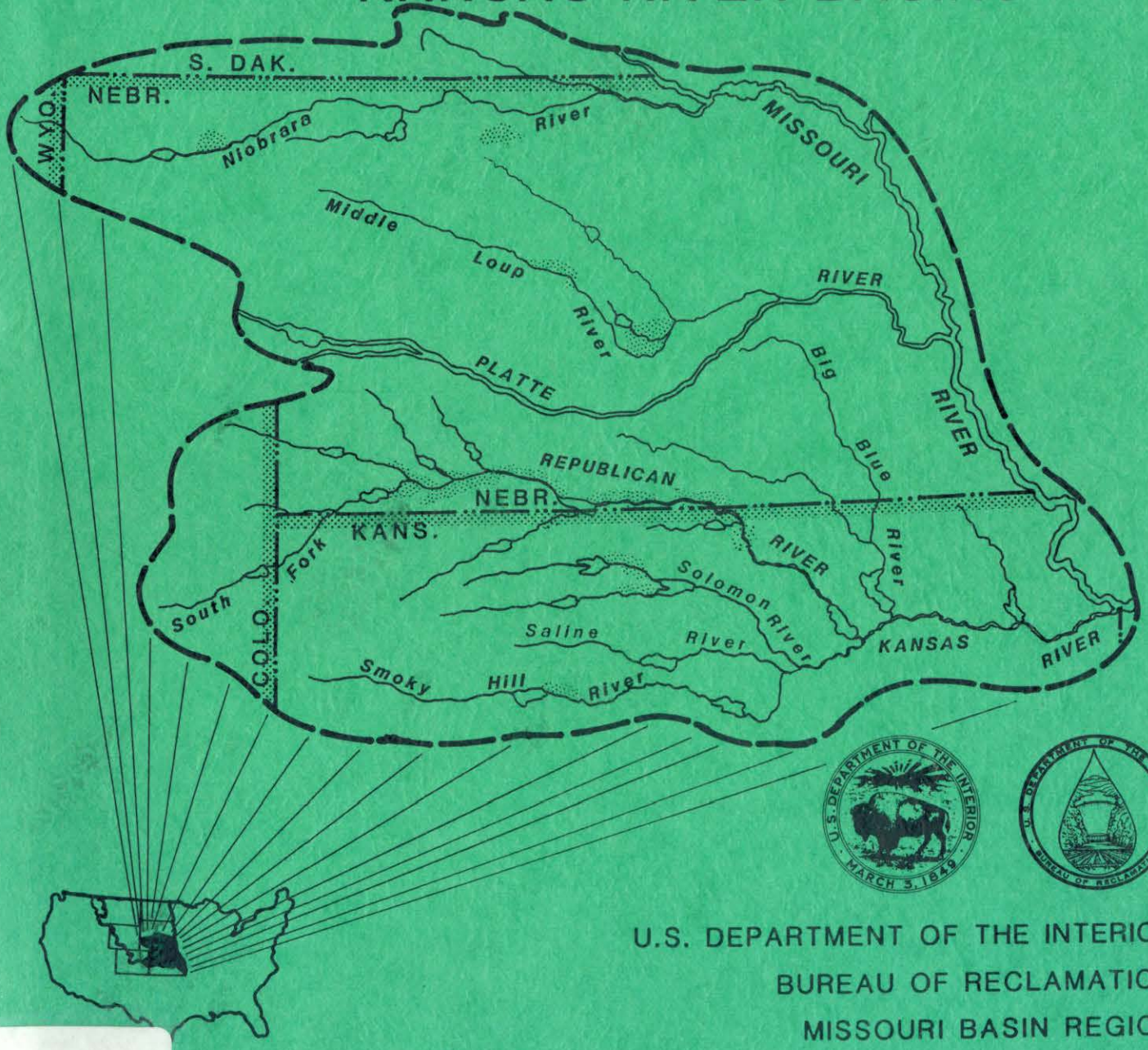
ANNUAL OPERATING PLANS

CALENDAR YEARS
1986-1987

NIOBRARA, LOWER PLATTE, AND KANSAS RIVER BASINS



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

ANNUAL OPERATING PLANS

NIOBRARA, LOWER PLATTE, AND KANSAS RIVER BASINS

CALENDAR YEAR--1986
OPERATIONS

CALENDAR YEAR--1987
OUTLOOK

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Sherman Reservoir	3A	3B	3C
Calamus Reservoir	4A	4B	4C
Bonny Reservoir	5A	5B	5C
Enders Reservoir	6A	6B	6C
Swanson Lake	7A	7B	7C
Hugh Butler Lake	8A	8B	8C
Harry Strunk Lake	9A	9B	9C
Keith Sebelius Lake	10A	10B	10C
Harlan County Lake	11A	11B	11C
Lovewell Reservoir	12A	12B	12C
Kirwin Reservoir	13A	13B	13C
Webster Reservoir	14A	14B	14C
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SYNOPSIS

General

This year is the thirty-fourth 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, 11 pumping plants, and 24 canal systems, serve approximately 298,000 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 second stage filling process continues with third stage filling scheduled to start in the fall. 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), 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 86 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.

1986 Summary

Climatic Conditions

The total precipitation over the operating area during 1986 ranged from 76 percent of normal at Swanson Lake to 151 percent of normal at Merritt Reservoir. The temperatures were normal to slightly below normal during most of the growing season. Planting of crops occurred 10 to 14 days earlier than normal. Fall harvest conditions were excellent.

Storage Reservoirs

1. Conservation Operations. The 1986 inflows were below the dry-year forecast at Sherman, Bonny, Enders, and Cedar Bluff Reservoirs and Swanson and Hugh Butler Lakes. Harry Strunk, Keith Sebelius, Harlan County and Waconda Lakes and Kirwin and Webster Reservoirs had inflows between the dry- and normal-year forecasts. Box Butte and Lovewell Reservoirs had inflows between the normal- and wet-year forecasts. Merritt and Calamus Reservoirs had inflows above the wet-year forecasts.

The following summarized data shows a comparison of 1985 and 1986 carryover storage for all reservoirs in the Niobrara, Lower Platte, and Kansas River Basins.

	RESERVOIR DATA SEPTEMBER 30					
	1985		1986		Conservation Capacity	
Reservoir	Elevation (feet)	Storage (acre-ft)	Elevation (feet)	Storage (acre-ft)	Elevation (feet)	Storage (acre-ft)
Box Butte	3975.58	2,018	3980.28	3,852	4007.00	31,060
Merritt	2939.20	56,487	2938.10	53,911	2946.00	74,486
Sherman	2156.20	52,966	2157.80	56,926	2162.30	69,076
Calamus	--	--	2222.25	44,536	2244.00	127,400
Bonny	3668.38	34,354	3667.34	32,482	3672.00	41,340
Enders	3088.84	14,823	3089.79	15,642	3112.30	44,480
Swanson	2741.69	67,716	2738.91	57,813	2752.00	112,214
Hugh Butler	2573.55	25,972	2572.05	24,154	2581.80	37,776
Harry Strunk	2356.97	21,968	2352.29	16,708	2366.10	35,705
Keith Sebelius	2280.12	5,118	2279.03	4,522	2304.30	35,935
Harlan County	1939.32	247,773	1937.72	230,862	1946.00	327,639
Lovewell	1580.94	36,940	1583.16	43,390	1582.60	41,690
Kirwin	1705.31	20,846	1702.19	16,146	1729.25	99,435
Webster	1867.42	14,038	1866.64	12,907	1892.45	77,371
Waconda	1452.27	201,855	1454.16	223,722	1455.60	241,460
Cedar Bluff	2098.86	19,150	2096.03	15,109	2144.00	185,090

2. Flood Control Operations. The total 1986 flood control benefits accrued by the operation of the Nebraska-Kansas Projects dams was $8,439,000. The accumulative total of flood control benefits for the years 1951 through 1986 by facilities in this report total $60,874,000 (see table 5). To date no benefits have been accrued by the operation of Box Butte, Merritt, or Sherman Dams.

Water Service

There were 421,671 acre-feet of water diverted to irrigate 221,687 acres of projects lands in 12 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 Cedar Bluff Irrigation District. The project water supplies for the other units mentioned in this report were adequate in 1986.

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.

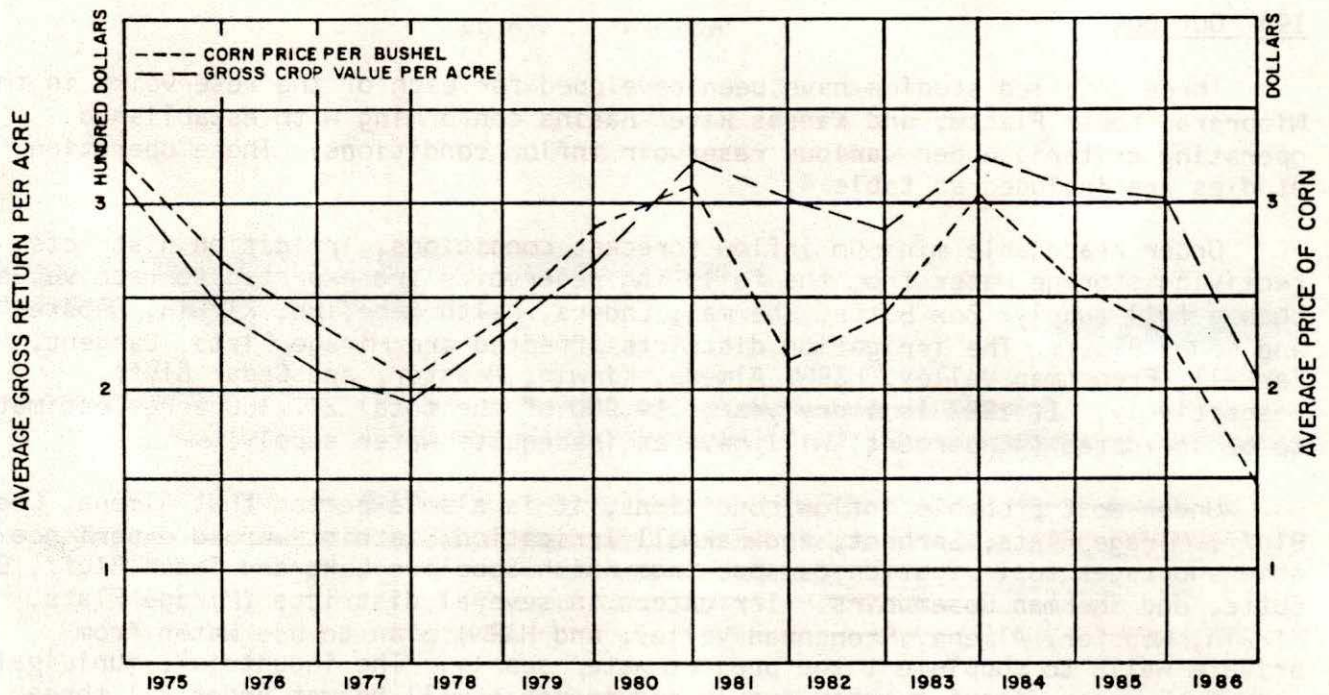
Under a long-term contract with the Bureau for use of the Arcadia Diversion Dam, the Middle Loup Public Power and Irrigation District diverted 31,801 acre-feet to irrigate 14,279 acres of non-project lands. These diversions were made under natural-flow water rights granted by the state of Nebraska.

Irrigation Production

The 1986 crop yields from lands receiving project water were higher than 1985

for all districts except H & RW. Corn, the principal crop, increased from an average of 130 bushels per acre to 131 bushels per acre. Unit prices for all commodities were lower than those in 1985. The total gross crop value for districts receiving project water was $45,824,941. The average gross crop value per acre decreased from $302.03 to $206.71 during 1986. 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) 1985	1986
Ainsworth	125	136
Mirage Flats	117	126
Sargent	125	131
Farwell	135	120
Frenchman Valley	142	144
H&RW	137	82
Frenchman-Cambridge	120	136
Bostwick in Nebraska	132	133
Kansas-Bostwick	141	149
Kirwin	*	165
Webster	*	123
Cedar Bluff	*	*
Almena	*	130
Average of District Reporting	130	131

* No project water supplied; not included in averages.

Fish and Wildlife and Recreation Benefits

During the early part of the 1986 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.

1987 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, Sargent, Farwell, Frenchman Valley, H&RW, Almena, Kirwin, Webster, and Cedar Bluff, respectively. If 1987 is a dry year, 114,900 of the total 247,160 acres estimated to be irrigated (46 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 1987, 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 and Waconda Lakes will fill during 1987. Swanson and Harlan County Lakes and Bonny Reservoir 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 86

Conservation brings doomed aquifer back to life

Driftwood contamination caused partly by oil fields

Severe weather sweeps across SW Nebraska

Waconda Lake considered for vacation resort site

Ground water sale as revenue pushed

2 irrrgation districts eye continuation

Rain heaviest at Bonny Dam and Haigler

Harlan County Reservoir tops rainfall in area

Clean Water Act Veto Is Costly for Midlands

Water levels rise at area reservoirs

Area lake levels improve despite lower precipitation

Showers leave moisture around area on weekend

Diversion suit heard by court

McCOOK, NEBRASKA 69001, FRIDAY, MAY 5, 1986

Rains of 7 inches hit Furnas County

Six area reservoir levels post increase during April

Officials See No Flooding Threat But Plenty of Water for Irrigation

Area lakes show increases in water levels last month

Humans, Animals at Odds When Water Needs Collide

McCOOK, NEBRASKA 69001, MONDAY, APRIL 28, 1986

Rain, snow improve crop outlook

Irrigators fight for water rights

Turnout high at Swanson, but low at other area lakes

Consider Pros and Cons of Selling Nebraska Water, Commission Says

Bonny's precipitation above normal for year

Irrigation growth, death predicted

Spring opens with traces of snow

McCOOK, NEBRASKA 69001, FRIDAY, JANUARY 10, 1986

Irrigators testify on water right

Nebraska takes water issue to U.S. Supreme Court

Businesses and Lot Sales Grow as Reservoir Fills

By Gene Hornbeck

Water Quality Called 'Excellent' for Fishery

Irrigation demand near normal

Area lake levels improve despite lower precipitation

McCOOK, NEBRASKA 69001, THURSDAY, OCTOBER 30, 1986

Water hearing continuance denied

Lake levels decline at area reservoirs

Calamus Dam, Reservoir Dedication Set for July Fourth

OMAHA WORLD-HERALD, Thursday, September 18, 1986

Midlands Water

Water-Sale Support Called Likely

We work, live with it, work around it.

Rain, rain (don't) go away...

Waconda Lake resort being studied

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 1986 and serves as a guideline for the 1987 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 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 1977 to 1986, the project water supply averaged 15,826 acre-feet, which is about 1.36 acre-foot per irrigable acre. This amount is 0.96 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.

1986 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 16.46 inches, which is 108 percent of normal. The total inflow (24,732 acre-feet) was between the normal-year and wet-year forecast.

From June through August, diversions of 17,094 acre-feet to the Mirage Flats Canal provided irrigation water for 10,175 acres, 87 percent of the service available acreage. The farm deliveries from the project water supply were 7,731 acre-feet (0.66 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 $2,379,657 which is $468,963 less than the 1985 value.

1987 Outlook

The project water supply is expected to be inadequate in 1987 like it has been for the last several years. 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 1987, 11,000 acres are expected to be irrigated.

Ainsworth Unit, Sandhills Division in Nebraska

General

Within the Ainsworth Irrigation District, there are 34,539 acres with service available. The project water supply is provided by storage of Snake River flows in Merritt Reservoir. The reservoir is filled each fall after the irrigation season to elevation 2944.0 feet. This level is approximately 2 feet below the top of conservation capacity. The reservoir is regulated to maintain this level until the ice clears each spring. The reservoir is then slowly filled. This operation greatly enhances the spring fish spawn. Seepage, pickup

and toe drain flow normally result in flows of up to 15 cubic feet per second 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.

1986 Summary

Precipitation, as recorded near Merritt Dam, totaled 26.52 inches of rainfall, which was 151 percent of normal. The water supply was more than adequate to meet the project's irrigation requirement. There were 58,854 acre-feet diverted from Merritt Reservoir into the Ainsworth Canal, with 38,063 acre-feet delivered to the farm headgates (delivery efficiency of 65 percent). There were 29,228 acres of land irrigated in 1986. The gross crop value was $7,670,256, which is $4,146,991 less than the previous year.

The district executed several temporary water service contracts which provided a total of 158.59 acre-feet of irrigation water from holding ponds located within the district's service area.

1987 Outlook

Merritt Reservoir will be regulated to maintain an elevation 2.0 feet below the top of conservation capacity during the 1986-87 winter months.

In 1986-87 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 1987 for the irrigation of 27,500 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 13,922 acres. The water supply is diverted from the Middle Loup River into the Sargent Canal under an appropriated natural-flow water right from the state of Nebraska. These diversions may exceed the natural-flow water appropriation of 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.

1986 Summary

The precipitation over the Sargent Unit (25.07 inches at district headquarters) was 107 percent of normal. The irrigation diversions into the Sargent Canal totaled 24,801 acre-feet (14,436 acre-feet were delivered to the farm headgates--delivery efficiency 58 percent). The diversions exceeded the direct-flow water right for 31 days. There were 11,359 acres irrigated, and the gross crop value totaled $1,829,878, which is $1,393,801 less than in 1985. 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.

1987 Outlook

The Loup Basin Reclamation District estimates that 13,000 acres in the Sargent Unit will be irrigated in 1987. 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.

1986 Summary

The diversions from the Middle Loup River at Arcadia Diversion Dam were 31,801 acre-feet to the Middle Loup Pubic Power and Irrigation District and 89,902 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 diverts water directly to the Number 4 Canal. Releases to the turnout amounted to 673 acre-feet and the losses charged as a result of these deliveries totaled 68 acre-feet.

Sherman Feeder Canal diversions into Sherman Reservoir were started on April 3, and the conservation capacity was filled on May 28. The precipitation at Sherman Dam was 22.91 inches, which is 110 percent of normal. Releases into the Farwell Canals totaled 59,722 acre-feet (27,108 acre-feet were delivered to the farm headgates--delivery efficiency 45 percent). The Farwell Irrigation District reported that 41,460 acres of land were irrigated in 1986. The gross crop value was $7,452,211, which is $6,292,271 less than in 1985. Sherman Feeder Canal was shut off September 8.

Under an ongoing program the Farwell Irrigation District has installed a total of about 65 miles of pipe to replace open laterals.

1987 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 1987. 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. Calamus Reservoir will be filled in 3 stages over a 3 to 4 year time period.

1986 Summary

Calamus Dam was dedicated on July 4, 1986, with over 2,000 people attending the ceremony.

First stage filling was concluded with the reservoir being at El. 2224.93 feet at the end of June. As required, bypasses of the inflows were made during July, August, and September. Stage 2 filling began in October with the

reservoir being filled to El. 2231.28 feet at the end of the year.

Precipitation at Calamus Dam was 26.64 inches which is 119 percent of normal. The inflow was 257,359 acre-feet which was slightly over the wet-year forecast. No project irrigation releases were made during 1986.

1987 Outlook

The reservoir water surface will be held at the present elevation until ice-out occurs. Stage 2 filling will continue with a target elevation of 2238.0 feet by mid-May. Bypasses of inflows will be made during July, August and September. Stage 3 filling will begin in October.

It is estimated that approximately 4,000 acres will be irrigated from Mirdan Canal and approximately 1,000 acres from Geranium Canal. Water supplies will be sufficient to meet the full dry-year requirements.

CHAPTER III - REPUBLICAN RIVER BASIN

Armel Unit, Upper Republican Division in Colorado

General

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

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

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

1986 Summary

The 15.44 inches of precipitation during 1986 was 94 percent of normal. The inflow (13,156 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 from January 1 through January 18. As directed by the Colorado Water Commissioner, 1,108 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 1,867 acre-feet for irrigation purposes into Hale Ditch.

1987 Outlook

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

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

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.

1986 Summary

The 18.11 inches of precipitation at Enders Dam was 97 percent of normal. The 1986 inflow into Enders Reservoir (23,943 acre-feet) was below the dry-year forecast. Due to extensive groundwater pumping above the reservoir, the inflow was only 39 percent of the average historical preconstruction runoff at the Enders damsite (60,700 acre-feet from 1929-1947). This year was the nineteenth consecutive year with below-normal inflows in which the conservation pool did not fill. A total of 2,849 acre-feet of water was conserved between the 1985 and 1986 irrigation seasons by pumping seepage back into the reservoir. Irrigation releases were stopped on August 19.

The farm delivery averaged about 0.58 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 8,364 acres received water in 1986, and the H&RW Irrigation District reports 10,909 acres, which are 87 and 95 percent, respectively, of the lands with service available. The gross crop value for Frenchman Valley Irrigation District was $1,666,341 which is a decrease of $858,880 from the previous year. The gross crop value for the H&RW Irrigation District was $1,417,108, which is a decrease of $1,615,342 from the previous year. Approximately 20% of the irrigated crops in the H&RW Irrigation District were destroyed by a July hailstorm.

1987 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.

1986 Summary

The precipitation of 14.69 inches at Trenton Dam was 76 percent of normal.

The inflow of 52,383 acre-feet to Swanson Lake was below the dry-year forecast. The reservoir's conservation pool did not fill in 1986, with the maximum water surface elevation of 2750.84 feet reached on May 19. At the beginning of the 1986 irrigation season (May 19), there was 106,591 acre-feet of water stored in Swanson Lake, which is 5,623 acre-feet below 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 32,916 acre-feet into Meeker-Driftwood Canal to irrigate 15,017 acres and 9,985 acre-feet into Bartley Canal for 6,058 acres.

The precipitation of 17.38 inches at Red Willow Dam was 88 percent of normal, while the inflow of 16,013 acre-feet into Hugh Butler Lake was below the dry-year forecast. The reservoir's maximum water surface elevation for the year was 2579.16 feet, reached on June 15 (2.64 feet below top of conservation). The water supply was adequate to meet the diversion requirements for Red Willow Canal. The district diverted 8,770 acre-feet of water to irrigate 4,673 acres of land served by Red Willow Canal.

The precipitation of 19.29 inches was 100 percent of normal at Medicine Creek Dam, while the inflow of 38,815 acre-feet was between dry- and normal-year forecasts. The reservoir's conservation pool was filled on April 30 with the maximum water surface elevation for the year of 2367.52 feet reached on June 13. Releases were made during March and April, in cooperation with the Nebraska Game and Parks Commission, to defer flows from overtopping the uncontrolled spillway until after the walleye spawning period. The water supply was adequate and 29,083 acre-feet of water was diverted to irrigate 16,050 acres of land served by the Cambridge Canal.

The Frenchman-Cambridge Rehabilitation and Betterment Program for placing laterals in pipe was continued during 1986. 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 119 miles of pipe have been placed through 1986. The $5,500,000 of Rehabilitation and Betterment Loan funds have been expended and completion of the final 1 1/2 miles of 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 1986 gross crop value from the lands served by Meeker-Driftwood, Bartley, Red Willow, and Cambridge Canals was $9,064,601, which is $3,537,075 less than in 1985.

1987 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 1987.

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.

1986 Summary

The precipitation at Norton Dam was 22.89 inches, which is 112 percent of normal. The total inflow was 5,560 acre-feet, which was between dry- and normal-year forecasts. Farm delivery averaged about 0.21 acre-foot per irrigated acre from the project water supply. The remaining demands were supplied from privately owned irrigation wells for the sixteenth consecutive year. This was the first year since 1980 that the district has received project water. The 4,535 acres irrigated in 1986 produced a gross crop value of $1,115,179.

The city of Norton used 462 acre-feet of municipal water during 1986.

The maximum content of Keith Sebelius Lake for the year was 7,096 acre-feet, which was reached on June 7, 1986.

1987 Outlook

The district expects to deliver water to 4,800 acres if an adequate water supply is available. If 1987 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 1987, a shortage of 2,700 acre-feet may be experienced.

Requirements for the city of Norton are expected to be met in full in 1987.

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

General

Harlan County Lake storage and Republican River flows provide a project water supply for 22,787 acres in the Bostwick Irrigation District in Nebraska, and 13,550 acres in the Kansas-Bostwick Irrigation District No. 2 above Lovewell Reservoir. These flows, together with White Rock Creek flows and Lovewell Reservoir storage, furnish a water supply for 28,338 acres below Lovewell Reservoir in the Kansas-Bostwick Irrigation District.

The lands in the Franklin and Superior-Courtland Units are in the Bostwick Irrigation District in Nebraska. The lands in the Courtland Unit 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 study results are finalized, 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.

1986 Summary - Bostwick Division - Harlan County Lake Operations

The precipitation at Harlan County Dam totaled 19.90 inches of rainfall, which is 95 percent of normal. The inflow (145,080 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 1946.88 feet which was reached on June 11 (0.88 feet above the top of conservation). At the end of irrigation season (September 30) 230,862 acre-feet of storage remained in Harlan County Lake.

The 30,595 irrigated acres in the Bostwick Division in Nebraska and Kansas above Lovewell Dam were furnished a full water supply. In addition, 27,087 acre-feet (approximately 33 percent of total inflow) were delivered to Lovewell Reservoir through the Courtland Canal.

1986 Summary - Bostwick Division - Nebraska

The Bostwick Irrigation District in Nebraska diverted 58,665 acre-feet for the irrigation of 20,216 acres. The gross crop value was $4,216,308, which is $2,167,782 less than in 1985.

1986 Summary - Bostwick Division - Kansas

The 1986 precipitation at Lovewell Dam totaled 36.05 inches of rainfall, which was 146 percent of normal. The reservoir's conservation space was full at the first of the year. Releases were made from the flood control pool during January, March, and May. The maximum elevation of the water surface was 1585.77 feet, which was reached on May 18. The reservoir filled shortly after the end of irrigation season so releases were made throughout October to draw the

reservoir down approximately two feet to provide storage space for winter runoff.

The Kansas-Bostwick Irrigation District diverted a total of 69,133 acre-feet to serve 10,379 acres above Lovewell Dam and 21,706 acres below Lovewell Dam. The gross crop value was $7,015,932, which is $2,066,362 less than the previous year.

1987 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.

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.

1986 Summary

The precipitation totaled 25.39 inches, which was 114 percent of normal. The inflow (20,380 acre-feet) was between the dry- and normal-year forecasts. Kirwin Canal was operated from June 30 until August 22. The district diverted 16,472 acre-feet for irrigation of 7,489 acres. Irrigators in the district continued to pump water from private wells to supplement irrigation of project lands. The district reported a gross crop value of $1,407,394. No project water was supplied to the district during 1985.

1987 Outlook

The district estimates that 7,000 acres may be irrigated in 1987 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 5,100 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.

1986 Summary

In 1986, the precipitation at Webster Dam was 109 percent of normal (25.99 inches). The inflow of 15,229 acre-feet was between the dry- and normal-year forecasts.

The district diverted 7,446 acre-feet for irrigation of 4,069 acres. Irrigators with private wells provided water for part of the project lands as a supplemental supply. The district reported a gross crop value of $590,076. No project water was delivered to the district during 1984 or 1985. On September 30, there were 7,607 acre-feet of active conservation storage remaining in the reservoir.

1987 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 1987. 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.

1986 Summary

The precipitation at Glen Elder Dam was 114 percent of normal (28.98 inches). The inflow (105,506 acre-feet) was between dry- and normal-year forecasts. Storage releases of 202 acre-feet were made for Beloit and 6,053 acre-feet was bypassed for quality control as directed by the State Water Commissioner. Other controlled releases were 20,587 acre-feet. This amount includes 844 acre-feet purchased by irrigators under temporary contracts. Releases of 532 acre-feet were made to the WCH&T Rural Water District No. 2. Fall flood flows filled the reservoir's conservation pool on October 14 with the maximum elevation of the water surface reaching 1455.92 feet on December 11. At the request of the Kansas Fish and Game Commission, the reservoir was held at

higher levels to take advantage of excellant fish and wildlife habitat in the upper reaches of the reservoir. Releases were started on December 10 to draw the reservoir down allowing storage space for winter runoff.

1987 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 1987, 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 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.

As a result of continued low reservoir conditions, the Bureau and the State of Kansas have initiated negotiations to re-formulate the purposes and operational objectives associated with Cedar Bluff Reservoir. Cedar Bluff Irrigation District landowners have expressed a willingness to forgo water rights associated with Cedar Bluff Reservoir if the District would be relieved of the terms of its repayment contract with the United States.

1986 Summary

The precipitation was 23.17 inches which is 105 percent of normal. The inflow (2,947 acre-feet) was below the dry-year forecast. The year's high content of 18,840 acre-feet was reached on January 2 and was 16,480 acre-feet below the bottom of active storage. Due to continuing low water levels, no irrigation releases were made in 1986 (eighth consecutive year). The state of Kansas used the fish hatchery facility with 391 acre-feet released to the facility. No releases were made for the city of Russell.

1987 Outlook

The reservoir elevation of 2095.94 feet on December 31, 1986, 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 15,000 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 400 acre-feet of water.

APPENDIX

TABLE 1

RESERVOIR DATA - NIOBRARA, LOWER PLATTE AND KANSAS RIVER BASINS

RESERVOIR		CAPACITY ALLOCATIONS 1/ DEAD	LIVE CONSERVATION Inactive	LIVE CONSERVATION Active	FLOOD CONTROL
Box Butte	- Elevation Ft.	3969.0	3976.5	4007.0	---
	Total Acre-feet	640	2,275	31,060	---
	Net Acre-feet	640	1,635	28,785	---
Merritt	- Elevation Ft.	2875.0	2896.0	2946.0	---
	Total Acre-feet	1,614	6,800	74,486	---
	Net Acre-feet	1,614	5,186	67,686	---
Sherman	- Elevation Ft.	2118.5	2129.0	2162.3	---
	Total Acre-feet	3,839	10,496	69,076	---
	Net Acre-feet	3,839	6,657	58,580	---
Calamus	- Elevation Ft.	2185.0	2213.3	2244.0	---
	Total Acre-feet	817	24,646	127,400	---
	Net Acre-feet	817	23,829	102,754	---
Bonny	- Elevation Ft.	3635.5	3638.0	3672.0	3710.0
	Total Acre-feet	1,418	2,134	41,340	170,160
	Net Acre-feet	1,418	716	39,206	128,820
Enders	- Elevation Ft.	3080.0	3082.4	3112.3	3127.0
	Total Acre-feet	8,467	9,968	44,480	74,520
	Net Acre-feet	8,467	1,501	34,512	30,040
Swanson Lake	- Elevation Ft.	2710.0	2720.0	2752.0	2773.0
	Total Acre-feet	2,118	12,430	112,214	246,291
	Net Acre-feet	2,118	10,312	99,784	134,077
Hugh Butler Lake	- Elevation Ft.	2552.0	2558.0	2581.8	2604.9
	Total Acre-feet	6,313	10,450	37,776	86,627
	Net Acre-feet	6,313	4,137	27,326	48,851
Harry Strunk Lake	- Elevation Ft.	2335.0	2343.0	2366.1	2386.2
	Total Acre-feet	4,160	8,859	35,705	88,420
	Net Acre-feet	4,160	4,699	26,846	52,715
Keith Sebelius Lake	- Elevation Ft.	2275.0	2280.4	2304.3	2331.4
	Total Acre-feet	2,718	5,284	35,935	134,738
	Net Acre-feet	2,718	2,566	30,651	98,803
Harlan County Lake	- Elevation Ft.	1885.0	1927.0	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	3,936,725
Total Net Acre-feet		55,224	276,615	1,250,318	2,354,568

1/ Includes space for sediment storage.

TABLE 2
SUMMARY OF 1986 OPERATIONS

MIRAGE FLATS PROJECT
BOX BUTTE RESERVOIR

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	MIRAGE FLATS CANAL Diversions To Canal (AF)	MIRAGE FLATS CANAL Delivered To Farms (AF)
Jan.	1,154	50	54	0.03	7,218	0	0
Feb.	2,755	51	67	0.68	9,855	0	0
Mar.	3,664	108	145	0.94	13,266	0	0
Apr.	2,722	64	227	2.66	15,697	0	0
May	1,874	63	429	1.33	17,079	0	0
June	1,614	60	550	3.37	18,083	0	0
July	232	8,668	455	1.85	9,192	8,414	3,602
Aug.	1,486	7,599	278	1.43	2,801	7,571	3,741
Sept.	2,232	1,105	76	2.24	3,852	1,109	388
Oct.	2,763	54	195	1.77	6,366	0	0
Nov.	2,316	47	158	0.15	8,477	0	0
Dec.	1,920	49	86	0.01	10,262	0	0
TOTAL	24,732	17,918	2,720	16.46	---	17,094	7,731

NOTE.--Mirage Flats Canal:
Acres irrigated 1986 -- 10,175

SANDHILLS DIVISION
AINSWORTH UNIT
MERRITT RESERVOIR

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	AINSWORTH CANAL Release To Canal (AF)	AINSWORTH CANAL Delivered To Farms (AF)
Jan.	16,411	16,165	246	0.08	68,831	0	0
Feb.	16,372	16,066	306	1.03	68,831	0	0
Mar.	17,734	17,306	428	1.72	68,831	0	0
Apr.	18,574	16,463	716	4.19	70,226	0	0
May	16,052	14,767	1,007	3.06	70,504	1,894	25
June	17,807	15,977	1,272	5.50	71,062	4,746	1,089
July	15,659	35,712	1,297	3.31	49,712	30,176	22,288
Aug.	17,189	23,560	777	3.00	42,564	18,110	12,762
Sept.	17,635	5,405	883	2.63	53,911	3,928	1,898
Oct.	17,122	1,734	739	1.60	68,560	0	0
Nov.	14,942	14,479	463	0.40	68,560	0	0
Dec.	15,172	14,579	322	0.00	68,831	0	0
TOTAL	200,669	192,213	8,456	26.52	---	58,854	38,063

NOTE.--Ainsworth Canal:
Acres irrigated 1986 -- 29,228

MIDDLE LOUP DIVISION

MONTH	SARGENT UNIT SARGENT CANAL Diversions To Canal (AF)	SARGENT UNIT SARGENT CANAL Delivered To Farms (AF)	MIDDLE LOUP UNIT 1/ MIDDLE LOUP PUBLIC POWER CANALS Diversions To Canals (AF)	Diversion To Sherman Feeder Canal (AF)	FARWELL UNIT SHERMAN RESERVOIR Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	FARWELL CANALS Release To Canals (AF)	FARWELL CANALS Delivered To Farms (AF)
Jan.	0	0	0	0	472	1,309	82	0.00	48,731	0	0
Feb.	0	0	0	0	486	1,291	114	0.53	47,812	0	0
Mar.	0	0	0	0	418	1,309	223	1.62	46,698	0	0
Apr.	0	0	0	13,399	11,440	1,303	411	2.35	56,424	0	0
May	0	0	1,182	17,048	15,024	1,533	839	4.49	69,076	0	0
June	3,481	973	9,060	13,363	13,514	17,683	1,143	1.36	63,764	15,969	4,150
July	13,097	8,442	12,559	18,738	18,915	34,528	1,231	1.80	46,920	33,213	19,027
Aug.	7,442	4,823	8,072	24,272	20,380	11,355	777	2.96	55,168	10,449	3,633
Sept.	781	198	928	3,082	3,007	873	376	4.62	56,926	91	298
Oct.	0	0	0	0	625	1,083	798	2.63	55,670	0	0
Nov.	0	0	0	0	0	1,303	669	0.08	53,698	0	0
Dec.	0	0	0	0	450	1,309	117	0.47	52,722	0	0
TOTAL	24,801	14,436	31,801	89,902	84,731	74,879	6,780	22.91	---	59,722	27,108

1/ Non-Project. Includes 673 a.f. diverted from Sherman Feeder Canal and 68 a.f. loss.

NOTE.--Sargent Canal:
Acres irrigated 1986 -- 11,359

Middle Loup P. P. Canals:
Acres irrigated 1986 -- 14,279

Farwell Canals:
Acres irrigated 1986 -- 41,460

NORTH LOUP DIVISION
CALAMUS RESERVOIR

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)
Jan.	21,644	11,336	49	0.00	21,484
Feb.	20,221	10,265	94	0.93	31,346
Mar.	23,137	11,391	-236	1.24	42,856
Apr.	21,184	11,034	479	2.79	52,527
May	23,310	21,628	917	3.02	53,292
June	20,059	20,150	1,200	2.97	52,001
July	20,567	25,242	1,395	5.46	45,931
Aug.	21,850	25,371	866	4.41	41,544
Sept.	22,850	19,468	390	3.58	44,536
Oct.	22,685	7,422	921	1.86	58,878
Nov.	19,269	5,512	491	0.20	72,144
Dec.	20,583	19,983	172	0.18	72,572
TOTAL	257,359	188,802	7,210	26.64	---

NOTE.--The first stage filling of Calamus Reservoir was concluded in June, with the second stage filling of the reservoir beginning in October. No irrigation releases were made during the 1986 season.

TABLE 2
SUMMARY OF 1986 OPERATIONS

UPPER REPUBLICAN DIVISION
ARMEL UNIT
BONNY RESERVOIR

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Outflow To Hale Ditch (AF)
Jan.	1,590	964	173	0.00	36,270	0
Feb.	1,374	311	213	0.43	37,120	0
Mar.	1,456	344	309	0.78	37,923	0
Apr.	1,662	477	778	2.16	38,330	157
May	1,462	812	981	3.15	37,999	492
June	1,459	754	1,029	3.20	37,675	457
July	481	1,353	1,150	1.14	35,653	753
Aug.	595	1,446	862	1.72	33,940	687
Sept.	34	762	730	0.21	32,482	336
Oct.	741	408	350	1.93	32,465	93
Nov.	923	302	333	0.33	32,753	0
Dec.	1,379	312	204	0.39	33,616	0
TOTAL	13,156	8,245	7,112	15.44	---	2,975

NOTE.--Total industrial use for calendar year was 0.22 acre-feet.

TABLE 2
SUMMARY OF 1986 OPERATIONS

FRENCHMAN-CAMBRIDGE DIVISION
FRENCHMAN UNIT

	ENDERS RESERVOIR					CULBERTSON CANAL		CULBERTSON EXT. CANAL	
MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	2,189	61	80	0.00	22,908	0	0	0	0
Feb.	1,785	56	97	0.61	24,540	0	0	0	0
Mar.	1,797	61	177	0.65	26,099	0	0	0	0
Apr.	1,694	60	417	1.34	27,316	2,317	321	0	0
May	1,735	61	537	2.83	28,453	2,639	447	0	0
June	2,273	2,525	647	2.99	27,554	1,356	542	2,811	256
July	2,284	10,173	705	3.83	18,960	3,732	2,569	6,433	2,924
Aug.	2,094	6,543	441	2.31	14,070	2,811	1,773	4,608	2,327
Sept.	1,895	60	263	0.84	15,642	0	0	0	0
Oct.	2,200	61	152	2.11	17,629	0	0	0	0
Nov.	2,014	60	163	0.29	19,420	0	0	0	0
Dec.	1,983	61	96	0.31	21,246	0	0	0	0
TOTAL	23,943	19,782	3,775	18.11	---	12,855	5,652	13,852	5,507

NOTE.--Culbertson Canal: Acres Irrigated 1986 -- 8,364
Culbertson Extension Canal: Acres Irrigated 1986 -- 10,909

FRENCHMAN-CAMBRIDGE DIVISION (Continued)
MEEKER-DRIFTWOOD UNIT

	SWANSON LAKE					MEEKER-DRIFTWOOD		BARTLEY CANAL	
MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Release To Canal (AF)	Delivered To Farms (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	8,230	61	314	0.00	87,414	0	0	0	0
Feb.	7,128	56	387	0.52	94,099	0	0	0	0
Mar.	7,649	128	665	0.74	100,955	0	0	0	0
Apr.	7,058	319	1,675	1.40	106,019	0	0	0	0
May	3,652	1,809	2,080	2.58	105,782	1,729	0	0	0
June	4,149	8,487	2,422	2.21	99,022	5,456	1,244	1,494	400
July	1,583	21,334	2,698	2.57	76,573	14,208	10,118	4,746	3,895
Aug.	1,918	16,820	1,827	1.32	59,844	10,884	7,956	3,524	2,585
Sept.	137	986	1,182	0.67	57,813	639	449	221	175
Oct.	2,149	61	473	1.90	59,428	0	0	0	0
Nov.	3,943	60	587	0.39	62,724	0	0	0	0
Dec.	4,787	61	329	0.39	67,121	0	0	0	0
TOTAL	52,383	50,182	14,639	14.69	---	32,916	19,767	9,985	7,055

NOTE.--Meeker-Driftwood Canal: Acres Irrigated 1986 -- 15,017
Bartley Canal: Acres Irrigated 1986 -- 6,058

FRENCHMAN-CAMBRIDGE DIVISION (Continued)
RED WILLOW UNIT

	HUGH BUTLER LAKE					RED WILLOW CANAL	
MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	1,558	246	89	0.00	29,787	0	0
Feb.	1,483	222	109	0.42	30,939	0	0
Mar.	1,438	246	197	0.71	31,934	0	0
Apr.	1,328	243	540	1.16	32,479	0	0
May	1,650	261	740	3.64	33,128	0	0
June	1,747	2,135	570	4.13	32,170	1,297	535
July	906	5,022	763	1.25	27,291	4,091	3,080
Aug.	1,018	3,683	683	1.85	23,943	3,146	2,130
Sept.	1,142	482	449	0.48	24,154	236	121
Oct.	1,506	210	217	3.23	25,233	0	0
Nov.	1,174	238	197	0.29	25,972	0	0
Dec.	1,063	213	103	0.22	26,719	0	0
TOTAL	16,013	13,201	4,657	17.38	---	8,770	5,866

NOTE.--Red Willow Canal: Acres Irrigated 1986 -- 4,673

FRENCHMAN-CAMBRIDGE DIVISION (Continued)
CAMBRIDGE UNIT

	HARRY STRUNK LAKE					CAMBRIDGE CANAL	
MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	3,006	41	114	0.00	32,196	0	0
Feb.	3,320	66	130	0.48	35,320	0	0
Mar.	2,855	2,444	246	0.92	35,485	0	0
Apr.	3,222	2,232	738	1.53	35,742	0	0
May	3,662	961	879	4.06	37,564	0	0
June	5,787	6,662	1,094	3.97	35,595	4,825	1,936
July	4,201	15,371	1,160	2.40	23,265	14,004	10,225
Aug.	3,025	10,080	544	1.36	15,666	9,649	6,614
Sept.	1,903	573	288	1.26	16,708	605	183
Oct.	2,709	45	193	2.64	19,179	0	0
Nov.	2,541	20	184	0.27	21,516	0	0
Dec.	2,584	15	100	0.40	23,985	0	0
TOTAL	38,815	38,510	5,665	19.29	---	29,083	18,958

NOTE.--Cambridge Canal: Acres Irrigated 1986 -- 16,050

TABLE 2
SUMMARY OF 1986 OPERATIONS

KANASKA DIVISION
ALMENA UNIT
KEITH SEBELIUS LAKE

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Release To City Of Norton (AF)	ALMENA CANAL Diversions To Canal (AF)	ALMENA CANAL Delivered To Farms (AF)
Jan.	105	23	41	0.00	5,165	23	0	0
Feb.	191	20	46	0.10	5,290	20	0	0
Mar.	139	27	83	0.86	5,319	27	0	0
Apr.	279	39	263	1.84	5,296	39	0	0
May	2,077	40	341	4.37	6,992	40	0	0
June	504	423	449	2.78	6,624	48	9	0
July	534	2,730	429	3.27	3,999	72	2,014	961
Aug.	1,038	59	261	2.28	4,717	59	0	0
Sept.	33	47	181	2.58	4,522	47	0	0
Oct.	257	34	82	4.04	4,663	34	0	0
Nov.	185	28	87	0.44	4,733	28	0	0
Dec.	218	25	47	0.33	4,879	25	0	0
TOTAL	5,560	3,495	2,310	22.89	---	462	2,023	961

NOTE.--Almena Canal:
Acres irrigated 1986 -- 4,535

BOSTWICK DIVISION
FRANKLIN UNIT

HARLAN COUNTY LAKE
Data from Corps of Engineers

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	FRANKLIN CANAL Release To Canal (AF)	FRANKLIN CANAL Delivered To Farms (AF)	NAPONEE CANAL Release To Canal (AF)	NAPONEE CANAL Delivered To Farms (AF)
Jan.	11,246	852	853	0.00	275,086	0	0	0	0
Feb.	10,978	684	825	0.22	284,555	0	0	0	0
Mar.	15,094	119	1,095	1.04	298,435	0	0	0	0
Apr.	13,726	0	2,997	1.49	309,164	0	0	0	0
May	30,228	0	4,036	3.32	335,356	0	0	0	0
June	14,390	27,081	5,695	2.62	316,970	5,752	2,395	714	375
July	14,876	59,454	7,303	3.61	265,089	15,313	8,162	1,935	1,070
Aug.	6,456	34,796	5,254	1.98	231,495	11,730	3,988	1,144	549
Sept.	5,058	1,468	4,223	2.47	230,862	410	36	38	10
Oct.	7,547	0	2,551	2.34	235,858	0	0	0	0
Nov.	7,051	0	2,456	0.23	240,453	0	0	0	0
Dec.	8,430	826	1,083	0.58	246,974	0	0	0	0
TOTAL	145,080	125,280	38,371	19.90	---	33,205	14,581	3,831	2,004

NOTE.--Franklin Canal:
Acres irrigated 1986 -- 10,214

Naponee Canal:
Acres irrigated 1986 -- 1,575

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	0	0	0	0	0
June	890	583	2,907	881	14,607	263	168	10,918	3,343
July	2,408	1,605	8,262	3,747	28,024	1,381	1,027	12,834	7,578
Aug.	1,113	597	4,097	606	18,512	308	232	3,172	1,187
Sept.	0	0	0	0	292	0	0	0	0
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	4,411	2,785	15,266	5,234	61,435	1,952	1,427	26,924	12,108

NOTE.--Franklin Pump Canal:
Acres irrigated 1986 -- 2,064

Superior Canal:
Acres irrigated 1986 -- 4,913

NOTE.--Courtland Canal--Nebraska Use:
Acres irrigated 1986 -- 1,450

Courtland Canal--Kansas Use:
Acres irrigated 1986 -- 10,379

BOSTWICK DIVISION (Continued)
COURTLAND UNIT
LOVEWELL RESERVOIR

MONTH	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.	1,576	3,539	177	0.00	40,330	0	0
Feb.	2,129	20	209	0.63	42,230	0	0
Mar.	2,536	2,930	386	1.32	41,450	0	0
Apr.	6,713	39	944	6.21	47,180	0	0
May	8,423	6,523	1,050	3.23	48,030	0	0
June	5,241	13,261	1,380	2.00	38,630	13,163	6,268
July	14,397	21,398	1,379	3.18	30,250	21,426	12,337
Aug.	15,637	7,620	777	5.68	37,490	7,541	3,038
Sept.	6,871	278	693	6.38	43,390	79	51
Oct.	13,202	17,837	295	5.06	38,460	0	0
Nov.	2,288	2,001	427	1.00	38,320	0	0
Dec.	3,635	0	205	1.36	41,750	0	0
TOTAL	82,648	75,446	7,922	36.05	---	42,209	21,694

NOTE.--Courtland Canal below Lovewell:
Acres irrigated 1986 -- 21,706

TABLE 2
SUMMARY OF 1986 OPERATIONS

SOLOMON DIVISION
KIRWIN UNIT

	KIRWIN RESERVOIR					KIRWIN CANAL	
MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Release To Canal (AF)	Delivered To Farms (AF)
Jan.	946	0	117	0.00	23,275	0	0
Feb.	1,000	0	148	0.13	24,127	0	0
Mar.	1,099	0	255	0.64	24,971	0	0
Apr.	1,203	0	724	2.51	25,450	0	0
May	7,078	0	922	3.71	31,606	0	0
June	2,503	77	1,255	2.69	32,777	93	0
July	1,822	9,420	1,143	3.07	24,036	9,336	4,640
Aug.	65	6,940	763	1.91	16,398	7,043	3,982
Sept.	241	0	493	3.52	16,146	0	0
Oct.	2,597	0	291	5.55	18,452	0	0
Nov.	800	0	242	0.70	19,010	0	0
Dec.	1,026	0	124	0.96	19,912	0	0
TOTAL	20,380	16,437	6,477	25.39	---	16,472	8,622

NOTE.--Kirwin Canal:
Acres irrigated 1986 -- 7,489

SOLOMON DIVISION (Continued)
WEBSTER UNIT

	WEBSTER RESERVOIR					OSBORNE 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.	622	0	108	0.00	14,315	0	0
Feb.	870	0	124	0.37	15,061	0	0
Mar.	906	0	227	0.32	15,740	0	0
Apr.	954	0	607	1.78	16,087	0	0
May	5,559	0	791	2.97	20,855	0	0
June	2,016	0	986	4.79	21,885	0	0
July	1,891	5,070	919	5.28	17,787	3,499	1,046
Aug.	469	4,381	700	1.10	13,175	3,947	2,129
Sept.	187	0	455	3.15	12,907	0	0
Oct.	1,125	0	231	4.54	13,801	0	0
Nov.	208	0	239	0.68	13,770	0	0
Dec.	422	0	125	1.01	14,067	0	0
TOTAL	15,229	9,451	5,512	25.99	---	7,446	3,175

NOTE.--Osborne Canal:
Acres irrigated 1986 -- 4,069

SOLOMON DIVISION (Continued)
GLEN ELDER UNIT

	WAGONDA LAKE					OUTFLOW TO RIVER			
						City of Beloit		Other	
MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Storage Release (AF)	Quality Bypass (AF)	Controlled Releases 1/ (AF)	Release To W.C.H.&T. R.W.D. No. 2 (AF)
Jan.	2,589	872	703	0.00	204,896	0	827	0	45
Feb.	3,601	788	898	0.33	206,811	0	750	0	38
Mar.	4,930	876	1,576	1.14	209,289	0	830	0	46
Apr.	9,144	981	5,035	4.12	212,417	132	804	0	45
May	8,791	876	5,340	1.52	214,992	0	830	0	46
June	12,366	1,446	7,175	4.33	218,737	0	484	916	46
July	12,955	4,086	8,986	2.89	218,620	22	0	4,011	53
Aug.	7,636	2,010	6,095	4.20	218,151	48	285	1,633	44
Sept.	11,329	938	4,820	5.32	223,722	0	892	0	46
Oct.	23,153	934	2,094	3.24	243,847	0	351	546	37
Nov.	2,429	937	1,995	0.15	243,344	0	0	893	44
Dec.	6,583	12,630	988	1.21	236,309	0	0	12,588	42
TOTAL	105,506	27,374	45,705	28.45	---	202	6,053	20,587	532

1/ Includes releases for water right administration and 844 acre-feet delivered under temporary contracts.

