHIBIT 8A

HUGH BUTLER LAKE OPERATION



HUGH BUTLER LAKE 1985 OPERATION

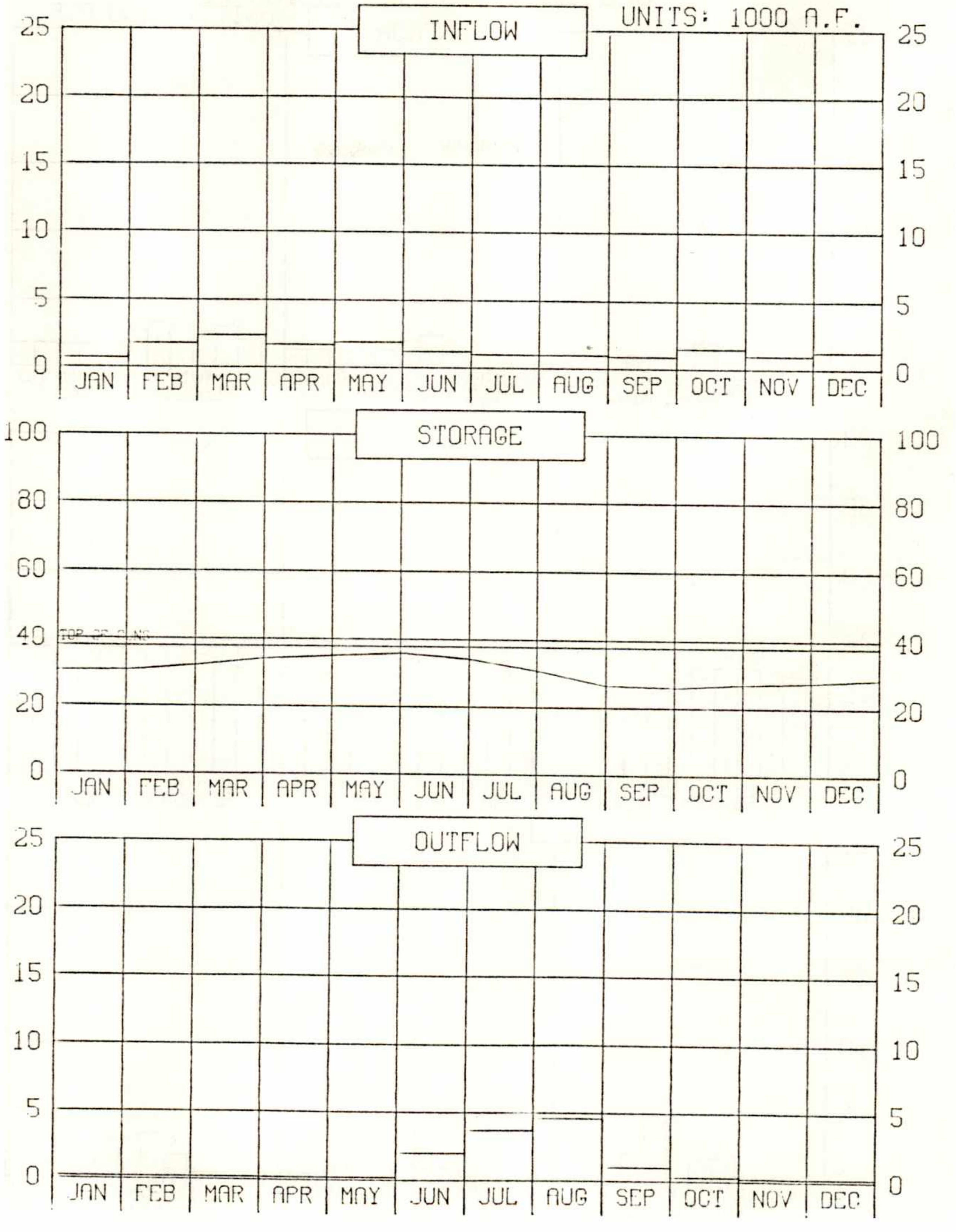
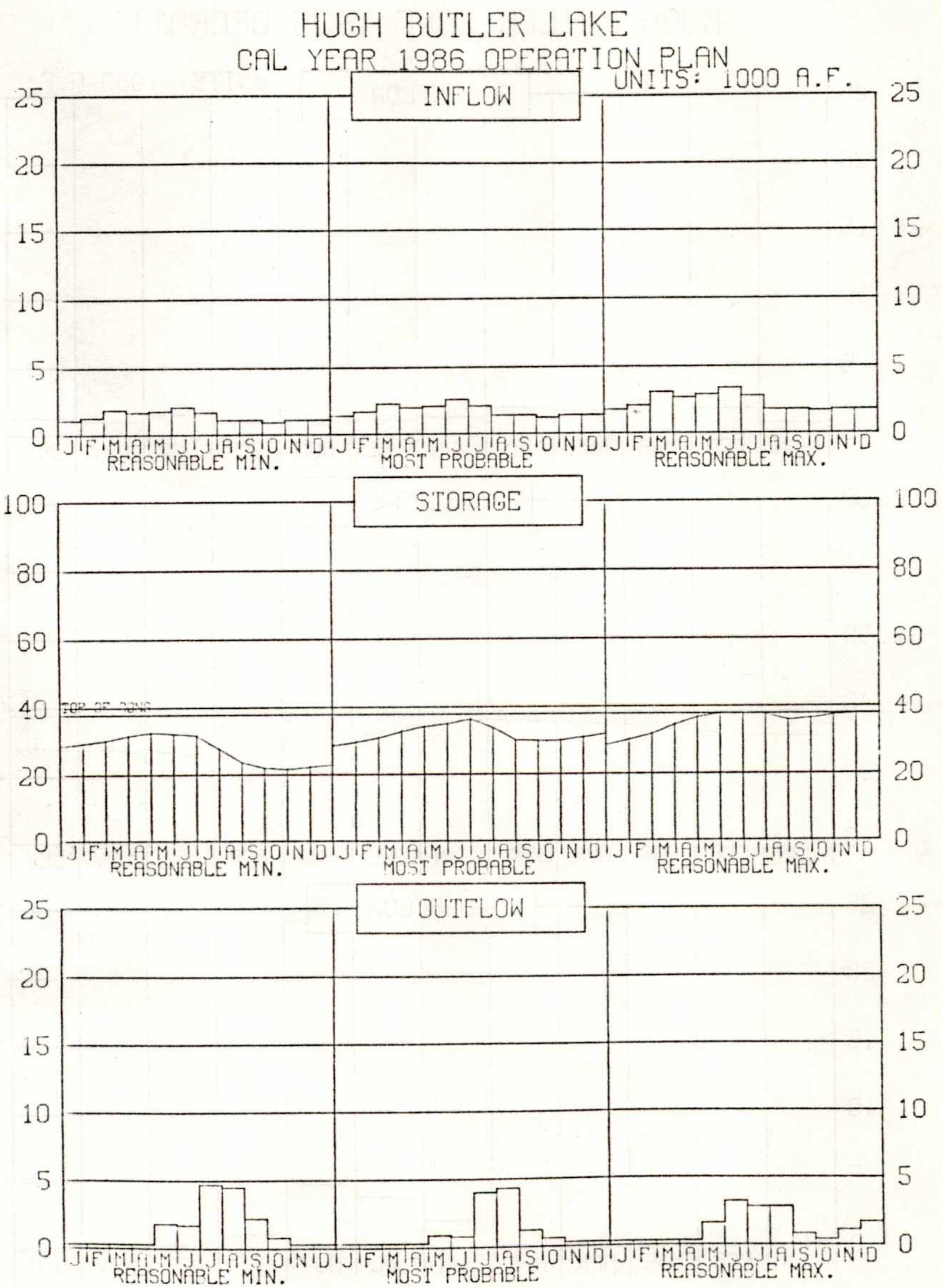


EXHIBIT 8C


HUGH BUTLER LAKE
CAL YEAR 1986 OPERATION PLAN
UNITS: 1000 A.F.
INFLOW
STORAGE
OUTFLOW
TOP OF CONS
J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.

HARRY STRUNK LAKE OPERATION

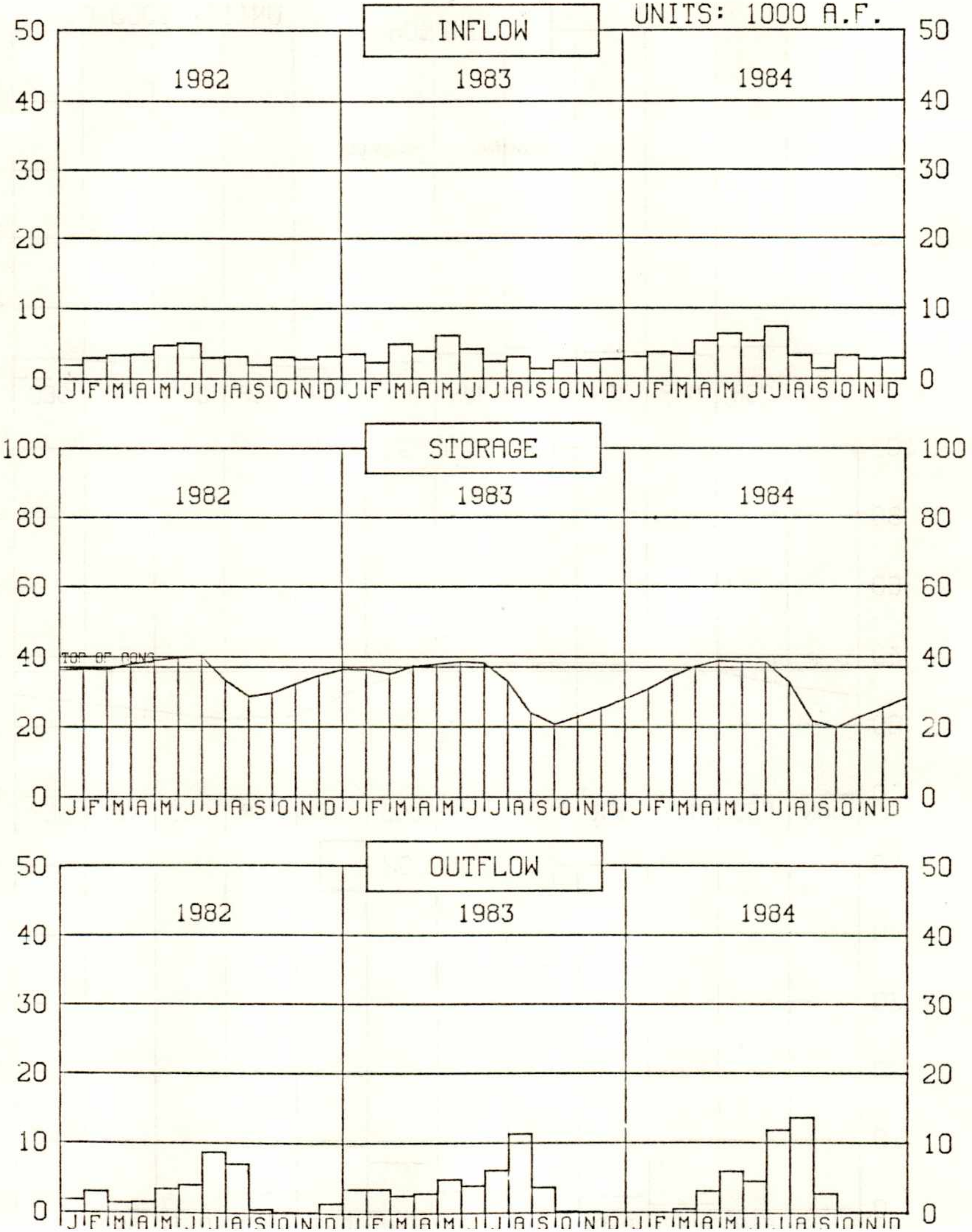
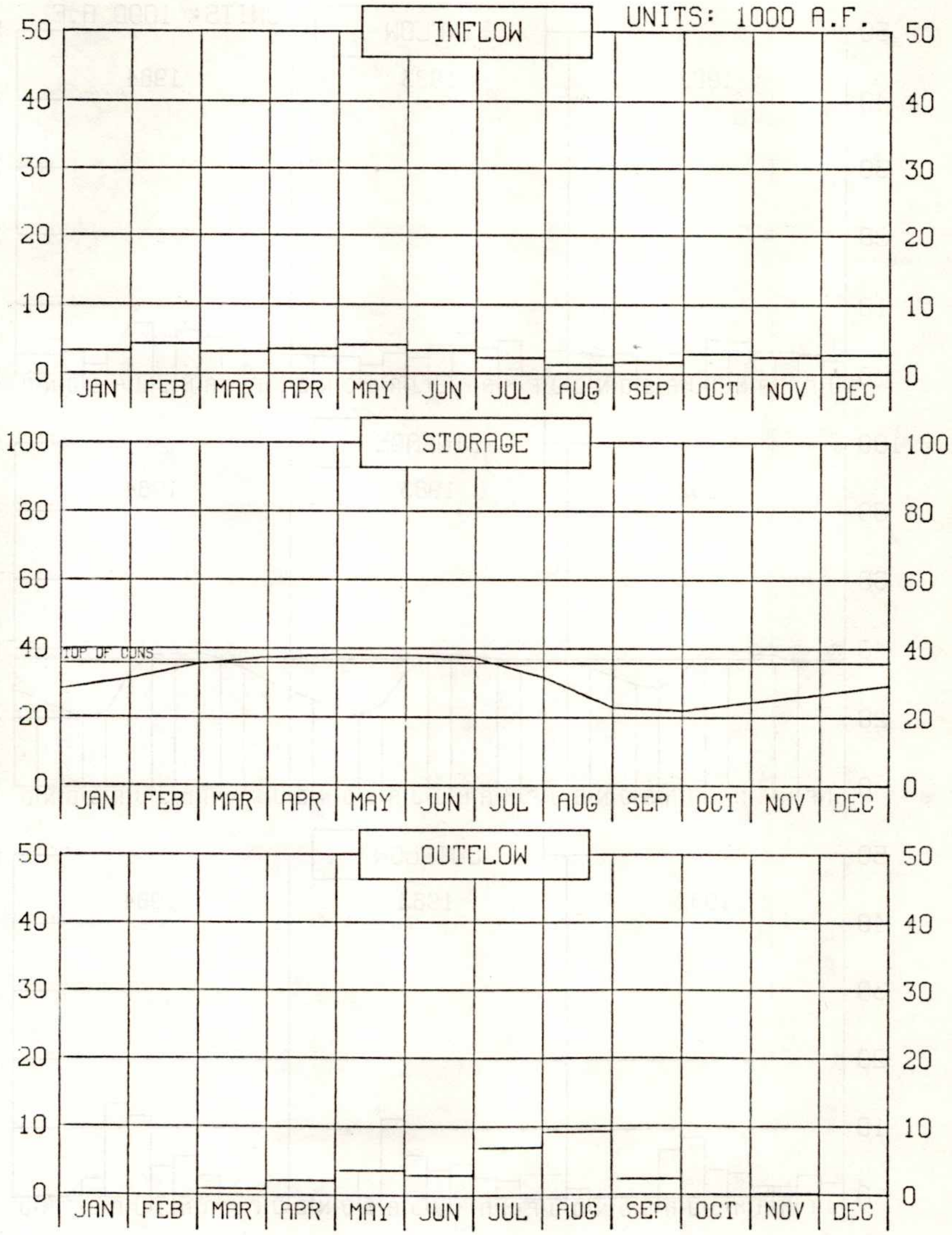


EXHIBIT 9B

HARRY STRUNK LAKE 1985 OPERATION



HARRY STRUNK LAKE

CAL YEAR 1986 OPERATION PLAN

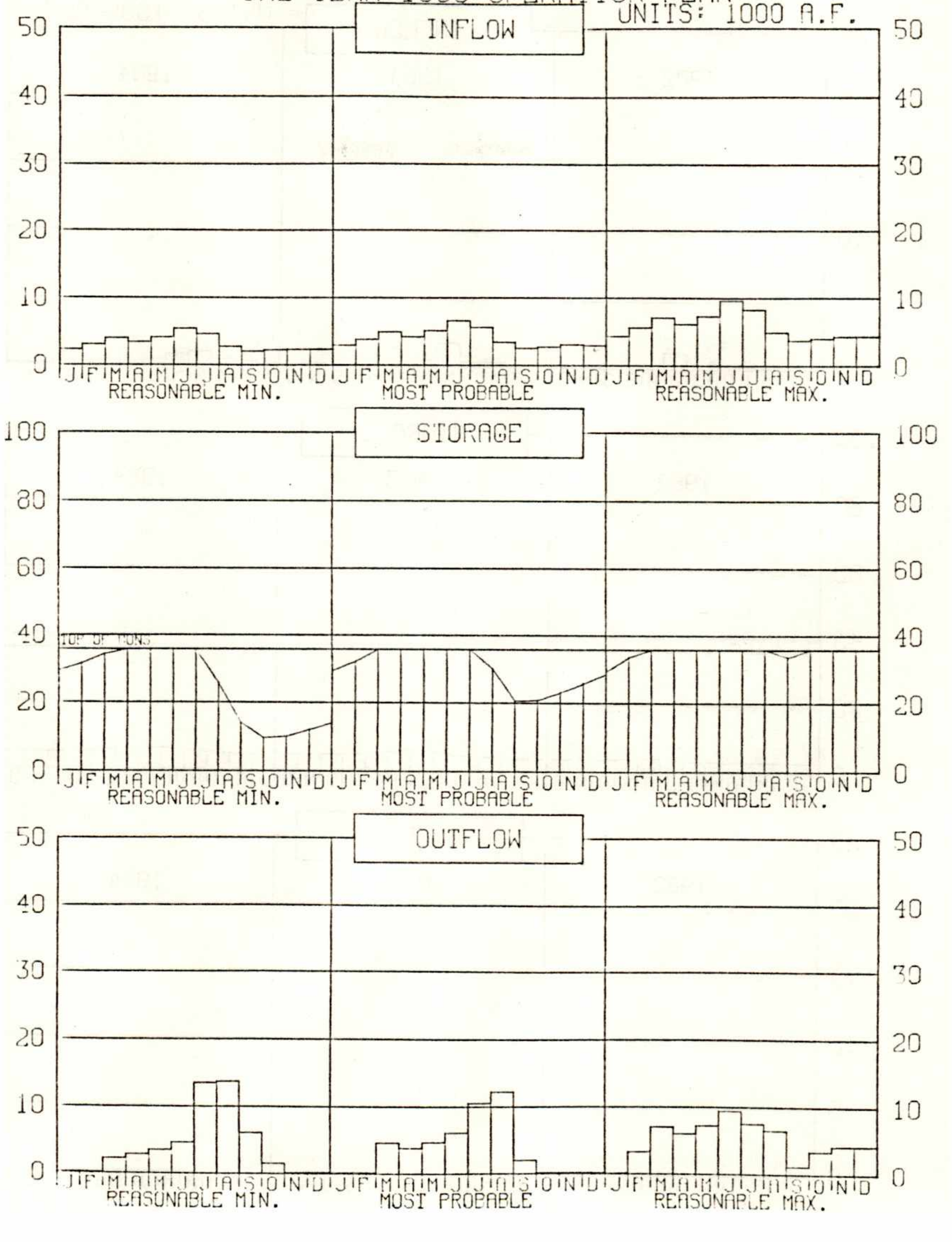


EXHIBIT 10A

KEITH SEBELIUS LAKE OPERATION

UNITS: 1000 A.F.

