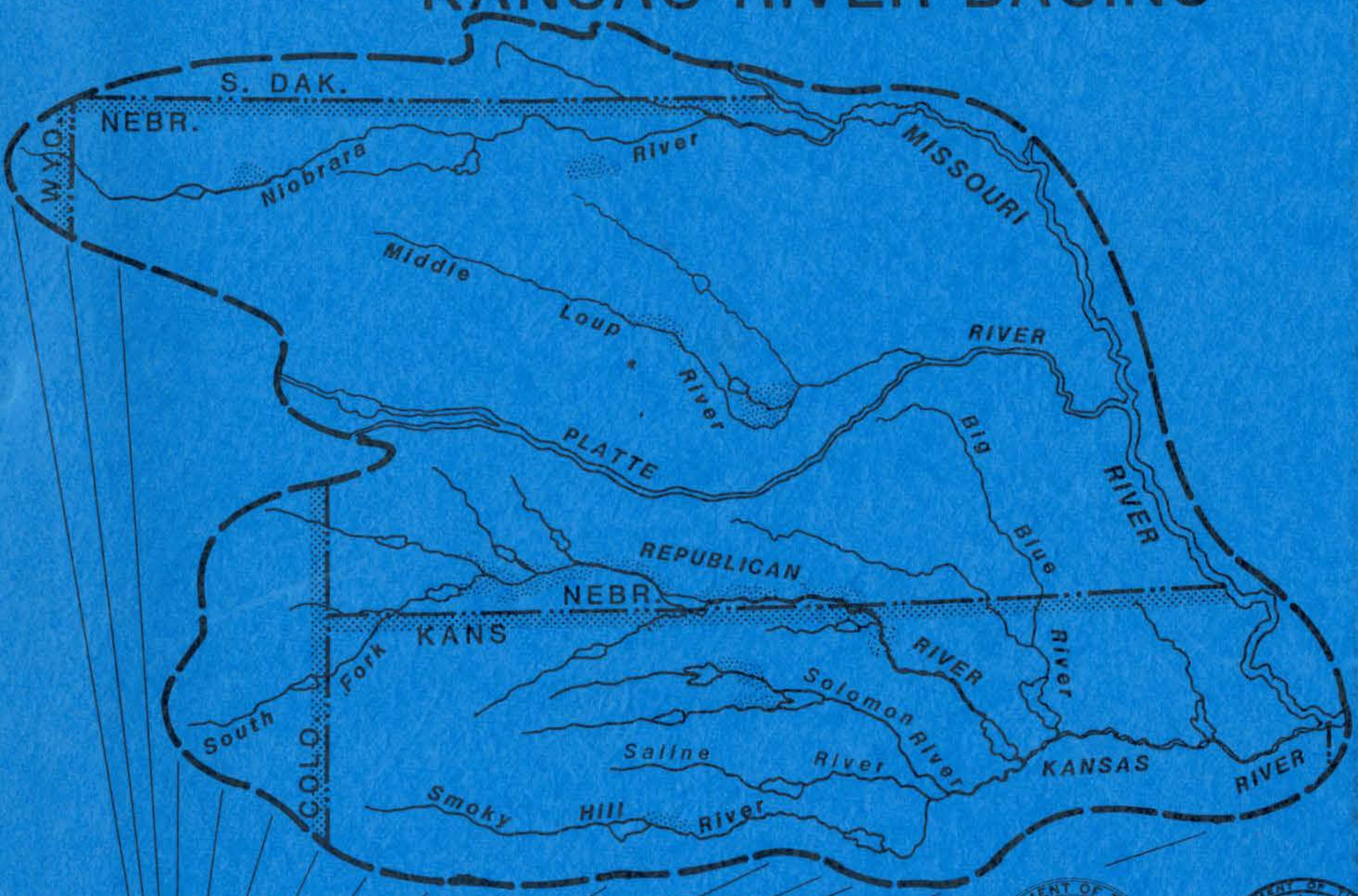
ANNUAL OPERATING PLANS

CALENDAR YEARS
1987 - 1988

NIOBRARA, LOWER PLATTE, AND KANSAS RIVER BASINS



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

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BILLINGS, MONTANA

ANNUAL OPERATING PLANS

NIOBRARA, LOWER PLATTE, AND KANSAS RIVER BASINS

CALENDAR YEAR--1987
OPERATIONS

CALENDAR YEAR--1988
OUTLOOK

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SYNOPSIS

General

This year is the thirty-fifth 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 will continue with third stage filling. 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 87 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.

1987 Summary

Climatic Conditions

The total precipitation over the operating area during 1987 ranged from 104 percent of normal at Hugh Butler Lake to 166 percent of normal at Keith Sebelius Lake. 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 1987 inflows were below the dry-year forecast at Bonny and Enders Reservoirs and Hugh Butler Lake. Swanson, Harry Strunk and Harlan County Lakes and Box Butte and Cedar Bluff Reservoirs had inflows between the dry- and normal-year forecasts. Kirwin and Webster Reservoirs and Keith Sebelius Lake had inflows between the normal- and wet-year forecasts. Merritt, Sherman, Calamus, and Lovewell Reservoirs and Waconda Lake had inflows above the wet-year forecasts.

The following summarized data shows a comparison of 1986 and 1987 carryover storage for all reservoirs in the Niobrara, Lower Platte, and Kansas River Basins.

RESERVOIR DATA SEPTEMBER 30

	1986		1987		Conservation Capacity	
Reservoir	Elevation (feet)	Storage (acre-ft)	Elevation (feet)	Storage (acre-ft)	Elevation (feet)	Storage (acre-ft)
Box Butte	3980.28	3,852	3977.71	2,716	4007.00	31,060
Merritt	2938.10	53,911	2935.80	48,867	2946.00	74,486
Sherman	2157.80	56,926	2157.00	54,917	2162.30	69,076
Calamus	2222.25	44,536	2235.25	87,574	2244.00	127,400
Bonny	3667.34	32,482	3668.45	34,485	3672.00	41,340
Enders	3089.79	15,642	3089.63	15,507	3112.30	44,480
Swanson	2738.91	57,813	2739.61	60,226	2752.00	112,214
Hugh Butler	2572.05	24,154	2571.55	23,570	2581.80	37,776
Harry Strunk	2352.29	16,708	2356.69	21,625	2366.10	35,705
Keith Sebelius	2279.03	4,522	2284.94	8,450	2304.30	35,935
Harlan County	1937.72	230,862	1940.94	265,657	1946.00	327,639
Lovewell	1583.16	43,390	1579.92	34,230	1582.60	41,690
Kirwin	1702.19	16,146	1711.09	31,857	1729.25	99,435
Webster	1866.64	12,907	1878.40	34,921	1892.45	77,371
Waconda	1454.16	223,722	1454.77	231,129	1455.60	241,460
Cedar Bluff	2096.03	15,109	2106.24	32,146	2144.00	185,090

2. Flood Control Operations. The total 1987 flood control benefits accrued by the operation of the Nebraska-Kansas Projects dams was $10,139,000. The accumulative total of flood control benefits for the years 1951 through 1987 by facilities in this report total $71,013,000 (see table 5). To date no benefits have been accrued by the operation of Box Butte, Merritt, or Sherman Dams.

Water Service

There were 426,348 acre-feet of water diverted to irrigate 209,374 acres of projects lands in 13 of the 14 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 1987.

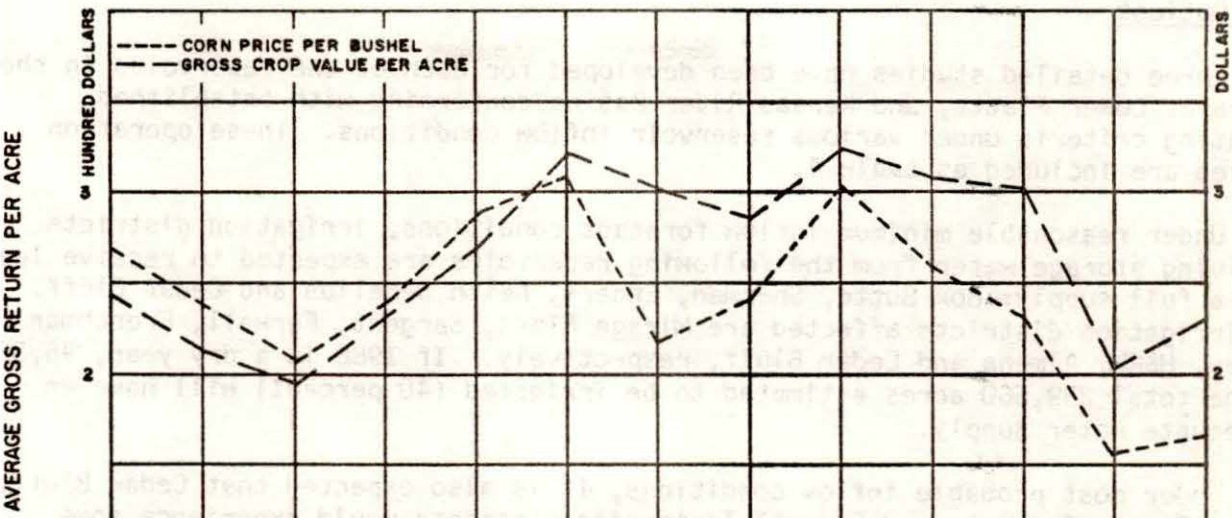
The water requirements of three municipalities, one rural water district, one industrial company, and a fish hatchery facility were furnished from storage releases or natural flows.

Under a long-term contract with the Bureau for use of the Arcadia Diversion Dam, the Middle Loup Public Power and Irrigation District diverted 26,709 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 1987 crop yields from lands receiving project water were higher than 1986 for all districts except Sargent, Kansas Bostwick, Kirwin and Webster. Corn, the principal crop, increased from an average of 131 bushels per acre to 138 bushels per acre. Unit prices for all commodities were lower than those in 1986. The total gross crop value for districts receiving project water was $49,442,978. The average gross crop value per acre increased from $206.71 to $236.15 during 1987. 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) 1986	1987
Mirage Flats	126	134
Ainsworth	136	144
Sargent	131	124
Farwell	120	146
Twin Loups	*	113
Frenchman Valley	144	162
H&RW	82	141
Frenchman-Cambridge	136	143
Almena	130	143
Bostwick in Nebraska	133	140
Kansas-Bostwick	149	137
Kirwin	165	146
Webster	123	122
Cedar Bluff	*	*
Average of District Reporting	131	138

* No project water supplied; not included in averages.

Fish and Wildlife and Recreation Benefits

During the early part of the 1987 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.

1988 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 and Cedar Bluff. The irrigation districts affected are Mirage Flats, Sargent, Farwell, Frenchman Valley, H&RW, Almena and Cedar Bluff, respectively. If 1988 is a dry year, 96,300 of the total 239,560 acres estimated to be irrigated (40 percent) will have an inadequate water supply.

Under most probable inflow conditions, it is also expected that Cedar Bluff, Mirage Flats, Sargent, and Farwell Irrigation Districts would experience some shortages to irrigation demands from 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 could experience shortages in dry-year inflow forecast conditions.

During 1988, 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, Calamus, and Lovewell Reservoirs and Harry Strunk Lake will fill during 1988. Swanson, Harlan County and Waconda Lakes and Bonny Reservoir will fill under most probable inflow conditions.

Even with low reservoir levels and inadequate water supplies for some project lands, the recommendations of various state agencies will be considered. As in the past, irrigation and reclamation districts will advise state agencies regarding aquatic weed control and canal operations. 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 87

2nd water conference shortened; chemigation training added

McCOOK DAILY GAZETTE

Wednesday, March 4, 1987

Anticipation Grows for Calamus Lake

Bill Would Raise Farm Cost Of Federal Water Delivery

McCOOK, NEBRASKA 69001, TUESDAY, MARCH 24, 1987

Kansas hit hardest by snow storm

McCOOK, NEBRASKA 69001, WEDNESDAY, APRIL 1, 1987

Diversion study is given go-ahead

'No change' for Bureau

Jess Says Nebraska Water Is in Demand

U.S. Bureau of Reclamation Runs Out of Rivers to Dam

Water for sale: *Is it legal, practical?*

NRC endorses 3 water bills

After 85 Years, Era of Big Dams Nears End

Bureau getting into groundwater area

Irrigation district requests financial help

No Legal Obstacles

Water Law Specialist Says Exporting Requires Permit

Senators Send Water Measure Back to Reagan

Rain spotty; lightning hits bureau antenna

South Platte-Frenchman Project discussed

Water sales may begin in state soon DWR director Mike Jess predicts

Lake precipitation ahead of normal

Groundwater Center Expected to Whet Interest

Some areas receive nearly 4 inches of precipitation

McCOOK, NEBRASKA 69001, MONDAY, JUNE 22, 1987

Hail storm batters Arapahoe area

Precipitation above 1986 at most SW area lakes

Area escapes most of heavy snow storm

Enders diversion plan loses appeal

Court upholds state denial

1991 Target Date for Calamus Fish Hatchery

Area lake levels continue to drop

Tougher Laws Backed

'Aggressive Policy' Urged To Guard Nation's Water

Calamus Has 5th-Biggest Holiday Crowd

Purpose of This Report

This AOP advises water users, cooperating agencies, and other interested groups or persons of the actual operations during 1987 and serves as a guideline for the 1988 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. Under a contract with the Bureau, the Twin Loups Reclamation District will assume operation and maintenance responsibilities for Calamus Dam in the near future.

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 data 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 Dams 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

Fourteen 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 Twin Loups Irrigation District has contracted their O&M responsibilities to the Twin Loups Reclamation District.

The contracted irrigation season for the Mirage Flats Irrigation District is April through September. The contracted irrigation season for Frenchman Valley, H&RW, Frenchman-Cambridge, and Cedar Bluff Irrigation Districts is from May 1 through October 15. The contracted irrigation season for Twin Loups Reclamation District is May 1 through September 30 or such additional period from April 1 through November 15 of each year as determined between the District and the Bureau. 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 and Calamus Reservoirs 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 1978 to 1987, the project water supply averaged 16,149 acre-feet, which is about 1.38 acre-foot per irrigable acre. This amount is 0.94 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.

1987 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 16.64 inches, which is 109 percent of normal. The total inflow (17,678 acre-feet) was slightly above the dry-year forecast.

From June through September 1, diversions of 17,439 acre-feet to the Mirage Flats Canal provided irrigation water for 9,102 acres, 78 percent of the service available acreage. The farm deliveries from the project water supply were 8,232 acre-feet (0.71 acre-foot per irrigable acre), which is a delivery efficiency of 47 percent. The reservoir contained only 1,806 acre-feet of water at the end of the irrigation season. Privately owned irrigation wells supplemented the project water supply. The gross crop value was $2,531,623 which is $151,966 more than the 1986 value.

1988 Outlook

The project water supply is expected to be inadequate in 1988 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 1988, 10,000 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.

During 1987 construction was completed on the Ainsworth Reservoir Project near mile post 47.1. This project will serve as a secondary storage reservoir for irrigation water in the canal that is not needed following unexpected rainfall within the project area. Water can be temporarily stored in the reservoir and then returned to the delivery system when needed.

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.

1987 Summary

Precipitation, as recorded near Merritt Dam, totaled 24.28 inches of rainfall, which was 139 percent of normal. The water supply was more than adequate to meet the project's irrigation requirement. There were 70,576 acre-feet diverted from Merritt Reservoir into the Ainsworth Canal, with 47,773 acre-feet delivered to the farm headgates (delivery efficiency of 68 percent). There were 26,915 acres of land irrigated in 1987. The gross crop value was $7,676,938, which is $6,682 more than the previous year.

The district executed several temporary water service contracts which provided a total of 70.32 acre-feet of irrigation water from holding ponds located within the district's service area.

1988 Outlook

Merritt Reservoir will be regulated to maintain an elevation 2.0 feet below the top of conservation capacity during the 1987-88 winter months.

In 1987-88 winter months and future years, the reservoir will be regulated to maintain elevation 2944.0 feet. This elevation is within the repaired area of soil cement on the upstream face of the dam. Holding the reservoir at this elevation during the winter will help avoid ice damage to the older existing soil cement at lower elevations.

In order to alleviate erosive action to the lands around the reservoir and to maximize all benefits associated with the reservoir, releases from Merritt Reservoir will be regulated to 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 1988 for the irrigation of 27,000 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 201 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.

1987 Summary

The precipitation over the Sargent Unit (27.92 inches at district headquarters) was 120 percent of normal. The irrigation diversions into the Sargent Canal totaled 25,938 acre-feet (15,919 acre-feet were delivered to the farm headgates--delivery efficiency 61 percent). The diversions exceeded the direct-flow water right for 21 days. There were 10,312 acres irrigated, and the gross crop value totaled $1,874,475, which is $44,597 more than in 1986. 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.

1988 Outlook

The Loup Basin Reclamation District estimates that 12,000 acres in the Sargent Unit will be irrigated in 1988. Under normal- and dry-year conditions, some shortages could occur. The Farwell and Sargent Irrigation Districts are required to share shortages in accordance with their contract.

Farwell Unit, Middle Loup Division in Nebraska

General

The 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 temporarily cease diversions when conservation storage space in Sherman Reservoir has been evacuated. The agreement was executed December 10, 1984.

During the winter months, Sherman Reservoir is normally regulated to 5 feet or more below the top of the conservation capacity. Doing so minimizes seepage from the reservoir into the groundwater table. Maintenance of the pool below the top of conservation provides time for seeding of exposed shore areas. 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.

1987 Summary

The diversions from the Middle Loup River at Arcadia Diversion Dam were 26,709 acre-feet to the Middle Loup Pubic Power and Irrigation District and 91,485 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 435 acre-feet and the losses charged as a result of these deliveries totaled 44 acre-feet.

Sherman Feeder Canal diversions into Sherman Reservoir were started on April 10, and the conservation capacity was filled on June 8. The precipitation at Sherman Dam was 30.14 inches, which is 145 percent of normal. Releases into the Farwell Canals totaled 68,415 acre-feet (34,394 acre-feet were delivered to the farm headgates--delivery efficiency 50 percent). The Farwell Irrigation District reported that 39,123 acres of land were irrigated in 1987. The gross crop value was $8,356,167, which is $903,956 more than in 1986. Sherman Feeder Canal was shut off September 14.

Under an ongoing program the Farwell Irrigation District has installed a total of about 75 miles of pipe to replace open laterals.

1988 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 1988. 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 is being filled in 3 stages over a 3 to 4 year time period.

1987 Summary

Second stage filling of Calamus Reservoir was concluded with a water surface elevation of 2236.45 feet at the end of June. As required, bypasses of the inflows were made during July, August, and September. Stage 3 filling began in October with the reservoir being filled to elevation 2240.08 feet at the end of the year.

Precipitation at Calamus Dam was 25.18 inches which is 112 percent of normal. The inflow was 258,925 acre-feet which was slightly over the wet-year forecast. There were 5,874 acre-feet diverted from Calamus Reservoir into the Mirdan Canal, with 760 acre-feet delivered to the farm headgates. Land irrigated in 1987 totaled 1,044 acres. The gross crop value was $181,279.

1988 Outlook

The reservoir water surface will be held at the present elevation of approximately 2240.0 feet until March 1st. Stage 3 filling will then continue with the final elevation of 2244.0 feet (top of conservation capacity) being reached by mid-April. Calamus Reservoir will be held at elevation 2244.0 feet for at least 30 days. Bypasses of inflows will be made during July, August and September. In the fall the reservoir will be filled to about elevation 2242.0 feet.

Water has been declared available to serve all irrigable acres with service from the Mirdan and Geranium Canal and Lateral systems. 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.

1987 Summary

The 18.56 inches of precipitation during 1987 was 114 percent of normal. The inflow (15,730 acre-feet) to Bonny Reservoir was below the dry-year forecast. As directed by the Colorado Water Commissioner, 143 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 1,650 acre-feet for irrigation purposes into Hale Ditch.

1988 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.

1987 Summary

The 23.41 inches of precipitation at Enders Dam was 125 percent of normal. The 1987 inflow into Enders Reservoir (25,867 acre-feet) was below the dry-year forecast. Due to extensive groundwater pumping above the reservoir, the inflow was only 43 percent of the average historical preconstruction runoff at the Enders damsite (60,700 acre-feet from 1929-1947). This year was the twentieth consecutive year with below-normal inflows in which the conservation pool did not fill. A total of 2,896 acre-feet of water was conserved between the 1986 and 1987 irrigation seasons by pumping seepage back into the reservoir. Irrigation releases were stopped on August 19.

The farm delivery averaged about 0.55 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 7,437 acres received water in 1987, and the H&RW Irrigation District reports 9,737 acres, which are 77 and 85 percent, respectively, of the lands with service available. The gross crop value for Frenchman Valley Irrigation District was $1,852,594 which is an increase of $186,253 from the previous year. The gross crop value for the H&RW Irrigation District was $2,155,263, which is an increase of $738,155 from the previous year.

1988 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 7,200 acres in the Frenchman Valley Irrigation District and 9,500 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.

1987 Summary

The precipitation of 23.48 inches at Trenton Dam was 121 percent of normal. The inflow of 57,485 acre-feet to Swanson Lake was between the dry- and normal-year forecasts. The reservoir's conservation pool did not fill in 1987, with the maximum water surface elevation of 2750.90 feet reached on June 13. At the beginning of the 1987 irrigation season (June 11), there was 106,782 acre-feet of water stored in Swanson Lake, which is 5,432 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 30,344 acre-feet into Meeker-Driftwood Canal to irrigate 13,606 acres and 9,018 acre-feet into Bartley Canal for 5,716 acres.

The precipitation of 20.56 inches at Red Willow Dam was 104 percent of normal, while the inflow of 16,890 acre-feet into Hugh Butler Lake was slightly below the dry-year forecast. The reservoir's maximum water surface elevation for the year was 2578.63 feet, reached on June 14 (3.17 feet below top of conservation). The water supply was adequate to meet the diversion requirements for Red Willow Canal. The district diverted 8,740 acre-feet of water to irrigate 4,253 acres of land served by Red Willow Canal.

The precipitation of 26.34 inches was 137 percent of normal at Medicine Creek Dam, while the inflow of 38,983 acre-feet was slightly over the dry-year forecast. The reservoir's conservation pool was filled on April 29 with the maximum water surface elevation for the year of 2367.58 feet reached on June 13. No releases were necessary during March or April to defer flows from overtopping the uncontrolled spillway until after the walleye spawning period. The water supply was adequate and 25,230 acre-feet of water was diverted to irrigate 14,603 acres of land served by the Cambridge Canal.

The Frenchman-Cambridge Rehabilitation and Betterment Program for placing laterals in pipe was completed during 1987 with a total of 120 miles of pipe being placed since the program began. The $5,500,000 of Rehabilitation and Betterment Loan funds were expended and the final laterals were accomplished with District funds. The pipe lateral installations reduce system losses and the time required for O&M activities.

The 1987 gross crop value from the lands served by Meeker-Driftwood, Bartley, Red Willow, and Cambridge Canals was $9,923,393, which is $858,792 more than in 1986.

1988 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 1988.

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.

1987 Summary

The precipitation at Norton Dam was 33.85 inches, which is 166 percent of normal. The total inflow was 9,206 acre-feet, which was between normal- and wet-year forecasts, however, inflows following irrigation season were near the dry-year forecast. Farm delivery averaged about 0.14 acre-foot per irrigated acre from the project water supply. The remaining demands were supplied from privately owned irrigation wells for the seventeenth consecutive year. The 4,520 acres irrigated in 1987 produced a gross crop value of $1,045,494, which is $69,685 less than in 1986.

The city of Norton used 467 acre-feet of municipal water during 1987.

The maximum content of Keith Sebelius Lake for the year was 10,564 acre-feet, which was reached on July 19, 1987. Timely precipitation throughout the project area resulted in lower demands for releases from the reservoir. At the end of irrigation season (August 7) approximately 4,365 acre-feet was still available for release.

1988 Outlook

The district expects to deliver water to 4,800 acres if an adequate water supply is available. If 1988 is a dry year without significant run-off producing storms above Keith Sebelius Lake, it is anticipated that significant irrigation shortages of 11,400 acre-feet would occur. If normal inflow into the lake and normal rainfall over the irrigated area occur in 1988, no shortages would be expected.

Requirements for the city of Norton are expected to be met in full in 1988.

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.

1987 Summary - Bostwick Division - Harlan County Lake Operations

The precipitation at Harlan County Dam totaled 25.14 inches of rainfall, which is 120 percent of normal. The inflow (153,893 acre-feet) was between the dry- and normal-year forecasts. Releases of 10 cubic feet per second were made during January, February, and December according to the environmental assessment and the annual operating plan. The highest water surface elevation for the year was 1945.86 feet which was reached on June 15 (0.14 feet below the top of conservation). At the end of irrigation season (September 30) 265,657 acre-feet of storage remained in Harlan County Lake. Harlan County Dam prevented $2,336,000 of downstream flood damages during 1987.

The 29,279 irrigated acres in the Bostwick Division in Nebraska and Kansas above Lovewell Dam were furnished a full water supply. In addition, 19,134 acre-feet (approximately 15 percent of total inflow) were delivered to Lovewell Reservoir through the Courtland Canal.

1987 Summary - Bostwick Division - Nebraska

The Bostwick Irrigation District in Nebraska diverted 47,181 acre-feet for the irrigation of 18,415 acres. The gross crop value was $4,574,846, which is $358,538 more than in 1986.

1987 Summary - Bostwick Division - Kansas

The 1987 precipitation at Lovewell Dam totaled 30.69 inches, which was 124 percent of normal. The reservoir's conservation space was full at the first of the year. A release of 300 c.f.s. was made from January 5th through January 16th, drawing the reservoir down approximately two feet to provide storage for spring runoff.

A storm system moved across northcentral Kansas on March 22nd and 23rd, resulting in rainfall amounts of 3.5 to 4.0 inches. A previous storm system only a week earlier had resulted in precipitation amounts of 2 to 3 inches over the same region causing saturated ground conditions. The latest storm left streams and rivers flowing full to above full with the peak daily inflow to Lovewell Reservoir reaching 5,400 c.f.s. The reservoir level increased to a peak of 1589.97 feet with a content of 67,817 acre-feet and 52 percent of the flood pool occupied. A 300 c.f.s. release was started on March 27th and gradually increased to 1,000 c.f.s. on April 8th. This 1,000 c.f.s. release continued until April 13th when it was shut down to alleviate downstream flooding from localized rainfall of nearly 3 inches. Reservoir inflows peaked with a daily flow of about 4,600 c.f.s. Lovewell's reservoir level peaked at 1590.62 feet on April 17th, with a content of 70,524 acre-feet and 57 percent of the flood pool occupied. A 1,200 c.f.s. release was made from Lovewell Dam through April 27th at which time it was gradually decreased to 200 c.f.s. by May 1st. Another 3 inches of rainfall fell during the first week of May prompting an increase in the release to 600 c.f.s. through May 21st. Substantial irrigation releases began on the 15th of June, however, the reservoir did not drop from the flood pool until July 25th.

The Corps of Engineers estimated the reservoir reduced local and downstream damages by $1,185,000 and utilized 43,000 acre-feet of storage to prevent these damages.

The Kansas-Bostwick Irrigation District diverted a total of 67,334 acre-feet to serve 10,864 acres above Lovewell Dam and 22,721 acres below Lovewell Dam. The gross crop value was $7,040,026, which is $24,094 more than the previous year.

1988 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.

1987 Summary

The precipitation totaled 32.88 inches, which was 147 percent of normal. The inflow (36,257 acre-feet) was between the normal- and wet-year forecasts. The 1987 inflow was the highest since 1975 and the reservoir prevented $441,000 of flood damages. Kirwin Canal was operated from July 6 until August 22. The district diverted 14,242 acre-feet for irrigation of 6,838 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 $1,488,125, which is a $80,731 increase from the previous year.

1988 Outlook

The district estimates that 7,000 acres may be irrigated in 1988. Forecasts show that carryover storage plus reasonable minimum inflow is adequate to meet the full dry-year requirement.

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.

1987 Summary

In 1987, the precipitation at Webster Dam was 136 percent of normal (32.54 inches). The inflow of 31,586 acre-feet was between the normal- and wet-year forecasts. The 1987 inflow was the highest since 1975 and the reservoir prevented $447,000 of flood damages.

The district diverted 8,192 acre-feet for irrigation of 4,168 acres. Due to significant flows below Webster Dam, releases only amounted to 2,422 acre-feet. Irrigators with private wells provided water for part of the project lands as a supplemental supply. The district reported a gross crop value of $742,755, which is $152,679 greater than the previous year.

1988 Outlook

The carryover storage and the flows in the South Fork of the Solomon River are expected to be adequate to irrigate 4,500 acres in the district in 1988.

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.

1987 Summary

The precipitation at Glen Elder Dam was 124 percent of normal (31.54 inches). The record high inflow (521,757 acre-feet) was 154 percent of the wet-year forecast. No storage releases were made for temporary water service contracts or the City of Beloit. Releases of 545 acre-feet were made to the WCH&T Rural Water District No. 2.

Waconda Lake was at elevation 1455.19 feet at the first of the year (top of conservation capacity is 1455.60 feet). A 300 c.f.s. release was made through January 21st drawing the water surface to elevation 1454.34 feet. This water level was maintained until mid-March.

A storm system moved across northcentral Kansas on March 22nd and 23rd resulting in rainfall amounts of 3.5 to 4.0 inches. A previous storm system had resulted in precipitation amounts of 2 to 3 inches over the same region only a week earlier causing saturated ground conditions. The latest storm left streams and rivers flowing full to above full with a peak daily inflow to Waconda Lake reaching 21,000 c.f.s. The reservoir level increased to a peak of 1465.0 feet before leveling off with a content of 379,792 acre-feet and 19 percent of the flood pool occupied. A release of 300 c.f.s. was started on April 1st and was gradually increased to 1,000 c.f.s. by April 9th. This 1,000 c.f.s. release continued until April 14th when it was shut off to alleviate downstream flooding conditions caused by 2.0 to 3.5 inches of localized rainfall. Reservoir inflow peaked with a flow of over 19,000 c.f.s. Waconda Lake's elevation raised to a historical record high of 1471.33 feet on April 27th, with a content of 501,019 acre-feet and 36 percent of the flood pool occupied. A release of 1,000 c.f.s. was started on April 27th and gradually increased to 2,000 c.f.s. on May 18th. The 2,000 c.f.s. release was continued through August 6th at which time it was gradually decreased to 250 c.f.s. An interruption of the 2,000 c.f.s. release occurred from June 20th through June 23rd to alleviate downstream flooding that resulted from over 2.5 inches of rainfall.

The Corps of Engineers estimated the reservoir reduced local and downstream damages by $5,699,000 and utilized 467,300 acre-feet of storage to prevent these damages.

1988 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 1988, 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.

A memorandum of understanding between the Bureau of Reclamation, Fish and Wildlife Service, the State of Kansas and Cedar Bluff Irrigation District No. 6 concerning the reformulation and operation of the Cedar Bluff Unit was executed on December 17, 1987. Implementation of the memorandum of understanding awaits appropriate legislative action by both the State and Congress.

<u>1987 Summary</u>

The precipitation was 23.24 inches which is 105 percent of normal. The inflow (24,018 acre-feet) was between the dry- and normal-year forecasts. This was the highest inflow year since 1975 and the reservoir prevented $31,000 of downstream flood damages. Due to continuing low water levels, no irrigation releases were made in 1987 (ninth consecutive year). The state of Kansas used the fish hatchery facility with 362 acre-feet released to the facility. No releases were made for the city of Russell.

<u>1988 Outlook</u>

The reservoir elevation of 2105.52 feet on December 31, 1987, remains 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 shortage of about 2,300 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.

A P P E N D I X

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-fect	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 1987 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.	1,500	58	74	0.03	11,630	0	0
Feb.	2,348	56	85	1.05	13,837	0	0
Mar.	2,817	61	169	1.72	16,424	0	0
Apr.	2,034	58	329	0.71	18,071	0	0
May	1,349	60	425	3.73	18,935	0	0
June	0	1,085	1,758	1.32	16,092	890	43
July	340	9,727	549	1.94	6,156	9,934	4,483
Aug.	1,960	6,024	207	2.79	1,885	6,506	3,557
Sep.	1,050	103	116	0.88	2,716	109	149
Oct.	1,041	50	145	0.80	3,562	0	0
Nov.	1,946	48	116	0.78	5,344	0	0
Dec.	1,293	49	64	0.89	6,524	0	0
TOTAL	17,678	17,379	4,037	16.64	---	17,439	8,232

NOTE.--Mirage Flats Canal: Acres irrigated 1987 -- 9,102

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.	15,072	14,826	246	0.06	68,831	0	0
Feb.	14,488	14,182	306	1.05	68,831	0	0
Mar.	19,172	18,744	428	1.78	68,831	0	0
Apr.	17,075	16,364	711	0.72	68,831	0	0
May	17,473	16,512	961	4.99	68,831	1,981	137
June	15,554	17,990	1,334	2.09	65,061	12,258	6,377
July	16,798	32,777	1,251	5.18	47,831	29,879	22,483
Aug.	16,797	26,093	717	1.93	37,818	22,634	16,706
Sep.	17,302	5,459	794	1.82	48,867	3,824	2,070
Oct.	16,024	984	688	0.68	63,219	0	0
Nov.	15,455	9,392	451	2.31	68,831	0	0
Dec.	14,505	14,182	323	1.67	68,831	0	0
TOTAL	195,715	187,505	8,210	24.28	---	70,576	47,773

NOTE.--Ainsworth Canal: Acres irrigated 1987 -- 26,915

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)	Diversions 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	1	1,309	120	0.01	51,294	0	0
Feb.	0	0	0	0	699	1,291	118	1.50	50,584	0	0
Mar.	0	0	0	0	2,015	1,309	233	7.54	51,057	0	0
Apr.	0	0	0	6,238	5,337	1,303	418	1.18	54,673	0	0
May	0	0	2,362	16,045	13,850	1,533	744	4.80	66,246	0	0
June	4,025	1,057	7,237	19,486	17,800	18,063	1,126	2.55	64,857	16,765	3,660
July	12,383	7,549	8,864	19,801	21,343	40,372	1,109	3.27	44,719	38,785	23,558
Aug.	8,148	6,941	7,310	22,953	19,795	13,791	613	5.18	50,110	12,865	7,176
Sep.	1,382	372	936	6,962	6,156	780	569	0.93	54,917	0	0
Oct.	0	0	0	0	1	1,083	869	0.61	52,966	0	0
Nov.	0	0	0	0	693	1,303	352	1.61	52,004	0	0
Dec.	0	0	0	0	477	1,309	115	0.96	51,057	0	0
TOTAL	25,938	15,919	26,709	91,485	88,167	83,446	6,386	30.14	---	68,415	34,394

1/ Non-Project. Includes 435 a.f. diverted from Sherman Feeder Canal and 44 a.f. loss.