SMOKY HILL DIVISION
ELLIS UNIT
CEDAR BLUFF RESERVOIR

						STORAGES 1/			Release
MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Fish & Wildlife (AF)	City of Russell (AF)	Irrigation (AF)	To Fish Hatchery (AF)
Jan.	24	0	129	0.00	18,720	1,254	876	8,329	0
Feb.	162	0	147	0.16	18,735	1,262	877	8,335	0
Mar.	0	67	278	1.20	18,390	1,161	854	8,114	67
Apr.	93	111	662	0.92	17,710	989	805	7,655	111
May	662	184	936	3.18	17,252	859	774	7,358	133
June	716	110	952	5.63	16,906	826	744	7,075	51
July	109	37	1,046	1.58	15,932	715	662	6,294	27
Aug.	203	0	857	2.42	15,278	668	604	5,745	0
Sept.	479	0	648	4.66	15,109	603	586	5,579	0
Oct.	231	2	268	2.01	15,070	691	581	5,537	2
Nov.	158	0	228	0.68	15,000	693	575	5,471	0
Dec.	110	0	124	0.71	14,986	698	574	5,453	0
TOTAL	2,947	511	6,275	23.15	---	---	---	---	391

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 1986 irrigation season.
No releases were made for the City of Russell, Kansas.

TABLE 3
ACRES IRRIGATED IN 1986 AND ESTIMATES FOR 1987

Irrigation District and Canal	Acres With Service Available	Acres Irrigated in 1986	Estimated Acres to be Irrigated in 1987
Mirage Flats Irrigation District			
Mirage Flats Canal	11,662	10,175	11,000
Ainsworth Irrigation District			
Ainsworth Canal	34,539	29,228	27,500
Sargent Irrigation District			
Sargent Canal	13,922	11,359	13,000
Farwell Irrigation District			
Farwell Canal	50,051	41,460	49,000
Twin Loups Irrigation District			
Mirdan Canal	13,254	---	4,000
Geranium Canal	10,870	---	1,000
Total Twin Loups Irrigation District	24,124		5,000
Frenchman Valley Irrigation District			
Culbertson Canal	9,600	8,364	8,600
H & RW Irrigation District			
Culbertson Extension Canal	11,490	10,909	10,200
Frenchman-Cambridge Irrigation District			
Meeker-Driftwood Canal	16,476	15,017	16,160
Red Willow Canal	4,932	4,673	4,790
Bartley Canal	6,539	6,058	6,290
Cambridge Canal	17,053	16,050	16,720
Total Frenchman-Cambridge Irrigation Dist.	45,000	41,798	43,960
Almena Irrigation District			
Almena Canal	5,763	4,535	4,800
Bostwick Irrigation District in Nebraska			
Franklin Canal	11,116	10,214	10,100
Naponee Canal	1,737	1,575	1,700
Franklin Pump Canal	2,091	2,064	2,050
Superior Canal	5,863	4,913	5,150
Courtland Canal (Nebraska)	1,980	1,450	1,600
Total Bostwick Irrigation Dist. in Nebraska	22,787	20,216	20,600
Kansas-Bostwick Irrigation District			
Courtland Canal above Lovewell	13,550	10,379	11,700
Courtland Canal below Lovewell	28,338	21,706	23,500
Total Kansas-Bostwick Irrigation District	41,888	32,085	35,200
Kirwin Irrigation District			
Kirwin Canal	11,435	7,489	7,000
Webster Irrigation District			
Osborne Canal	8,500	4,069	4,500
Cedar Bluff Irrigation District			
Cedar Bluff Canal	6,800	0	6,800
TOTAL PROJECT USES	297,561	221,687	247,160
Non-Project Uses			
Middle Loup Public Power & I.D. Canals	15,000	14,279	14,400
Hale Ditch	700	700	700
TOTAL NON-PROJECT USES	15,700	14,979	15,100
TOTAL PROJECT AND NON-PROJECT	313,261	236,666	262,260

BOX BUTTE RESERVOIR OPERATION ESTIMATES - 1987

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	3991.5	11.6	1.3
FEB	34.	1.9	1.15	.1	2.	.1	.0	.0	3993.2	13.3	1.7
MAR	42.	2.6	2.07	.2	2.	.1	.0	.0	3995.4	15.6	2.3
APR	34.	2.0	3.76	.3	29.	1.7	.0	.0	3995.4	15.6	.0
MAY	23.	1.4	6.32	.5	55.	3.4	.0	.0	3993.0	13.1	-2.5
JUN	17.	1.0	7.22	.6	57.	3.4	.0	.0	3989.8	10.1	-3.0
JUL	13.	.8	8.60	.4	164.	10.1	.0	1.9	3976.5	2.3	-7.8
AUG	15.	.9	7.98	.2	166.	10.2	.0	9.5	3976.5	2.3	.0
SEP	13.	.8	5.81	.2	86.	5.1	.0	4.5	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	2.9		34.5	.0	15.9			-4.3
					MOST PROBABLE INFLOW CONDITIONS						
JAN	29.	1.8	.99	.1	2.	.1	.0	.0	3991.8	11.9	1.6
FEB	40.	2.2	1.04	.1	2.	.1	.0	.0	3993.8	13.9	2.0
MAR	49.	3.0	1.89	.2	2.	.1	.0	.0	3996.3	16.6	2.7
APR	40.	2.4	3.41	.3	20.	1.2	.0	.0	3997.1	17.5	.9
MAY	26.	1.6	5.71	.6	18.	1.1	.0	.0	3997.1	17.4	-.1
JUN	20.	1.2	6.54	.6	42.	2.5	.0	.0	3995.3	15.5	-1.9
JUL	16.	1.0	7.80	.6	141.	8.7	.0	.0	3986.0	7.2	-8.3
AUG	16.	1.0	7.23	.3	143.	8.8	.0	3.2	3976.5	2.3	-4.9
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	3.2		25.3	.0	4.7			-3.6
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	36.	2.2	.91	.1	2.	.1	.0	.0	3992.2	12.3	2.0
FEB	50.	2.8	.95	.1	2.	.1	.0	.0	3994.8	14.9	2.6
MAR	60.	3.7	1.72	.2	2.	.1	.0	.0	3997.8	18.3	3.4
APR	49.	2.9	3.12	.3	10.	.6	.0	.0	3999.4	20.3	2.0
MAY	34.	2.1	5.25	.6	13.	.8	.0	.0	4000.0	21.0	.7
JUN	25.	1.5	6.00	.6	27.	1.6	.0	.0	3999.4	20.3	-.7
JUL	20.	1.2	7.14	.7	107.	6.6	.0	.0	3994.1	14.2	-6.1
AUG	21.	1.3	6.63	.5	106.	6.5	.0	.0	3987.8	8.5	-5.7
SEP	20.	1.2	4.82	.3	29.	1.7	.0	.0	3986.8	7.7	-.8
OCT	23.	1.4	3.85	.2	2.	.1	.0	.0	3988.2	8.8	1.1
NOV	39.	2.3	2.46	.2	2.	.1	.0	.0	3990.6	10.8	2.0
DEC	41.	2.5	1.15	.1	2.	.1	.0	.0	3993.0	13.1	2.3
TOTAL		25.1	44.00	3.9		18.4	.0	.0			2.8

MERRITT RESERVOIR OPERATION ESTIMATES - 1987

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	NET EVAPORATION INCHES	NET EVAPORATION 1000 AF	RELEASE REQUIREMENT CANAL 1000 AF	RELEASE REQUIREMENT RIVER 1000 AF	RELEASE REQUIREMENT TOTAL MEAN CFS	RELEASE REQUIREMENT TOTAL 1000 AF	RES SPILL 1000 AF	REQUIREMENT SHORTAGE 1000 AF	END OF MONTH ELEV FT	END OF MONTH CONT 1000 AF	RESERVOIR CHANGE 1000 AF
						REASONABLE MINIMUM INFLOW CONDITIONS							
JAN	192.	11.8	1.13	.3	.0	11.5	187.	11.5	.0	.0	2944.0	68.8	.0
FEB	212.	11.8	1.43	.3	.0	11.5	207.	11.5	.0	.0	2944.0	68.8	.0
MAR	236.	14.5	1.99	.5	.0	14.0	228.	14.0	.0	.0	2944.0	68.8	.0
APR	235.	14.0	3.31	.8	.0	11.4	192.	11.4	.0	.0	2944.6	70.6	1.8
MAY	218.	13.4	4.79	1.1	4.4	1.0	88.	5.4	3.0	.0	2946.0	74.5	3.9
JUN	208.	12.4	6.20	1.5	7.2	1.0	138.	8.2	2.7	.0	2946.0	74.5	.0
JUL	210.	12.9	8.03	1.7	34.9	1.0	584.	35.9	.0	.0	2936.2	49.8	-24.7
AUG	210.	12.9	7.33	1.0	34.9	1.0	584.	35.9	.0	.0	2921.4	25.8	-24.0
SEP	208.	12.4	5.39	.6	6.1	1.0	119.	7.1	.0	.0	2925.0	30.5	4.7
OCT	208.	12.8	3.76	.5	.0	1.0	16.	1.0	.0	.0	2932.2	41.8	11.3
NOV	207.	12.3	2.15	.4	.0	1.0	17.	1.0	.0	.0	2937.6	52.7	10.9
DEC	203.	12.5	1.49	.3	.0	1.0	16.	1.0	.0	.0	2942.2	63.9	11.2
TOTAL		153.7	47.00	9.0	87.5	56.4		143.9	5.7	.0			-4.9
						MOST PROBABLE INFLOW CONDITIONS							
JAN	216.	13.3	1.07	.2	.0	13.1	213.	13.1	.0	.0	2944.0	68.8	.0
FEB	239.	13.3	1.34	.3	.0	13.0	234.	13.0	.0	.0	2944.0	68.8	.0
MAR	267.	16.4	1.87	.4	.0	16.0	260.	16.0	.0	.0	2944.0	68.8	.0
APR	266.	15.8	3.10	.7	.0	13.3	224.	13.3	.0	.0	2944.6	70.6	1.8
MAY	247.	15.2	4.48	1.1	3.3	1.0	70.	4.3	5.9	.0	2946.0	74.5	3.9
JUN	237.	14.1	5.80	1.4	5.5	1.0	109.	6.5	6.2	.0	2946.0	74.5	.0
JUL	236.	14.5	7.50	1.7	25.6	1.0	433.	26.6	.0	.0	2940.9	60.7	-13.8
AUG	236.	14.5	6.85	1.3	25.6	1.0	433.	26.6	.0	.0	2935.0	47.3	-13.4
SEP	235.	14.0	5.04	.9	4.4	1.0	91.	5.4	.0	.0	2938.6	55.0	7.7
OCT	234.	14.4	3.52	.7	.0	1.0	16.	1.0	.0	.0	2943.6	67.7	12.7
NOV	234.	13.9	2.02	.5	.0	12.3	207.	12.3	.0	.0	2944.0	68.8	1.1
DEC	228.	14.0	1.41	.3	.0	13.7	223.	13.7	.0	.0	2944.0	68.8	.0
TOTAL		173.4	44.00	9.5	64.4	87.4		151.8	12.1	.0			.0
						REASONABLE MAXIMUM INFLOW CONDITIONS							
JAN	241.	14.8	.94	.2	.0	14.6	237.	14.6	.0	.0	2944.0	68.8	.0
FEB	266.	14.8	1.19	.3	.0	14.5	261.	14.5	.0	.0	2944.0	68.8	.0
MAR	294.	18.1	1.65	.4	.0	17.7	288.	17.7	.0	.0	2944.0	68.8	.0
APR	294.	17.5	2.75	.6	.0	15.1	254.	15.1	.0	.0	2944.6	70.6	1.8
MAY	273.	16.8	3.97	.9	1.9	1.0	47.	2.9	9.1	.0	2946.0	74.5	3.9
JUN	262.	15.6	5.15	1.2	3.3	1.0	72.	4.3	10.1	.0	2946.0	74.5	.0
JUL	263.	16.2	6.66	1.6	16.5	1.0	285.	17.5	.0	.0	2945.0	71.6	-2.9
AUG	263.	16.2	6.08	1.4	16.5	1.0	285.	17.5	.0	.0	2944.0	68.9	-2.7
SEP	262.	15.6	4.47	1.0	2.8	11.9	247.	14.7	.0	.0	2944.0	68.8	-.1
OCT	260.	16.0	3.12	.7	.0	15.3	249.	15.3	.0	.0	2944.0	68.8	.0
NOV	260.	15.5	1.78	.4	.0	15.1	254.	15.1	.0	.0	2944.0	68.8	.0
DEC	254.	15.6	1.24	.3	.0	15.3	249.	15.3	.0	.0	2944.0	68.8	.0
TOTAL		192.7	39.00	9.0	41.0	123.5		164.5	19.2	.0			.0

SHERMAN RESERVOIR OPERATION ESTIMATES - 1987

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	2155.5	51.3	-1.4
FEB	0.	.0	.71	.1	23.	1.3	.0	.0	2154.9	49.9	-1.4
MAR	0.	.0	1.59	.3	21.	1.3	.0	.0	2154.2	48.3	-1.6
APR	252.	15.0	3.85	.8	22.	1.3	.0	.0	2159.4	61.2	12.9
MAY	168.	10.3	3.74	.9	24.	1.5	.0	.0	2162.3	69.1	7.9
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	546.	33.6	4.16	.7	18.	1.1	.0	.0	2156.0	52.5	31.8
NOV	0.	.0	2.26	.4	22.	1.3	.0	.0	2155.3	50.8	-1.7
DEC	0.	.0	.79	.2	21.	1.3	.0	.0	2154.6	49.3	-1.5
TOTAL		115.6	41.72	6.8		188.9	.0	76.7			-3.4
					MOST PROBABLE INFLOW CONDITIONS						
JAN	0.	.0	.43	.1	21.	1.3	.0	.0	2155.5	51.3	-1.4
FEB	0.	.0	.60	.1	23.	1.3	.0	.0	2154.9	49.9	-1.4
MAR	0.	.0	1.19	.2	21.	1.3	.0	.0	2154.3	48.4	-1.5
APR	235.	14.0	2.08	.4	22.	1.3	.0	.0	2159.2	60.7	12.3
MAY	169.	10.4	2.22	.5	24.	1.5	.0	.0	2162.3	69.1	8.4
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	403.	24.8	3.81	.7	18.	1.1	.0	.0	2156.3	53.1	23.0
NOV	0.	.0	1.76	.4	22.	1.3	.0	.0	2155.5	51.4	-1.7
DEC	0.	.0	.58	.1	21.	1.3	.0	.0	2154.9	50.0	-1.4
TOTAL		116.1	29.93	5.1		133.0	.0	19.3			-2.7
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	0.	.0	.21	.0	21.	1.3	.0	.0	2155.5	51.4	-1.3
FEB	0.	.0	.32	.1	23.	1.3	.0	.0	2154.9	50.0	-1.4
MAR	0.	.0	.42	.1	21.	1.3	.0	.0	2154.3	48.6	-1.4
APR	218.	13.0	.59	.1	22.	1.3	.0	.0	2159.1	60.2	11.6
MAY	171.	10.5	.39	.1	24.	1.5	.0	.0	2162.3	69.1	8.9
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	504.	30.0	2.14	.4	96.	5.7	.0	.0	2156.8	54.4	23.9
OCT	0.	.0	3.37	.7	18.	1.1	.0	.0	2156.0	52.6	-1.8
NOV	0.	.0	.40	.1	22.	1.3	.0	.0	2155.5	51.2	-1.4
DEC	0.	.0	.24	.0	21.	1.3	.0	.0	2154.9	49.9	-1.3
TOTAL		95.6	17.83	3.6		94.8	.0	.0			-2.8

CALAMUS RESERVOIR OPERATION ESTIMATES - 1987

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	NET EVAPORATION INCHES	NET EVAPORATION 1000 AF	RELEASE REQUIREMENT CANAL 1000 AF	RELEASE REQUIREMENT RIVER 1000 AF	RELEASE REQUIREMENT TOTAL MEAN CFS	RELEASE REQUIREMENT TOTAL 1000 AF	RES SPILL 1000 AF	REQUIREMENT SHORTAGE 1000 AF	END OF MONTH ELEV FT	END OF MONTH CONT 1000 AF	RESERVOIR CHANGE 1000 AF
REASONABLE MINIMUM INFLOW CONDITIONS													
JAN	267.	16.4	.65	.2	.0	16.4	267.	16.4	.0	.0	2231.2	72.4	-.2
FEB	288.	16.0	.71	.2	.0	16.0	288.	16.0	.0	.0	2231.2	72.2	-.2
MAR	309.	19.0	1.59	.5	.0	6.2	101.	6.2	.0	.0	2234.5	84.5	12.3
APR	304.	18.1	3.85	1.3	.0	3.1	52.	3.1	.0	.0	2237.8	98.2	13.7
MAY	294.	18.1	3.74	1.3	.0	16.0	260.	16.0	.0	.0	2238.0	99.0	.8
JUN	289.	17.2	4.67	1.7	2.5	17.2	331.	19.7	.0	.0	2237.0	94.8	-4.2
JUL	254.	15.6	7.91	2.7	4.8	15.6	332.	20.4	.0	.0	2235.2	87.3	-7.5
AUG	254.	15.6	7.12	2.3	4.8	15.6	332.	20.4	.0	.0	2233.3	80.2	-7.1
SEP	262.	15.6	4.27	1.3	3.6	15.6	323.	19.2	.0	.0	2232.0	75.3	-4.9
OCT	263.	16.2	4.16	1.3	.0	10.0	163.	10.0	.0	.0	2233.3	80.2	4.9
NOV	269.	16.0	2.26	.7	.0	10.0	168.	10.0	.0	.0	2234.7	85.5	5.3
DEC	260.	16.0	.79	.3	.0	10.0	163.	10.0	.0	.0	2236.1	91.2	5.7
TOTAL		199.8	41.72	13.8	15.7	151.7		167.4	.0	.0			18.6
MOST PROBABLE INFLOW CONDITIONS													
JAN	286.	17.6	.43	.1	.0	17.6	286.	17.6	.0	.0	2231.2	72.5	-.1
FEB	308.	17.1	.60	.2	.0	17.1	308.	17.1	.0	.0	2231.2	72.3	-.2
MAR	330.	20.3	1.19	.4	.0	6.2	101.	6.2	.0	.0	2234.8	86.0	13.7
APR	328.	19.5	2.08	.7	.0	5.8	97.	5.8	.0	.0	2238.0	99.0	13.0
MAY	317.	19.5	2.22	.8	.0	18.5	301.	18.5	.0	.0	2238.0	99.2	.2
JUN	311.	18.5	3.32	1.2	.0	18.5	311.	18.5	.0	.0	2237.8	98.0	-1.2
JUL	272.	16.7	5.59	2.0	3.6	16.7	330.	20.3	.0	.0	2236.4	92.4	-5.6
AUG	272.	16.7	5.12	1.7	3.6	16.7	330.	20.3	.0	.0	2235.1	87.1	-5.3
SEP	281.	16.7	3.23	1.1	2.3	16.7	319.	19.0	.0	.0	2234.3	83.7	-3.4
OCT	283.	17.4	3.81	1.3	.0	11.1	181.	11.1	.0	.0	2235.5	88.7	5.0
NOV	287.	17.1	1.76	.6	.0	11.1	187.	11.1	.0	.0	2236.8	94.1	5.4
DEC	278.	17.1	.58	.2	.0	11.1	181.	11.1	.0	.0	2238.2	99.9	5.8
TOTAL		214.2	29.93	10.3	9.5	167.1		176.6	.0	.0			27.3
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	320.	19.7	.21	.1	.0	19.7	320.	19.7	.0	.0	2231.2	72.5	-.1
FEB	346.	19.2	.32	.1	.0	19.2	346.	19.2	.0	.0	2231.2	72.4	-.1
MAR	371.	22.8	.42	.1	.0	9.3	151.	9.3	.0	.0	2234.8	85.8	13.4
APR	366.	21.8	.59	.2	.0	8.5	143.	8.5	.0	.0	2238.0	98.9	13.1
MAY	355.	21.8	.39	.1	.0	21.5	350.	21.5	.0	.0	2238.0	99.1	.2
JUN	346.	20.6	.91	.3	.0	20.6	346.	20.6	.0	.0	2237.9	98.8	-.3
JUL	306.	18.8	4.82	1.7	2.2	18.8	342.	21.0	.0	.0	2237.0	94.9	-3.9
AUG	306.	18.8	4.02	1.4	2.4	18.8	345.	21.2	.0	.0	2236.1	91.1	-3.8
SEP	316.	18.8	2.14	.7	.0	18.8	316.	18.8	.0	.0	2235.9	90.4	-.7
OCT	316.	19.4	3.37	1.2	.0	13.2	215.	13.2	.0	.0	2237.1	95.4	5.0
NOV	323.	19.2	.40	.1	.0	13.2	222.	13.2	.0	.0	2238.5	101.3	5.9
DEC	312.	19.2	.24	.1	.0	13.2	215.	13.2	.0	.0	2239.8	107.2	5.9
TOTAL		240.1	17.83	6.1	4.6	194.8		199.4	.0	.0			34.6

BONNY RESERVOIR OPERATION ESTIMATES - 1987

MONTH	INFLOW MEAN CFS	INFLOW 1000 AF	NET EVAPORATION INCHES	NET EVAPORATION 1000 AF	RELEASE REQUIREMENT CANAL 1000 AF	RELEASE REQUIREMENT RIVER 1000 AF	RELEASE REQUIREMENT TOTAL MEAN CFS	RELEASE REQUIREMENT TOTAL 1000 AF	RES SPILL 1000 AF	REQUIREMENT SHORTAGE 1000 AF	END OF MONTH ELEV FT	CONT 1000 AF	RESERVOIR CHANGE 1000 AF
						REASONABLE MINIMUM INFLOW CONDITIONS							
JAN	21.	1.3	1.45	.2	.0	.3	5.	.3	.0	.0	3668.4	34.4	.8
FEB	22.	1.2	1.55	.2	.0	.3	5.	.3	.0	.0	3668.8	35.1	.7
MAR	24.	1.5	2.45	.4	.0	.3	5.	.3	.0	.0	3669.2	35.9	.8
APR	25.	1.5	4.30	.7	.0	.3	5.	.3	.0	.0	3669.5	36.4	.5
MAY	39.	2.4	5.35	.8	.0	.3	5.	.3	.0	.0	3670.2	37.7	1.3
JUN	32.	1.9	6.95	1.1	.9	.3	20.	1.2	.0	.0	3670.0	37.3	-.4
JUL	24.	1.5	8.30	1.3	.9	.3	20.	1.2	.0	.0	3669.4	36.3	-1.0
AUG	15.	.9	7.00	1.1	.8	.3	18.	1.1	.0	.0	3668.7	35.0	-1.3
SEP	12.	.7	5.20	.8	.6	.3	15.	.9	.0	.0	3668.2	34.0	-1.0
OCT	15.	.9	5.05	.8	.0	.3	5.	.3	.0	.0	3668.1	33.8	-.2
NOV	22.	1.3	3.05	.5	.0	.3	5.	.3	.0	.0	3668.3	34.3	.5
DEC	21.	1.3	1.85	.3	.0	.3	5.	.3	.0	.0	3668.7	35.0	.7
TOTAL		16.4	52.50	8.2	3.2	3.6		6.8	.0	.0			1.4
						MOST PROBABLE INFLOW CONDITIONS							
JAN	26.	1.6	1.20	.2	.0	.3	5.	.3	.0	.0	3668.6	34.7	1.1
FEB	27.	1.5	1.40	.2	.0	.3	5.	.3	.0	.0	3669.1	35.7	1.0
MAR	33.	2.0	1.85	.3	.0	.3	5.	.3	.0	.0	3669.8	37.1	1.4
APR	34.	2.0	2.80	.4	.0	.3	5.	.3	.0	.0	3670.5	38.4	1.3
MAY	52.	3.2	3.00	.5	.0	.3	5.	.3	.0	.0	3671.7	40.8	2.4
JUN	42.	2.5	4.60	.8	.4	.3	12.	.7	.5	.0	3672.0	41.3	.5
JUL	29.	1.8	6.25	1.1	.6	.3	15.	.9	.0	.0	3671.9	41.1	-.2
AUG	21.	1.3	6.10	1.0	.6	.3	15.	.9	.0	.0	3671.6	40.5	-.6
SEP	15.	.9	4.30	.7	.4	.3	12.	.7	.0	.0	3671.3	40.0	-.5
OCT	20.	1.2	4.55	.8	.0	.3	5.	.3	.0	.0	3671.4	40.1	.1
NOV	27.	1.6	2.80	.5	.0	.3	5.	.3	.0	.0	3671.8	40.9	.8
DEC	26.	1.6	1.55	.3	.0	.3	5.	.3	.6	.0	3672.0	41.3	.4
TOTAL		21.2	40.40	6.8	2.0	3.6		5.6	1.1	.0			7.7
						REASONABLE MAXIMUM INFLOW CONDITIONS							
JAN	44.	2.7	.90	.1	.0	.3	5.	.3	.0	.0	3669.2	35.9	2.3
FEB	47.	2.6	1.25	.2	.0	.3	5.	.3	.0	.0	3670.3	38.0	2.1
MAR	52.	3.2	1.35	.2	.0	.3	5.	.3	.0	.0	3671.7	40.7	2.7
APR	55.	3.3	2.40	.4	.0	.3	5.	.3	2.0	.0	3672.0	41.3	.6
MAY	86.	5.3	2.05	.3	.0	.3	5.	.3	4.7	.0	3672.0	41.3	.0
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	.0	.3	5.	.3	1.1	.0	3672.0	41.3	.0
NOV	47.	2.8	2.60	.4	.0	.3	5.	.3	2.1	.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	1.2	3.6		4.8	18.0	.0			7.7

ENDERS RESERVOIR OPERATION ESTIMATES - 1987

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	3097.6	23.7	2.5
FEB	43.	2.4	1.20	.1	0.	.0	.0	.0	3099.6	26.0	2.3
MAR	42.	2.6	1.95	.2	0.	.0	.0	.0	3101.5	28.4	2.4
APR	39.	2.3	4.10	.4	0.	.0	.0	.0	3102.9	30.3	1.9
MAY	39.	2.4	4.65	.5	50.	3.1	.0	.0	3102.0	29.1	-1.2
JUN	44.	2.6	5.25	.6	59.	3.5	.0	.0	3100.8	27.6	-1.5
JUL	39.	2.4	8.60	.7	322.	19.8	.0	.5	3082.4	10.0	-17.6
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		51.9	.0	21.9			-4.6
					MOST PROBABLE INFLOW CONDITIONS						
JAN	52.	3.2	.75	.1	0.	.0	.0	.0	3098.1	24.3	3.1
FEB	54.	3.0	.95	.1	0.	.0	.0	.0	3100.5	27.2	2.9
MAR	54.	3.3	1.35	.1	0.	.0	.0	.0	3103.0	30.4	3.2
APR	49.	2.9	2.60	.3	0.	.0	.0	.0	3104.9	33.0	2.6
MAY	52.	3.2	3.00	.4	11.	.7	.0	.0	3106.4	35.1	2.1
JUN	57.	3.4	3.55	.4	13.	.8	.0	.0	3107.8	37.3	2.2
JUL	52.	3.2	5.90	.7	229.	14.1	.0	.0	3099.3	25.7	-11.6
AUG	47.	2.9	6.50	.6	242.	14.9	.0	.0	3086.7	13.1	-12.6
SEP	50.	3.0	3.45	.2	49.	2.9	.0	.0	3086.6	13.0	-.1
OCT	49.	3.0	4.30	.3	0.	.0	.0	.0	3089.8	15.7	2.7
NOV	52.	3.1	2.30	.2	0.	.0	.0	.0	3092.9	18.6	2.9
DEC	52.	3.2	.90	.1	0.	.0	.0	.0	3095.9	21.7	3.1
TOTAL		37.4	35.55	3.5		33.4	.0	.0			.5
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	63.	3.9	.55	.1	0.	.0	.0	.0	3098.7	25.0	3.8
FEB	63.	3.5	.30	.0	0.	.0	.0	.0	3101.5	28.5	3.5
MAR	63.	3.9	.95	.1	0.	.0	.0	.0	3104.4	32.3	3.8
APR	59.	3.5	.80	.1	0.	.0	.0	.0	3106.8	35.7	3.4
MAY	60.	3.7	1.25	.2	0.	.0	.0	.0	3109.1	39.2	3.5
JUN	67.	4.0	2.40	.3	0.	.0	.0	.0	3111.4	42.9	3.7
JUL	59.	3.6	4.35	.6	130.	8.0	.0	.0	3108.2	37.9	-5.0
AUG	54.	3.3	4.50	.5	145.	8.9	.0	.0	3104.0	31.8	-6.1
SEP	57.	3.4	2.30	.3	20.	1.2	.0	.0	3105.4	33.7	1.9
OCT	55.	3.4	3.35	.4	0.	.0	.0	.0	3107.4	36.7	3.0
NOV	61.	3.6	1.90	.2	0.	.0	.0	.0	3109.6	40.1	3.4
DEC	60.	3.7	.65	.1	0.	.0	.0	.0	3111.8	43.7	3.6
TOTAL		43.5	23.30	2.9		18.1	.0	.0			22.5

SWANSON LAKE OPERATION ESTIMATES - 1987

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	.3	2.	.1	.0	.0	2742.3	70.1	3.0
FEB	4.9	.0	88.	4.9	1.20	.4	2.	.1	.0	.0	2743.4	74.5	4.4
MAR	7.4	.0	120.	7.4	1.95	.7	2.	.1	.0	.0	2745.1	81.1	6.6
APR	6.8	.0	114.	6.8	3.85	1.3	2.	.1	.0	.0	2746.4	86.5	5.4
MAY	7.2	.0	117.	7.2	4.10	1.5	102.	6.3	.0	.0	2746.2	85.9	-.6
JUN	6.4	.0	108.	6.4	5.20	1.8	118.	7.0	.0	.0	2745.7	83.5	-2.4
JUL	5.0	.0	81.	5.0	7.70	2.5	353.	21.7	.0	.0	2740.7	64.3	-19.2
AUG	3.4	.0	55.	3.4	6.90	1.9	346.	21.3	.0	.0	2734.7	44.5	-19.8
SEP	1.7	.0	29.	1.7	5.25	1.2	213.	12.7	.0	.0	2730.2	32.3	-12.2
OCT	2.0	.0	33.	2.0	4.60	.9	63.	3.9	.0	.0	2729.0	29.5	-2.8
NOV	3.2	.0	54.	3.2	2.70	.5	2.	.1	.0	.0	2730.2	32.1	2.6
DEC	3.2	.0	52.	3.2	1.30	.3	2.	.1	.0	.0	2731.3	34.9	2.8
TOTAL	54.6	.0		54.6	45.80	13.3		73.5	.0	.0			-32.2
					MOST PROBABLE INFLOW CONDITIONS								
JAN	5.1	.0	83.	5.1	.75	.2	2.	.1	.0	.0	2742.8	71.9	4.8
FEB	7.5	.0	135.	7.5	1.00	.3	2.	.1	.0	.0	2744.6	79.0	7.1
MAR	11.2	.0	182.	11.2	1.40	.5	2.	.1	.0	.0	2747.1	89.6	10.6
APR	10.2	.0	171.	10.2	2.40	.9	2.	.1	.0	.0	2749.2	98.8	9.2
MAY	10.8	.0	176.	10.8	2.10	.8	24.	1.5	.0	.0	2751.0	107.3	8.5
JUN	9.5	.0	160.	9.5	3.70	1.5	29.	1.7	1.4	.0	2752.0	112.2	4.9
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	28.	1.7	.0	.0	2745.1	81.1	-.2
NOV	4.7	.0	79.	4.7	2.10	.7	2.	.1	.0	.0	2746.0	85.0	3.9
DEC	4.8	.0	78.	4.8	1.10	.4	2.	.1	.0	.0	2747.0	89.3	4.3
TOTAL	82.0	.0		82.0	34.05	12.5		45.9	1.4	.0			22.2
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	8.6	.0	140.	8.6	.55	.2	2.	.1	.0	.0	2743.7	75.4	8.3
FEB	12.7	.0	229.	12.7	.60	.2	2.	.1	.0	.0	2746.7	87.8	12.4
MAR	18.9	.0	307.	18.9	.60	.2	2.	.1	.0	.0	2750.8	106.4	18.6
APR	17.4	.0	292.	17.4	.60	.2	2.	.1	11.3	.0	2752.0	112.2	5.8
MAY	18.3	.0	298.	18.3	.80	.3	15.	.9	17.1	.0	2752.0	112.2	.0
JUN	16.1	.0	271.	16.1	1.90	.8	18.	1.1	14.2	.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	32.	1.9	.0	.0	2751.5	109.6	1.2
OCT	5.1	.0	83.	5.1	3.80	1.5	16.	1.0	.0	.0	2752.0	112.2	2.6
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		24.9	60.2	.0			45.1

HUGH BUTLER LAKE OPERATION ESTIMATES - 1987

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	2574.7	27.4	.7
FEB	23.	1.3	1.11	.1	5.	.3	.0	.0	2575.4	28.3	.9
MAR	31.	1.9	2.01	.2	5.	.3	.0	.0	2576.4	29.7	1.4
APR	29.	1.7	4.39	.5	5.	.3	.0	.0	2577.1	30.6	.9
MAY	29.	1.8	4.45	.5	29.	1.8	.0	.0	2576.7	30.1	-.5
JUN	35.	2.1	7.01	.8	29.	1.7	.0	.0	2576.4	29.7	-.4
JUL	28.	1.7	8.45	.9	76.	4.7	.0	.0	2573.4	25.8	-3.9
AUG	18.	1.1	6.73	.7	73.	4.5	.0	.0	2569.9	21.7	-4.1
SEP	18.	1.1	6.08	.5	37.	2.2	.0	.0	2568.4	20.1	-1.6
OCT	15.	.9	4.72	.4	13.	.8	.0	.0	2568.2	19.8	-.3
NOV	18.	1.1	2.63	.2	5.	.3	.0	.0	2568.7	20.4	.6
DEC	18.	1.1	1.20	.1	5.	.3	.0	.0	2569.4	21.1	.7
TOTAL		16.9	49.70	5.0		17.5	.0	.0			-5.6
					MOST PROBABLE INFLOW CONDITIONS						
JAN	23.	1.4	.70	.1	5.	.3	.0	.0	2574.9	27.7	1.0
FEB	31.	1.7	.75	.1	5.	.3	.0	.0	2575.9	29.0	1.3
MAR	37.	2.3	1.35	.2	5.	.3	.0	.0	2577.2	30.8	1.8
APR	34.	2.0	2.70	.3	5.	.3	.0	.0	2578.2	32.2	1.4
MAY	34.	2.1	2.80	.3	15.	.9	.0	.0	2578.8	33.1	.9
JUN	44.	2.6	2.99	.4	13.	.8	.0	.0	2579.7	34.5	1.4
JUL	34.	2.1	6.09	.8	65.	4.0	.0	.0	2577.9	31.8	-2.7
AUG	23.	1.4	5.52	.6	70.	4.3	.0	.0	2575.4	28.3	-3.5
SEP	24.	1.4	3.81	.4	20.	1.2	.0	.0	2575.2	28.1	-.2
OCT	20.	1.2	3.88	.4	10.	.6	.0	.0	2575.4	28.3	.2
NOV	24.	1.4	1.84	.2	5.	.3	.0	.0	2576.1	29.2	.9
DEC	23.	1.4	.87	.1	5.	.3	.0	.0	2576.8	30.2	1.0
TOTAL		21.0	33.30	3.9		13.6	.0	.0			3.5
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	29.	1.8	.40	.0	5.	.3	.0	.0	2575.3	28.2	1.5
FEB	38.	2.1	.47	.1	5.	.3	.0	.0	2576.6	29.9	1.7
MAR	50.	3.1	.85	.1	5.	.3	.0	.0	2578.5	32.6	2.7
APR	45.	2.7	1.52	.2	5.	.3	.0	.0	2579.9	34.8	2.2
MAY	47.	2.9	1.78	.2	11.	.7	.0	.0	2581.2	36.8	2.0
JUN	57.	3.4	1.82	.2	12.	.7	1.5	.0	2581.8	37.8	1.0
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	3.7	.0			11.1

HARRY STRUNK LAKE OPERATION ESTIMATES - 1987

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	2360.1	26.1	2.1
FEB	54.	3.0	.89	.1	2.	.1	.0	.0	2362.0	28.9	2.8
MAR	65.	4.0	1.87	.3	2.	.1	.0	.0	2364.3	32.5	3.6
APR	57.	3.4	4.23	.6	2.	.1	.0	.0	2365.8	35.2	2.7
MAY	67.	4.1	4.07	.6	60.	3.7	.0	.0	2365.7	35.0	-.2
JUN	91.	5.4	5.02	.8	62.	3.7	.2	.0	2366.1	35.7	.7
JUL	75.	4.6	8.41	1.1	229.	14.1	.0	.0	2359.4	25.1	-10.6
AUG	44.	2.7	7.42	.7	234.	14.4	.0	.0	2347.9	12.7	-12.4
SEP	34.	2.0	4.64	.3	92.	5.5	.0	.0	2343.0	8.9	-3.8
OCT	36.	2.2	4.52	.3	21.	1.3	.0	.0	2343.9	9.5	.6
NOV	39.	2.3	2.57	.2	2.	.1	.0	.0	2346.5	11.5	2.0
DEC	37.	2.3	1.10	.1	2.	.1	.0	.0	2349.0	13.6	2.1
TOTAL		38.3	45.50	5.2		43.3	.2	.0			-10.4
					MOST PROBABLE INFLOW CONDITIONS						
JAN	47.	2.9	.50	.1	2.	.1	.0	.0	2360.6	26.7	2.7
FEB	68.	3.8	.75	.1	2.	.1	.0	.0	2362.9	30.3	3.6
MAR	80.	4.9	1.40	.2	2.	.1	.0	.0	2365.7	34.9	4.6
APR	71.	4.2	2.29	.3	2.	.1	3.0	.0	2366.1	35.7	.8
MAY	83.	5.1	2.41	.4	2.	.1	4.6	.0	2366.1	35.7	.0
JUN	111.	6.6	3.57	.5	7.	.4	5.7	.0	2366.1	35.7	.0
JUL	91.	5.6	5.95	.8	179.	11.0	.0	.0	2362.4	29.5	-6.2
AUG	55.	3.4	5.33	.6	208.	12.8	.0	.0	2354.9	19.5	-10.0
SEP	42.	2.5	3.51	.3	35.	2.1	.0	.0	2355.0	19.6	.1
OCT	44.	2.7	4.14	.4	2.	.1	.0	.0	2356.8	21.8	2.2
NOV	50.	3.0	2.00	.2	2.	.1	.0	.0	2358.9	24.5	2.7
DEC	47.	2.9	.81	.1	2.	.1	.0	.0	2360.9	27.2	2.7
TOTAL		47.6	32.66	4.0		27.1	13.3	.0			3.2
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	70.	4.3	.25	.0	2.	.1	.0	.0	2361.6	28.2	4.2
FEB	101.	5.6	.40	.1	2.	.1	.0	.0	2364.9	33.6	5.4
MAR	115.	7.1	.49	.1	2.	.1	4.8	.0	2366.1	35.7	2.1
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	96.	5.9	1.6	.0	2366.1	35.7	.0
AUG	80.	4.9	4.19	.6	112.	6.9	.0	.0	2364.6	33.1	-2.6
SEP	62.	3.7	2.33	.3	10.	.6	.2	.0	2366.1	35.7	2.6
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		14.3	40.4	.0			11.7