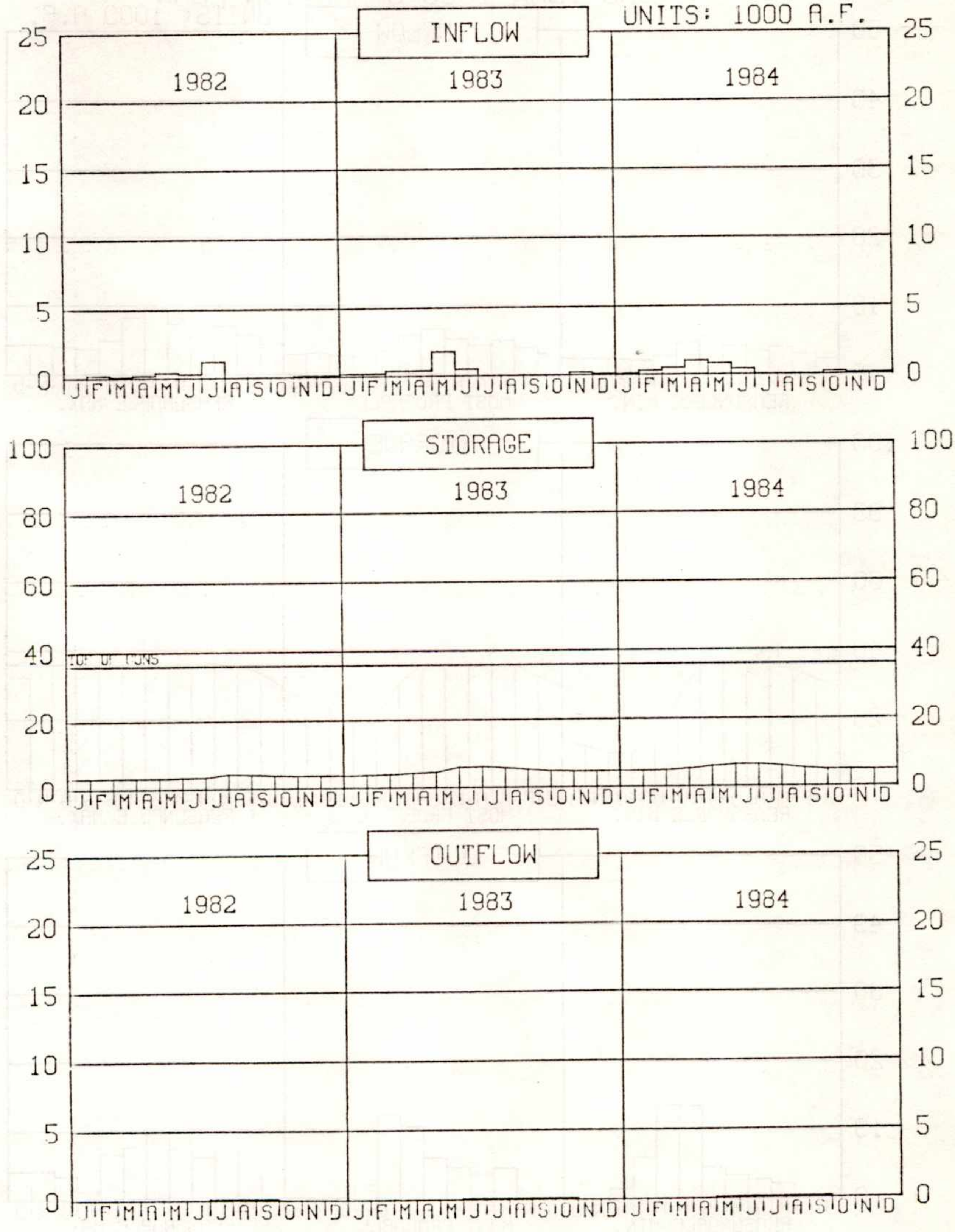


EXHIBIT 10B

KEITH SEBELIUS LAKE 1985 OPERATION

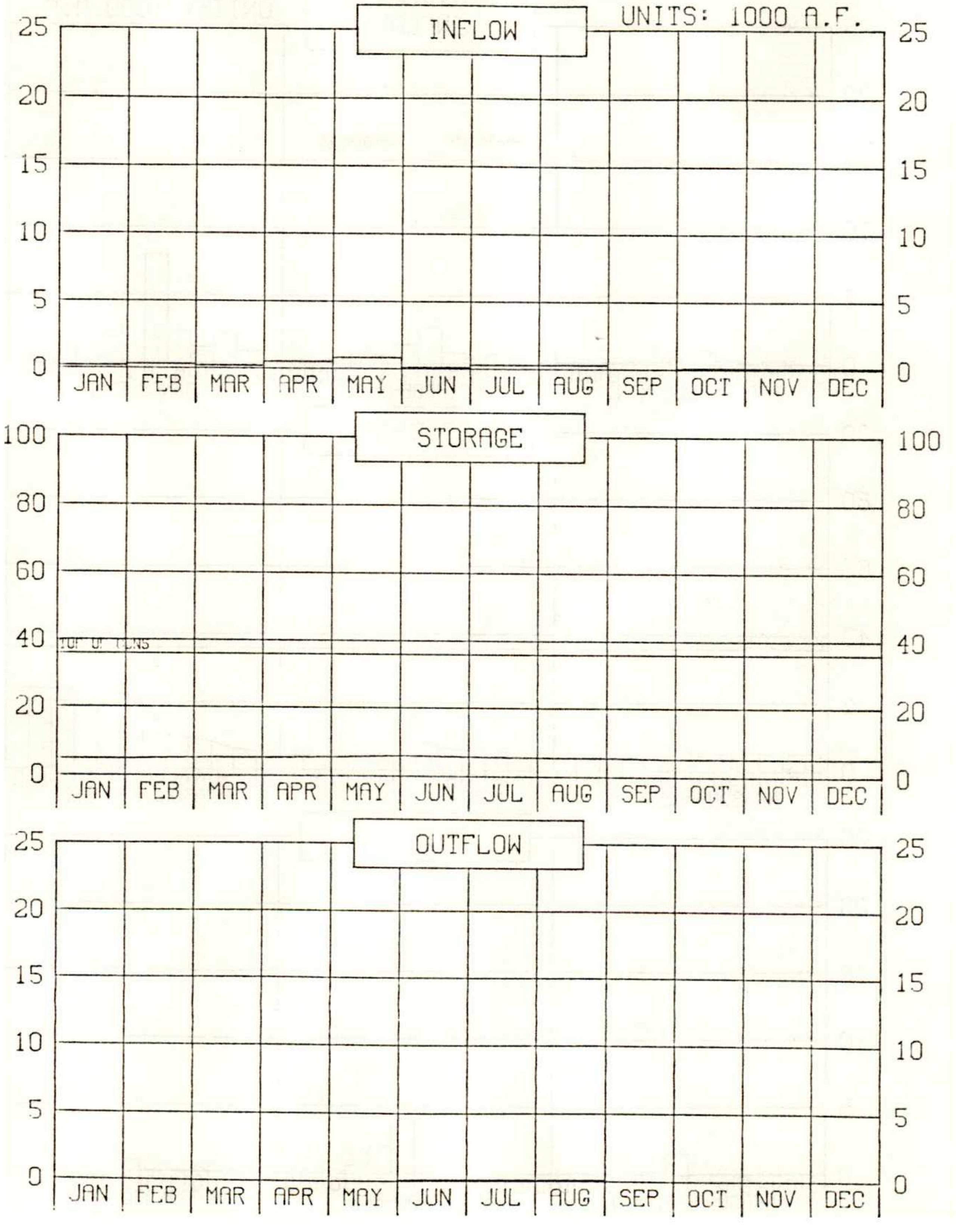


EXHIBIT 10C

KEITH SEBELIUS LAKE
CAL YEAR 1986 OPERATION PLAN

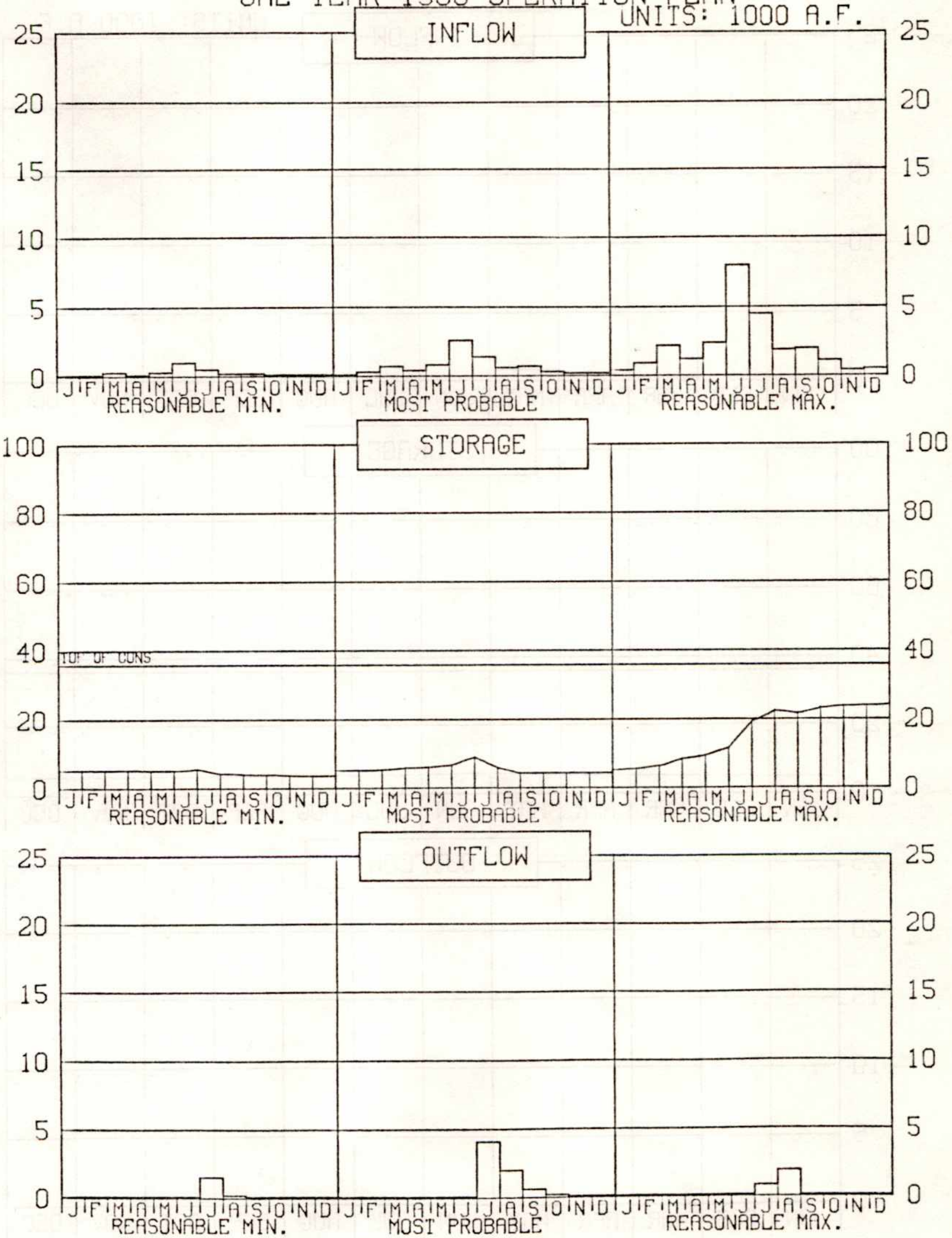


EXHIBIT 11A

HARLAN COUNTY LAKE OPERATION

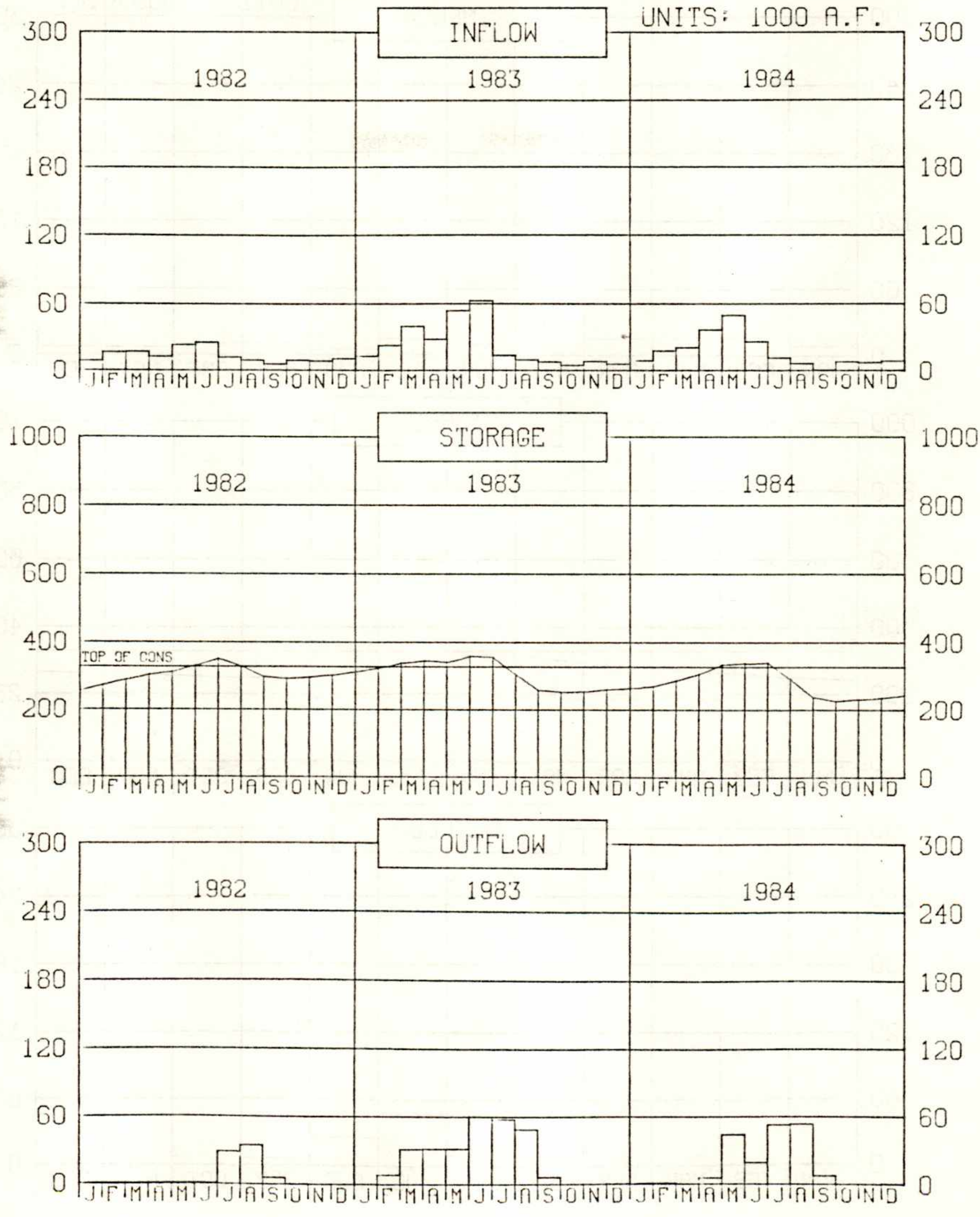
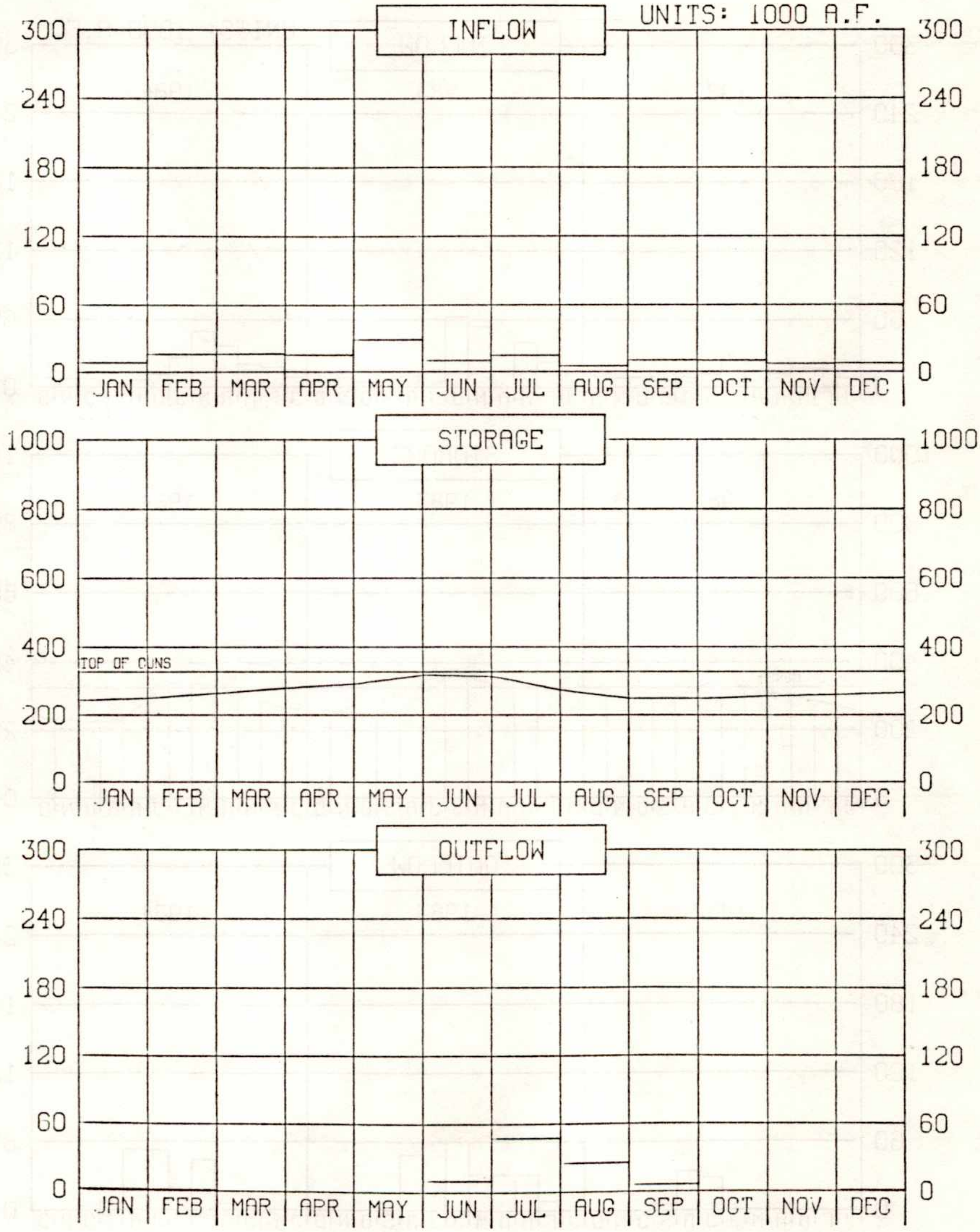


EXHIBIT 11B

HARLAN COUNTY LAKE 1985 OPERATION



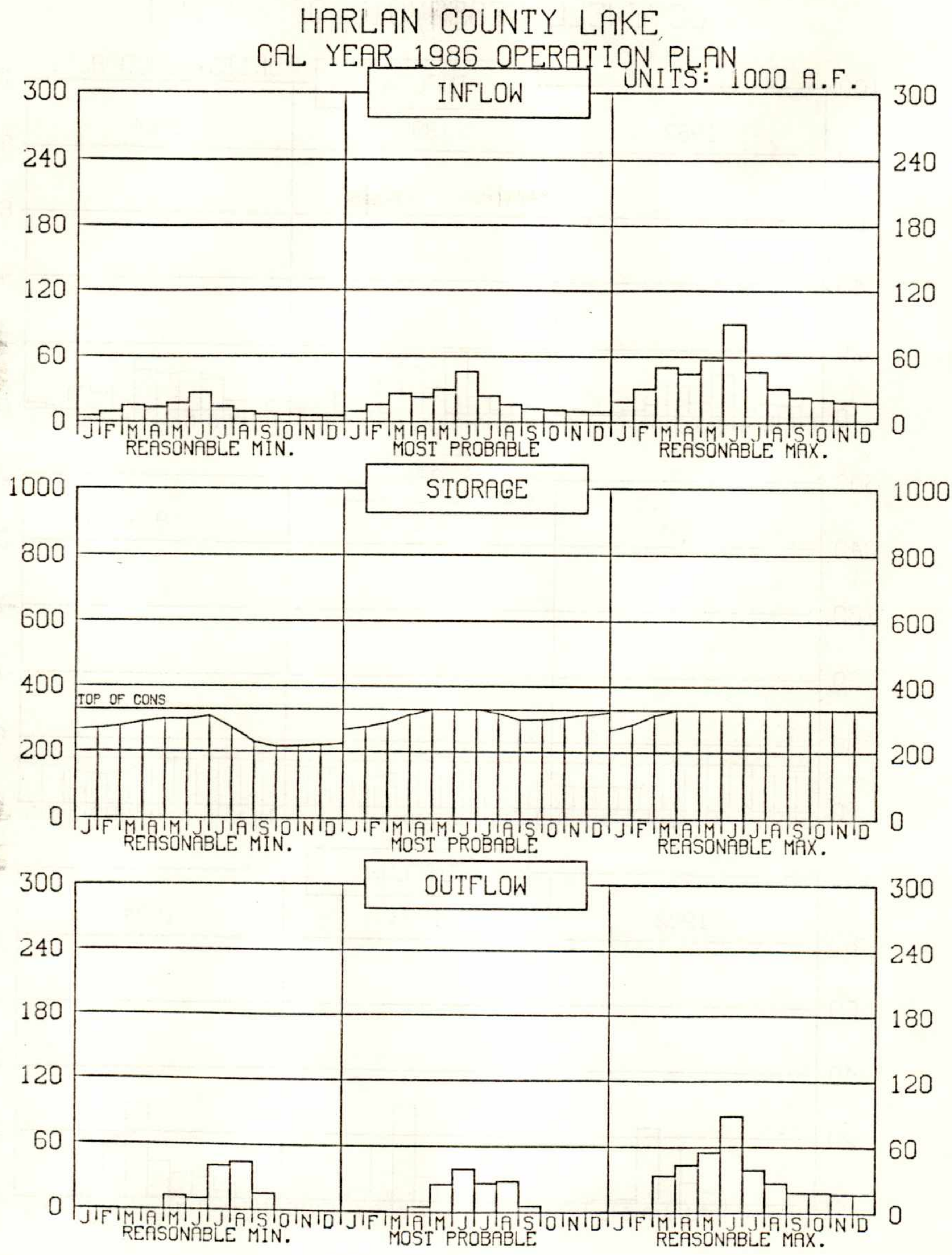

HARLAN COUNTY LAKE
CAL YEAR 1986 OPERATION PLAN
UNITS: 1000 A.F.
INFLOW
300
240
180
120
60
0
J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.
STORAGE
1000
800
600
400
200
0
TOP OF CONS
J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.
OUTFLOW
300
240
180
120
60
0
J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.