NOTE.--Sargent Canal: Acres irrigated 1987 -- 10,312
Middle Loup P.P. Canals: Acres irrigated 1987 -- 14,279
Farwell Canals: Acres irrigated 1987 -- 39,123

NORTH LOUP DIVISION
CALAMUS RESERVOIR

Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	MIRDAN CANAL Release To Canal (AF)	MIRDAN CANAL Delivered To Farms (AF)
Jan.	20,253	19,983	127	0.02	72,715	0	0
Feb.	20,477	18,678	180	1.46	74,334	0	0
Mar.	33,593	18,343	402	5.77	89,182	0	0
Apr.	29,360	27,336	683	0.98	90,523	422	0
May	22,522	18,797	1,167	5.35	93,081	180	0
June	19,153	18,089	1,687	1.79	92,458	662	4
July	18,609	16,489	2,988	2.18	91,590	1,966	430
Aug.	18,686	18,688	2,366	2.69	89,222	1,787	317
Sep.	18,052	17,796	1,904	2.53	87,574	857	9
Oct.	18,700	3,669	1,605	0.50	101,000	0	0
Nov.	19,615	11,679	693	1.45	108,243	0	0
Dec.	19,905	19,402	411	0.46	108,335	0	0
TOTAL	258,925	208,949	14,213	25.18	---	5,874	760

NOTE.--Mirdan Canal: Acres irrigated 1987 -- 1,044

TABLE 2
SUMMARY OF 1987 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.	1,374	312	174	0.35	34,504	0
Feb.	1,513	282	215	1.03	35,520	0
Mar.	2,058	327	304	2.27	36,947	0
Apr.	2,000	355	764	0.69	37,828	0
May	1,983	393	798	4.38	38,620	0
June	2,240	417	1,172	4.02	39,271	0
July	1,027	1,274	1,501	2.32	37,523	841
Aug.	147	1,273	1,005	0.92	35,392	845
Sep.	365	524	748	0.81	34,485	107
Oct.	527	331	615	0.33	34,066	0
Nov.	982	298	341	0.97	34,409	0
Dec.	1,514	307	206	0.47	35,410	0
TOTAL	15,730	6,093	7,843	18.56	---	1,793

TABLE 2
SUMMARY OF 1987 OPERATIONS

FRENCHMAN-CAMBRIDGE DIVISION
FRENCHMAN UNIT

	ENDERS RESERVOIR					CULBERTSON CANAL		CULBERTSON EXT.CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	1,858	61	89	0.19	22,954	0	0	0	0
Feb.	1,785	56	107	1.32	24,576	0	0	0	0
Mar.	1,796	61	177	1.13	26,134	0	0	0	0
Apr.	2,059	60	476	0.82	27,657	326	0	0	0
May	2,192	61	512	5.45	29,276	3,146	208	126	0
June	2,827	3,423	720	5.69	27,960	1,595	1,003	2,649	255
July	2,983	10,639	774	1.45	19,530	3,538	2,688	6,434	2,885
Aug.	2,241	7,622	413	2.31	13,736	2,784	2,130	5,075	2,432
Sep.	2,098	60	267	0.90	15,507	0	0	0	0
Oct.	1,941	61	226	0.98	17,161	0	0	0	0
Nov.	2,138	60	160	2.36	19,079	0	0	0	0
Dec.	1,949	61	96	0.81	20,871	0	0	0	0
TOTAL	25,867	22,225	4,017	23.41	---	11,389	6,029	14,284	5,572

NOTE.--Culbertson Canal: Acres irrigated 1987 -- 7,437
Culbertson Extension Canal: Acres irrigated 1987 -- 9,737

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.	5,041	61	285	0.23	71,816	0	0	0	0
Feb.	6,627	56	369	1.17	78,018	0	0	0	0
Mar.	8,655	61	606	1.59	86,006	0	0	0	0
Apr.	10,278	60	1,634	1.32	94,590	0	0	0	0
May	11,165	61	1,661	4.55	104,033	0	0	0	0
June	5,800	6,399	2,433	4.85	101,001	4,772	1,308	1,655	311
July	1,532	19,843	2,968	2.25	79,722	14,002	9,381	3,760	2,890
Aug.	276	16,020	1,787	1.80	62,191	10,907	7,927	3,337	2,517
Sep.	87	881	1,171	1.44	60,226	663	336	266	197
Oct.	2	61	981	0.50	59,186	0	0	0	0
Nov.	4,149	60	587	2.65	62,688	0	0	0	0
Dec.	3,873	61	340	1.13	66,160	0	0	0	0
TOTAL	57,485	43,624	14,822	23.48	---	30,344	18,952	9,018	5,915

NOTE.--Meeker-Driftwood Canal: Acres irrigated 1987 -- 13,606
Bartley Canal: Acres irrigated 1987 -- 5,716

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.	1,052	177	87	0.10	27,507	0	0
Feb.	1,432	155	115	1.45	28,669	0	0
Mar.	1,969	240	187	1.15	30,211	0	0
Apr.	2,184	238	621	1.29	31,536	0	0
May	1,353	246	591	2.51	32,052	0	0
June	1,961	2,282	863	5.49	30,868	1,478	494
July	1,389	4,445	864	2.61	26,948	3,806	2,437
Aug.	704	3,683	597	1.11	23,372	3,343	2,336
Sep.	1,017	367	452	1.44	23,570	113	51
Oct.	978	246	359	0.68	23,943	0	0
Nov.	1,552	238	192	1.87	25,065	0	0
Dec.	1,299	246	109	0.86	26,009	0	0
TOTAL	16,890	12,563	5,037	20.56	---	8,740	5,318

NOTE.--Red Willow Canal: Acres irrigated 1987 -- 4,253

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.	2,610	15	100	0.11	26,480	0	0
Feb.	3,024	16	127	1.47	29,361	0	0
Mar.	3,633	18	220	2.54	32,756	0	0
Apr.	3,886	27	799	1.19	35,816	0	0
May	4,015	1,273	763	6.22	37,795	502	0
June	4,197	4,390	1,117	4.64	36,485	4,532	1,422
July	4,293	10,234	1,214	2.77	29,330	10,203	6,421
Aug.	2,779	10,975	669	2.53	20,465	9,517	6,480
Sep.	2,020	482	378	1.92	21,625	476	228
Oct.	2,278	153	322	0.36	23,428	0	0
Nov.	3,473	69	212	2.02	26,620	0	0
Dec.	2,775	61	128	0.57	29,206	0	0
TOTAL	38,983	27,713	6,049	26.34	---	25,230	14,551

NOTE.--Cambridge Canal: Acres irrigated 1987 -- 14,603

TABLE 2
SUMMARY OF 1987 OPERATIONS

KANASKA DIVISION
ALMENA UNIT

	KEITH SEBELIUS LAKE						ALMENA CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Release To City Of Norton (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	201	21	39	0.14	5,020	21	0	0
Feb.	293	16	49	1.05	5,248	16	0	0
Mar.	705	22	86	6.75	5,845	22	0	0
Apr.	1,136	35	266	2.62	6,680	35	0	0
May	828	38	285	3.88	7,185	39	0	0
June	648	414	352	4.17	7,067	59	149	0
July	4,147	1,232	487	5.78	9,495	60	985	227
Aug.	571	1,020	384	4.69	8,662	54	1,018	603
Sep.	101	50	263	1.04	8,450	50	0	0
Oct.	0	44	268	0.35	8,138	44	0	0
Nov.	286	33	128	2.28	8,263	33	0	0
Dec.	290	34	69	1.10	8,450	34	0	0
TOTAL	9,206	2,959	2,676	33.85	---	467	2,152	830

NOTE.--Almena Canal: Acres irrigated 1987 -- 4,520

BOSTWICK DIVISION
FRANKLIN UNIT

	HARLAN COUNTY LAKE (Data from Corps of Engineers)					FRANKLIN CANAL		NAPONEE CANAL	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Release To Canal (AF)	Delivered To Farms (AF)	Release To Canal (AF)	Delivered To Farms (AF)
Jan.	7,726	615	861	0.08	253,232	0	0	0	0
Feb.	10,830	555	668	0.85	262,839	0	0	0	0
Mar.	20,896	42	1,148	5.37	282,545	0	0	0	0
Apr.	23,286	0	2,924	0.65	302,907	0	0	0	0
May	22,453	0	3,693	4.20	321,667	0	0	0	0
June	14,043	18,124	5,889	3.09	311,697	4,534	958	702	327
July	20,459	38,781	7,172	3.23	286,203	12,572	5,568	1,159	753
Aug.	8,489	22,054	5,167	3.90	267,471	8,623	3,028	738	446
Sep.	3,943	650	5,107	1.25	265,657	552	123	0	0
Oct.	3,402	0	4,076	0.06	264,983	0	0	0	0
Nov.	9,907	0	2,596	1.94	272,294	0	0	0	0
Dec.	8,459	595	1,204	0.52	278,954	0	0	0	0
TOTAL	153,893	81,416	40,505	25.14	---	26,281	9,677	2,599	1,526

NOTE.--Franklin Canal: Acres irrigated 1987 -- 9,146 Naponee Canal: Acres irrigated 1987 -- 1,527

BOSTWICK DIVISION (Continued)
SUPERIOR-COURTLAND UNIT

	FRANKLIN PUMP CANAL		SUPERIOR CANAL		COURTLAND CANAL - ABOVE LOVEWELL				
						NEBRASKA USE		KANSAS USE	
Month	Div. To Canal (AF)	Del. To Farms (AF)	Div. To Canal (AF)	Del. To Farms (AF)	Total Div. (AF)	Total (AF)	Delivered To Farms (AF)	Diversion To Canal (AF)	Delivered To Farms (AF)
Jan.	0	0	0	0	0	0	0	0	0
Feb.	0	0	0	0	0	0	0	0	0
Mar.	0	0	0	0	0	0	0	0	0
Apr.	0	0	0	0	0	0	0	0	0
May	0	0	0	0	2,610	0	0	7,360	2,619
June	702	309	2,977	1,238	12,419	343	295	12,403	7,289
July	1,512	972	7,008	3,532	20,501	705	602	3,779	1,900
Aug.	661	355	4,005	1,117	15,029	362	314	175	82
Sep.	0	0	0	0	1,449	26	22	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	2,875	1,636	13,990	5,887	52,008	1,436	1,233	23,717	11,890

NOTE.--Franklin Pump Canal:
Acres irrigated 1987 -- 1,919
Superior Canal:
Acres irrigated 1987 -- 4,710

NOTE.--Courtland Canal--Nebraska Use:
Acres irrigated 1987 -- 1,113
Courtland Canal--Kansas Use:
Acres irrigated 1987 -- 10,864

BOSTWICK DIVISION (Continued)
COURTLAND UNIT

	LOVEWELL RESERVOIR					COURTLAND (Below)	
Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	Release To Canal (AF)	Delivered To Farms (AF)
Jan.	1,985	6,214	171	0.08	37,350	0	0
Feb.	2,325	0	215	0.95	39,460	0	0
Mar.	31,249	3,223	448	7.64	67,038	0	0
Apr.	34,578	49,997	1,199	2.99	50,420	428	0
May	20,441	21,554	1,077	5.08	48,230	161	0
June	11,968	7,542	1,316	4.07	51,340	7,272	2,775
July	9,930	23,497	1,643	1.36	36,130	23,798	15,690
Aug.	10,109	11,137	972	4.11	34,130	11,044	5,197
Sep.	1,698	936	662	1.61	34,230	914	166
Oct.	768	0	458	1.12	34,540	0	0
Nov.	1,770	0	400	1.30	35,910	0	0
Dec.	1,865	0	205	0.38	37,570	0	0
TOTAL	128,686	124,100	8,766	30.69	---	43,617	23,828

NOTE.--Courtland Canal below Lovewell: Acres irrigated 1987 -- 22,721

TABLE 2
SUMMARY OF 1987 OPERATIONS

SOLOMON DIVISION
KIRWIN UNIT

Month	KIRWIN RESERVOIR Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	KIRWIN CANAL Release To Canal (AF)	Delivered To Farms (AF)
Jan.	850	0	108	0.14	20,654	0	0
Feb.	1,260	0	145	0.95	21,769	0	0
Mar.	4,095	0	248	9.17	25,616	0	0
Apr.	11,289	0	775	1.73	36,130	0	0
May	4,341	0	999	5.19	39,472	0	0
June	2,437	0	1,327	3.20	40,582	0	0
July	7,458	7,077	1,687	4.55	39,276	7,016	2,700
Aug.	1,646	7,313	1,085	4.51	32,524	7,226	4,270
Sep.	136	0	803	0.37	31,857	0	0
Oct.	320	0	458	0.75	31,719	0	0
Nov.	1,308	0	365	1.98	32,662	0	0
Dec.	1,117	0	197	0.34	33,582	0	0
TOTAL	36,257	14,390	8,197	32.88	---	14,242	6,970

NOTE.--Kirwin Canal: Acres irrigated 1987 -- 6,838

SOLOMON DIVISION (Continued)
WEBSTER UNIT

Month	WEBSTER RESERVOIR Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	OSBORNE CANAL Release To Canal (AF)	Delivered To Farms (AF)
Jan.	250	0	107	0.11	14,210	0	0
Feb.	626	0	131	1.13	14,705	0	0
Mar.	4,175	0	236	7.23	18,644	0	0
Apr.	15,585	0	629	2.48	33,600	0	0
May	5,377	0	852	4.57	38,125	0	0
June	1,002	0	1,398	4.67	37,729	1,428	0
July	2,027	728	1,516	4.65	37,512	3,021	879
Aug.	1,072	1,694	1,020	4.06	35,870	3,743	2,007
Sep.	1	0	950	0.76	34,921	0	0
Oct.	1	0	739	0.58	34,183	0	0
Nov.	449	0	379	1.96	34,253	0	0
Dec.	1,021	0	210	0.34	35,064	0	0
TOTAL	31,586	2,422	8,167	32.54	---	8,192	2,886

NOTE.--Osborne Canal: Acres irrigated 1987 -- 4,168

SOLOMON DIVISION (Continued)
GLEN ELDER UNIT

Month	WACONDA LAKE Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	OUTFLOW TO RIVER City of Beloit Storage Release (AF)	City of Beloit Quality Bypass (AF)	Other Controlled Releases 1/ (AF)	Release To WCH&T RWD No.2 (AF)
Jan.	3,103	13,798	799	0.26	224,815	0	0	13,756	42
Feb.	4,520	3,923	961	0.97	224,451	0	0	3,888	35
Mar.	123,076	3,147	1,930	7.00	342,450	0	0	3,102	45
Apr.	187,166	24,150	6,794	3.71	498,672	0	0	24,105	45
May	44,316	103,671	8,429	4.24	430,888	0	0	103,630	41
June	45,843	112,771	9,898	6.97	354,062	0	0	112,723	48
July	59,179	124,615	10,977	1.35	277,649	0	0	124,563	52
Aug.	16,102	46,224	7,323	2.51	240,204	0	0	46,178	46
Sep.	11,530	14,921	5,684	1.37	231,129	0	0	14,876	45
Oct.	6,197	5,479	3,632	1.43	228,215	0	0	5,431	48
Nov.	10,543	17,899	1,888	1.23	218,971	0	0	17,852	47
Dec.	10,182	18,497	917	0.50	209,739	0	0	18,446	51
TOTAL	521,757	489,095	59,232	31.54	---	0	0	488,550	545

1/ Due to flood control releases, no releases were made for water right administration or temporary contracts.

SMOKY HILL DIVISION
ELLIS UNIT
CEDAR BLUFF RESERVOIR

Month	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End of Month Content (AF)	STORAGES 1/ Fish & Wildlife (AF)	City of Russell (AF)	Irrigation (AF)	Release To Fish Hatchery (AF)
Jan.	97	0	111	0.23	14,972	702	573	5,436	0
Feb.	150	33	131	1.10	14,958	679	574	5,444	33
Mar.	804	2	212	7.18	15,548	784	620	5,883	2
Apr.	4,109	170	647	2.76	18,840	1,241	889	8,449	126
May	5,645	136	733	2.09	23,616	1,965	1,274	12,116	86
June	784	122	1,054	2.78	23,224	1,872	1,246	11,845	77
July	10,075	70	1,319	2.46	31,910	3,277	1,938	18,434	36
Aug.	2,308	0	1,137	2.69	33,081	3,488	2,029	19,303	0
Sep.	0	0	935	0.50	32,146	3,357	1,953	18,575	0
Oct.	1	0	927	0.48	31,220	3,227	1,877	17,855	0
Nov.	45	2	335	0.62	30,928	3,185	1,854	17,628	2
Dec.	0	0	198	0.35	30,730	3,157	1,838	17,474	0
TOTAL	24,018	535	7,739	23.24	---	---	---	---	362

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 1987 irrigation season. No releases were made for the City of Russell, Kansas.

TABLE 3
ACRES IRRIGATED IN 1987 AND ESTIMATES FOR 1988

Irrigation District and Canal	Acres With Service Available	Acres Irrigated in 1987	Estimated Acres to be Irrigated in 1988
Mirage Flats Irrigation District			
Mirage Flats Canal	11,662	9,102	10,000
Ainsworth Irrigation District			
Ainsworth Canal	34,539	26,915	27,000
Sargent Irrigation District			
Sargent Canal	13,922	10,312	12,000
Farwell Irrigation District			
Farwell Canal	50,051	39,123	46,000
Twin Loups Irrigation District			
Mirdan Canal	13,254	1,044	4,000
Geranium Canal	10,870	---	1,000
Total Twin Loups Irrigation District	24,124	1,044	5,000
Frenchman Valley Irrigation District			
Culbertson Canal	9,600	7,437	7,200
H & RW Irrigation District			
Culbertson Extension Canal	11,490	9,737	9,500
Frenchman-Cambridge Irrigation District			
Meeker-Driftwood Canal	16,476	13,606	16,160
Red Willow Canal	4,932	4,253	4,790
Bartley Canal	6,539	5,716	6,290
Cambridge Canal	17,053	14,603	16,720
Total Frenchman-Cambridge Irrigation Dist.	45,000	38,178	43,960
Almena Irrigation District			
Almena Canal	5,763	4,520	4,800
Bostwick Irrigation District in Nebraska			
Franklin Canal	11,116	9,146	10,100
Naponee Canal	1,737	1,527	1,700
Franklin Pump Canal	2,091	1,919	2,050
Superior Canal	5,863	4,710	5,150
Courtland Canal (Nebraska)	1,980	1,113	1,600
Total Bostwick Irrigation Dist. in Nebraska	22,787	18,415	20,600
Kansas-Bostwick Irrigation District			
Courtland Canal above Lovewell	13,550	10,864	11,700
Courtland Canal below Lovewell	28,338	22,721	23,500
Total Kansas-Bostwick Irrigation District	41,888	33,585	35,200
Kirwin Irrigation District			
Kirwin Canal	11,435	6,838	7,000
Webster Irrigation District			
Osborne Canal	8,500	4,168	4,500
Cedar Bluff Irrigation District			
Cedar Bluff Canal	6,800	0	6,800
TOTAL PROJECT USES	297,561	209,374	239,560
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	224,353	254,6[illegible]

Table 4
Sheet 1 of 16

BOX BUTTE RESERVOIR OPERATION ESTIMATES - 1988

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	.97	.1	2.	.1	.0	.0	3986.9	7.8	1.3
FEB	34.	1.9	1.32	.1	2.	.1	.0	.0	3989.1	9.5	1.7
MAR	42.	2.6	1.95	.1	2.	.1	.0	.0	3991.8	11.9	2.4
APR	34.	2.0	2.12	.2	25.	1.5	.0	.0	3992.1	12.2	.3
MAY	23.	1.4	2.99	.2	50.	3.1	.0	.0	3990.0	10.3	-1.9
JUN	17.	1.0	3.99	.3	52.	3.1	.0	.0	3987.1	7.9	-2.4
JUL	13.	.8	5.90	.3	150.	9.2	.0	3.1	3976.5	2.3	-5.6
AUG	15.	.9	5.90	.2	151.	9.3	.0	8.6	3976.5	2.3	.0
SEP	13.	.8	4.51	.1	77.	4.6	.0	3.9	3976.5	2.3	.0
OCT	16.	1.0	2.71	.1	2.	.1	.0	.0	3978.6	3.1	.8
NOV	27.	1.6	1.46	.1	2.	.1	.0	.0	3981.5	4.5	1.4
DEC	28.	1.7	.90	.0	2.	.1	.0	.0	3984.3	6.1	1.6
TOTAL		17.2	34.72	1.8		31.4	.0	15.6			-.4
MOST PROBABLE INFLOW CONDITIONS											
JAN	29.	1.8	.80	.0	2.	.1	.0	.0	3987.4	8.2	1.7
FEB	40.	2.2	1.09	.1	2.	.1	.0	.0	3989.9	10.2	2.0
MAR	49.	3.0	1.60	.1	2.	.1	.0	.0	3992.9	13.0	2.8
APR	40.	2.4	1.74	.1	18.	1.1	.0	.0	3994.1	14.2	1.2
MAY	26.	1.6	2.46	.2	16.	1.0	.0	.0	3994.5	14.6	.4
JUN	20.	1.2	3.28	.3	37.	2.2	.0	.0	3993.2	13.3	-1.3
JUL	16.	1.0	4.85	.3	127.	7.8	.0	.0	3984.5	6.2	-7.1
AUG	16.	1.0	4.85	.2	130.	8.0	.0	3.3	3976.5	2.3	-3.9
SEP	17.	1.0	3.71	.1	37.	2.2	.0	1.3	3976.5	2.3	.0
OCT	18.	1.1	2.23	.1	2.	.1	.0	.0	3978.9	3.2	.9
NOV	32.	1.9	1.20	.0	2.	.1	.0	.0	3982.4	5.0	1.8
DEC	33.	2.0	.74	.0	2.	.1	.0	.0	3985.6	6.9	1.9
TOTAL		20.2	28.55	1.5		22.9	.0	4.6			.4
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	36.	2.2	.69	.0	2.	.1	.0	.0	3988.0	8.6	2.1
FEB	50.	2.8	.94	.1	2.	.1	.0	.0	3991.0	11.2	2.6
MAR	60.	3.7	1.38	.1	2.	.1	.0	.0	3994.6	14.7	3.5
APR	49.	2.9	1.50	.1	8.	.5	.0	.0	3996.7	17.0	2.3
MAY	34.	2.1	2.12	.2	11.	.7	.0	.0	3997.7	18.2	1.2
JUN	25.	1.5	2.84	.3	24.	1.4	.0	.0	3997.6	18.0	-.2
JUL	20.	1.2	4.19	.4	96.	5.9	.0	.0	3992.8	12.9	-5.1
AUG	21.	1.3	4.19	.3	94.	5.8	.0	.0	3987.3	8.1	-4.8
SEP	20.	1.2	3.21	.2	25.	1.5	.0	.0	3986.6	7.6	-.5
OCT	23.	1.4	1.92	.1	2.	.1	.0	.0	3988.2	8.8	1.2
NOV	39.	2.3	1.04	.1	2.	.1	.0	.0	3990.7	10.9	2.1
DEC	41.	2.5	.64	.1	2.	.1	.0	.0	3993.1	13.2	2.3
TOTAL		25.1	24.66	2.0		16.4	.0	.0			6.7

MERRITT RESERVOIR OPERATION ESTIMATES - 1988

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	.84	.2	.0	11.6	189.	11.6	.0	.0	2944.0	68.8	.0
FEB	212.	11.8	1.15	.3	.0	11.5	207.	11.5	.0	.0	2944.0	68.8	.0
MAR	236.	14.5	.95	.2	.0	14.3	233.	14.3	.0	.0	2944.0	68.8	.0
APR	235.	14.0	1.09	.3	.0	11.9	200.	11.9	.0	.0	2944.6	70.6	1.8
MAY	218.	13.4	1.82	.4	4.3	1.0	86.	5.3	3.8	.0	2946.0	74.5	3.9
JUN	208.	12.4	2.10	.5	7.0	1.0	134.	8.0	3.9	.0	2946.0	74.5	.0
JUL	210.	12.9	3.39	.7	34.3	1.0	574.	35.3	.0	.0	2937.0	51.4	-23.1
AUG	210.	12.9	2.95	.4	34.3	1.0	574.	35.3	.0	.0	2923.6	28.6	-22.8
SEP	208.	12.4	2.68	.3	6.0	1.0	118.	7.0	.0	.0	2927.3	33.7	5.1
OCT	208.	12.8	2.55	.4	.0	1.0	16.	1.0	.0	.0	2933.9	45.1	11.4
NOV	207.	12.3	1.51	.3	.0	1.0	17.	1.0	.0	.0	2939.0	56.1	11.0
DEC	203.	12.5	1.13	.2	.0	1.0	16.	1.0	.0	.0	2943.5	67.4	11.3
TOTAL		153.7	22.16	4.2	85.9	57.3		143.2	7.7	.0			-1.4
MOST PROBABLE INFLOW CONDITIONS													
JAN	216.	13.3	.52	.1	.0	13.2	215.	13.2	.0	.0	2944.0	68.8	.0
FEB	239.	13.3	.71	.2	.0	13.1	236.	13.1	.0	.0	2944.0	68.8	.0
MAR	267.	16.4	.58	.1	.0	16.3	265.	16.3	.0	.0	2944.0	68.8	.0
APR	266.	15.8	.67	.2	.0	13.8	232.	13.8	.0	.0	2944.6	70.6	1.8
MAY	247.	15.2	1.11	.3	3.3	1.0	70.	4.3	6.7	.0	2946.0	74.5	3.9
JUN	237.	14.1	1.29	.3	5.4	1.0	108.	6.4	7.4	.0	2946.0	74.5	.0
JUL	236.	14.5	2.08	.5	25.1	1.0	424.	26.1	.0	.0	2941.6	62.4	-12.1
AUG	236.	14.5	1.81	.4	25.1	1.0	424.	26.1	.0	.0	2936.5	50.4	-12.0
SEP	235.	14.0	1.65	.3	4.3	1.0	89.	5.3	.0	.0	2940.2	58.8	8.4
OCT	234.	14.4	1.56	.3	.0	4.1	67.	4.1	.0	.0	2944.0	68.8	10.0
NOV	234.	13.9	.92	.2	.0	13.7	230.	13.7	.0	.0	2944.0	68.8	.0
DEC	228.	14.0	.69	.2	.0	13.8	224.	13.8	.0	.0	2944.0	68.8	.0
TOTAL		173.4	13.59	3.1	63.2	93.0		156.2	14.1	.0			.0
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	241.	14.8	.24	.1	.0	14.7	239.	14.7	.0	.0	2944.0	68.8	.0
FEB	266.	14.8	.33	.1	.0	14.7	265.	14.7	.0	.0	2944.0	68.8	.0
MAR	294.	18.1	.27	.1	.0	18.0	293.	18.0	.0	.0	2944.0	68.8	.0
APR	294.	17.5	.31	.1	.0	15.6	262.	15.6	.0	.0	2944.6	70.6	1.8
MAY	273.	16.8	.51	.1	1.9	1.0	47.	2.9	9.9	.0	2946.0	74.5	3.9
JUN	262.	15.6	.60	.1	3.2	1.0	71.	4.2	11.3	.0	2946.0	74.5	.0
JUL	263.	16.2	.96	.2	16.2	1.0	280.	17.2	.0	.0	2945.6	73.3	-1.2
AUG	263.	16.2	.84	.2	16.2	1.0	280.	17.2	.0	.0	2945.2	72.1	-1.2
SEP	262.	15.6	.76	.2	2.7	16.0	314.	18.7	.0	.0	2944.0	68.8	-3.3
OCT	260.	16.0	.72	.2	.0	15.8	257.	15.8	.0	.0	2944.0	68.8	.0
NOV	260.	15.5	.43	.1	.0	15.4	259.	15.4	.0	.0	2944.0	68.8	.0
DEC	254.	15.6	.32	.1	.0	15.5	252.	15.5	.0	.0	2944.0	68.8	.0
TOTAL		192.7	6.29	1.6	40.2	129.7		169.9	21.2	.0			.0

SHERMAN RESERVOIR OPERATION ESTIMATES - 1988

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	1.17	.2	21.	1.3	.0	.0	2154.8	49.6	-1.5
FEB	0.	.0	1.44	.3	23.	1.3	.0	.0	2154.1	48.0	-1.6
MAR	0.	.0	1.55	.3	21.	1.3	.0	.0	2153.4	46.4	-1.6
APR	252.	15.0	2.12	.4	22.	1.3	.0	.0	2158.9	59.7	13.3
MAY	187.	11.5	2.69	.6	24.	1.5	.0	.0	2162.3	69.1	9.4
JUN	183.	10.9	3.89	.9	168.	10.0	.0	.0	2162.3	69.1	.0
JUL	47.	2.9	5.32	.9	1212.	74.5	.0	13.9	2129.0	10.5	-58.6
AUG	197.	12.1	4.49	.3	1184.	72.8	.0	61.0	2129.0	10.5	.0
SEP	424.	25.2	3.17	.3	176.	10.5	.0	.0	2141.6	24.9	14.4
OCT	473.	29.1	2.15	.4	18.	1.1	.0	.0	2156.0	52.5	27.6
NOV	0.	.0	1.23	.2	22.	1.3	.0	.0	2155.4	51.0	-1.5
DEC	0.	.0	.69	.1	21.	1.3	.0	.0	2154.8	49.6	-1.4
TOTAL		106.7	29.91	4.9		178.2	.0	74.9			-1.5
MOST PROBABLE INFLOW CONDITIONS											
JAN	0.	.0	.74	.1	21.	1.3	.0	.0	2154.8	49.7	-1.4
FEB	0.	.0	.90	.2	23.	1.3	.0	.0	2154.2	48.2	-1.5
MAR	0.	.0	.98	.2	21.	1.3	.0	.0	2153.5	46.7	-1.5
APR	235.	14.0	1.34	.3	22.	1.3	.0	.0	2158.6	59.1	12.4
MAY	194.	11.9	1.70	.4	24.	1.5	.0	.0	2162.3	69.1	10.0
JUN	131.	7.8	2.45	.6	121.	7.2	.0	.0	2162.3	69.1	.0
JUL	194.	11.9	3.36	.6	831.	51.1	.0	.0	2144.5	29.3	-39.8
AUG	309.	19.0	2.83	.3	812.	49.9	.0	12.4	2129.0	10.5	-18.8
SEP	464.	27.6	2.00	.2	121.	7.2	.0	.0	2145.3	30.7	20.2
OCT	376.	23.1	1.36	.2	18.	1.1	.0	.0	2156.0	52.5	21.8
NOV	0.	.0	.77	.2	22.	1.3	.0	.0	2155.4	51.0	-1.5
DEC	0.	.0	.43	.1	21.	1.3	.0	.0	2154.8	49.6	-1.4
TOTAL		115.3	18.86	3.4		125.8	.0	12.4			-1.5
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	0.	.0	.43	.1	21.	1.3	.0	.0	2154.8	49.7	-1.4
FEB	0.	.0	.53	.1	23.	1.3	.0	.0	2154.2	48.3	-1.4
MAR	0.	.0	.57	.1	21.	1.3	.0	.0	2153.6	46.9	-1.4
APR	218.	13.0	.78	.2	22.	1.3	.0	.0	2158.4	58.4	11.5
MAY	202.	12.4	.99	.2	24.	1.5	.0	.0	2162.3	69.1	10.7
JUN	96.	5.7	1.44	.3	91.	5.4	.0	.0	2162.3	69.1	.0
JUL	384.	23.6	1.97	.4	569.	35.0	.0	.0	2157.9	57.3	-11.8
AUG	207.	12.7	1.66	.3	548.	33.7	.0	.0	2148.3	36.0	-21.3
SEP	393.	23.4	1.17	.2	91.	5.4	.0	.0	2156.5	53.8	17.8
OCT	0.	.0	.80	.2	18.	1.1	.0	.0	2156.0	52.5	-1.3
NOV	0.	.0	.45	.1	22.	1.3	.0	.0	2155.4	51.1	-1.4
DEC	0.	.0	.25	.0	21.	1.3	.0	.0	2154.9	49.8	-1.3
TOTAL		90.8	11.04	2.2		89.9	.0	.0			-1.3

CALAMUS RESERVOIR OPERATION ESTIMATES - 1988

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	.99	.4	.0	16.0	260.	16.0	.0	.0	2240.1	108.3	.0
FEB	288.	16.0	1.08	.4	.0	15.6	281.	15.6	.0	.0	2240.1	108.3	.0
MAR	309.	19.0	1.79	.7	.0	5.6	91.	5.6	.0	.0	2242.7	121.0	12.7
APR	304.	18.1	2.36	1.0	.0	10.7	180.	10.7	.0	.0	2244.0	127.4	6.4
MAY	294.	18.1	2.75	1.2	.0	16.9	275.	16.9	.0	.0	2244.0	127.4	.0
JUN	289.	17.2	3.08	1.3	2.5	13.4	267.	15.9	.0	.0	2244.0	127.4	.0
JUL	254.	15.6	5.26	2.2	4.8	15.6	332.	20.4	.0	.0	2242.6	120.4	-7.0
AUG	254.	15.6	4.22	1.7	4.8	15.6	332.	20.4	.0	.0	2241.3	113.9	-6.5
SEP	262.	15.6	3.23	1.3	3.6	15.6	323.	19.2	.0	.0	2240.2	109.0	-4.9
OCT	263.	16.2	3.02	1.2	.0	6.8	111.	6.8	.0	.0	2242.0	117.2	8.2
NOV	269.	16.0	1.44	.6	.0	15.4	259.	15.4	.0	.0	2242.0	117.2	.0
DEC	260.	16.0	.69	.3	.0	15.7	255.	15.7	.0	.0	2242.0	117.2	.0
TOTAL		199.8	29.91	12.3	15.7	162.9		178.6	.0	.0			8.9
MOST PROBABLE INFLOW CONDITIONS													
JAN	286.	17.6	.62	.2	.0	17.4	283.	17.4	.0	.0	2240.1	108.3	.0
FEB	308.	17.1	.68	.3	.0	16.8	303.	16.8	.0	.0	2240.1	108.3	.0
MAR	330.	20.3	1.13	.5	.0	7.1	115.	7.1	.0	.0	2242.7	121.0	12.7
APR	328.	19.5	1.49	.6	.0	12.5	210.	12.5	.0	.0	2244.0	127.4	6.4
MAY	317.	19.5	1.74	.7	.0	18.8	306	18.8	.0	.0	2244.0	127.4	.0
JUN	311.	18.5	1.94	.8	.0	17.7	297.	17.7	.0	.0	2244.0	127.4	.0
JUL	272.	16.7	3.32	1.4	3.6	16.7	330.	20.3	.0	.0	2243.0	122.4	-5.0
AUG	272.	16.7	2.66	1.1	3.6	16.7	330.	20.3	.0	.0	2242.1	117.7	-4.7
SEP	281.	16.7	2.04	.8	2.3	16.7	319.	19.0	.0	.0	2241.4	114.6	-3.1
OCT	283.	17.4	1.90	.8	.0	14.0	228.	14.0	.0	.0	2242.0	117.2	2.6
NOV	287.	17.1	.91	.4	.0	16.7	281.	16.7	.0	.0	2242.0	117.2	.0
DEC	278.	17.1	.43	.2	.0	16.9	275.	16.9	.0	.0	2242.0	117.2	.0
TOTAL		214.2	18.86	7.8	9.5	188.0		197.5	.0	.0			8.9
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	320.	19.7	.36	.1	.0	19.6	319.	19.6	.0	.0	2240.1	108.3	.0
FEB	346.	19.2	.40	.2	.0	19.0	342.	19.0	.0	.0	2240.1	108.3	.0
MAR	371.	22.8	.66	.3	.0	9.8	159.	9.8	.0	.0	2242.7	121.0	12.7
APR	366.	21.8	.87	.4	.0	15.0	252.	15.0	.0	.0	2244.0	127.4	6.4
MAY	355.	21.8	1.02	.4	.0	21.4	348.	21.4	.0	.0	2244.0	127.4	.0
JUN	346.	20.6	1.14	.5	.0	20.1	338.	20.1	.0	.0	2244.0	127.4	.0
JUL	306.	18.8	1.94	.8	2.2	18.8	342.	21.0	.0	.0	2243.4	124.4	-3.0
AUG	306.	18.8	1.56	.7	2.4	18.8	345.	21.2	.0	.0	2242.8	121.3	-3.1
SEP	316.	18.8	1.19	.5	.0	18.8	316.	18.8	.0	.0	2242.7	120.8	-.5
OCT	316.	19.4	1.12	.5	.0	22.5	366.	22.5	.0	.0	2242.0	117.2	-3.6
NOV	323.	19.2	.53	.2	.0	19.0	319.	19.0	.0	.0	2242.0	117.2	.0
DEC	312.	19.2	.25	.1	.0	19.1	311.	19.1	.0	.0	2242.0	117.2	.0
TOTAL		240.1	11.04	4.7	4.6	221.9		226.5	.0	.0			8.9

BONNY RESERVOIR OPERATION ESTIMATES - 1988

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	21.	1.3	1.00	.2	.0	.3	5.	.3	.0	.0	3669.4	36.2	.8
FEB	22.	1.2	1.13	.2	.0	.3	5.	.3	.0	.0	3669.7	36.9	.7
MAR	24.	1.5	1.14	.2	.0	.3	5.	.3	.0	.0	3670.3	37.9	1.0
APR	25.	1.5	4.01	.6	.0	.3	5.	.3	.0	.0	3670.6	38.5	.6
MAY	39.	2.4	3.75	.6	.0	.3	5.	.3	.0	.0	3671.3	40.0	1.5
JUN	32.	1.9	5.85	1.0	.9	.3	20.	1.2	.0	.0	3671.2	39.7	-.3
JUL	24.	1.5	7.24	1.2	.9	.3	20.	1.2	.0	.0	3670.7	38.8	-.9
AUG	15.	.9	6.81	1.1	.8	.3	18.	1.1	.0	.0	3670.1	37.5	-1.3
SEP	12.	.7	5.50	.9	.6	.3	15.	.9	.0	.0	3669.5	36.4	-1.1
OCT	15.	.9	3.75	.6	.0	.3	5.	.3	.0	.0	3669.5	36.4	.0
NOV	22.	1.3	2.18	.3	.0	.3	5.	.3	.0	.0	3669.8	37.1	.7
DEC	21.	1.3	1.26	.2	.0	.3	5.	.3	.0	.0	3670.3	37.9	.8
TOTAL		16.4	43.62	7.1	3.2	3.6		6.8	.0	.0			2.5
MOST PROBABLE INFLOW CONDITIONS													
JAN	26.	1.6	.76	.1	.0	.3	5.	.3	.0	.0	3669.6	36.6	1.2
FEB	27.	1.5	.86	.1	.0	.3	5.	.3	.0	.0	3670.2	37.7	1.1
MAR	33.	2.0	.86	.1	.0	.3	5.	.3	.0	.0	3671.0	39.3	1.6
APR	34.	2.0	3.04	.5	.0	.3	5.	.3	.0	.0	3671.6	40.5	1.2
MAY	52.	3.2	2.85	.5	.0	.3	5.	.3	1.6	.0	3672.0	41.3	.8
JUN	42.	2.5	4.43	.8	.4	.3	12.	.7	1.0	.0	3672.0	41.3	.0
JUL	29.	1.8	5.49	.9	.6	.3	15.	.9	.0	.0	3672.0	41.3	.0
AUG	21.	1.3	5.16	.9	.6	.3	15.	.9	.0	.0	3671.7	40.8	-.5
SEP	15.	.9	4.17	.7	.4	.3	12.	.7	.0	.0	3671.5	40.3	-.5
OCT	20.	1.2	2.85	.5	.0	.3	5.	.3	.0	.0	3671.7	40.7	.4
NOV	27.	1.6	1.65	.3	.0	.3	5.	.3	.4	.0	3672.0	41.3	.6
DEC	26.	1.6	.96	.2	.0	.3	5.	.3	1.1	.0	3672.0	41.3	.0
TOTAL		21.2	33.08	5.6	2.0	3.6		5.6	4.1	.0			5.9
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	44.	2.7	.54	.1	.0	.3	5.	.3	.0	.0	3670.2	37.7	2.3
FEB	47.	2.6	.61	.1	.0	.3	5.	.3	.0	.0	3671.3	39.9	2.2
MAR	52.	3.2	.62	.1	.0	.3	5.	.3	1.4	.0	3672.0	41.3	1.4
APR	55.	3.3	2.17	.4	.0	.3	5.	.3	2.6	.0	3672.0	41.3	.0
MAY	86.	5.3	2.03	.3	.0	.3	5.	.3	4.7	.0	3672.0	41.3	.0
JUN	69.	4.1	3.17	.5	.2	.3	8.	.5	3.1	.0	3672.0	41.3	.0
JUL	50.	3.1	3.92	.7	.2	.3	8.	.5	1.9	.0	3672.0	41.3	.0
AUG	36.	2.2	3.69	.6	.4	.3	11.	.7	.9	.0	3672.0	41.3	.0
SEP	24.	1.4	2.98	.5	.4	.3	12.	.7	.2	.0	3672.0	41.3	.0
OCT	33.	2.0	2.03	.3	.0	.3	5.	.3	1.4	.0	3672.0	41.3	.0
NOV	47.	2.8	1.18	.2	.0	.3	5.	.3	2.3	.0	3672.0	41.3	.0
DEC	44.	2.7	.69	.1	.0	.3	5.	.3	2.3	.0	3672.0	41.3	.0
TOTAL		35.4	23.63	3.9	1.2	3.6		4.8	20.8	.0			5.9

ENDERS RESERVOIR OPERATION ESTIMATES - 1988

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	.60	.1	0.	.0	.0	.0	3097.4	23.4	2.5
FEB	43.	2.4	.75	.1	0.	.0	.0	.0	3099.3	25.7	2.3
MAR	42.	2.6	.67	.1	0.	.0	.0	.0	3101.3	28.2	2.5
APR	39.	2.3	3.41	.4	0.	.0	.0	.0	3102.8	30.1	1.9
MAY	39.	2.4	3.19	.4	42.	2.6	.0	.0	3102.3	29.5	-.6
JUN	44.	2.6	4.51	.5	52.	3.1	.0	.0	3101.5	28.5	-1.0
JUL	39.	2.4	6.39	.6	289.	17.8	.0	.0	3086.0	12.5	-16.0
AUG	37.	2.3	6.14	.4	268.	16.5	.0	12.1	3082.4	10.0	-2.5
SEP	40.	2.4	4.22	.2	104.	6.2	.0	4.0	3082.4	10.0	.0
OCT	37.	2.3	2.91	.2	0.	.0	.0	.0	3085.4	12.1	2.1
NOV	42.	2.5	1.85	.1	0.	.0	.0	.0	3088.5	14.5	2.4
DEC	41.	2.5	.85	.1	0.	.0	.0	.0	3091.1	16.9	2.4
TOTAL		29.3	35.49	3.2		46.2	.0	16.1			-4.0
MOST PROBABLE INFLOW CONDITIONS											
JAN	52.	3.2	.44	.0	0.	.0	.0	.0	3098.0	24.1	3.2
FEB	54.	3.0	.54	.1	0.	.0	.0	.0	3100.4	27.0	2.9
MAR	54.	3.3	.49	.1	0.	.0	.0	.0	3102.8	30.2	3.2
APR	49.	2.9	2.47	.3	0.	.0	.0	.0	3104.7	32.8	2.6
MAY	52.	3.2	2.31	.3	7.	.4	.0	.0	3106.5	35.3	2.5
JUN	57.	3.4	3.26	.4	10.	.6	.0	.0	3108.1	37.7	2.4
JUL	52.	3.2	4.62	.5	207.	12.7	.0	.0	3100.9	27.7	-10.0
AUG	47.	2.9	4.44	.4	218.	13.4	.0	.0	3091.0	16.8	-10.9
SEP	50.	3.0	3.06	.2	42.	2.5	.0	.0	3091.4	17.1	.3
OCT	49.	3.0	2.11	.2	0.	.0	.0	.0	3094.2	19.9	2.8
NOV	52.	3.1	1.33	.1	0.	.0	.0	.0	3096.9	22.9	3.0
DEC	52.	3.2	.62	.1	0.	.0	.0	.0	3099.6	26.0	3.1
TOTAL		37.4	25.69	2.7		29.6	.0	.0			5.1
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	63.	3.9	.31	.0	0.	.0	.0	.0	3098.6	24.8	3.9
FEB	63.	3.5	.38	.0	0.	.0	.0	.0	3101.4	28.3	3.5
MAR	63.	3.9	.34	.0	0.	.0	.0	.0	3104.3	32.2	3.9
APR	59.	3.5	1.75	.2	0.	.0	.0	.0	3106.6	35.5	3.3
MAY	60.	3.7	1.64	.2	0.	.0	.0	.0	3108.9	39.0	3.5
JUN	67.	4.0	2.31	.3	0.	.0	.0	.0	3111.2	42.7	3.7
JUL	59.	3.6	3.28	.4	115.	7.1	.0	.0	3108.8	38.8	-3.9
AUG	54.	3.3	3.15	.4	128.	7.9	.0	.0	3105.5	33.8	-5.0
SEP	57.	3.4	2.16	.3	17.	1.0	.0	.0	3106.9	35.9	2.1
OCT	55.	3.4	1.49	.2	0.	.0	.0	.0	3109.0	39.1	3.2
NOV	61.	3.6	.95	.1	0.	.0	.0	.0	3111.2	42.6	3.5
DEC	60.	3.7	.44	.1	0.	.0	1.7	.0	3112.3	44.5	1.9
TOTAL		43.5	18.20	2.2		16.0	1.7	.0			23.6