KEITH SEBELIUS OPERATIONS ESTIMATES - 1987

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	2279.7	4.9	.0
FEB	2.	.1	1.00	.0	2.	.1	.0	.0	2279.7	4.9	.0
MAR	5.	.3	1.98	.1	2.	.1	.0	.0	2279.9	5.0	.1
APR	2.	.1	4.34	.2	2.	.1	.0	.0	2279.5	4.8	-.2
MAY	5.	.3	4.10	.2	2.	.1	.0	.0	2279.5	4.8	.0
JUN	17.	1.0	7.86	.4	2.	.1	.0	.0	2280.4	5.3	.5
JUL	8.	.5	8.77	.3	104.	6.4	.0	5.2	2278.6	4.3	-1.0
AUG	3.	.2	7.38	.2	104.	6.4	.0	6.2	2278.2	4.1	-.2
SEP	3.	.2	6.12	.2	45.	2.7	.0	2.6	2278.0	4.0	-.1
OCT	2.	.1	4.66	.2	16.	1.0	.0	.9	2277.5	3.8	-.2
NOV	2.	.1	2.62	.1	2.	.1	.0	.0	2277.3	3.7	-.1
DEC	2.	.1	1.22	.0	2.	.1	.0	.0	2277.3	3.7	.0
TOTAL		3.1	51.00	1.9		17.3	.0	14.9			-1.2
MOST PROBABLE INFLOW CONDITIONS											
JAN	2.	.1	.80	.0	2.	.1	.0	.0	2279.7	4.9	.0
FEB	5.	.3	.85	.0	2.	.1	.0	.0	2280.1	5.1	.2
MAR	11.	.7	1.24	.1	2.	.1	.0	.0	2280.9	5.6	.5
APR	7.	.4	2.78	.1	2.	.1	.0	.0	2281.2	5.8	.2
MAY	13.	.8	2.55	.1	2.	.1	.0	.0	2282.2	6.4	.6
JUN	44.	2.6	3.85	.2	2.	.1	.0	.0	2285.2	8.7	2.3
JUL	23.	1.4	5.97	.4	62.	3.8	.0	.0	2281.4	5.9	-2.8
AUG	10.	.6	5.89	.2	68.	4.2	.0	2.2	2278.6	4.3	-1.6
SEP	12.	.7	4.38	.1	17.	1.0	.0	.4	2278.6	4.3	.0
OCT	5.	.3	4.14	.1	5.	.3	.0	.1	2278.6	4.3	.0
NOV	3.	.2	2.12	.1	2.	.1	.0	.0	2278.6	4.3	.0
DEC	3.	.2	1.03	.0	2.	.1	.0	.0	2278.7	4.4	.1
TOTAL		8.3	35.60	1.4		10.1	.0	2.7			-.5
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	7.	.4	.50	.0	2.	.1	.0	.0	2280.2	5.2	.3
FEB	16.	.9	.52	.0	2.	.1	.0	.0	2281.5	6.0	.8
MAR	36.	2.2	.54	.0	2.	.1	.0	.0	2284.5	8.1	2.1
APR	20.	1.2	1.43	.1	2.	.1	.0	.0	2285.7	9.1	1.0
MAY	39.	2.4	1.16	.1	2.	.1	.0	.0	2288.2	11.3	2.2
JUN	134.	8.0	2.52	.2	2.	.1	.0	.0	2294.7	19.0	7.7
JUL	73.	4.5	4.42	.6	11.	.7	.0	.0	2296.9	22.2	3.2
AUG	31.	1.9	5.23	.7	28.	1.7	.0	.0	2296.6	21.7	-.5
SEP	34.	2.0	3.07	.4	2.	.1	.0	.0	2297.5	23.2	1.5
OCT	18.	1.1	2.72	.4	2.	.1	.0	.0	2297.9	23.8	.6
NOV	7.	.4	1.25	.2	2.	.1	.0	.0	2298.0	23.9	.1
DEC	8.	.5	.64	.1	2.	.1	.0	.0	2298.1	24.2	.3
TOTAL		25.5	24.00	2.8		3.4	.0	.0			19.3

HARLAN COUNTY LAKE OPERATION ESTIMATES - 1987

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	.8	10.	.6	.0	.0	1939.6	250.9	3.9
FEB	8.9	.0	160.	8.9	.78	.7	11.	.6	.0	.0	1940.3	258.5	7.6
MAR	14.7	.0	239.	14.7	1.74	1.6	0.	.0	.0	.0	1941.4	271.6	13.1
APR	13.0	.0	218.	13.0	4.70	4.6	0.	.0	.0	.0	1942.2	280.0	8.4
MAY	16.9	.0	275.	16.9	4.38	4.3	203.	12.5	.0	.0	1942.2	280.1	.1
JUN	26.4	.0	444.	26.4	6.60	6.6	170.	10.1	.0	.0	1943.0	289.8	9.7
JUL	13.6	.0	221.	13.6	9.71	9.3	652.	40.1	.0	.0	1939.9	254.0	-35.8
AUG	9.0	.0	146.	9.0	8.41	7.3	716.	44.0	.0	.0	1935.8	211.7	-42.3
SEP	6.6	.0	111.	6.6	5.56	4.5	260.	15.5	.0	.0	1934.4	198.3	-13.4
OCT	6.1	.0	99.	6.1	4.52	3.6	0.	.0	.0	.0	1934.7	200.8	2.5
NOV	5.3	.0	89.	5.3	2.58	2.1	0.	.0	.0	.0	1935.0	204.0	3.2
DEC	5.1	.0	83.	5.1	1.12	.9	0.	.0	.0	.0	1935.4	208.2	4.2
TOTAL	130.9	.0		130.9	51.00	46.3		123.4	.0	.0			-38.8
					MOST PROBABLE INFLOW CONDITIONS								
JAN	9.2	.0	150.	9.2	.65	.6	10.	.6	.0	.0	1940.0	255.0	8.0
FEB	15.3	.0	275.	15.3	.61	.6	11.	.6	.0	.0	1941.2	269.1	14.1
MAR	25.3	.0	411.	25.3	1.13	1.1	0.	.0	.0	.0	1943.3	293.3	24.2
APR	22.3	.0	375.	22.3	1.31	1.4	0.	.0	.0	.0	1945.0	314.2	20.9
MAY	29.1	.0	473.	29.1	3.27	3.6	24.	1.5	10.6	.0	1946.0	327.6	13.4
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	408.	25.1	.0	.0	1945.2	317.5	-10.1
AUG	15.6	.0	254.	15.6	6.01	6.3	439.	27.0	.0	.0	1943.8	299.8	-17.7
SEP	11.5	.0	193.	11.5	4.47	4.6	97.	5.8	.0	.0	1943.9	300.9	1.1
OCT	10.6	.0	172.	10.6	3.43	3.6	0.	.0	.0	.0	1944.5	307.9	7.0
NOV	9.2	.0	155.	9.2	1.55	1.6	0.	.0	.0	.0	1945.1	315.5	7.6
DEC	8.9	.0	145.	8.9	.71	.8	10.	.6	.0	.0	1945.6	323.0	7.5
TOTAL	225.9	.0		225.9	36.30	38.6		62.9	48.4	.0			76.0
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	18.1	.0	294.	18.1	.00	.0	10.	.6	.0	.0	1940.8	264.5	17.5
FEB	30.2	.0	544.	30.2	.28	.3	11.	.6	.0	.0	1943.3	293.8	29.3
MAR	49.9	.0	812.	49.9	.70	.7	0.	.0	15.4	.0	1946.0	327.6	33.8
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	24.1		17.4	323.3	.0			80.6

LOVEWELL RESERVOIR OPERATION ESTIMATES - 1987

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	.2	.0	1582.6	41.7	-.1
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	5.1	115.	7.1	3.55	.9	99.	6.1	.0	.0	1582.6	41.7	.1
JUN	4.2	3.4	128.	7.6	5.84	1.5	103.	6.1	.0	.0	1582.6	41.7	.0
JUL	2.8	11.5	233.	14.3	7.75	1.8	294.	18.1	.0	.0	1580.6	36.1	-5.6
AUG	1.5	10.2	190.	11.7	6.09	1.2	343.	21.1	.0	.0	1576.2	25.5	-10.6
SEP	1.4	1.2	44.	2.6	5.15	.8	155.	9.2	.0	.0	1572.5	18.1	-7.4
OCT	.8	.0	13.	.8	3.45	.5	0.	.0	.0	.0	1572.6	18.4	.3
NOV	.3	.0	5.	.3	2.37	.4	0.	.0	.0	.0	1572.6	18.3	-.1
DEC	.1	.0	2.	.1	.96	.1	0.	.0	.0	.0	1572.6	18.3	.0
TOTAL	15.4	31.4		46.8	42.16	8.7		60.6	1.0	.0			-23.5
MOST PROBABLE INFLOW CONDITIONS													
JAN	.4	.0	7.	.4	.50	.1	0.	.0	.4	.0	1582.6	41.7	-.1
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	5.8	203.	12.5	5.22	1.2	283.	17.4	.0	.0	1580.4	35.6	-6.1
AUG	3.6	4.7	135.	8.3	4.22	.8	286.	17.6	.0	.0	1576.2	25.5	-10.1
SEP	3.5	1.2	79.	4.7	3.36	.6	76.	4.5	.0	.0	1576.1	25.1	-.4
OCT	2.0	.0	33.	2.0	2.09	.4	0.	.0	.0	.0	1576.8	26.7	1.6
NOV	.6	.0	10.	.6	1.41	.3	0.	.0	.0	.0	1576.9	27.0	.3
DEC	.4	.0	7.	.4	.43	.1	0.	.0	.0	.0	1577.1	27.3	.3
TOTAL	37.7	14.1		51.8	23.85	5.1		43.7	17.5	.0			-14.5
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	1.1	.0	18.	1.1	.16	.0	0.	.0	1.2	.0	1582.6	41.7	-.1
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	68.4	.0			-.1

KIRWIN RESERVOIR OPERATION ESTIMATES - 1987

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	1704.7	19.9	.0
FEB	7.	.4	1.04	.1	0.	.0	.0	.0	1704.9	20.2	.3
MAR	13.	.8	1.79	.2	0.	.0	.0	.0	1705.3	20.8	.6
APR	12.	.7	4.60	.6	0.	.0	.0	.0	1705.3	20.9	.1
MAY	23.	1.4	4.77	.6	31.	1.9	.0	.0	1704.6	19.8	-1.1
JUN	39.	2.3	6.32	.8	32.	1.9	.0	.0	1704.4	19.4	-.4
JUL	18.	1.1	8.80	1.0	91.	5.6	.0	.0	1700.5	13.9	-5.5
AUG	15.	.9	7.74	.8	106.	6.5	.0	2.3	1697.0	9.8	-4.1
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	5.4		18.7	.0	5.1			-10.1
					MOST PROBABLE INFLOW CONDITIONS						
JAN	8.	.5	.73	.1	0.	.0	.0	.0	1705.0	20.3	.4
FEB	22.	1.2	.77	.1	0.	.0	.0	.0	1705.6	21.4	1.1
MAR	36.	2.2	1.04	.1	0.	.0	.0	.0	1706.9	23.5	2.1
APR	32.	1.9	1.89	.3	0.	.0	.0	.0	1707.7	25.1	1.6
MAY	63.	3.9	3.60	.6	10.	.6	.0	.0	1709.2	27.8	2.7
JUN	109.	6.5	4.65	.8	10.	.6	.0	.0	1711.5	32.9	5.1
JUL	52.	3.2	6.33	1.2	81.	5.0	.0	.0	1710.2	29.9	-3.0
AUG	41.	2.5	5.56	.9	81.	5.0	.0	.0	1708.5	26.5	-3.4
SEP	24.	1.4	4.25	.7	22.	1.3	.0	.0	1708.2	25.9	-.6
OCT	16.	1.0	3.59	.6	0.	.0	.0	.0	1708.4	26.3	.4
NOV	8.	.5	1.85	.3	0.	.0	.0	.0	1708.5	26.5	.2
DEC	8.	.5	.74	.1	0.	.0	.0	.0	1708.7	26.9	.4
TOTAL		25.3	35.00	5.8		12.5	.0	.0			7.0
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	20.	1.2	.45	.1	0.	.0	.0	.0	1705.4	21.0	1.1
FEB	58.	3.2	.50	.1	0.	.0	.0	.0	1707.2	24.1	3.1
MAR	98.	6.0	.56	.1	0.	.0	.0	.0	1710.2	30.0	5.9
APR	86.	5.1	.53	.1	0.	.0	.0	.0	1712.4	35.0	5.0
MAY	171.	10.5	1.68	.4	7.	.4	.0	.0	1715.8	44.7	9.7
JUN	294.	17.5	1.66	.5	7.	.4	.0	.0	1720.6	61.3	16.6
JUL	141.	8.7	5.47	1.8	50.	3.1	.0	.0	1721.6	65.1	3.8
AUG	106.	6.5	4.67	1.6	50.	3.1	.0	.0	1722.0	66.9	1.8
SEP	62.	3.7	2.75	.9	13.	.8	.0	.0	1722.5	68.9	2.0
OCT	47.	2.9	2.27	.8	0.	.0	.0	.0	1723.1	71.0	2.1
NOV	24.	1.4	1.02	.4	0.	.0	.0	.0	1723.3	72.0	1.0
DEC	21.	1.3	.54	.2	0.	.0	.0	.0	1723.5	73.1	1.1
TOTAL		68.0	22.10	7.0		7.8	.0	.0			53.2

WEBSTER RESERVOIR OPERATION ESTIMATES - 1987

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	1867.5	14.2	.1
FEB	7.	.4	1.11	.1	0.	.0	.0	.0	1867.7	14.5	.3
MAR	13.	.8	2.08	.3	0.	.0	.0	.0	1868.0	15.0	.5
APR	13.	.8	4.92	.6	0.	.0	.0	.0	1868.2	15.2	.2
MAY	21.	1.3	4.75	.6	33.	2.0	.0	.0	1867.3	13.9	-1.3
JUN	32.	1.9	7.50	.9	49.	2.9	.0	.0	1866.0	12.0	-1.9
JUL	21.	1.3	9.04	.9	91.	5.6	.0	.0	1861.5	6.8	-5.2
AUG	13.	.8	8.08	.6	104.	6.4	.0	4.7	1860.0	5.3	-1.5
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	8.3			-8.8
					MOST PROBABLE INFLOW CONDITIONS						
JAN	10.	.6	.67	.1	0.	.0	.0	.0	1867.8	14.6	.5
FEB	18.	1.0	.81	.1	0.	.0	.0	.0	1868.4	15.5	.9
MAR	29.	1.8	1.48	.2	0.	.0	.0	.0	1869.4	17.1	1.6
APR	32.	1.9	2.72	.4	0.	.0	.0	.0	1870.3	18.6	1.5
MAY	54.	3.3	3.13	.5	10.	.6	.0	.0	1871.5	20.8	2.2
JUN	81.	4.8	4.40	.7	10.	.6	.0	.0	1873.4	24.3	3.5
JUL	52.	3.2	7.02	1.1	81.	5.0	.0	.0	1871.9	21.4	-2.9
AUG	33.	2.0	5.72	.8	81.	5.0	.0	.0	1869.7	17.6	-3.8
SEP	15.	.9	4.69	.6	24.	1.4	.0	.0	1869.0	16.5	-1.1
OCT	15.	.9	3.37	.5	0.	.0	.0	.0	1869.3	16.9	.4
NOV	8.	.5	1.61	.2	0.	.0	.0	.0	1869.4	17.2	.3
DEC	10.	.6	.78	.1	0.	.0	.0	.0	1869.7	17.7	.5
TOTAL		21.5	36.40	5.3		12.6	.0	.0			3.6
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	33.	2.0	.53	.1	0.	.0	.0	.0	1868.7	16.0	1.9
FEB	63.	3.5	.48	.1	0.	.0	.0	.0	1870.7	19.4	3.4
MAR	99.	6.1	.70	.1	0.	.0	.0	.0	1874.0	25.4	6.0
APR	104.	6.2	1.00	.2	0.	.0	.0	.0	1876.9	31.4	6.0
MAY	177.	10.9	1.74	.3	0.	.0	.0	.0	1881.3	42.0	10.6
JUN	266.	15.8	.72	.2	0.	.0	.0	.0	1886.7	57.6	15.6
JUL	179.	11.0	5.63	1.5	37.	2.3	.0	.0	1888.9	64.8	7.2
AUG	106.	6.5	4.03	1.1	37.	2.3	.0	.0	1889.8	67.9	3.1
SEP	52.	3.1	3.75	1.1	0.	.0	.0	.0	1890.4	69.9	2.0
OCT	52.	3.2	2.83	.8	0.	.0	.0	.0	1891.1	72.3	2.4
NOV	30.	1.8	.99	.3	0.	.0	.0	.0	1891.5	73.8	1.5
DEC	31.	1.9	.60	.2	0.	.0	.0	.0	1891.9	75.5	1.7
TOTAL		72.0	23.00	6.0		4.6	.0	.0			61.4

WACONDA LAKE OPERATION ESTIMATES - 1987

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	.9	11.	.7	.0	.0	1455.2	237.0	.7
FEB	2.9	.0	52.	2.9	1.00	1.0	36.	2.0	.0	.0	1455.2	236.9	-.1
MAR	6.4	.0	104.	6.4	1.83	1.9	11.	.7	.0	.0	1455.5	240.7	3.8
APR	4.6	.0	77.	4.6	4.55	4.8	2.	.1	.0	.0	1455.5	240.4	-.3
MAY	7.8	.0	127.	7.8	4.48	4.7	2.	.1	1.9	.0	1455.6	241.5	1.1
JUN	11.5	.0	193.	11.5	6.57	6.9	35.	2.1	2.5	.0	1455.6	241.5	.0
JUL	6.2	.0	101.	6.2	8.05	8.4	99.	6.1	.0	.0	1454.9	233.2	-8.3
AUG	3.7	.0	60.	3.7	8.50	8.6	99.	6.1	.0	.0	1454.0	222.2	-11.0
SEP	5.4	.0	91.	5.4	6.19	6.1	103.	6.1	.0	.0	1453.4	215.4	-6.8
OCT	3.4	.0	55.	3.4	4.42	4.3	99.	6.1	.0	.0	1452.8	208.4	-7.0
NOV	2.0	.0	34.	2.0	2.46	2.3	25.	1.5	.0	.0	1452.7	206.6	-1.8
DEC	1.8	.0	29.	1.8	1.16	1.1	11.	.7	.0	.0	1452.7	206.6	.0
TOTAL	58.0	.0		58.0	50.10	51.0		32.3	4.4	.0			-29.7
					MOST PROBABLE INFLOW CONDITIONS								
JAN	5.2	.0	85.	5.2	.53	.5	76.	4.7	.0	.0	1455.2	236.3	.0
FEB	6.4	.0	115.	6.4	.63	.7	104.	5.8	.0	.0	1455.2	236.2	-.1
MAR	14.2	.0	231.	14.2	.84	.9	11.	.7	7.3	.0	1455.6	241.5	5.3
APR	10.1	.0	170.	10.1	2.90	3.0	2.	.1	7.0	.0	1455.6	241.5	.0
MAY	17.4	.0	283.	17.4	2.96	3.1	2.	.1	14.2	.0	1455.6	241.5	.0
JUN	25.7	.0	432.	25.7	3.32	3.5	25.	1.5	20.7	.0	1455.6	241.5	.0
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	32.7		72.0	52.2	.0			-27.6
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	13.7	.0	223.	13.7	.36	.4	228.	14.0	.0	.0	1455.1	235.6	-.7
FEB	16.8	.0	303.	16.8	.21	.2	313.	17.4	.0	.0	1455.1	234.8	-.8
MAR	37.3	.0	607.	37.3	.34	.4	299.	18.4	11.8	.0	1455.6	241.5	6.7
APR	26.9	.0	452.	26.9	1.39	1.5	301.	17.9	7.5	.0	1455.6	241.5	.0
MAY	46.0	.0	748.	46.0	.87	.9	2.	.1	45.0	.0	1455.6	241.5	.0
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	17.6		114.1	210.4	.0			-2.6

CEDAR BLUFF RESERVOIR OPERATION ESTIMATES - 1987

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	.1	3.	.2	.0	.0	2095.8	14.8	-.2
FEB	4.	.2	1.39	.2	4.	.2	.0	.0	2095.6	14.6	-.2
MAR	8.	.5	2.48	.3	5.	.3	.0	.0	2095.5	14.5	-.1
APR	8.	.5	5.30	.6	5.	.3	.0	.0	2095.2	14.1	-.4
MAY	20.	1.2	5.10	.6	39.	2.4	.0	2.1	2095.5	14.4	.3
JUN	30.	1.8	7.76	.9	40.	2.4	.0	2.1	2095.9	15.0	.6
JUL	24.	1.5	9.16	1.0	106.	6.5	.0	6.3	2096.2	15.3	.3
AUG	16.	1.0	8.88	1.0	111.	6.8	.0	6.3	2095.8	14.8	-.5
SEP	10.	.6	6.41	.7	69.	4.1	.0	3.2	2095.0	13.8	-1.0
OCT	5.	.3	4.93	.5	24.	1.5	.0	1.1	2094.5	13.2	-.6
NOV	2.	.1	2.90	.3	3.	.2	.0	.0	2094.2	12.8	-.4
DEC	2.	.1	1.46	.1	3.	.2	.0	.0	2094.0	12.6	-.2
TOTAL		7.9	57.00	6.3		25.1	.0	21.1			-2.4
MOST PROBABLE INFLOW CONDITIONS											
JAN	5.	.3	1.08	.1	3.	.2	.0	.0	2095.9	15.0	.0
FEB	13.	.7	1.13	.1	4.	.2	.0	.0	2096.2	15.4	.4
MAR	29.	1.8	1.72	.2	5.	.3	.0	.0	2097.2	16.7	1.3
APR	29.	1.7	3.77	.5	5.	.3	.0	.0	2097.8	17.6	.9
MAY	65.	4.0	3.22	.4	16.	1.0	.0	.7	2100.0	20.9	3.3
JUN	108.	6.4	4.29	.6	18.	1.1	.0	.8	2103.2	26.4	5.5
JUL	83.	5.1	7.39	1.1	88.	5.4	.0	5.2	2105.2	30.2	3.8
AUG	54.	3.3	6.04	1.0	102.	6.3	.0	6.0	2106.3	32.2	2.0
SEP	30.	1.8	4.48	.7	30.	1.8	.0	1.5	2106.7	33.0	.8
OCT	20.	1.2	3.73	.6	16.	1.0	.0	.8	2106.9	33.4	.4
NOV	5.	.3	2.46	.4	3.	.2	.0	.0	2106.7	33.1	-.3
DEC	5.	.3	1.20	.2	3.	.2	.0	.0	2106.7	33.0	-.1
TOTAL		26.9	40.51	5.9		18.0	.0	15.0			18.0
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	15.	.9	.92	.1	3.	.2	.0	.0	2096.4	15.6	.6
FEB	40.	2.2	.87	.1	4.	.2	.0	.0	2097.7	17.5	1.9
MAR	104.	6.4	1.20	.2	5.	.3	.0	.0	2101.5	23.4	5.9
APR	104.	6.2	2.32	.3	5.	.3	.0	.0	2104.6	29.0	5.6
MAY	228.	14.0	2.02	.4	13.	.8	.0	.0	2110.7	41.8	12.8
JUN	381.	22.7	1.25	.3	13.	.8	.0	.0	2118.8	63.4	21.6
JUL	294.	18.1	5.22	1.4	57.	3.5	.0	.0	2122.8	76.6	13.2
AUG	190.	11.7	4.25	1.3	65.	4.0	.0	.0	2124.6	83.0	6.4
SEP	109.	6.5	3.86	1.2	18.	1.1	.0	.0	2125.7	87.2	4.2
OCT	68.	4.2	2.56	.8	11.	.7	.0	.0	2126.3	89.9	2.7
NOV	22.	1.3	1.62	.5	3.	.2	.0	.0	2126.5	90.5	.6
DEC	18.	1.1	.92	.3	3.	.2	.0	.0	2126.6	91.1	.6
TOTAL		95.3	27.01	6.9		12.3	.0	.0			76.1

TABLE 5
FLOOD DAMAGES PREVENTED BY NEBRASKA-KANSAS PROJECTS RESERVOIRS

BONNY

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

ENDERS

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

SWANSON

Year	Damages Prevented	Cumulative Total
1957	$ 233,000	$ 233,000
1960	900,000	1,133,000
1962	126,000	1,259,000
1964	50,000	1,309,000
1965	477,000	1,786,000
1967	182,000	1,968,000
1969	1,000	1,969,000

HUGH BUTLER

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

HARRY STRUNK

Year	Damages Prevented	Cumulative Total
1951	$ 14,000	$ 14,000
1957	5,000	19,000
1960	198,000	217,000
1962	29,000	246,000
1967	129,000	375,000
1969	6,000	381,000

KEITH SEBELIUS

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

HARLAN COUNTY

Year	Damages Prevented	Cumulative Total
1957	$1,045,000	$ 1,045,000
1960	4,853,000	5,898,000
1961	255,000	6,153,000
1962	45,000	6,198,000
1964	182,000	6,380,000
1965	60,000	6,440,000
1966	1,658,000	8,098,000
1967	3,539,000	11,637,000
1969	14,000	11,651,000
1971	64,000	11,715,000
1973	1,310,000	13,025,000
1974	1,000	13,026,000
1975	200,000	13,226,000
1976	1,000	13,227,000
1978	100,000	13,327,000
1979	21,000	13,348,000
1981	21,000	13,369,000
1982	465,000	13,834,000
1983	1,874,000	15,708,000
1984	1,639,000	17,347,000
1986	6,756,000	24,103,000

LOVEWELL

Year	Damages Prevented	Cumulative Total
1957	$ 349,000	$ 349,000
1960	178,000	527,000
1961	165,000	692,000
1962	5,000	697,000
1971	9,000	706,000
1973	1,728,000	2,434,000
1975	98,000	2,532,000
1978	25,000	2,557,000
1979	13,000	2,570,000
1981	8,000	2,578,000
1982	18,000	2,596,000
1983	511,000	3,107,000
1984	276,000	3,383,000
1985	140,000	3,523,000
1986	354,000	3,877,000

KIRWIN

Year	Damages Prevented	Cumulative Total
1957	$ 522,000	$ 522,000
1958	10,000	532,000
1960	499,000	1,031,000
1961	1,000	1,032,000
1962	1,000	1,033,000
1964	34,000	1,067,000
1965	325,000	1,392,000
1967	191,000	1,583,000
1968	44,000	1,627,000
1969	2,000	1,629,000
1971	3,000	1,632,000
1973	40,000	1,672,000
1975	618,000	2,290,000
1978	4,000	2,294,000
1979	35,000	2,329,000
1982	25,000	2,354,000
1983	1,000	2,355,000
1985	60,000	2,415,000
1986	60,000	2,475,000

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
1986	1,269,000	11,375,000

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
1986	8,439,000	60,874,000

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

TABLE 6
WATER DIVERTED IN 1986 AND THE
ESTIMATED DIVERSION FOR 1987
(Units - Acre-feet)

Irrigation District and Canal	1986 Irrigation Operations From	To	10-Year Average Diversion (1976-85)	1986 Diversions	Estimated Diversion in 1987
Mirage Flats Irrigation District					
Mirage Flats Canal	7/01	9/08	15,638	17,094	12,000
Ainsworth Irrigation District					
Ainsworth Canal	5/18	9/17	65,489	58,854	70,000
Sargent Irrigation District					
Sargent Canal	6/17	9/09	25,905	24,801	25,000
Farwell Irrigation District					
Farwell Canal	6/13	9/01	81,753	59,722	80,000
Twin Loups Irrigation District					
Mirdan Canal	--	--	--	--	6,000
Geranium Canal	--	--	--	--	4,000
Total Twin Loups Irrigation District					10,000
Frenchman Valley Irrigation District					
Culbertson Canal	4/07	8/23	13,563	12,855	11,000
H & RW Irrigation District					
Culbertson Extension Canal	6/04	8/23	20,009	13,852	13,000
Frenchman-Cambridge Irrigation District					
Meeker-Driftwood Canal	5/12	9/05	31,133	32,916	31,000
Red Willow Canal	6/16	9/05	8,120	8,770	9,000
Bartley Canal	6/11	9/05	9,942	9,985	10,000
Cambridge Canal	6/16	9/05	29,684	29,083	31,000
Total Frenchman-Cambridge Irrigation District			78,879	80,754	81,000
Almena Irrigation District					
Almena Canal	6/30	7/17	1,310	2,023	0
Bostwick Irrigation District in Nebraska					
Franklin Canal	6/17	9/03	25,994	33,205	26,000
Naponee Canal	6/13	9/02	3,120	3,831	3,300
Franklin Pump Canal	6/18	8/31	2,889	4,411	3,700
Superior Canal	6/18	8/26	13,885	15,266	13,000
Courtland Canal (Nebraska)	6/02	9/02	1,773	1,952	2,300
Total Bostwick Irrigation District in Nebraska			47,661	58,665	48,300
Kansas-Bostwick Irrigation District					
Courtland Canal above Lovewell	6/09	9/11	25,560	26,924	26,000
Courtland Canal below Lovewell	6/02	9/02	47,307	42,209	48,000
Total Kansas-Bostwick Irrigation District			72,867	69,133	74,000
Kirwin Irrigation District					
Kirwin Canal	6/30	8/22	10,808	16,472	13,000
Webster Irrigation District					
Osborne Canal	7/14	8/22	6,385	7,446	7,000
Cedar Bluff Irrigation District					
Cedar Bluff Canal	No irrigation in 1986		5,173	0	0
TOTAL			445,440	421,671	444,300

EXHIBIT 1A

BOX BUTTE RESERVOIR OPERATION

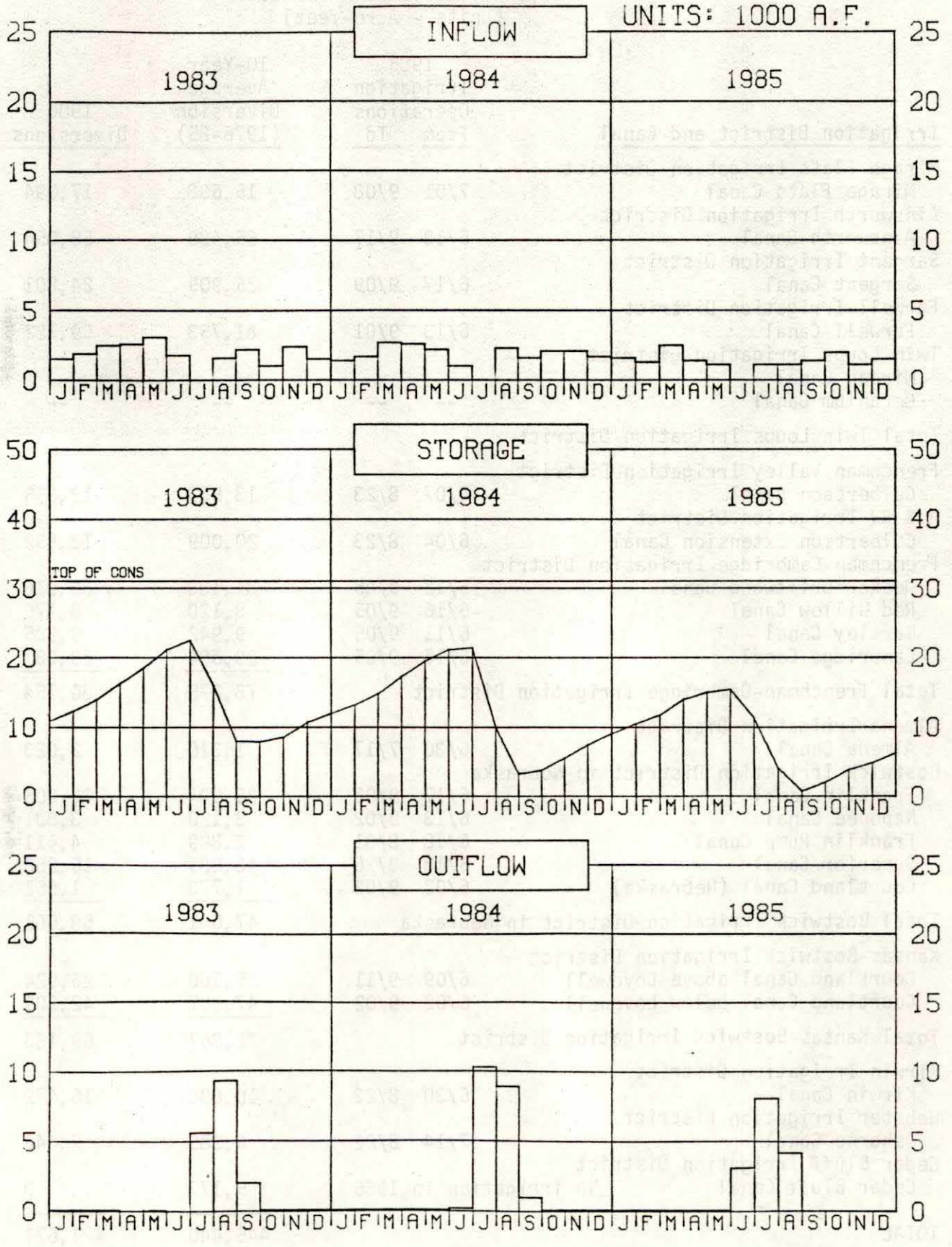


EXHIBIT 1B

BOX BUTTE RESERVOIR 1986 OPERATION

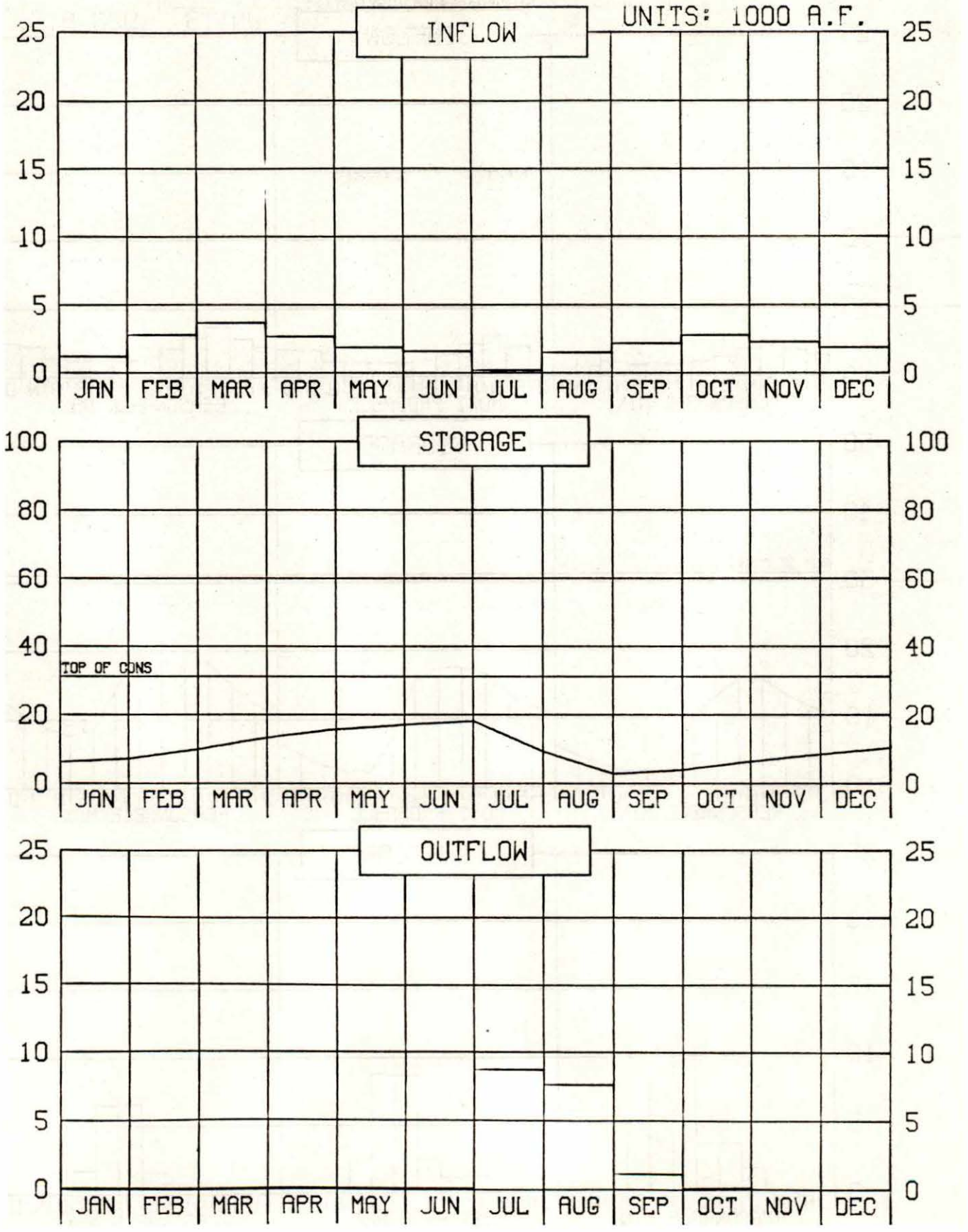
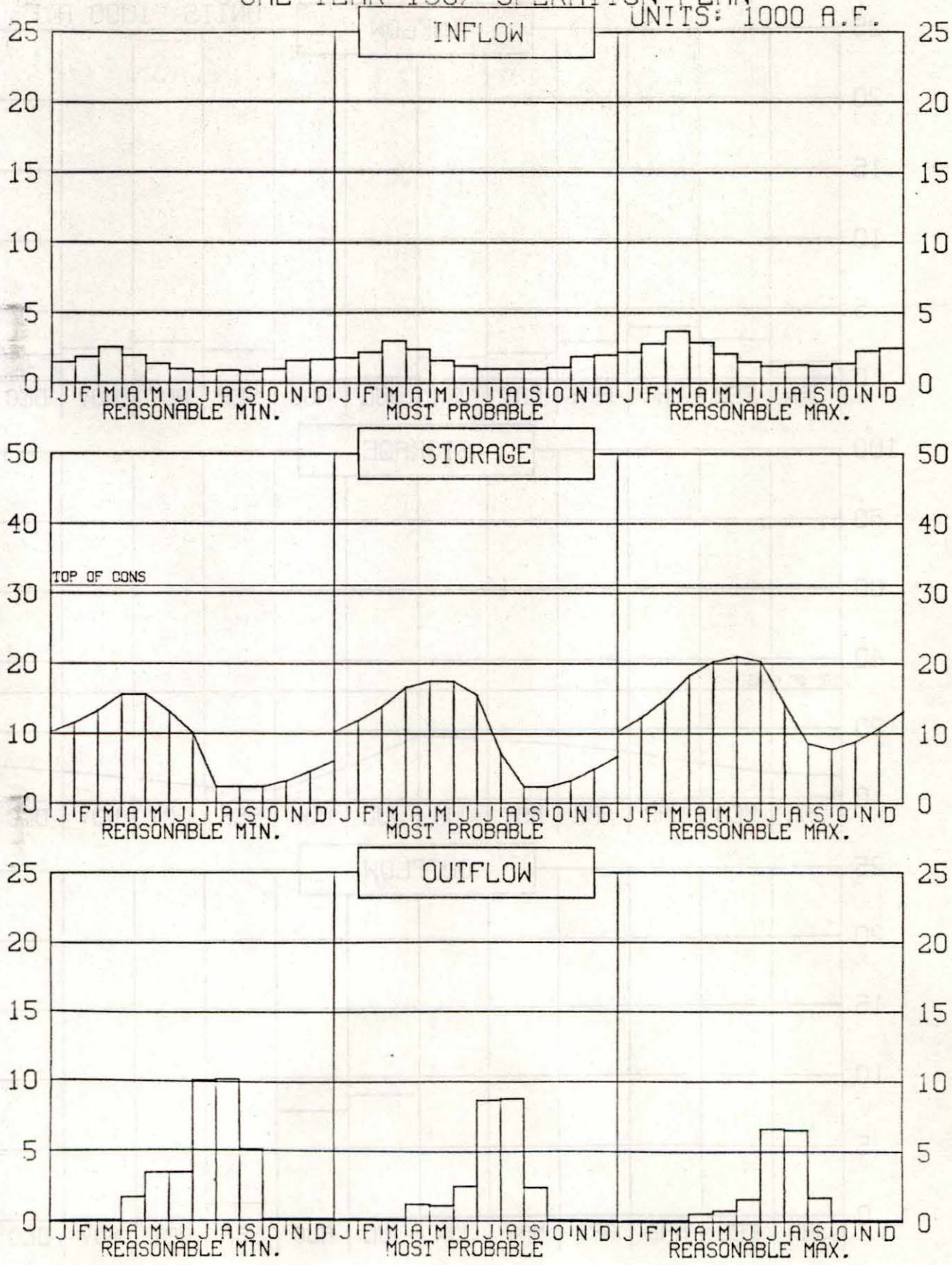


EXHIBIT 1C

BOX BUTTE RESERVOIR

CAL YEAR 1987 OPERATION PLAN



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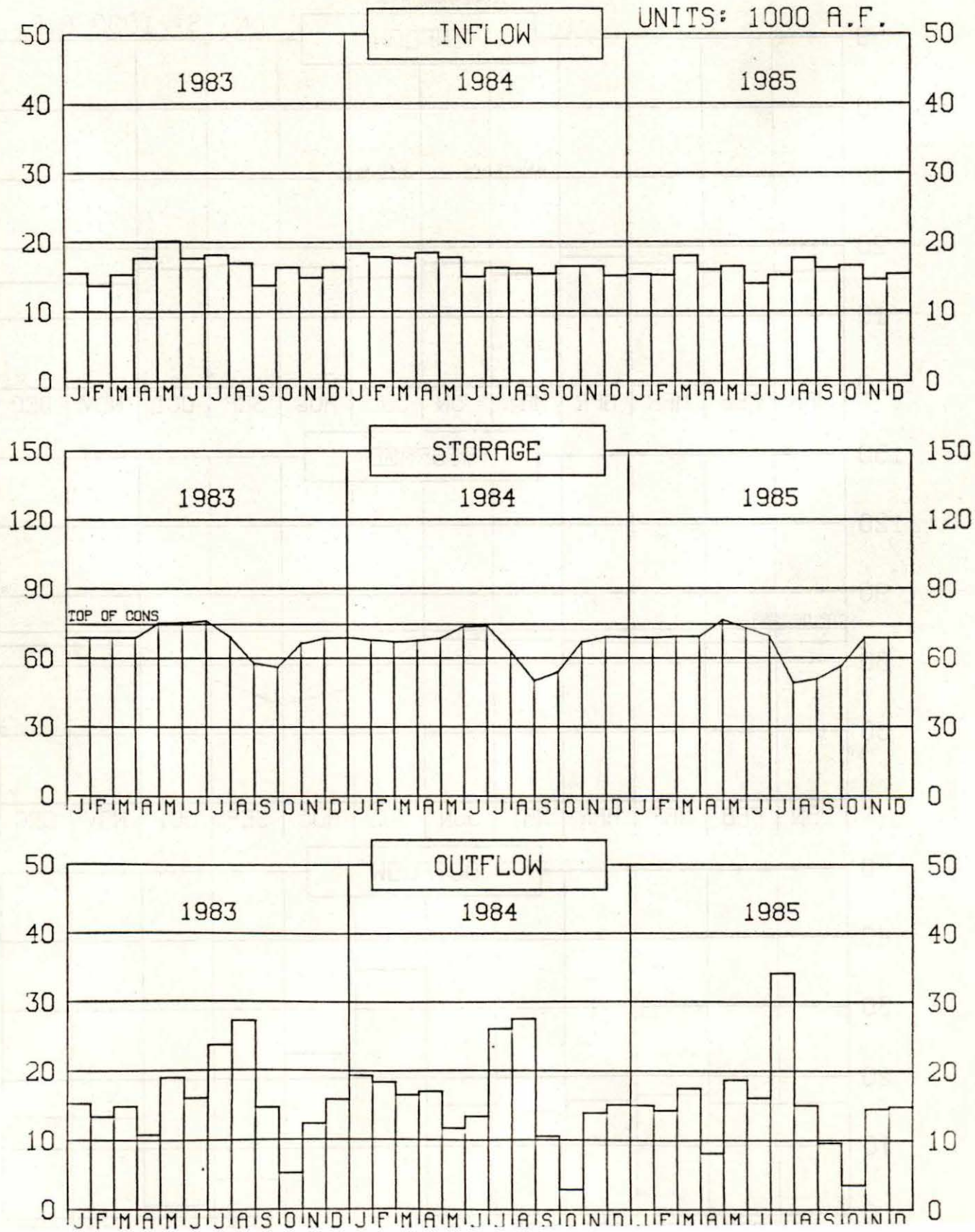
MERRITT RESERVOIR OPERATION