EXHIBIT 12A

LOVEWELL RESERVOIR OPERATION

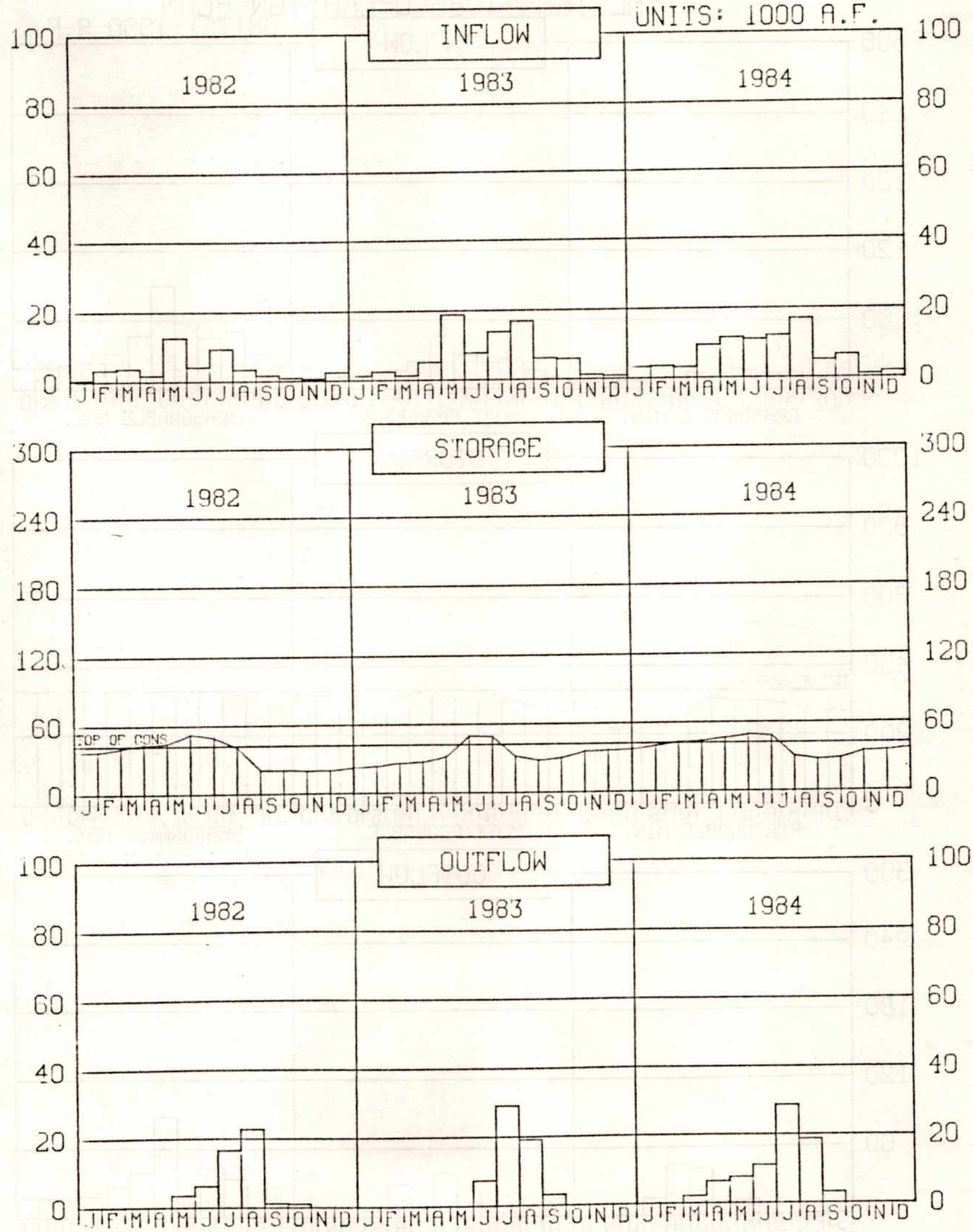


EXHIBIT 12B

LOVEWELL RESERVOIR 1985 OPERATION

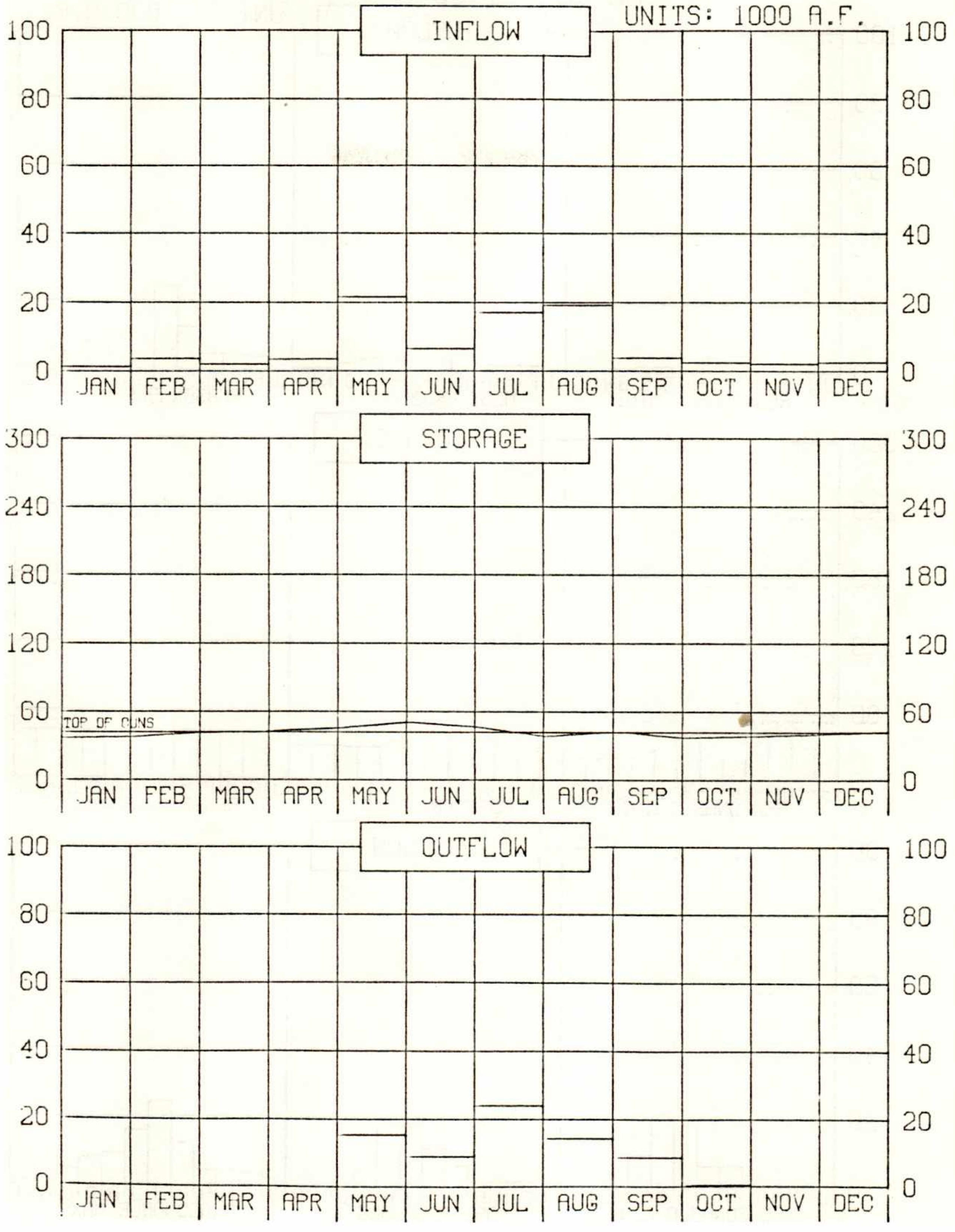


EXHIBIT 12C

LOVEWELL RESERVOIR
CAL YEAR 1986 OPERATION PLAN

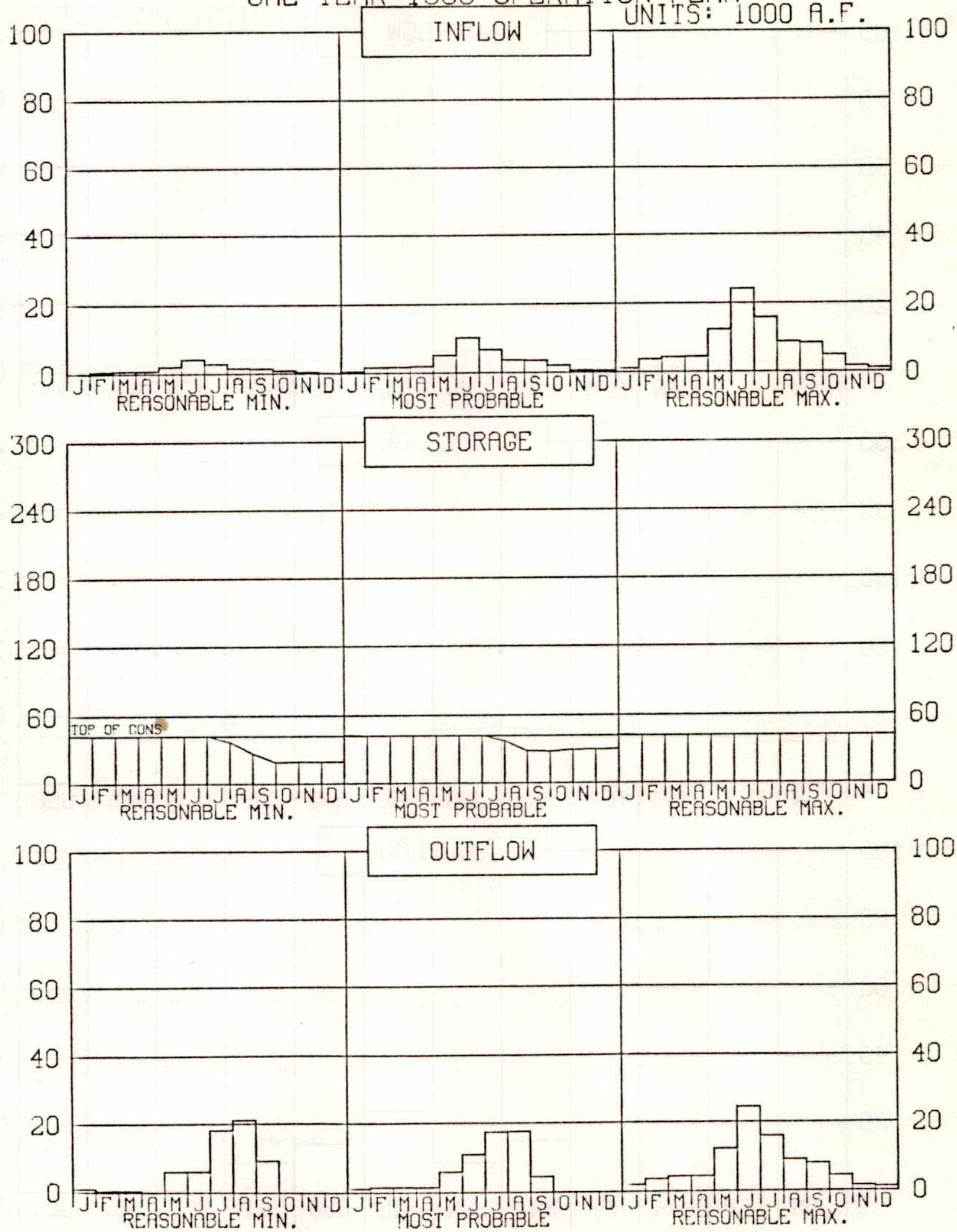


EXHIBIT 13A

KIRWIN RESERVOIR OPERATION

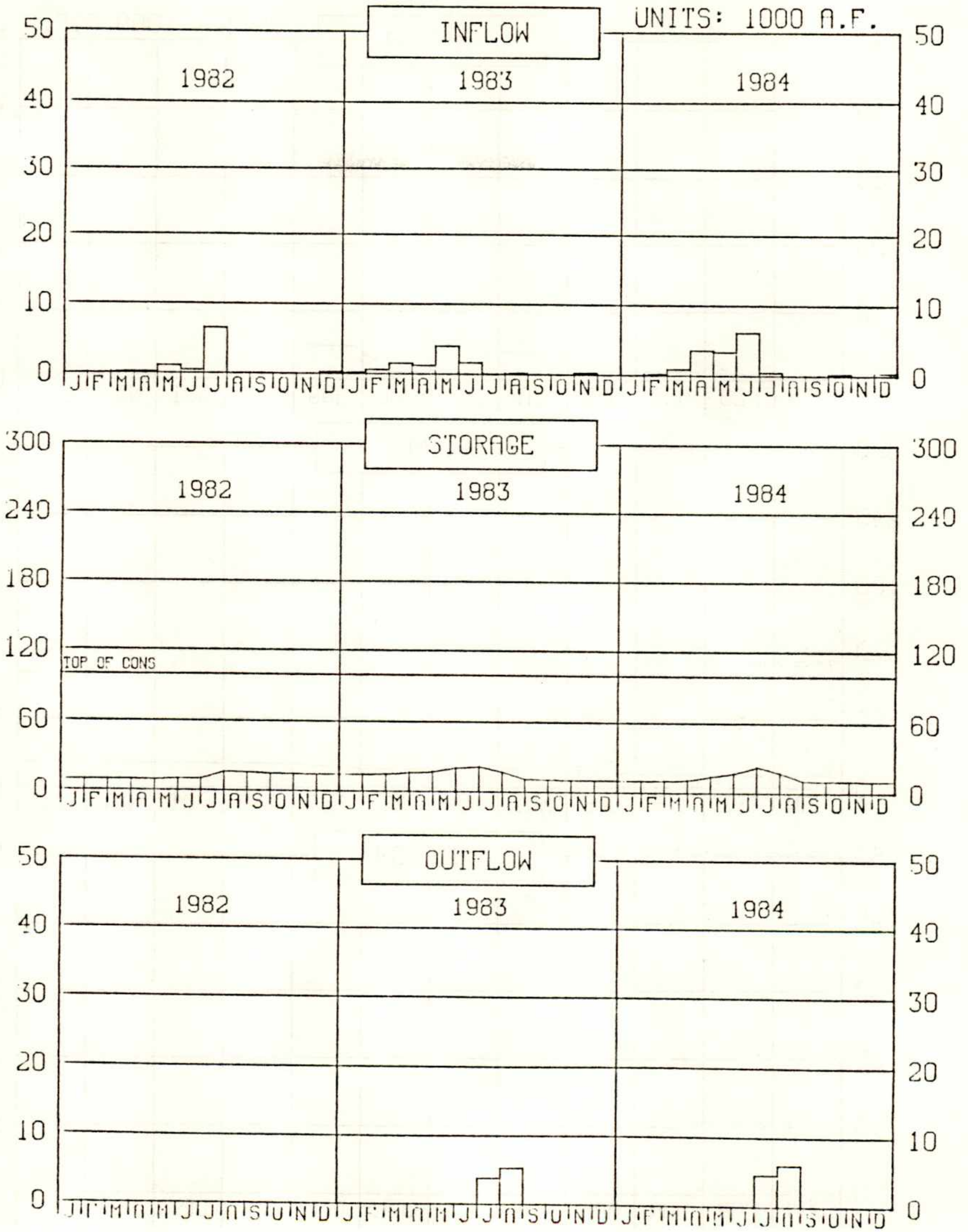


EXHIBIT 13B

KIRWIN RESERVOIR 1985 OPERATION

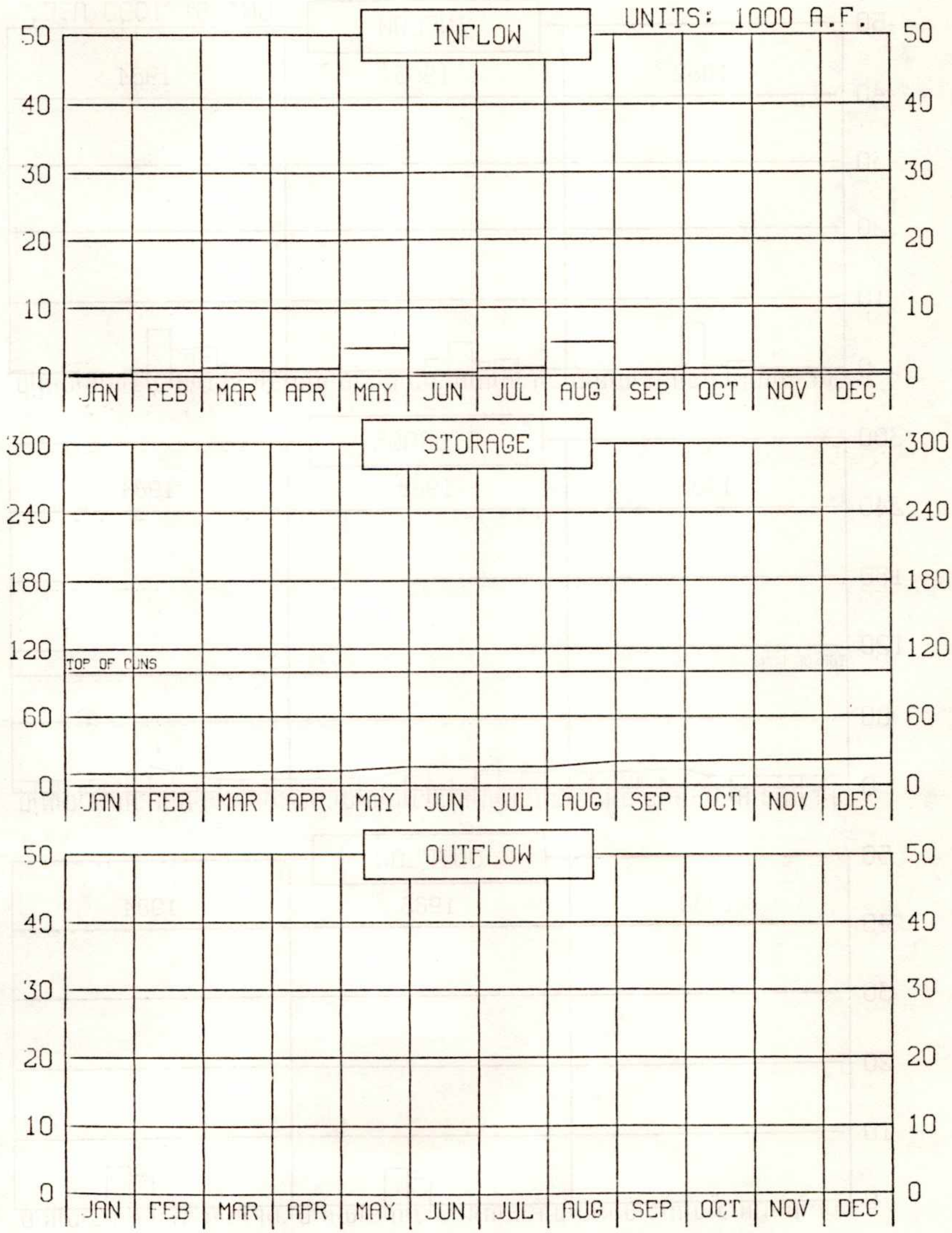


EXHIBIT 13C

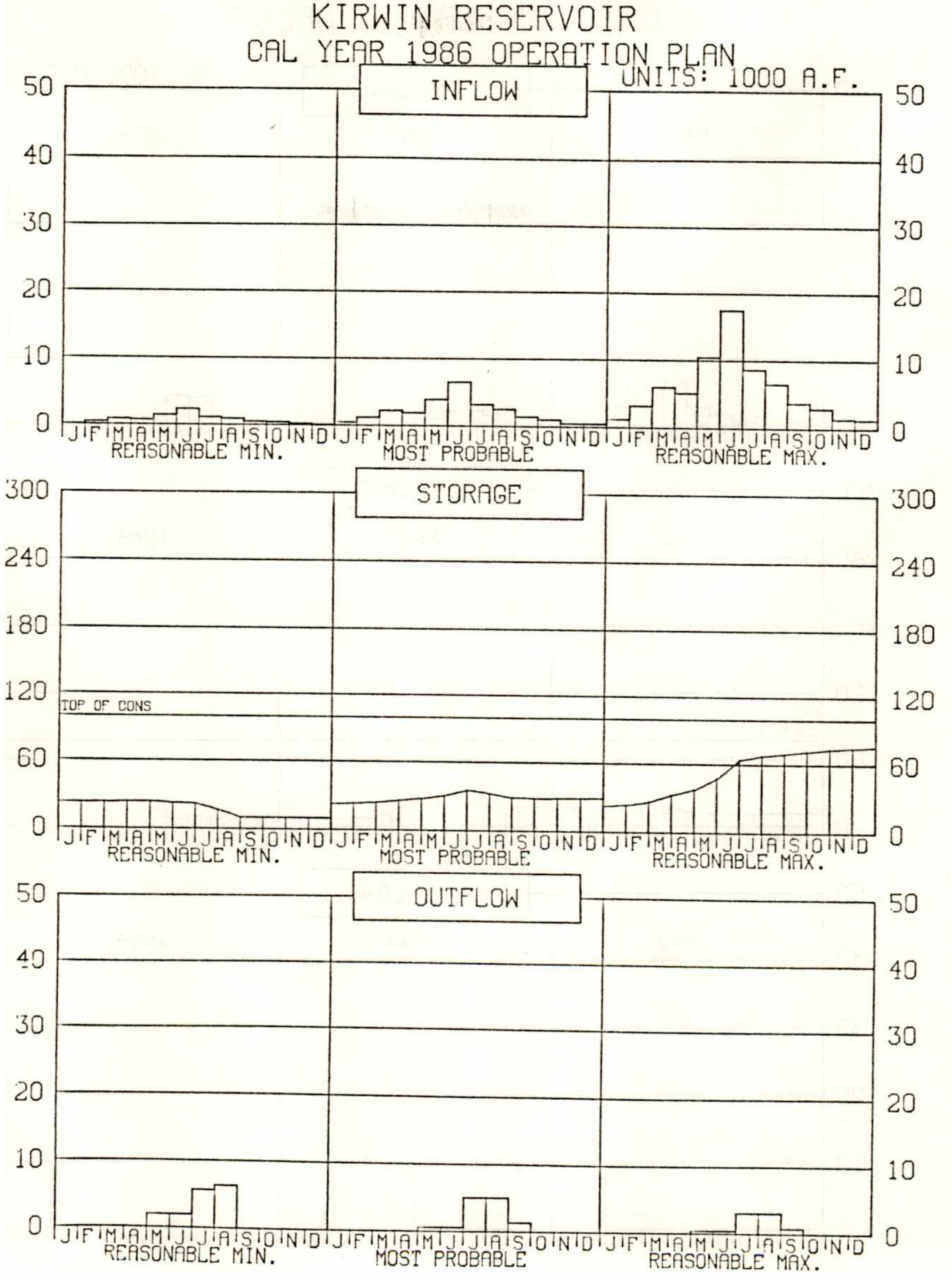

KIRWIN RESERVOIR
CAL YEAR 1986 OPERATION PLAN
UNITS: 1000 A.F.
INFLOW
STORAGE
TOP OF CONS
OUTFLOW
J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.
50
40
30
20
10
0
300
240
180
120
60