SWANSON LAKE OPERATION ESTIMATES - 1988

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	.69	.2	2.	.1	.0	.0	2742.1	69.3	3.1
FEB	4.9	.0	88.	4.9	.73	.2	2.	.1	.0	.0	2743.3	73.9	4.6
MAR	7.4	.0	120.	7.4	.55	.2	2.	.1	.0	.0	2745.1	81.0	7.1
APR	6.8	.0	114.	6.8	3.90	1.4	2.	.1	.0	.0	2746.3	86.3	5.3
MAY	7.2	.0	117.	7.2	2.95	1.0	98.	6.0	.0	.0	2746.4	86.5	.2
JUN	6.4	.0	108.	6.4	4.48	1.6	113.	6.7	.0	.0	2745.9	84.6	-1.9
JUL	5.0	.0	81.	5.0	6.41	2.1	348.	21.4	.0	.0	2741.2	66.1	-18.5
AUG	3.4	.0	55.	3.4	6.85	1.9	342.	21.0	.0	.0	2735.4	46.6	-19.5
SEP	1.7	.0	29.	1.7	4.63	1.1	203.	12.1	.0	.0	2731.4	35.1	-11.5
OCT	2.0	.0	33.	2.0	2.69	.6	57.	3.5	.0	.0	2730.5	33.0	-2.1
NOV	3.2	.0	54.	3.2	1.75	.4	2.	.1	.0	.0	2731.6	35.7	2.7
DEC	3.2	.0	52.	3.2	.80	.2	2.	.1	.0	.0	2732.7	38.6	2.9
TOTAL	54.6	.0		54.6	36.43	10.9		71.3	.0	.0			-27.6
					MOST PROBABLE INFLOW CONDITIONS								
JAN	5.1	.0	83.	5.1	.49	.2	2.	.1	.0	.0	2742.5	71.0	4.8
FEB	7.5	.0	135.	7.5	.51	.2	2.	.1	.0	.0	2744.4	78.2	7.2
MAR	11.2	.0	182.	11.2	.38	.1	2.	.1	.0	.0	2747.0	89.2	11.0
APR	10.2	.0	171.	10.2	2.74	1.0	2.	.1	.0	.0	2749.0	98.3	9.1
MAY	10.8	.0	176.	10.8	2.08	.8	23.	1.4	.0	.0	2750.9	106.9	8.6
JUN	9.5	.0	160.	9.5	3.15	1.3	27.	1.6	1.3	.0	2752.0	112.2	5.3
JUL	7.6	.0	124.	7.6	4.51	1.8	263.	16.2	.0	.0	2749.8	101.8	-10.4
AUG	5.1	.0	83.	5.1	4.82	1.8	296.	18.2	.0	.0	2746.5	86.9	-14.9
SEP	2.5	.0	42.	2.5	3.26	1.1	84.	5.0	.0	.0	2745.6	83.3	-3.6
OCT	3.0	.0	49.	3.0	1.90	.7	26.	1.6	.0	.0	2745.8	84.0	.7
NOV	4.7	.0	79.	4.7	1.23	.4	2.	.1	.0	.0	2746.8	88.2	4.2
DEC	4.8	.0	78.	4.8	.56	.2	2.	.1	.0	.0	2747.8	92.7	4.5
TOTAL	82.0	.0		82.0	25.63	9.6		44.6	1.3	.0			26.5
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	8.6	.0	140.	8.6	.33	.1	2.	.1	.0	.0	2743.5	74.6	8.4
FEB	12.7	.0	229.	12.7	.35	.1	2.	.1	.0	.0	2746.5	87.1	12.5
MAR	18.9	.0	307.	18.9	.26	.1	2.	.1	.0	.0	2750.7	105.8	18.7
APR	17.4	.0	292.	17.4	1.89	.8	2.	.1	10.1	.0	2752.0	112.2	6.4
MAY	18.3	.0	298.	18.3	1.43	.6	13.	.8	16.9	.0	2752.0	112.2	.0
JUN	16.1	.0	271.	16.1	2.17	.9	17.	1.0	14.2	.0	2752.0	112.2	.0
JUL	13.0	.0	211.	13.0	3.10	1.3	140.	8.6	3.1	.0	2752.0	112.2	.0
AUG	8.6	.0	140.	8.6	3.31	1.3	163.	10.0	.0	.0	2751.4	109.5	-2.7
SEP	4.1	.0	69.	4.1	2.24	.9	30.	1.8	.0	.0	2751.7	110.9	1.4
OCT	5.1	.0	83.	5.1	1.31	.5	15.	.9	2.4	.0	2752.0	112.2	1.3
NOV	8.2	.0	138.	8.2	.85	.3	2.	.1	7.8	.0	2752.0	112.2	.0
DEC	8.2	.0	133.	8.2	.39	.2	2.	.1	7.9	.0	2752.0	112.2	.0
TOTAL	139.2	.0		139.2	17.63	7.1		23.7	62.4	.0			46.0

HUGH BUTLER LAKE OPERATION ESTIMATES - 1988

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	.64	.1	5.	.3	.0	.0	2574.1	26.7	.7
FEB	23.	1.3	.72	.1	5.	.3	.0	.0	2574.8	27.6	.9
MAR	31.	1.9	.53	.1	5.	.3	.0	.0	2576.0	29.1	1.5
APR	29.	1.7	3.86	.4	5.	.3	.0	.0	2576.7	30.1	1.0
MAY	29.	1.8	3.98	.5	28.	1.7	.0	.0	2576.4	29.7	-.4
JUN	35.	2.1	4.96	.6	29.	1.7	.0	.0	2576.3	29.5	-.2
JUL	28.	1.7	6.67	.7	72.	4.4	.0	.0	2573.6	26.1	-3.4
AUG	18.	1.1	6.44	.6	72.	4.4	.0	.0	2570.3	22.2	-3.9
SEP	18.	1.1	4.51	.4	40.	2.4	.0	.0	2568.8	20.5	-1.7
OCT	15.	.9	3.11	.3	15.	.9	.0	.0	2568.5	20.2	-.3
NOV	18.	1.1	1.74	.2	5.	.3	.0	.0	2569.1	20.8	.6
DEC	18.	1.1	.72	.1	5.	.3	.0	.0	2569.7	21.5	.7
TOTAL		16.9	37.88	4.1		17.3	.0	.0			-4.5
MOST PROBABLE INFLOW CONDITIONS											
JAN	23.	1.4	.46	.0	5.	.3	.0	.0	2574.4	27.1	1.1
FEB	31.	1.7	.51	.1	5.	.3	.0	.0	2575.4	28.4	1.3
MAR	37.	2.3	.38	.0	5.	.3	.0	.0	2576.9	30.4	2.0
APR	34.	2.0	2.77	.3	5.	.3	.0	.0	2577.9	31.8	1.4
MAY	34.	2.1	2.85	.3	11.	.7	.0	.0	2578.7	32.9	1.1
JUN	44.	2.6	3.56	.4	12.	.7	.0	.0	2579.7	34.4	1.5
JUL	34.	2.1	4.78	.6	59.	3.6	.0	.0	2578.3	32.3	-2.1
AUG	23.	1.4	4.62	.5	68.	4.2	.0	.0	2575.9	29.0	-3.3
SEP	24.	1.4	3.23	.4	22.	1.3	.0	.0	2575.7	28.7	-.3
OCT	20.	1.2	2.23	.2	11.	.7	.0	.0	2575.9	29.0	.3
NOV	24.	1.4	1.25	.1	5.	.3	.0	.0	2576.6	30.0	1.0
DEC	23.	1.4	.52	.1	5.	.3	.0	.0	2577.4	31.0	1.0
TOTAL		21.0	27.16	3.0		13.0	.0	.0			5.0
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	29.	1.8	.31	.0	5.	.3	.0	.0	2574.8	27.5	1.5
FEB	38.	2.1	.35	.0	5.	.3	.0	.0	2576.1	29.3	1.8
MAR	50.	3.1	.26	.0	5.	.3	.0	.0	2578.1	32.1	2.8
APR	45.	2.7	1.88	.2	5.	.3	.0	.0	2579.6	34.3	2.2
MAY	47.	2.9	1.94	.3	8.	.5	.0	.0	2580.9	36.4	2.1
JUN	57.	3.4	2.42	.3	10.	.6	1.1	.0	2581.8	37.8	1.4
JUL	46.	2.8	3.24	.4	37.	2.3	.1	.0	2581.8	37.8	.0
AUG	29.	1.8	3.13	.4	41.	2.5	.0	.0	2581.1	36.7	-1.1
SEP	30.	1.8	2.19	.3	15.	.9	.0	.0	2581.5	37.3	.6
OCT	28.	1.7	1.51	.2	8.	.5	.5	.0	2581.8	37.8	.5
NOV	30.	1.8	.85	.1	5.	.3	1.4	.0	2581.8	37.8	.0
DEC	29.	1.8	.35	.0	5.	.3	1.5	.0	2581.8	37.8	.0
TOTAL		27.7	18.43	2.2		9.1	4.6	.0			11.8

HARRY STRUNK LAKE OPERATION ESTIMATES - 1988

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	.62	.1	2.	.1	.0	.0	2363.5	31.3	2.1
FEB	54.	3.0	.66	.1	2.	.1	.0	.0	2365.2	34.1	2.8
MAR	65.	4.0	.42	.1	52.	3.2	.0	.0	2365.6	34.8	.7
APR	57.	3.4	3.67	.6	32.	1.9	.0	.0	2366.1	35.7	.9
MAY	67.	4.1	3.08	.5	60.	3.7	.0	.0	2366.0	35.6	-.1
JUN	91.	5.4	4.33	.7	62.	3.7	.9	.0	2366.1	35.7	.1
JUL	75.	4.6	6.31	.8	229.	14.1	.0	.0	2359.6	25.4	-10.3
AUG	44.	2.7	6.13	.6	234.	14.4	.0	.0	2348.4	13.1	-12.3
SEP	34.	2.0	4.12	.3	99.	5.9	.0	.0	2343.0	8.9	-4.2
OCT	36.	2.2	3.02	.2	21.	1.3	.0	.0	2344.0	9.6	.7
NOV	39.	2.3	1.56	.1	2.	.1	.0	.0	2346.8	11.7	2.1
DEC	37.	2.3	.73	.1	2.	.1	.0	.0	2349.2	13.8	2.1
TOTAL		38.3	34.65	4.2		48.6	.9	.0			-15.4
MOST PROBABLE INFLOW CONDITIONS											
JAN	47.	2.9	.43	.1	2.	.1	.0	.0	2363.9	31.9	2.7
FEB	68.	3.8	.46	.1	14.	.8	.0	.0	2365.6	34.8	2.9
MAR	80.	4.9	.29	.0	80.	4.9	.0	.0	2365.6	34.8	.0
APR	71.	4.2	2.56	.4	49.	2.9	.0	.0	2366.1	35.7	.9
MAY	83.	5.1	2.15	.3	2.	.1	4.7	.0	2366.1	35.7	.0
JUN	111.	6.6	3.01	.5	7.	.4	5.7	.0	2366.1	35.7	.0
JUL	91.	5.6	4.39	.6	179.	11.0	.0	.0	2362.5	29.7	-6.0
AUG	55.	3.4	4.27	.5	208.	12.8	.0	.0	2355.2	19.8	-9.9
SEP	42.	2.5	2.87	.3	35.	2.1	.0	.0	2355.2	19.9	.1
OCT	44.	2.7	2.10	.2	2.	.1	.0	.0	2357.2	22.3	2.4
NOV	50.	3.0	1.08	.1	2.	.1	.0	.0	2359.4	25.1	2.8
DEC	47.	2.9	.51	.1	2.	.1	.0	.0	2361.3	27.8	2.7
TOTAL		47.6	24.12	3.2		35.4	10.4	.0			-1.4
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	70.	4.3	.29	.0	2.	.1	.0	.0	2364.8	33.4	4.2
FEB	101.	5.6	.30	.0	76.	4.2	.0	.0	2365.6	34.8	1.4
MAR	115.	7.1	.19	.0	115.	7.1	.0	.0	2365.6	34.8	.0
APR	103.	6.1	1.70	.3	82.	4.9	.0	.0	2366.1	35.7	.9
MAY	119.	7.3	1.43	.2	2.	.1	7.0	.0	2366.1	35.7	.0
JUN	161.	9.6	2.01	.3	2.	.1	9.2	.0	2366.1	35.7	.0
JUL	135.	8.3	2.92	.4	96.	5.9	2.0	.0	2366.1	35.7	.0
AUG	80.	4.9	2.84	.4	112.	6.9	.0	.0	2364.8	33.3	-2.4
SEP	62.	3.7	1.91	.3	10.	.6	.4	.0	2366.1	35.7	2.4
OCT	65.	4.0	1.39	.2	2.	.1	3.7	.0	2366.1	35.7	.0
NOV	72.	4.3	.72	.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	16.04	2.3		30.2	30.5	.0			6.5

KEITH SEBELIUS OPERATIONS ESTIMATES - 1988

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	.77	.1	2.	.1	.0	.0	2284.7	8.3	-.1
FEB	2.	.1	.77	.1	2.	.1	.0	.0	2284.6	8.2	-.1
MAR	5.	.3	.48	.0	2.	.1	.0	.0	2284.9	8.4	.2
APR	2.	.1	3.72	.2	2.	.1	.0	.0	2284.6	8.2	-.2
MAY	5.	.3	2.95	.2	2.	.1	.0	.0	2284.6	8.2	.0
JUN	17.	1.0	5.05	.3	2.	.1	.0	.0	2285.4	8.8	.6
JUL	8.	.5	7.44	.4	102.	6.3	.0	1.7	2278.6	4.3	-4.5
AUG	3.	.2	6.38	.3	104.	6.4	.0	6.2	2278.0	4.0	-.3
SEP	3.	.2	3.98	.2	45.	2.7	.0	2.6	2277.7	3.9	-.1
OCT	2.	.1	2.80	.1	16.	1.0	.0	.9	2277.5	3.8	-.1
NOV	2.	.1	1.55	.1	2.	.1	.0	.0	2277.3	3.7	-.1
DEC	2.	.1	.96	.0	2.	.1	.0	.0	2277.3	3.7	.0
TOTAL		3.1	36.85	2.0		17.2	.0	11.4			-4.7
MOST PROBABLE INFLOW CONDITIONS											
JAN	2.	.1	.52	.0	2.	.1	.0	.0	2284.9	8.4	.0
FEB	5.	.3	.52	.0	2.	.1	.0	.0	2285.1	8.6	.2
MAR	11.	.7	.32	.0	2.	.1	.0	.0	2285.8	9.2	.6
APR	7.	.4	2.48	.2	2.	.1	.0	.0	2286.0	9.3	.1
MAY	13.	.8	1.97	.1	2.	.1	.0	.0	2286.6	9.9	.6
JUN	44.	2.6	3.37	.3	2.	.1	.0	.0	2288.9	12.1	2.2
JUL	23.	1.4	4.97	.4	62.	3.8	.0	.0	2286.0	9.3	-2.8
AUG	10.	.6	4.26	.3	68.	4.2	.0	.0	2280.6	5.4	-3.9
SEP	12.	.7	2.66	.1	17.	1.0	.0	.0	2279.9	5.0	-.4
OCT	5.	.3	1.87	.1	5.	.3	.0	.0	2279.7	4.9	-.1
NOV	3.	.2	1.03	.0	2.	.1	.0	.0	2279.9	5.0	.1
DEC	3.	.2	.64	.0	2.	.1	.0	.0	2280.1	5.1	.1
TOTAL		8.3	24.61	1.5		10.1	.0	.0			-3.3
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	7.	.4	.35	.0	2.	.1	.0	.0	2285.2	8.7	.3
FEB	16.	.9	.35	.0	2.	.1	.0	.0	2286.2	9.5	.8
MAR	36.	2.2	.22	.0	2.	.1	.0	.0	2288.5	11.6	2.1
APR	20.	1.2	1.70	.1	2.	.1	.0	.0	2289.4	12.6	1.0
MAY	39.	2.4	1.34	.1	2.	.1	.0	.0	2291.4	14.8	2.2
JUN	134.	8.0	2.30	.3	2.	.1	.0	.0	2297.0	22.4	7.6
JUL	73.	4.5	3.39	.5	11.	.7	.0	.0	2299.0	25.7	3.3
AUG	31.	1.9	2.91	.4	28.	1.7	.0	.0	2298.9	25.5	-.2
SEP	34.	2.0	1.81	.3	2.	.1	.0	.0	2299.8	27.1	1.6
OCT	18.	1.1	1.28	.2	2.	.1	.0	.0	2300.3	27.9	.8
NOV	7.	.4	.71	.1	2.	.1	.0	.0	2300.4	28.1	.2
DEC	8.	.5	.44	.1	2.	.1	.0	.0	2300.5	28.4	.3
TOTAL		25.5	16.80	2.1		3.4	.0	.0			20.0

HARLAN COUNTY LAKE OPERATION ESTIMATES - 1988

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	.86	.8	10.	.6	.0	.0	1942.4	282.9	3.9
FEB	8.9	.0	160.	8.9	.82	.8	11.	.6	.0	.0	1943.0	290.4	7.5
MAR	14.7	.0	239.	14.7	.59	.6	0.	.0	.0	.0	1944.2	304.5	14.1
APR	13.0	.0	218.	13.0	4.84	5.1	0.	.0	.0	.0	1944.8	312.4	7.9
MAY	16.9	.0	275.	16.9	3.62	3.9	239.	14.7	.0	.0	1944.7	310.7	-1.7
JUN	26.4	.0	444.	26.4	5.61	6.0	161.	9.6	.0	.0	1945.5	321.5	10.8
JUL	13.6	.0	221.	13.6	9.14	9.5	652.	40.1	.0	.0	1942.6	285.5	-36.0
AUG	9.0	.0	146.	9.0	7.65	7.2	699.	43.0	.0	.0	1939.0	244.3	-41.2
SEP	6.6	.0	111.	6.6	4.44	3.9	260.	15.5	.0	.0	1937.8	231.5	-12.8
OCT	6.1	.0	99.	6.1	4.07	3.5	0.	.0	.0	.0	1938.0	234.1	2.6
NOV	5.3	.0	89.	5.3	2.58	2.3	0.	.0	.0	.0	1938.3	237.1	3.0
DEC	5.1	.0	83.	5.1	1.04	.9	10.	.6	.0	.0	1938.6	240.7	3.6
TOTAL	130.9	.0		130.9	45.26	44.5		124.7	.0	.0			-38.3
MOST PROBABLE INFLOW CONDITIONS													
JAN	9.2	.0	150.	9.2	.59	.6	10.	.6	.0	.0	1942.8	287.0	8.0
FEB	15.3	.0	275.	15.3	.55	.6	11.	.6	.0	.0	1943.9	301.1	14.1
MAR	25.3	.0	411.	25.3	.40	.4	0.	.0	.0	.0	1945.9	326.0	24.9
APR	22.3	.0	375.	22.3	3.30	3.6	0.	.0	17.1	.0	1946.0	327.6	1.6
MAY	29.1	.0	473.	29.1	2.47	2.7	24.	1.5	24.9	.0	1946.0	327.6	.0
JUN	45.5	.0	765.	45.5	3.82	4.2	29.	1.7	39.6	.0	1946.0	327.6	.0
JUL	23.4	.0	381.	23.4	6.23	6.8	398.	24.5	.0	.0	1945.4	319.7	-7.9
AUG	15.6	.0	254.	15.6	5.21	5.5	429.	26.4	.0	.0	1944.1	303.4	-16.3
SEP	11.5	.0	193.	11.5	3.02	3.2	97.	5.8	.0	.0	1944.3	305.9	2.5
OCT	10.6	.0	172.	10.6	2.77	2.9	0.	.0	.0	.0	1944.9	313.6	7.7
NOV	9.2	.0	155.	9.2	1.76	1.9	0.	.0	.0	.0	1945.5	320.9	7.3
DEC	8.9	.0	145.	8.9	.71	.8	10.	.6	.8	.0	1946.0	327.6	6.7
TOTAL	225.9	.0		225.9	30.83	33.2		61.7	82.4	.0			48.6
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	18.1	.0	294.	18.1	.39	.4	10.	.6	.0	.0	1943.5	296.1	17.1
FEB	30.2	.0	544.	30.2	.37	.4	11.	.6	.0	.0	1945.8	325.3	29.2
MAR	49.9	.0	812.	49.9	.27	.3	0.	.0	47.3	.0	1946.0	327.6	2.3
APR	44.0	.0	739.	44.0	2.20	2.4	0.	.0	41.6	.0	1946.0	327.6	.0
MAY	57.2	.0	930.	57.2	1.65	1.8	13.	.8	54.6	.0	1946.0	327.6	.0
JUN	89.7	.0	1507.	89.7	2.55	2.8	13.	.8	86.1	.0	1946.0	327.6	.0
JUL	46.1	.0	750.	46.1	4.15	4.6	99.	6.1	35.4	.0	1946.0	327.6	.0
AUG	30.8	.0	501.	30.8	3.47	3.8	104.	6.4	20.6	.0	1946.0	327.6	.0
SEP	22.7	.0	381.	22.7	2.02	2.2	25.	1.5	19.0	.0	1946.0	327.6	.0
OCT	20.9	.0	340.	20.9	1.85	2.0	0.	.0	18.9	.0	1946.0	327.6	.0
NOV	18.2	.0	306.	18.2	1.17	1.3	0.	.0	16.9	.0	1946.0	327.6	.0
DEC	17.6	.0	286.	17.6	.47	.5	10.	.6	16.5	.0	1946.0	327.6	.0
TOTAL	445.4	.0		445.4	20.56	22.5		17.4	356.9	.0			48.6

LOVEWELL RESERVOIR OPERATION ESTIMATES - 1988

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	.38	.1	0.	.0	.0	.0	1581.2	37.6	.0
FEB	.6	.0	11.	.6	.14	.0	0.	.0	.0	.0	1581.4	38.2	.6
MAR	.8	.0	13.	.8	.11	.0	0.	.0	.0	.0	1581.7	39.0	.8
APR	.8	.0	13.	.8	3.34	.8	0.	.0	.0	.0	1581.7	39.0	.0
MAY	2.0	7.3	151.	9.3	2.11	.5	99.	6.1	.0	.0	1582.6	41.7	2.7
JUN	4.2	2.9	119.	7.1	4.11	1.0	103.	6.1	.0	.0	1582.6	41.7	.0
JUL	2.8	11.5	233.	14.3	7.37	1.7	294.	18.1	.0	.0	1580.7	36.2	-5.5
AUG	1.5	9.2	174.	10.7	5.50	1.1	343.	21.1	.0	.0	1575.9	24.7	-11.5
SEP	1.4	1.2	44.	2.6	.93	.2	155.	9.2	.0	.0	1572.3	17.9	-6.8
OCT	.8	.0	13.	.8	1.44	.2	0.	.0	.0	.0	1572.7	18.5	.6
NOV	.3	.0	5.	.3	1.68	.3	0.	.0	.0	.0	1572.7	18.5	.0
DEC	.1	.0	2.	.1	.40	.1	0.	.0	.0	.0	1572.7	18.5	.0
TOTAL	15.4	32.1		47.5	27.51	6.0		60.6	.0	.0			-19.1
MOST PROBABLE INFLOW CONDITIONS													
JAN	.4	.0	7.	.4	.16	.0	0.	.0	.0	.0	1581.3	38.0	.4
FEB	1.6	.0	29.	1.6	.06	.0	0.	.0	.0	.0	1581.9	39.6	1.6
MAR	1.7	.0	28.	1.7	-.30	-.1	0.	.0	.0	.0	1582.5	41.4	1.8
APR	1.9	.0	32.	1.9	1.45	.4	0.	.0	1.2	.0	1582.6	41.7	.3
MAY	5.1	1.2	102.	6.3	.92	.2	34.	2.1	4.0	.0	1582.6	41.7	.0
JUN	10.2	1.2	192.	11.4	1.79	.4	35.	2.1	8.9	.0	1582.6	41.7	.0
JUL	6.7	5.2	194.	11.9	3.21	.8	283.	17.4	.0	.0	1580.4	35.4	-6.3
AUG	3.6	4.1	125.	7.7	2.39	.5	286.	17.6	.0	.0	1576.0	25.0	-10.4
SEP	3.5	1.2	79.	4.7	.41	.1	76.	4.5	.0	.0	1576.1	25.1	.1
OCT	2.0	.0	33.	2.0	.63	.1	0.	.0	.0	.0	1576.9	27.0	1.9
NOV	.6	.0	10.	.6	.73	.1	0.	.0	.0	.0	1577.1	27.5	.5
DEC	.4	.0	7.	.4	.17	.0	0.	.0	.0	.0	1577.3	27.9	.4
TOTAL	37.7	12.9		50.6	11.62	2.5		43.7	14.1	.0			-9.7
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	1.1	.0	18.	1.1	.04	.0	0.	.0	.0	.0	1581.6	38.7	1.1
FEB	3.6	.0	65.	3.6	.01	.0	0.	.0	.6	.0	1582.6	41.7	3.0
MAR	4.3	.0	70.	4.3	-.54	-.1	0.	.0	4.4	.0	1582.6	41.7	.0
APR	4.4	.0	74.	4.4	.35	.1	0.	.0	4.3	.0	1582.6	41.7	.0
MAY	12.3	.0	200.	12.3	.22	.1	15.	.9	11.3	.0	1582.6	41.7	.0
JUN	24.1	.0	405.	24.1	.43	.1	20.	1.2	22.8	.0	1582.6	41.7	.0
JUL	15.8	1.2	276.	17.0	.75	.2	138.	8.5	8.3	.0	1582.6	41.7	.0
AUG	8.7	1.2	161.	9.9	.58	.1	138.	8.5	1.3	.0	1582.6	41.7	.0
SEP	8.3	.0	139.	8.3	.10	.0	35.	2.1	6.2	.0	1582.6	41.7	.0
OCT	4.8	.0	78.	4.8	.16	.0	0.	.0	4.8	.0	1582.6	41.7	.0
NOV	1.6	.0	27.	1.6	.18	.0	0.	.0	1.6	.0	1582.6	41.7	.0
DEC	1.1	.0	18.	1.1	.05	.0	0.	.0	1.1	.0	1582.6	41.7	.0
TOTAL	90.1	2.4		92.5	2.33	.5		21.2	66.7	.0			4.1

KIRWIN RESERVOIR OPERATION ESTIMATES - 1988

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	.58	.1	0.	.0	.0	.0	1711.8	33.6	.0
FEB	7.	.4	.58	.1	0.	.0	.0	.0	1711.9	33.9	.3
MAR	13.	.8	.08	.0	0.	.0	.0	.0	1712.3	34.7	.8
APR	12.	.7	3.04	.6	0.	.0	.0	.0	1712.3	34.8	.1
MAY	23.	1.4	1.32	.3	31.	1.9	.0	.0	1712.0	34.0	-.8
JUN	39.	2.3	3.84	.8	32.	1.9	.0	.0	1711.8	33.6	-.4
JUL	18.	1.1	6.46	1.2	91.	5.6	.0	.0	1709.2	27.9	-5.7
AUG	15.	.9	5.27	.8	106.	6.5	.0	.0	1705.7	21.5	-6.4
SEP	8.	.5	2.37	.3	47.	2.8	.0	.0	1704.0	18.9	-2.6
OCT	7.	.4	1.77	.2	0.	.0	.0	.0	1704.2	19.1	.2
NOV	3.	.2	1.60	.2	0.	.0	.0	.0	1704.2	19.1	.0
DEC	2.	.1	.69	.1	0.	.0	.0	.0	1704.2	19.1	.0
TOTAL		8.9	27.60	4.7		18.7	.0	.0			-14.5
					MOST PROBABLE INFLOW CONDITIONS						
JAN	8.	.5	.38	.1	0.	.0	.0	.0	1712.0	34.0	.4
FEB	22.	1.2	.38	.1	0.	.0	.0	.0	1712.4	35.1	1.1
MAR	36.	2.2	.06	.0	0.	.0	.0	.0	1713.3	37.3	2.2
APR	32.	1.9	2.00	.5	0.	.0	.0	.0	1713.8	38.7	1.4
MAY	63.	3.9	.87	.2	10.	.6	.0	.0	1714.9	41.8	3.1
JUN	109.	6.5	2.52	.6	10.	.6	.0	.0	1716.6	47.1	5.3
JUL	52.	3.2	4.24	1.1	81.	5.0	.0	.0	1715.7	44.2	-2.9
AUG	41.	2.5	3.46	.9	81.	5.0	.0	.0	1714.5	40.8	-3.4
SEP	24.	1.4	1.56	.4	22.	1.3	.0	.0	1714.4	40.5	-.3
OCT	16.	1.0	1.16	.3	0.	.0	.0	.0	1714.7	41.2	.7
NOV	8.	.5	1.05	.3	0.	.0	.0	.0	1714.7	41.4	.2
DEC	8.	.5	.45	.1	0.	.0	.0	.0	1714.9	41.8	.4
TOTAL		25.3	18.13	4.6		12.5	.0	.0			8.2
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	20.	1.2	.21	.0	0.	.0	.0	.0	1712.3	34.8	1.2
FEB	58.	3.2	.22	.0	0.	.0	.0	.0	1713.5	38.0	3.2
MAR	98.	6.0	.03	.0	0.	.0	.0	.0	1715.6	44.0	6.0
APR	86.	5.1	1.13	.3	0.	.0	.0	.0	1717.1	48.8	4.8
MAY	171.	10.5	.49	.1	7.	.4	.0	.0	1719.9	58.8	10.0
JUN	294.	17.5	1.42	.5	7.	.4	.0	.0	1724.1	75.4	16.6
JUL	141.	8.7	2.39	.9	50.	3.1	.0	.0	1725.2	80.1	4.7
AUG	106.	6.5	1.95	.7	50.	3.1	.0	.0	1725.8	82.8	2.7
SEP	62.	3.7	.88	.3	13.	.8	.0	.0	1726.3	85.4	2.6
OCT	47.	2.9	.66	.3	0.	.0	.0	.0	1726.9	88.0	2.6
NOV	24.	1.4	.59	.2	0.	.0	.0	.0	1727.2	89.2	1.2
DEC	21.	1.3	.26	.1	0.	.0	.0	.0	1727.4	90.4	1.2
TOTAL		68.0	10.23	3.4		7.8	.0	.0			56.8

WEBSTER RESERVOIR OPERATION ESTIMATES - 1988

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	.54	.1	0.	.0	.0	.0	1878.5	35.2	.1
FEB	7.	.4	.47	.1	0.	.0	.0	.0	1878.6	35.5	.3
MAR	13.	.8	.32	.1	0.	.0	.0	.0	1878.9	36.2	.7
APR	13.	.8	3.85	.8	0.	.0	.0	.0	1878.9	36.2	.0
MAY	21.	1.3	2.70	.5	33.	2.0	.0	.0	1878.4	35.0	-1.2
JUN	32.	1.9	5.50	1.1	49.	2.9	.0	.0	1877.5	32.9	-2.1
JUL	21.	1.3	7.16	1.3	91.	5.6	.0	.0	1874.9	27.3	-5.6
AUG	13.	.8	6.19	1.0	104.	6.4	.0	.0	1871.5	20.7	-6.6
SEP	5.	.3	3.96	.6	61.	3.6	.0	.0	1869.2	16.8	-3.9
OCT	5.	.3	2.80	.4	0.	.0	.0	.0	1869.1	16.7	-.1
NOV	3.	.2	1.80	.2	0.	.0	.0	.0	1869.1	16.7	.0
DEC	5.	.3	.68	.1	0.	.0	.0	.0	1869.3	16.9	.2
TOTAL		8.6	35.97	6.3		20.5	.0	.0			-18.2
MOST PROBABLE INFLOW CONDITIONS											
JAN	10.	.6	.34	.1	0.	.0	.0	.0	1878.7	35.6	.5
FEB	18.	1.0	.30	.1	0.	.0	.0	.0	1879.1	36.5	.9
MAR	29.	1.8	.20	.0	0.	.0	.0	.0	1879.8	38.3	1.8
APR	32.	1.9	2.44	.5	0.	.0	.0	.0	1880.3	39.7	1.4
MAY	54.	3.3	1.71	.4	10.	.6	.0	.0	1881.3	42.0	2.3
JUN	81.	4.8	3.48	.8	10.	.6	.0	.0	1882.5	45.4	3.4
JUL	52.	3.2	4.53	1.0	81.	5.0	.0	.0	1881.5	42.6	-2.8
AUG	33.	2.0	3.91	.8	81.	5.0	.0	.0	1880.0	38.8	-3.8
SEP	15.	.9	2.50	.5	24.	1.4	.0	.0	1879.6	37.8	-1.0
OCT	15.	.9	1.78	.4	0.	.0	.0	.0	1879.8	38.3	.5
NOV	8.	.5	1.14	.2	0.	.0	.0	.0	1879.9	38.6	.3
DEC	10.	.6	.43	.1	0.	.0	.0	.0	1880.1	39.1	.5
TOTAL		21.5	22.76	4.9		12.6	.0	.0			4.0
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	33.	2.0	.21	.0	0.	.0	.0	.0	1879.3	37.1	2.0
FEB	63.	3.5	.18	.0	0.	.0	.0	.0	1880.7	40.6	3.5
MAR	99.	6.1	.12	.0	0.	.0	.0	.0	1883.0	46.7	6.1
APR	104.	6.2	1.46	.3	0.	.0	.0	.0	1885.1	52.6	5.9
MAY	177.	10.9	1.03	.3	0.	.0	.0	.0	1888.4	63.2	10.6
JUN	266.	15.8	2.09	.6	0.	.0	1.0	.0	1892.4	77.4	14.2
JUL	179.	11.0	2.72	.9	37.	2.3	7.8	.0	1892.4	77.4	.0
AUG	106.	6.5	2.35	.7	37.	2.3	3.5	.0	1892.4	77.4	.0
SEP	52.	3.1	1.50	.5	0.	.0	2.6	.0	1892.4	77.4	.0
OCT	52.	3.2	1.07	.3	0.	.0	2.9	.0	1892.4	77.4	.0
NOV	30.	1.8	.68	.2	0.	.0	1.6	.0	1892.4	77.4	.0
DEC	31.	1.9	.26	.1	0.	.0	1.8	.0	1892.4	77.4	.0
TOTAL		72.0	13.67	3.9		4.6	21.2	.0			42.3

WACONDA LAKE OPERATION ESTIMATES - 1988

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	.33	.3	33.	2.0	.0	.0	1453.0	209.7	.0
FEB	2.9	.0	52.	2.9	.52	.5	43.	2.4	.0	.0	1453.0	209.7	.0
MAR	6.4	.0	104.	6.4	-.06	-.1	11.	.7	.0	.0	1453.5	215.5	5.8
APR	4.6	.0	77.	4.6	3.46	3.4	2.	.1	.0	.0	1453.5	216.6	1.1
MAY	7.8	.0	127.	7.8	3.06	3.0	2.	.1	.0	.0	1453.9	221.3	4.7
JUN	11.5	.0	193.	11.5	6.08	6.1	35.	2.1	.0	.0	1454.2	224.6	3.3
JUL	6.2	.0	101.	6.2	8.76	8.7	99.	6.1	.0	.0	1453.5	216.0	-8.6
AUG	3.7	.0	60.	3.7	7.45	7.2	99.	6.1	.0	.0	1452.7	206.4	-9.6
SEP	5.4	.0	91.	5.4	3.80	3.6	35.	2.1	.0	.0	1452.6	206.1	-.3
OCT	3.4	.0	55.	3.4	2.02	1.9	24.	1.5	.0	.0	1452.6	206.1	.0
NOV	2.0	.0	34.	2.0	1.22	1.2	13.	.8	.0	.0	1452.6	206.1	.0
DEC	1.8	.0	29.	1.8	.33	.3	24.	1.5	.0	.0	1452.6	206.1	.0
TOTAL	58.0	.0		58.0	36.97	36.1		25.5	.0	.0			-3.6
MOST PROBABLE INFLOW CONDITIONS													
JAN	5.2	.0	85.	5.2	.21	.2	81.	5.0	.0	.0	1453.0	209.7	.0
FEB	6.4	.0	115.	6.4	.32	.3	110.	6.1	.0	.0	1453.0	209.7	.0
MAR	14.2	.0	231.	14.2	-.12	-.1	11.	.7	.0	.0	1454.1	223.3	13.6
APR	10.1	.0	170.	10.1	2.19	2.2	2.	.1	.0	.0	1454.8	231.1	7.8
MAY	17.4	.0	283.	17.4	1.93	2.0	2.	.1	4.9	.0	1455.6	241.5	10.4
JUN	25.7	.0	432.	25.7	3.84	4.0	25.	1.5	20.2	.0	1455.6	241.5	.0
JUL	13.7	.0	223.	13.7	5.54	5.8	70.	4.3	3.6	.0	1455.6	241.5	.0
AUG	8.2	.0	133.	8.2	4.70	4.9	70.	4.3	.0	.0	1455.5	240.5	-1.0
SEP	12.5	.0	210.	12.5	2.40	2.5	254.	15.1	.0	.0	1455.1	235.4	-5.1
OCT	7.5	.0	122.	7.5	1.28	1.3	299.	18.4	.0	.0	1454.1	223.2	-12.2
NOV	4.6	.0	77.	4.6	.77	.8	301.	17.9	.0	.0	1452.9	209.1	-14.1
DEC	3.8	.0	62.	3.8	.21	.2	59.	3.6	.0	.0	1452.9	209.1	.0
TOTAL	129.3	.0		129.3	23.27	24.1		77.1	28.7	.0			-.6
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	13.7	.0	223.	13.7	.09	.1	221.	13.6	.0	.0	1453.0	209.7	.0
FEB	16.8	.0	303.	16.8	.15	.1	301.	16.7	.0	.0	1453.0	209.7	.0
MAR	37.3	.0	607.	37.3	-.19	-.2	299.	18.4	.0	.0	1454.6	228.8	19.1
APR	26.9	.0	452.	26.9	.98	1.0	301.	17.9	.0	.0	1455.2	236.8	8.0
MAY	46.0	.0	748.	46.0	.87	.9	2.	.1	40.3	.0	1455.6	241.5	4.7
JUN	67.6	.0	1136.	67.6	1.73	1.8	2.	.1	65.7	.0	1455.6	241.5	.0
JUL	35.9	.0	584.	35.9	2.50	2.6	2.	.1	33.2	.0	1455.6	241.5	.0
AUG	21.5	.0	350.	21.5	2.12	2.2	2.	.1	19.2	.0	1455.6	241.5	.0
SEP	31.8	.0	534.	31.8	1.08	1.1	2.	.1	30.6	.0	1455.6	241.5	.0
OCT	19.9	.0	324.	19.9	.58	.6	299.	18.4	.9	.0	1455.6	241.5	.0
NOV	12.1	.0	203.	12.1	.35	.4	301.	17.9	.0	.0	1455.1	235.3	-6.2
DEC	10.0	.0	163.	10.0	.09	.1	161.	9.9	.0	.0	1455.1	235.3	.0
TOTAL	339.5	.0		339.5	10.35	10.7		113.3	189.9	.0			25.6