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MERRITT RESERVOIR 1986 OPERATION

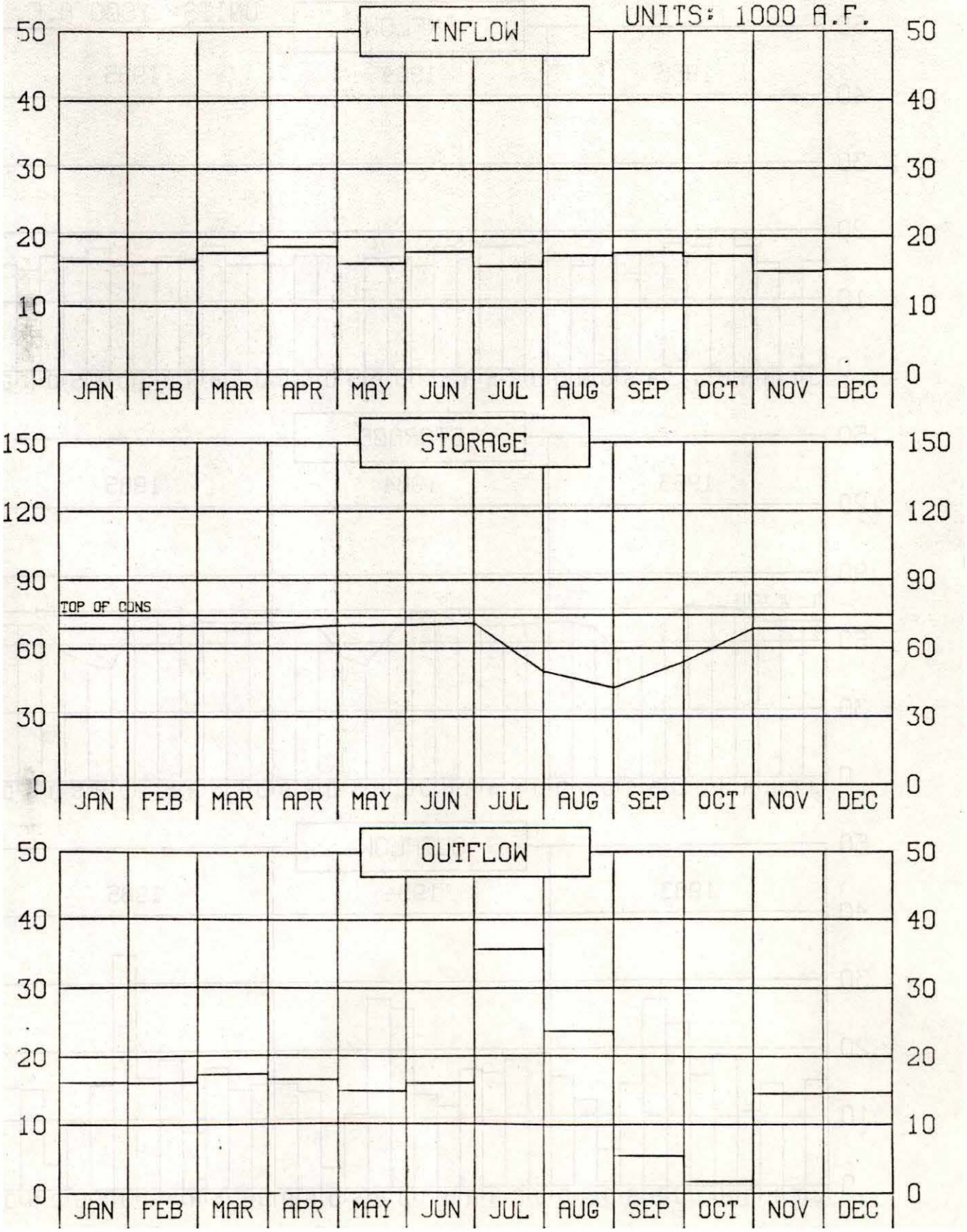

EXHIBIT 2C

MERRITT RESERVOIR

CAL YEAR 1987 OPERATION PLAN

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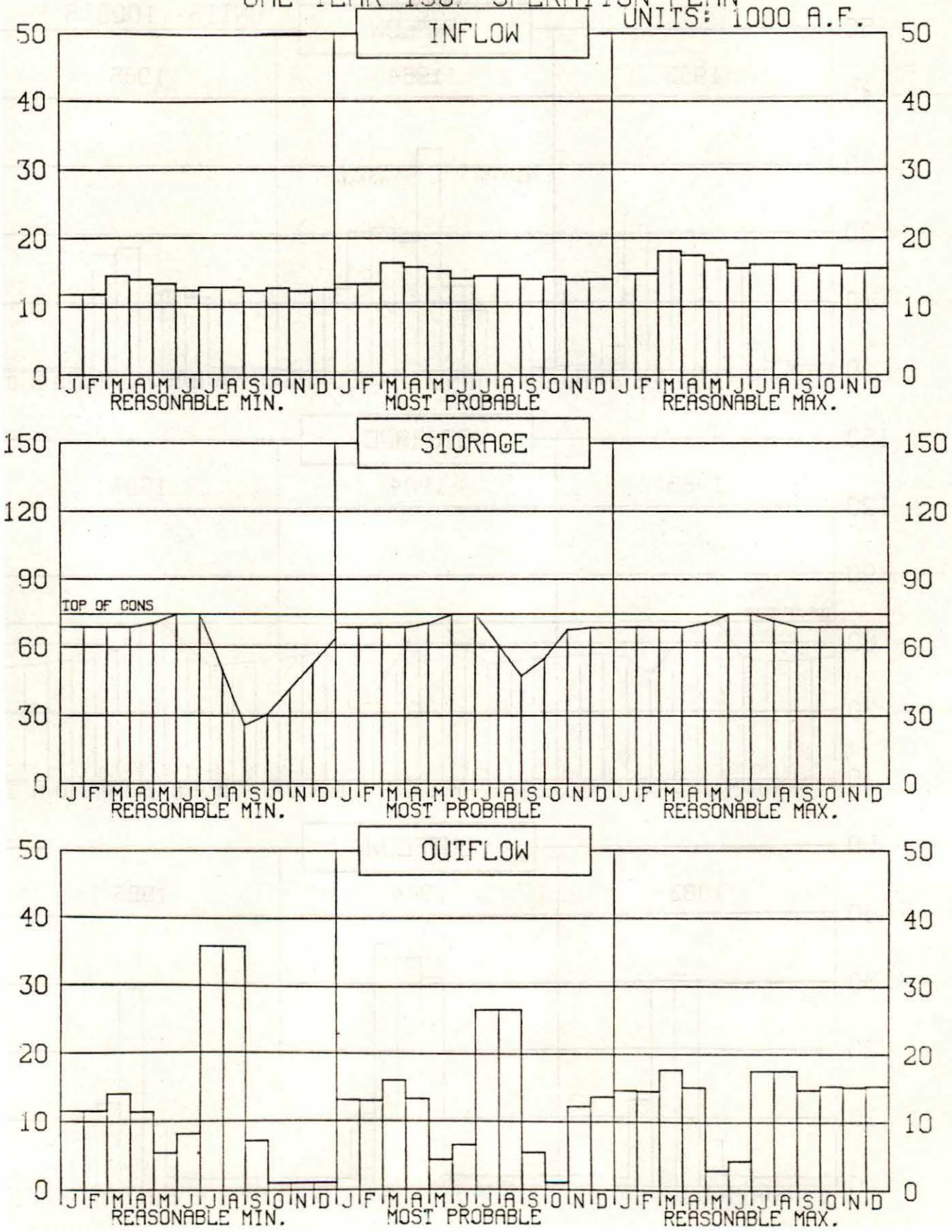

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SHERMAN RESERVOIR OPERATION

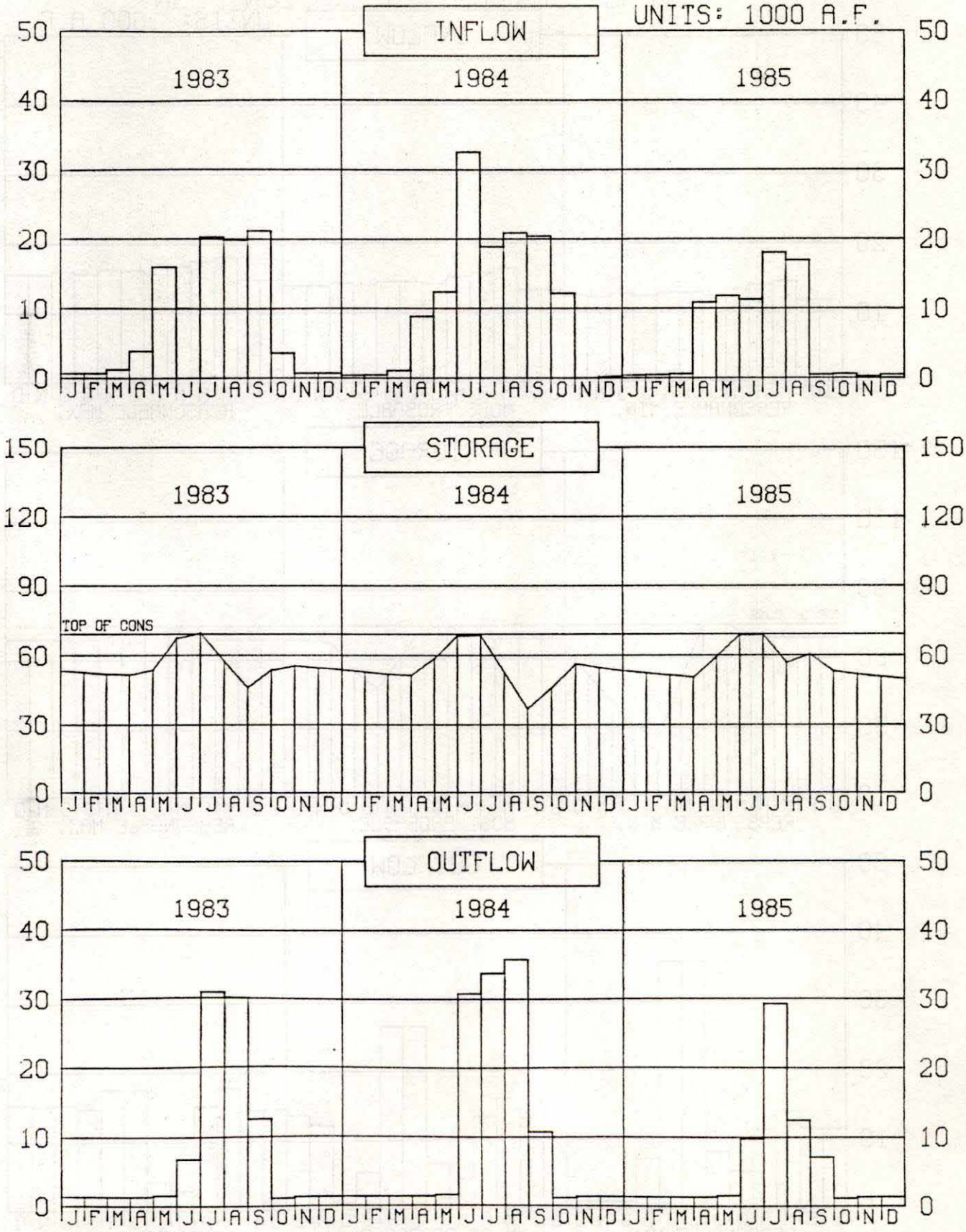
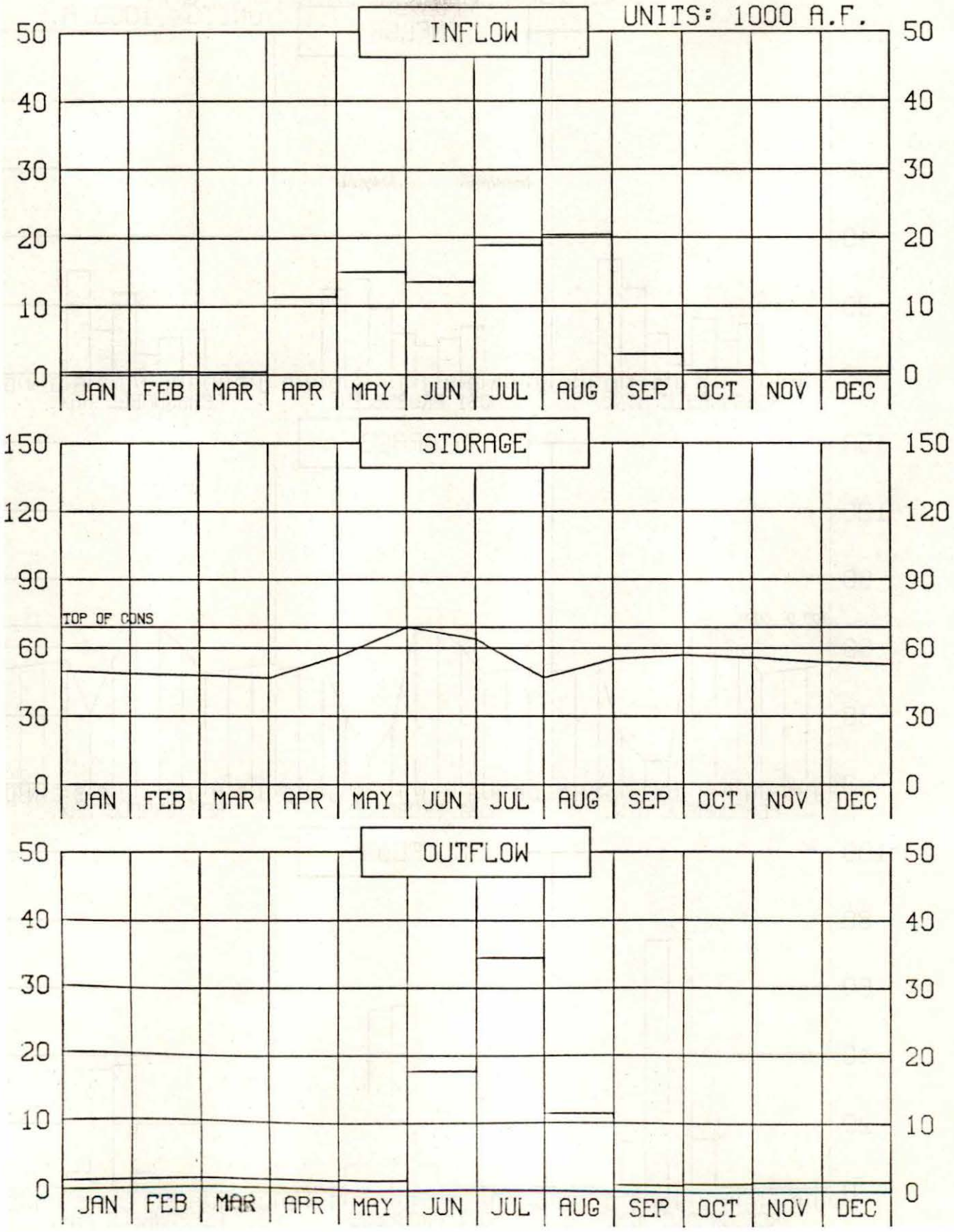


EXHIBIT 3B

SHERMAN RESERVOIR 1986 OPERATION



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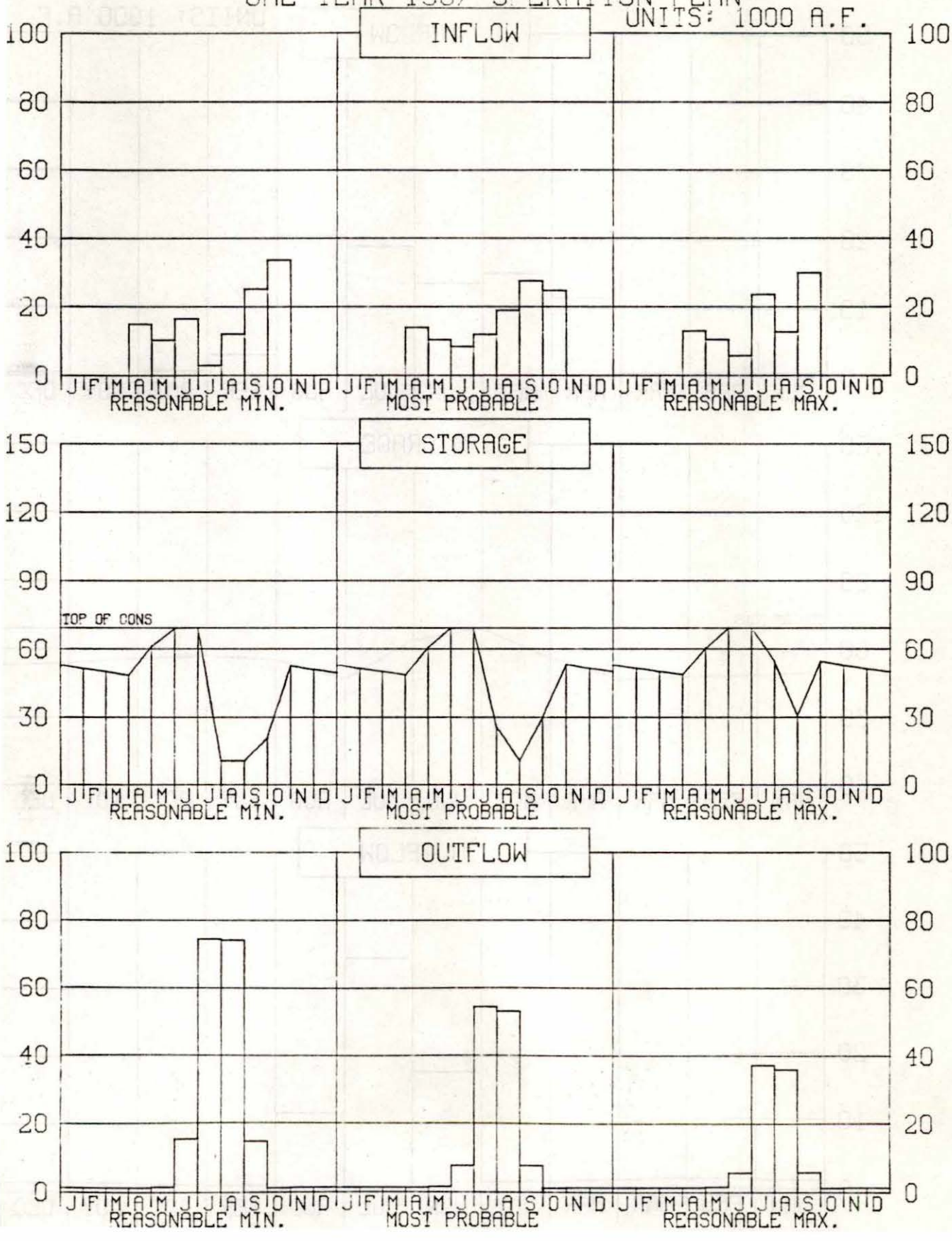
SHERMAN RESERVOIR

CAL YEAR 1987 OPERATION PLAN



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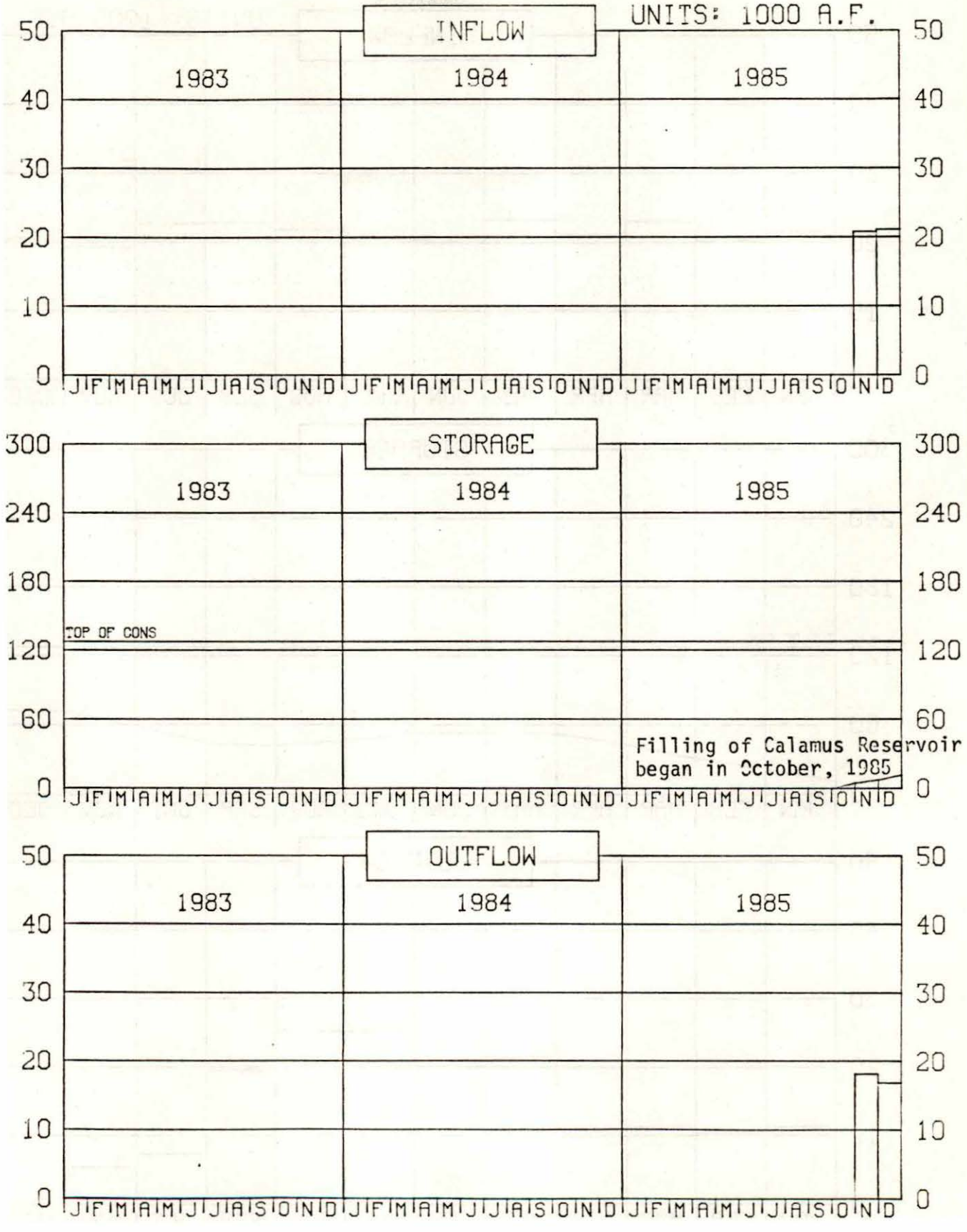

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CALAMUS RESERVOIR 1986 OPERATION

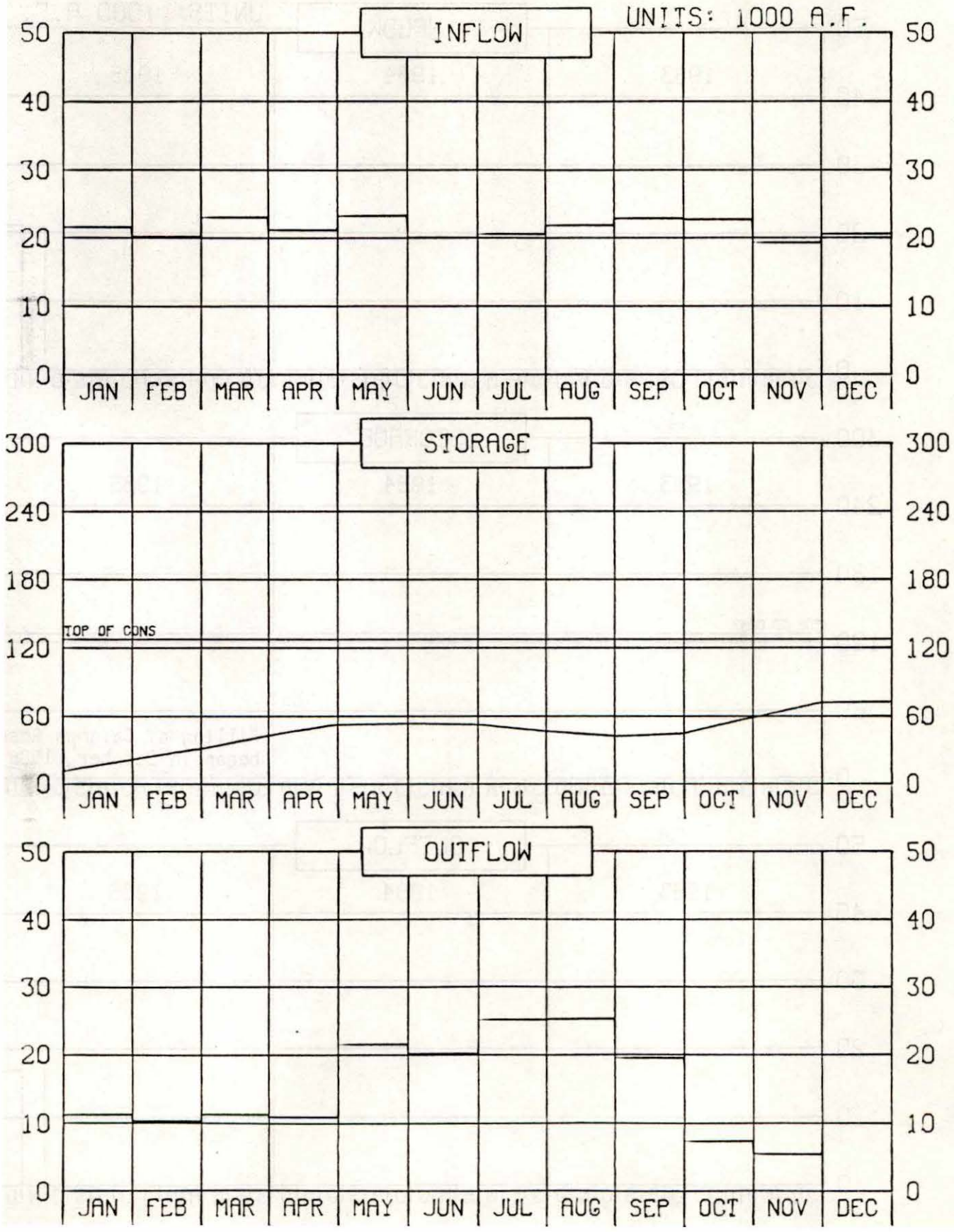

EXHIBIT 4C

CALAMUS RESERVOIR

CAL YEAR 1987 OPERATION PLAN

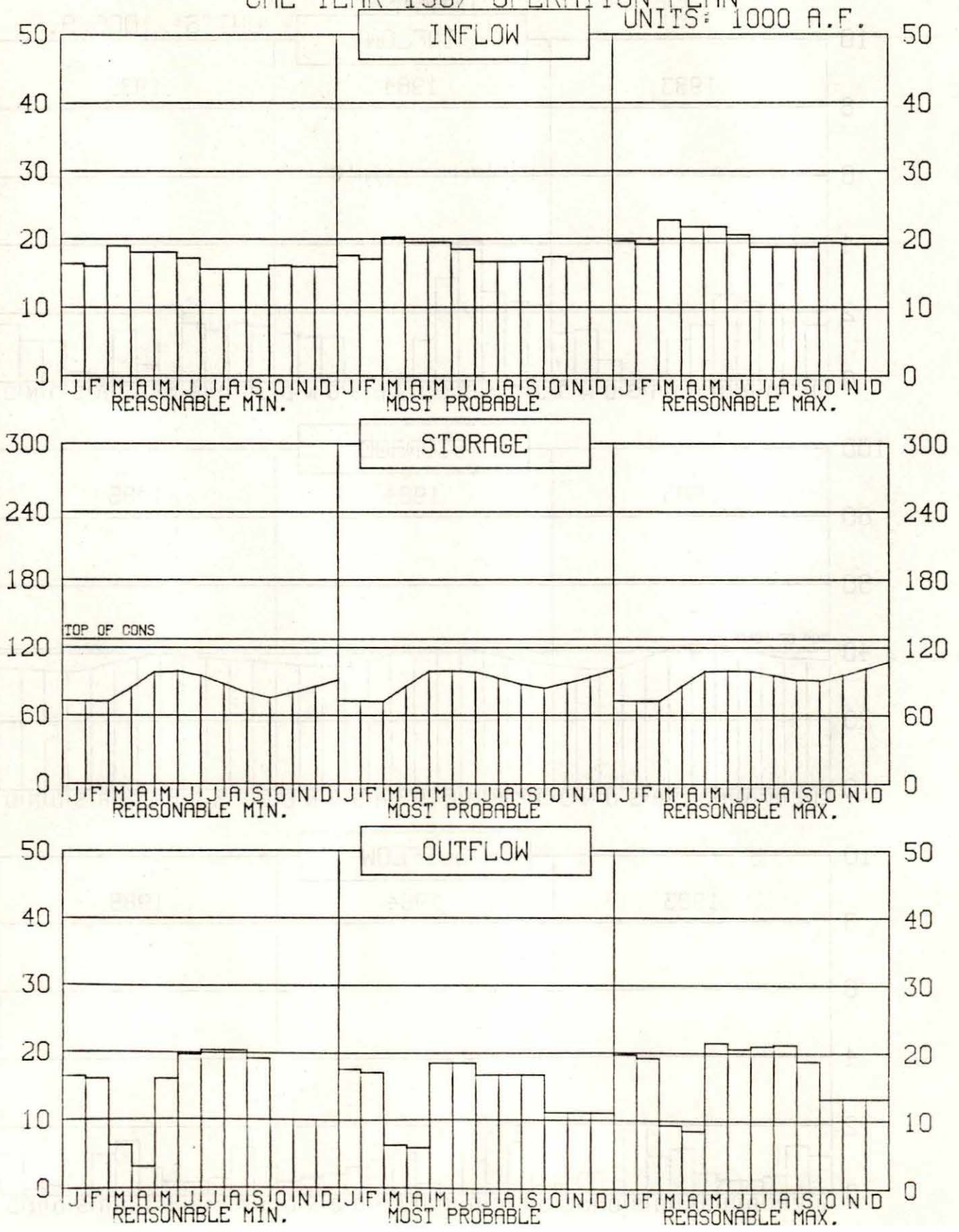

EXHIBIT 5A

BONNY RESERVOIR OPERATION

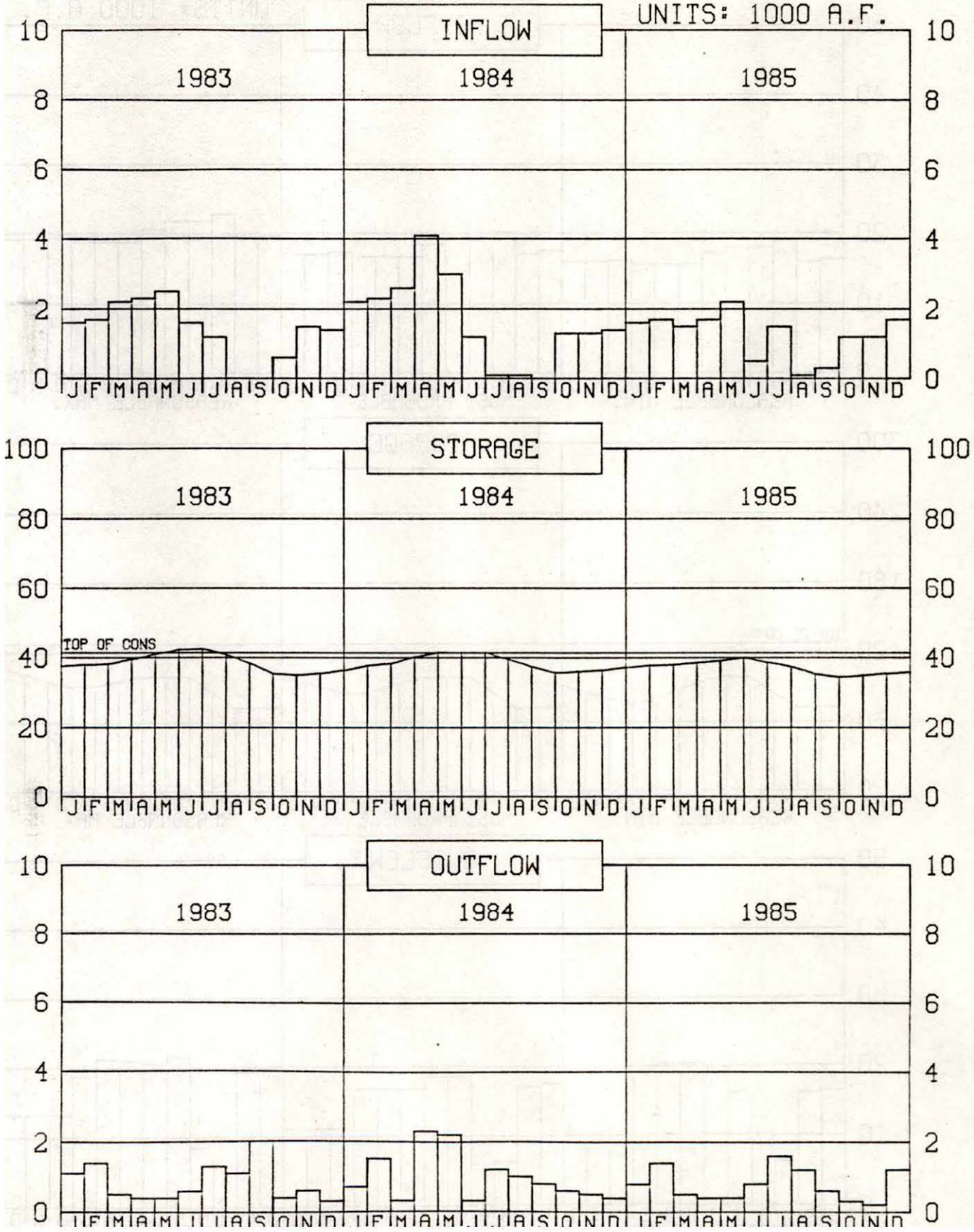

EXHIBIT 5B

BONNY RESERVOIR 1986 OPERATION

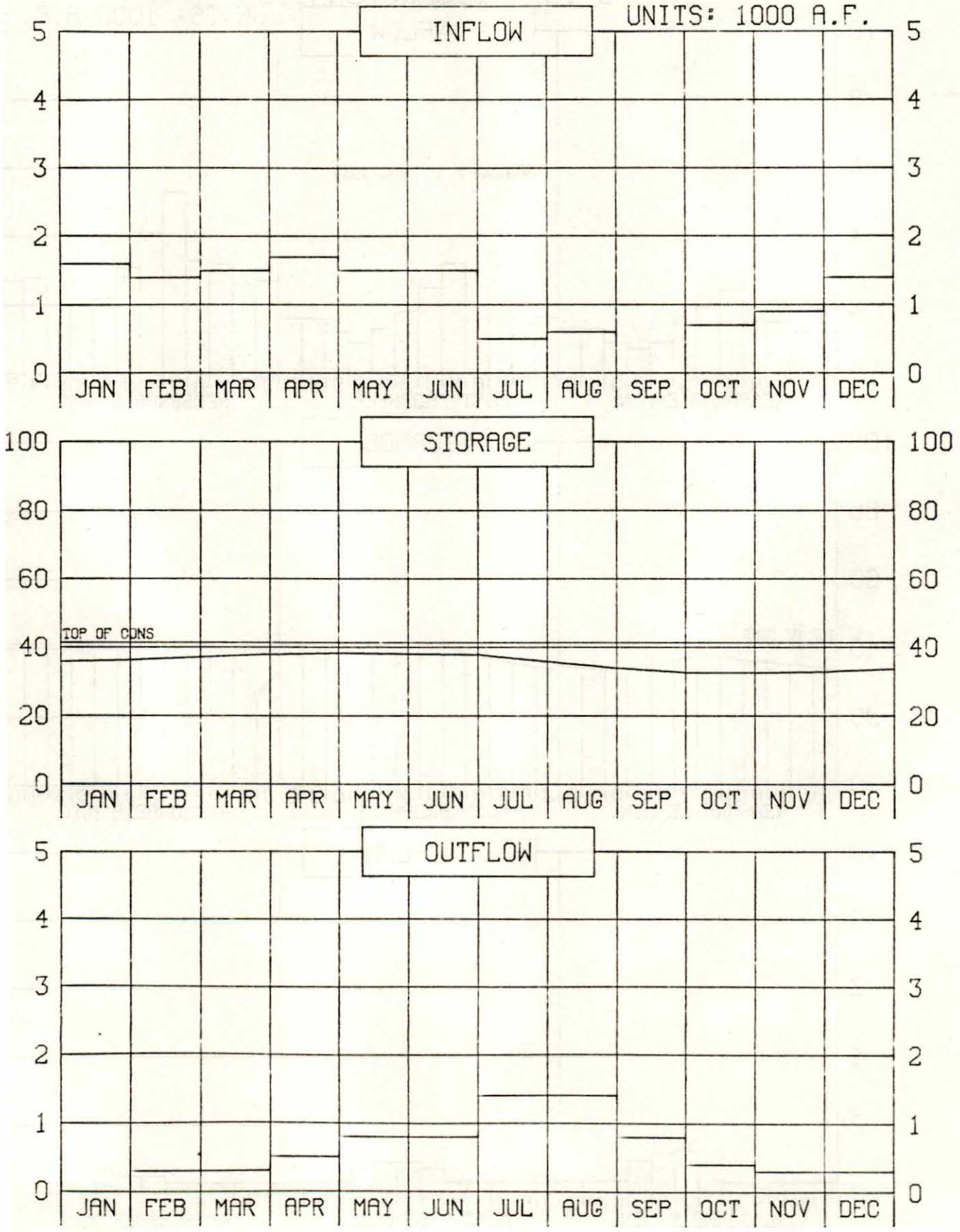

EXHIBIT 5C

BONNY RESERVOIR

CAL YEAR 1987 OPERATION PLAN

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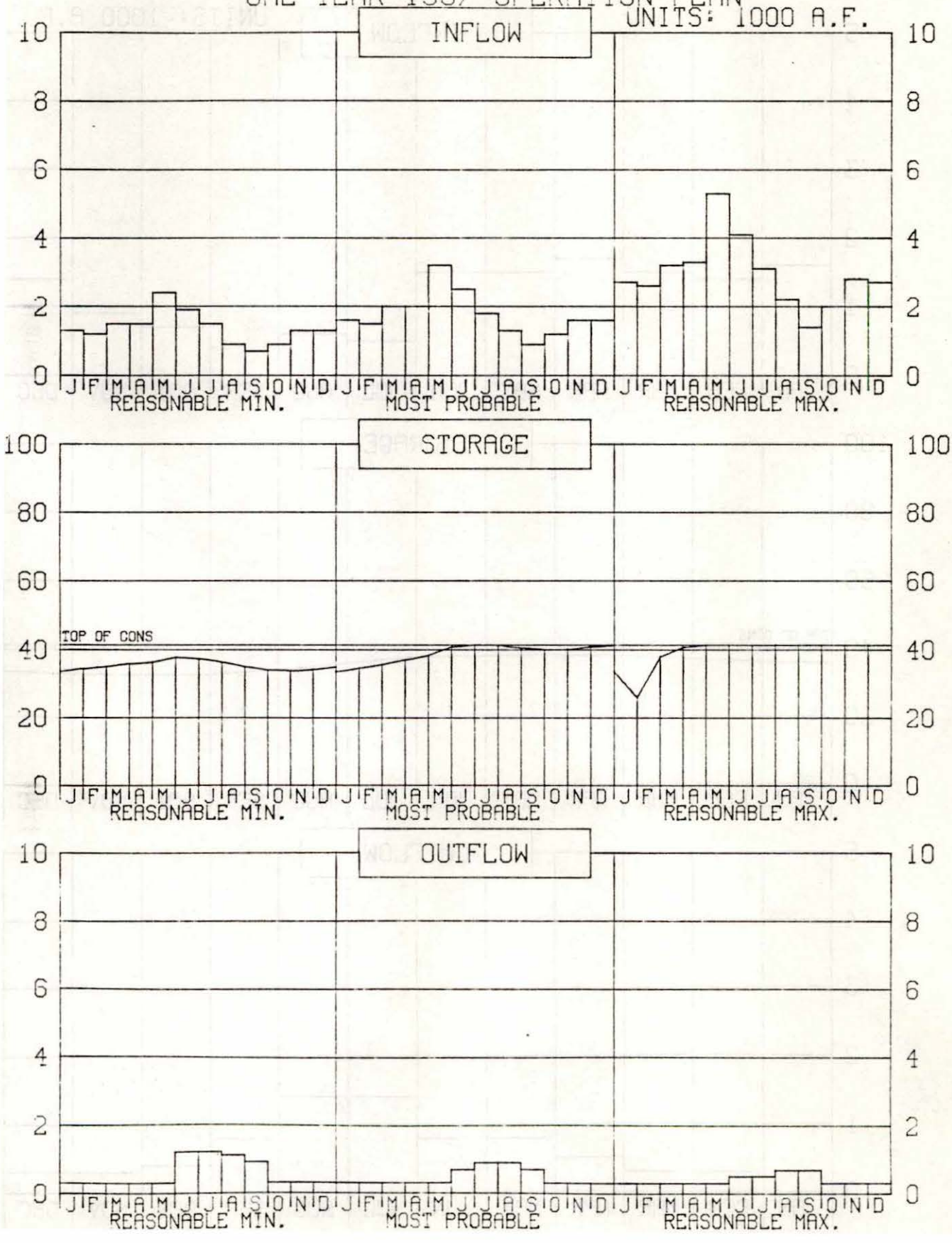
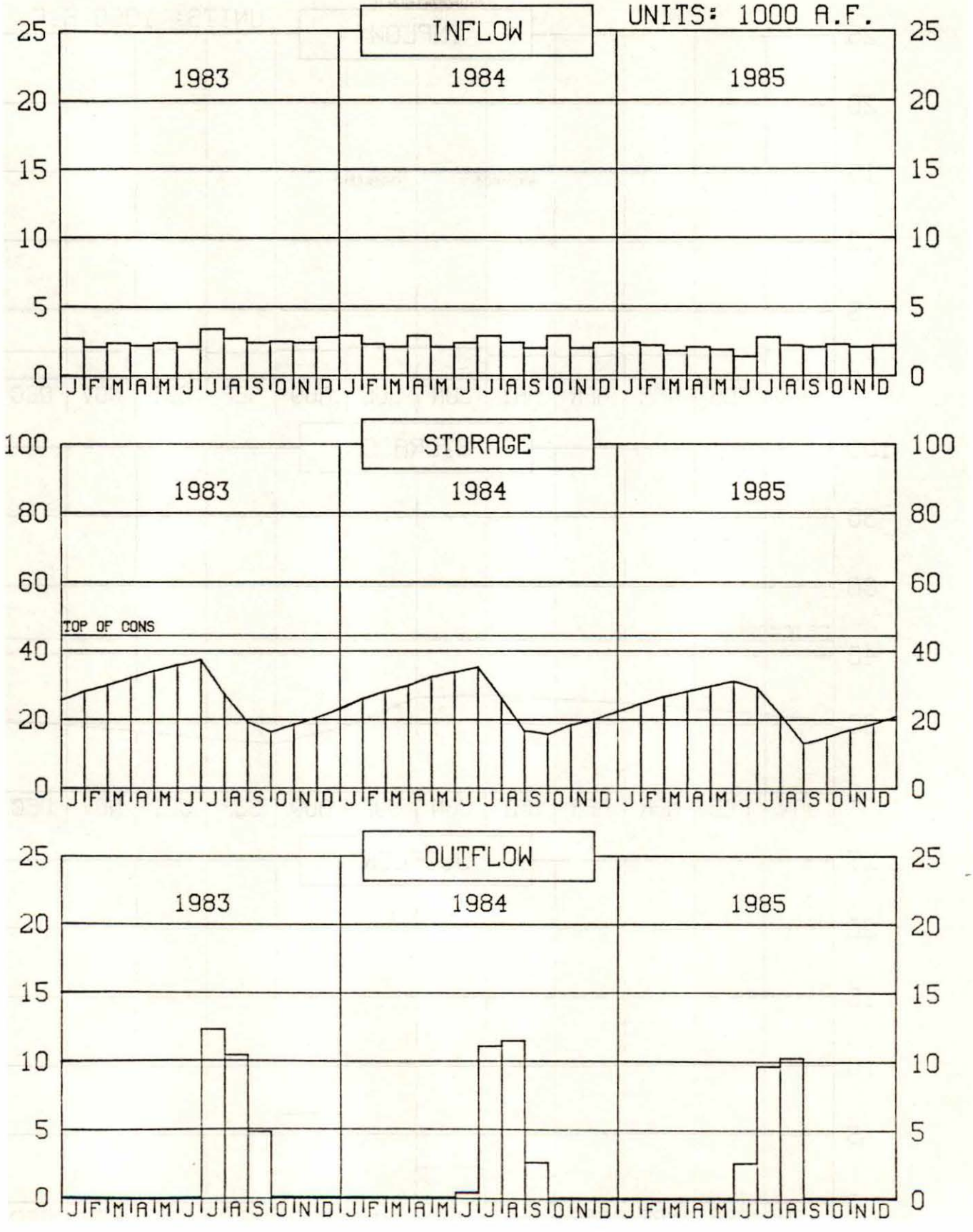