EXHIBIT 14A

WEBSTER RESERVOIR OPERATION

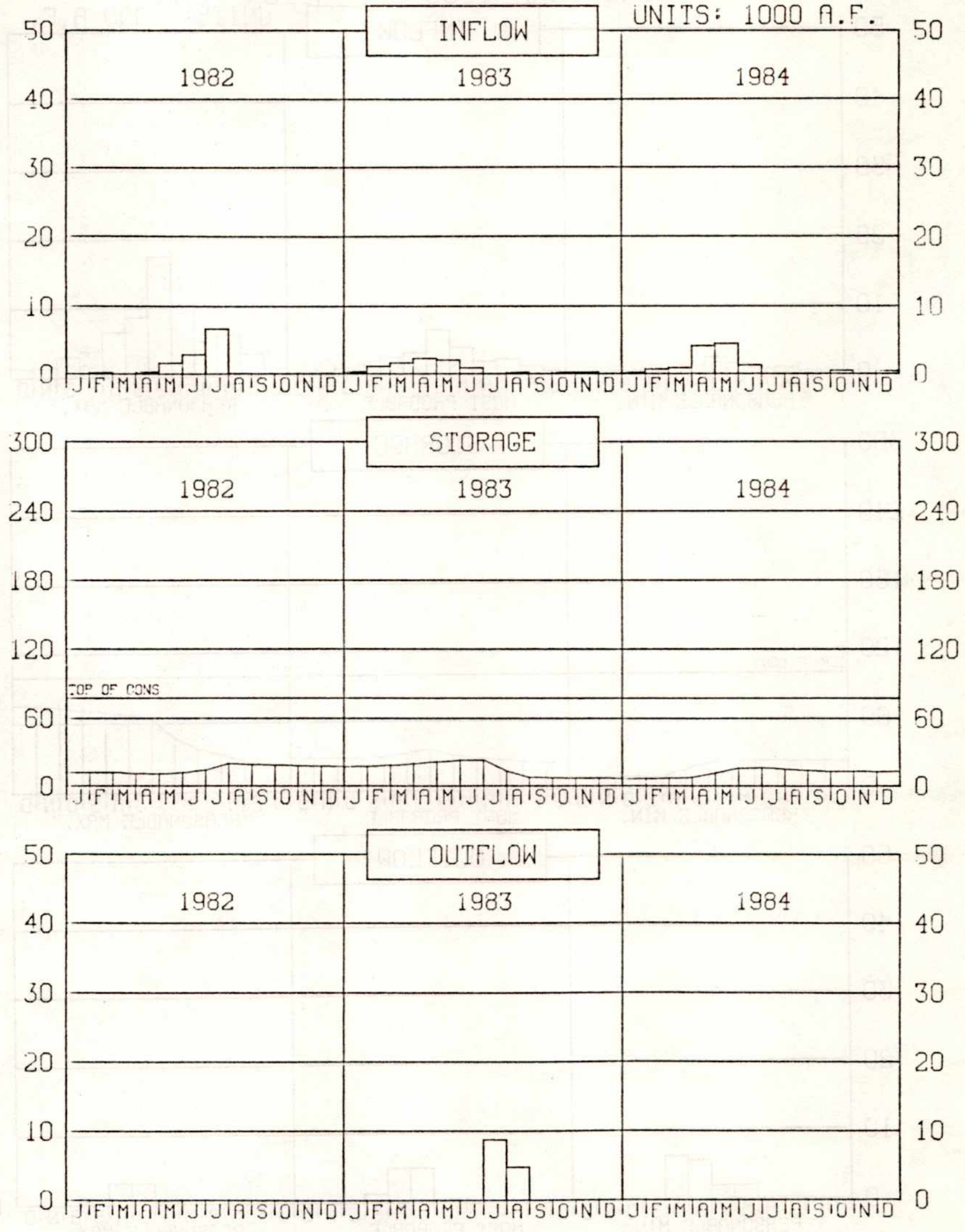


EXHIBIT 14B

WEBSTER RESERVOIR 1985 OPERATION

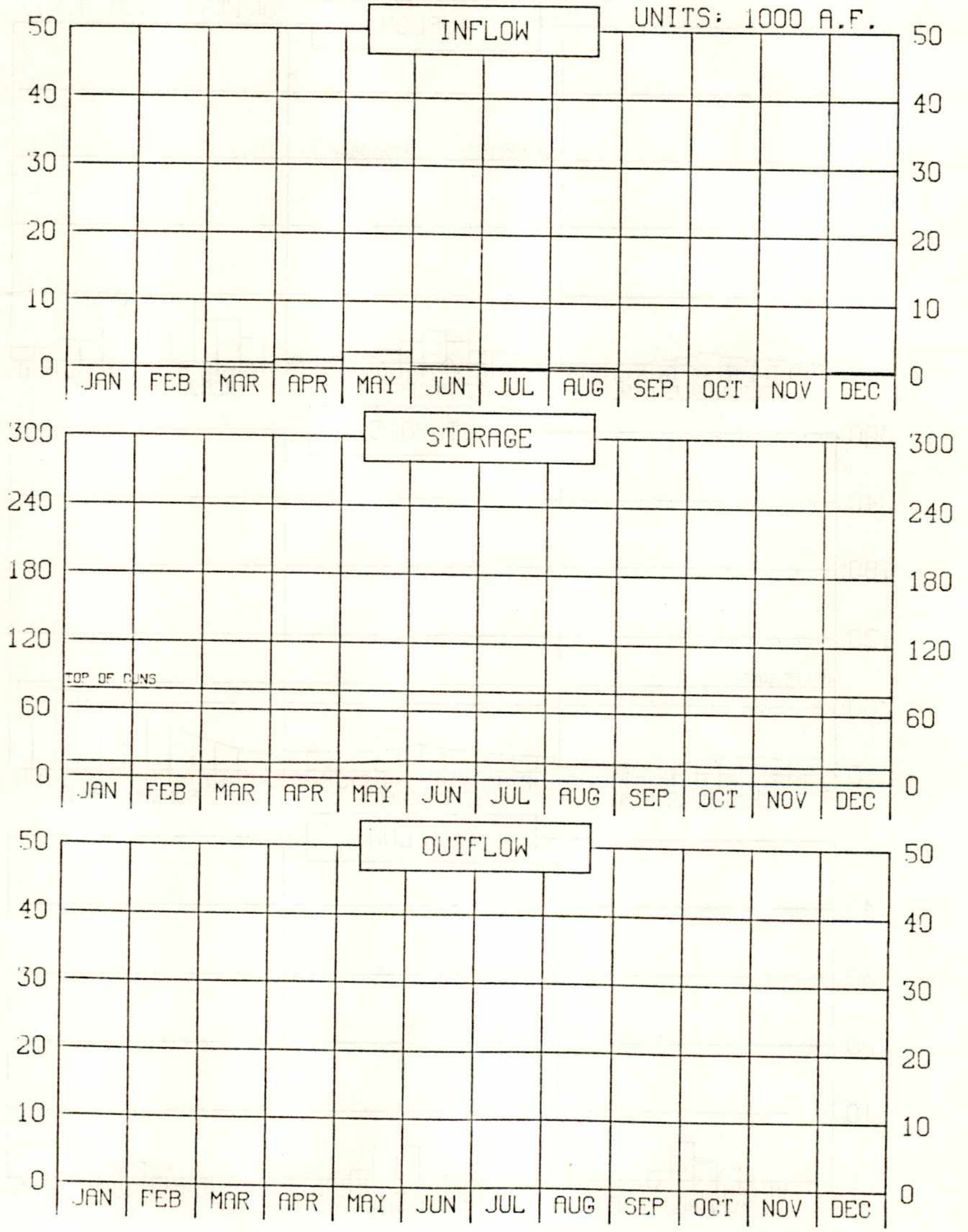
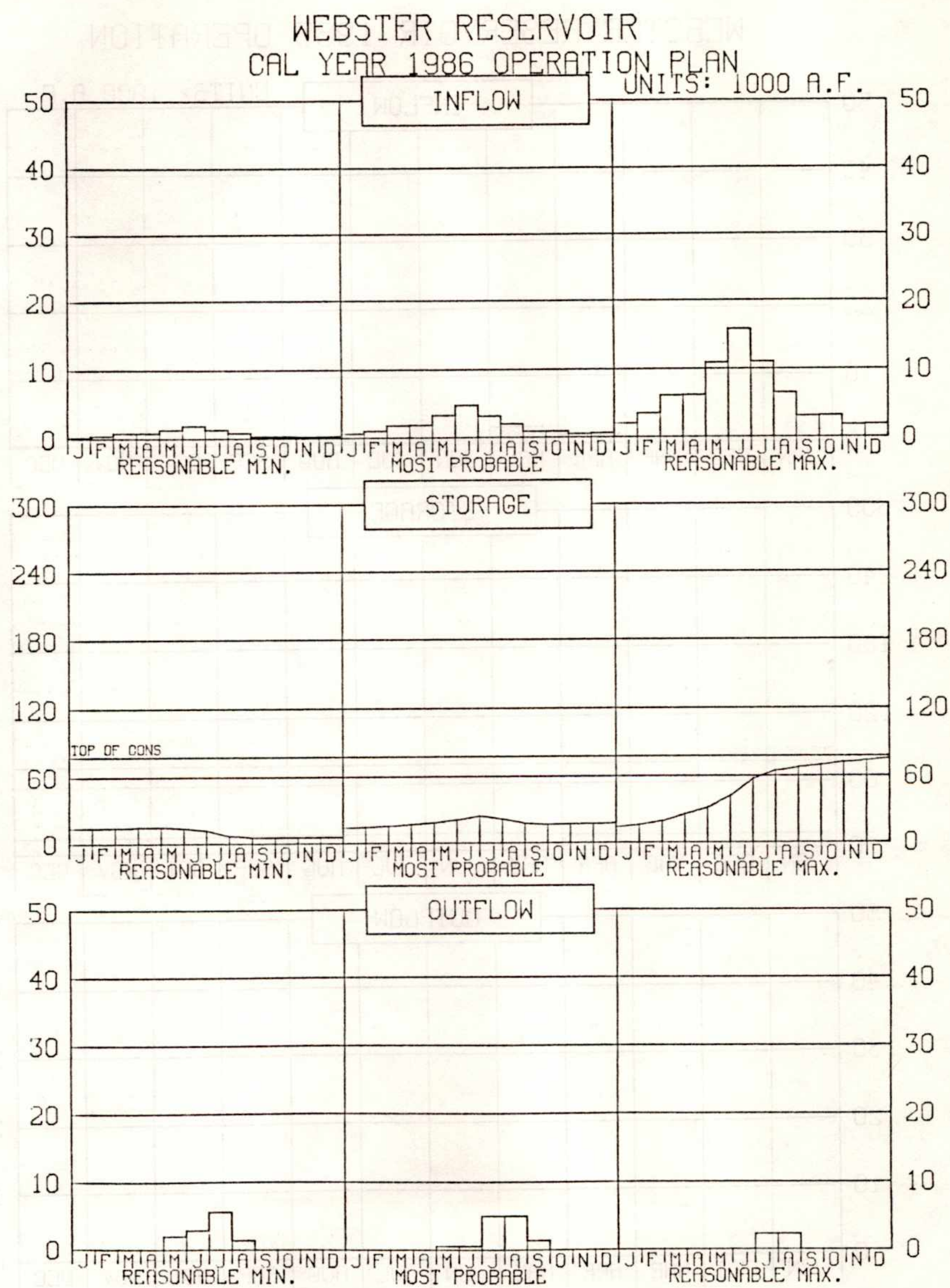


EXHIBIT 14C


WEBSTER RESERVOIR
CAL YEAR 1986 OPERATION PLAN
UNITS: 1000 A.F.
INFLOW
50
40
30
20
10
0
J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.
STORAGE
300
240
180
120
60
0
TOP OF CONS
OUTFLOW