Table 4
Sheet 16 of 16

CEDAR BLUFF RESERVOIR OPERATION ESTIMATES - 1988

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	.76	.1	3.	.2	.0	.0	2105.4	30.5	-.2
FEB	4.	.2	.77	.1	4.	.2	.0	.0	2105.3	30.4	-.1
MAR	8.	.5	.63	.1	5.	.3	.0	.0	2105.4	30.5	.1
APR	8.	.5	4.72	.8	5.	.3	.0	.0	2105.1	29.9	-.6
MAY	20.	1.2	4.50	.7	42.	2.6	.0	2.1	2105.1	29.9	.0
JUN	30.	1.8	6.12	.9	44.	2.6	.0	2.1	2105.3	30.3	.4
JUL	24.	1.5	7.96	1.1	117.	7.2	.0	6.3	2105.0	29.8	-.5
AUG	16.	1.0	7.29	.9	117.	7.2	.0	6.3	2104.6	29.0	-.8
SEP	10.	.6	5.53	.6	61.	3.6	.0	3.2	2104.4	28.6	-.4
OCT	5.	.3	4.14	.5	21.	1.3	.0	1.1	2104.2	28.2	-.4
NOV	2.	.1	1.71	.2	3.	.2	.0	.0	2104.0	27.9	-.3
DEC	2.	.1	.85	.1	3.	.2	.0	.0	2103.9	27.7	-.2
TOTAL		7.9	44.98	6.1		25.9	.0	21.1			-3.0
				MOST PROBABLE INFLOW CONDITIONS							
JAN	5.	.3	.57	.1	3.	.2	.0	.0	2105.5	30.7	.0
FEB	13.	.7	.57	.1	4.	.2	.0	.0	2105.7	31.1	.4
MAR	29.	1.8	.47	.1	5.	.3	.0	.0	2106.4	32.5	1.4
APR	29.	1.7	3.53	.6	5.	.3	.0	.0	2106.8	33.3	.8
MAY	65.	4.0	3.36	.6	16.	1.0	.0	.0	2108.0	35.7	2.4
JUN	108.	6.4	4.57	.8	18.	1.1	.0	.0	2110.0	40.2	4.5
JUL	83.	5.1	5.95	1.1	96.	5.9	.0	.0	2109.2	38.3	-1.9
AUG	54.	3.3	5.45	1.0	107.	6.6	.0	1.3	2107.8	35.3	-3.0
SEP	30.	1.8	4.14	.7	30.	1.8	.0	.7	2107.8	35.3	.0
OCT	20.	1.2	3.10	.5	16.	1.0	.0	.3	2107.8	35.3	.0
NOV	5.	.3	1.28	.2	3.	.2	.0	.0	2107.7	35.2	-.1
DEC	5.	.3	.64	.1	3.	.2	.0	.0	2107.7	35.2	.0
TOTAL		26.9	33.63	5.9		18.8	.0	2.3			4.5
				REASONABLE MAXIMUM INFLOW CONDITIONS							
JAN	15.	.9	.40	.1	3.	.2	.0	.0	2105.8	31.3	.6
FEB	40.	2.2	.41	.1	4.	.2	.0	.0	2106.8	33.2	1.9
MAR	104.	6.4	.33	.1	5.	.3	.0	.0	2109.6	39.2	6.0
APR	104.	6.2	2.49	.5	5.	.3	.0	.0	2111.9	44.6	5.4
MAY	228.	14.0	2.37	.5	13.	.8	.0	.0	2116.8	57.3	12.7
JUN	381.	22.7	3.23	.9	13.	.8	.0	.0	2123.3	78.3	21.0
JUL	294.	18.1	4.20	1.3	57.	3.5	.0	.0	2126.8	91.6	13.3
AUG	190.	11.7	3.85	1.3	65.	4.0	.0	.0	2128.3	98.0	6.4
SEP	109.	6.5	2.92	1.1	18.	1.1	.0	.0	2129.3	102.3	4.3
OCT	68.	4.2	2.18	.8	11.	.7	.0	.0	2129.9	105.0	2.7
NOV	22.	1.3	.90	.3	3.	.2	.0	.0	2130.1	105.8	.8
DEC	18.	1.1	.45	.2	3.	.2	.0	.0	2130.2	106.5	.7
TOTAL		95.3	23.73	7.2		12.3	.0	.0			75.8

TABLE 5
FLOOD DAMAGES PREVENTED BY NEBRASKA-KANSAS PROJECTS RESERVOIRS

BONNY

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

ENDERS

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

SWANSON

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

HUGH BUTLER

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

HARRY STRUNK

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

KEITH SEBELIUS

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

HARLAN COUNTY

Year	Damages Prevented	Cumulative Total
1957	$1,045,000	$ 1,045,000
1960	4,853,000	5,898,000
1961	255,000	6,153,000
1962	45,000	6,198,000
1964	182,000	6,380,000
1965	60,000	6,440,000
1966	1,658,000	8,098,000
1967	3,539,000	11,637,000
1969	14,000	11,651,000
1971	64,000	11,715,000
1973	1,310,000	13,025,000
1974	1,000	13,026,000
1975	200,000	13,226,000
1976	1,000	13,227,000
1978	100,000	13,327,000
1979	21,000	13,348,000
1981	21,000	13,369,000
1982	465,000	13,834,000
1983	1,874,000	15,708,000
1984	1,639,000	17,347,000
1986	6,756,000	24,103,000
1987	2,336,000	26,439,000

LOVEWELL

Year	Damages Prevented	Cumulative Total
1957	$ 349,000	$ 349,000
1960	178,000	527,000
1961	165,000	692,000
1962	5,000	697,000
1971	9,000	706,000
1973	1,728,000	2,434,000
1975	98,000	2,532,000
1978	25,000	2,557,000
1979	13,000	2,570,000
1981	8,000	2,578,000
1982	18,000	2,596,000
1983	511,000	3,107,000
1984	276,000	3,383,000
1985	140,000	3,523,000
1986	354,000	3,877,000
1987	1,185,000	5,062,000

KIRWIN

Year	Damages Prevented	Cumulative Total
1957	$ 522,000	$ 522,000
1958	10,000	532,000
1960	499,000	1,031,000
1961	1,000	1,032,000
1962	1,000	1,033,000
1964	34,000	1,067,000
1965	325,000	1,392,000
1967	191,000	1,583,000
1968	44,000	1,627,000
1969	2,000	1,629,000
1971	3,000	1,632,000
1973	40,000	1,672,000
1975	618,000	2,290,000
1978	4,000	2,294,000
1979	35,000	2,329,000
1982	25,000	2,354,000
1983	1,000	2,355,000
1985	60,000	2,415,000
1986	60,000	2,475,000
1987	441,000	2,916,000

WEBSTER

Year	Damages Prevented	Cumulative Total
1957	$ 326,000	$ 326,000
1958	114,000	440,000
1960	1,018,000	1,458,000
1961	1,000	1,459,000
1962	1,000	1,460,000
1964	17,000	1,477,000
1965	325,000	1,802,000
1967	85,000	1,887,000
1968	2,000	1,889,000
1969	1,000	1,890,000
1971	3,000	1,893,000
1973	54,000	1,947,000
1975	885,000	2,832,000
1978	2,000	2,834,000
1979	16,000	2,850,000
1982	36,000	2,886,000
1987	447,000	3,333,000

WACONDA

Year	Damages Prevented	Cumulative Total
1968	$ 280,000	$ 280,000
1969	606,000	886,000
1971	9,000	895,000
1973	3,797,000	4,692,000
1974	1,000	4,693,000
1975	967,000	5,660,000
1978	11,000	5,671,000
1979	959,000	6,630,000
1981	24,000	6,654,000
1982	1,398,000	8,052,000
1983	360,000	8,412,000
1984	1,363,000	9,775,000
1985	331,000	10,106,000
1986	1,269,000	11,375,000
1987	5,699,000	17,074,000

CEDAR BLUFF

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

PROJECT TOTALS

Year	Damages Prevented	Cumulative Total
1951	$1,124,000	$ 1,124,000
1953	135,000	1,259,000
1955	357,000	1,616,000
1956	123,000	1,739,000
1957	8,342,000	10,081,000
1958	953,000	11,034,000
1960	9,800,000	20,834,000
1961	523,000	21,357,000
1962	247,000	21,604,000
1964	300,000	21,904,000
1965	1,772,000	23,676,000
1966	1,790,000	25,466,000
1967	5,179,000	30,645,000
1968	326,000	30,971,000
1969	832,000	31,803,000
1971	96,000	31,899,000
1972	498,000	32,397,000
1973	7,465,000	39,862,000
1974	2,000	39,864,000
1975	2,779,000	42,643,000
1976	1,000	42,644,000
1978	142,000	42,786,000
1979	1,046,000	43,832,000
1981	54,000	43,886,000
1982	1,990,000	45,876,000
1983	2,747,000	48,623,000
1984	3,278,000	51,901,000
1985	534,000	52,435,000
1986	8,439,000	60,874,000
1987	10,139,000	71,013,000

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

TABLE 6
WATER DIVERTED IN 1987 AND THE
ESTIMATED DIVERSION FOR 1988
(Units - Acre-feet)

Irrigation District and Canal	1987 Irrigation Operations From	To	10-Year Average Diversion (1977-86)	1987 Diversions	Estimated Diversion in 1988
Mirage Flats Irrigation District					
Mirage Flats Canal	6/25	9/01	15,826	17,439	12,000
Ainsworth Irrigation District					
Ainsworth Canal	5/17	9/13	62,215	70,576	70,000
Sargent Irrigation District					
Sargent Canal	6/18	9/09	25,508	25,938	25,000
Farwell Irrigation District					
Farwell Canal	6/08	8/25	77,274	68,415	80,000
Twin Loups Irrigation District					
Mirdan Canal	4/08	9/15	--	5,874	6,000
Geranium Canal	--	--	--	--	4,000
Total Twin Loups Irrigation District				5,874	10,000
Frenchman Valley Irrigation District					
Culbertson Canal	4/27	8/24	13,105	11,389	11,000
H & RW Irrigation District					
Culbertson Extension Canal	5/27	8/24	19,026	14,284	13,000
Frenchman-Cambridge Irrigation District					
Meeker-Driftwood Canal	6/11	9/04	30,207	30,344	31,000
Red Willow Canal	6/15	9/04	7,793	9,018	9,000
Bartley Canal	6/01	9/04	9,447	8,740	9,000
Cambridge Canal	5/26	9/04	28,002	25,230	29,000
Total Frenchman-Cambridge Irrigation District			75,449	73,332	78,000
Almena Irrigation District					
Almena Canal	6/29	8/09	968	2,152	3,000
Bostwick Irrigation District in Nebraska					
Franklin Canal	6/17	9/04	25,848	26,281	26,000
Naponee Canal	6/16	8/31	3,037	2,599	3,000
Franklin Pump Canal	6/16	8/22	2,920	2,875	3,000
Superior Canal	6/17	8/25	13,392	13,990	14,000
Courtland Canal (Nebraska)	5/11	9/10	1,642	1,436	1,700
Total Bostwick Irrigation District in Nebraska			46,839	47,181	47,700
Kansas-Bostwick Irrigation District					
Courtland Canal above Lovewell	5/11	9/15	24,391	23,717	26,000
Courtland Canal below Lovewell	6/02	9/09	44,348	43,617	46,000
Total Kansas-Bostwick Irrigation District			68,739	67,334	72,000
Kirwin Irrigation District					
Kirwin Canal	7/06	8/22	9,687	14,242	15,000
Webster Irrigation District					
Osborne Canal	6/09	8/24	5,160	8,192	9,000
Cedar Bluff Irrigation District					
Cedar Bluff Canal	No irrigation in 1987		3,399	0	0
TOTAL			423,195	426,348	445,700

EXHIBIT 1A

BOX BUTTE RESERVOIR OPERATION

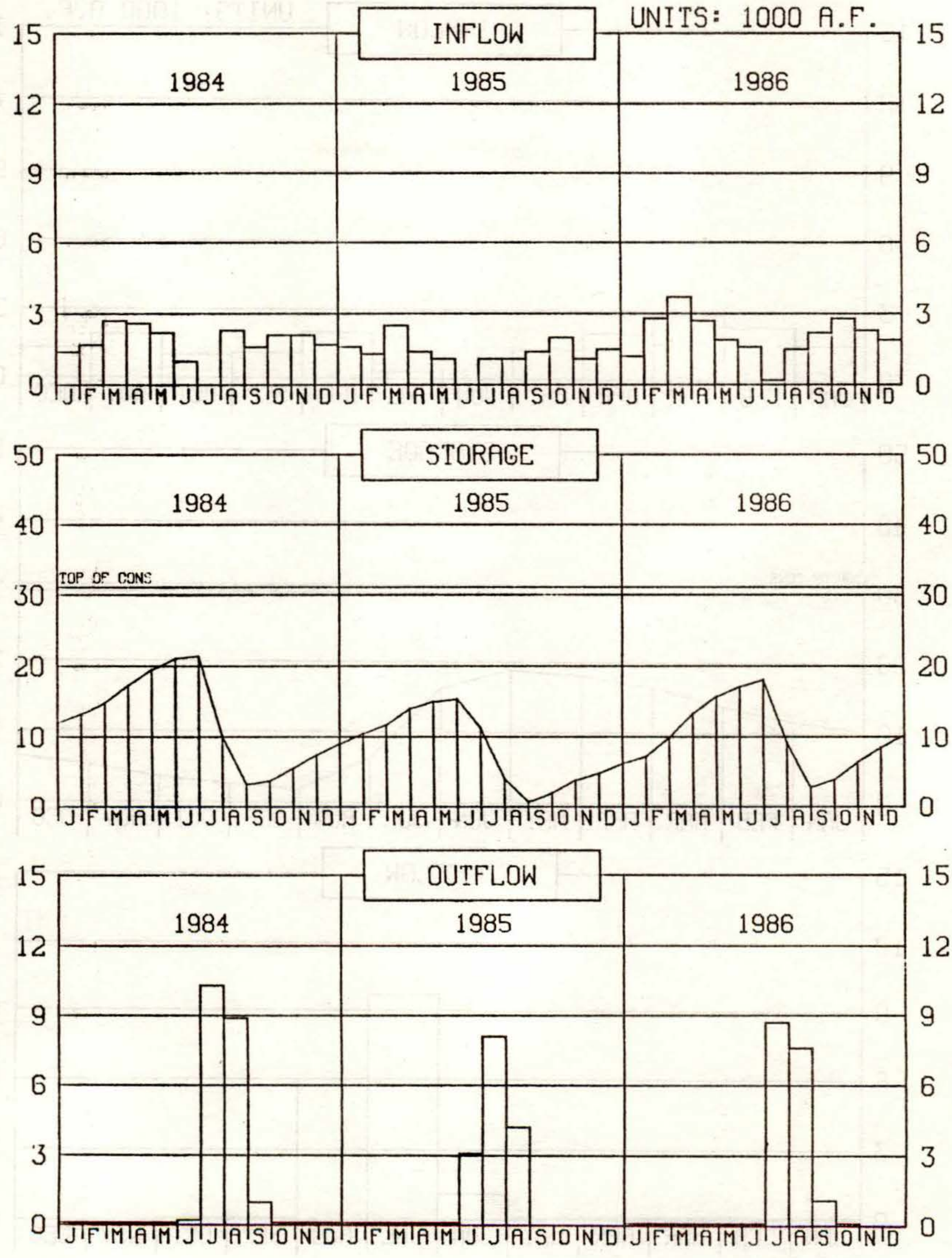


EXHIBIT 1B

BOX BUTTE RESERVOIR 1987 OPERATION

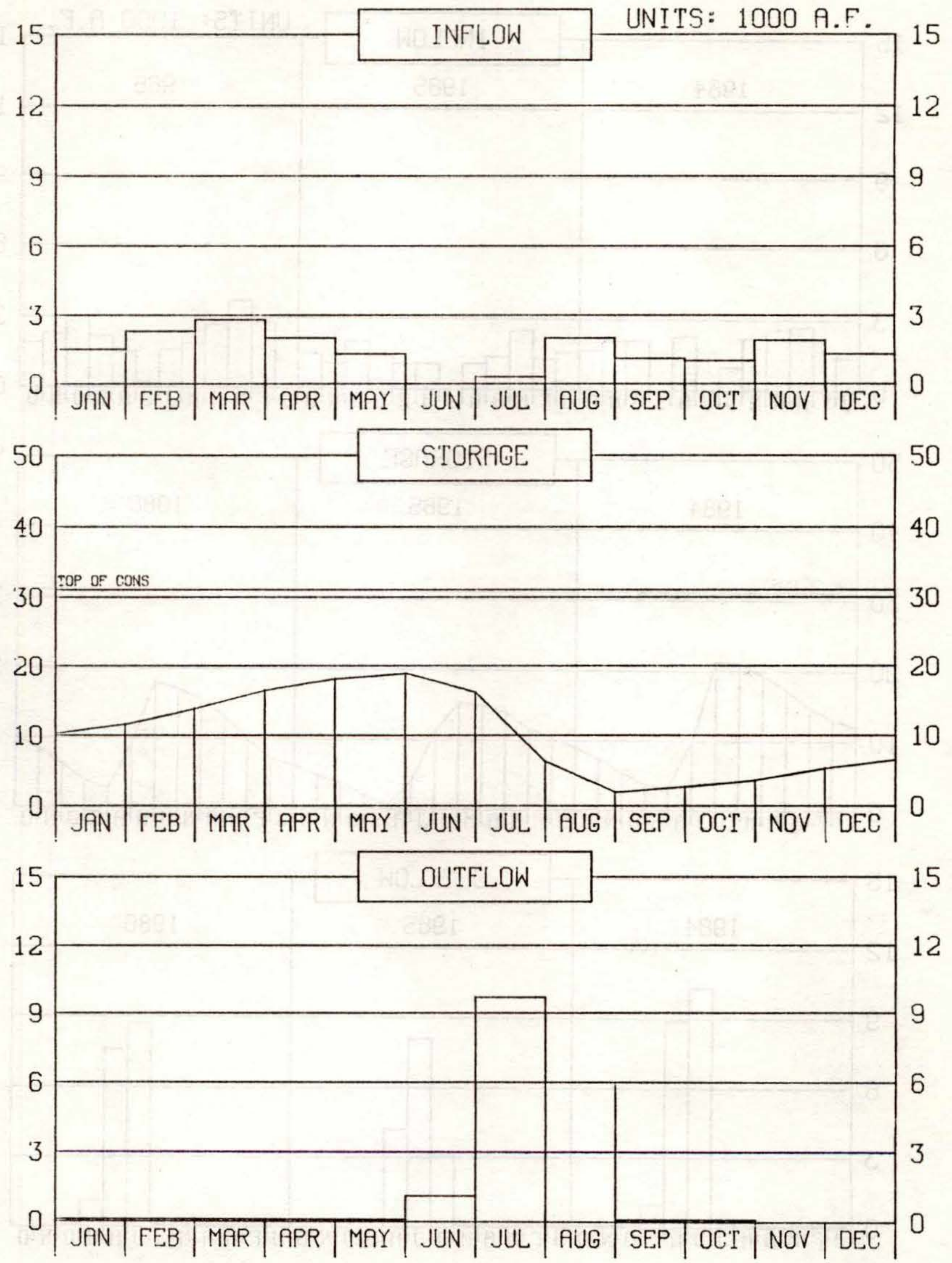


EXHIBIT 1C

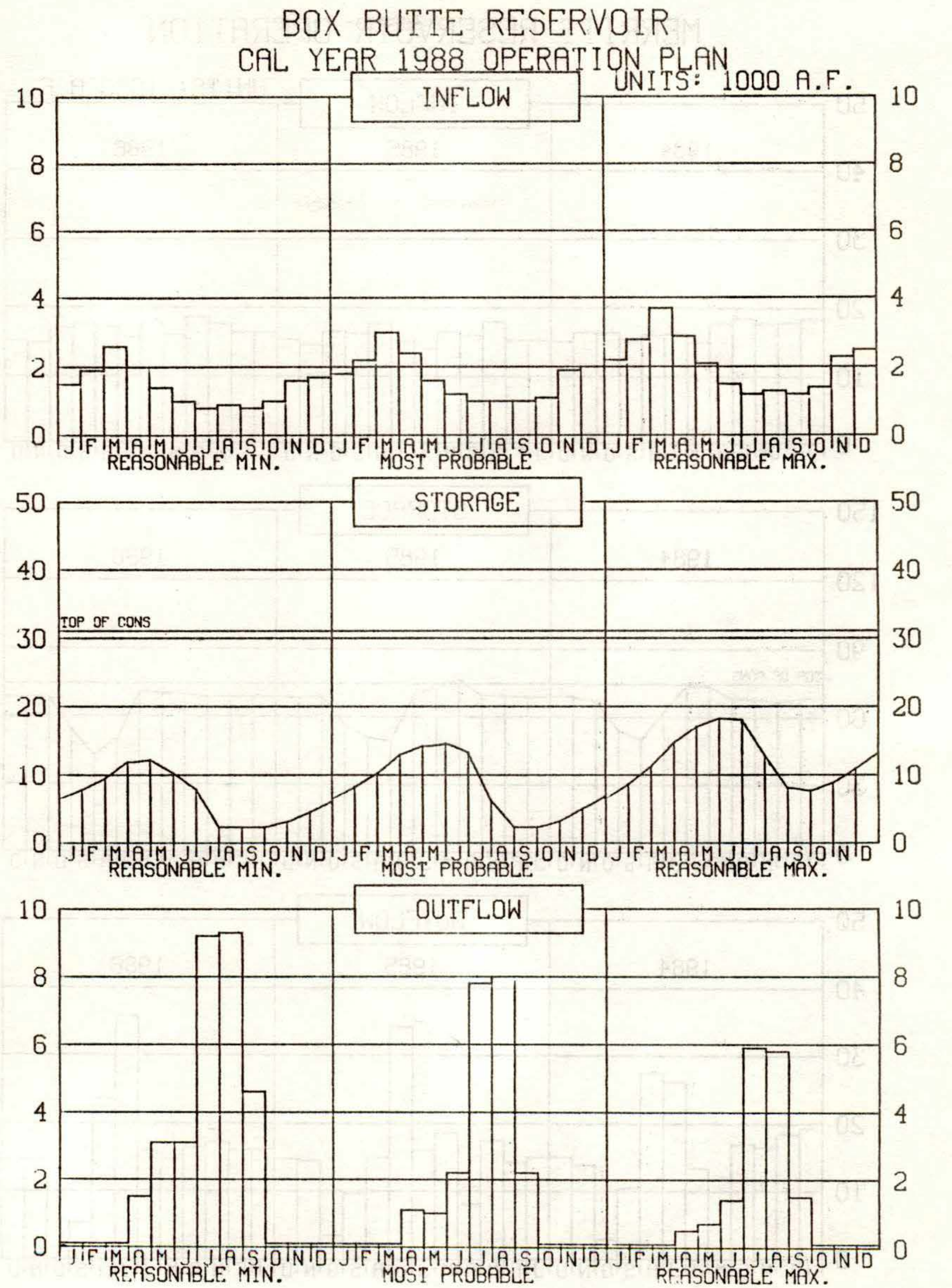

BOX BUTTE RESERVOIR
CAL YEAR 1988 OPERATION PLAN
UNITS: 1000 A.F.
INFLOW
STORAGE
TOP OF CONS
OUTFLOW
0
2
4
6
8
10
20
30
40
50
J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.

EXHIBIT 2A

MERRITT RESERVOIR OPERATION

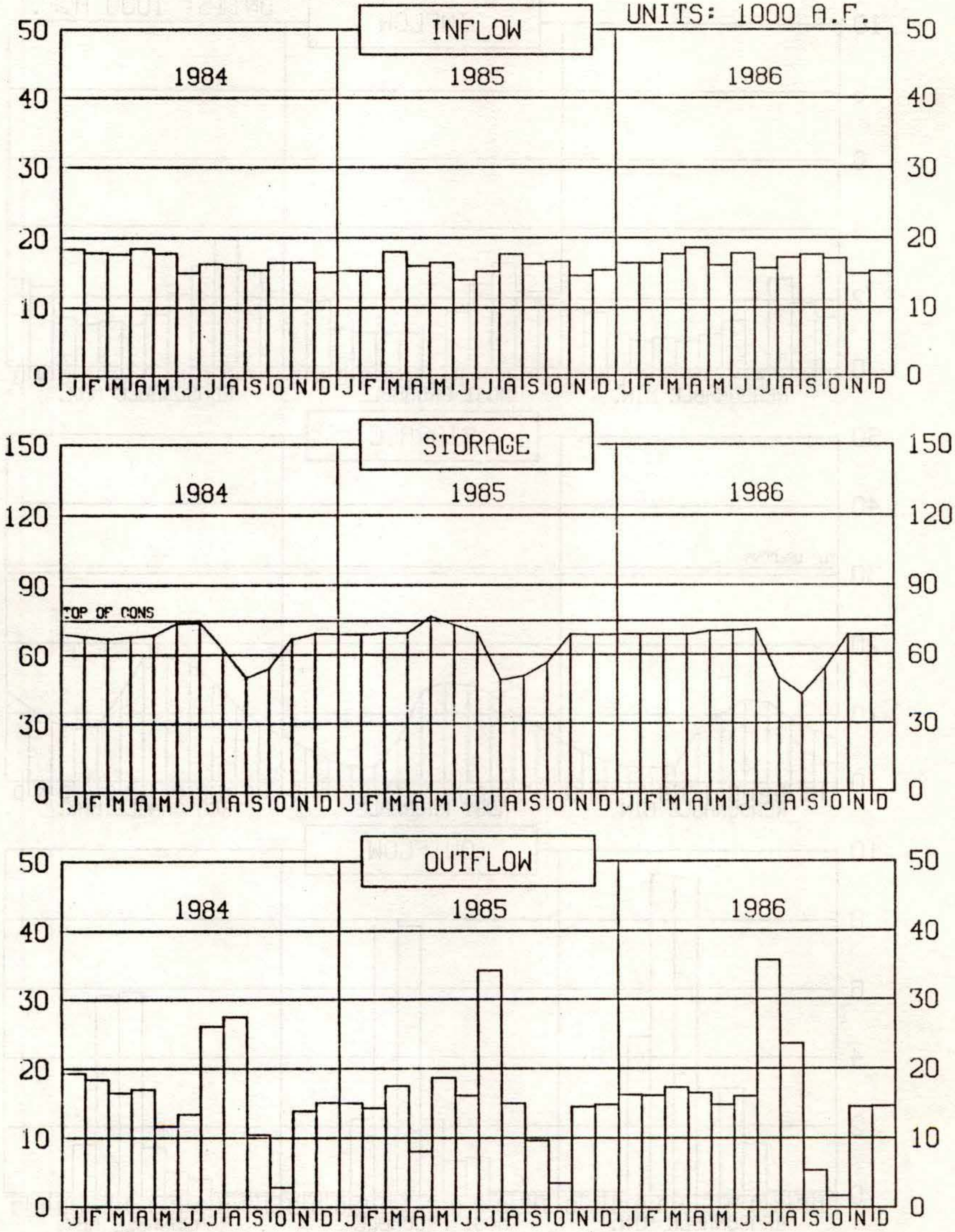
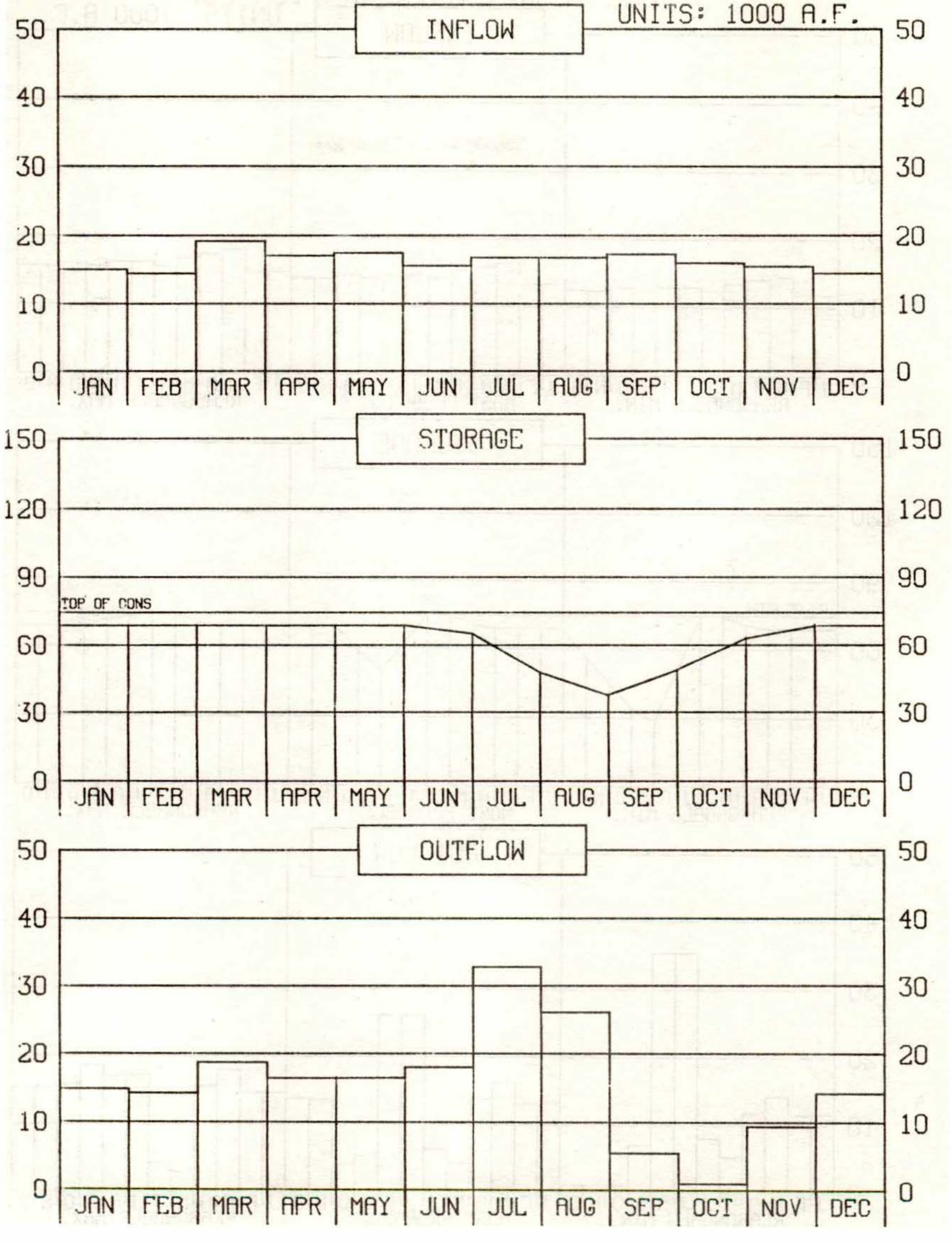
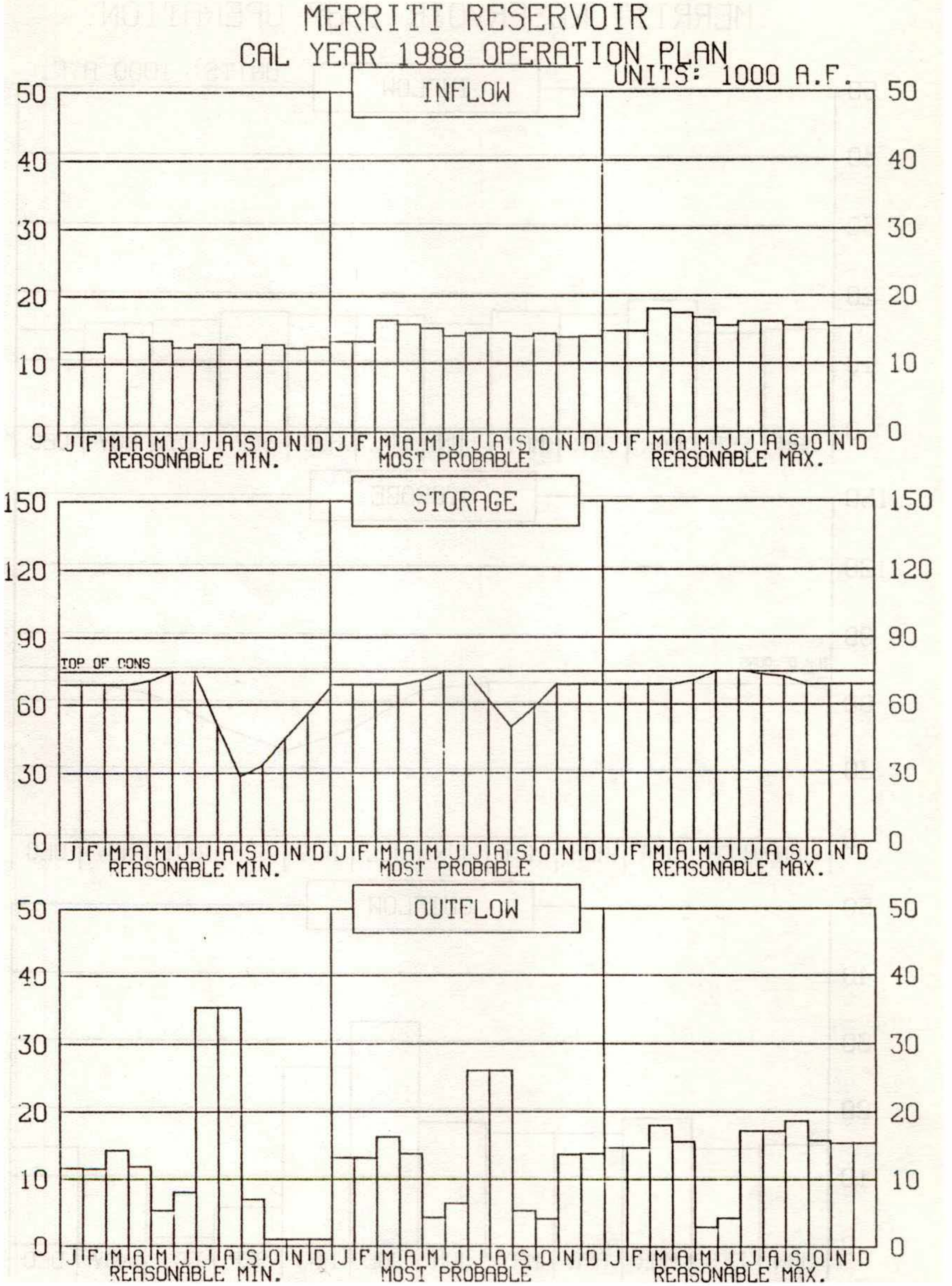


EXHIBIT 2B

MERRITT RESERVOIR 1987 OPERATION




MERRITT RESERVOIR
CAL YEAR 1988 OPERATION PLAN
UNITS: 1000 A.F.
INFLOW
STORAGE
TOP OF CONS
OUTFLOW
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.
0
10
20
30
40
50
60
90
120
150