EXHIBIT 6A

ENDERS RESERVOIR OPERATION



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ENDERS RESERVOIR 1986 OPERATION

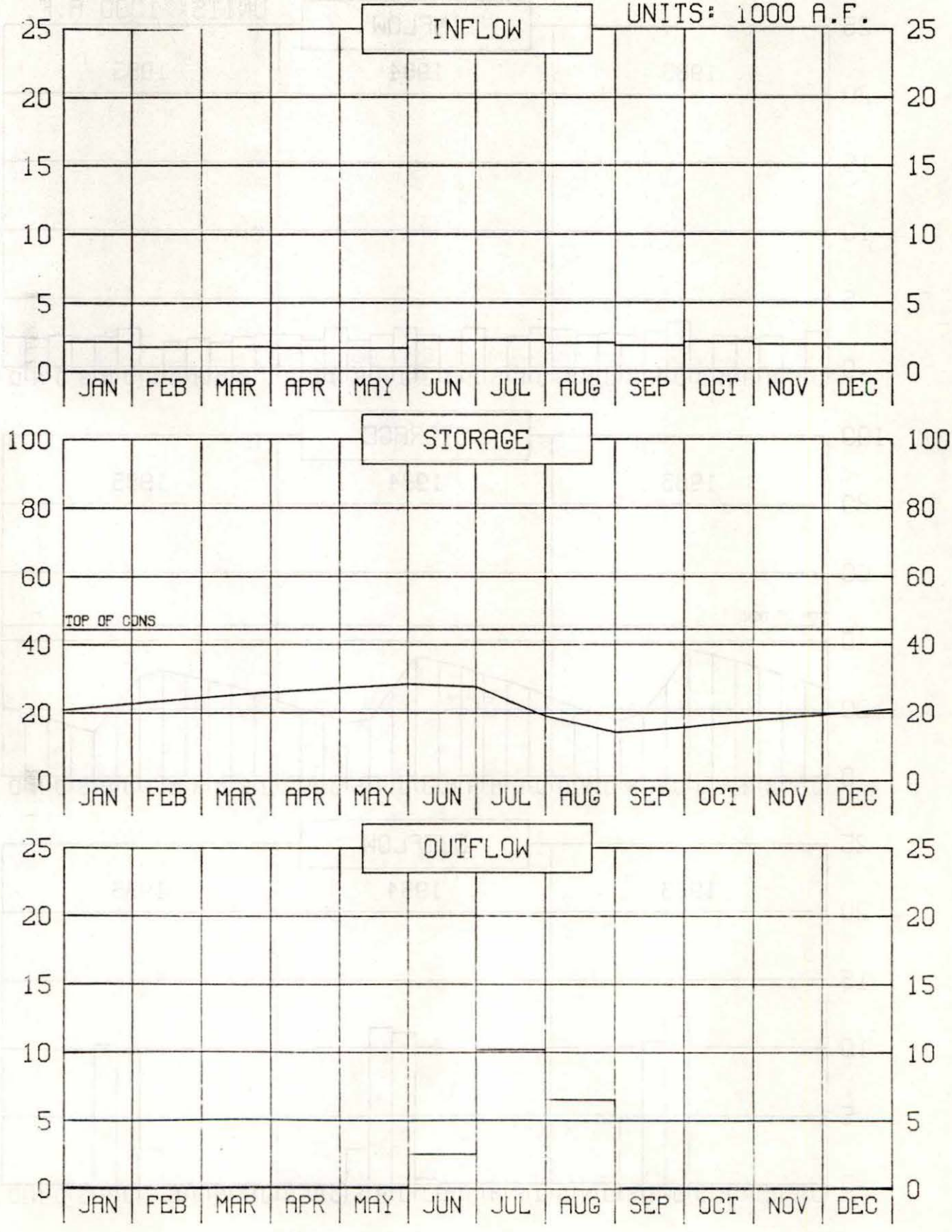

EXHIBIT 6C

ENDERS RESERVOIR

CAL YEAR 1987 OPERATION PLAN

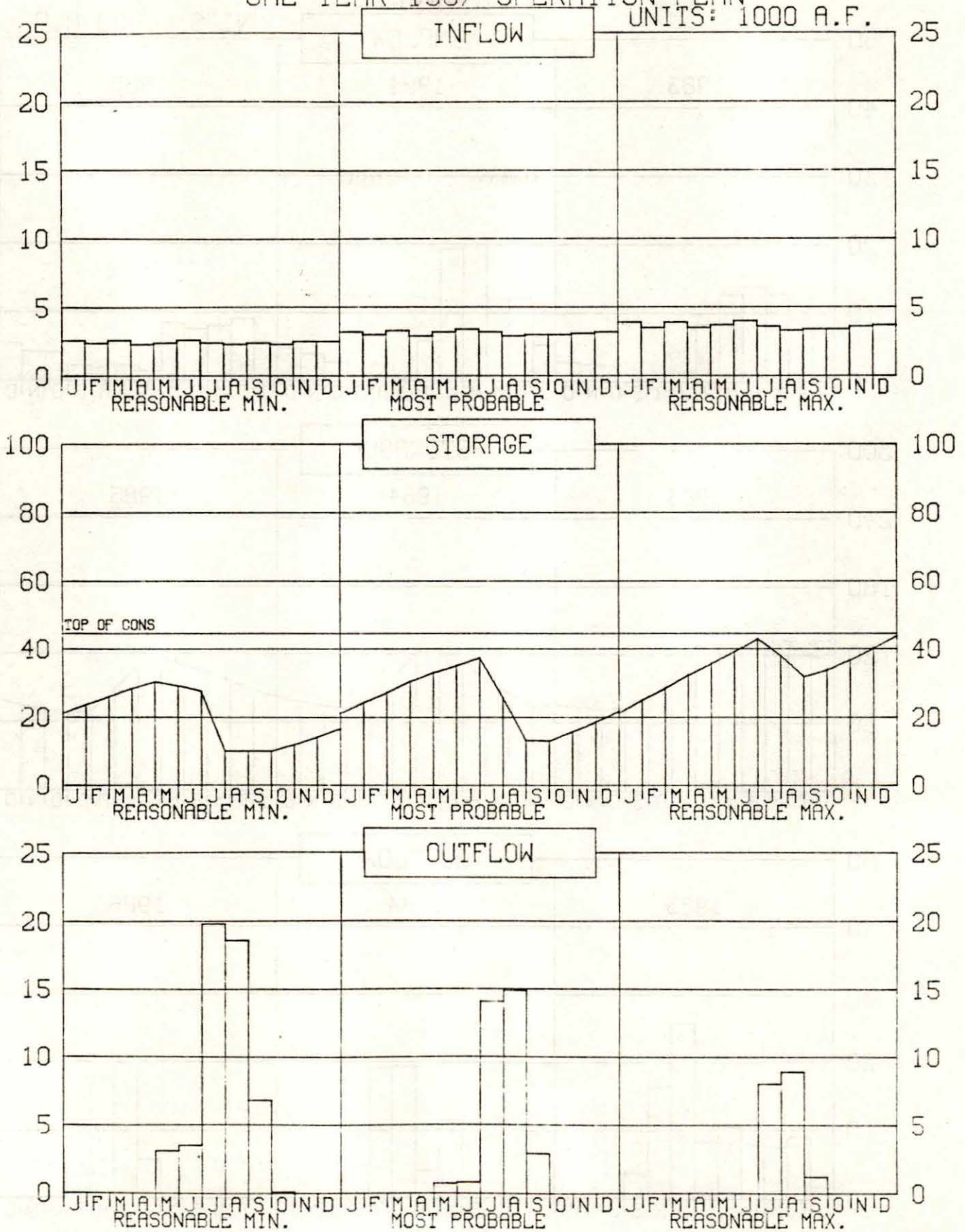

EXHIBIT 7A

SWANSON LAKE OPERATION

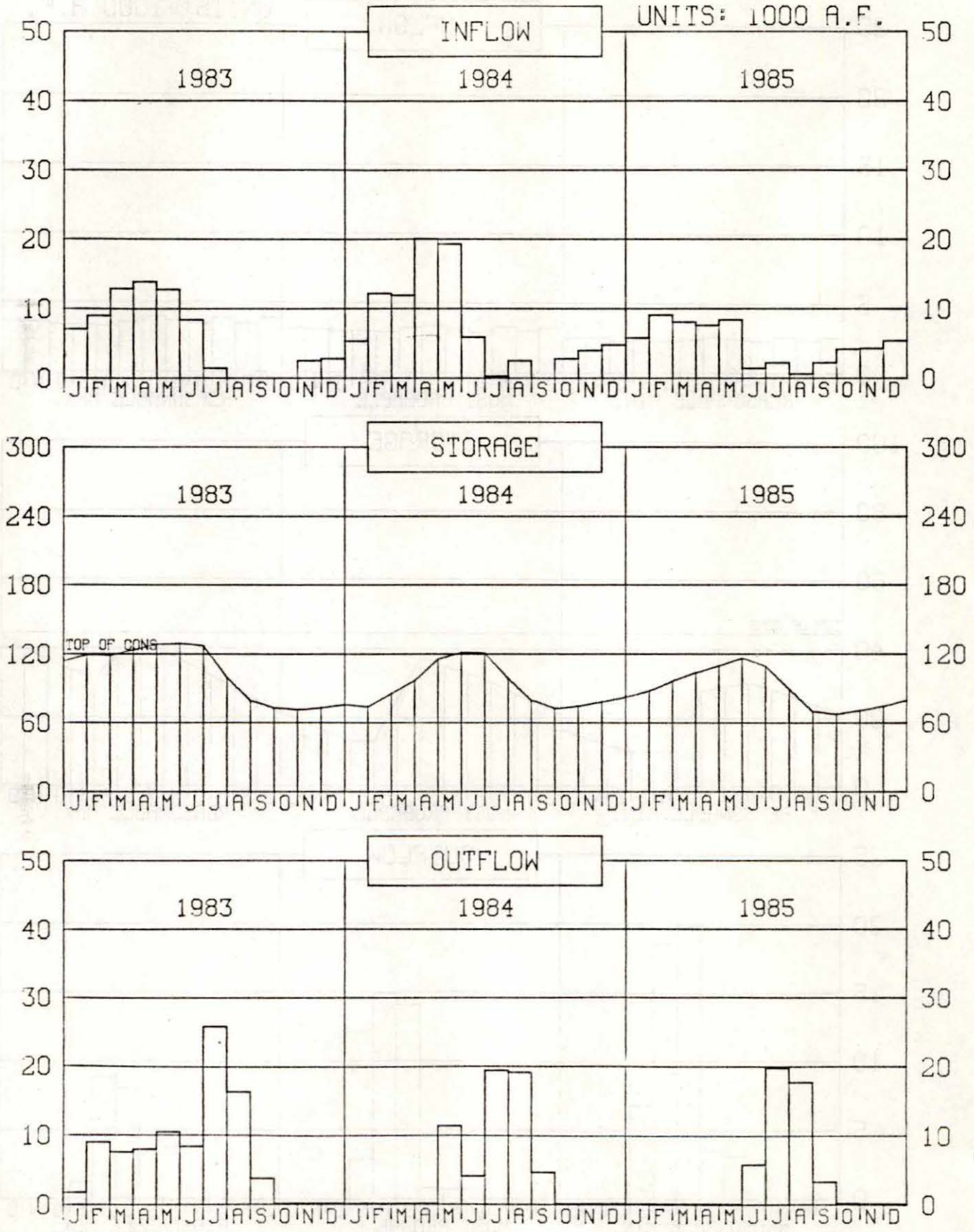

EXHIBIT 7B

SWANSON LAKE 1986 OPERATION

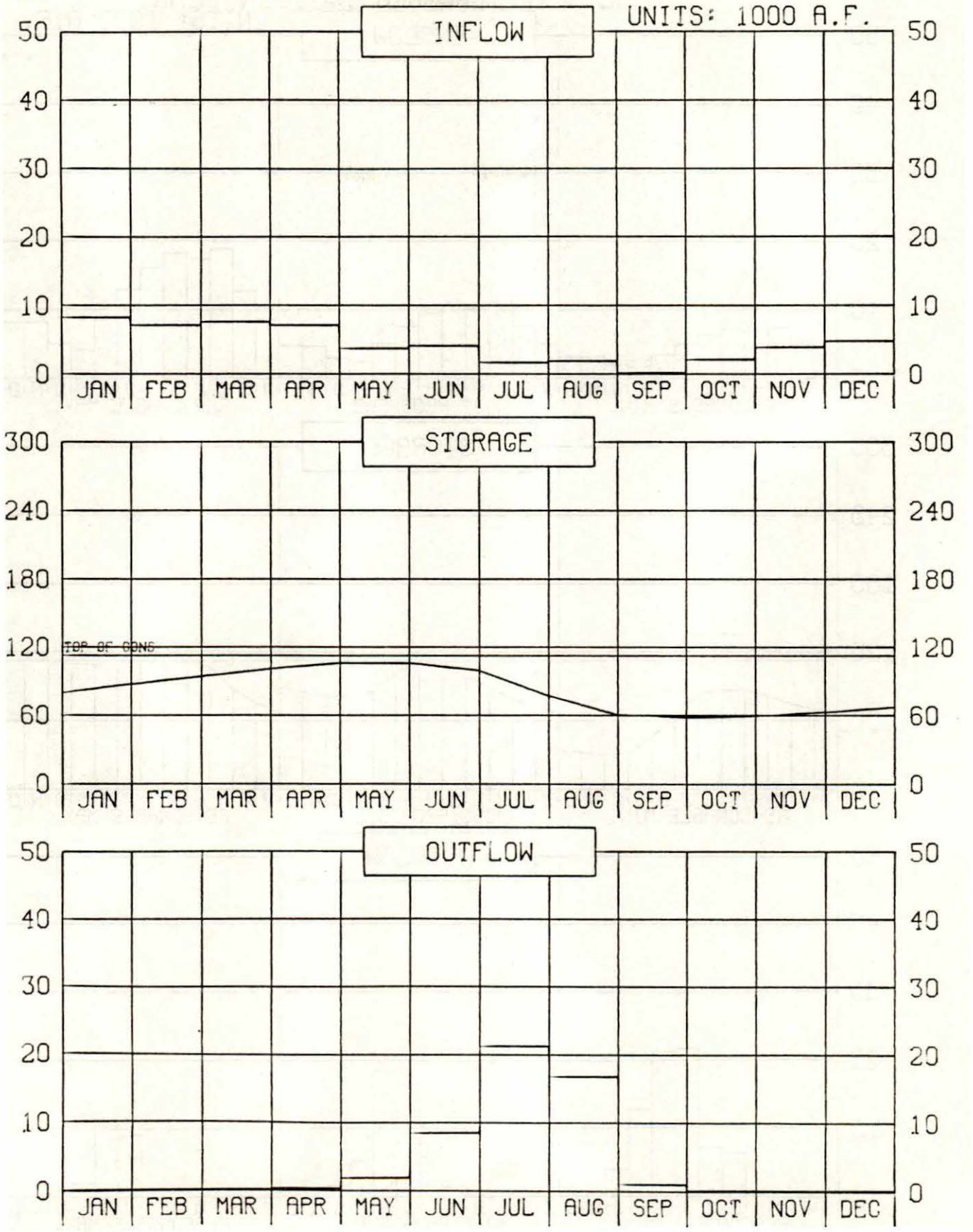

EXHIBIT 7C

SWANSON LAKE

CAL YEAR 1987 OPERATION PLAN

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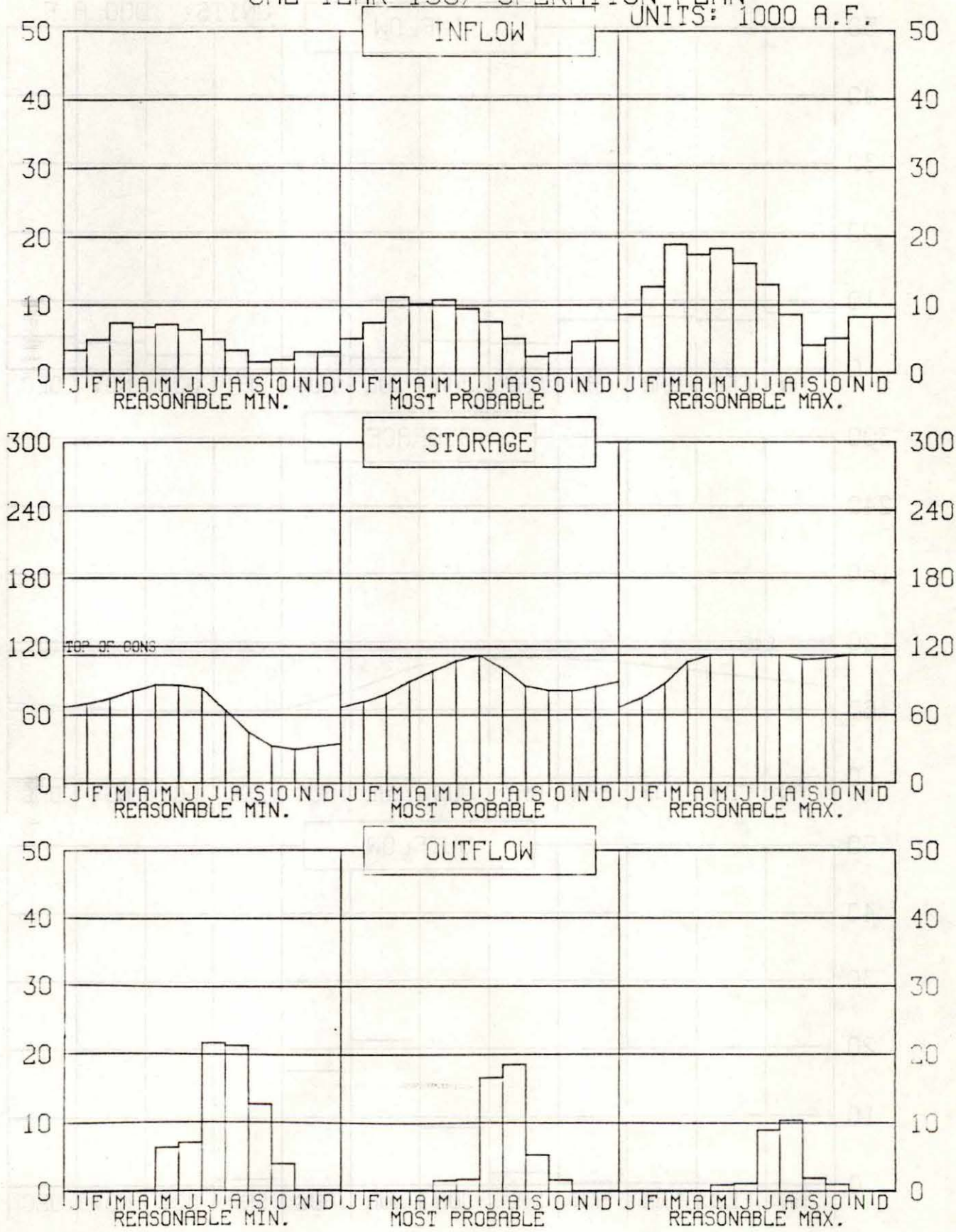
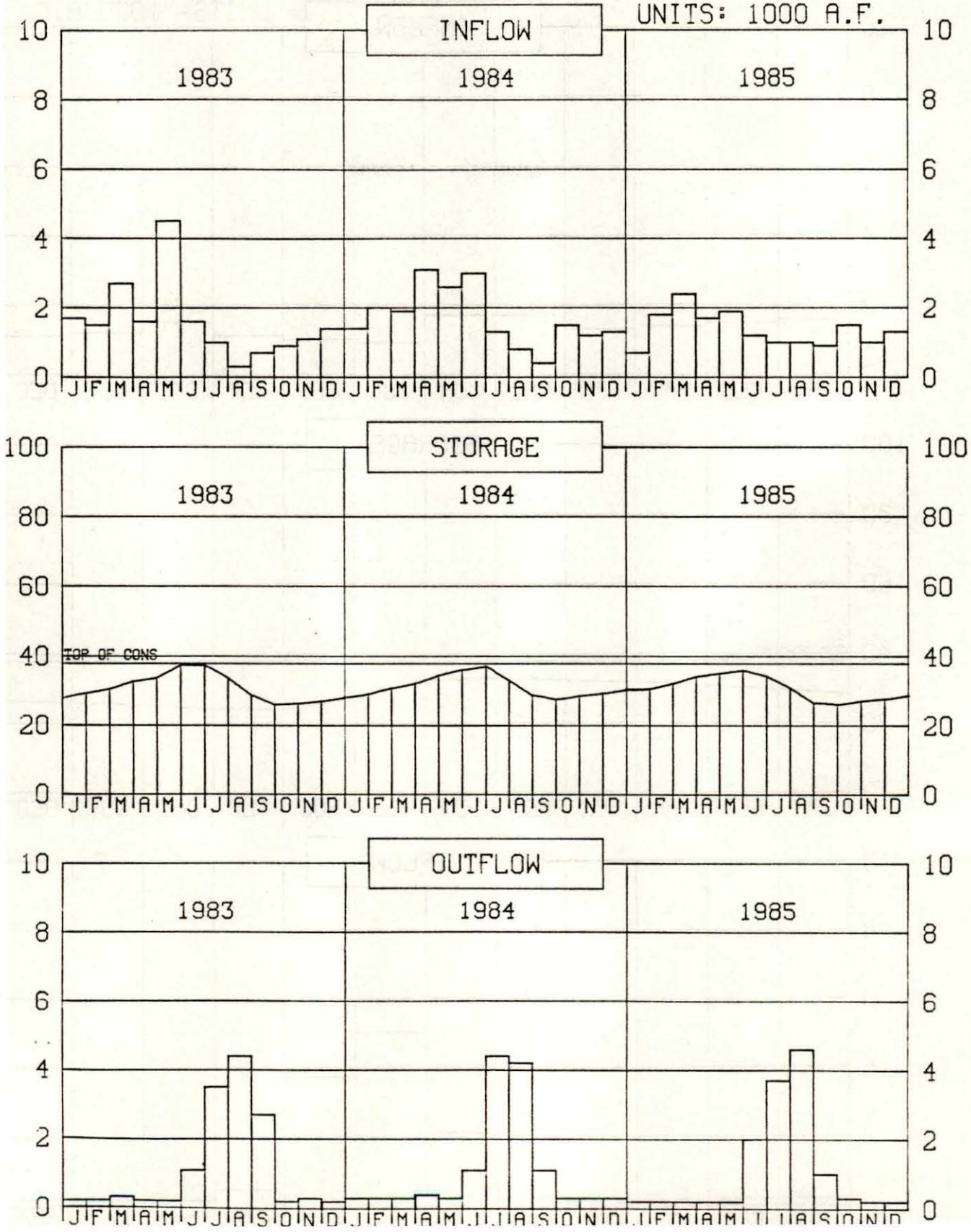


EXHIBIT 8A

HUGH BUTLER LAKE OPERATION



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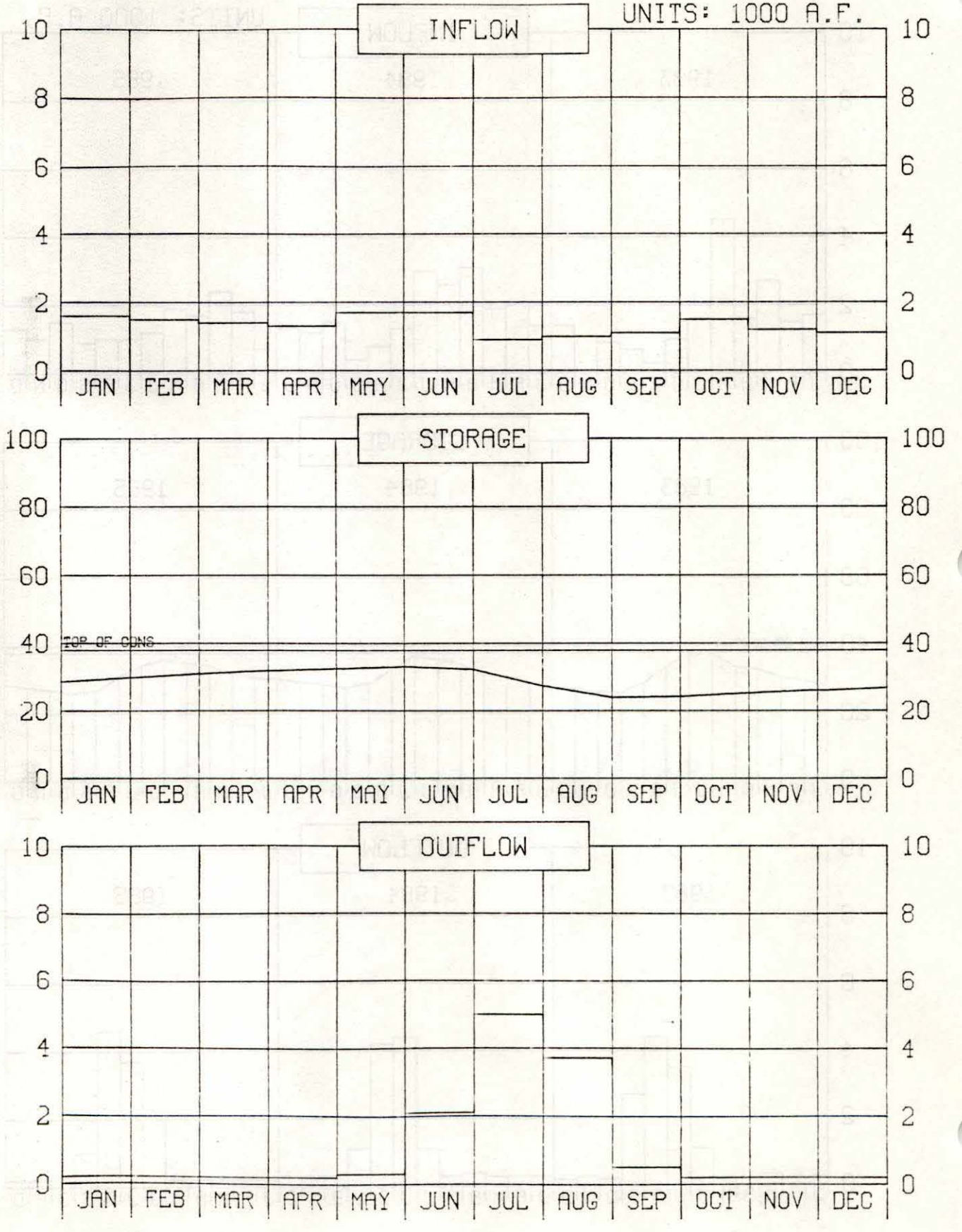