WACONDA LAKE OPERATION

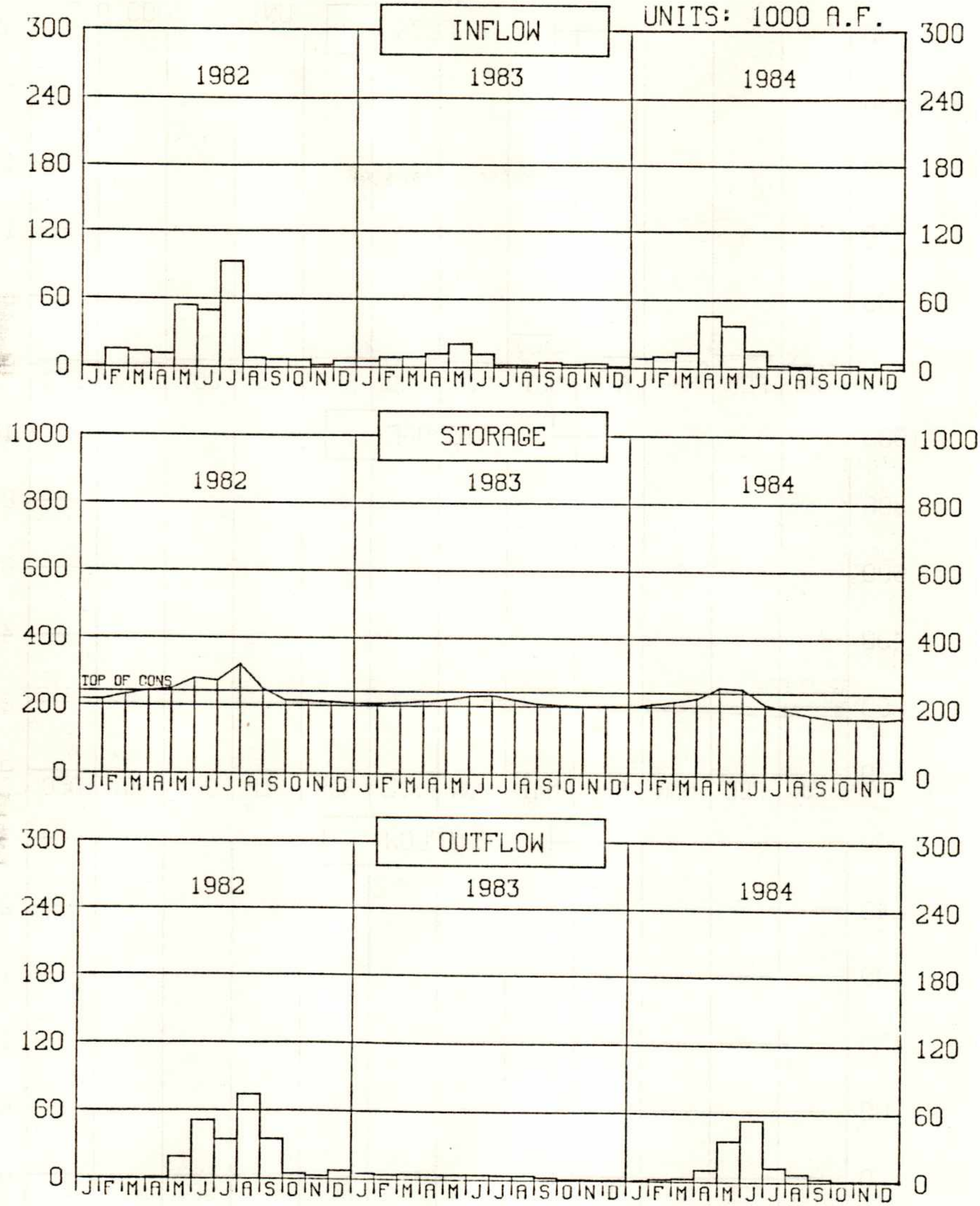


EXHIBIT 15B

WACONDA LAKE 1985 OPERATION

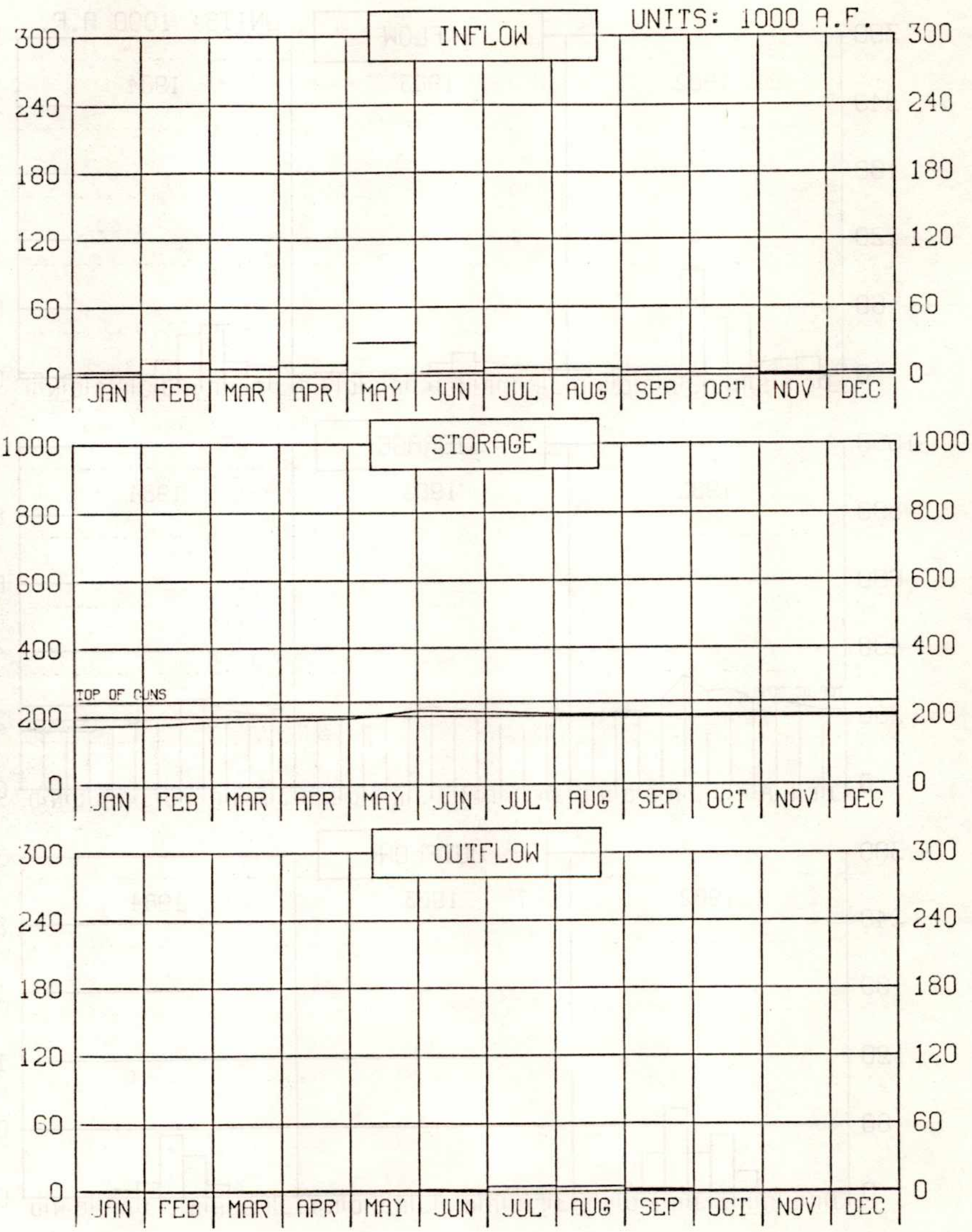


EXHIBIT 15C

WACONDA LAKE
CAL YEAR 1986 OPERATION PLAN

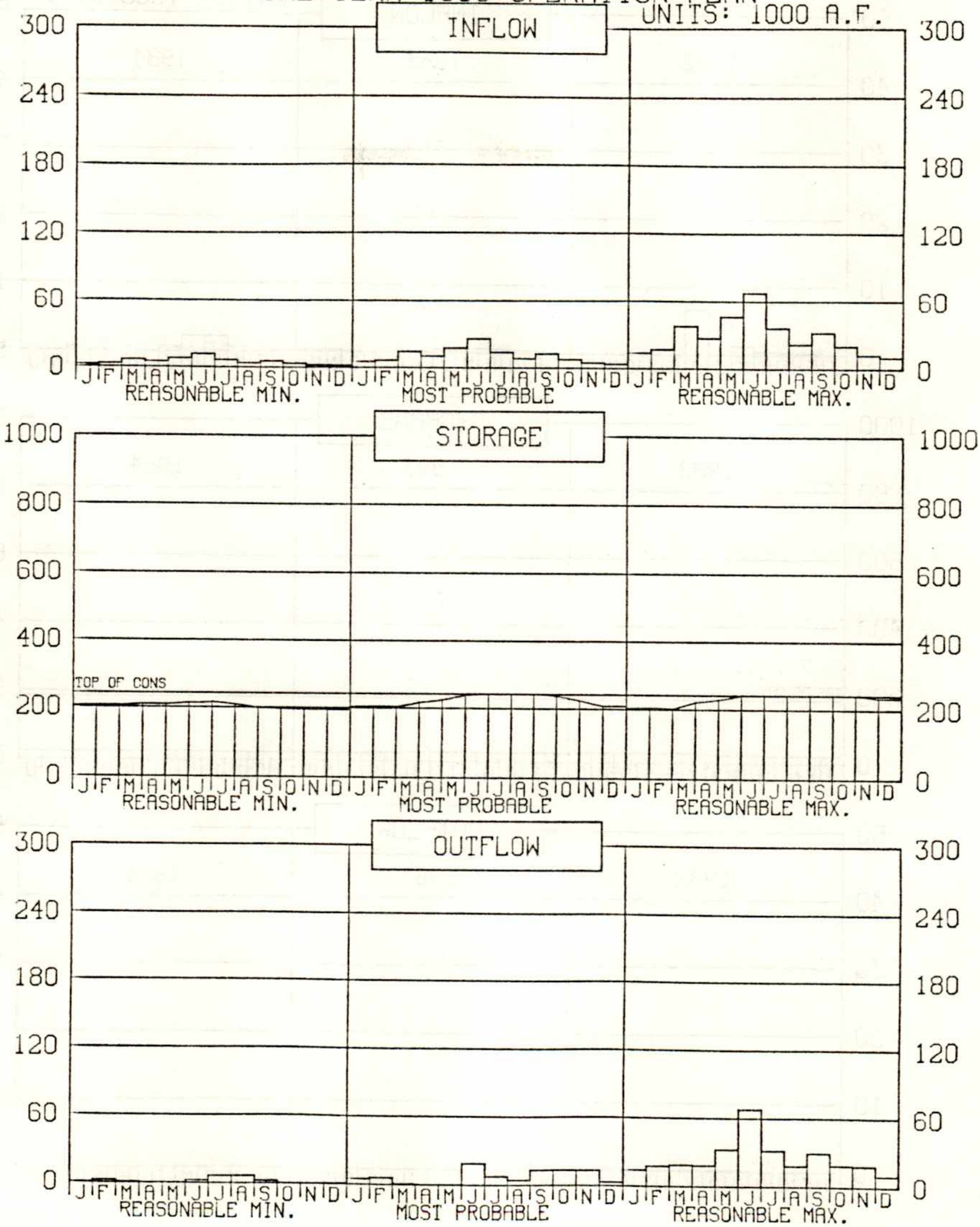


EXHIBIT 16A

CEDAR BLUFF RESERVOIR OPERATION

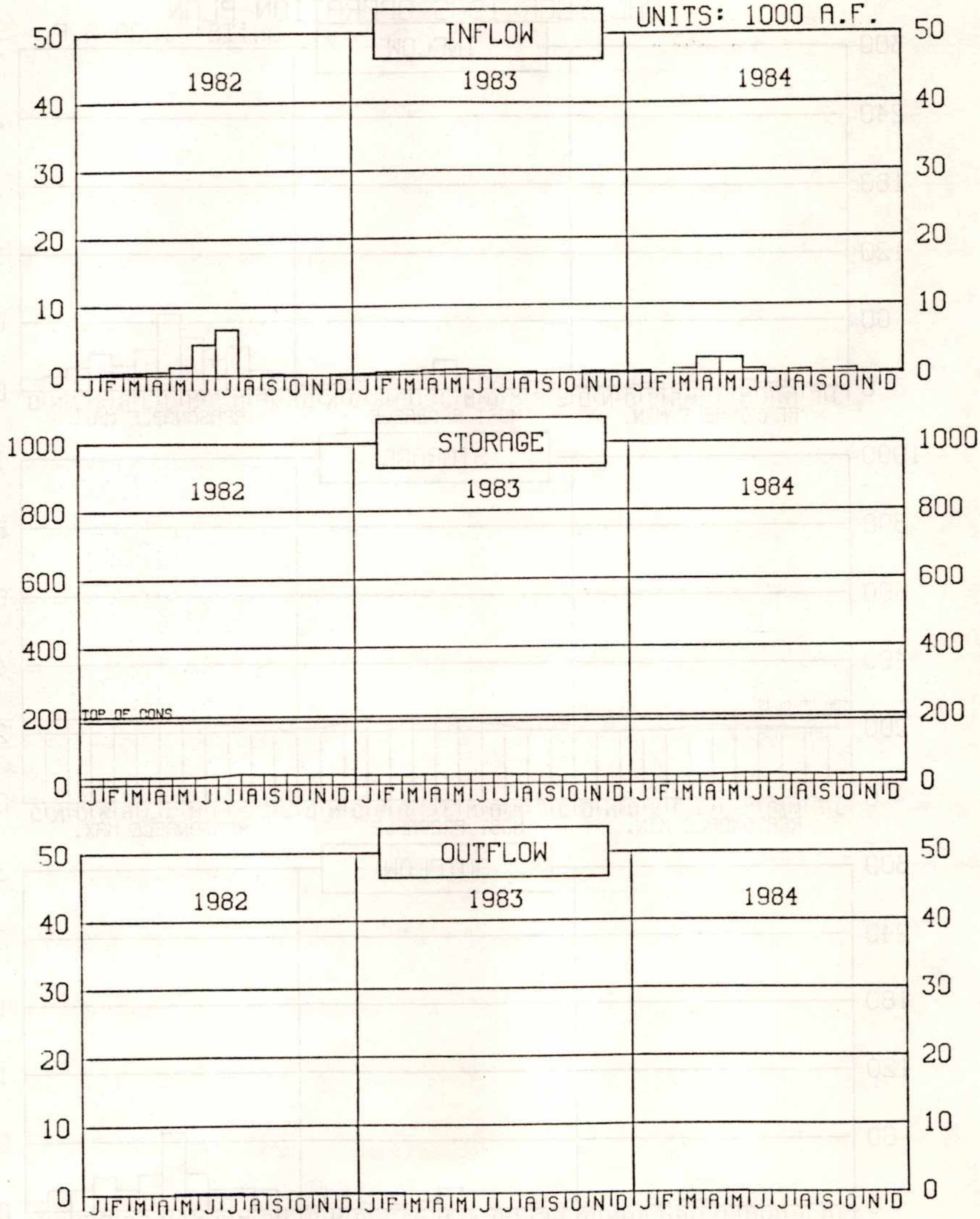


EXHIBIT 16B

CEDAR BLUFF RESERVOIR 1985 OPERATION

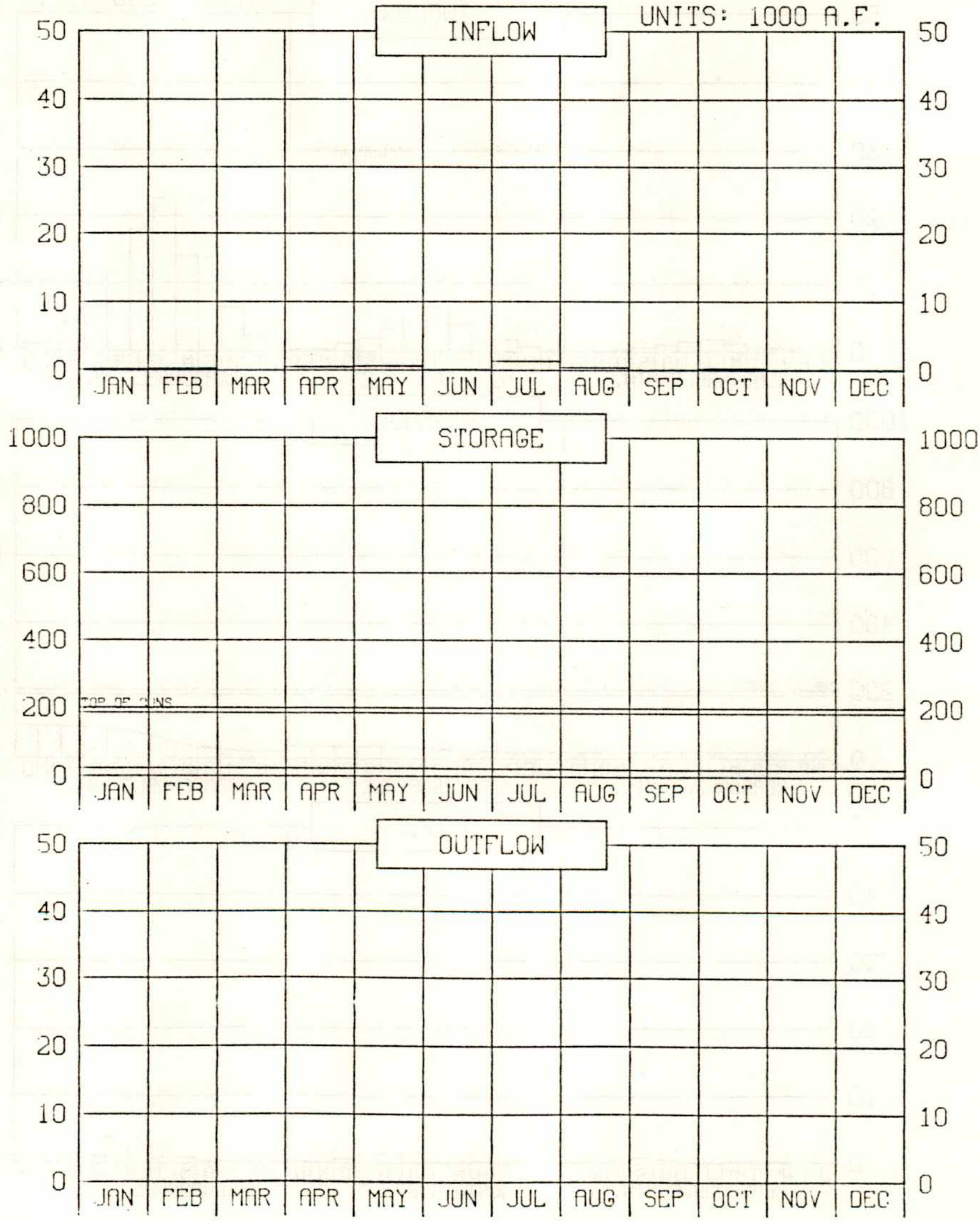
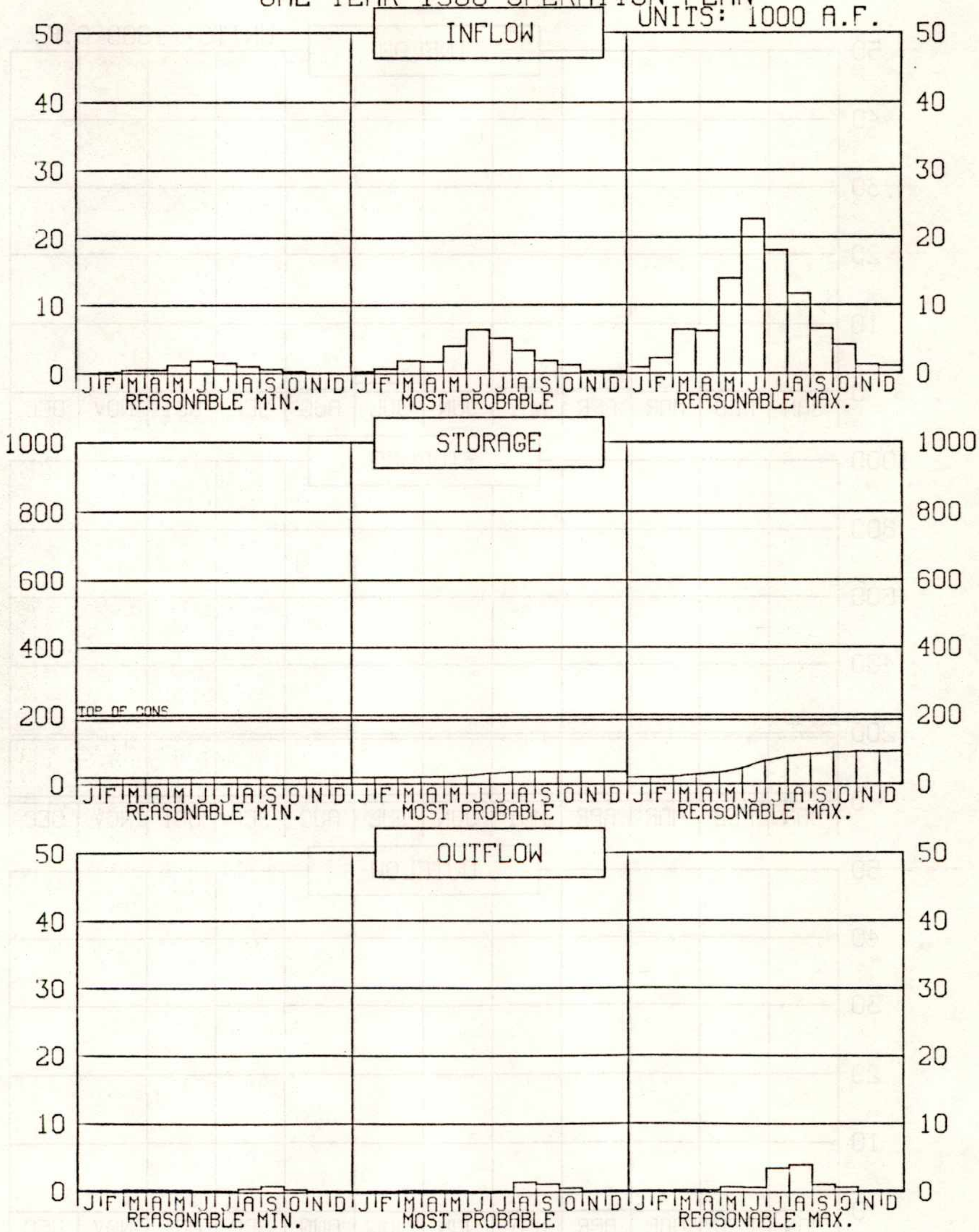


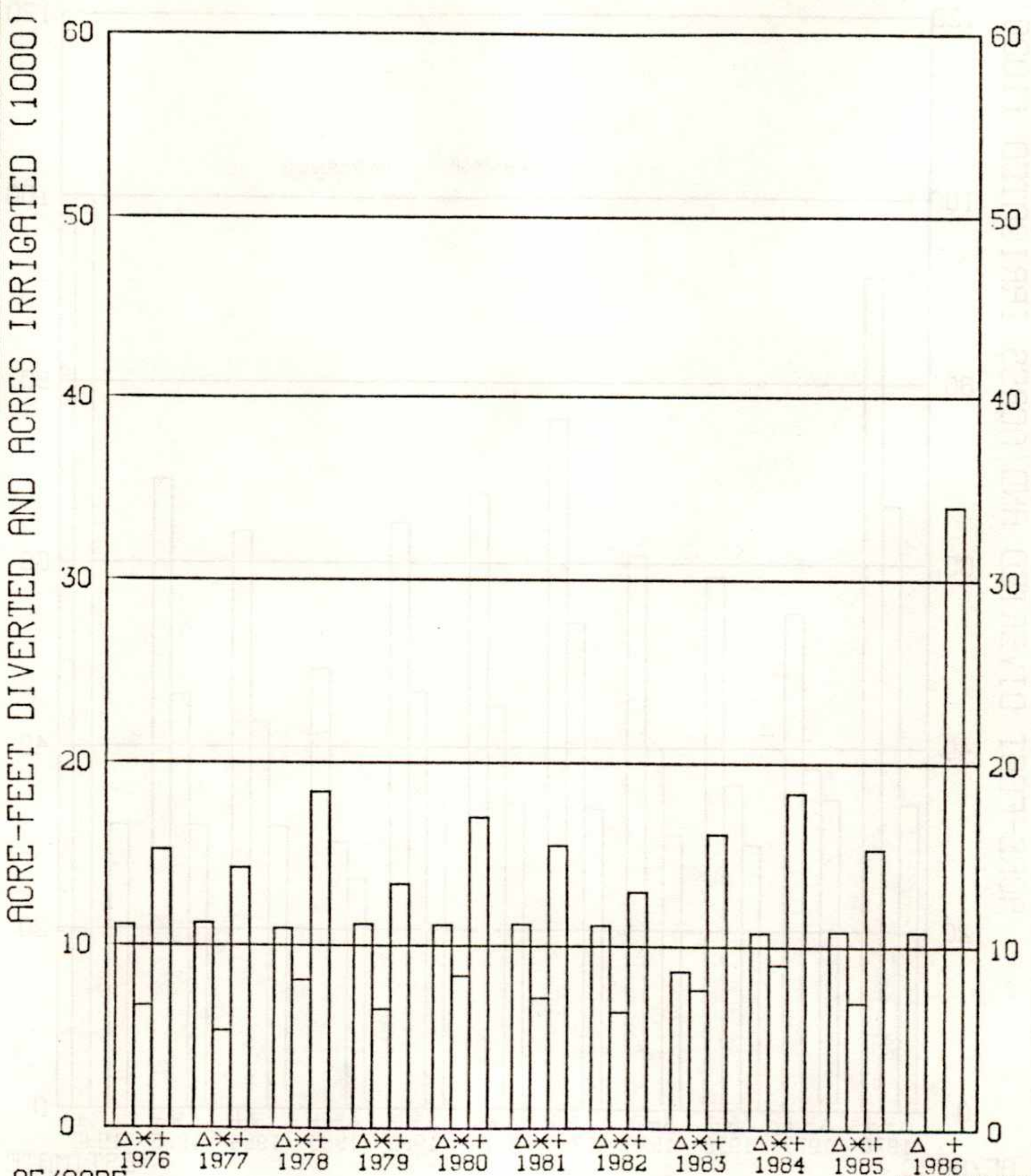
EXHIBIT 16C

CEDAR BLUFF RESERVOIR

CAL YEAR 1986 OPERATION PLAN



CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED MIRAGE FLATS IRRIGATION DISTRICT