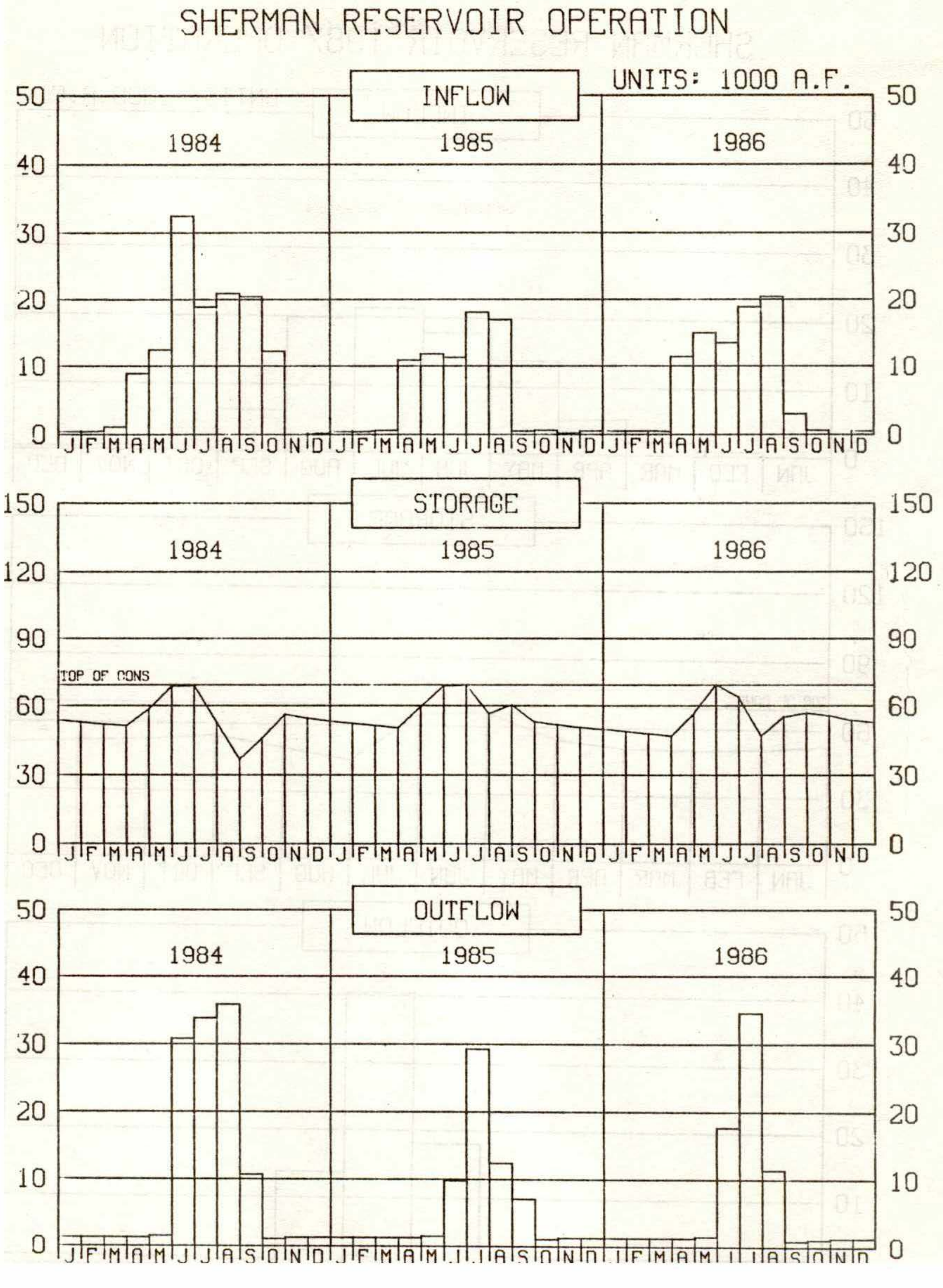

SHERMAN RESERVOIR OPERATION
UNITS: 1000 A.F.
INFLOW
1984
1985
1986
STORAGE
TOP OF CONS
OUTFLOW
J F M A M J J A S O N D

EXHIBIT 3B

SHERMAN RESERVOIR 1987 OPERATION

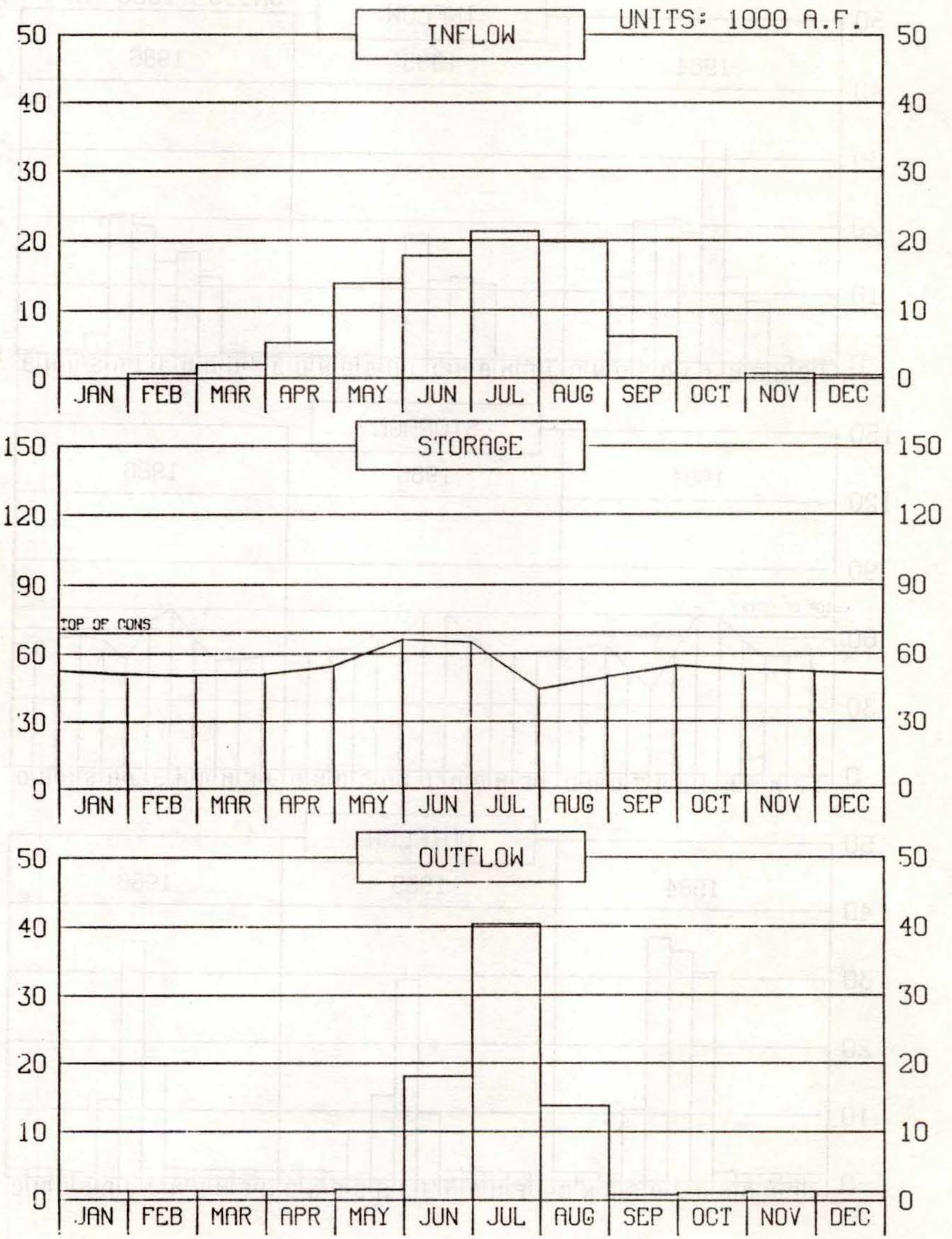


EXHIBIT 3C

SHERMAN RESERVOIR
CAL YEAR 1988 OPERATION PLAN

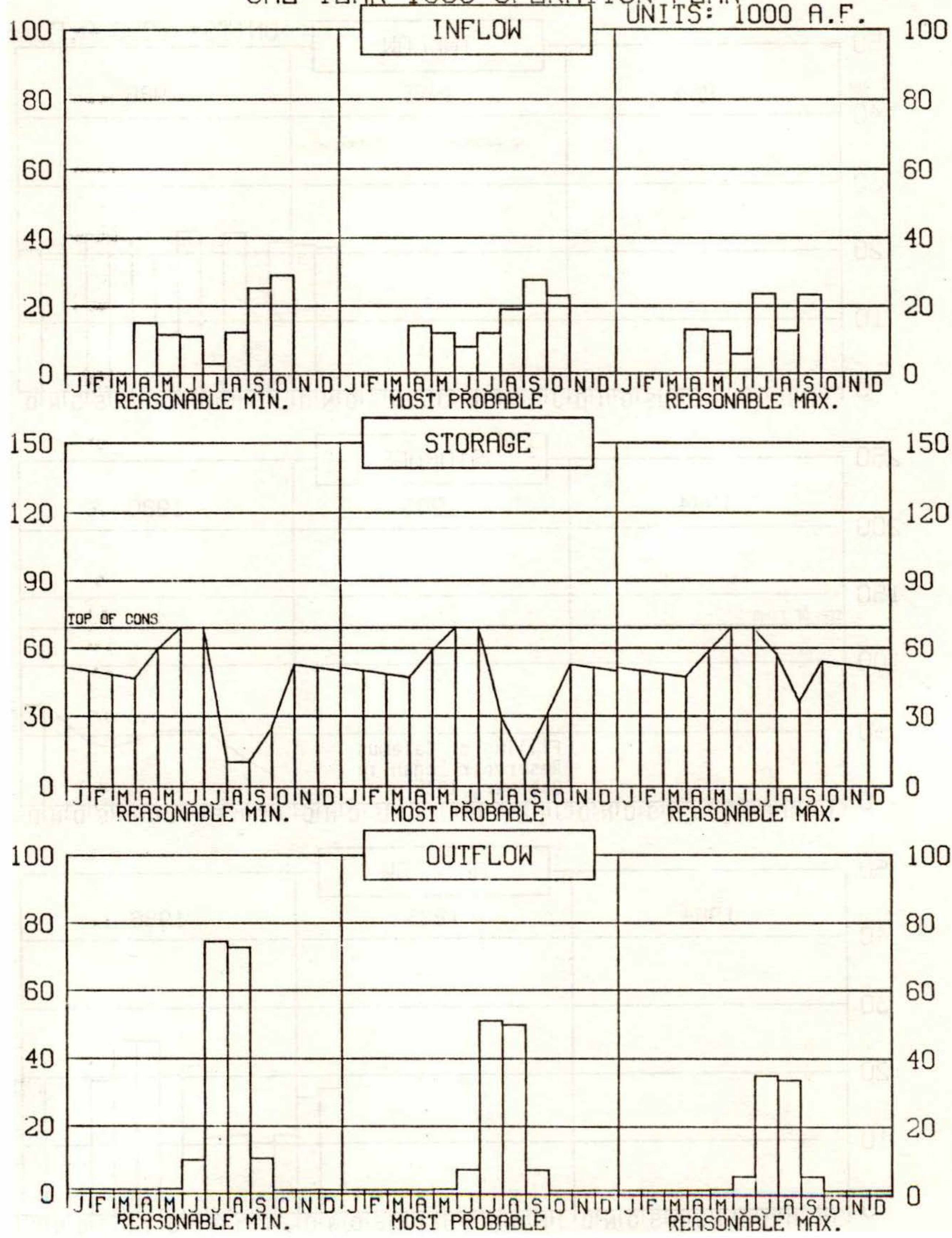
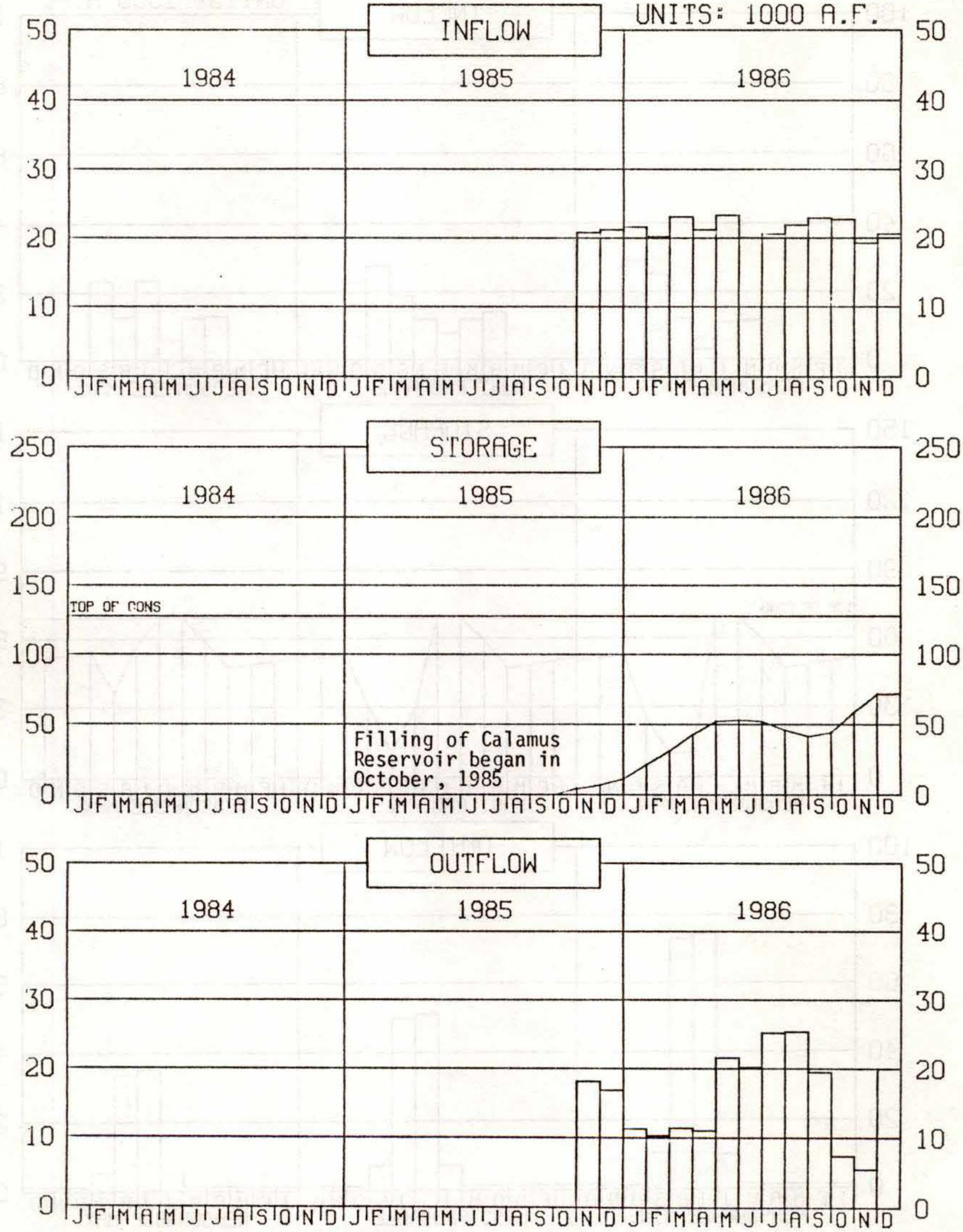


EXHIBIT 4A

CALAMUS RESERVOIR OPERATION



CALAMUS RESERVOIR 1987 OPERATION

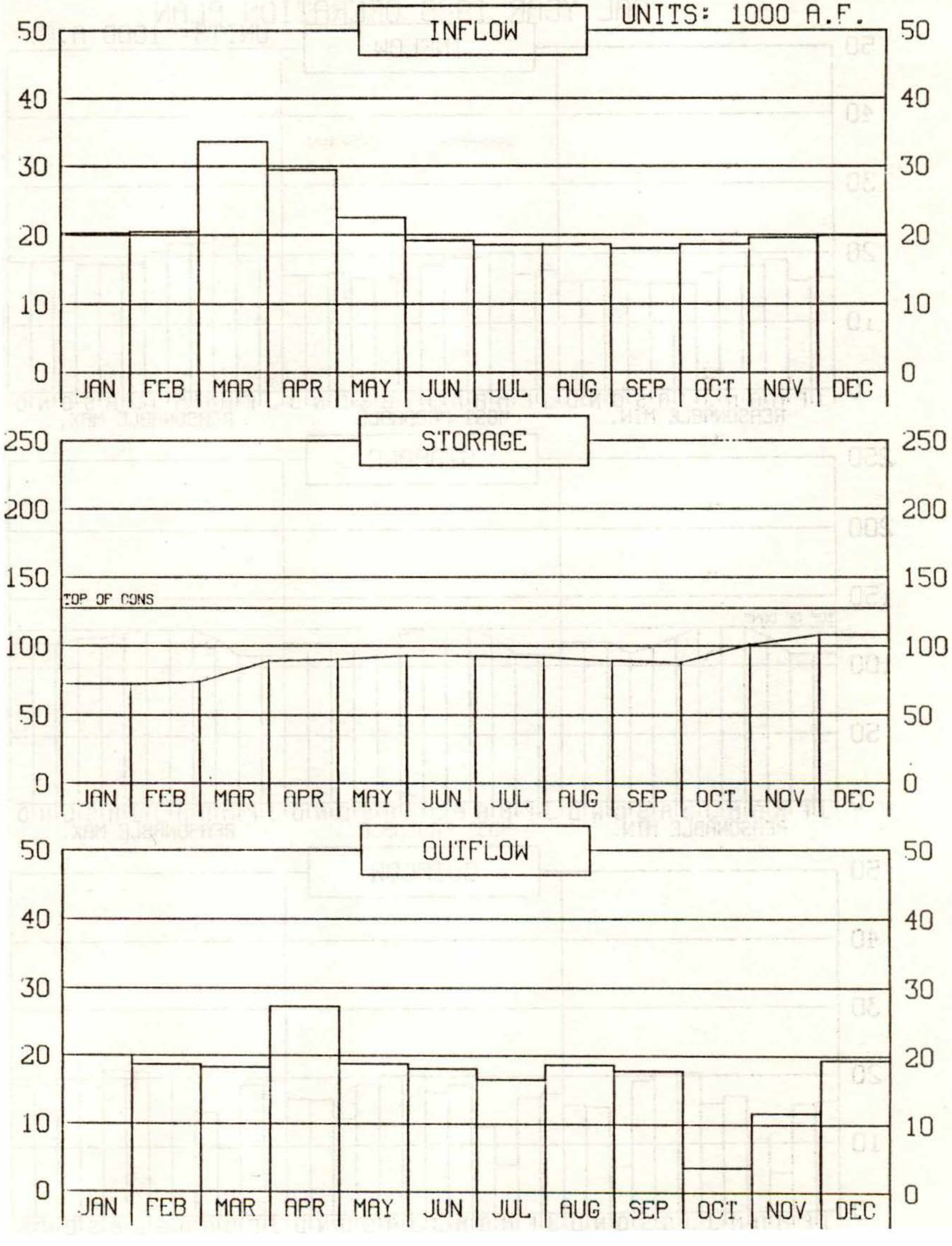
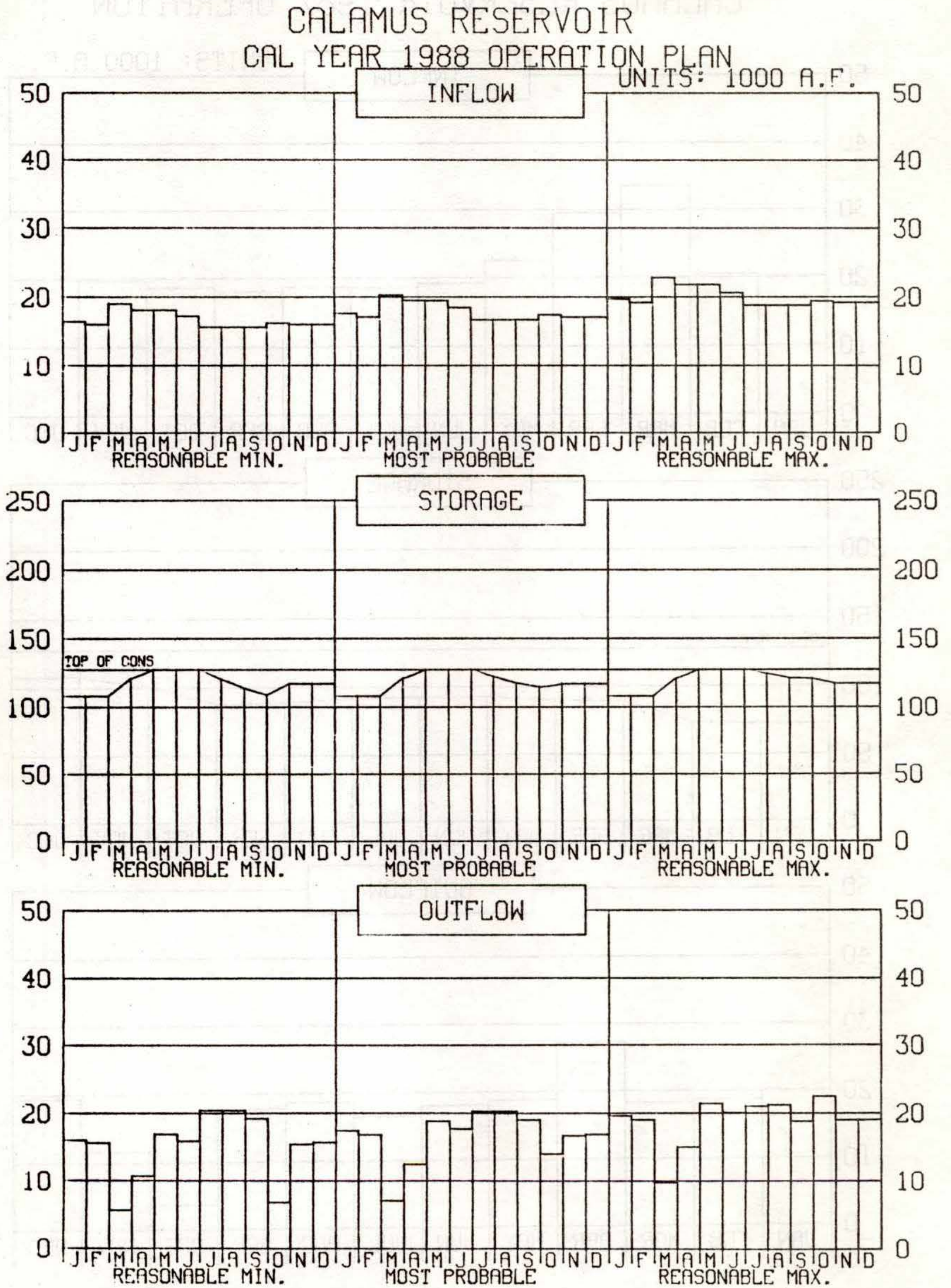


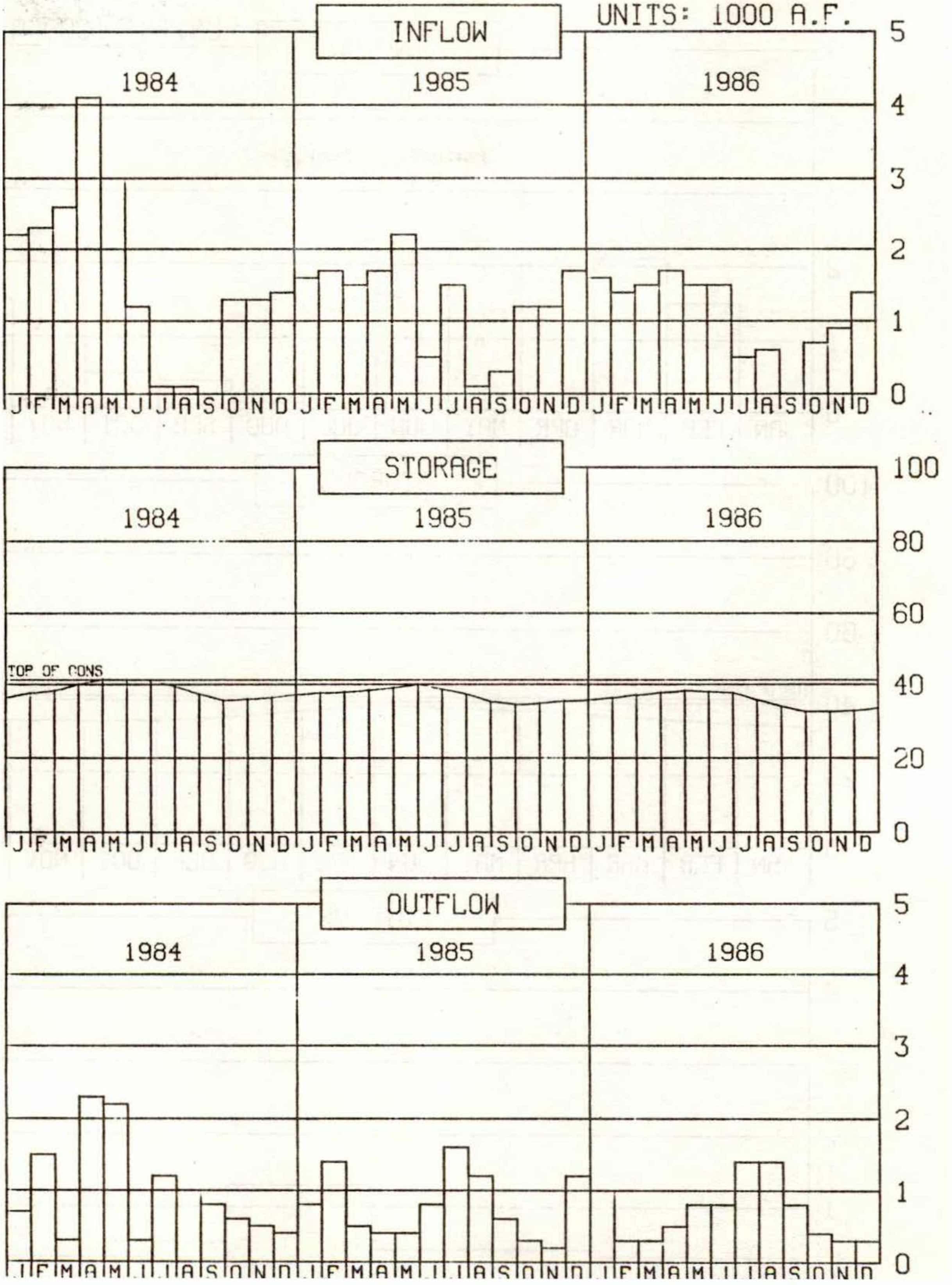
EXHIBIT 4C



CALAMUS RESERVOIR
CAL YEAR 1988 OPERATION PLAN
UNITS: 1000 A.F.
INFLOW
STORAGE
TOP OF CONS
OUTFLOW
50
40
30
20
10
0
250
200
150
100
50
J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.

EXHIBIT 5A

BONNY RESERVOIR OPERATION



BONNY RESERVOIR 1987 OPERATION

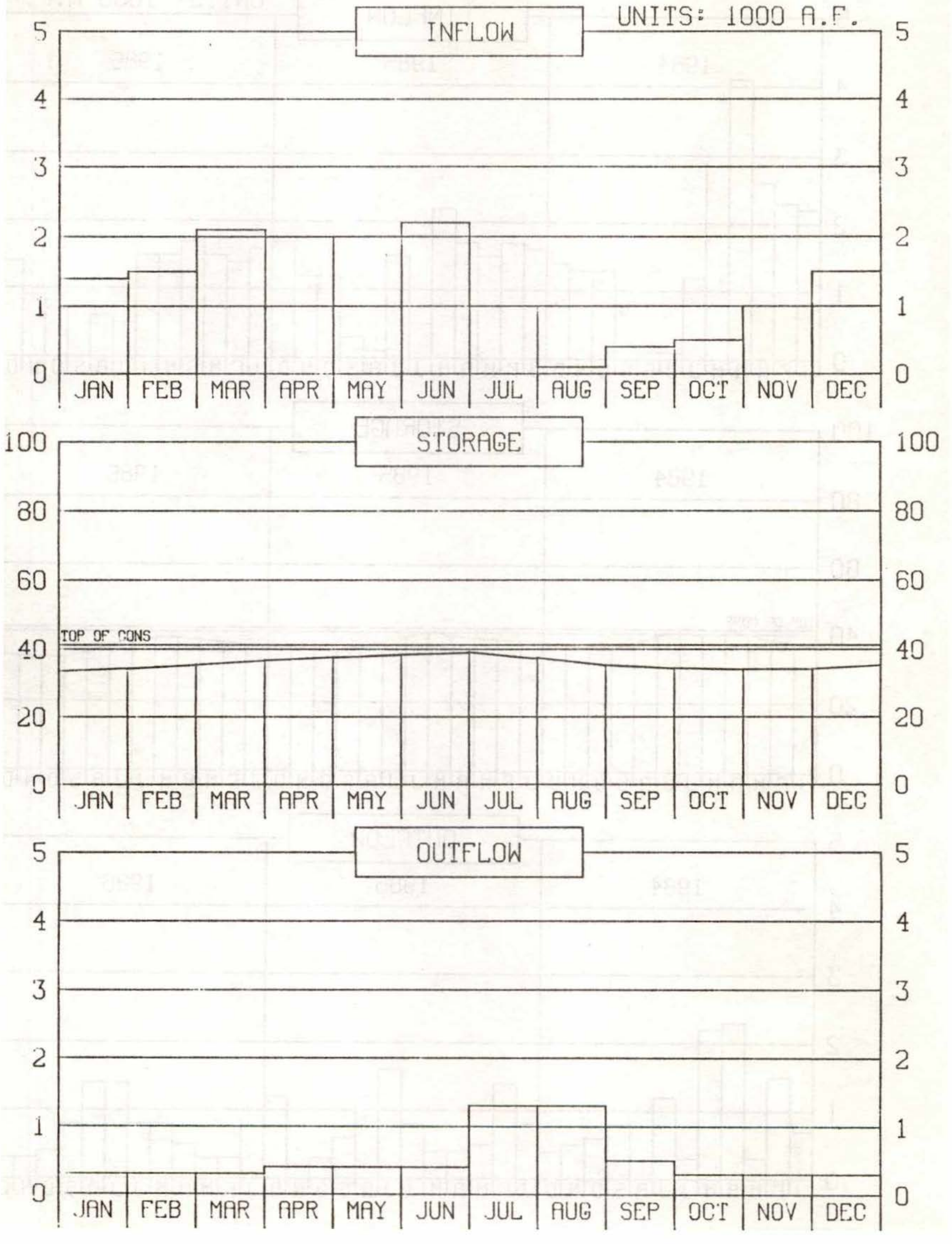


EXHIBIT 5C

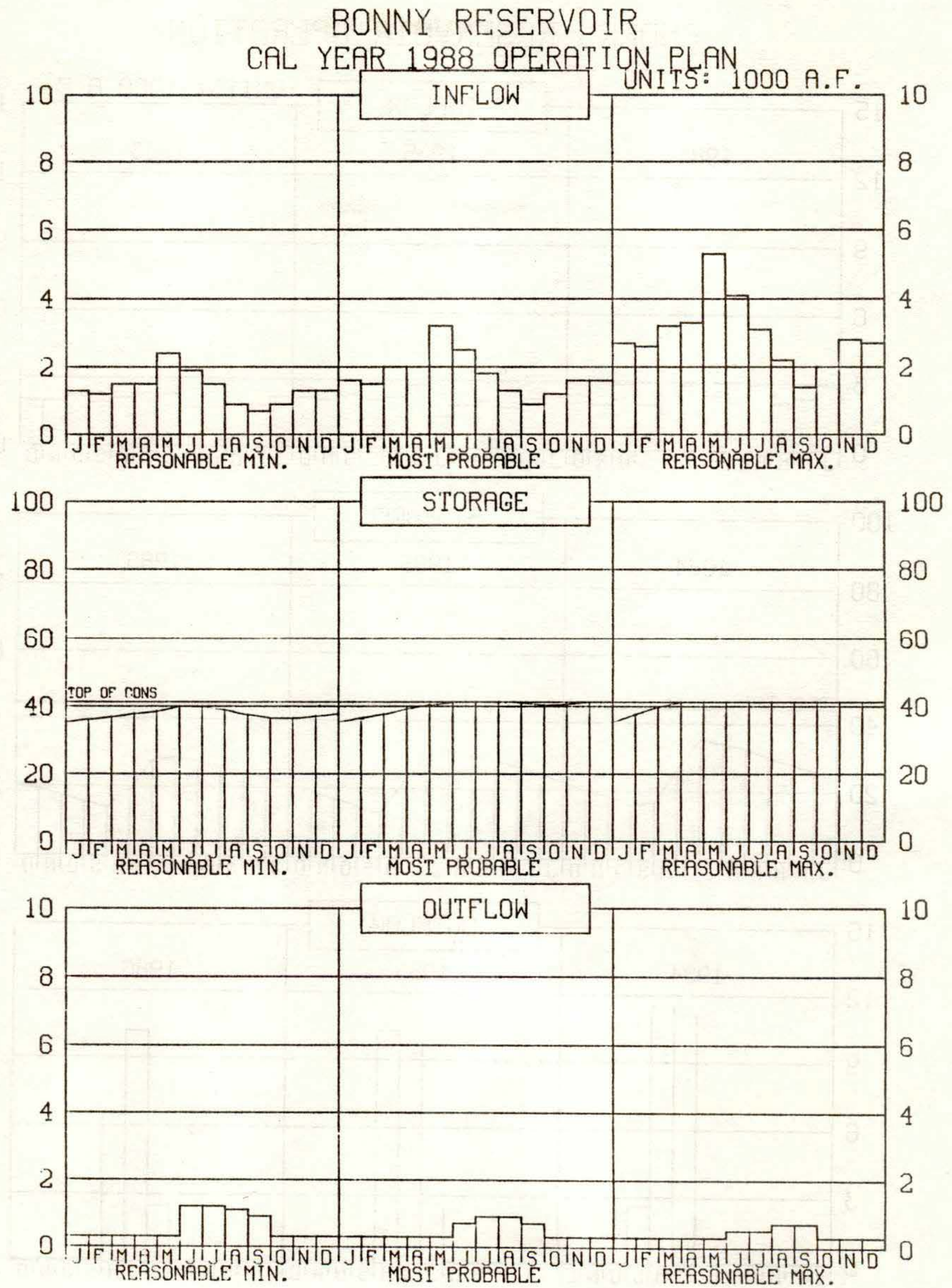
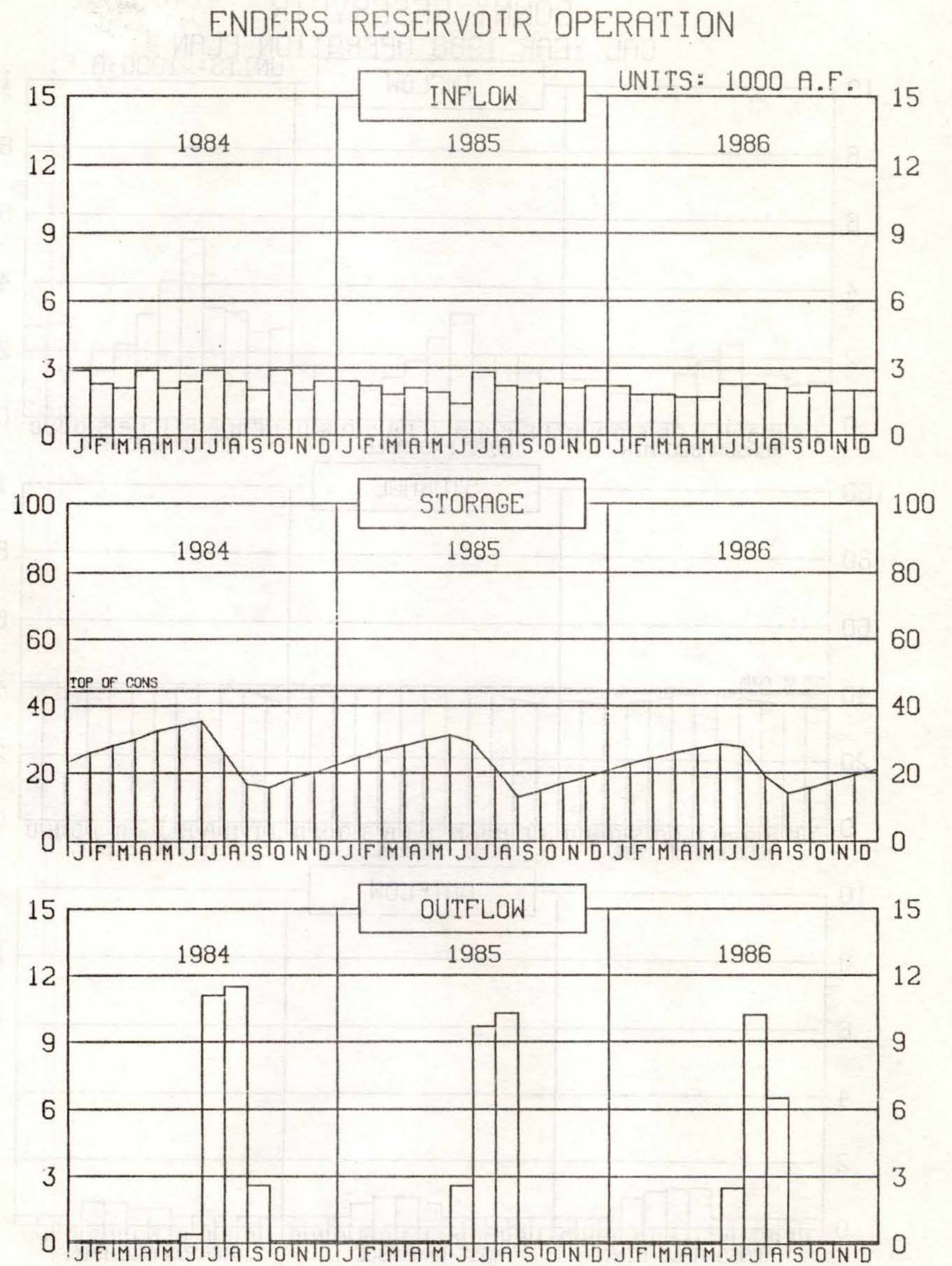
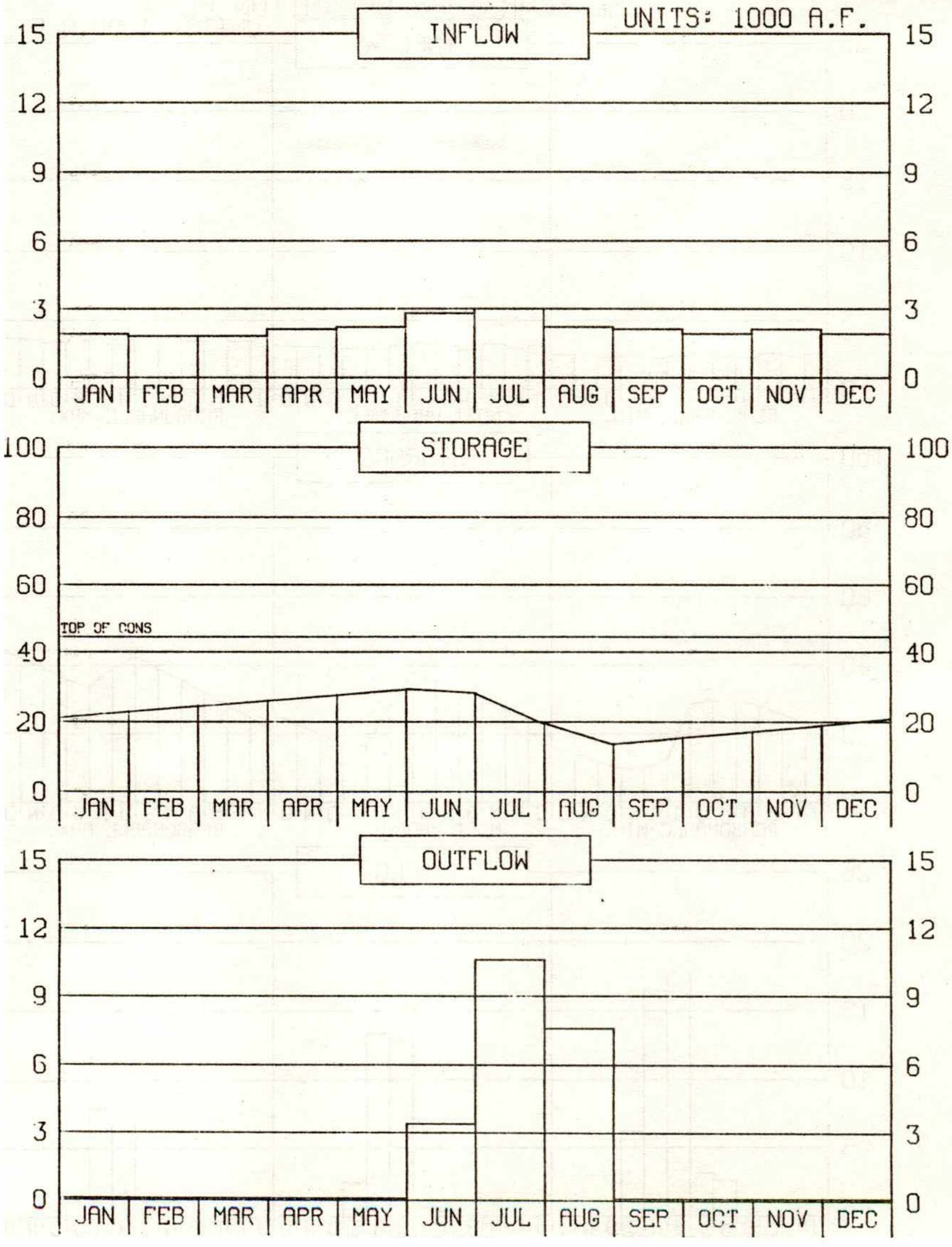
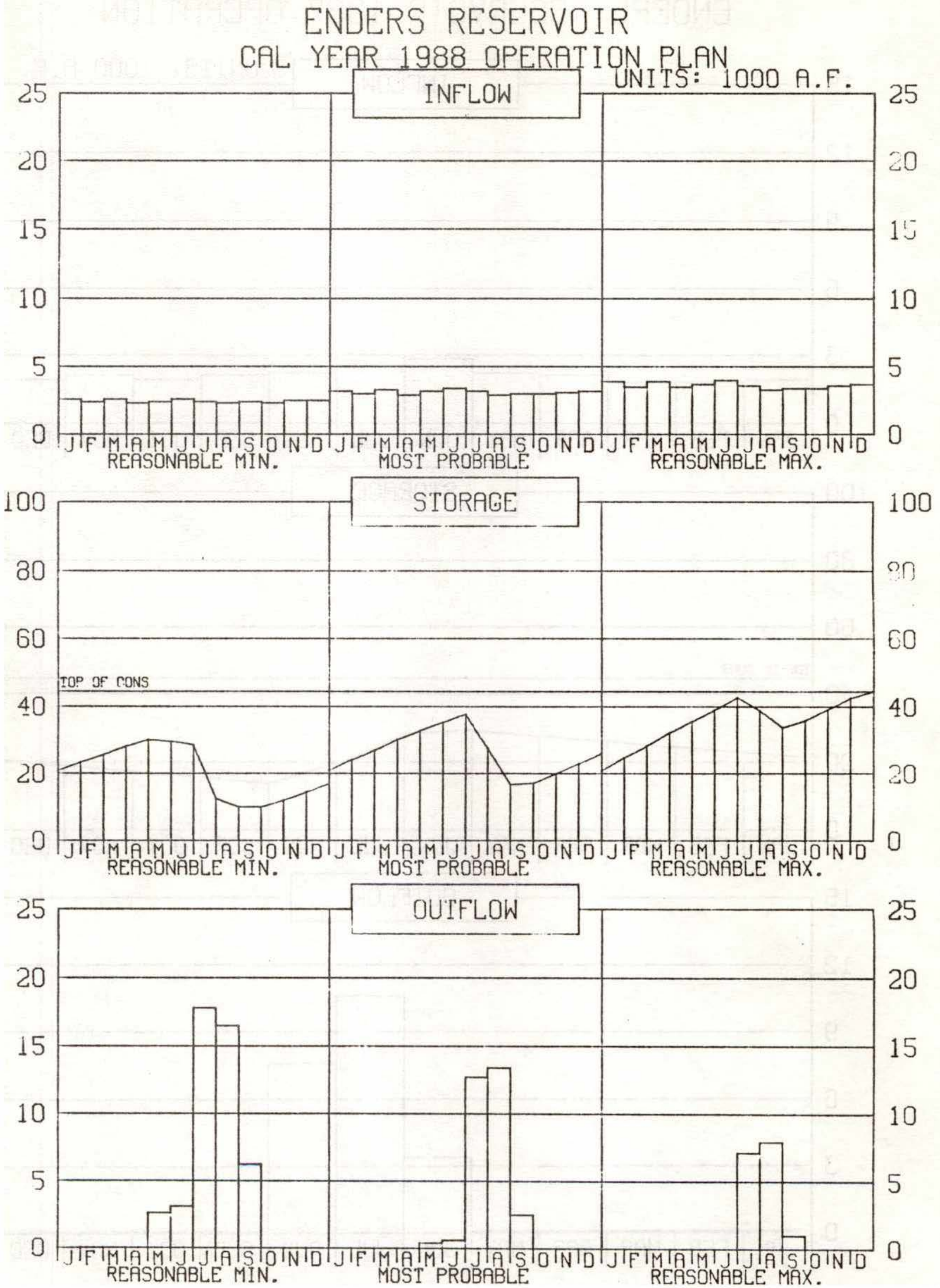

BONNY RESERVOIR
CAL YEAR 1988 OPERATION PLAN
UNITS: 1000 A.F.
INFLOW
STORAGE
TOP OF CONS
OUTFLOW
0
2
4
6
8
10
20
40
60
80
100
J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.