EXHIBIT 8C

HUGH BUTLER LAKE

CAL YEAR 1987 OPERATION PLAN

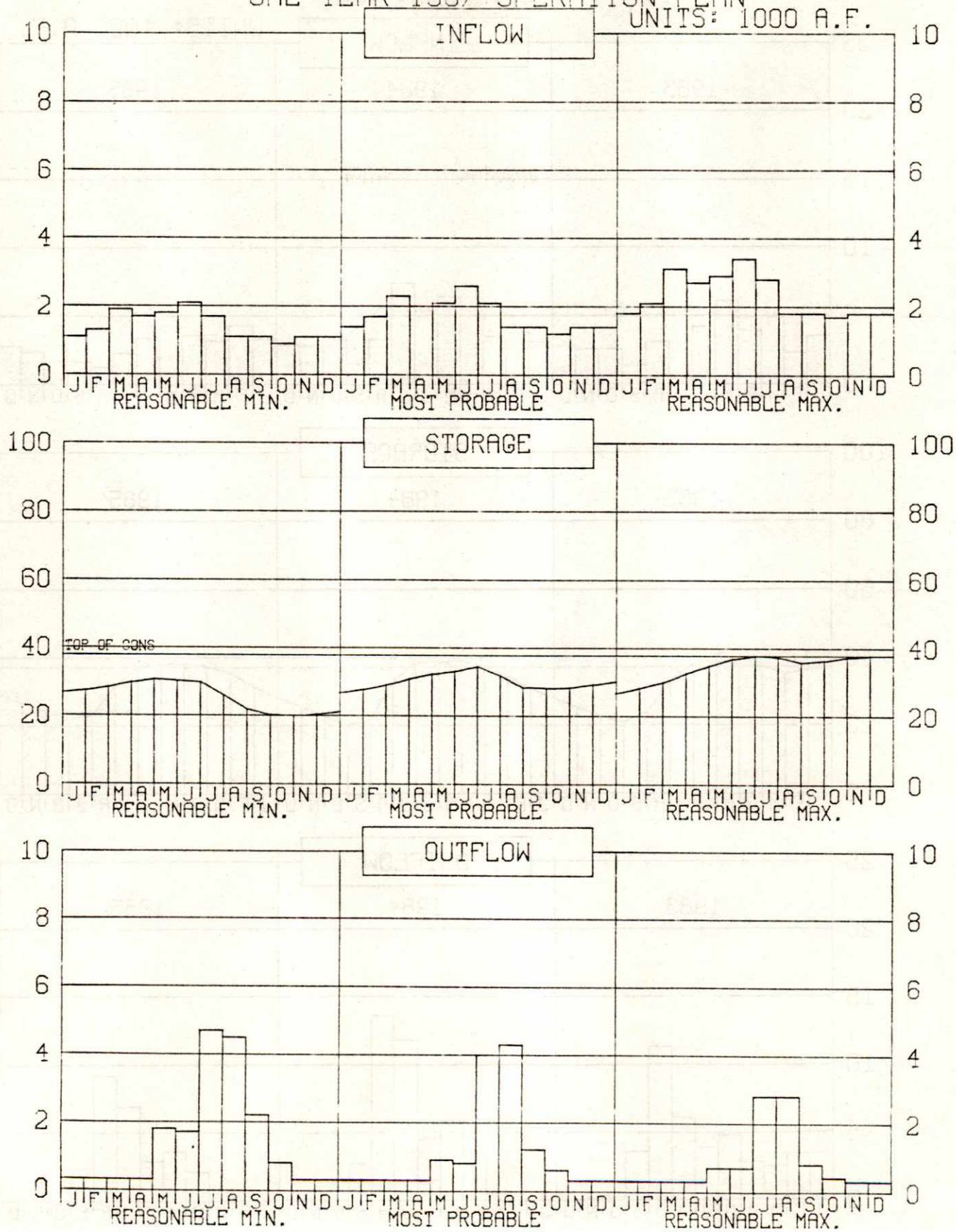

EXHIBIT 9A

HARRY STRUNK LAKE OPERATION

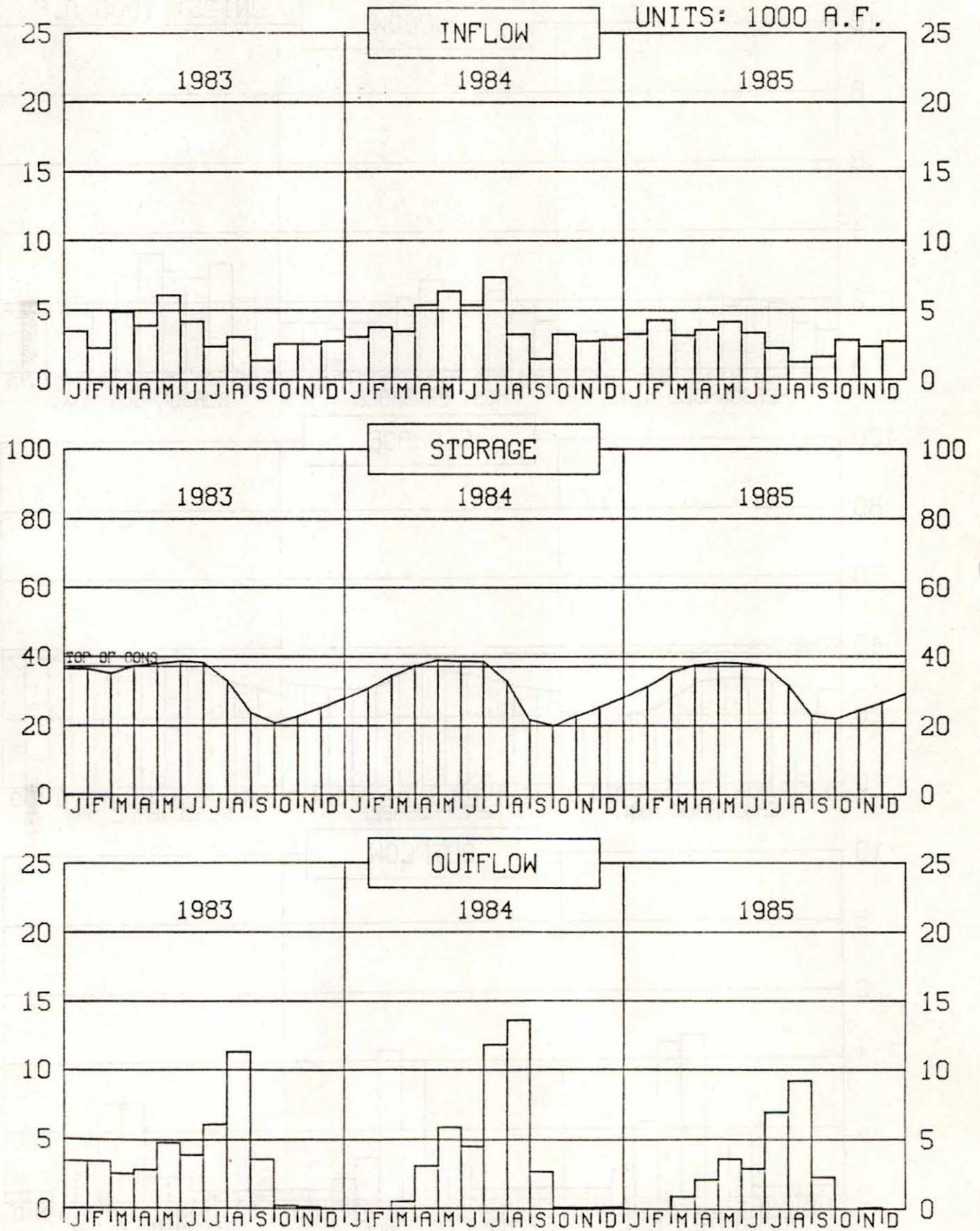

EXHIBIT 9B

HARRY STRUNK LAKE 1986 OPERATION

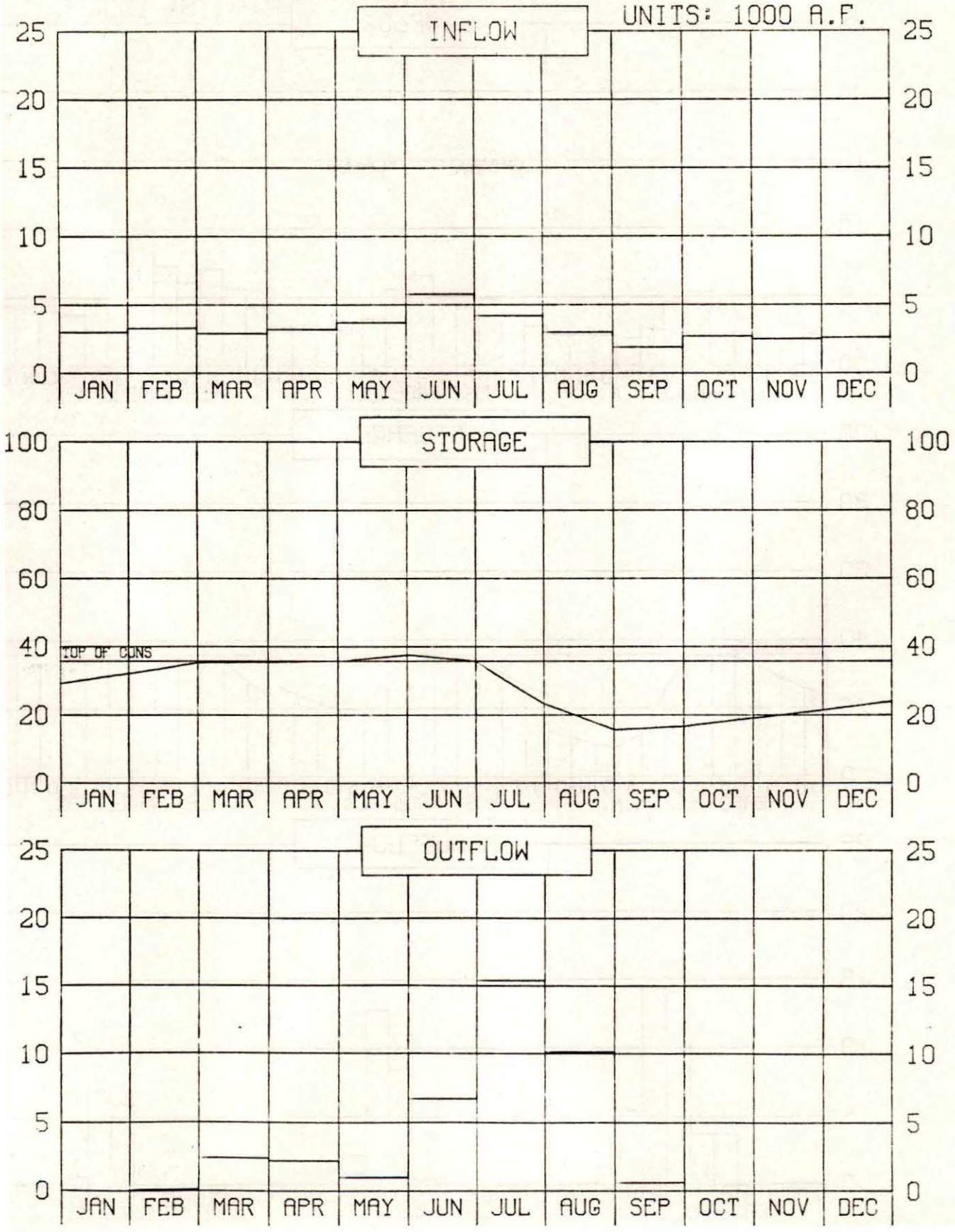

EXHIBIT 9C

HARRY STRUNK LAKE

CAL YEAR 1987 OPERATION PLAN

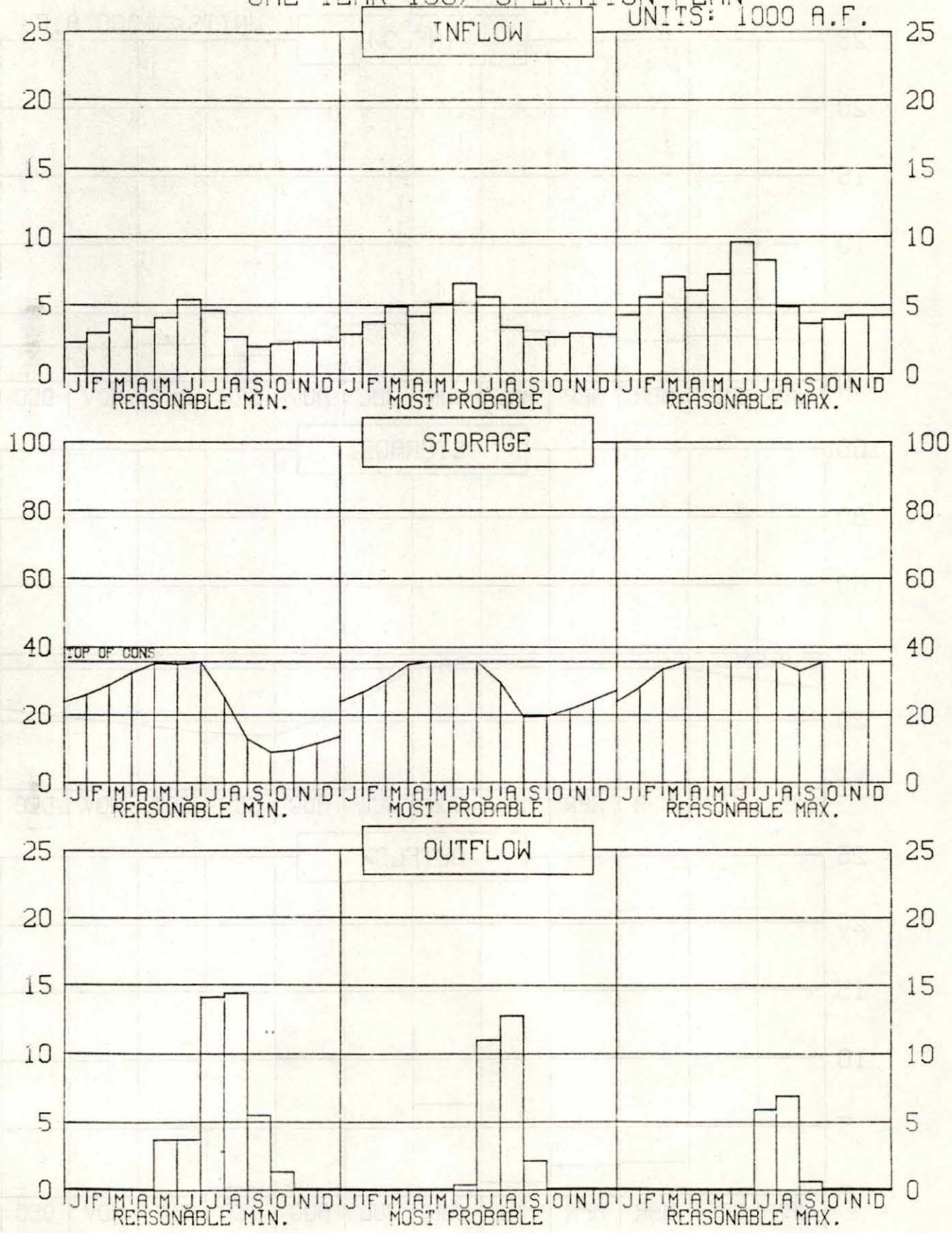

EXHIBIT 10A

KEITH SEBELIUS LAKE OPERATION

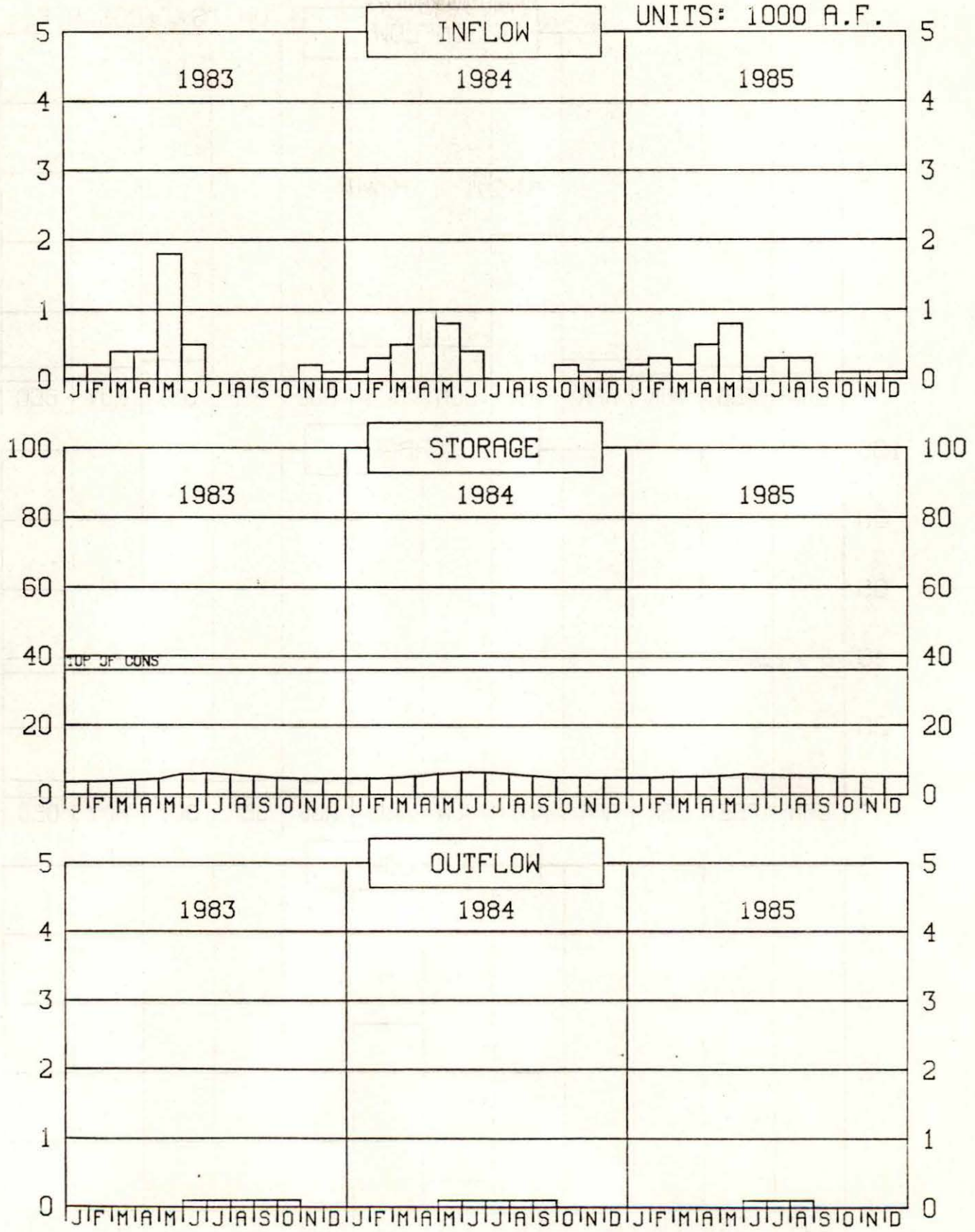

EXHIBIT 10B

KEITH SEBELIUS LAKE 1986 OPERATION

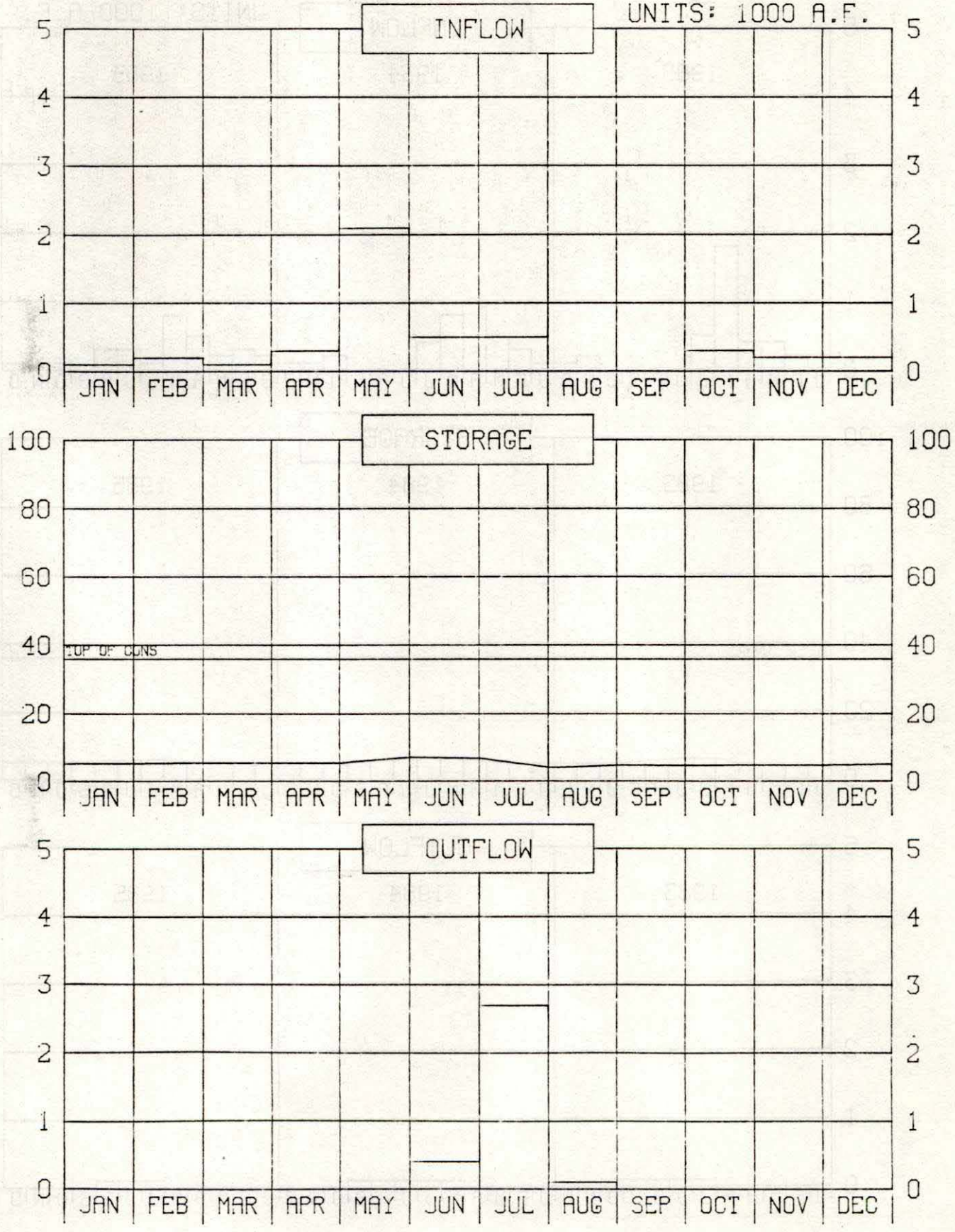

EXHIBIT 10C

KEITH SEBELIUS LAKE

CAL YEAR 1987 OPERATION PLAN

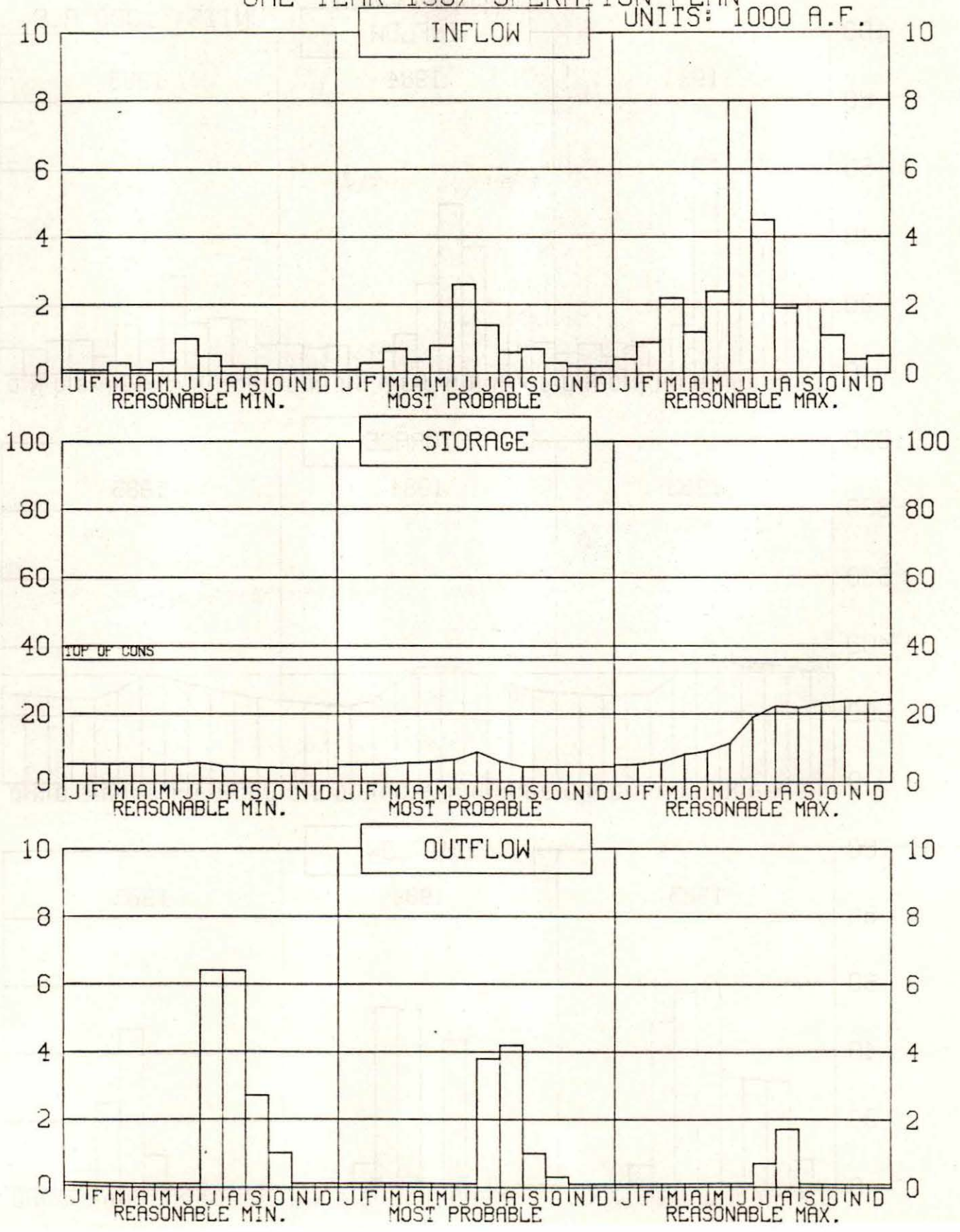

EXHIBIT 11A

HARLAN COUNTY LAKE OPERATION

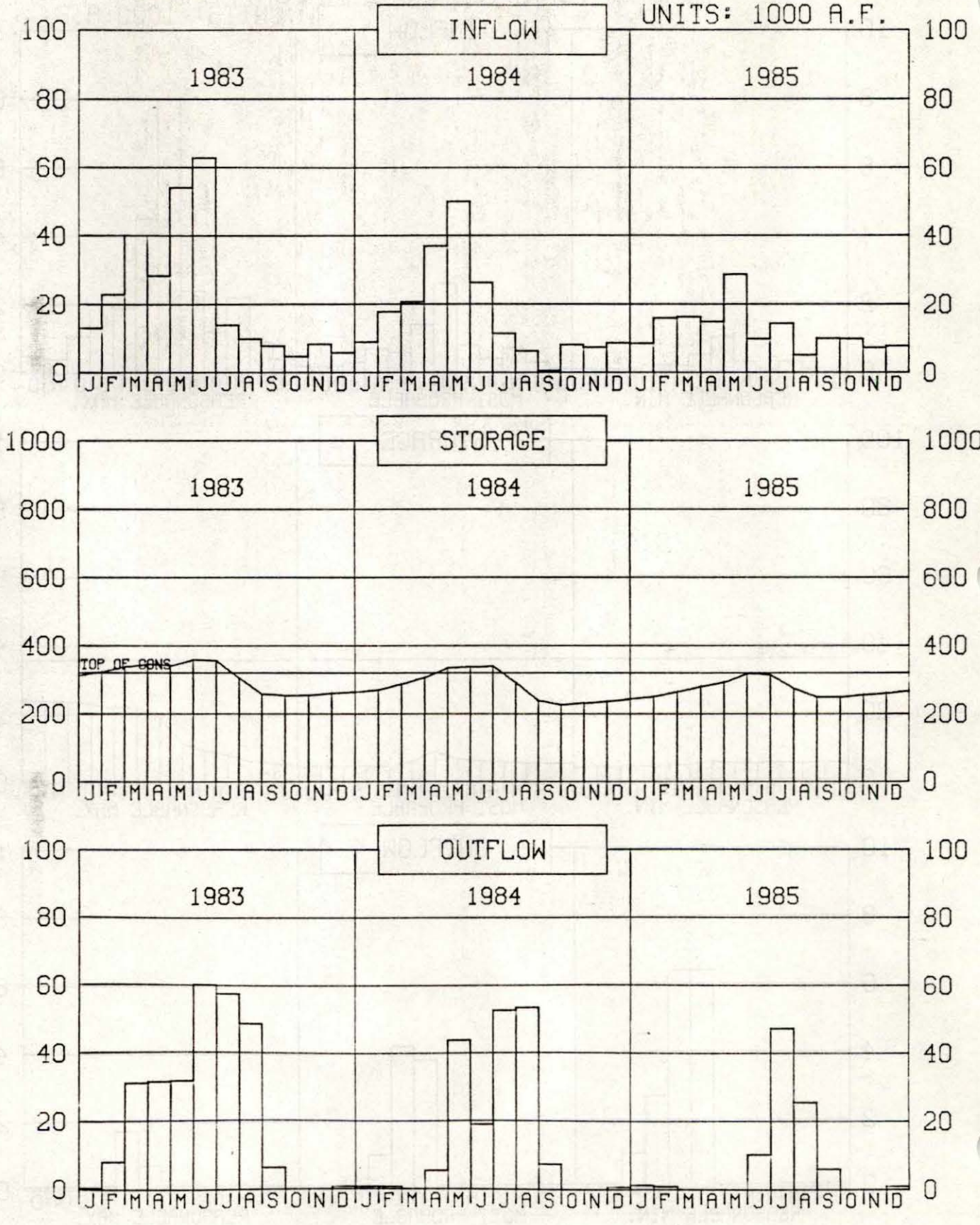

EXHIBIT 11B

HARLAN COUNTY LAKE 1986 OPERATION

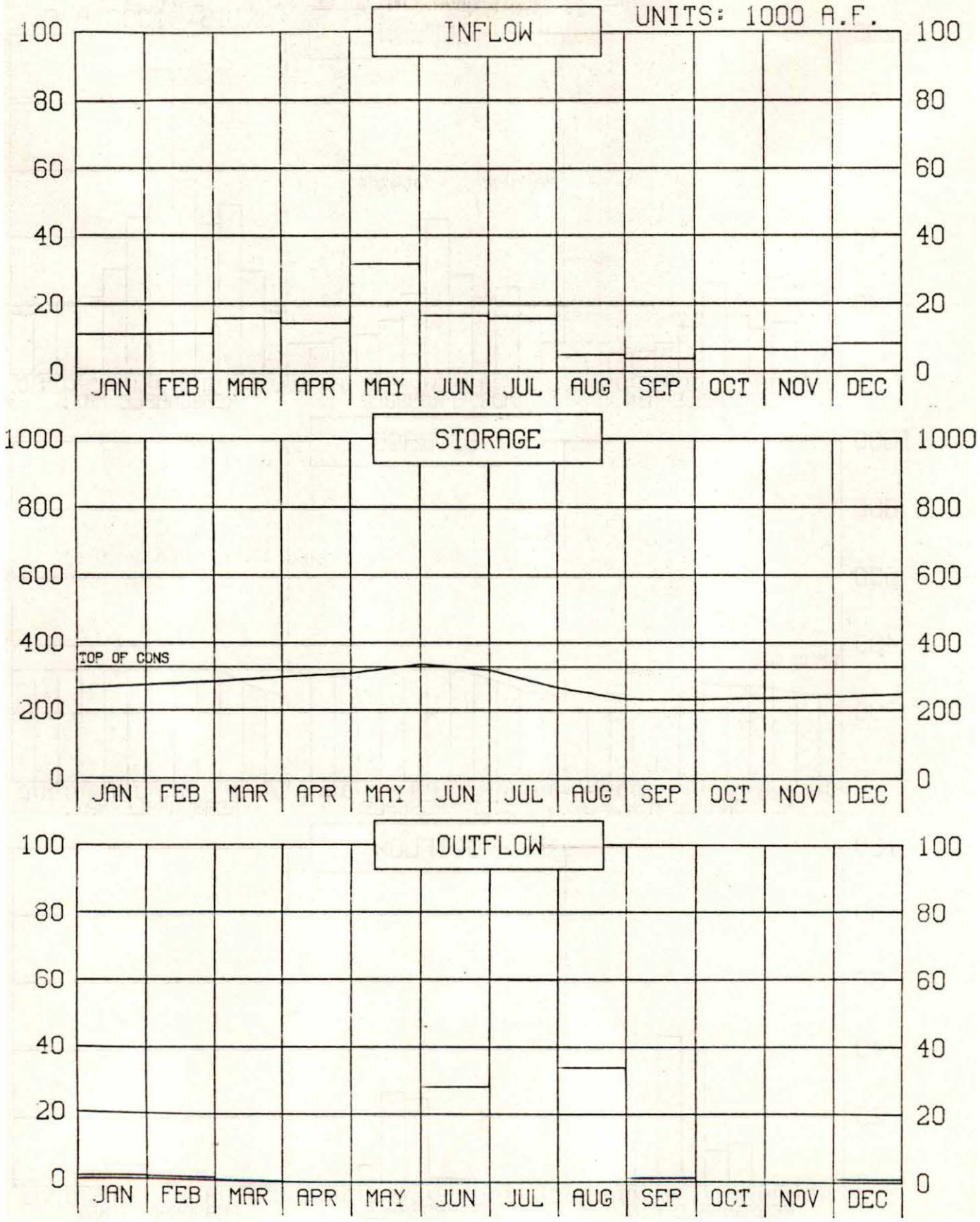

EXHIBIT 11C

HARLAN COUNTY LAKE

CAL YEAR 1987 OPERATION PLAN

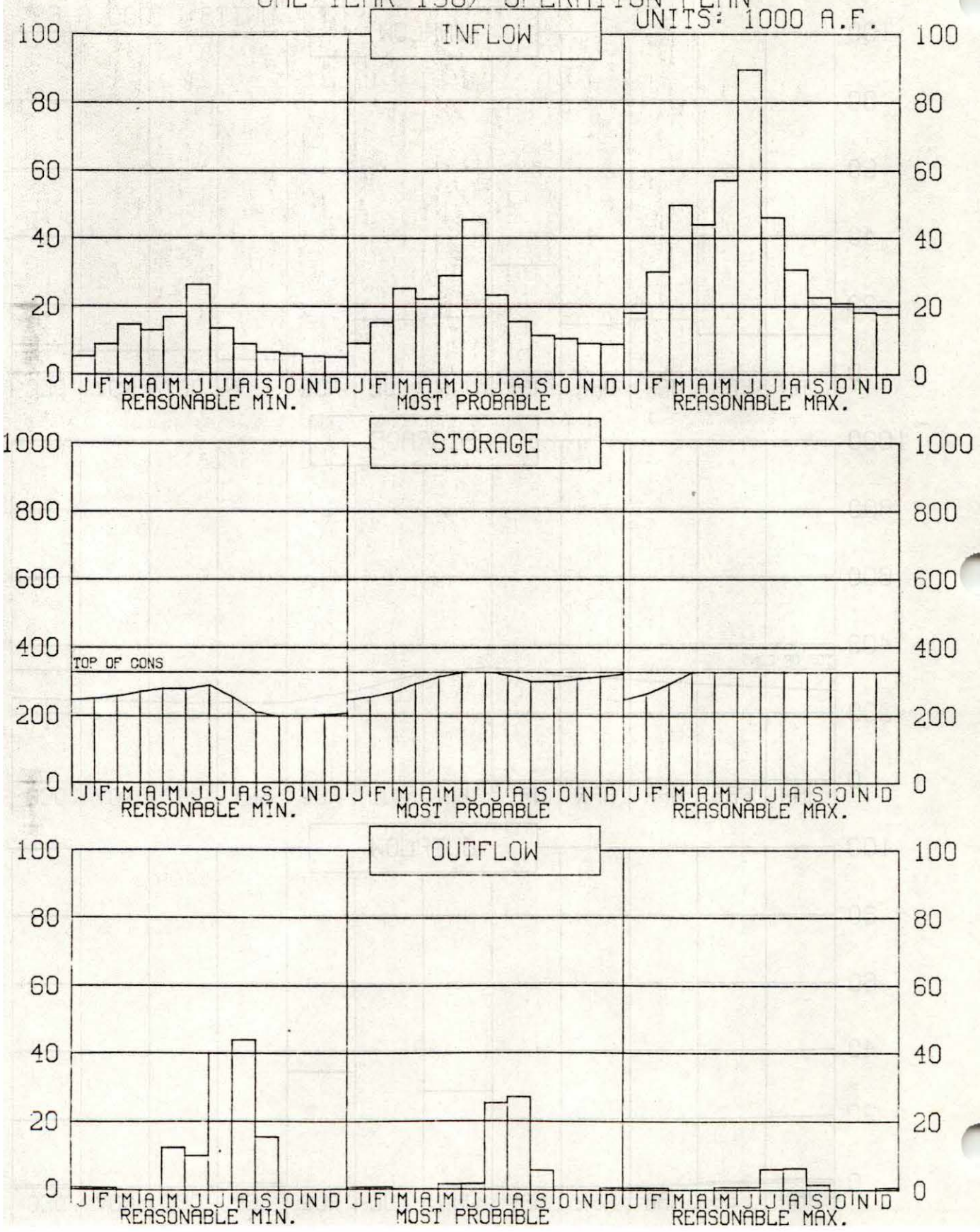

EXHIBIT 12A

LOVEWELL RESERVOIR OPERATION

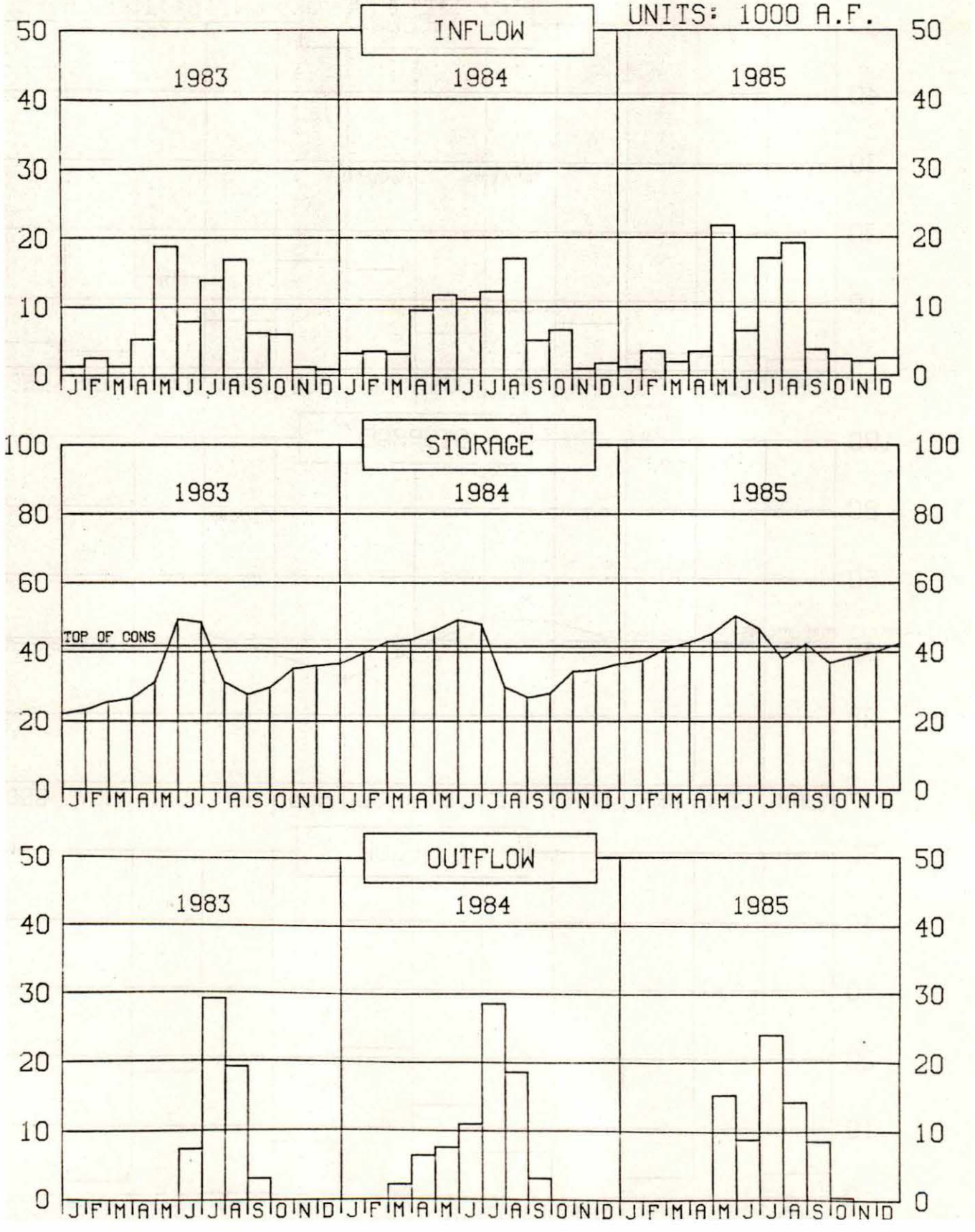

EXHIBIT 12B

LOVEWELL RESERVOIR 1986 OPERATION

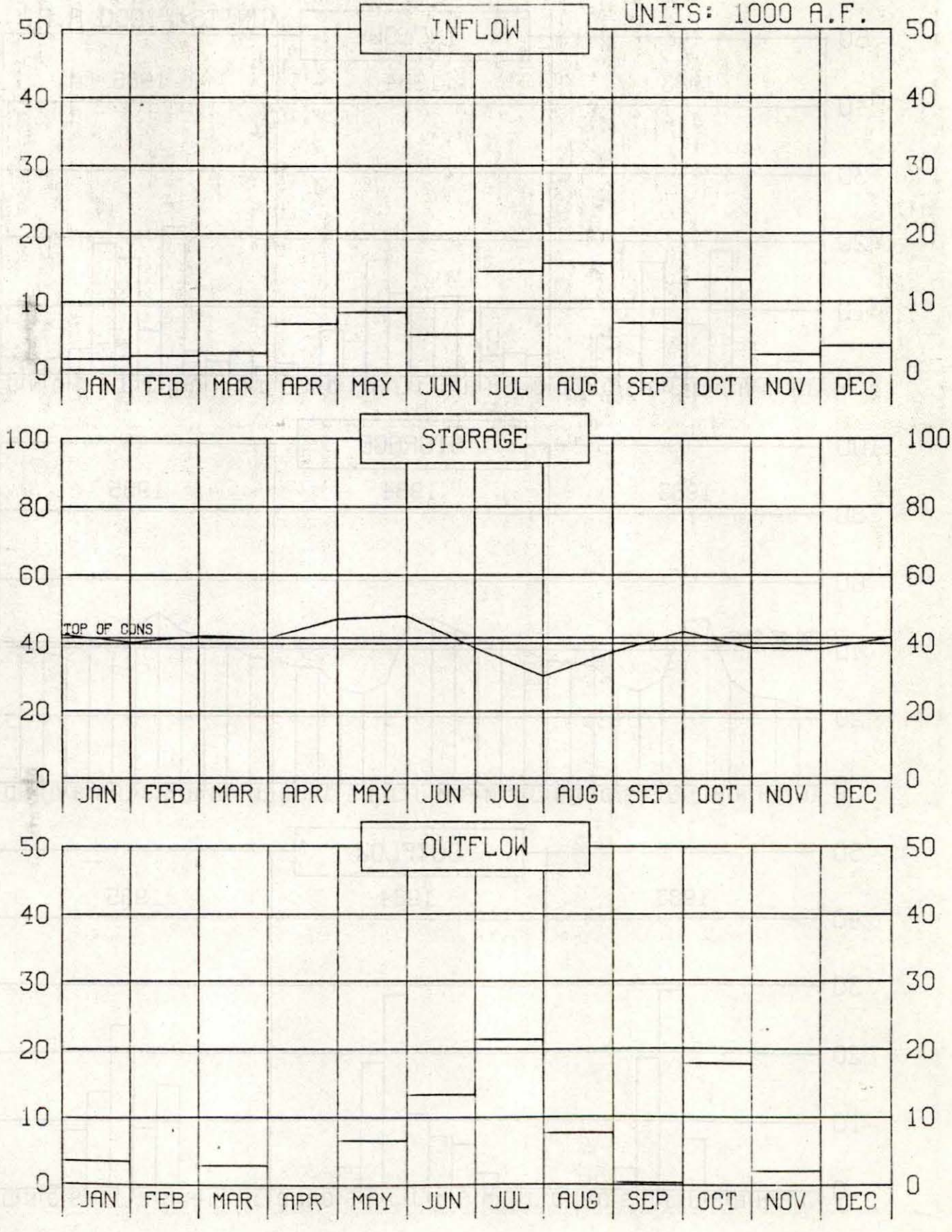

EXHIBIT 12C

LOVEWELL RESERVOIR

CAL YEAR 1987 OPERATION PLAN

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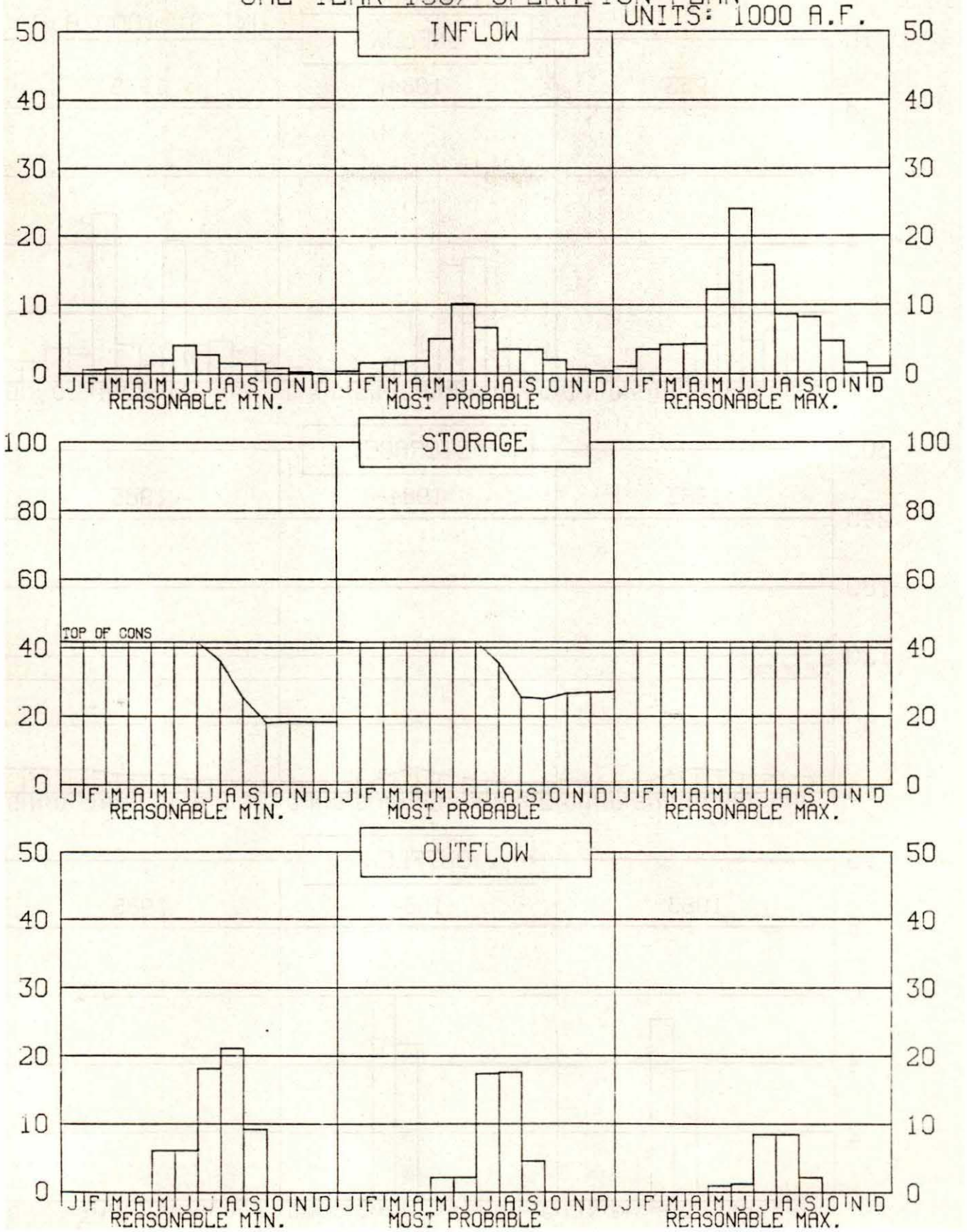


EXHIBIT 13A

KIRWIN RESERVOIR OPERATION

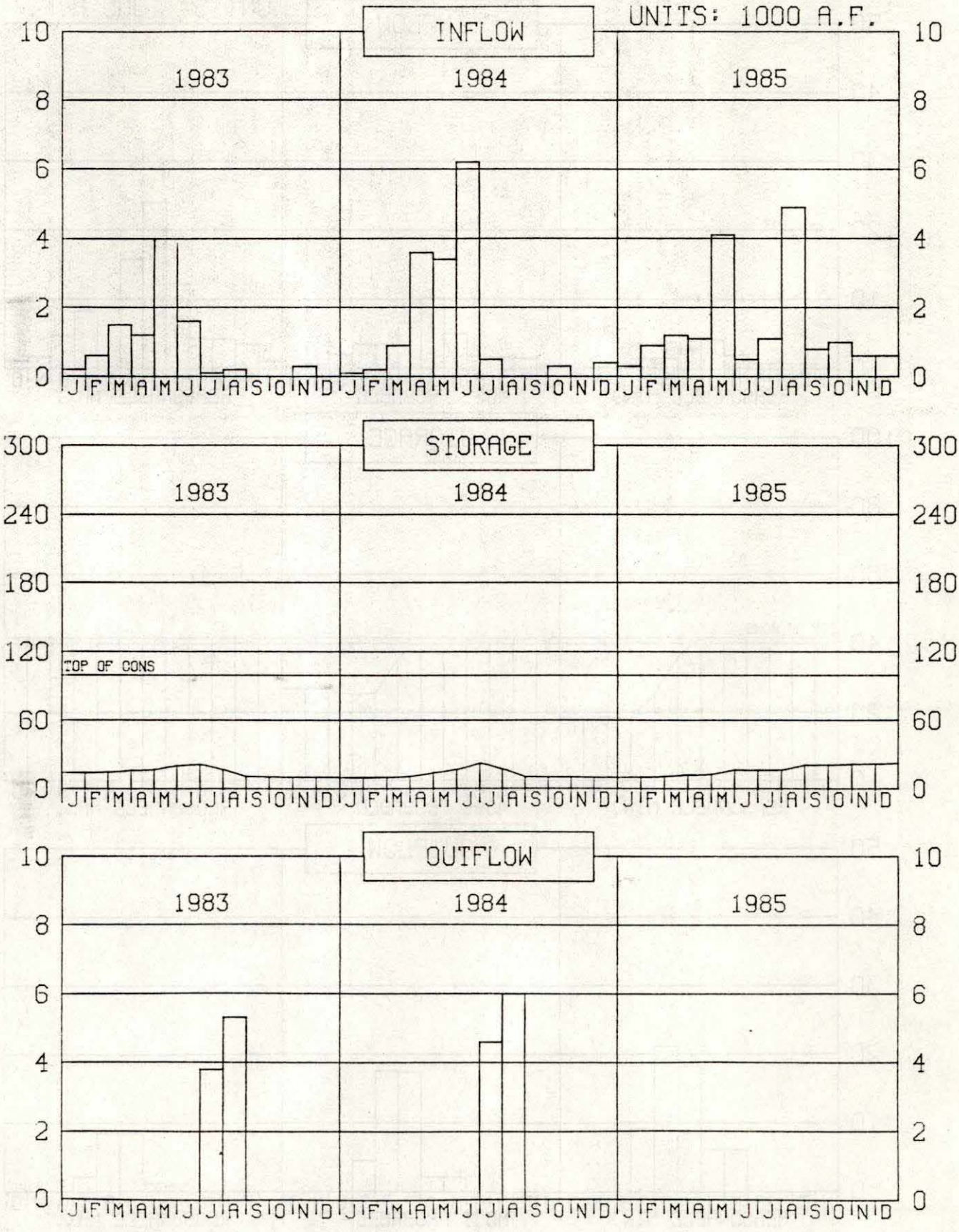


EXHIBIT 13B

KIRWIN RESERVOIR 1986 OPERATION

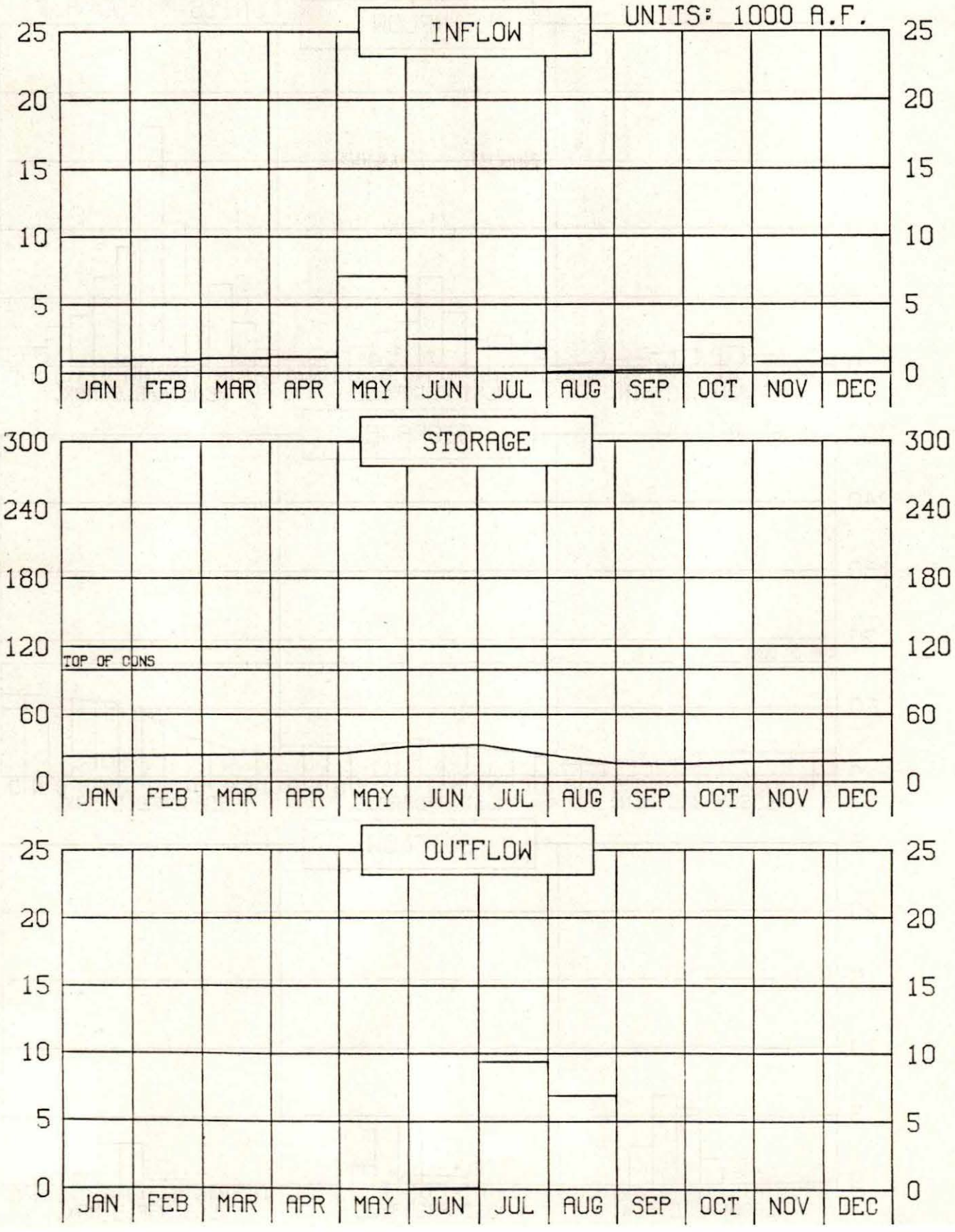


EXHIBIT 13C

KIRWIN RESERVOIR

CAL YEAR 1987 OPERATION PLAN

UNITS: 1000 A.F.