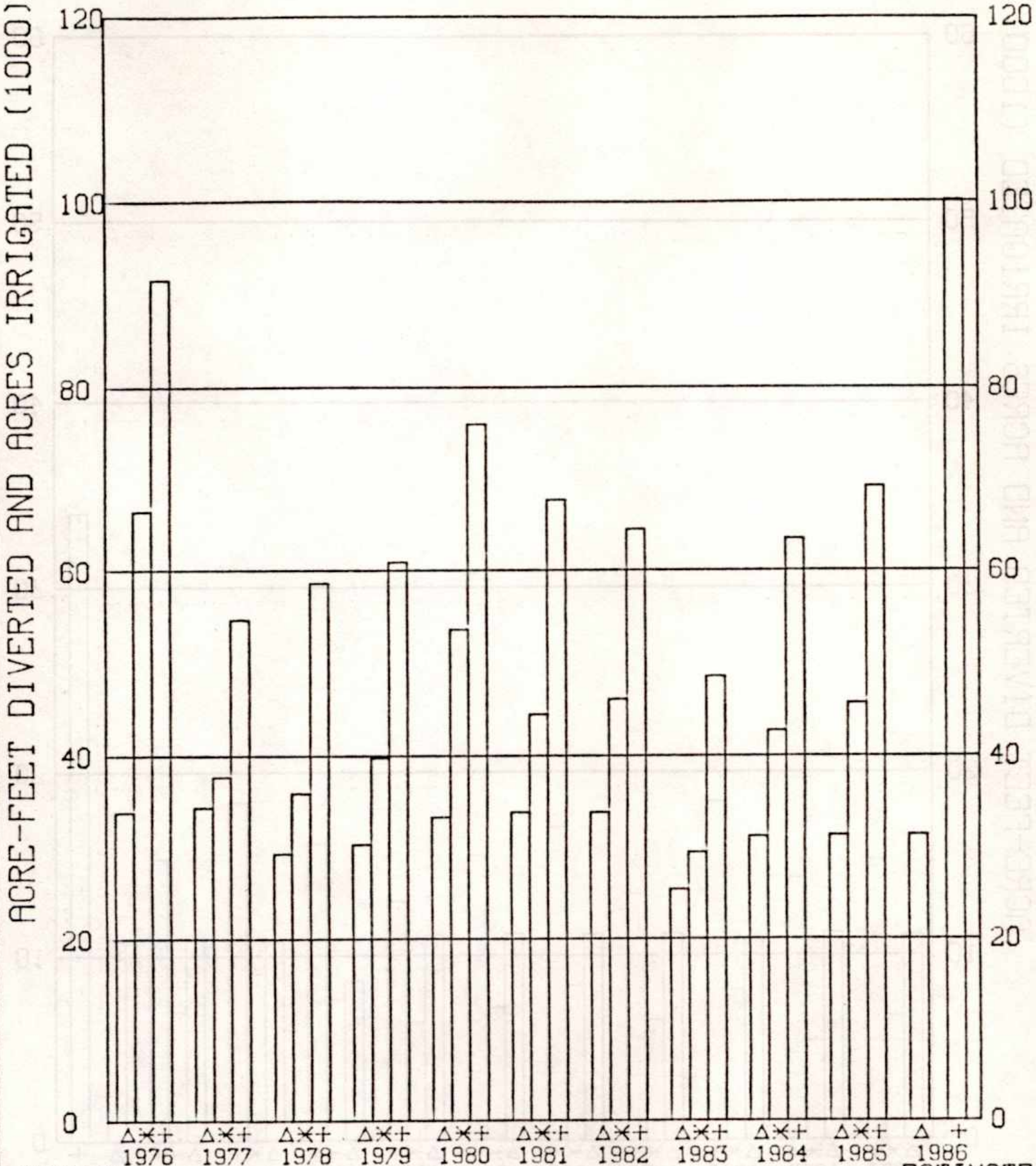


AF/ACRE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
DIV	1.37	1.27	1.69	1.20	1.53	1.39	1.16	1.87	1.71	1.41
DEL	.60	.48	.74	.58	.75	.64	.57	.88	.84	.64
EFF(%)	43	37	43	48	49	46	49	47	49	45

Δ ACRES IRRIGATED
✳ AF DEL TO FARM
\+ AF DIV TO CANAL

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 19.20
NORMAL YEAR - 7.80

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
AINSWORTH IRRIGATION DISTRICT

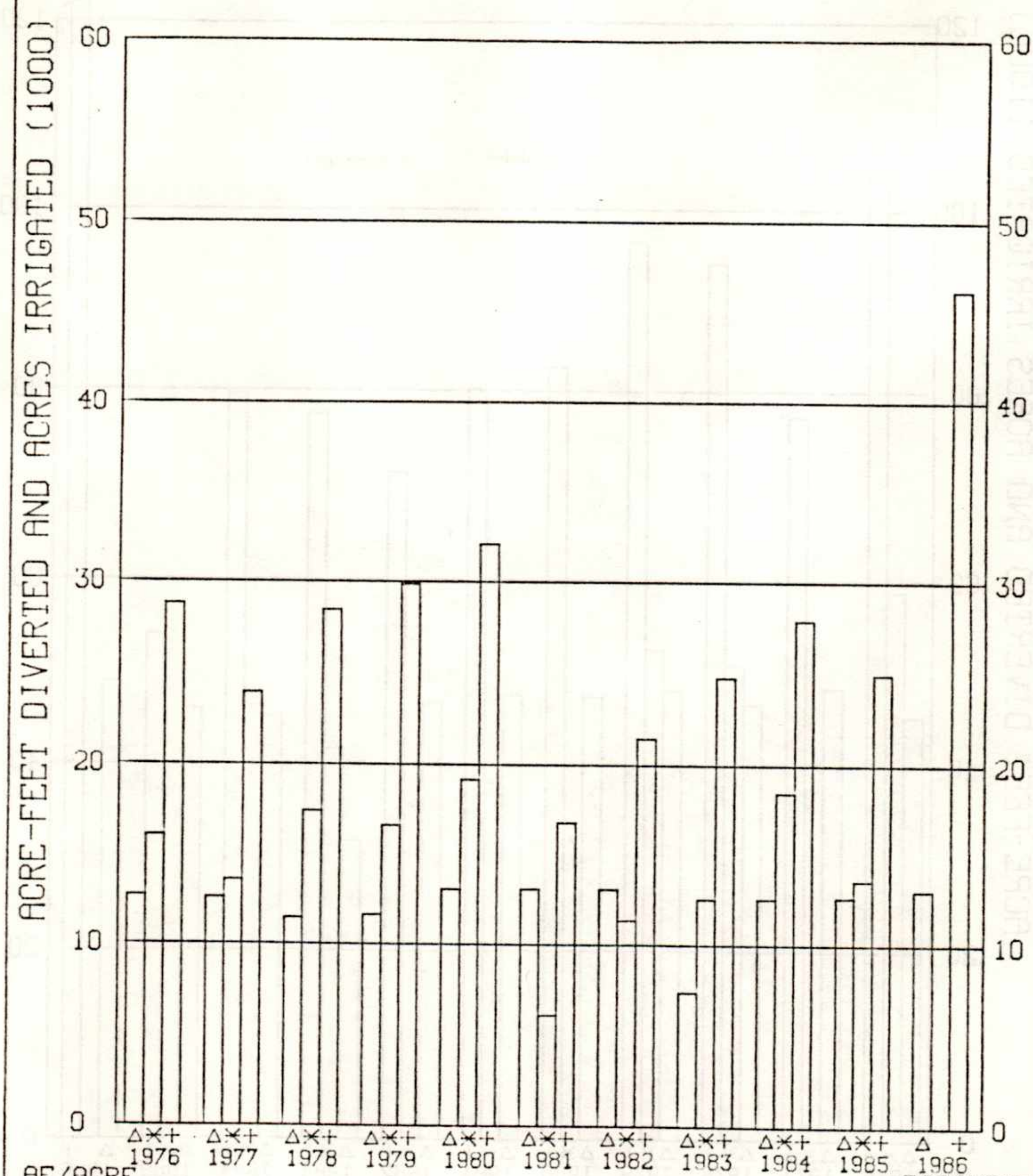


AF/ACRE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
DIV	2.70	1.58	1.99	2.00	2.27	1.99	1.90	1.90	2.03	2.20
DEL	1.96	1.09	1.22	1.30	1.60	1.31	1.35	1.16	1.36	1.45
EFF(%)	72	68	61	64	70	65	71	61	66	65

△ ACRES IRRIGATED
✳ AF DEL TO FARM
\+ AF DIV TO CANAL

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 0.00
NORMAL YEAR - 0.00

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
SARGENT IRRIGATION DISTRICT



AF/ACRE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
DIV	2.27	1.91	2.49	2.57	2.46	1.28	1.64	3.37	2.22	1.98
DEL	1.27	1.08	1.51	1.43	1.47	.47	.87	1.70	1.47	1.08
EFF(%)	55	56	60	55	59	36	53	50	66	54

Δ ACRES IRRIGATED
✳ AF DEL TO FARM
\+ AF DIV TO CANAL

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 20.30
NORMAL YEAR - 5.10

EXHIBIT 20

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
FARWELL IRRIGATION DISTRICT

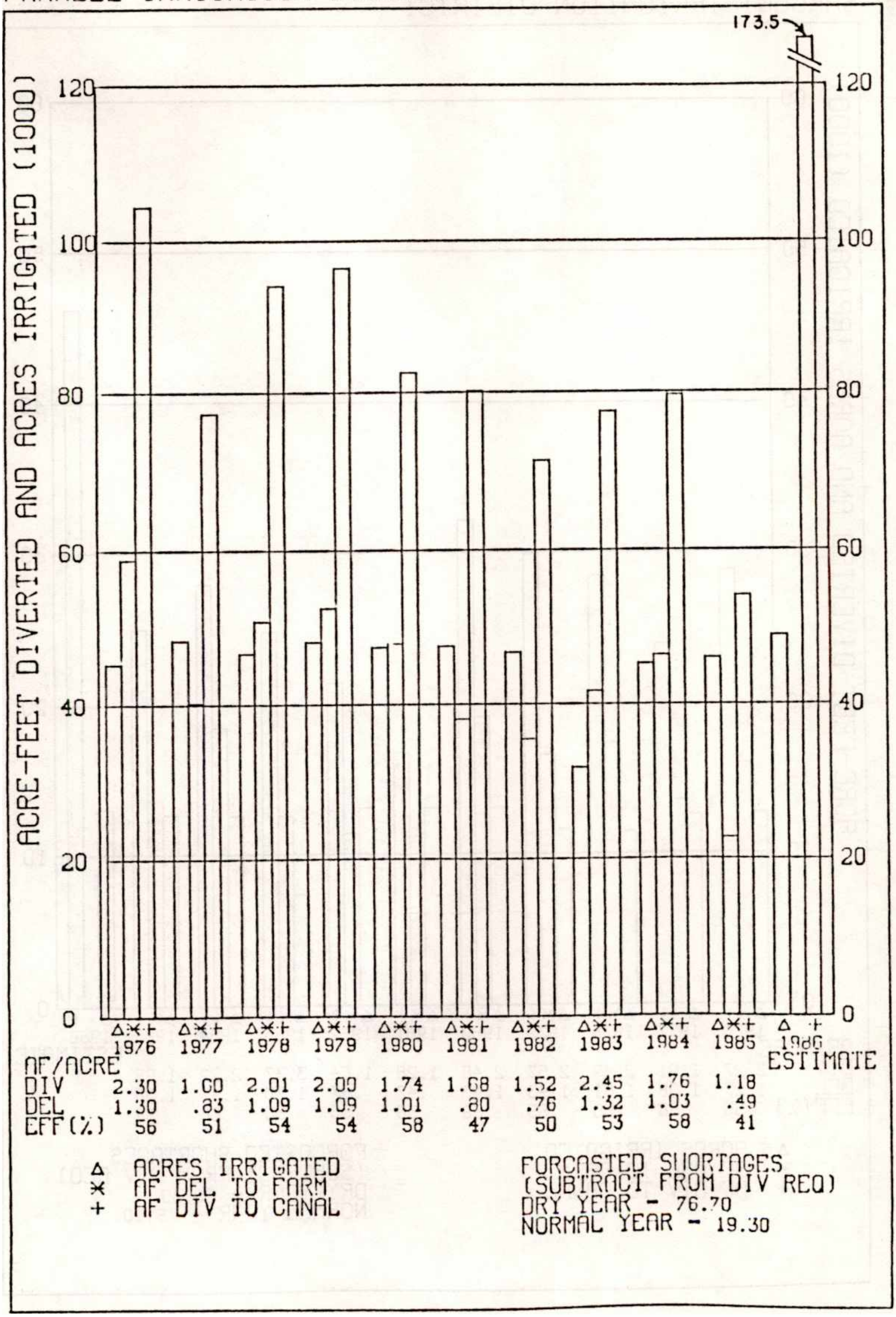
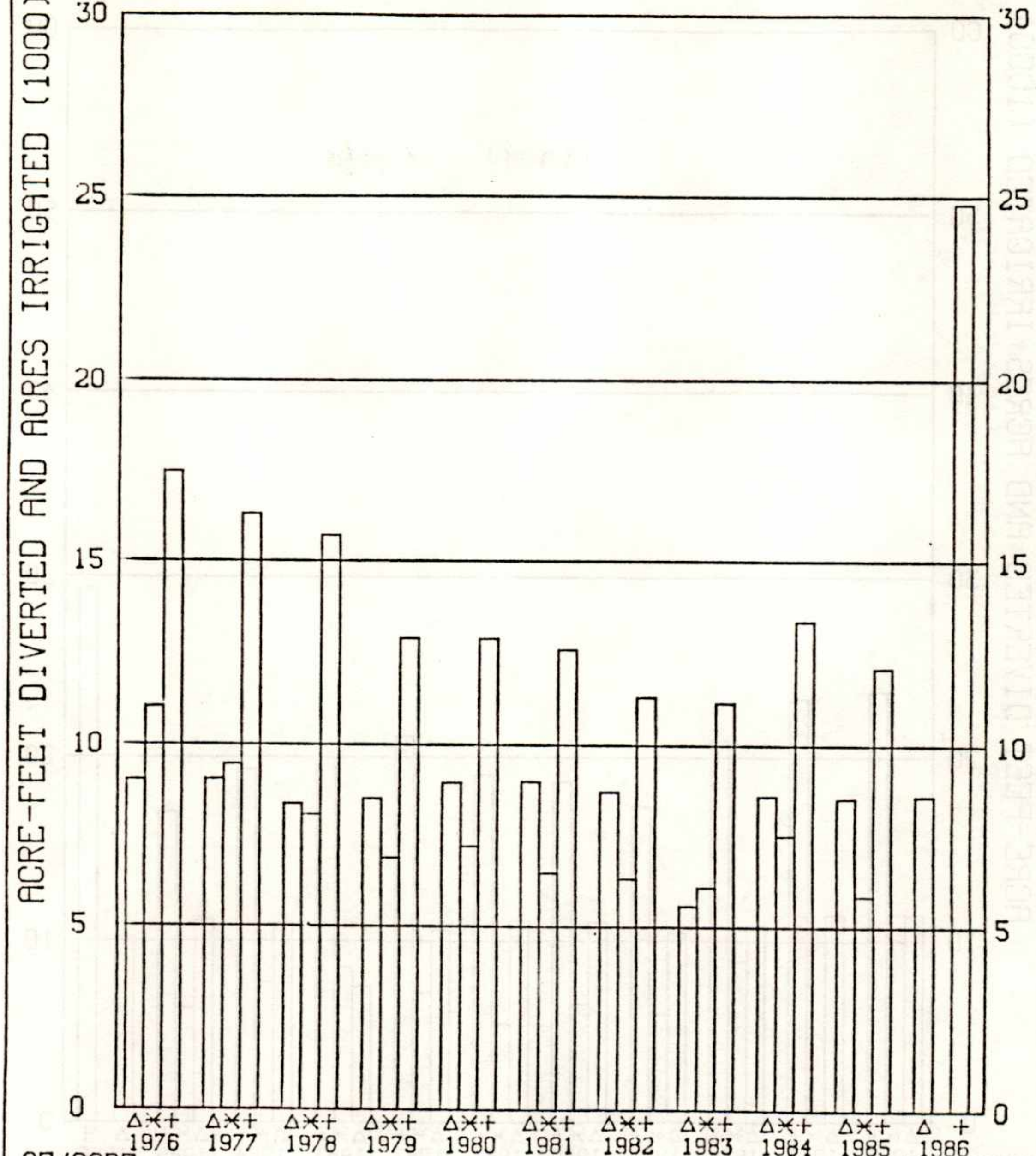


EXHIBIT 21

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED FRENCHMAN VALLEY IRRIGATION DISTRICT



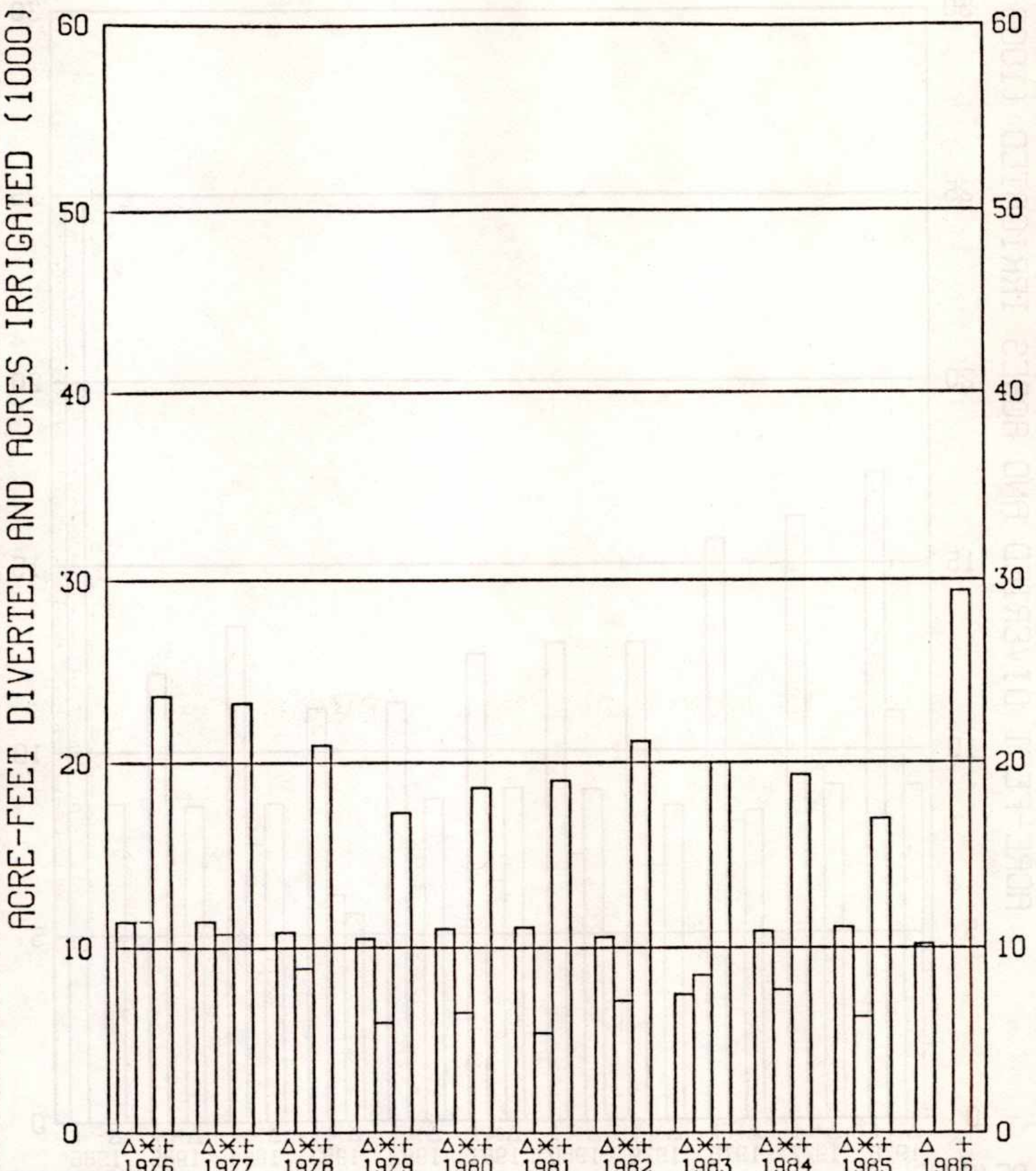
AF/ACRE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
DIV	2.15	1.80	1.88	1.51	1.44	1.40	1.30	2.00	1.55	1.42
DEL	1.22	1.04	.97	.81	.81	.72	.73	1.09	.87	.68
EFF(%)	56	57	51	53	56	51	56	54	56	47

Δ ACRES IRRIGATED
✳ AF DEL TO FARM
\+ AF DIV TO CANAL

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 10.30
NORMAL YEAR - 0.00

EXHIBIT 22

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
H AND RW IRRIGATION DISTRICT