EXHIBIT 6A

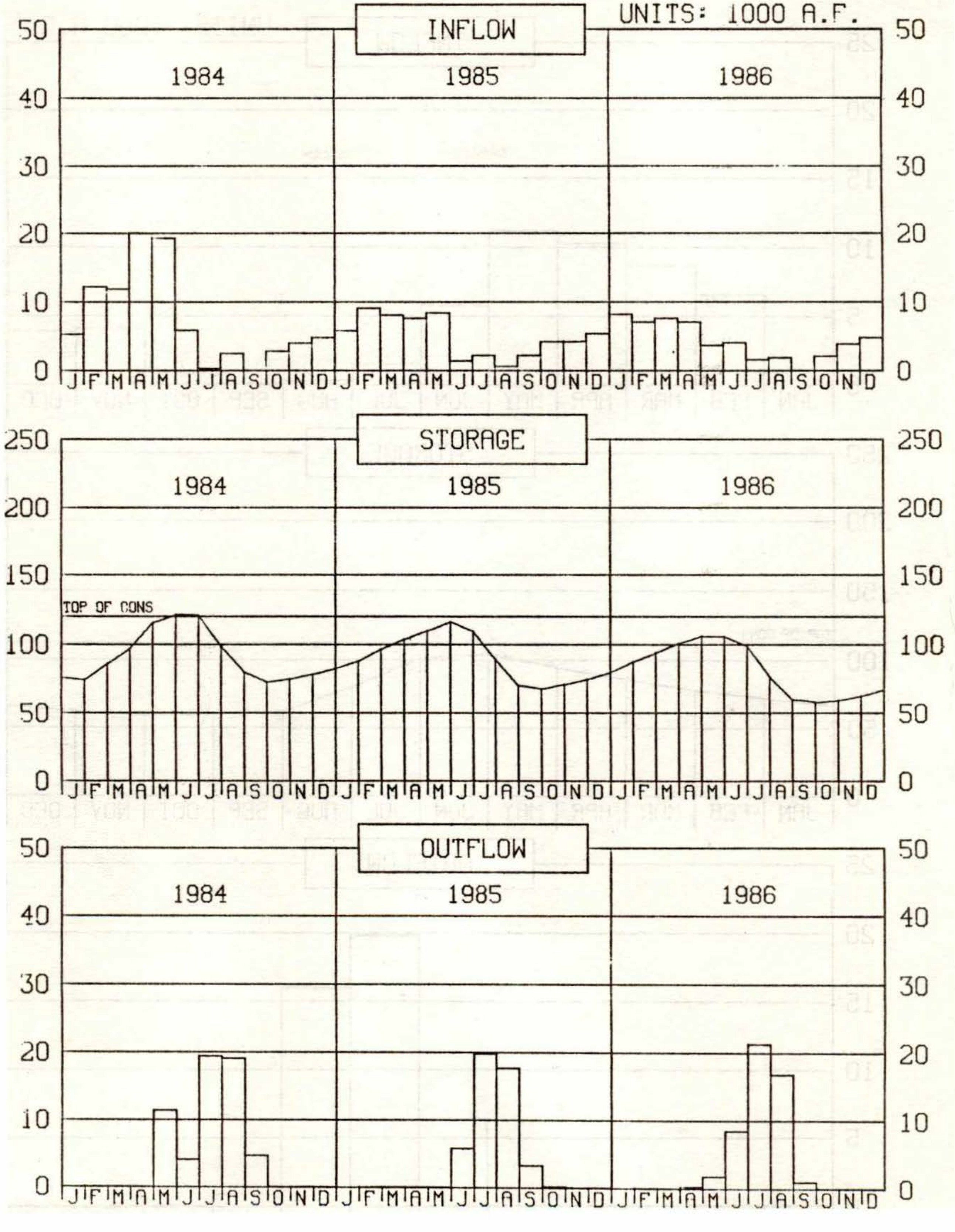

ENDERS RESERVOIR OPERATION
UNITS: 1000 A.F.
INFLOW
1984
1985
1986
15
12
9
6
3
0
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
STORAGE
100
80
60
40
20
0
TOP OF CONS
OUTFLOW

ENDERS RESERVOIR 1987 OPERATION

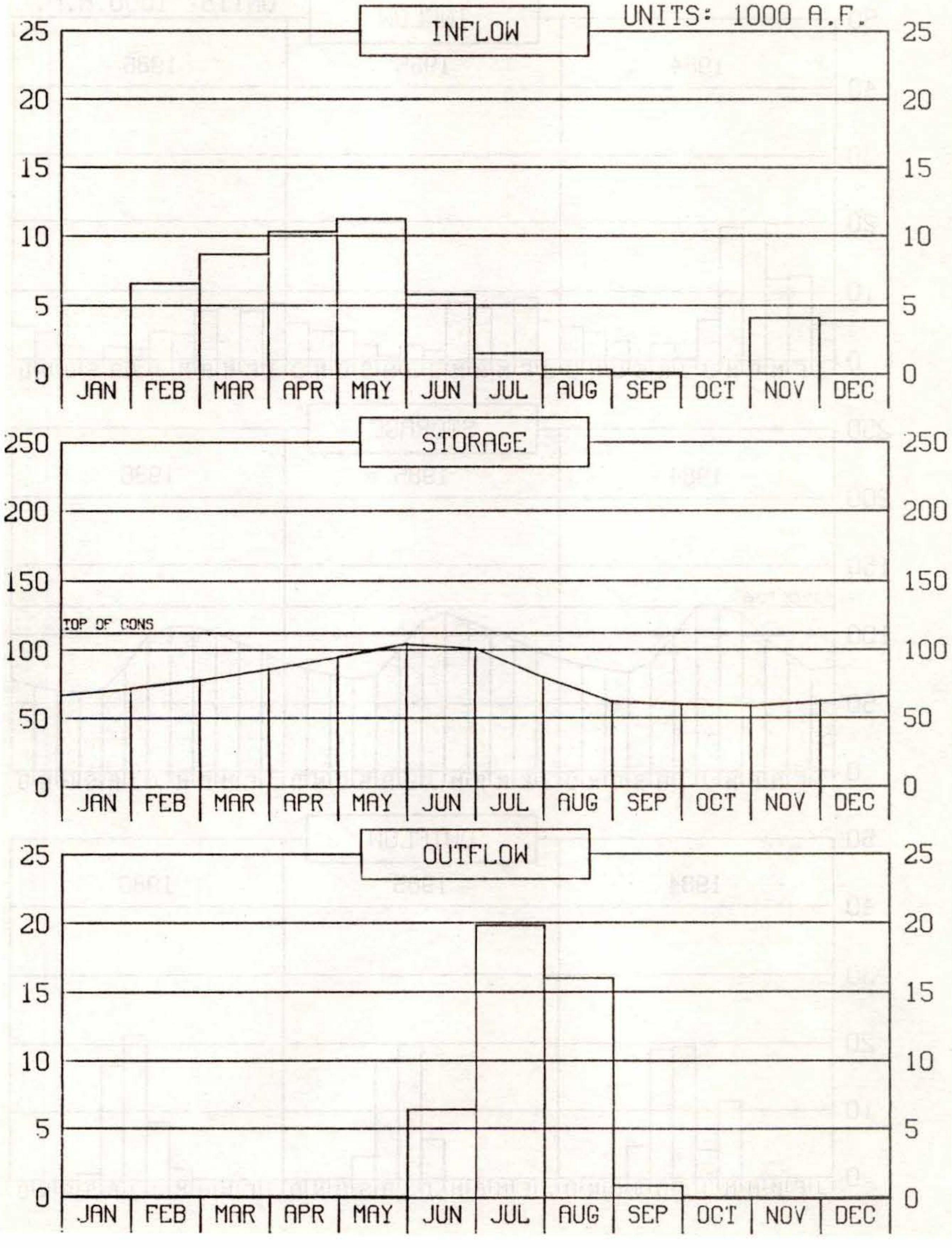



ENDERS RESERVOIR
CAL YEAR 1988 OPERATION PLAN
UNITS: 1000 A.F.
INFLOW
STORAGE
TOP OF CONS
OUTFLOW
0
5
10
15
20
25
0
20
40
60
80
100
J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.

SWANSON LAKE OPERATION



SWANSON LAKE 1987 OPERATION



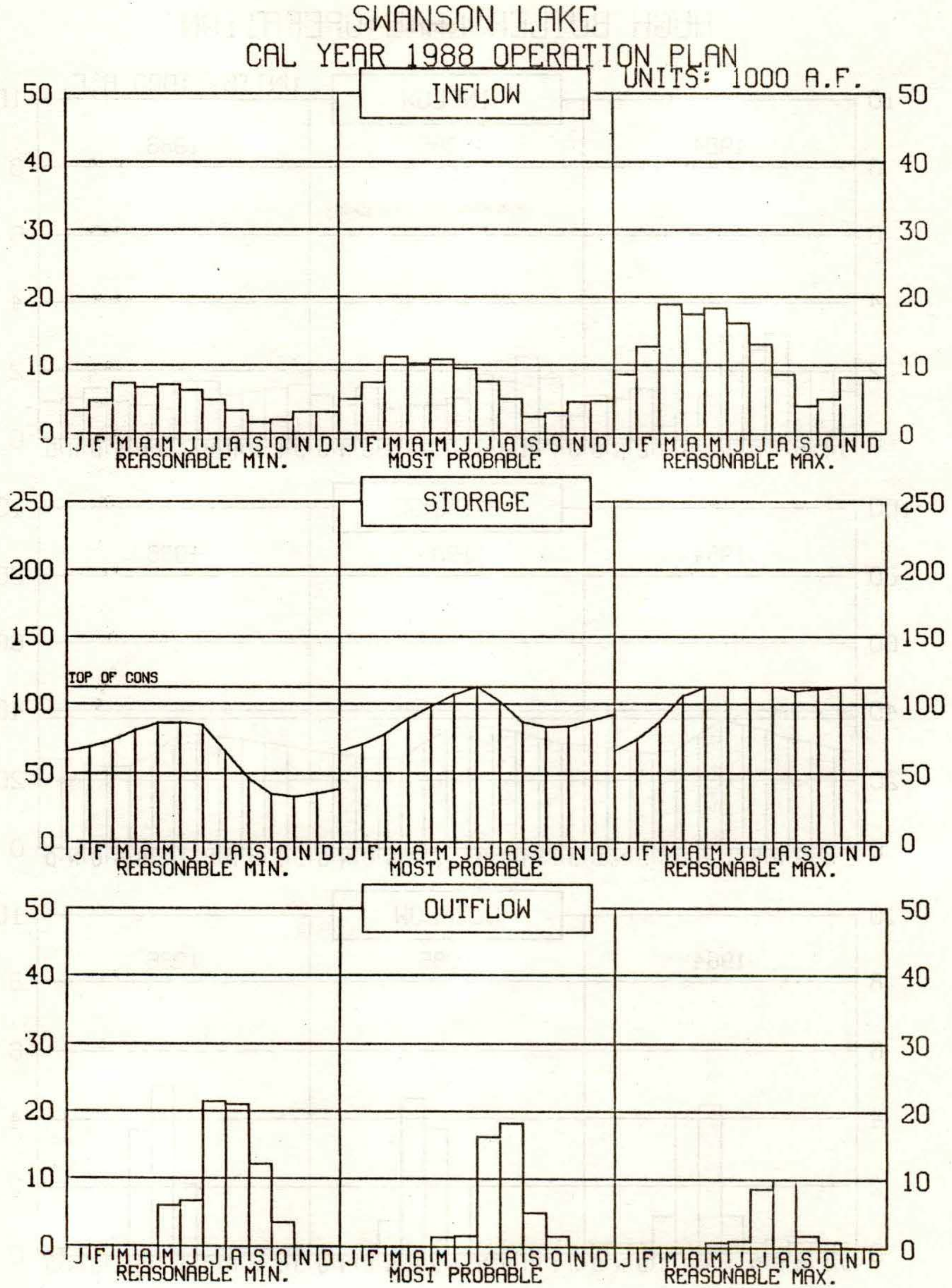
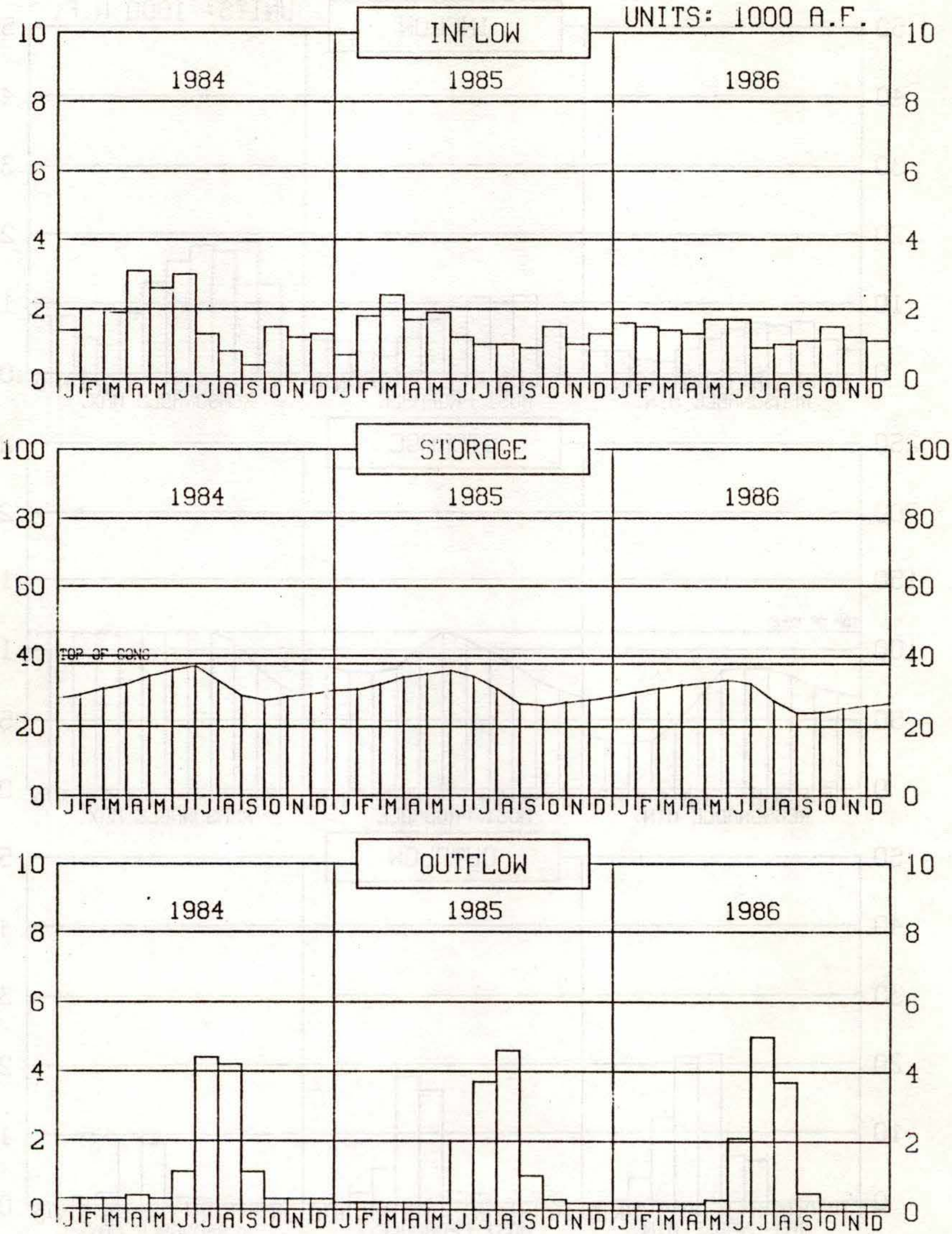

SWANSON LAKE
CAL YEAR 1988 OPERATION PLAN
UNITS: 1000 A.F.
INFLOW
STORAGE
TOP OF CONS
OUTFLOW
J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.
0
10
20
30
40
50
100
150
200
250

EXHIBIT 8A

HUGH BUTLER LAKE OPERATION



HUGH BUTLER LAKE 1987 OPERATION

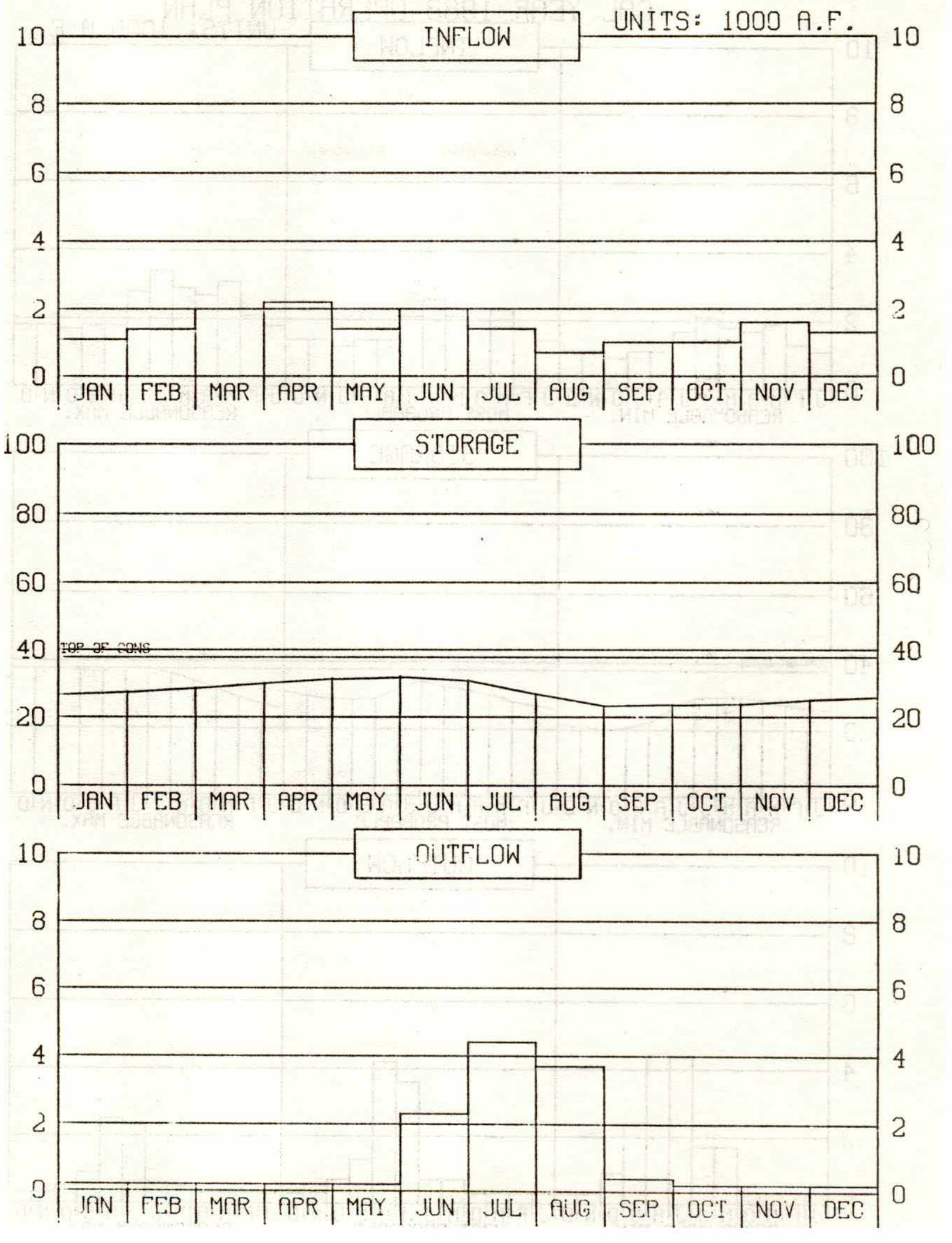


EXHIBIT 8C

HUGH BUTLER LAKE
CAL YEAR 1988 OPERATION PLAN

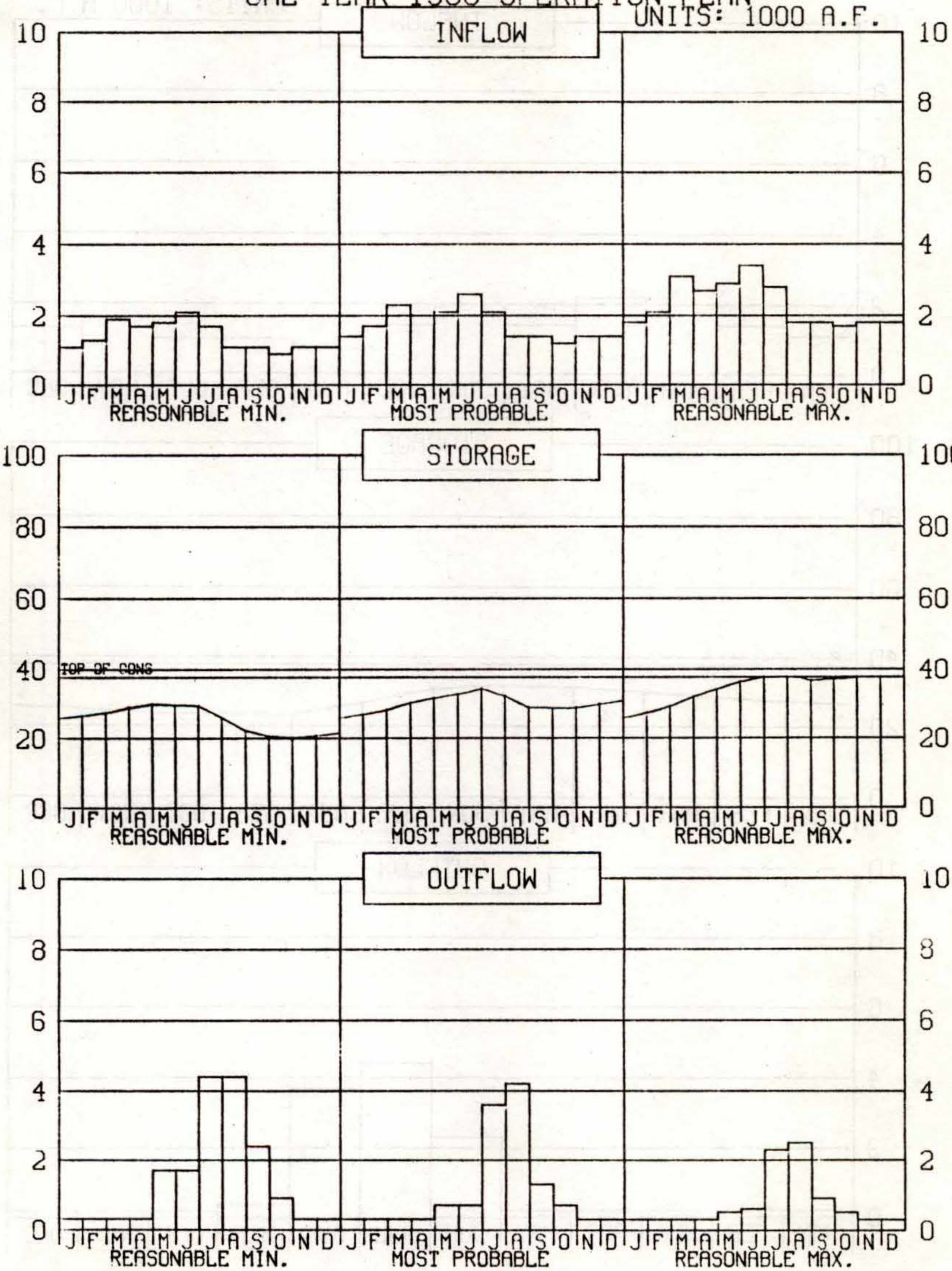


EXHIBIT 9A

HARRY STRUNK LAKE OPERATION

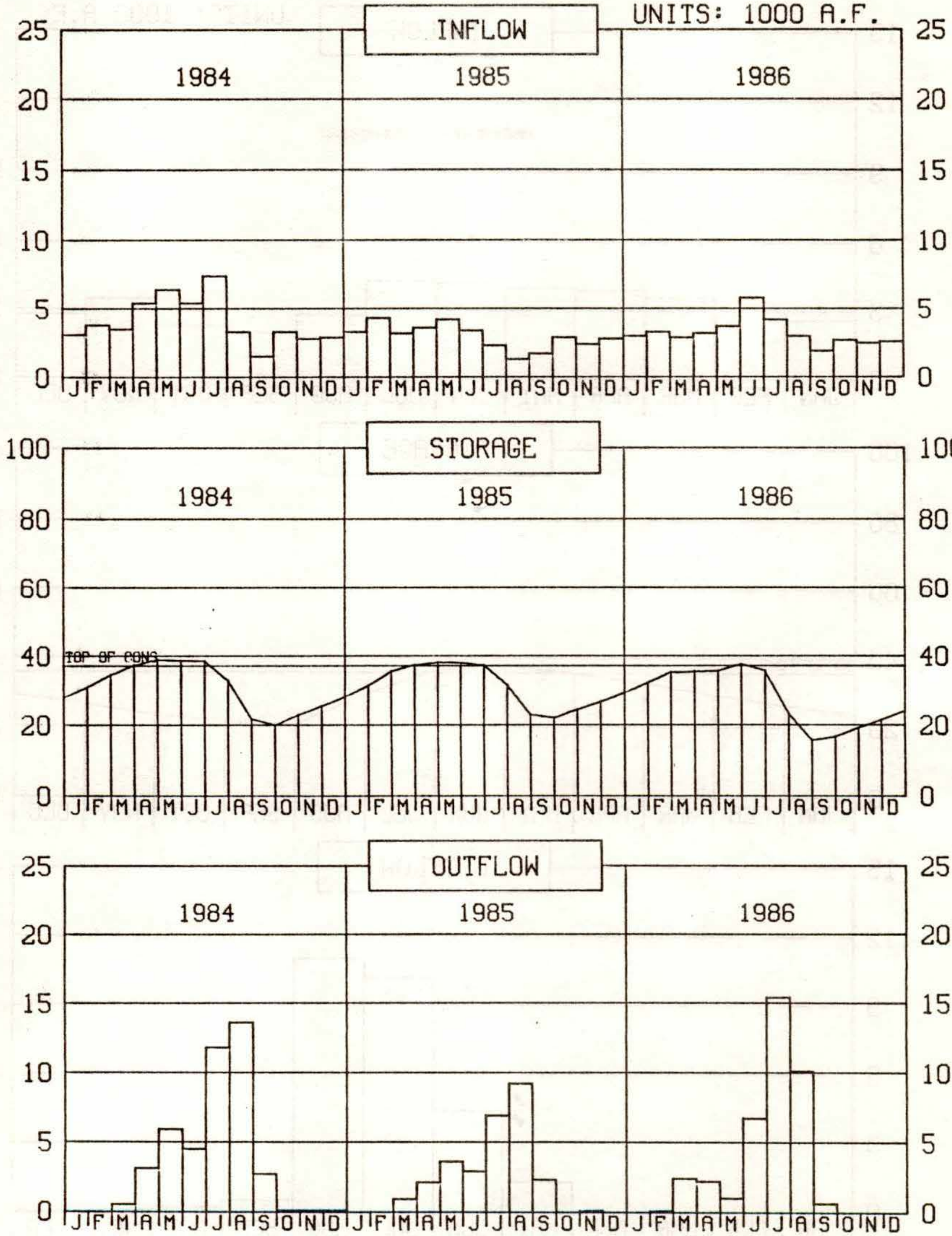
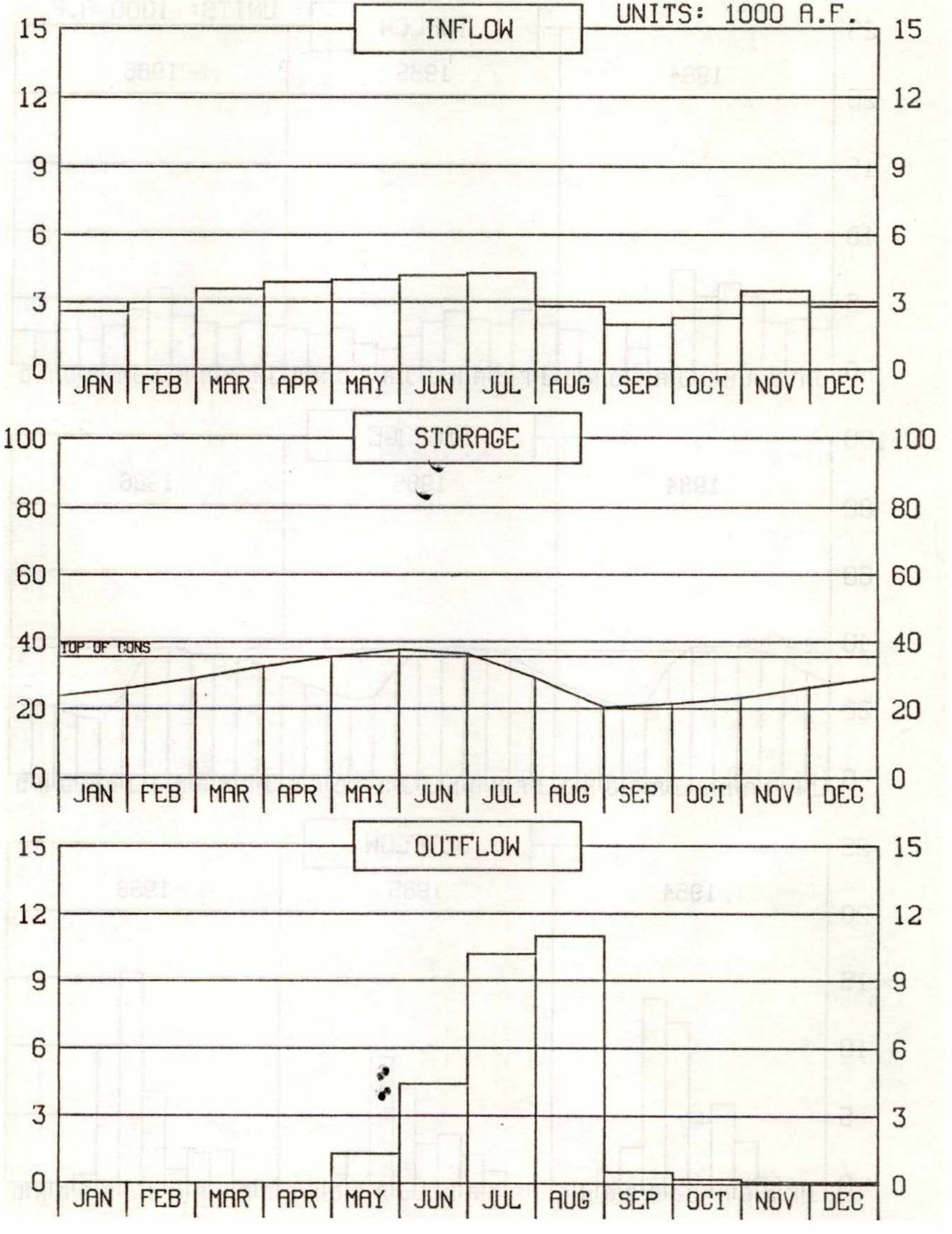


EXHIBIT 9B

HARRY STRUNK LAKE 1987 OPERATION



HARRY STRUNK LAKE
CAL YEAR 1988 OPERATION PLAN

UNITS: 1000 A.F.

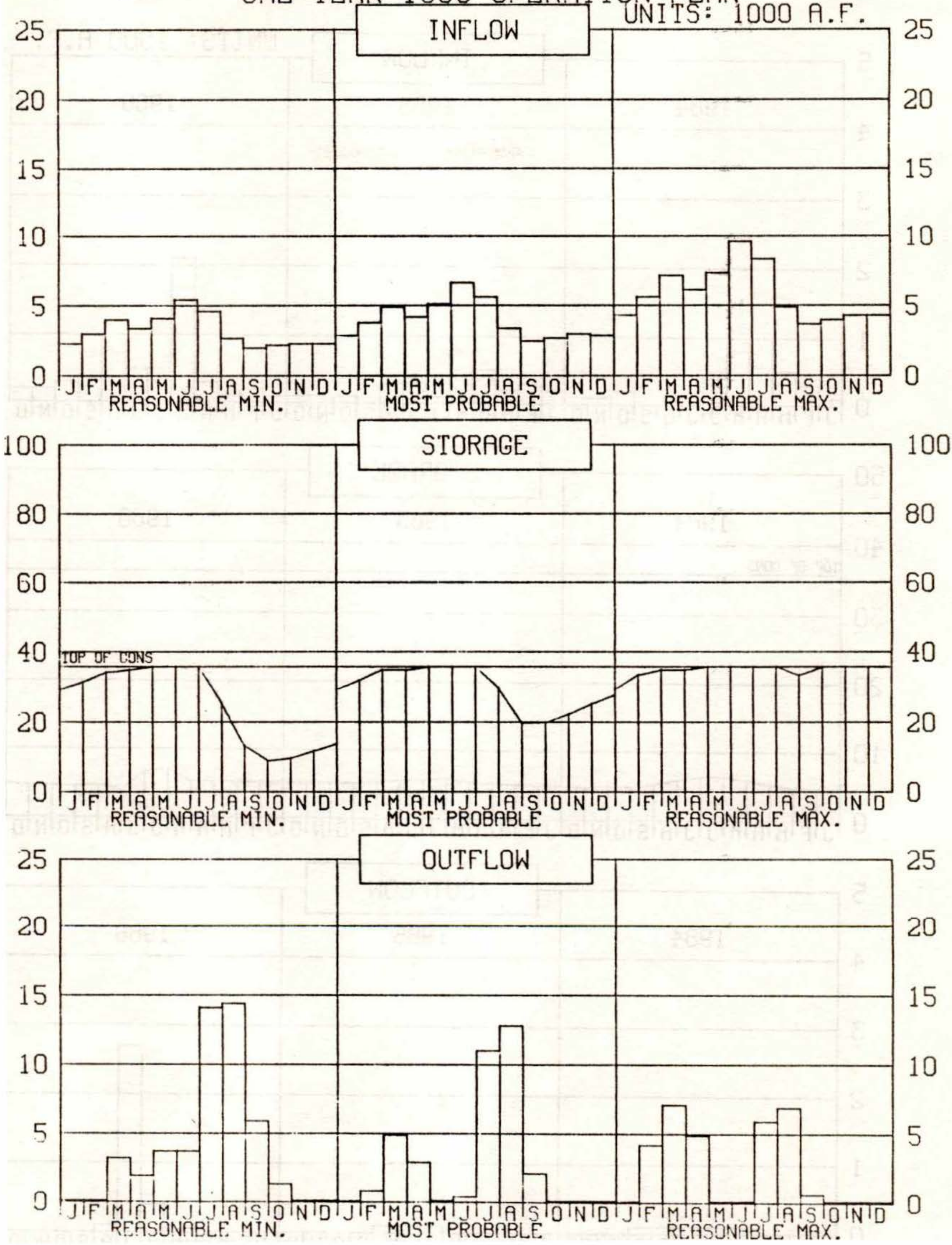
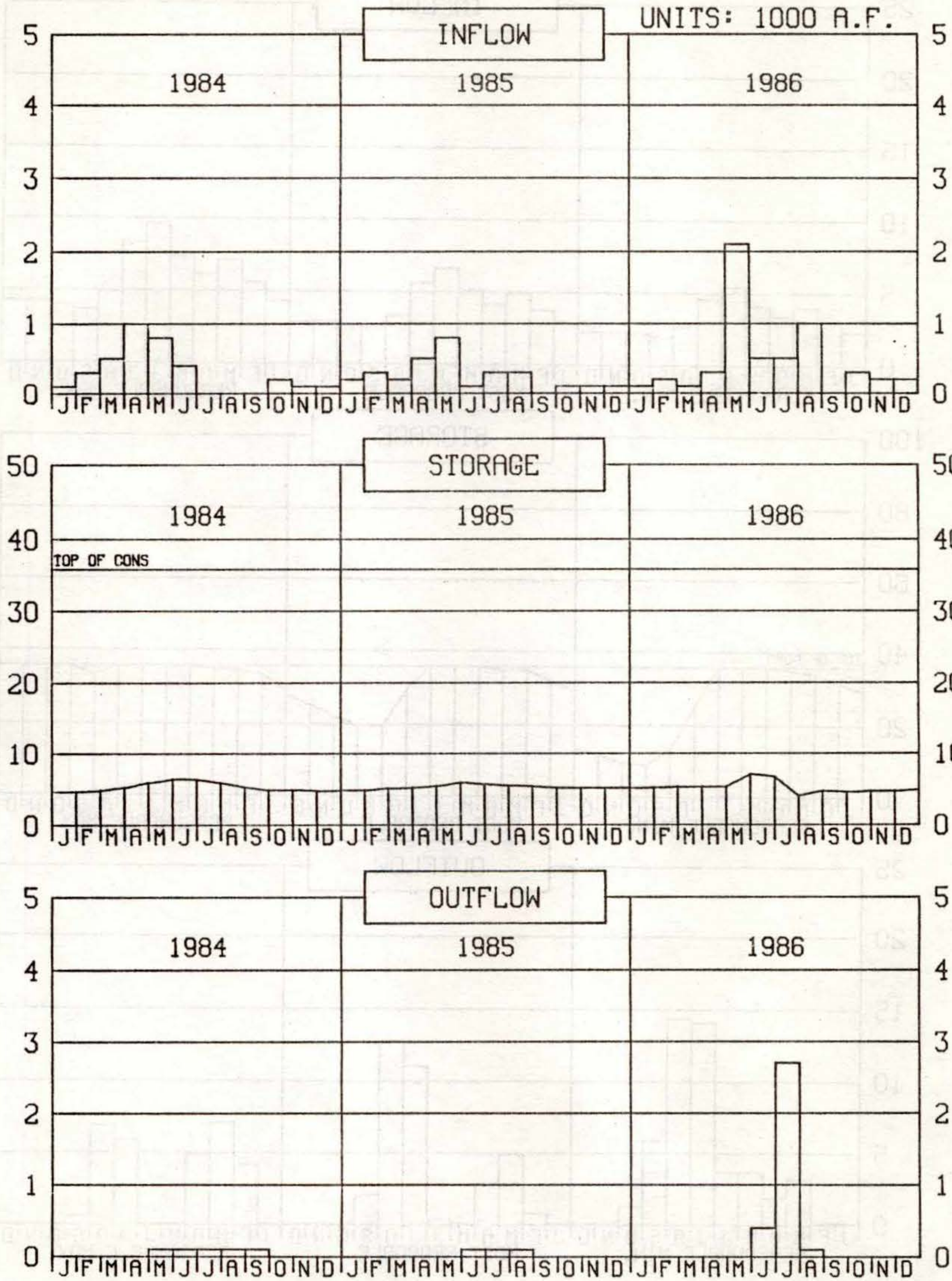