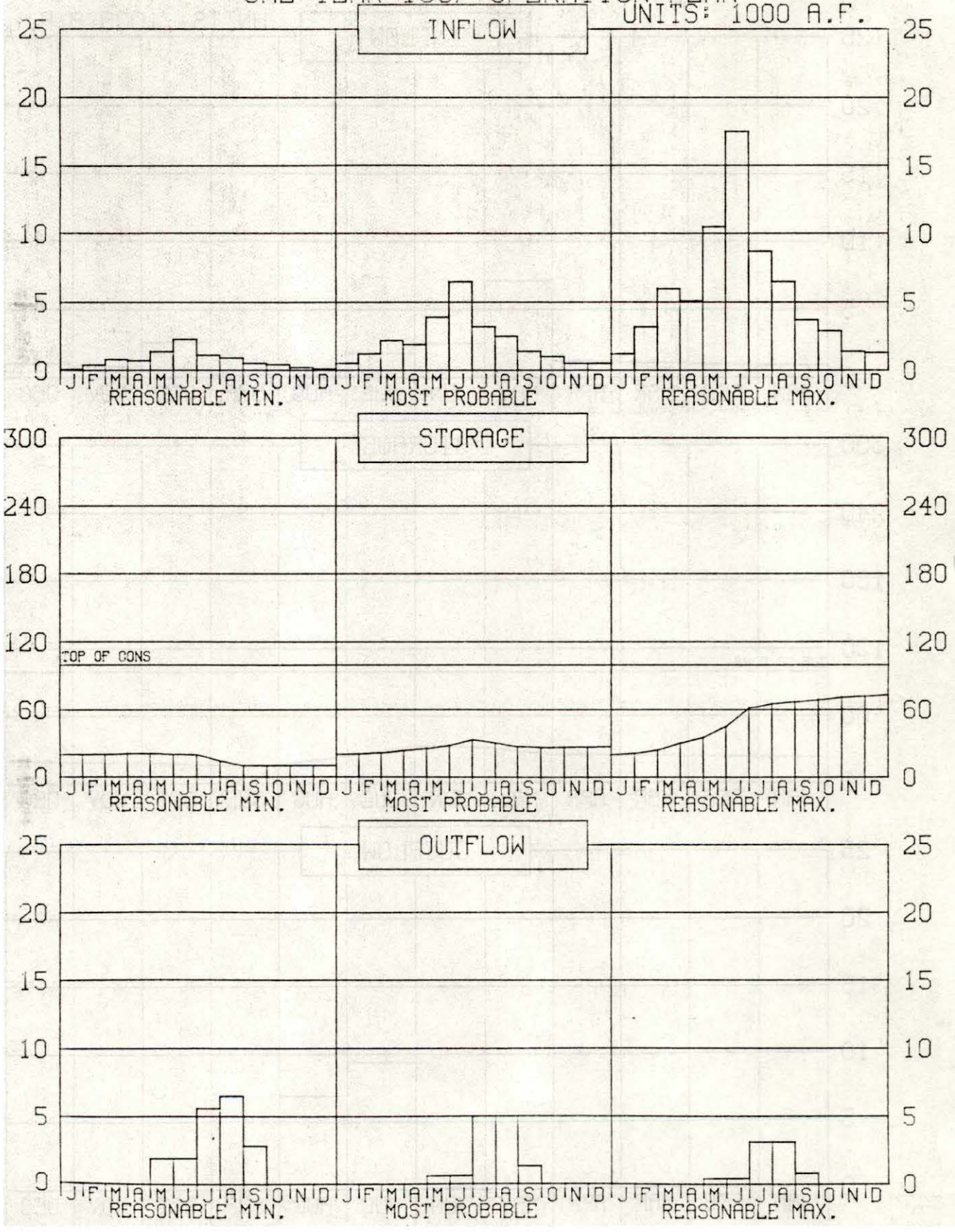


EXHIBIT 14A

WEBSTER RESERVOIR OPERATION

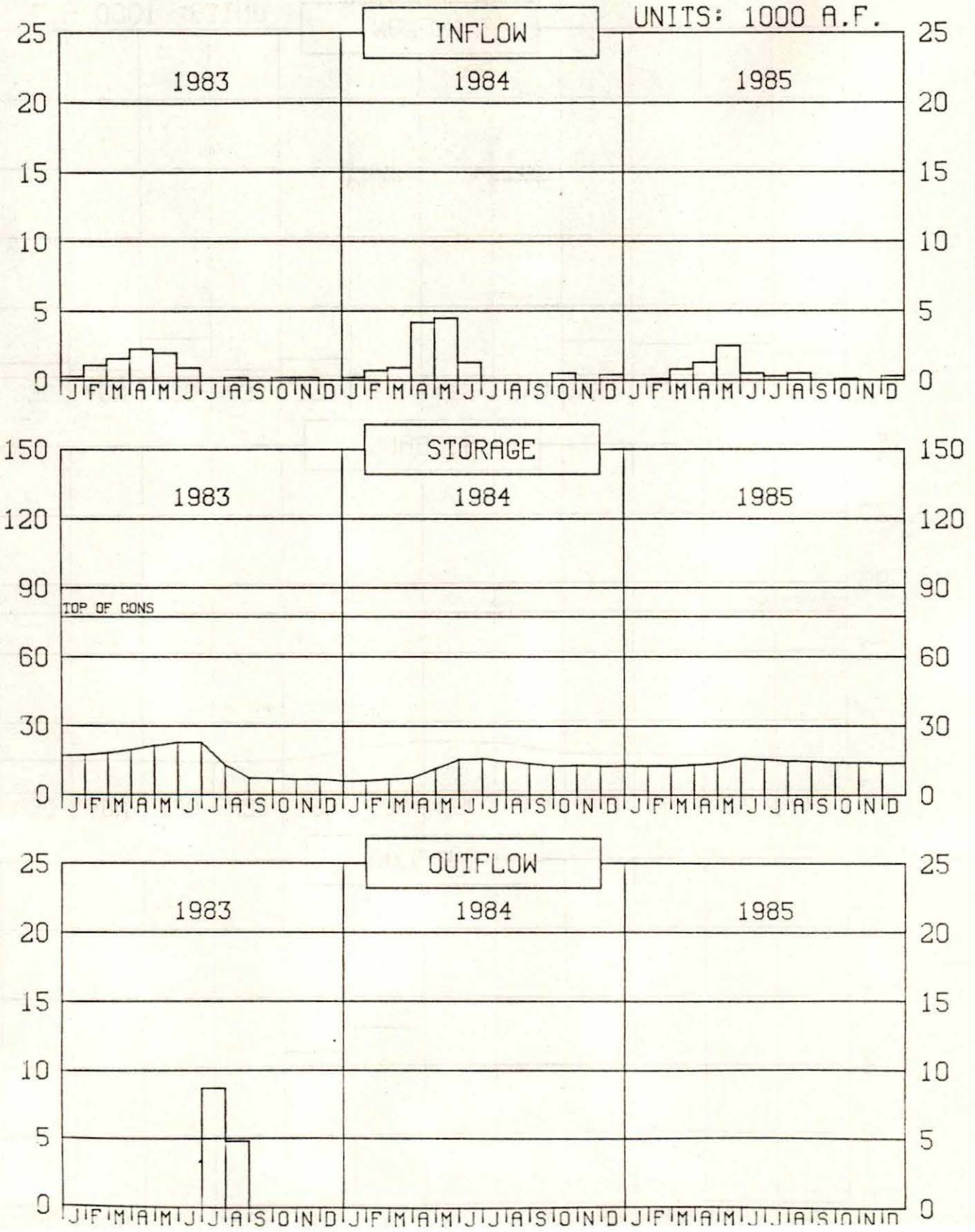


EXHIBIT 14B

WEBSTER RESERVOIR 1986 OPERATION

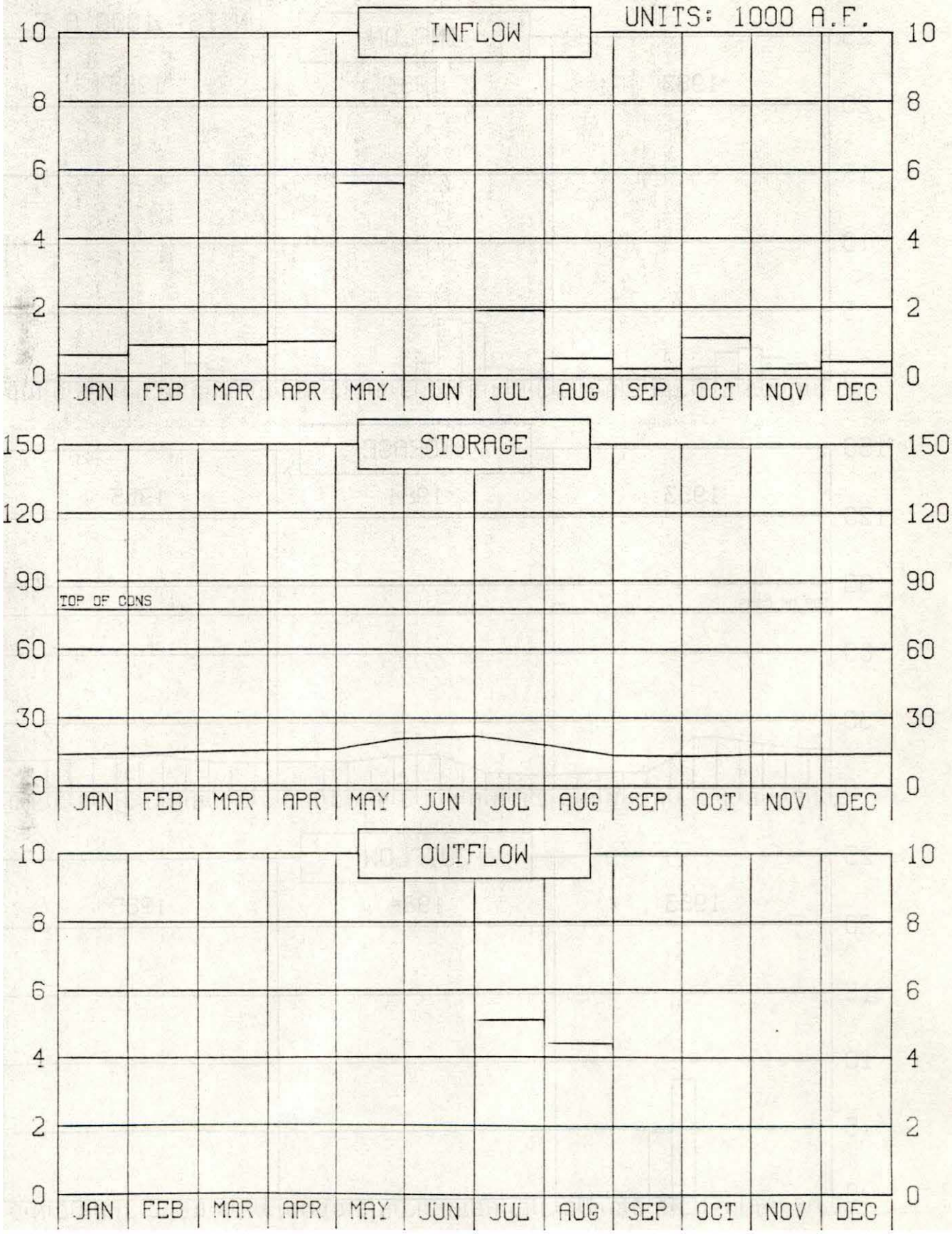


EXHIBIT 14C

WEBSTER RESERVOIR

CAL YEAR 1987 OPERATION PLAN

UNITS: 1000 A.F.

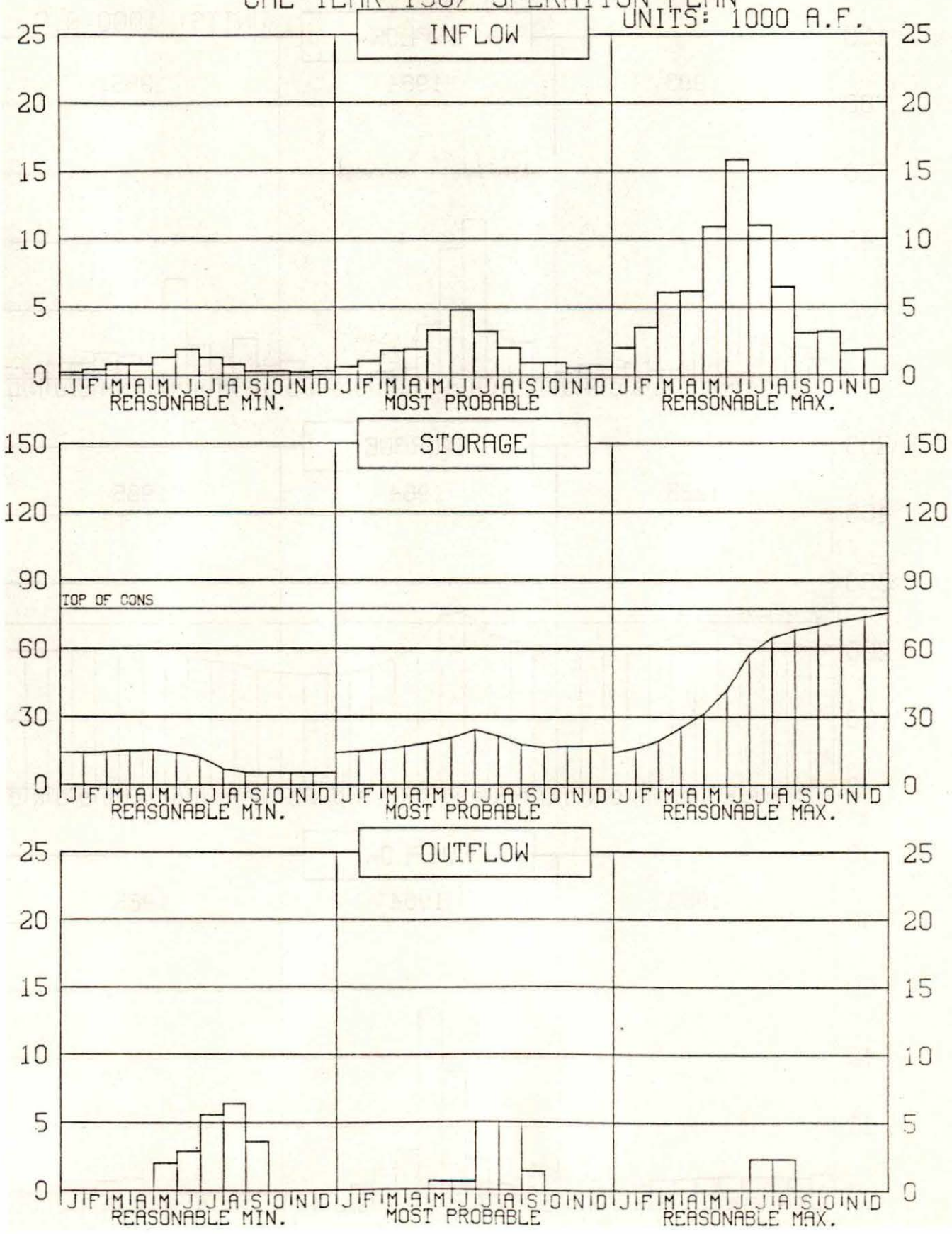


EXHIBIT 15A

WACONDA LAKE OPERATION

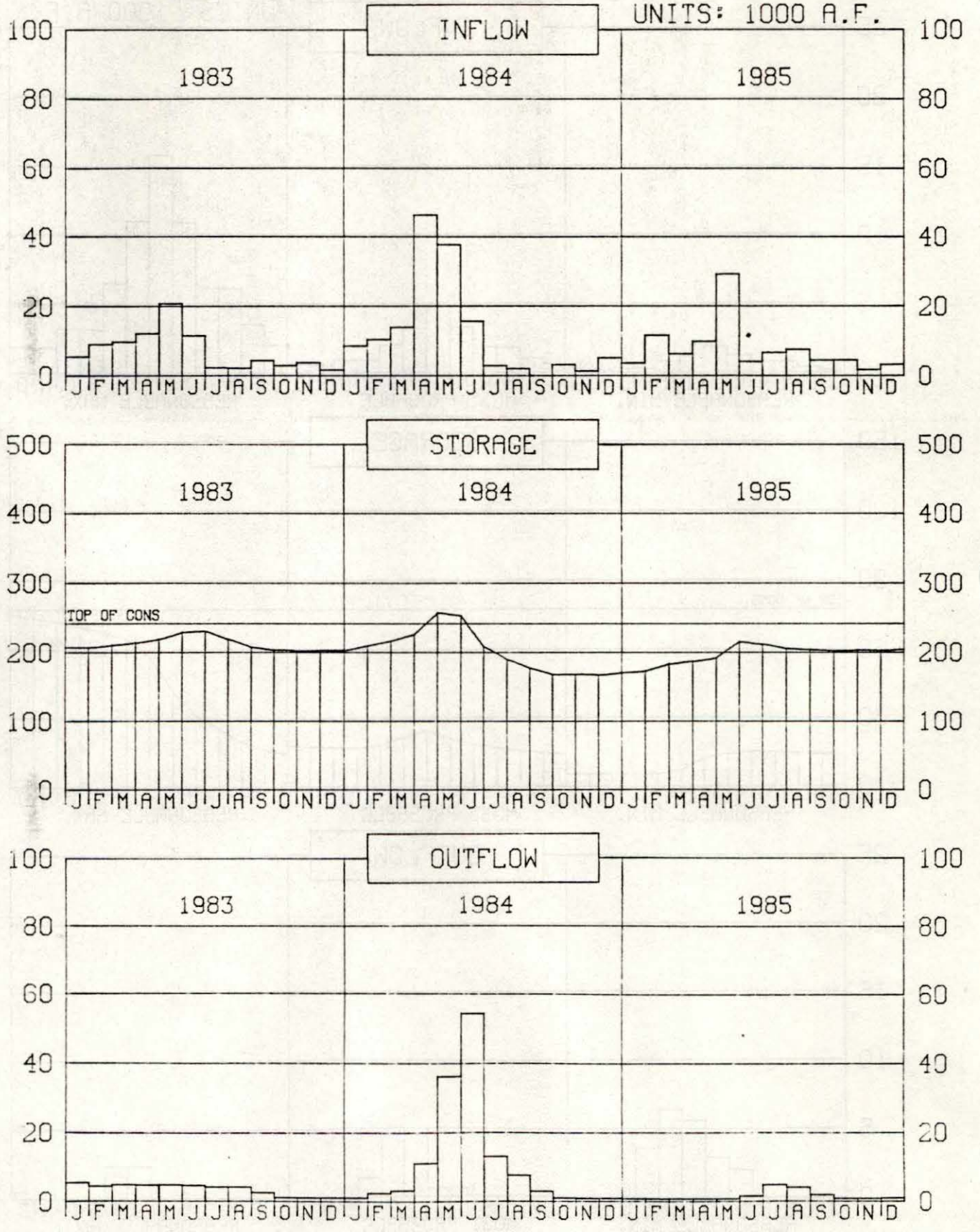


EXHIBIT 15B

WACONDA LAKE 1986 OPERATION

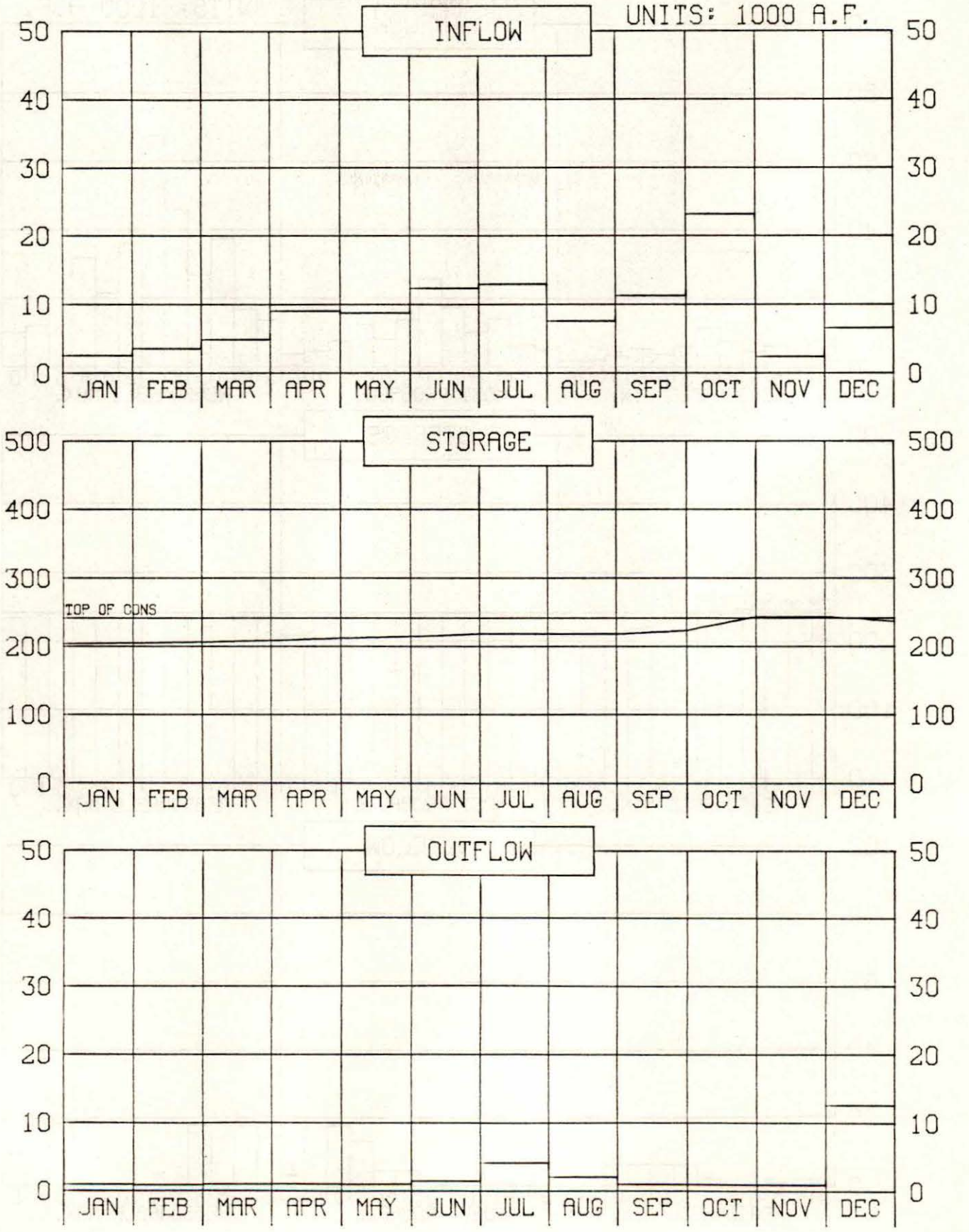


EXHIBIT 15C

WACONDA LAKE

CAL YEAR 1987 OPERATION PLAN

UNITS: 1000 A.F.

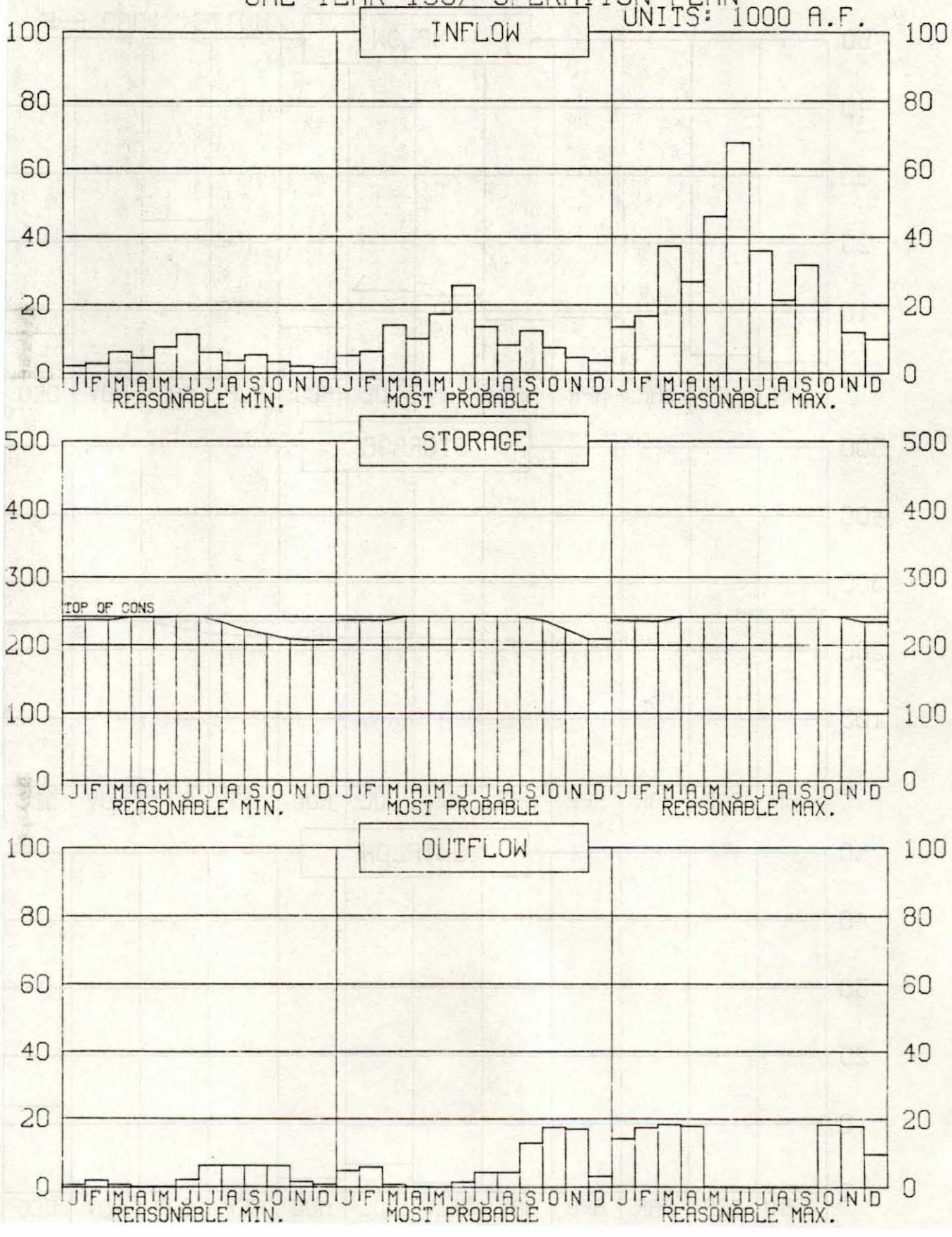


EXHIBIT 16A

CEDAR BLUFF RESERVOIR OPERATION

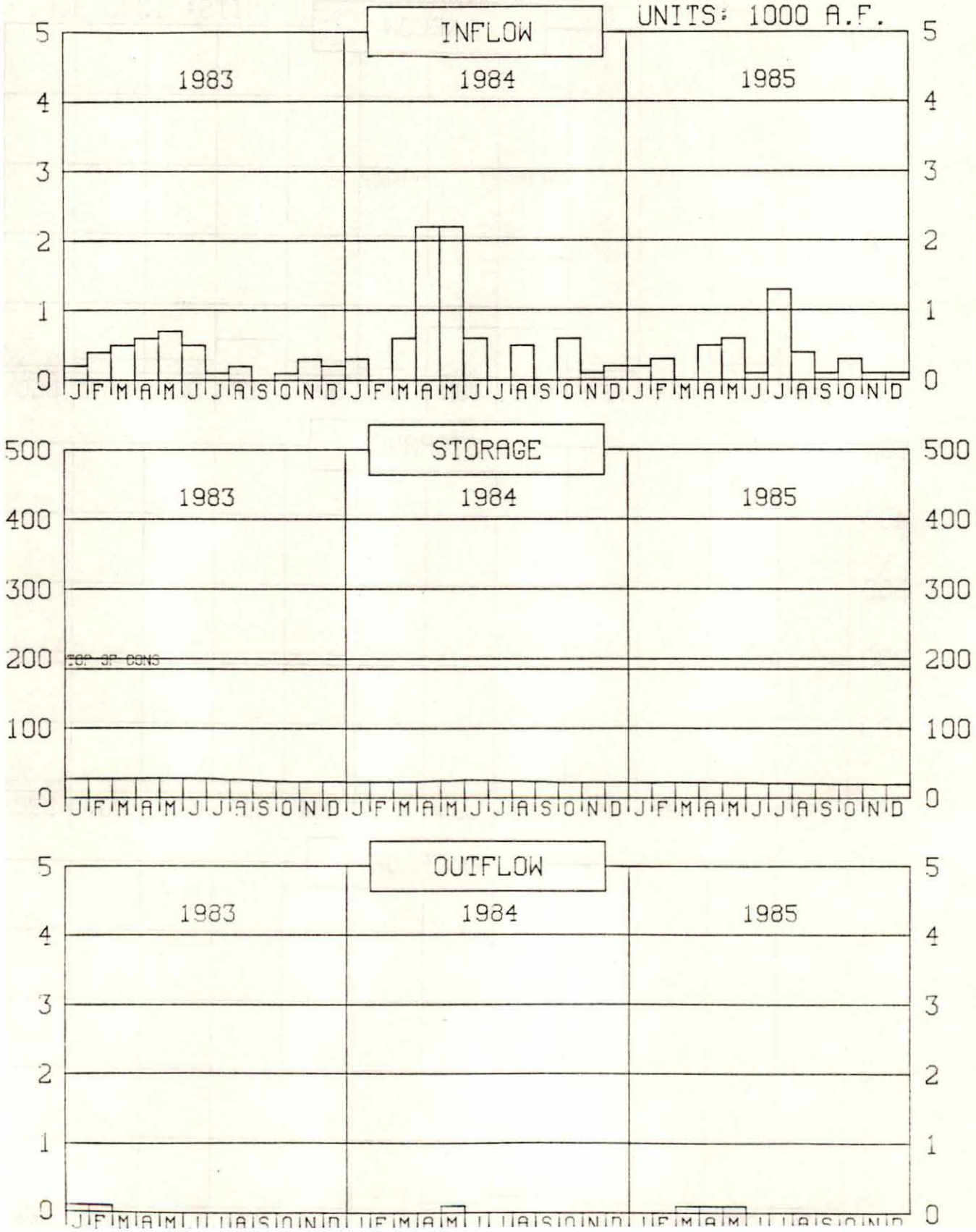


EXHIBIT 16B

CEDAR BLUFF RESERVOIR 1986 OPERATION

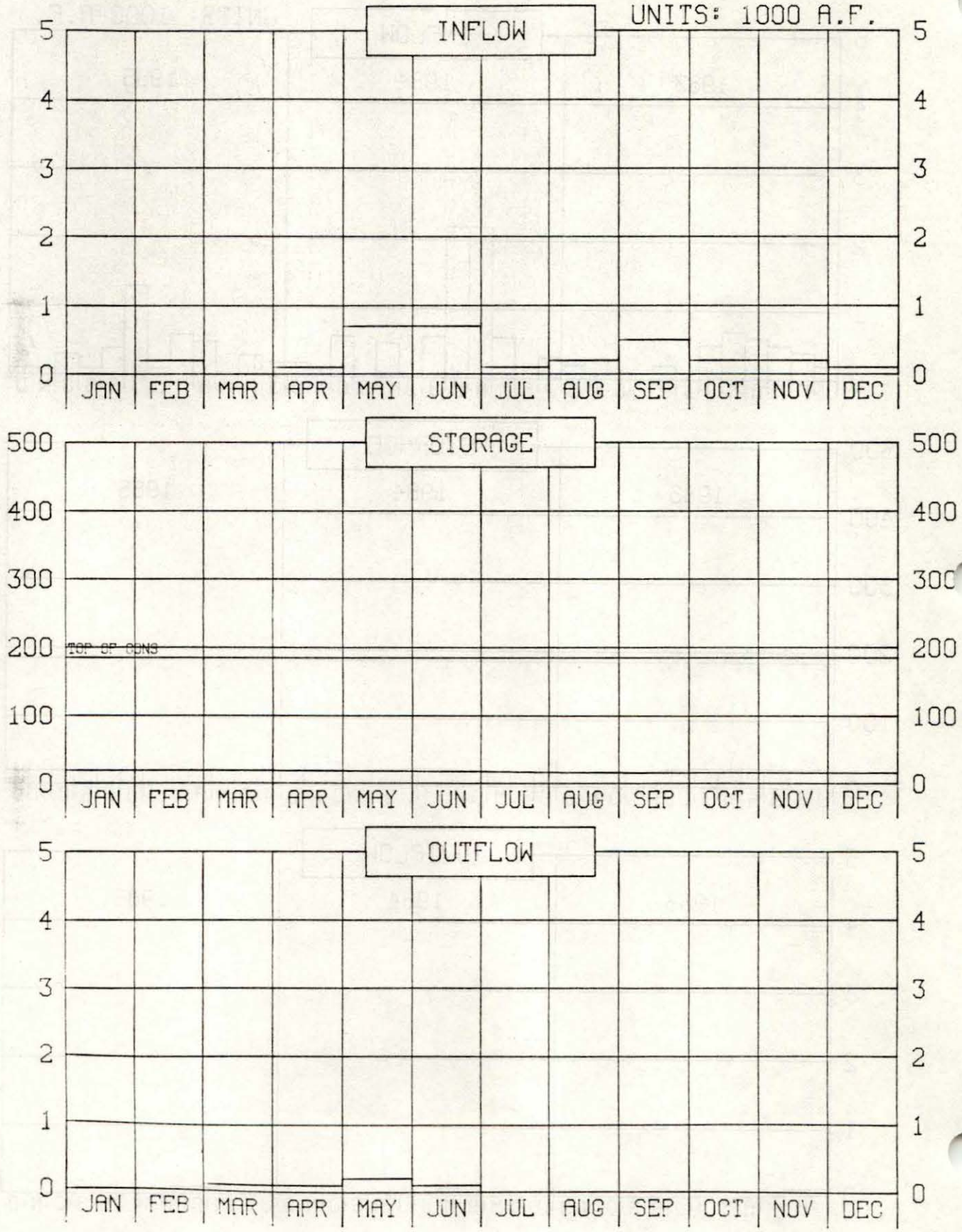


EXHIBIT 160

CEDAR BLUFF RESERVOIR

CAL YEAR 1987 OPERATION PLAN

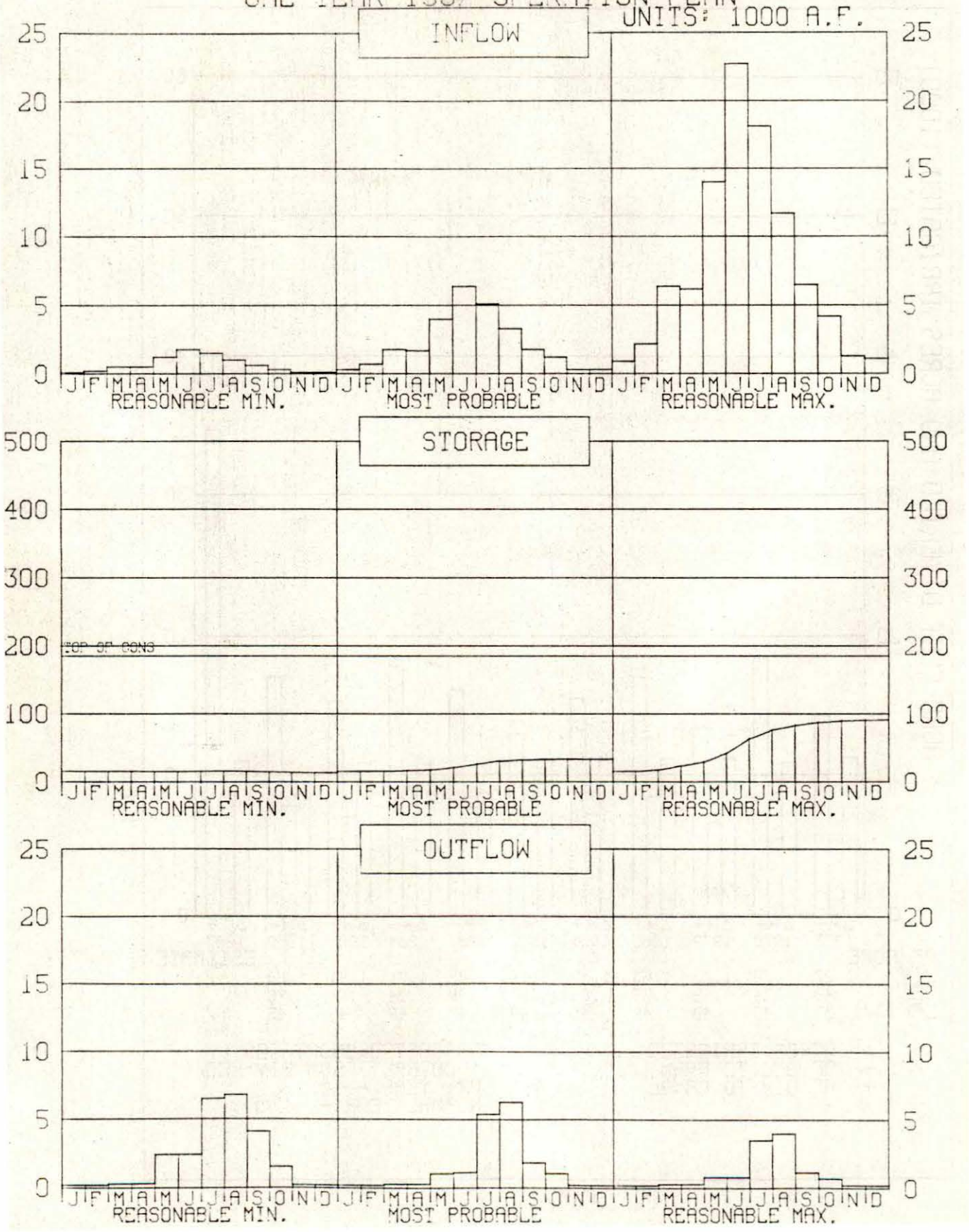
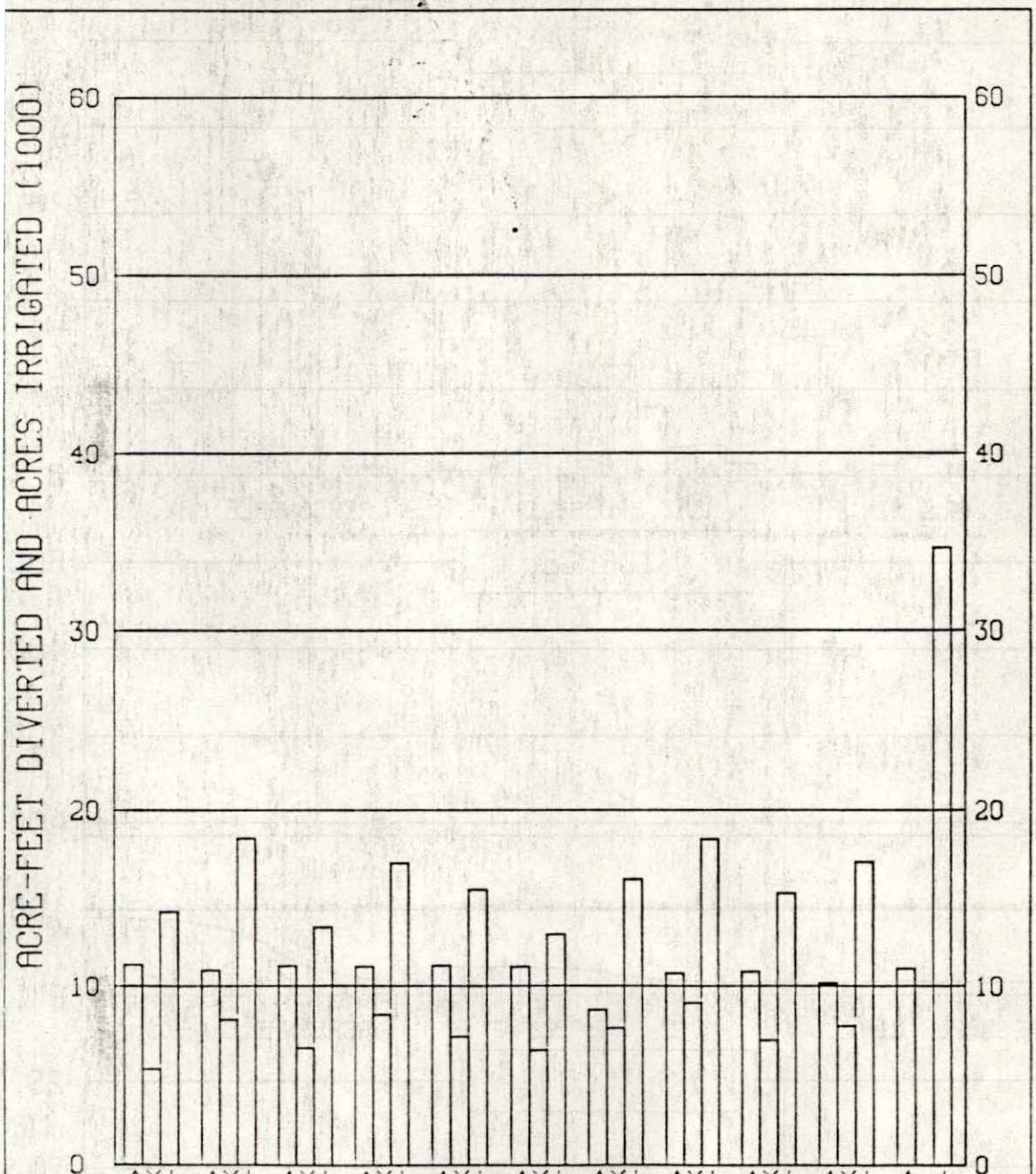


EXHIBIT 17

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



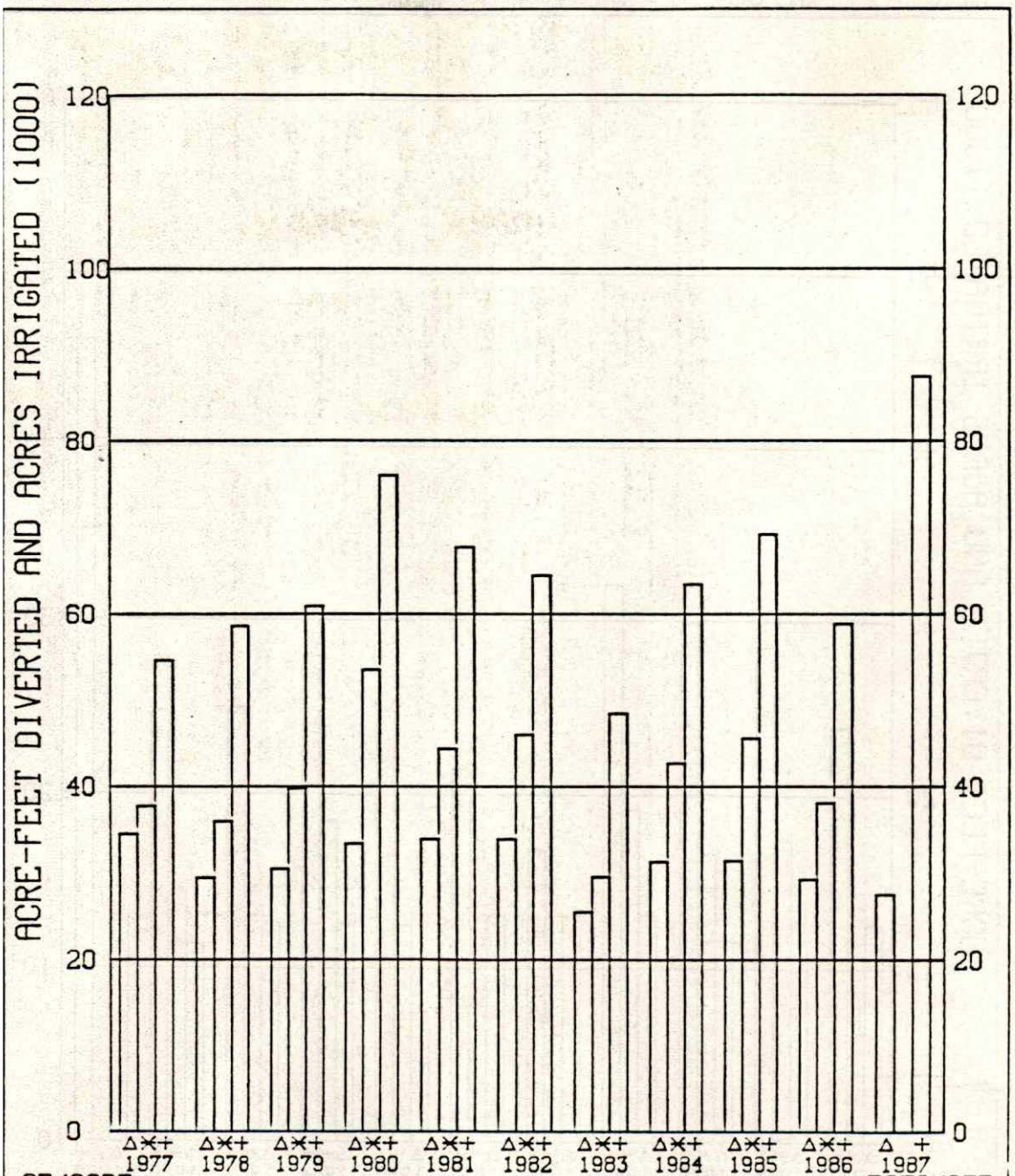
AF/ACRE	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987 ESTIMATE
DIV	1.27	1.69	1.20	1.53	1.39	1.16	1.87	1.71	1.41	1.68	
DEL	.48	.74	.58	.75	.64	.57	.88	.84	.64	.76	
EFF (%)	37	43	48	49	46	49	47	49	45	45	

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 15.90
NORMAL YEAR - 4.70

EXHIBIT 18

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED AINSWORTH IRRIGATION DISTRICT