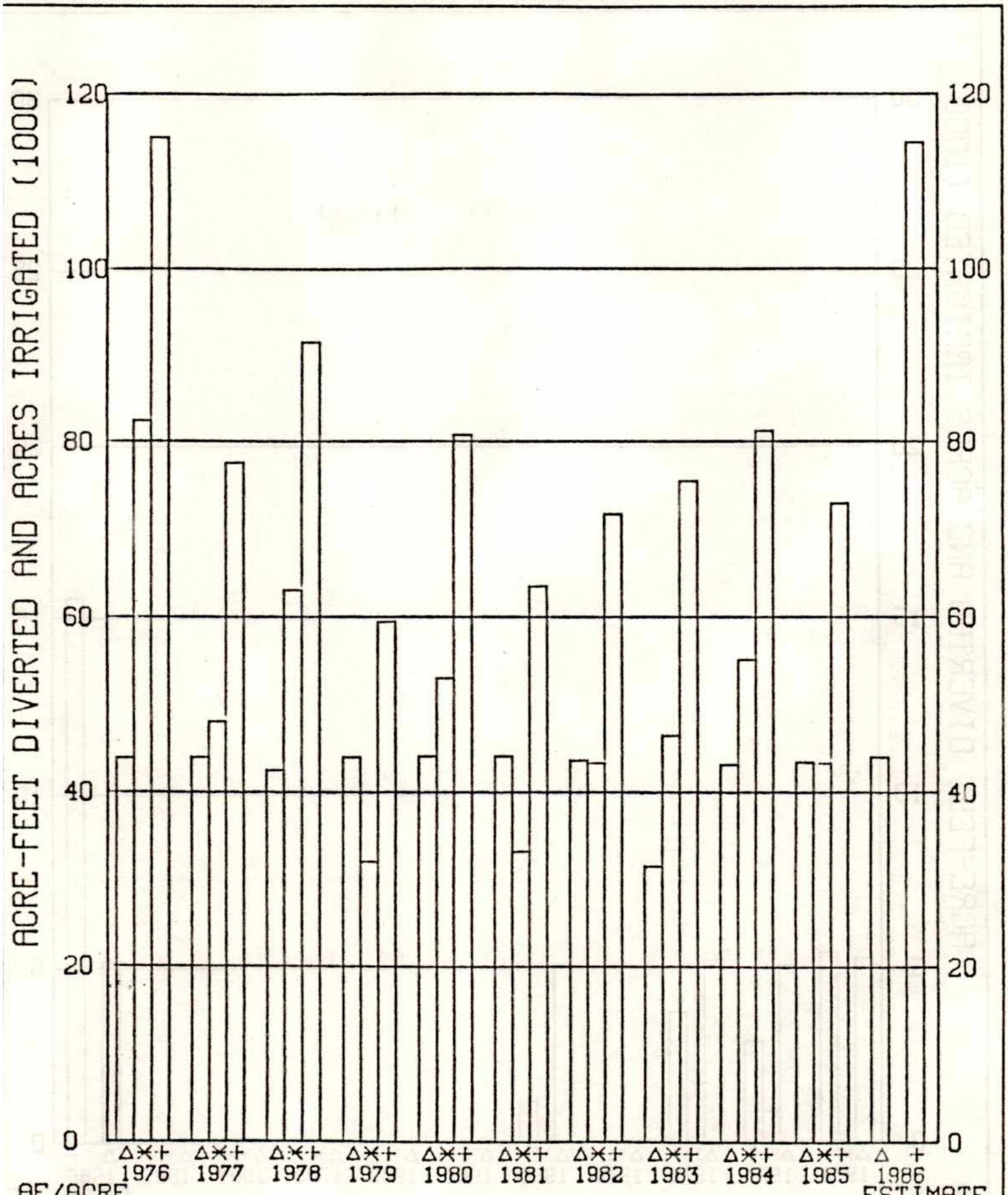
AF/ACRE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
DIV	2.08	2.04	1.94	1.65	1.69	1.71	2.00	2.66	1.78	1.52
DEL	1.00	.94	.82	.57	.59	.49	.68	1.14	.71	.57
EFF(%)	48	46	42	34	34	28	33	42	39	37

Δ ACRES IRRIGATED
⋇ AF DEL TO FARM
\+ AF DIV TO CANAL

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 12.30
NORMAL YEAR - 0.00

EXHIBIT 23

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
FRENCHMAN CAMBRIDGE IRRIGATION DISTRICT



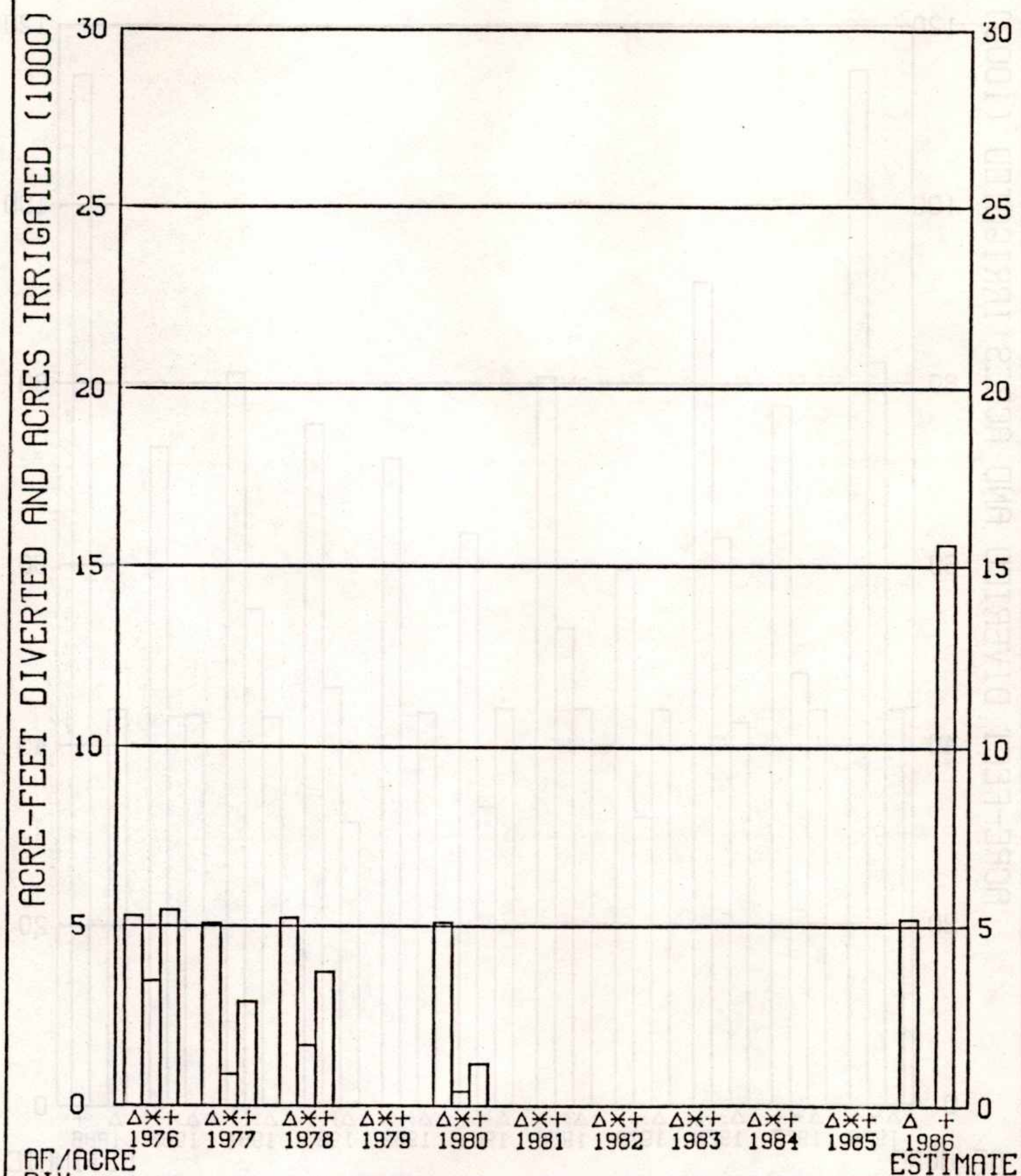
AF/ACRE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
DIV	2.62	1.76	2.15	1.35	1.83	1.44	1.64	2.39	1.89	1.68
DEL	1.88	1.09	1.48	.73	1.20	.75	.99	1.47	1.28	1.00
EFF(%)	71	61	68	54	65	52	60	61	67	59

Δ ACRES IRRIGATED
✱ AF DEL TO FARM
\+ AF DIV TO CANAL

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 0.00
NORMAL YEAR - 0.00

EXHIBIT 24

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
ALMENA IRRIGATION DISTRICT



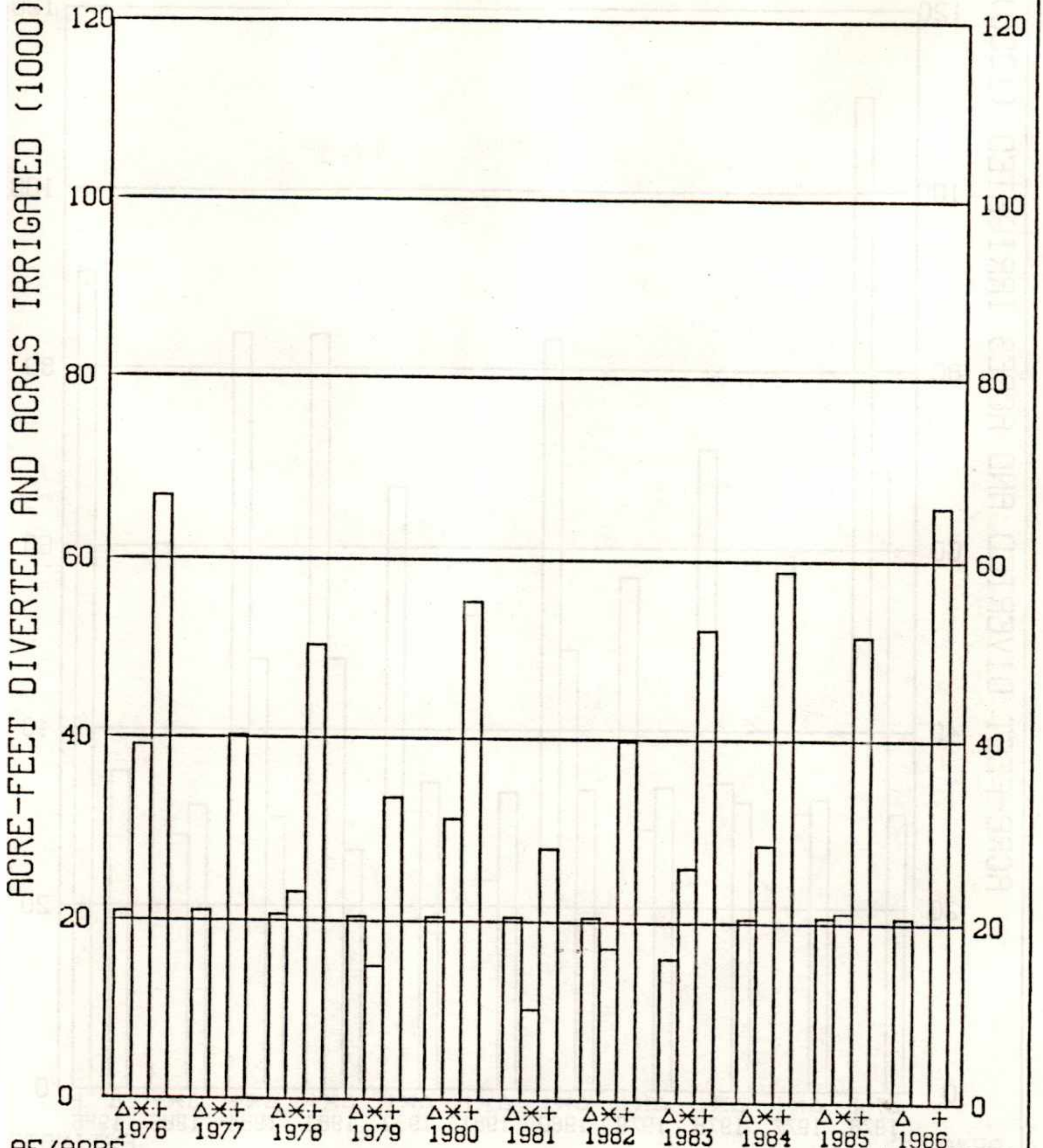
AF/ACRE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
DIV	1.03	.56	.71	0.00	.22	0.00	0.00	0.00	0.00	0.00
DEL	.65	.17	.31	0.00	.08	0.00	0.00	0.00	0.00	0.00
EFF(%)	63	30	43	0	36	0	0	0	0	0

Δ ACRES IRRIGATED
⋇ AF DEL TO FARM
\+ AF DIV TO CANAL

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 14.70
NORMAL YEAR - 3.20

EXHIBIT 25

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED BOSTWICK IRRIGATION DISTRICT IN NEBRASKA



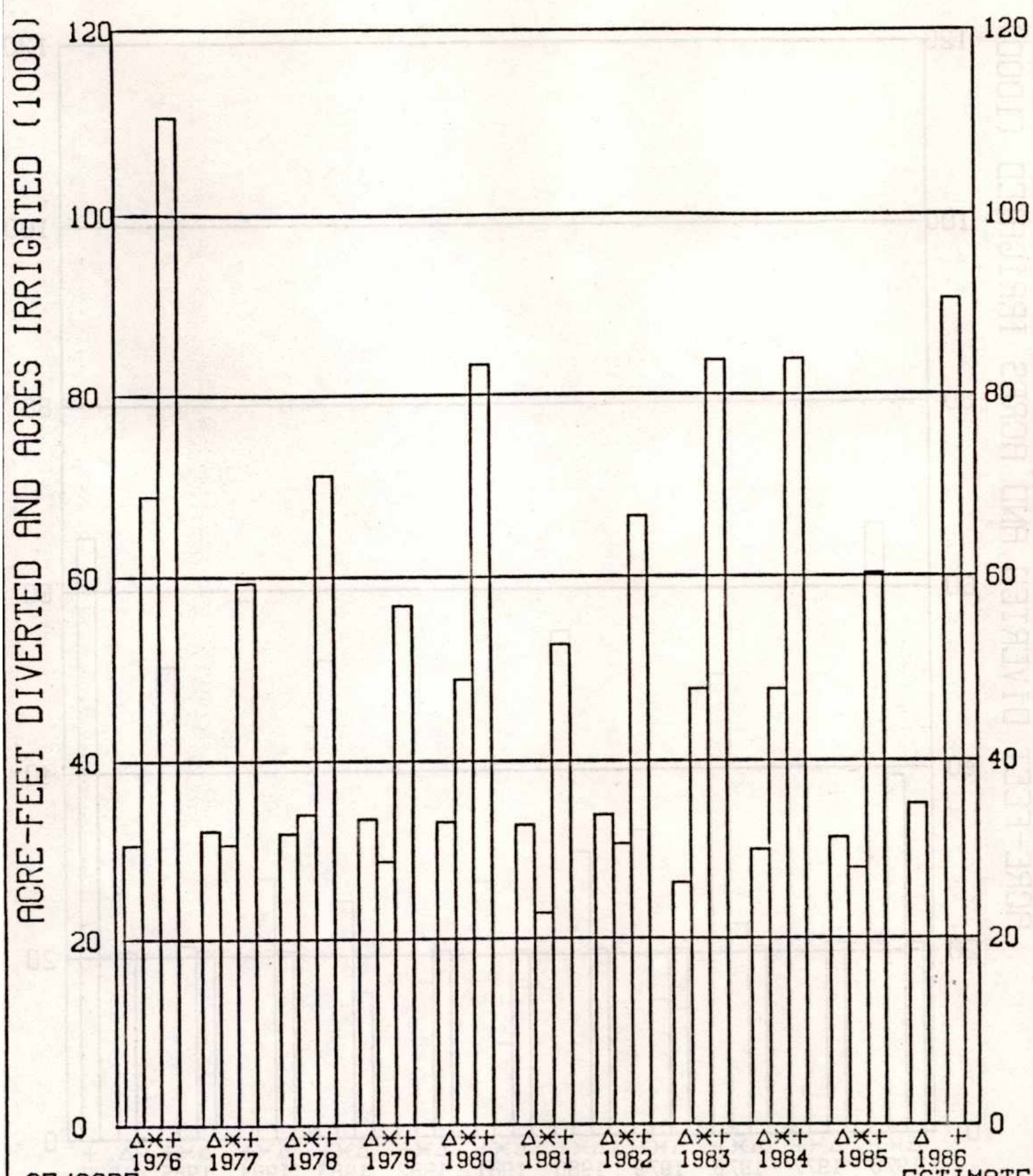
AF/ACRE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
DIV	3.20	1.92	2.44	1.63	2.70	1.36	1.94	3.27	2.88	2.50
DEL	1.87	.95	1.12	.97	1.52	.50	.83	1.62	1.39	1.02
EFF(%)	58	49	45	59	56	36	42	49	48	40

Δ ACRES IRRIGATED
✱ AF DEL TO FARM
\+ AF DIV TO CANAL

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 0.00
NORMAL YEAR - 0.00

EXHIBIT 26

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED KANSAS-BOSTWICK IRRIGATION DISTRICT

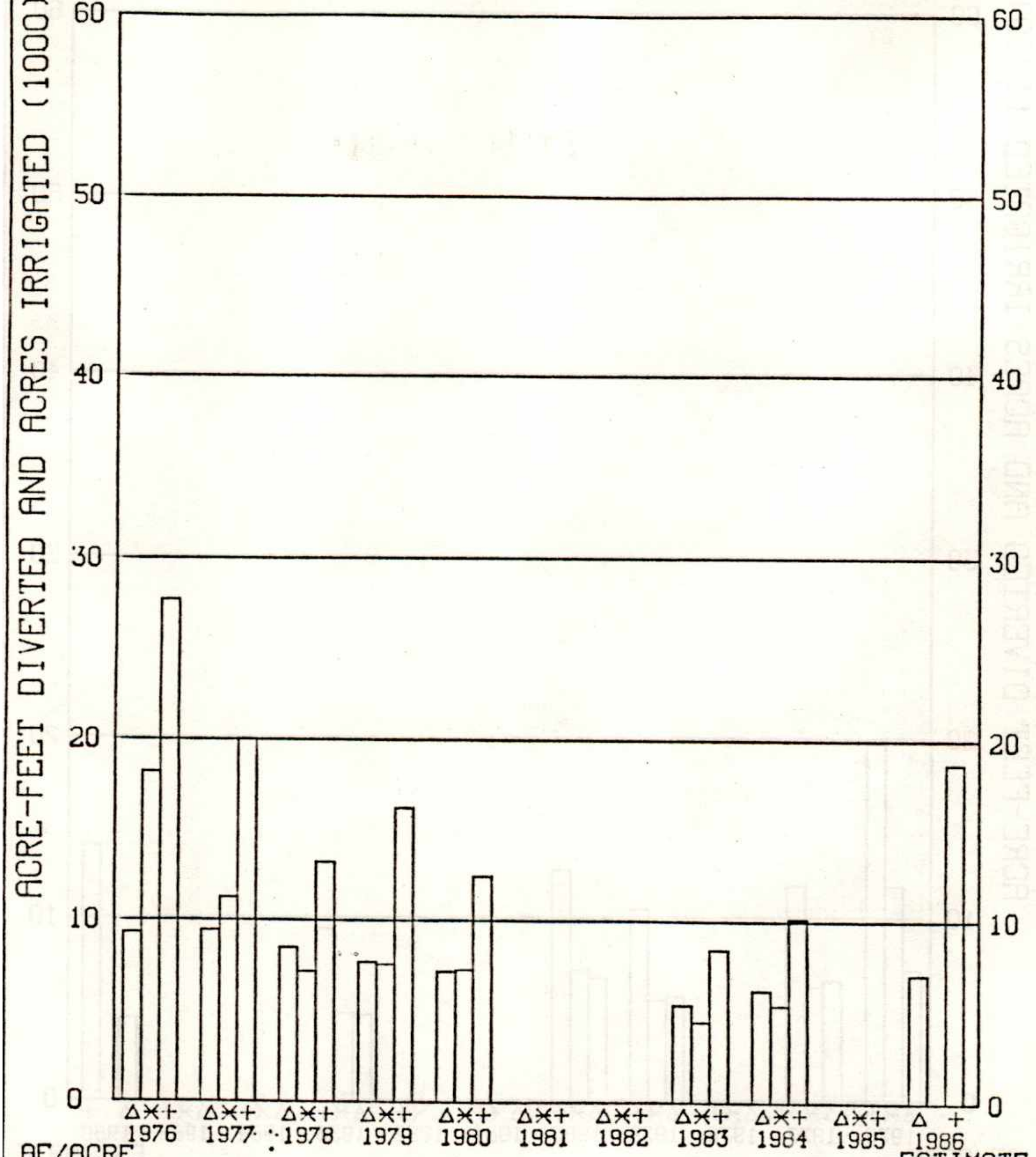


AF/ACRE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
DIV	3.58	1.84	2.23	1.70	2.51	1.60	1.96	3.20	2.80	1.92
DEL	2.23	.95	1.07	.86	1.47	.69	.90	1.82	1.59	.89
EFF(%)	62	51	47	50	58	43	45	56	56	46