EXHIBIT 10A

KEITH SEBELIUS LAKE OPERATION



KEITH SEBELIUS LAKE 1987 OPERATION

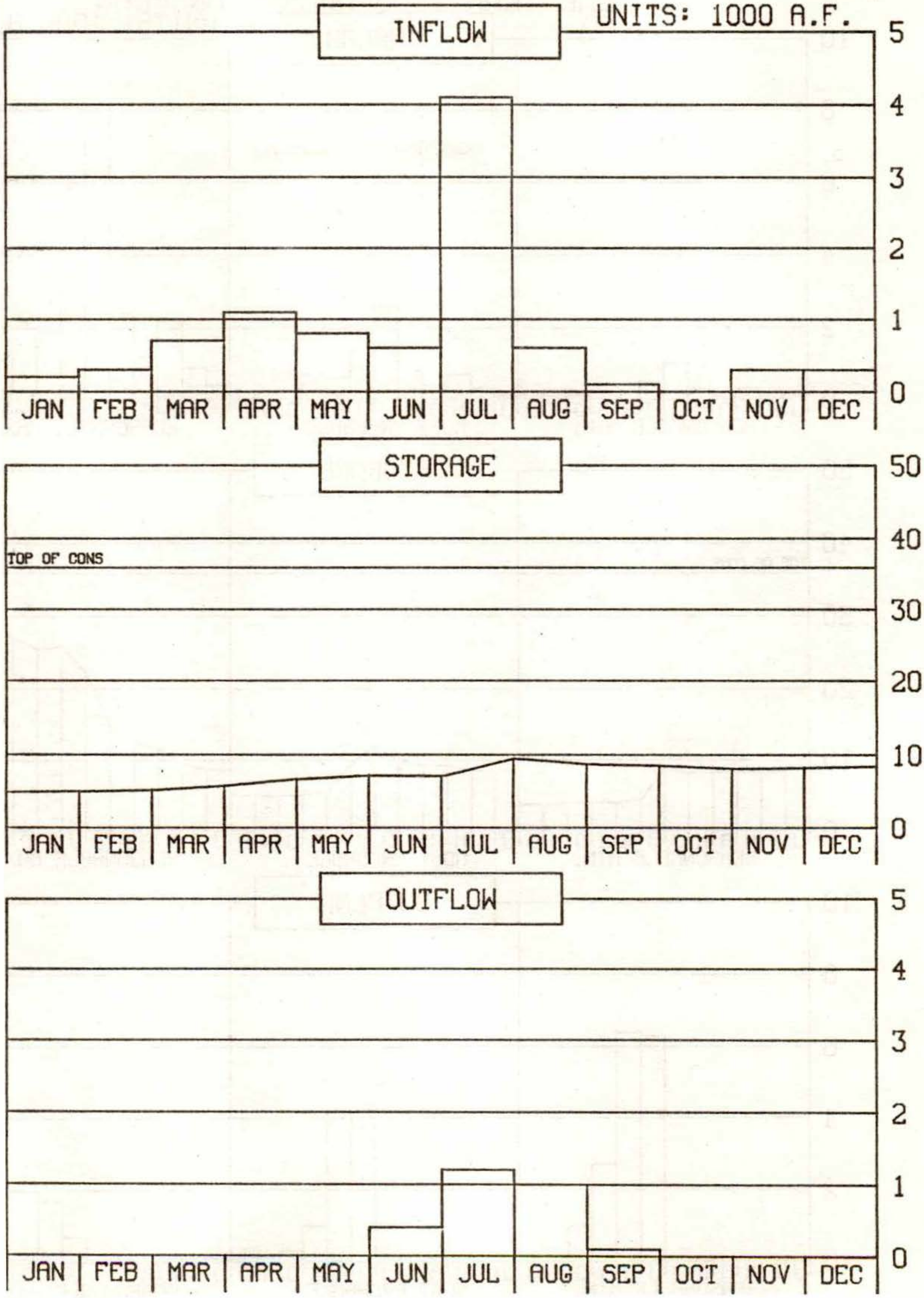


EXHIBIT 10C

KEITH SEBELIUS LAKE

CAL YEAR 1988 OPERATION PLAN

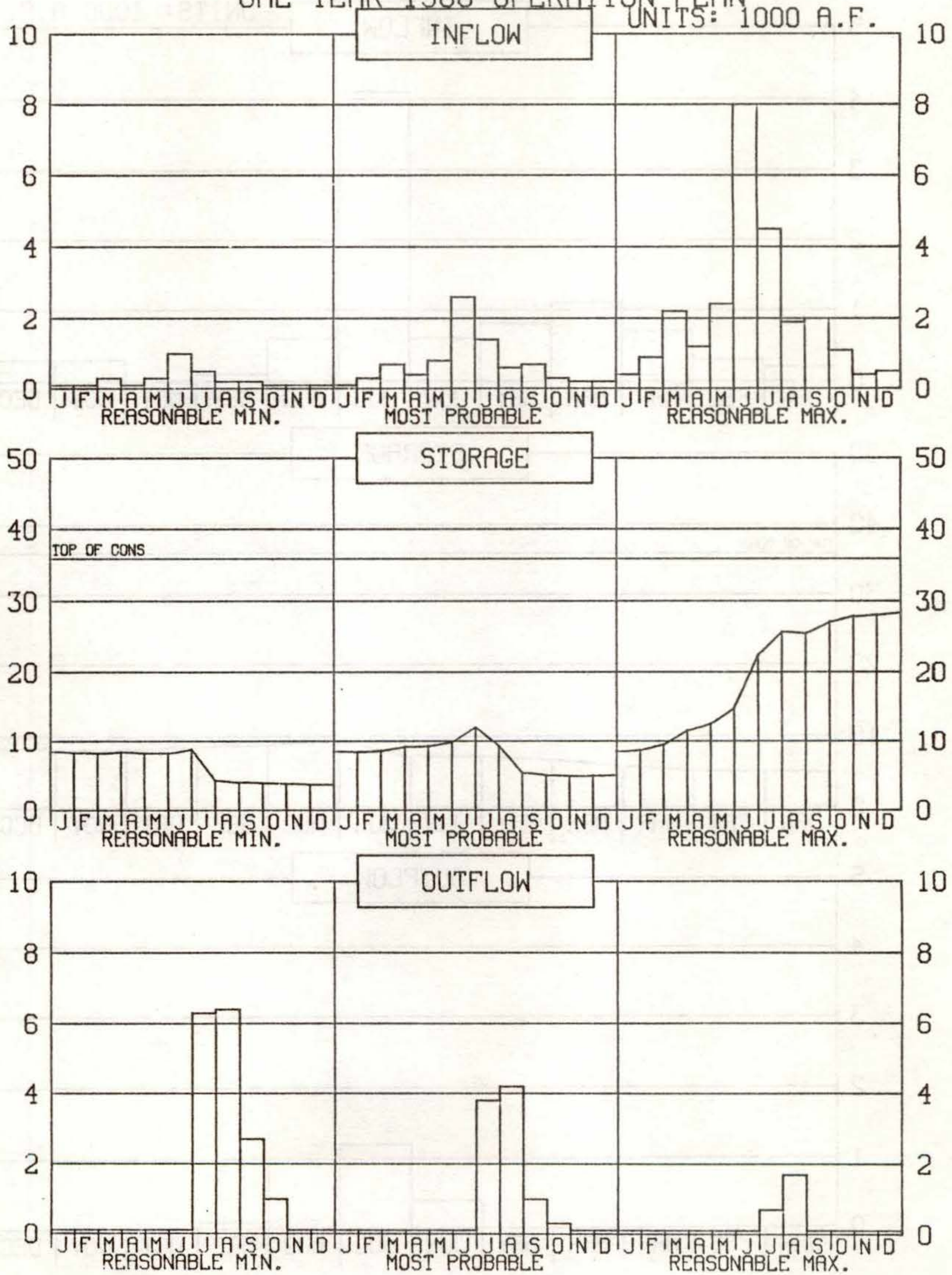


EXHIBIT 11A

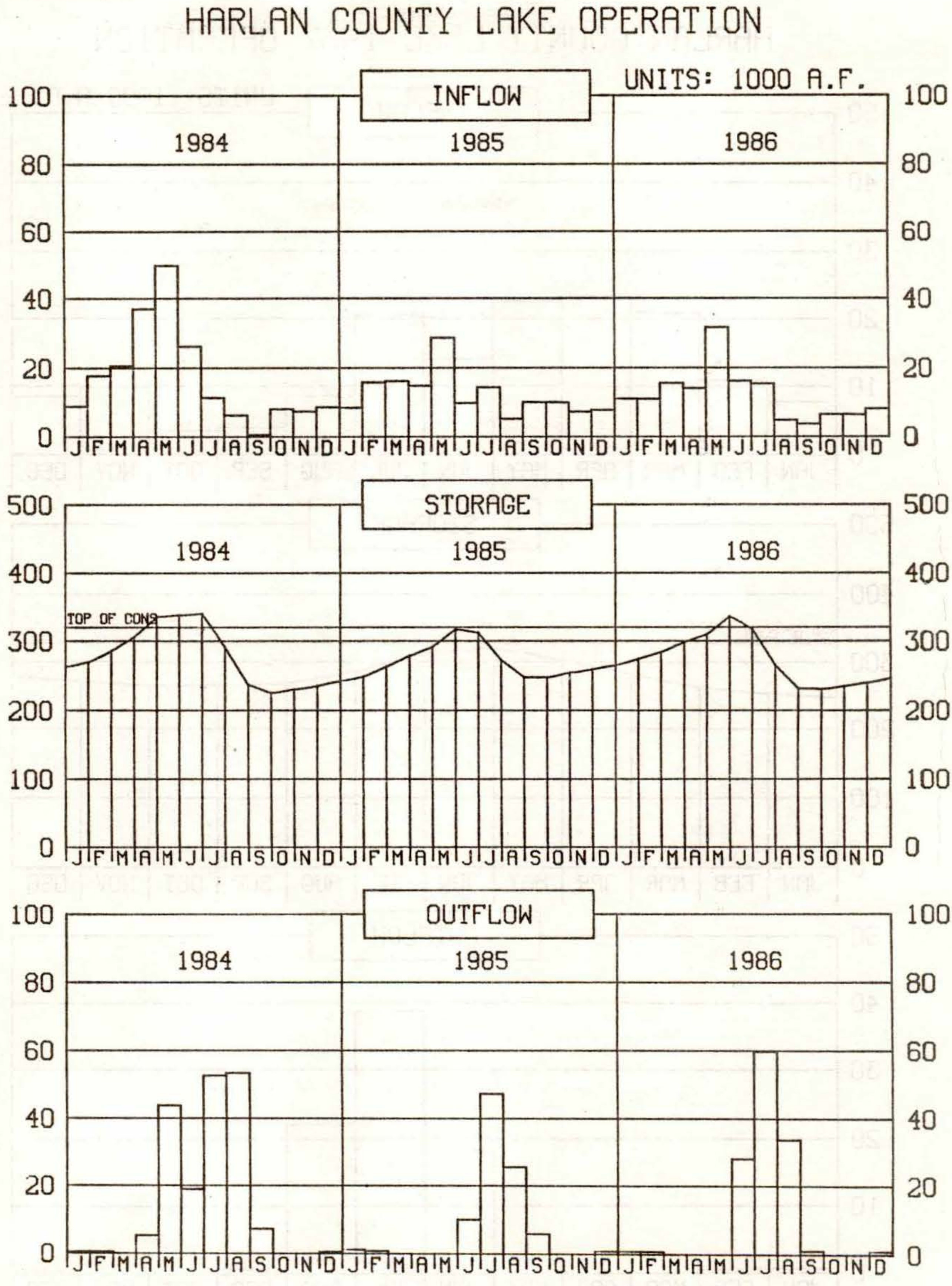

HARLAN COUNTY LAKE OPERATION
UNITS: 1000 A.F.
INFLOW
1984
1985
1986
0
20
40
60
80
100
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
STORAGE
1984
1985
1986
TOP OF CONS
0
100
200
300
400
500
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
OUTFLOW
1984
1985
1986
0
20
40
60
80
100
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D

EXHIBIT 11B

HARLAN COUNTY LAKE 1987 OPERATION

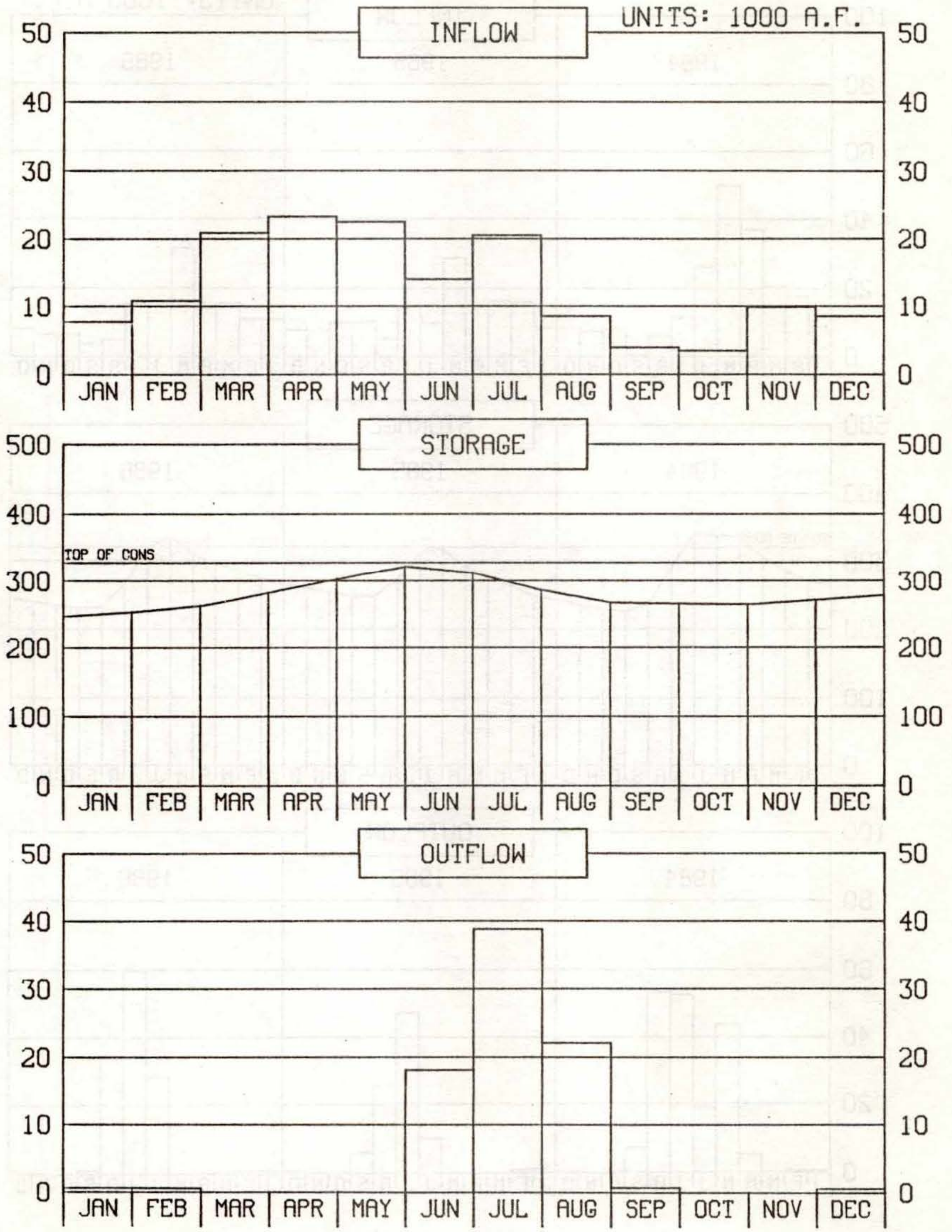


EXHIBIT 11C

HARLAN COUNTY LAKE

CAL YEAR 1988 OPERATION PLAN

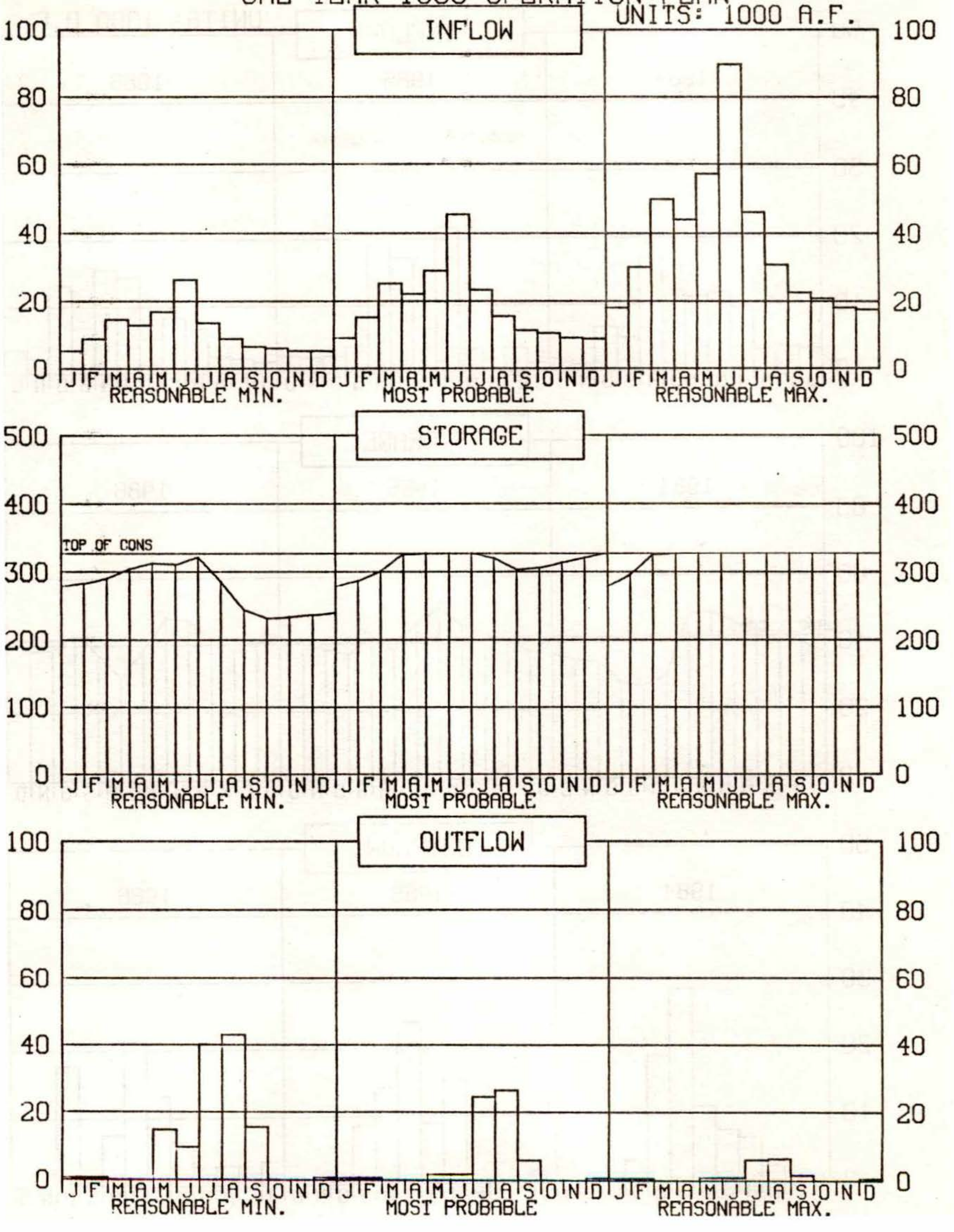
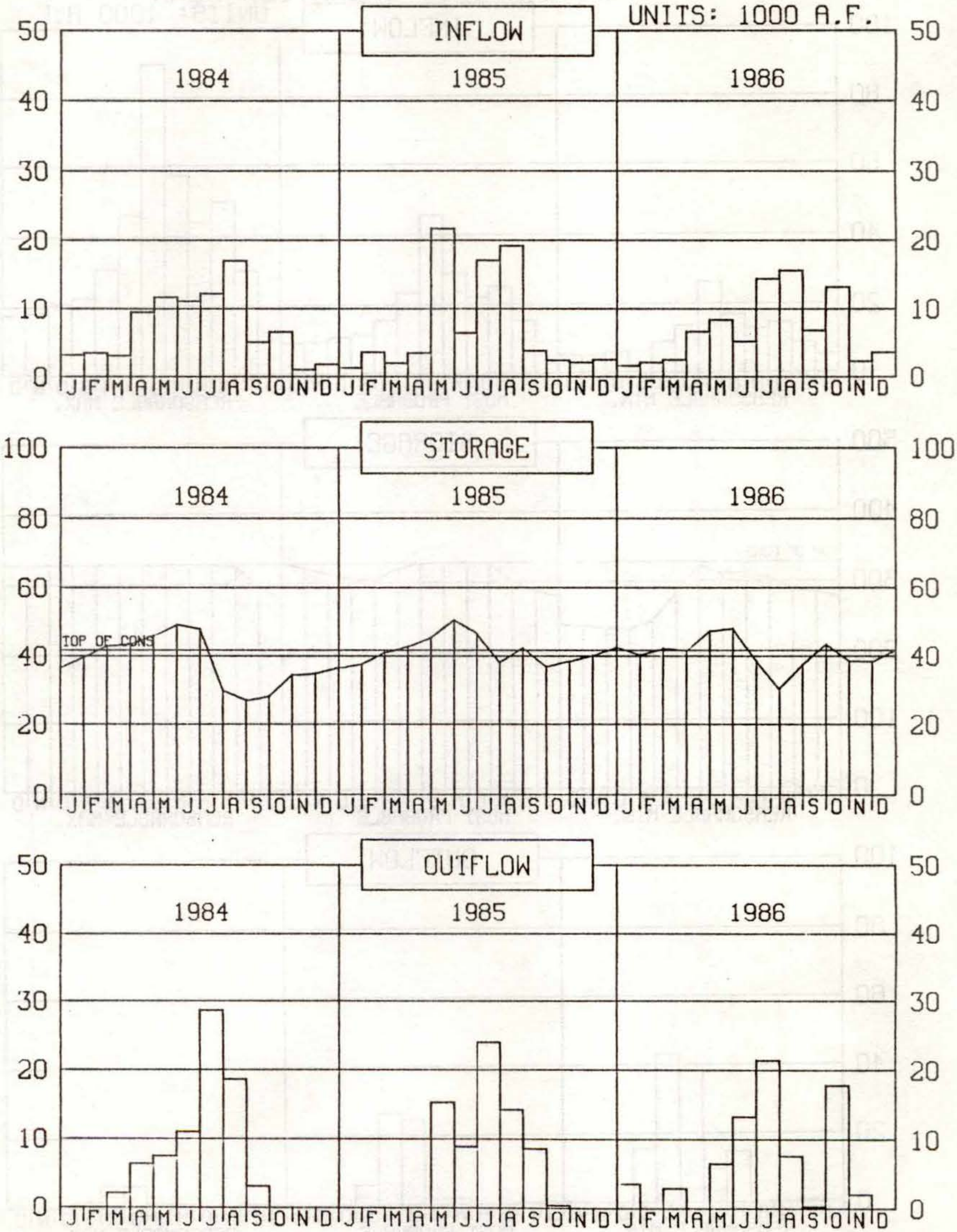


EXHIBIT 12A

LOVEWELL RESERVOIR OPERATION



LOVEWELL RESERVOIR 1987 OPERATION

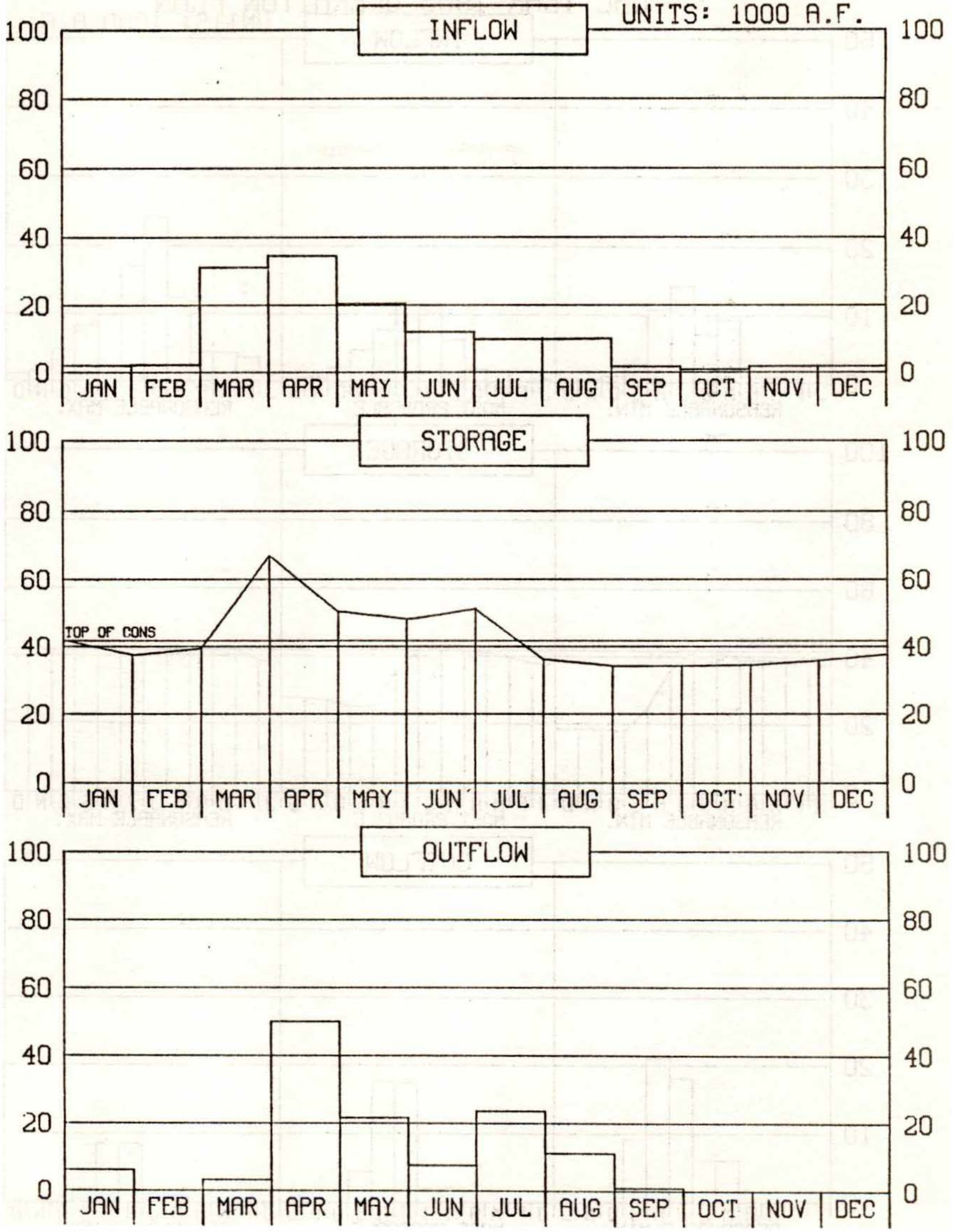


EXHIBIT 12C

LOVEWELL RESERVOIR
CAL YEAR 1988 OPERATION PLAN

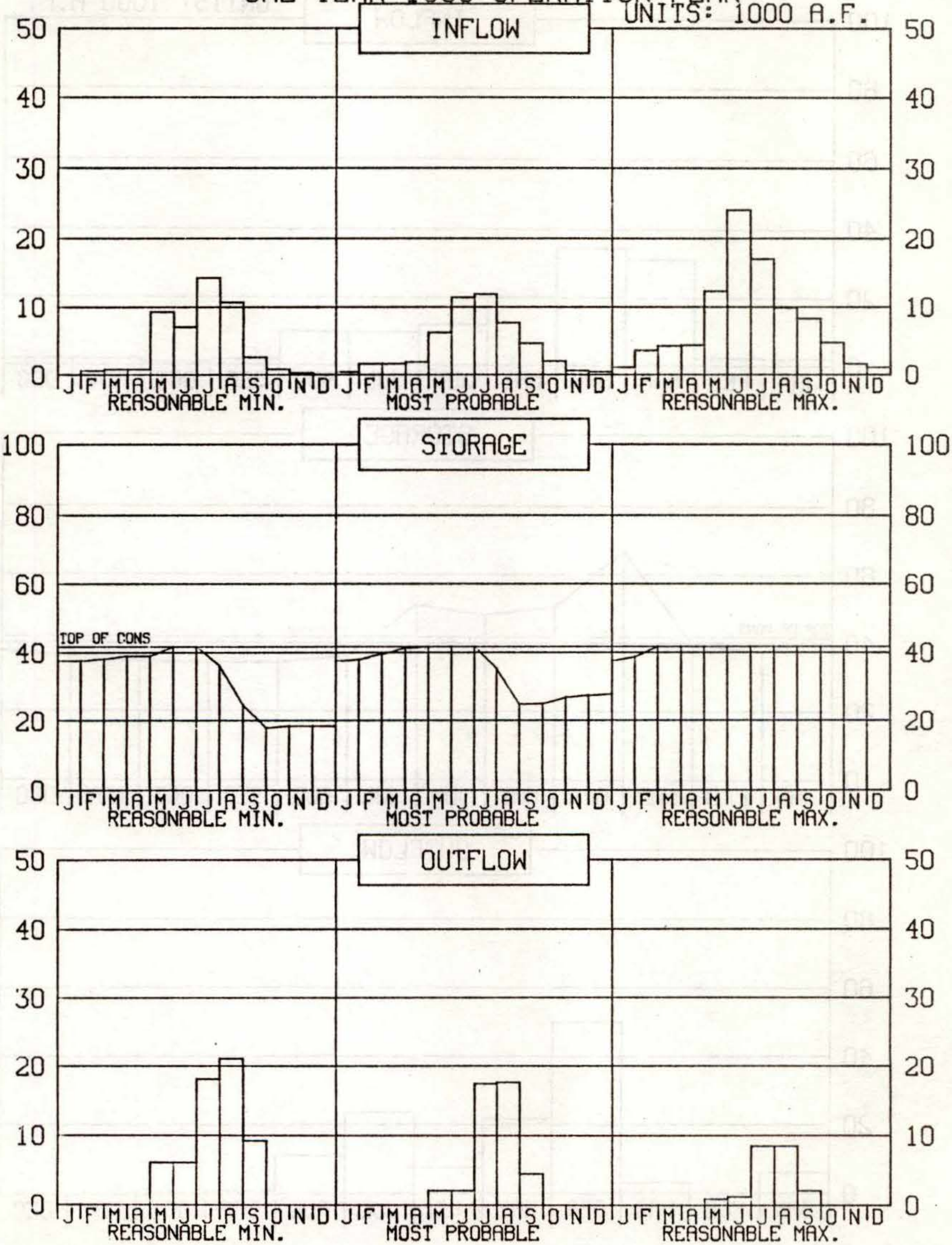


EXHIBIT 13A

KIRWIN RESERVOIR OPERATION

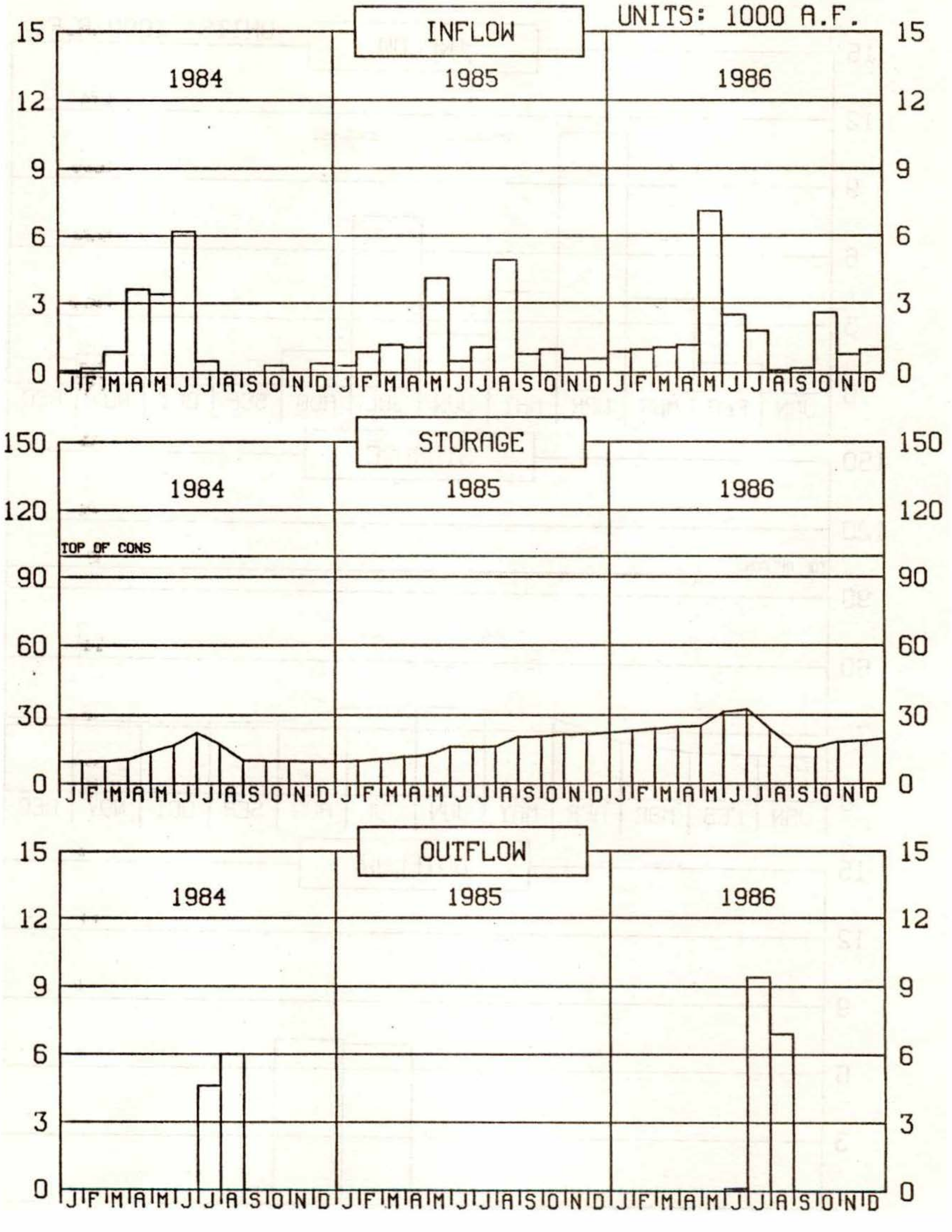
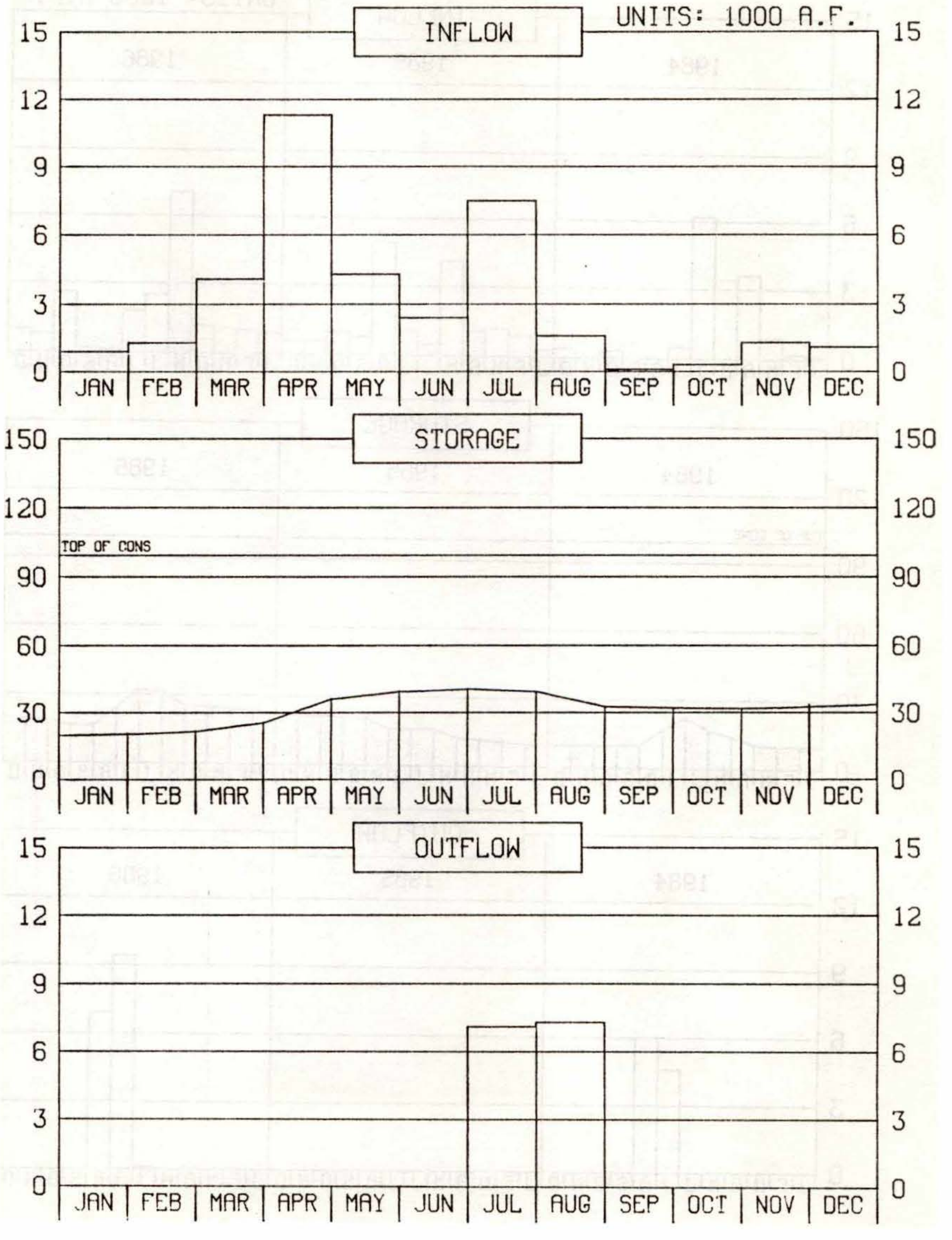


EXHIBIT 13B

KIRWIN RESERVOIR 1987 OPERATION



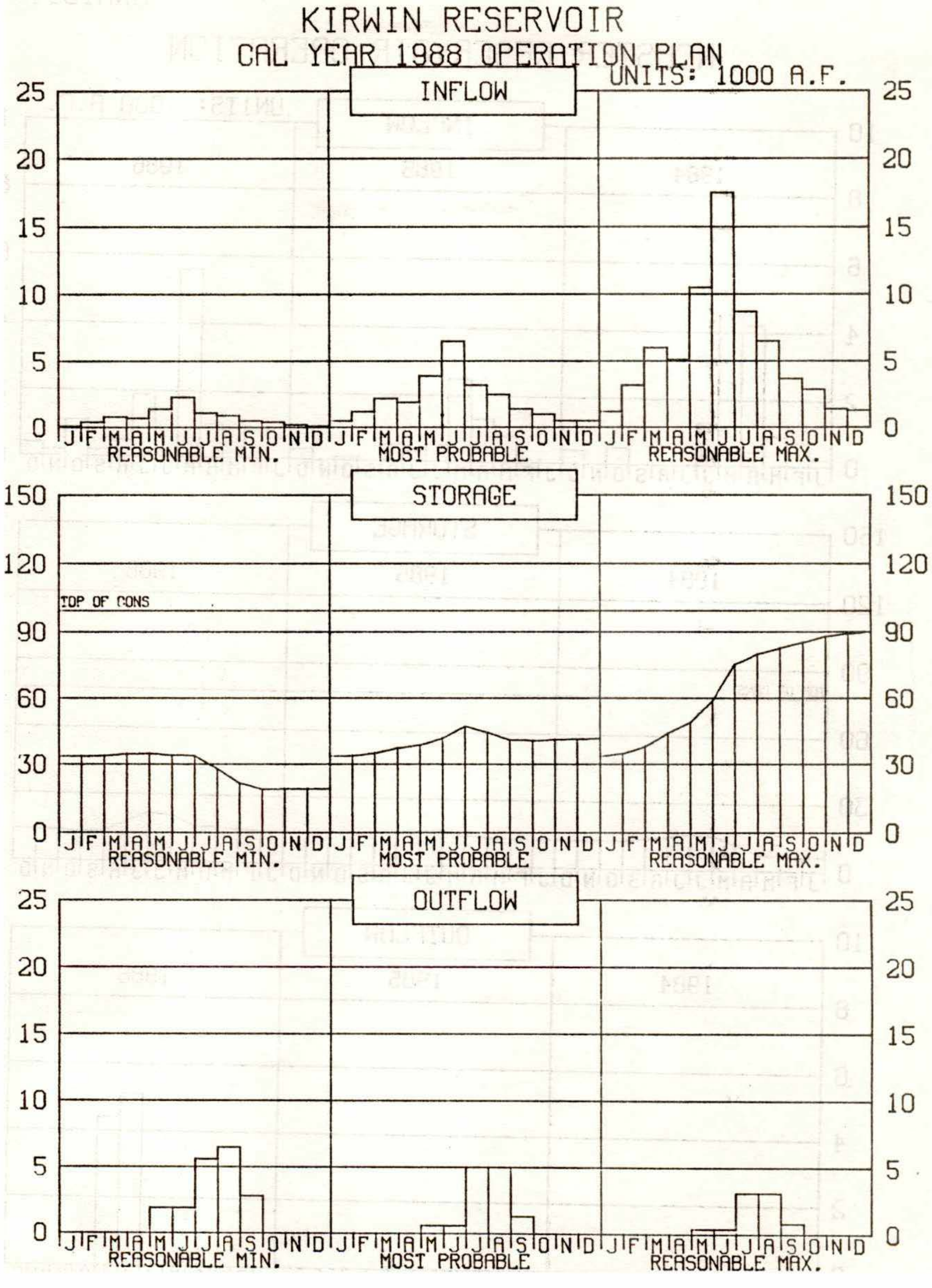

KIRWIN RESERVOIR
CAL YEAR 1988 OPERATION PLAN
UNITS: 1000 A.F.
INFLOW
STORAGE
TOP OF CONS
OUTFLOW
J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.
0 5 10 15 20 25
0 30 60 90 120 150