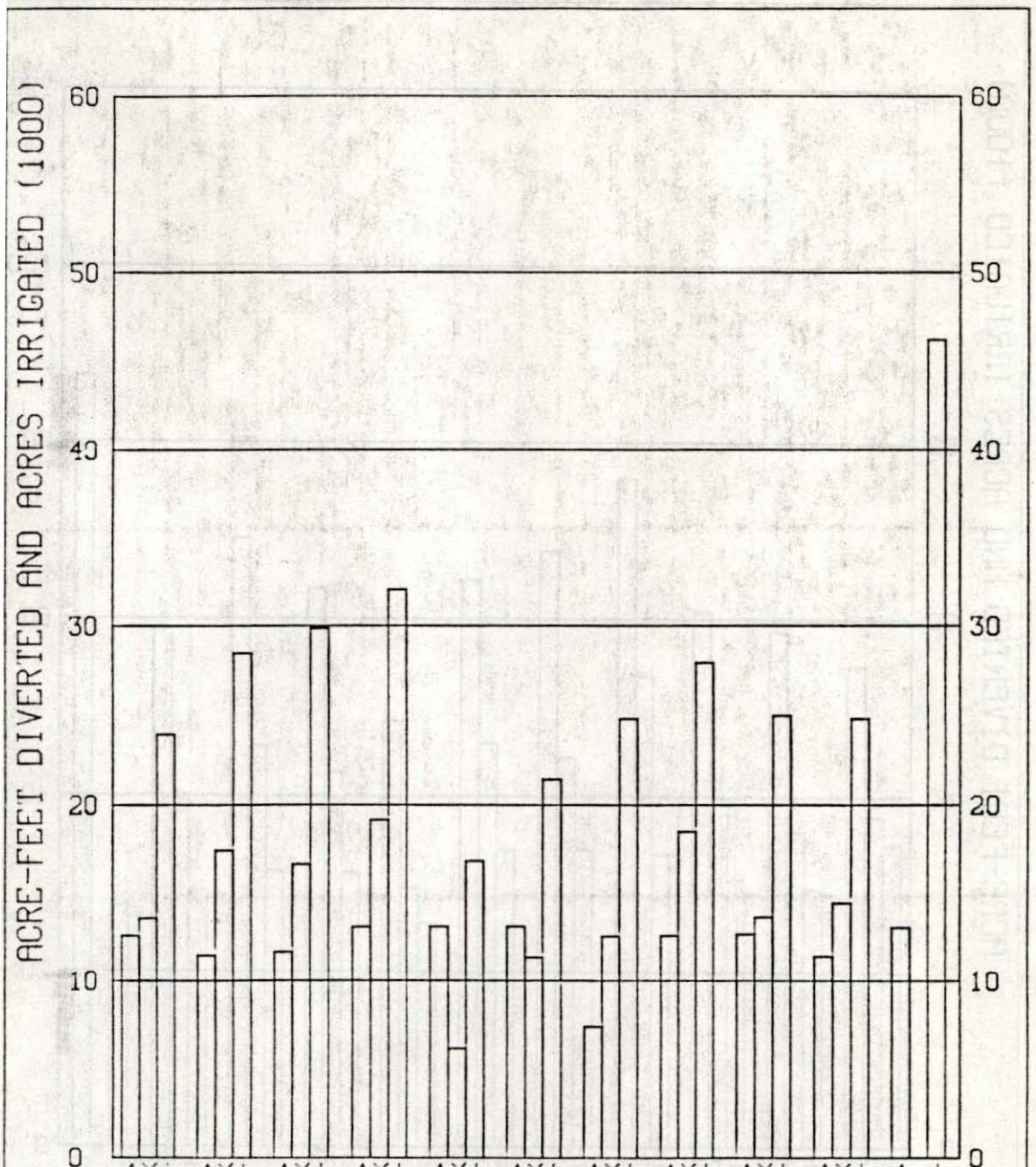
AF/ACRE	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987 ESTIMATE
DIV	1.58	1.99	2.00	2.27	1.99	1.90	1.90	2.03	2.20	2.01	
DEL	1.09	1.22	1.30	1.60	1.31	1.35	1.16	1.36	1.45	1.30	
EFF(%)	68	61	64	70	65	71	61	66	65	64	

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 19

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
SARGENT IRRIGATION DISTRICT



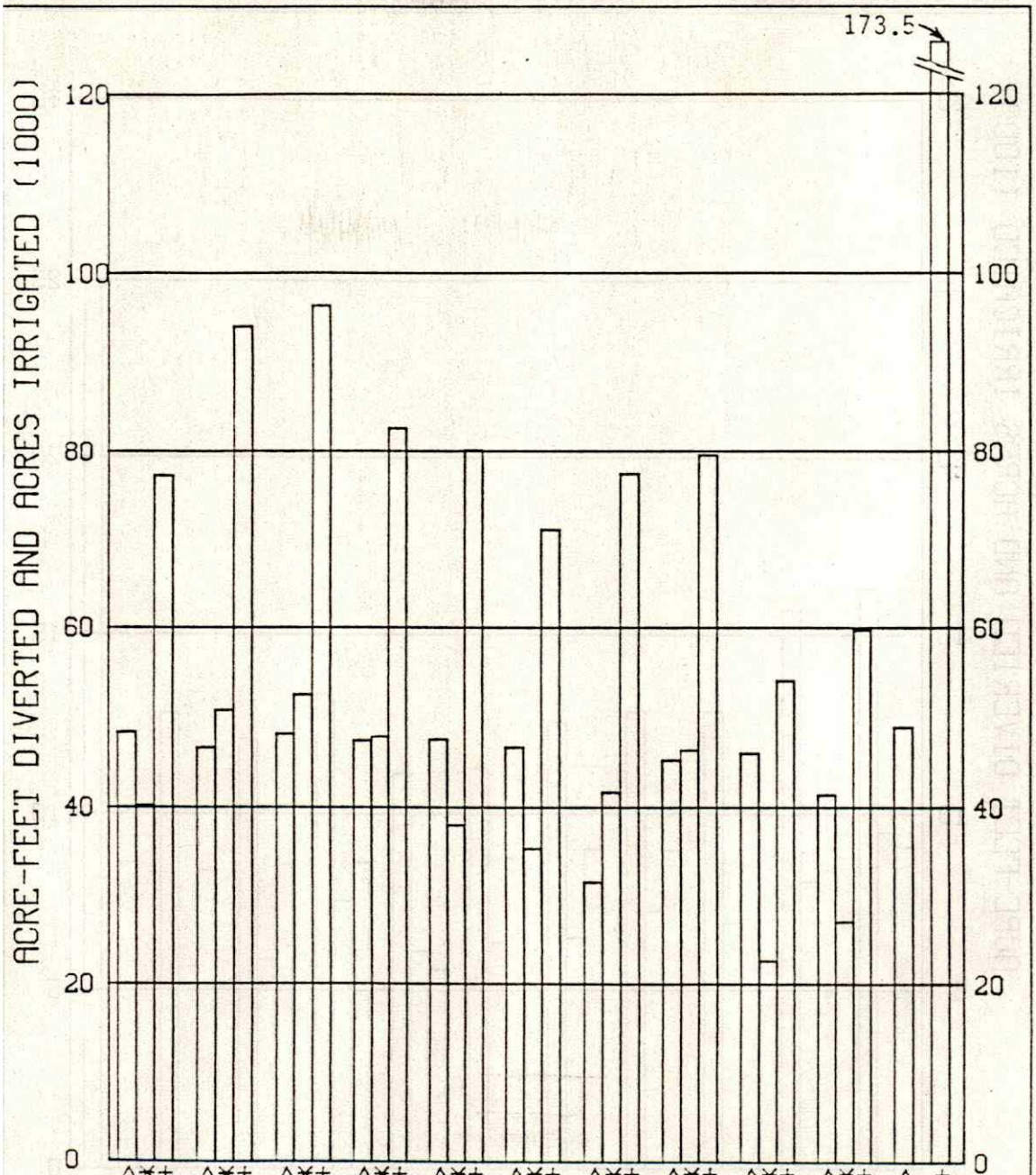
AF/ACRE	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987 ESTIMATE
DIV	1.91	2.49	2.57	2.46	1.28	1.64	3.37	2.22	1.98	2.18	
DEL	1.08	1.51	1.43	1.47	.47	.87	1.70	1.47	1.08	1.27	
EFF(%)	56	60	55	59	36	53	50	66	54	58	

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



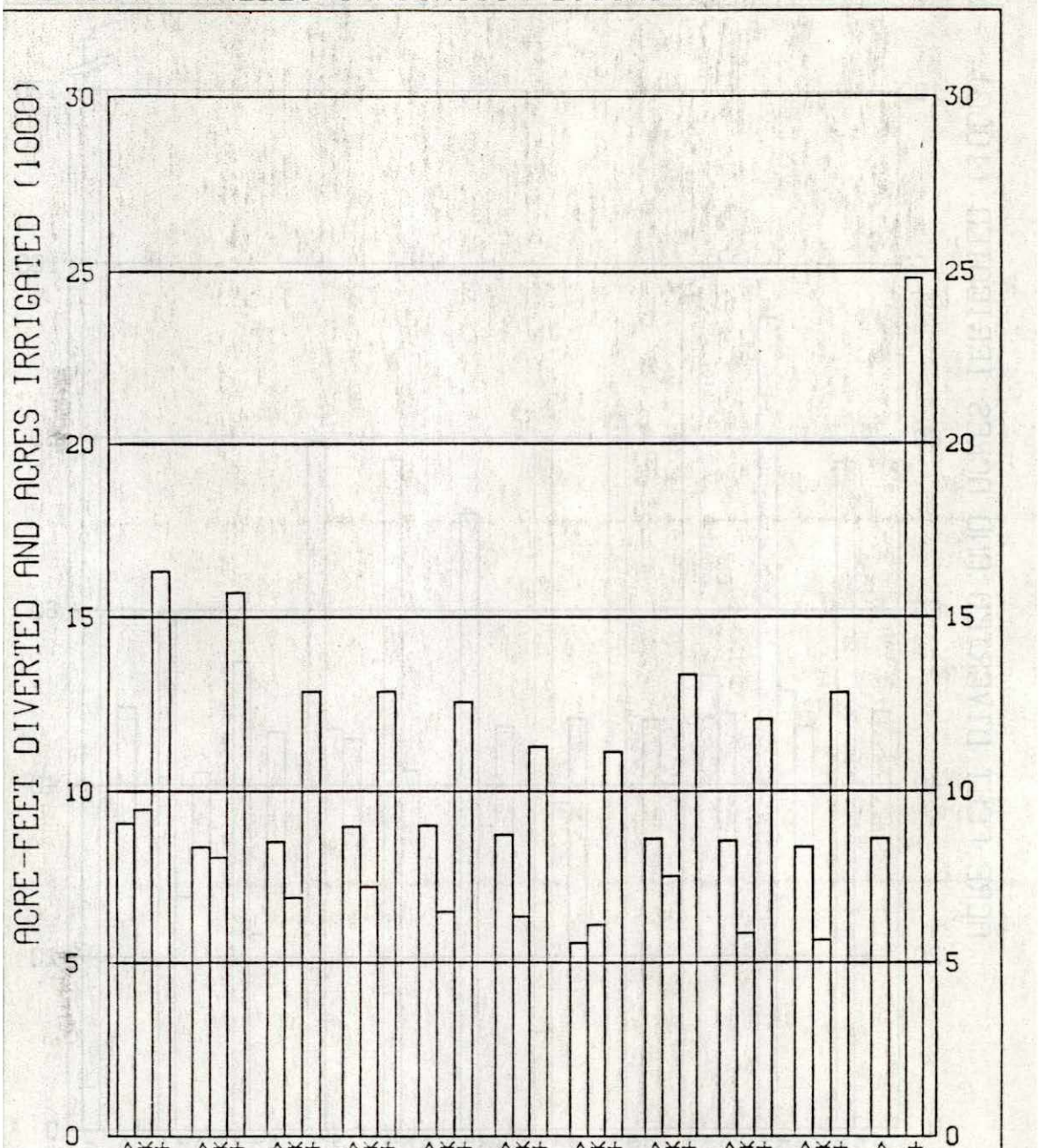
AF/ACRE	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
DIV	1.60	2.01	2.00	1.74	1.68	1.52	2.45	1.76	1.18	1.44
DEL	.83	1.09	1.09	1.01	.80	.76	1.32	1.03	.49	.65
EFF(%)	51	54	54	58	47	50	53	58	41	45

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 76.70
NORMAL YEAR - 19.30

EXHIBIT 21

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



AF/ACRE	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987 ESTIMATE
DIV	1.80	1.88	1.51	1.44	1.40	1.30	2.00	1.55	1.42	1.54	
DEL	1.04	.97	.81	.81	.72	.73	1.09	.87	.68	.68	
EFF(%)	57	51	53	56	51	56	54	56	47	44	

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 10.00
NORMAL YEAR - 0.00

EXHIBIT 22

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

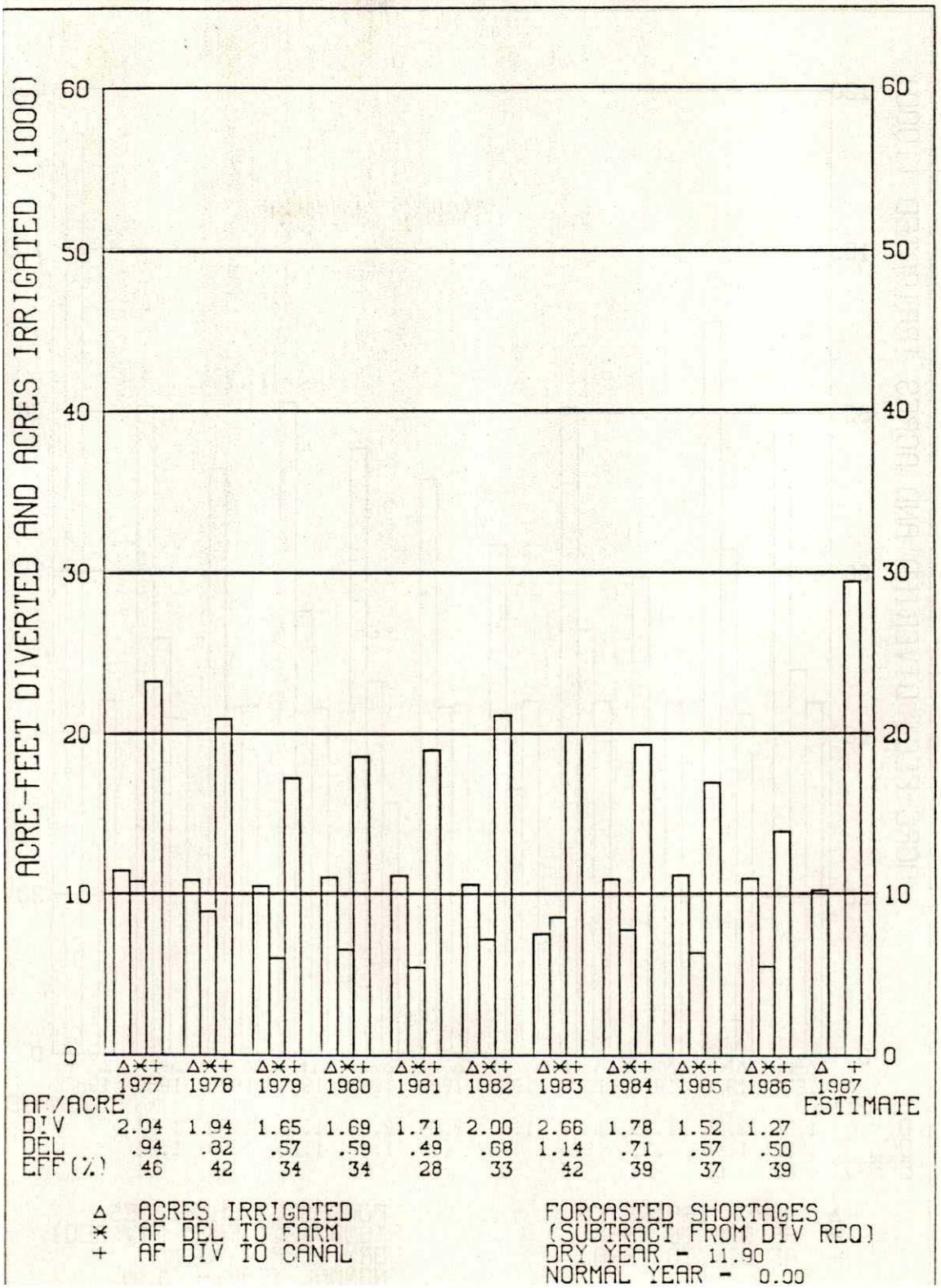
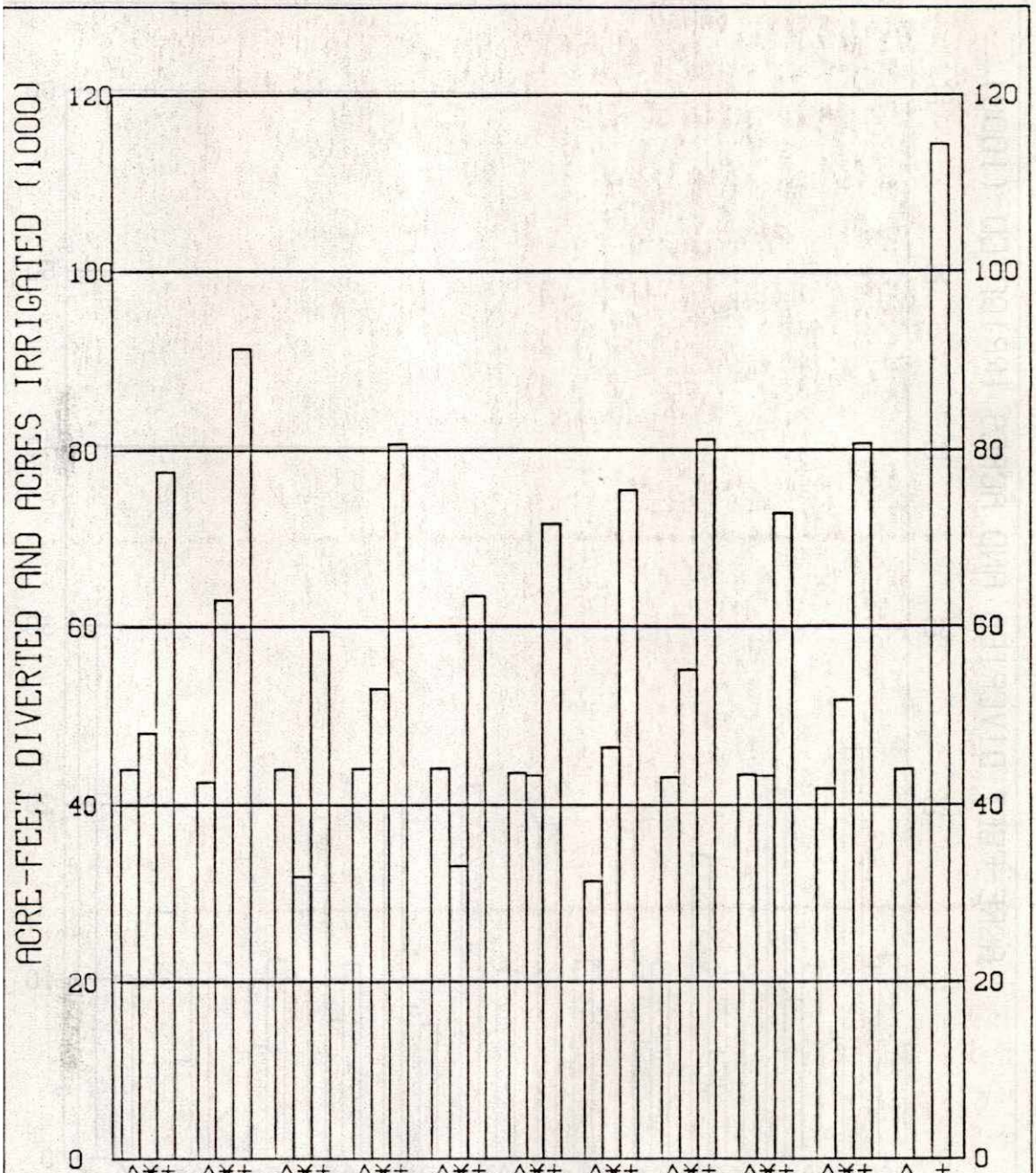


EXHIBIT 23

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



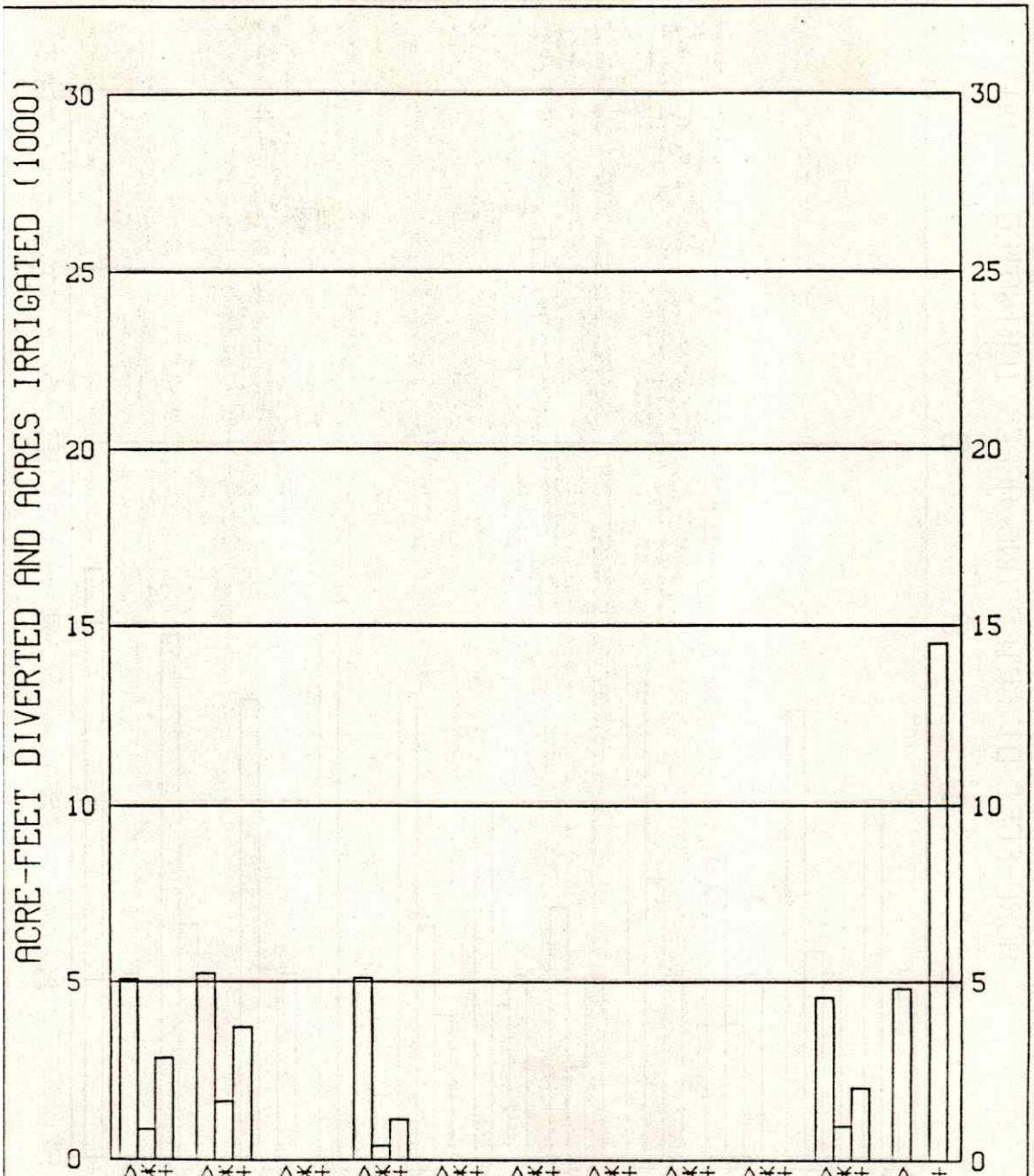
AF/ACRE	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
DIV	1.76	2.15	1.35	1.83	1.44	1.64	2.39	1.89	1.68	1.93
DEL	1.09	1.48	.73	1.20	.75	.99	1.47	1.28	1.00	1.24
EFF(%)	61	68	54	65	52	60	61	67	59	64

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



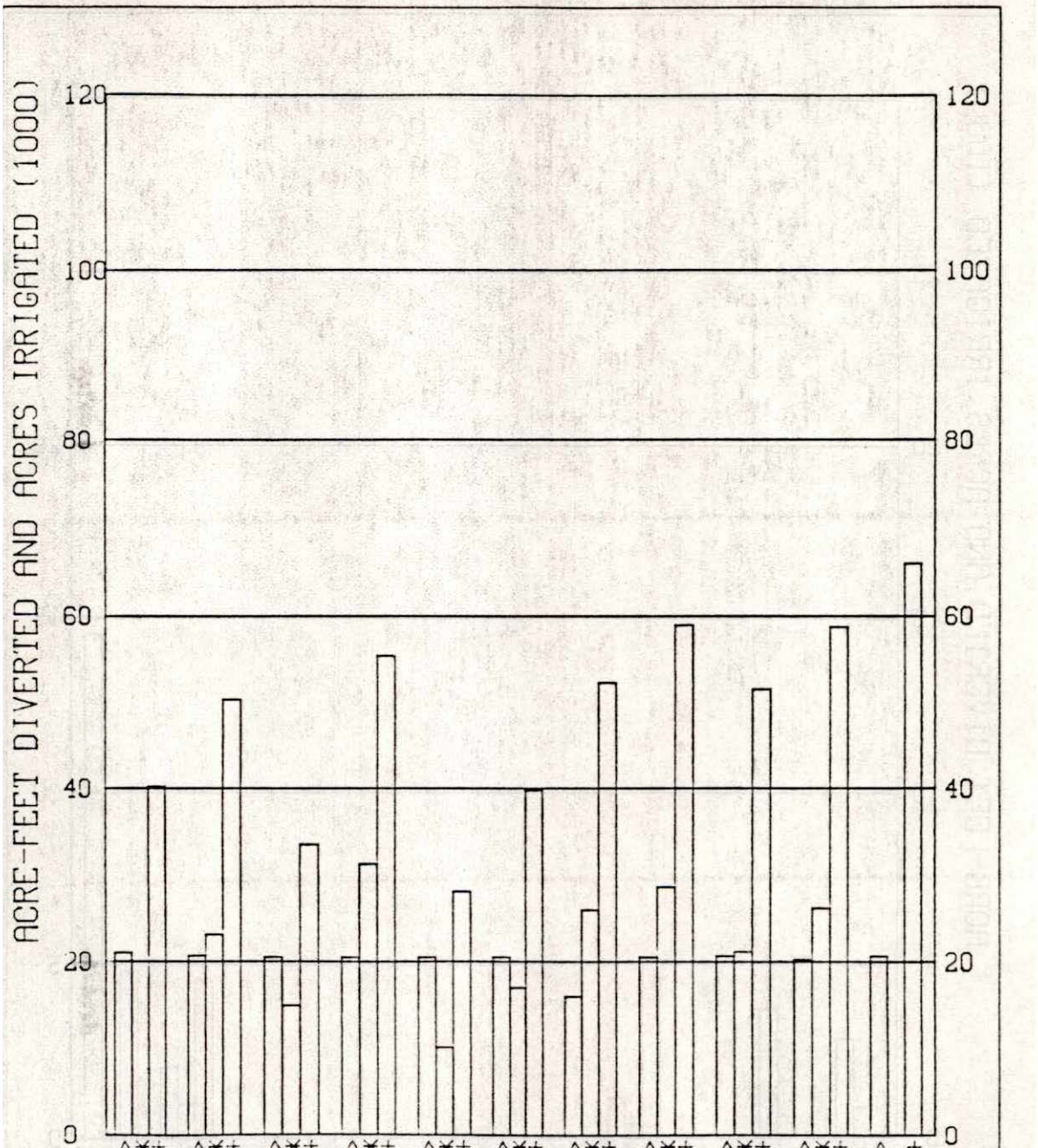
AF/ACRE	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987 ESTIMATE
DIV	.56	.71	0.00	.22	0.00	0.00	0.00	0.00	0.00	.45	
DEL	.17	.31	0.00	.08	0.00	0.00	0.00	0.00	0.00	.21	
EFF(%)	30	43	0	36	0	0	0	0	0	46	

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 14.90
NORMAL YEAR - 2.70

EXHIBIT 25

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



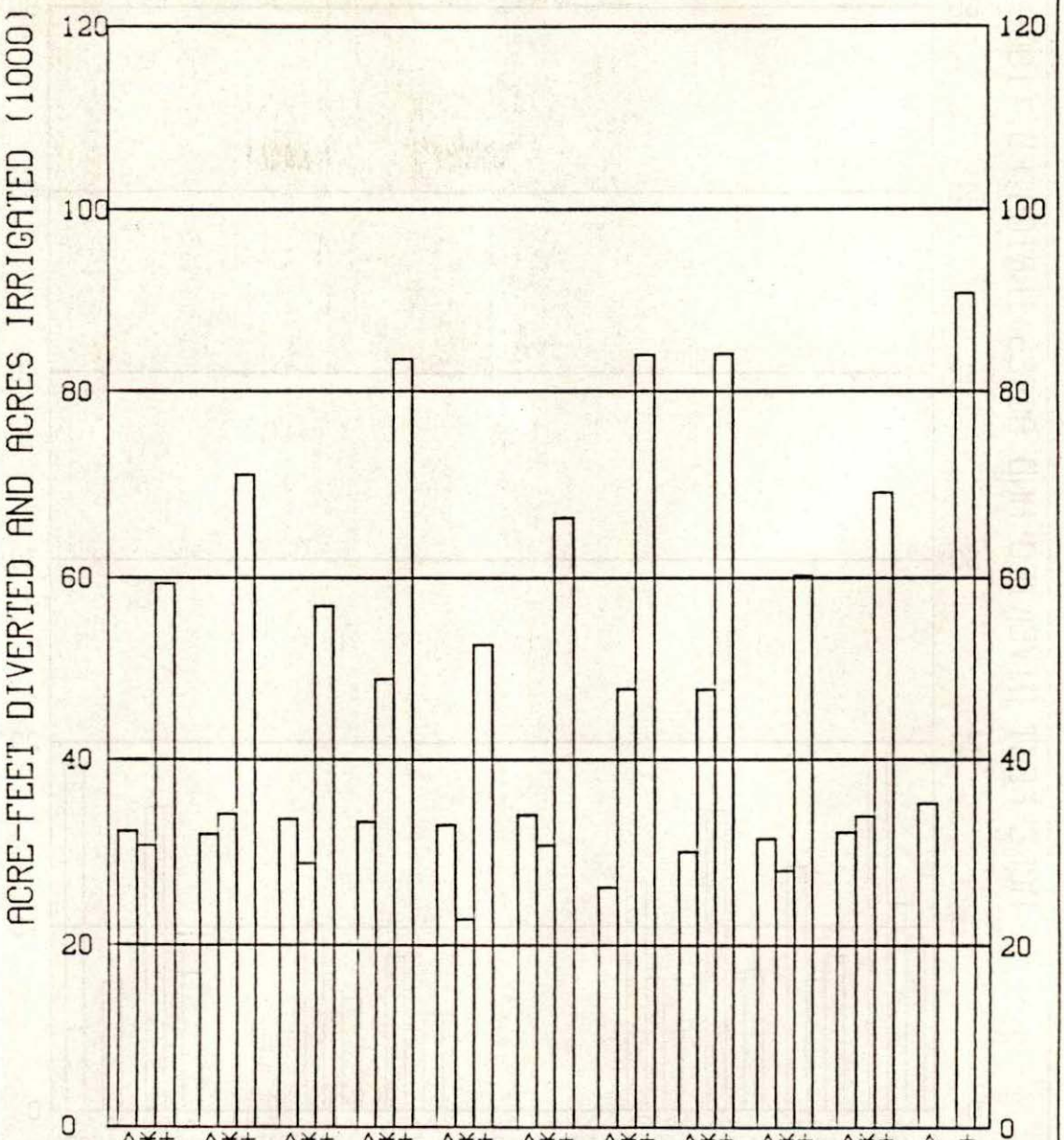
AF/ACRE	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
DIV	1.92	2.44	1.63	2.70	1.36	1.94	3.27	2.88	2.50	2.90
DEL	.95	1.12	.97	1.52	.50	.83	1.62	1.39	1.02	1.29
EFF(%)	49	45	59	56	36	42	49	48	40	44

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



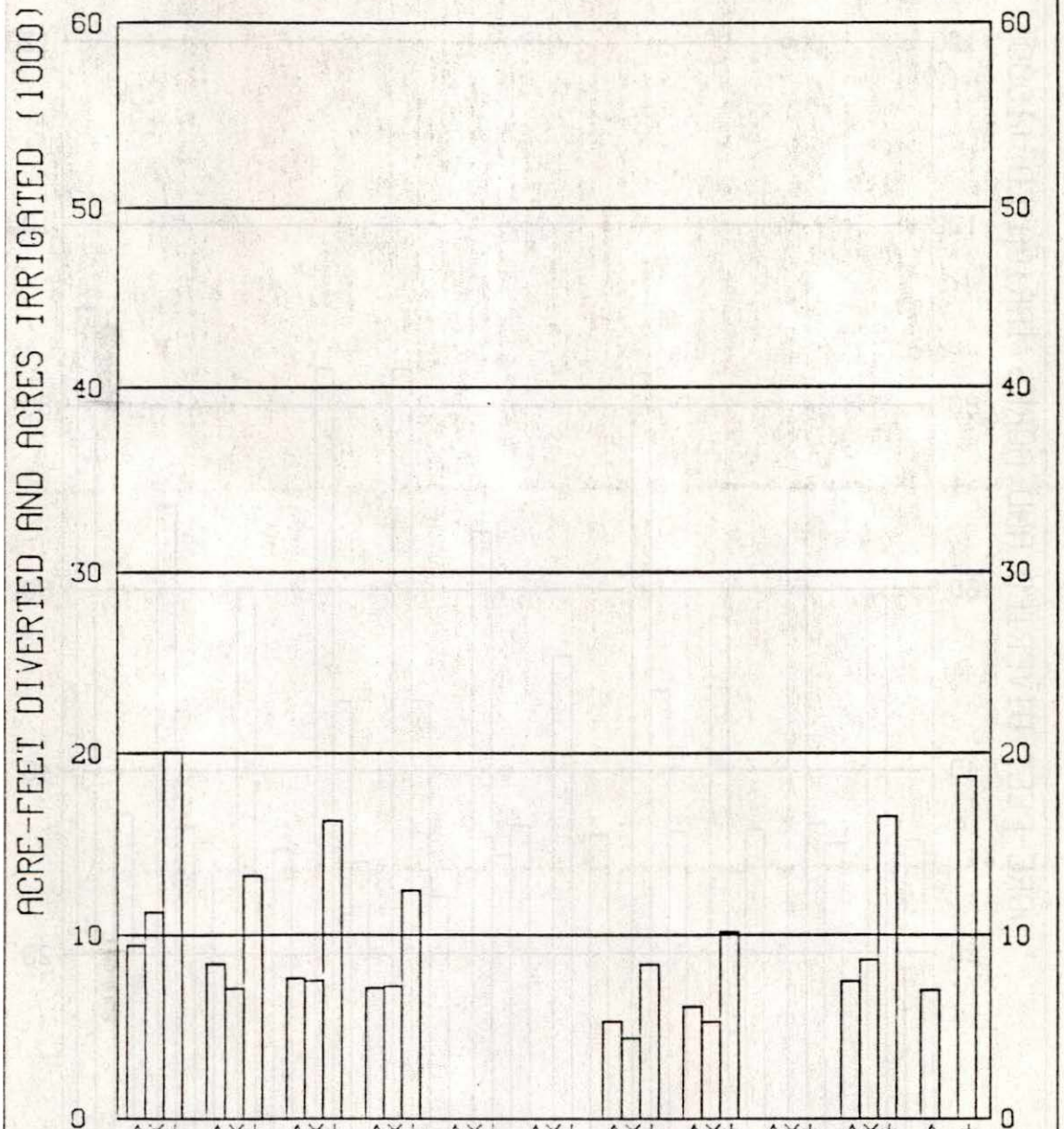
AF/ACRE	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
DIV	1.84	2.23	1.70	2.51	1.60	1.96	3.20	2.80	1.92	2.16
DEL	.95	1.07	.86	1.47	.69	.90	1.82	1.59	.89	1.05
EFF(%)	51	47	50	58	43	45	56	56	46	48

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 27

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED KIRWIN IRRIGATION DISTRICT



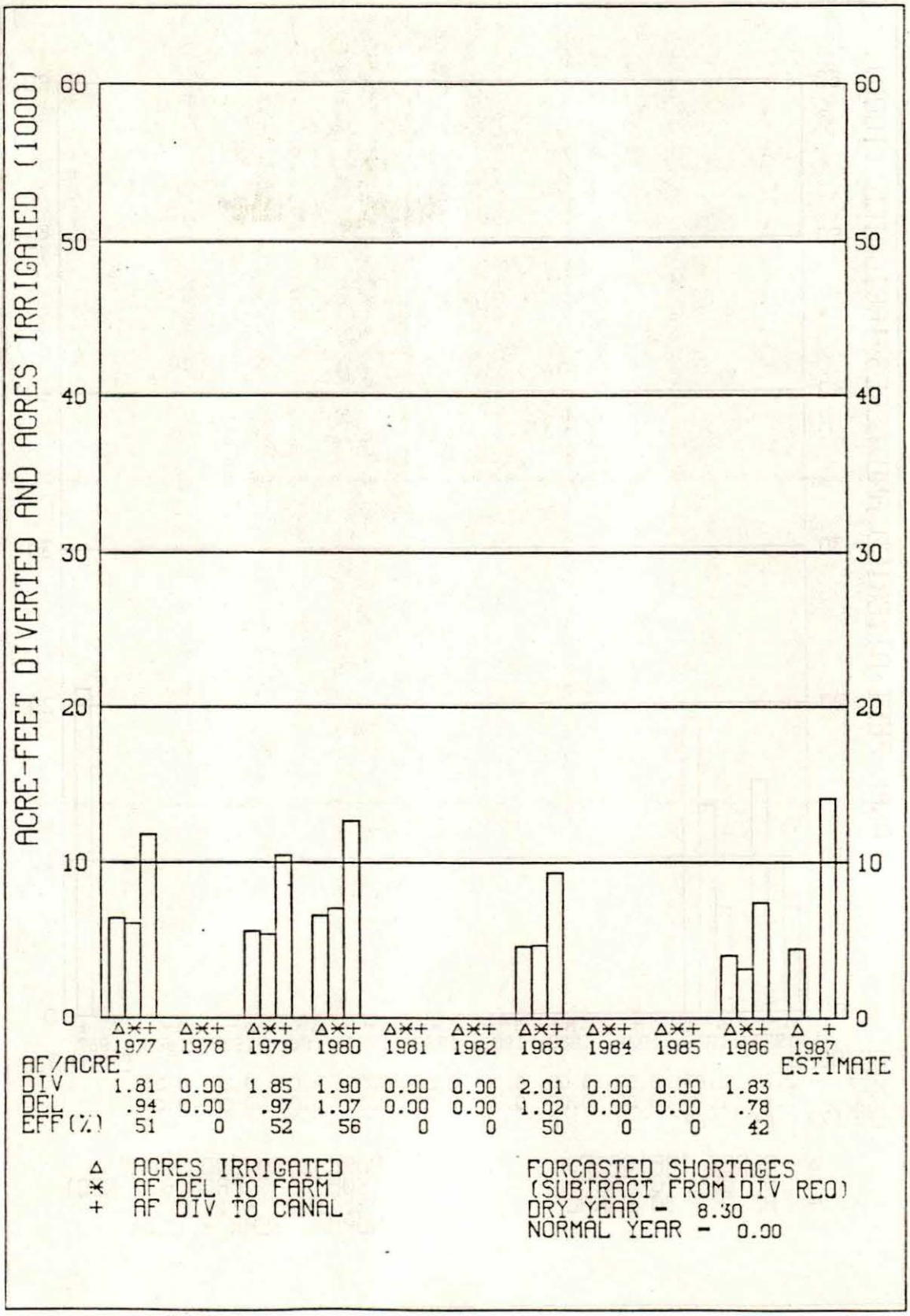
AF/ACRE	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987 ESTIMATE
DIV	2.13	1.56	2.12	1.74	0.00	0.00	1.58	1.66	0.00	2.20	
DEL	1.19	.84	.98	1.01	0.00	0.00	.83	.87	0.00	1.15	
EFF (%)	55	53	46	58	0	0	52	52	0	52	

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 5.10
NORMAL YEAR - 0.00

EXHIBIT 28

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
WEBSTER IRRIGATION DISTRICT



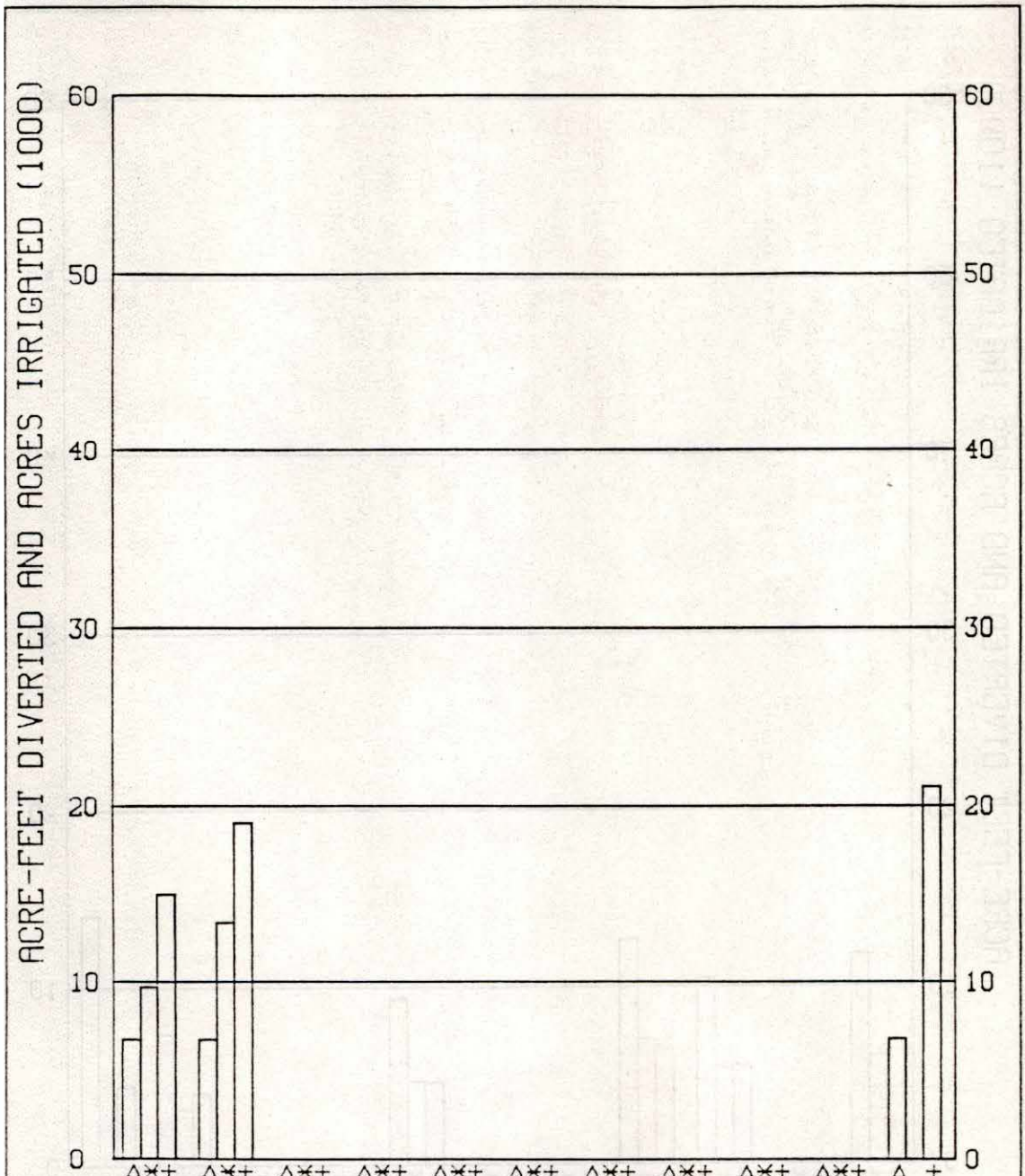
AF/ACRE	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
DIV	1.81	0.00	1.85	1.90	0.00	0.00	2.01	0.00	0.00	1.83
DEL	.94	0.00	.97	1.07	0.00	0.00	1.02	0.00	0.00	.78
EFF(%)	51	0	52	56	0	0	50	0	0	42

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 8.30
NORMAL YEAR - 0.00

EXHIBIT 29

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



AF/ACRE	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
DIV	2.22	2.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEL	1.44	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EFF(%)	64	69	0	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 - 15.00