Δ ACRES IRRIGATED
✳ AF DEL TO FARM
\+ AF DIV TO CANAL

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 0.00
NORMAL YEAR - 0.00

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
KIRWIN IRRIGATION DISTRICT

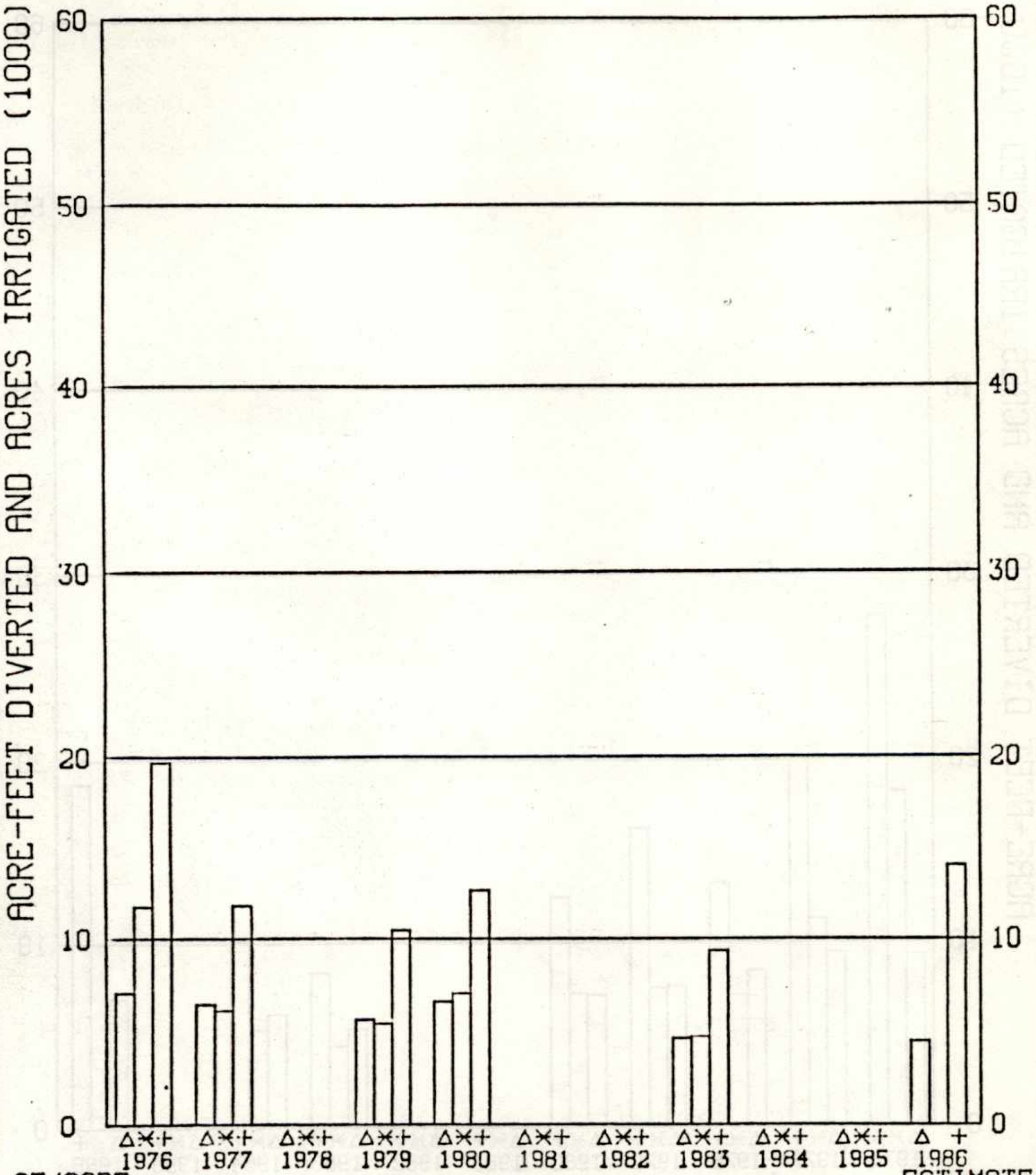


AF/ACRE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
DIV	2.98	2.13	1.56	2.12	1.74	0.00	0.00	1.58	1.66	0.00
DEL	1.96	1.19	.84	.98	1.01	0.00	0.00	.83	.87	0.00
EFF(%)	65	55	53	46	58	0	0	52	52	0

Δ ACRES IRRIGATED
Ж AF DEL TO FARM
\+ AF DIV TO CANAL

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 3.00
NORMAL YEAR - 0.00

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
WEBSTER IRRIGATION DISTRICT



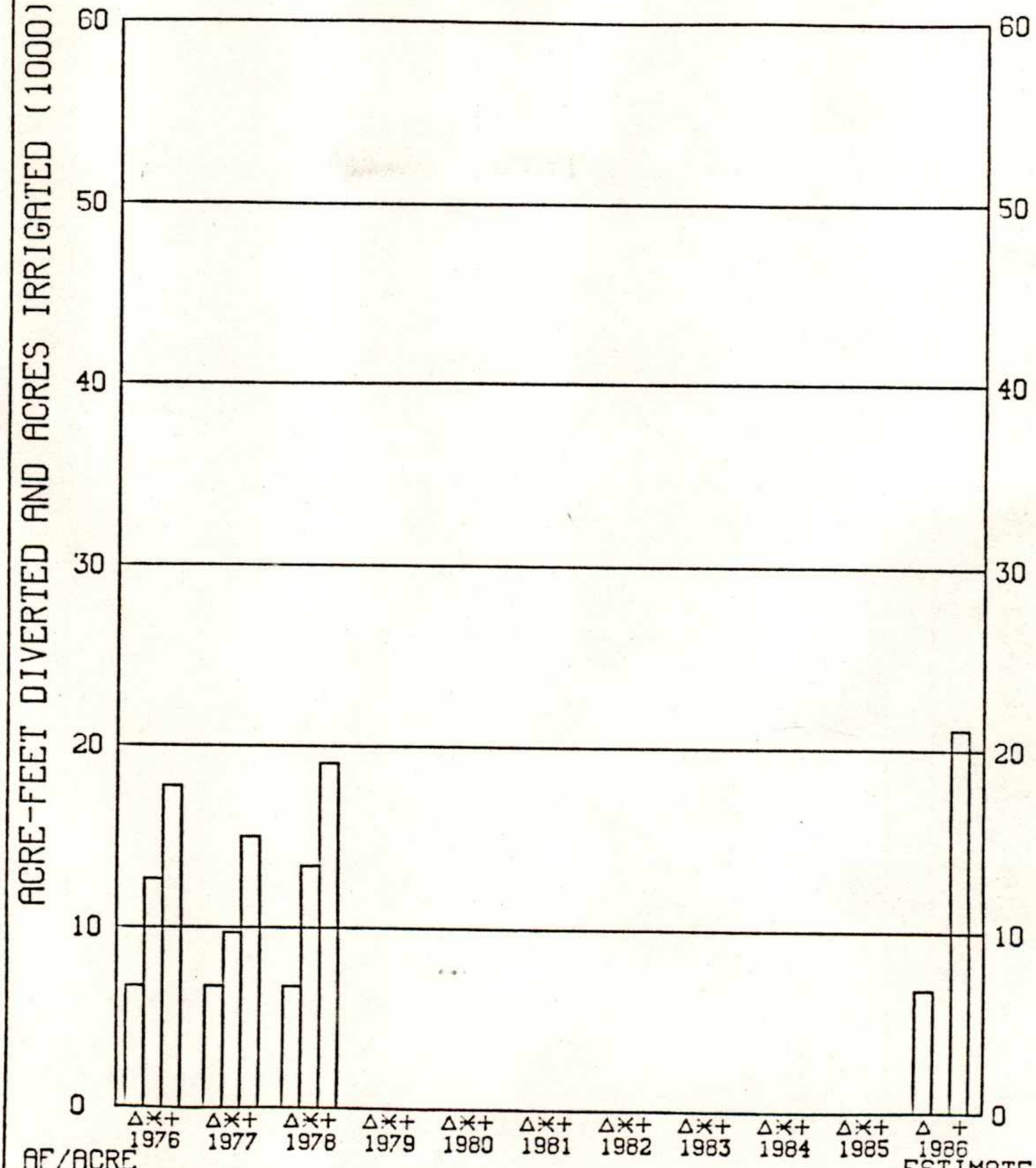
AF/ACRE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
DIV	2.77	1.81	0.00	1.85	1.90	0.00	0.00	2.01	0.00	0.00
DEL	1.05	.94	0.00	.97	1.07	0.00	0.00	1.02	0.00	0.00
EFF(%)	59	51	0	52	56	0	0	50	0	0

Δ ACRES IRRIGATED
⋇ AF DEL TO FARM
\+ AF DIV TO CANAL

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 8.60
NORMAL YEAR - 0.00

EXHIBIT 29

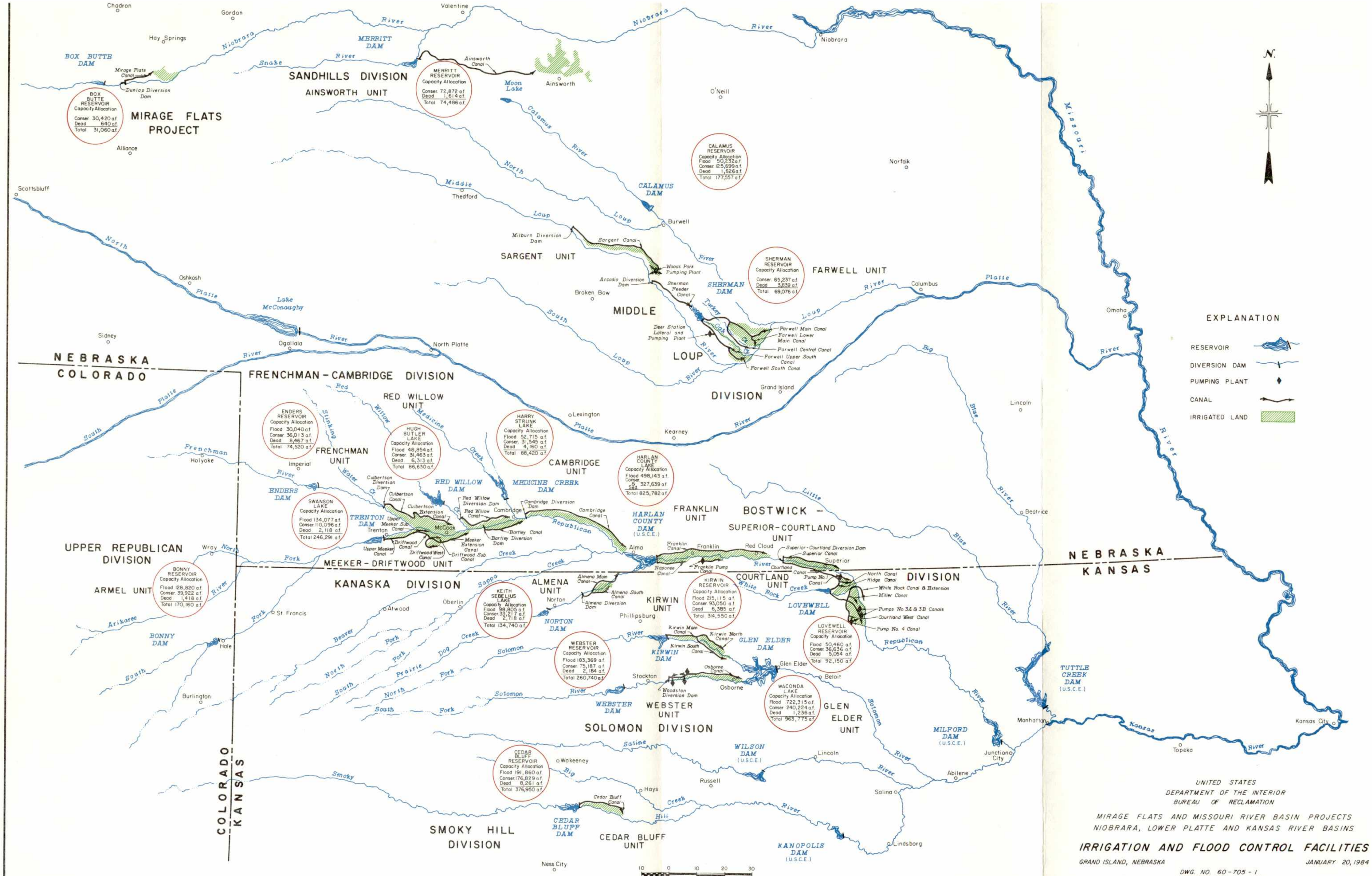
CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
CEDAR BLUFF IRRIGATION DISTRICT



AF/ACRE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
DIV	2.62	2.22	2.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEL	1.87	1.44	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EFF(%)	71	64	69	0	0	0	0	0	0	0

Δ ACRES IRRIGATED
* AF DEL TO FARM
+ AF DIV TO CANAL

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 21.10
NORMAL YEAR - 12.50



NEBRASKA
COLORADO
KANSAS
N.
EXPLANATION
RESERVOIR
DIVERSION DAM
PUMPING PLANT
CANAL
IRRIGATED LAND
MIRAGE FLATS PROJECT
BOX BUTTE DAM
BOX BUTTE RESERVOIR Capacity Allocation Conser. 30,420 a.f. Dead 640 a.f. Total 31,060 a.f.
Mirage Flats Canal
Dunlap Diversion Dam
SANDHILLS DIVISION
AINSWORTH UNIT
MERRITT DAM
MERRITT RESERVOIR Capacity Allocation Conser. 72,872 a.f. Dead 1,614 a.f. Total 74,486 a.f.
Ainsworth Canal
CALAMUS DAM
CALAMUS RESERVOIR Capacity Allocation Flood 50,232 a.f. Conser. 125,699 a.f. Dead 1,626 a.f. Total 177,557 a.f.
SARGENT UNIT
Milburn Diversion Dam
Sargent Canal
Woods Park Pumping Plant
Arcadia Diversion Dam
Sherman Feeder Canal
SHERMAN DAM
SHERMAN RESERVOIR Capacity Allocation Conser. 65,237 a.f. Dead 3,839 a.f. Total 69,076 a.f.
FARWELL UNIT
MIDDLE LOUP DIVISION
Deer Station Lateral and Pumping Plant
Farwell Main Canal
Farwell Lower Main Canal
Farwell Central Canal
Farwell Upper South Canal
Farwell South Canal
FRENCHMAN-CAMBRIDGE DIVISION
RED WILLOW UNIT
FRENCHMAN UNIT
CAMBRIDGE UNIT
ENDERS RESERVOIR Capacity Allocation Flood 30,040 a.f. Conser. 36,013 a.f. Dead 8,467 a.f. Total 74,520 a.f.
HUGH BUTLER LAKE Capacity Allocation Flood 48,854 a.f. Conser. 31,463 a.f. Dead 6,313 a.f. Total 86,630 a.f.
HARRY STRUNK LAKE Capacity Allocation Flood 52,715 a.f. Conser. 31,545 a.f. Dead 4,160 a.f. Total 88,420 a.f.
HARLAN COUNTY LAKE Capacity Allocation Flood 498,143 a.f. Conser. & Sed. 327,639 a.f. Total 825,782 a.f.
SWANSON LAKE Capacity Allocation Flood 134,077 a.f. Conser. 110,096 a.f. Dead 2,118 a.f. Total 246,291 a.f.
ENDERS DAM
RED WILLOW DAM
MEDICINE CREEK DAM
TRENTON DAM
HARLAN COUNTY DAM (U.S.C.E.)
Culbertson Diversion Dam
Culbertson Canal
Culbertson Extension Canal
Red Willow Diversion Dam
Red Willow Canal
Cambridge Diversion Dam
Cambridge Canal
Bartley Canal
Bartley Diversion Dam
Meeker Extension Canal
Upper Meeker Sub Canal
Upper Meeker Canal
Driftwood Canal
Driftwood West Canal
Driftwood Sub Canal
MEEKER-DRIFTWOOD UNIT
UPPER REPUBLICAN DIVISION
ARMEL UNIT
BONNY RESERVOIR Capacity Allocation Flood 128,820 a.f. Conser. 39,922 a.f. Dead 1,418 a.f. Total 170,160 a.f.
BONNY DAM
FRANKLIN UNIT
Franklin Canal
Naponee Canal
Franklin Pump Canal
BOSTWICK - SUPERIOR-COURTLAND UNIT
Superior-Courtland Diversion Dam
Superior Canal
Courtland Canal
Pump No. 1 Canal
North Canal
Ridge Canal
White Rock Canal & Extension
Miller Canal
Pumps No. 3A & 3B Canals
Courtland West Canal
Pump No. 4 Canal
COURTLAND UNIT
DIVISION
LOVEWELL DAM
LOVEWELL RESERVOIR Capacity Allocation Flood 50,460 a.f. Conser. 36,636 a.f. Dead 5,054 a.f. Total 92,150 a.f.
KANASKA DIVISION
ALMENA UNIT
Almena Main Canal
Almena South Canal
Almena Diversion Dam
KEITH SEBELIUS LAKE Capacity Allocation Flood 98,805 a.f. Conser. 33,217 a.f. Dead 2,718 a.f. Total 134,740 a.f.
NORTON DAM
KIRWIN UNIT
KIRWIN RESERVOIR Capacity Allocation Flood 215,115 a.f. Conser. 93,050 a.f. Dead 6,385 a.f. Total 314,550 a.f.
Kirwin Main Canal
Kirwin North Canal
Kirwin South Canal
KIRWIN DAM
GLEN ELDER DAM
WEBSTER RESERVOIR Capacity Allocation Flood 183,369 a.f. Conser. 75,187 a.f. Dead 2,184 a.f. Total 260,740 a.f.
WEBSTER DAM
WEBSTER UNIT
Woodston Diversion Dam
Osborne Canal
WACONDA LAKE Capacity Allocation Flood 722,315 a.f. Conser. 240,224 a.f. Dead 1,236 a.f. Total 963,775 a.f.
GLEN ELDER UNIT
SOLOMON DIVISION
TUTTLE CREEK DAM (U.S.C.E.)
MILFORD DAM (U.S.C.E.)
WILSON DAM (U.S.C.E.)
KANOPOLIS DAM (U.S.C.E.)
CEDAR BLUFF RESERVOIR Capacity Allocation Flood 191,860 a.f. Conser. 176,829 a.f. Dead 8,261 a.f. Total 376,950 a.f.
Cedar Bluff Canal
CEDAR BLUFF DAM
CEDAR BLUFF UNIT
SMOKY HILL DIVISION
Niobrara River
Snake River
Calamus River
North Loup River
Middle Loup
Loup River
South Loup River
Turkey Creek
Oak Creek
North Platte
South Platte
Platte River
Lake McConaughy
Frenchman
Red Willow
Stinking Water Cr.
Medicine Creek
Republican River
Little Blue
Big Blue River
Missouri River
Arikaree
North Fork
South Fork
Beaver Creek
Sappa Creek
Prairie Dog Creek
North Fork Solomon River
South Fork Solomon
White Rock Creek
Saline River
Big Creek
Smoky Hill River
Kansas River
Chadron
Gordon
Valentine
Niobrara
Hay Springs
Ainsworth
Moon Lake
O'Neill
Alliance
Norfolk
Scottsbluff
Thedford
Burwell
Oshkosh
Broken Bow
Columbus
Omaha
Sidney
Ogallala
North Platte
Grand Island
Lincoln
Lexington
Kearney
Holyoke
Imperial
Trenton
McCook
Cambridge
Alma
Franklin
Red Cloud
Superior
Beatrice
Wray
St. Francis
Atwood
Oberlin
Norton
Phillipsburg
Hale
Burlington
Stockton
Osborne
Glen Elder
Beloit
Manhattan
Kansas City
Topeka
Junction City
Abilene
Lincoln
Wakeeney
Russell
Hays
Salina
Lindsborg
Ness City
SCALE OF MILES
10 0 10 20 30
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
MIRAGE FLATS AND MISSOURI RIVER BASIN PROJECTS
NIOBRARA, LOWER PLATTE AND KANSAS RIVER BASINS
IRRIGATION AND FLOOD CONTROL FACILITIES
GRAND ISLAND, NEBRASKA
JANUARY 20, 1984
DWG. NO. 60-705-1
SUPERCEDES 60-701-250