EXHIBIT 14A

WEBSTER RESERVOIR OPERATION

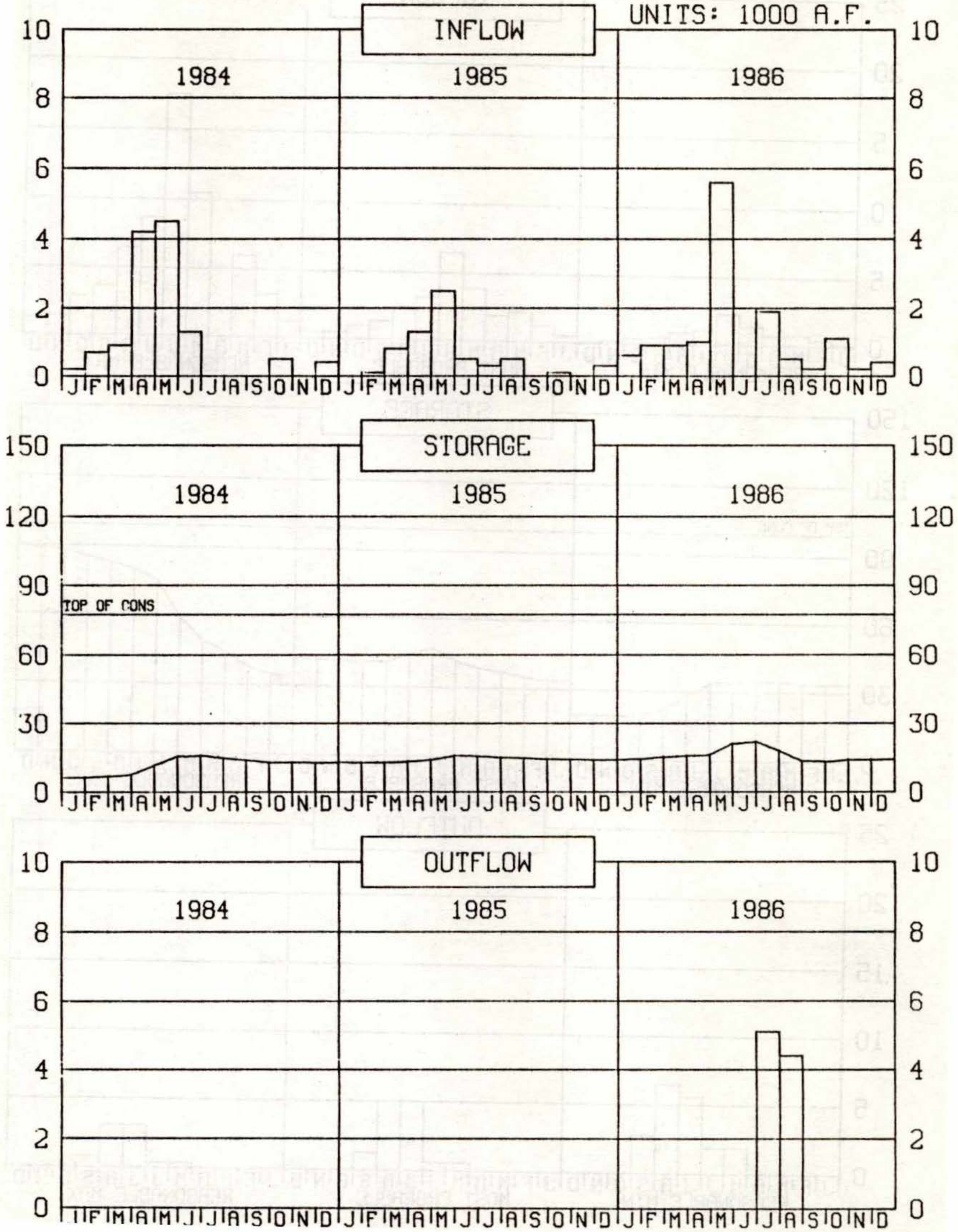


EXHIBIT 14B

WEBSTER RESERVOIR 1987 OPERATION

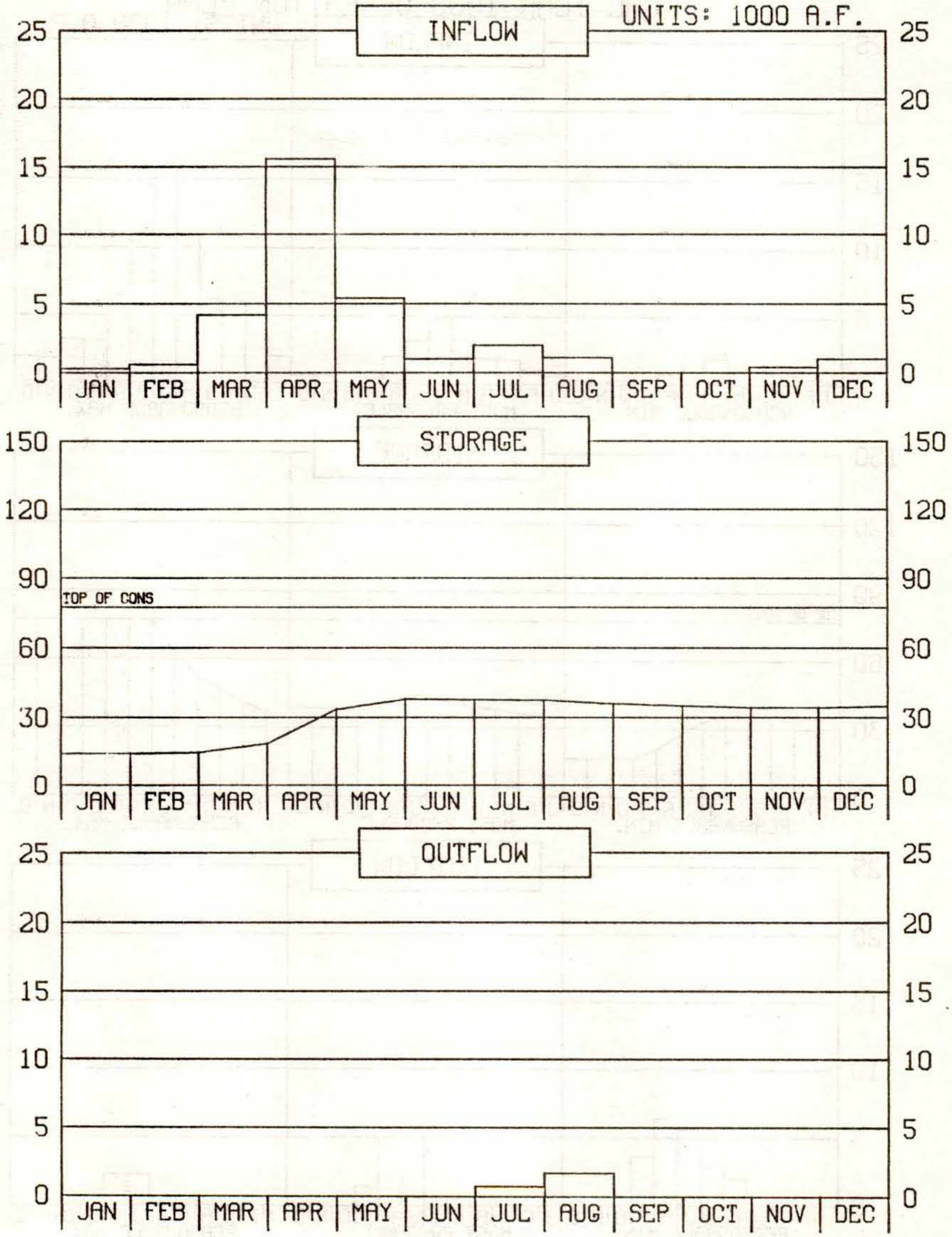


EXHIBIT 14C

WEBSTER RESERVOIR

CAL YEAR 1988 OPERATION PLAN

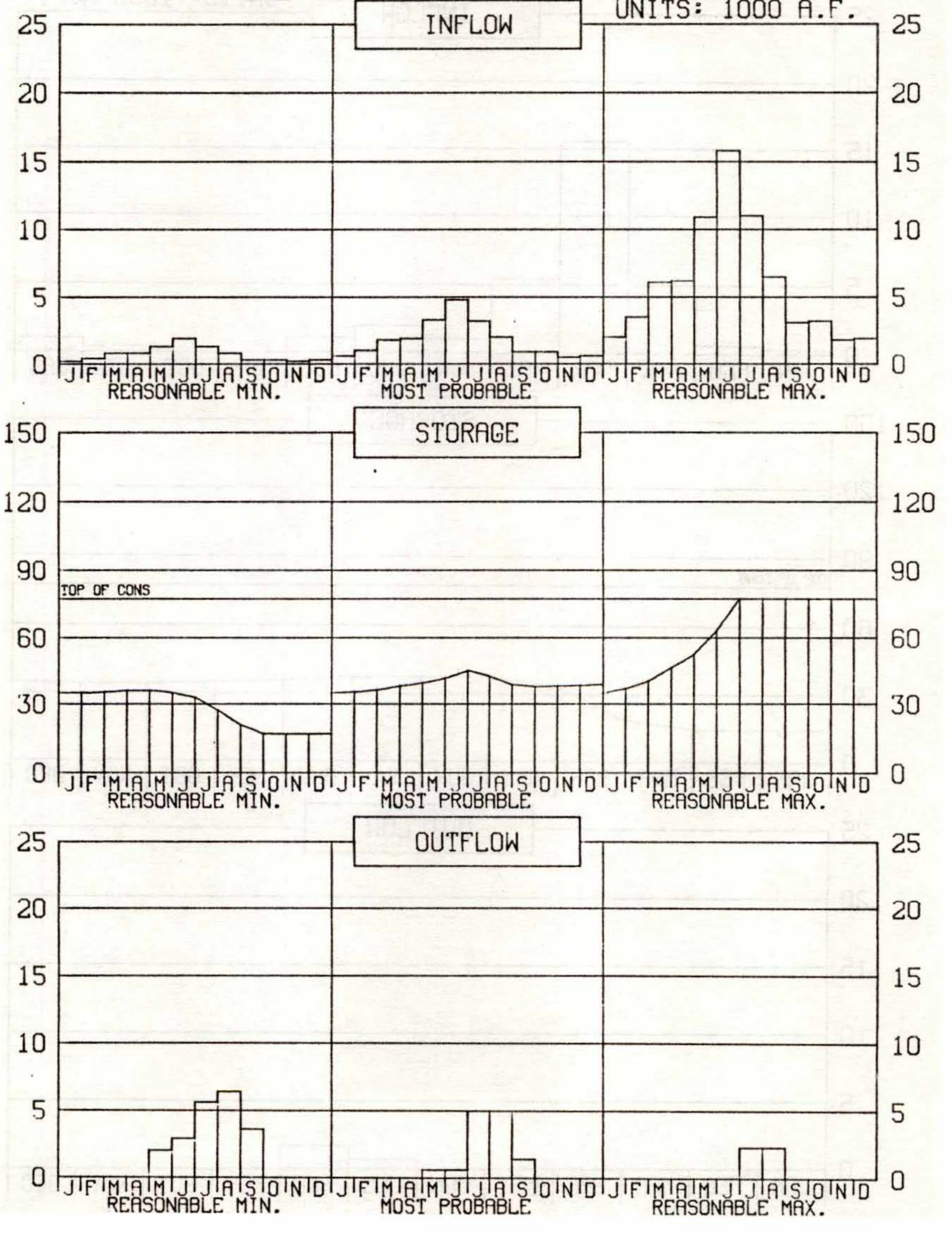


EXHIBIT 15A

WACONDA LAKE OPERATION

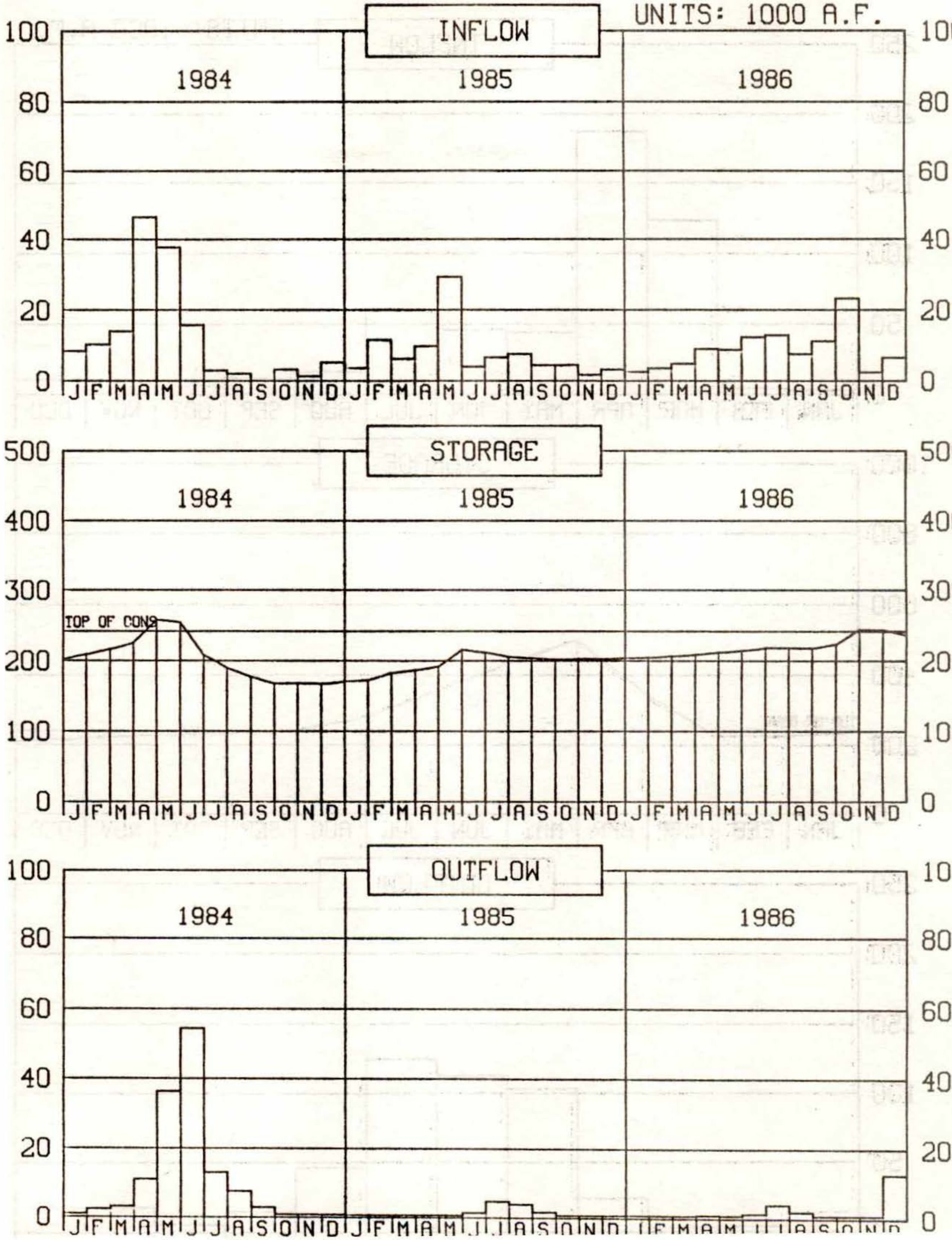
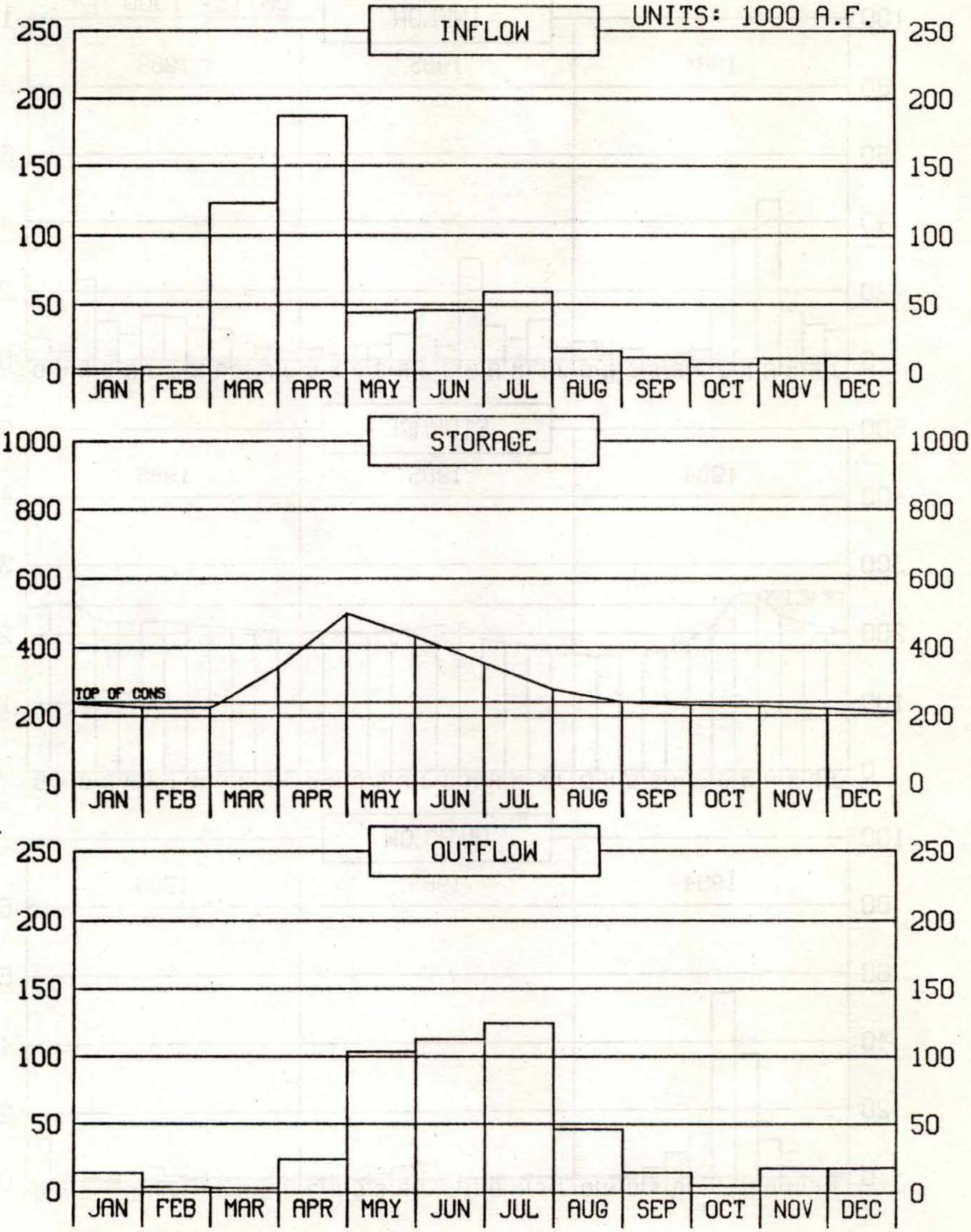


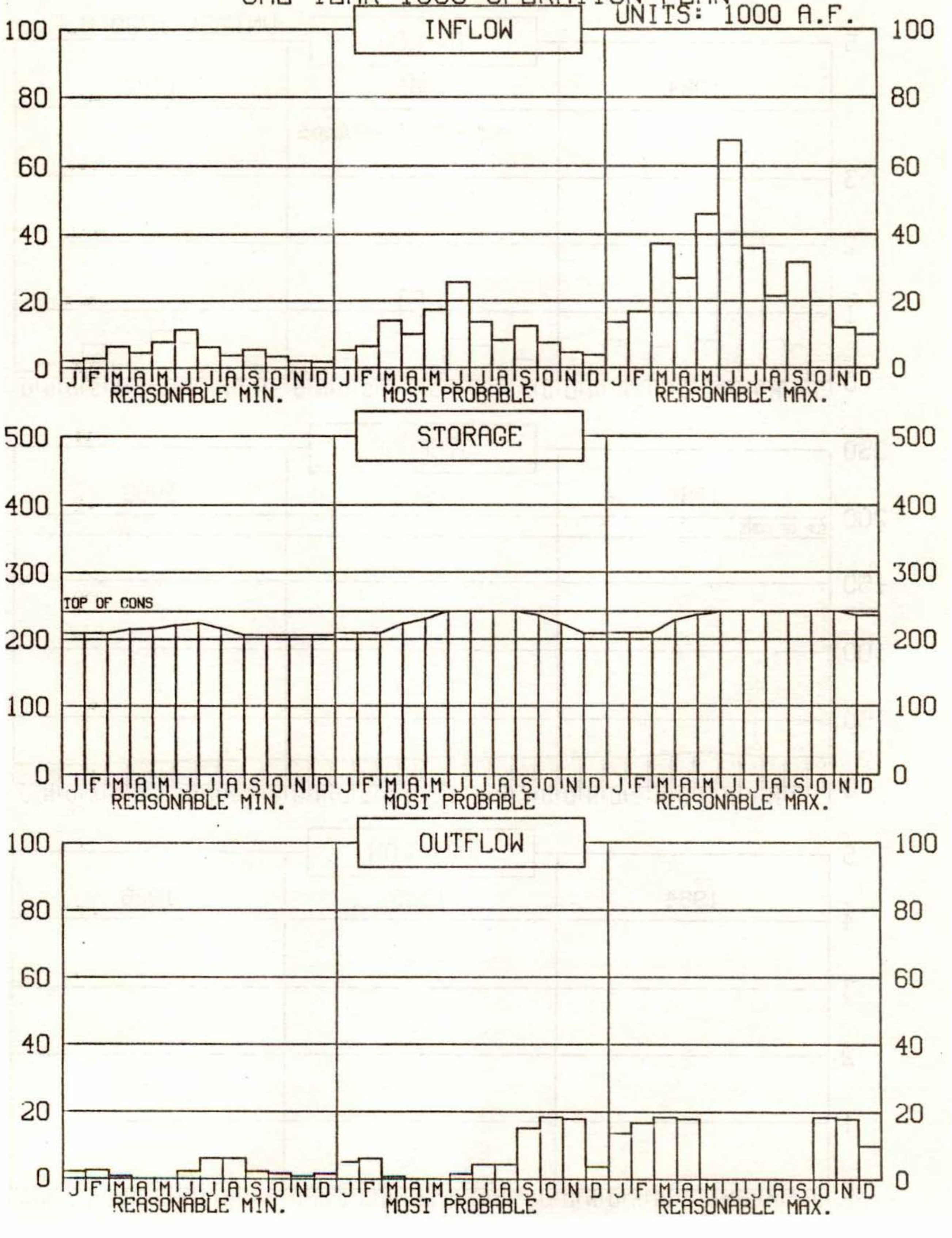
EXHIBIT 15B

WACONDA LAKE 1987 OPERATION



WACONDA LAKE

CAL YEAR 1988 OPERATION PLAN



CEDAR BLUFF RESERVOIR OPERATION

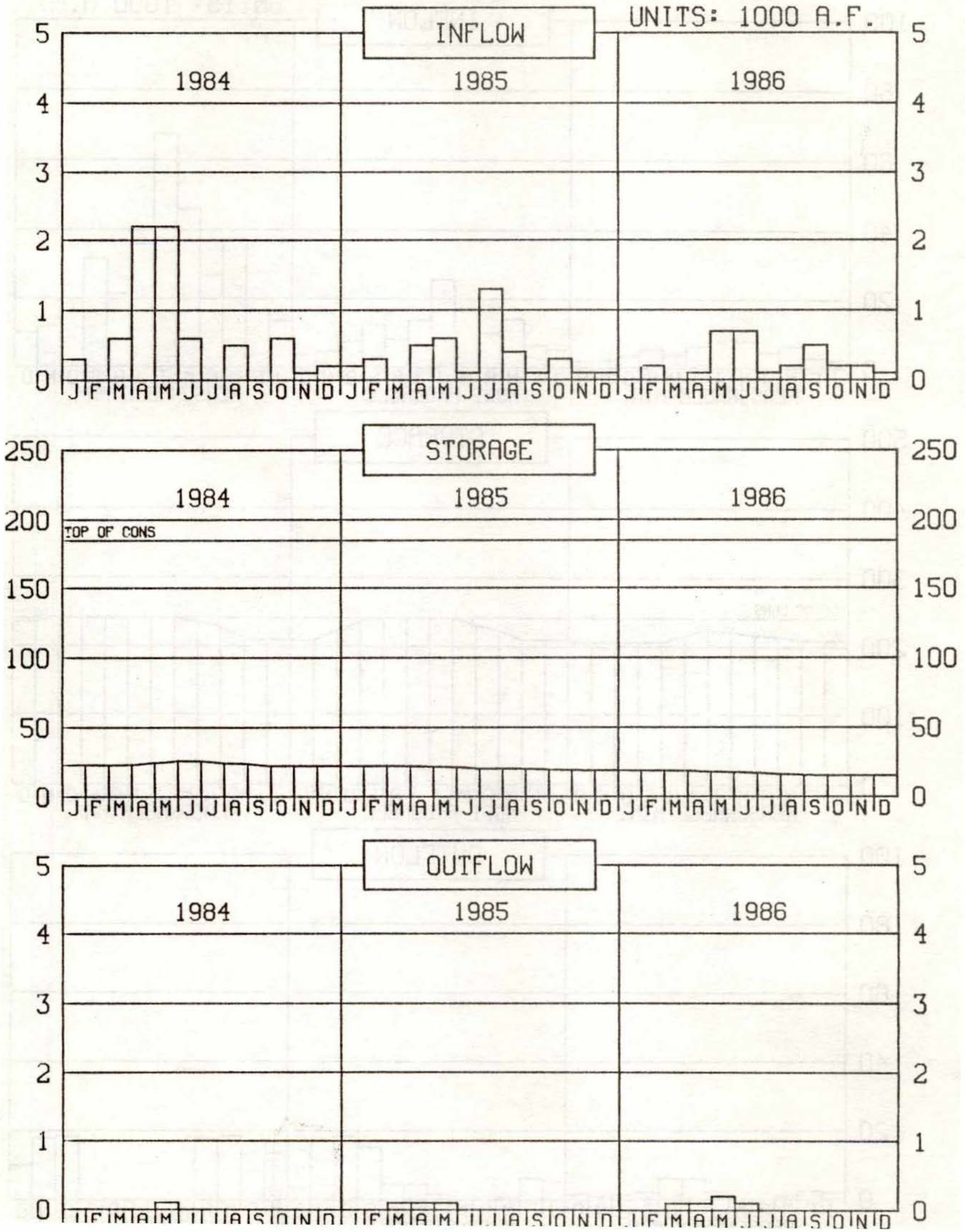


EXHIBIT 16B

CEDAR BLUFF RESERVOIR 1987 OPERATION

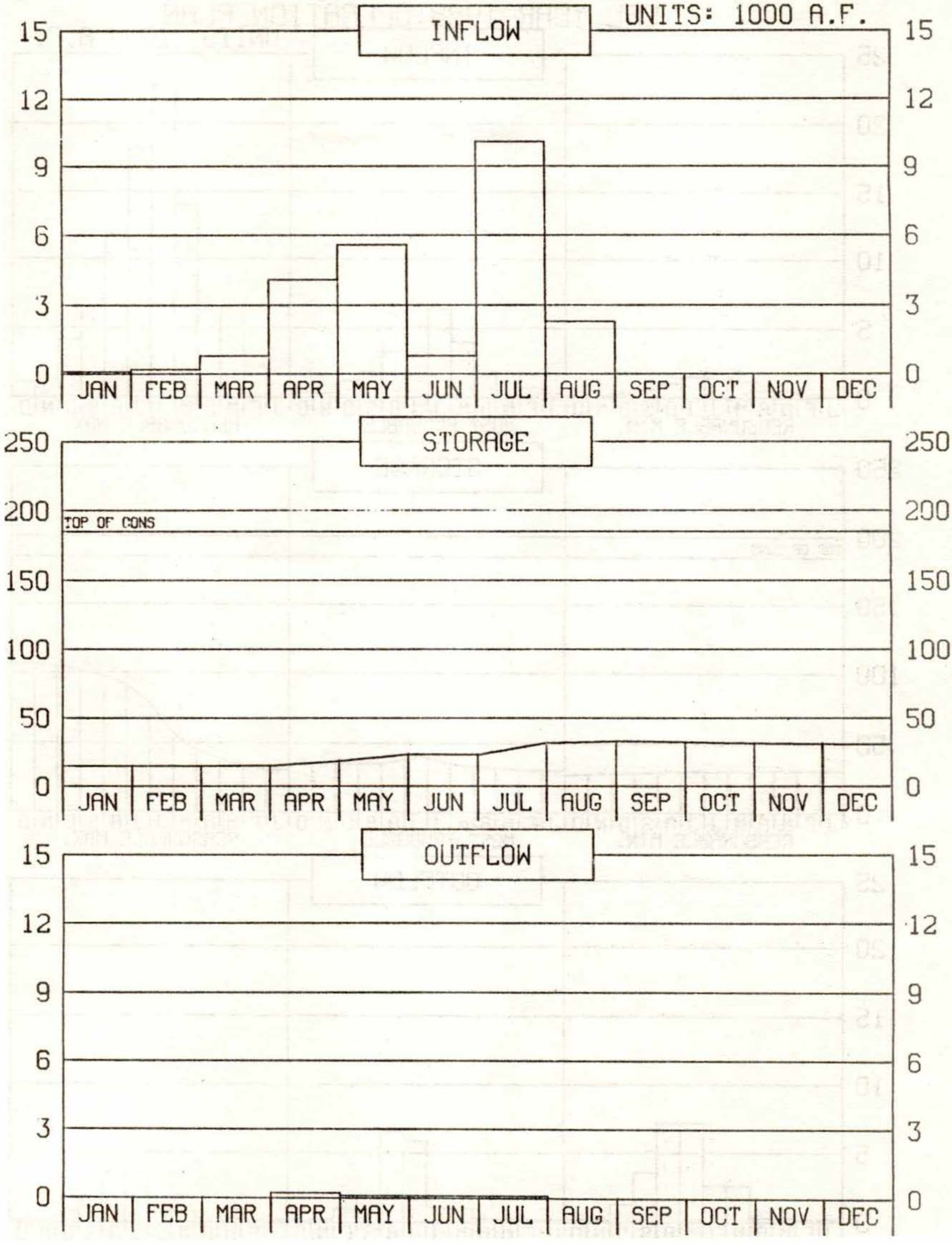


EXHIBIT 16C

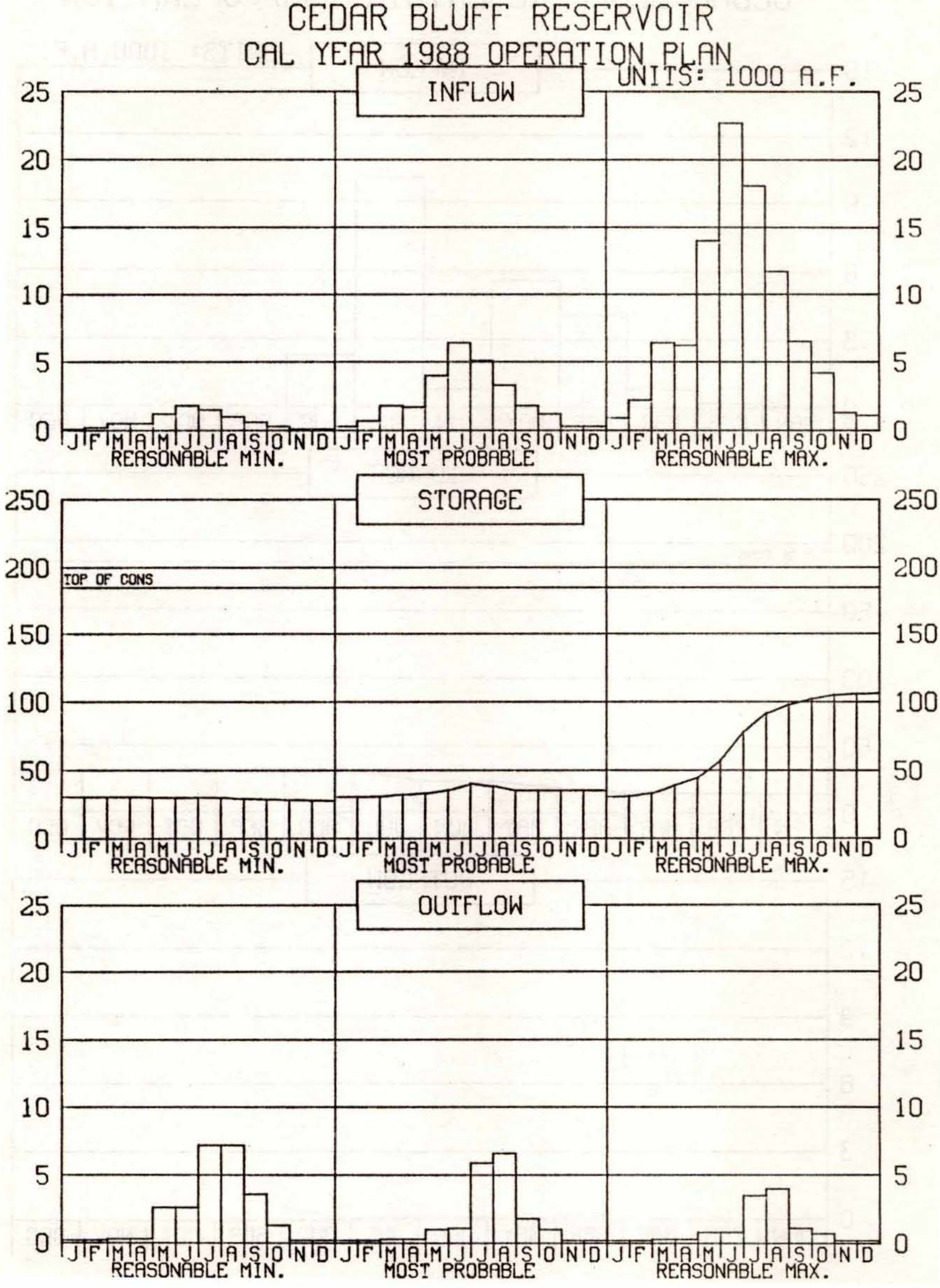
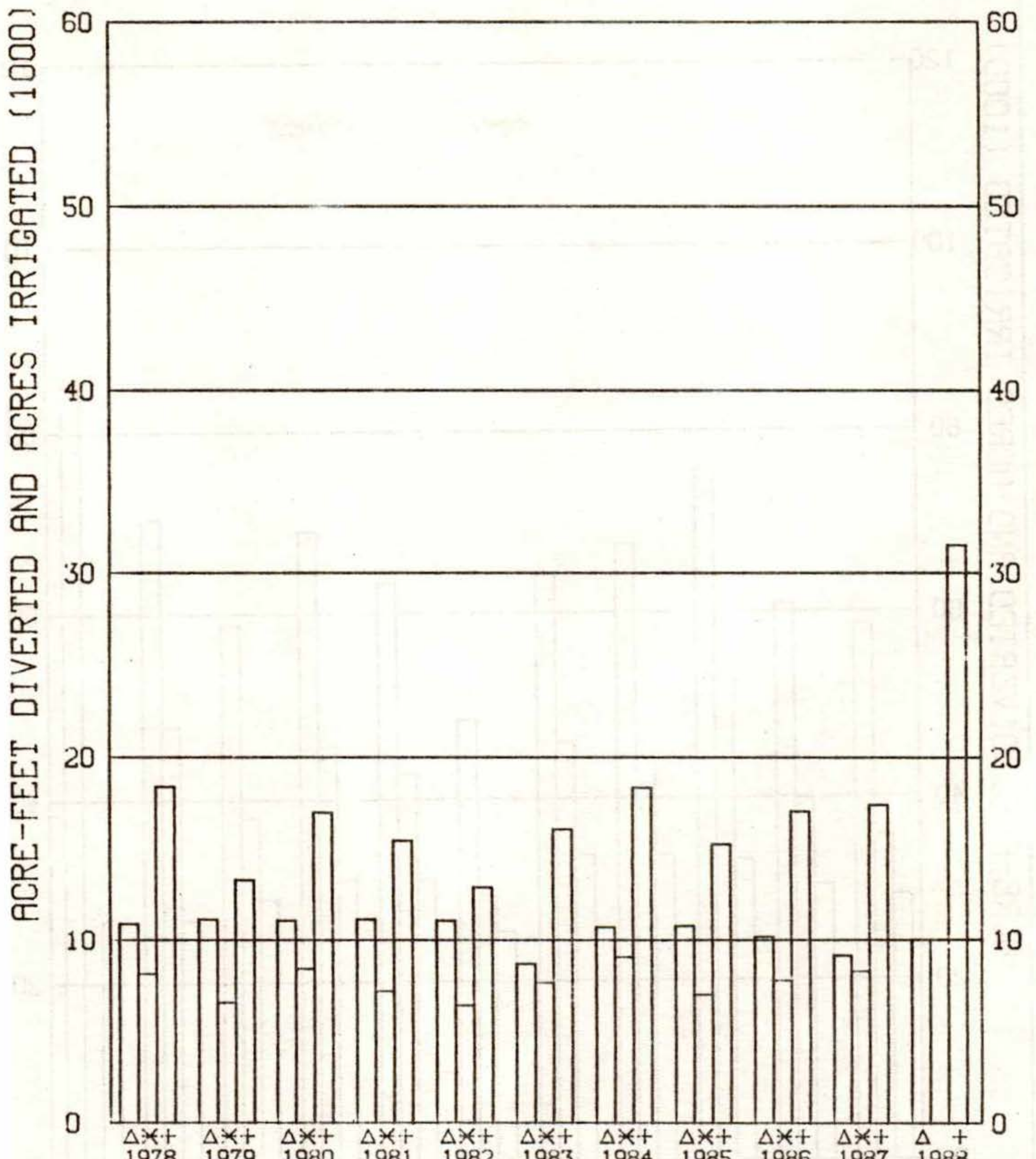

CEDAR BLUFF RESERVOIR
CAL YEAR 1988 OPERATION PLAN
UNITS: 1000 A.F.
INFLOW
STORAGE
TOP OF CONS
OUTFLOW
J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.
0
5
10
15
20
25
50
100
150
200
250

EXHIBIT 17

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

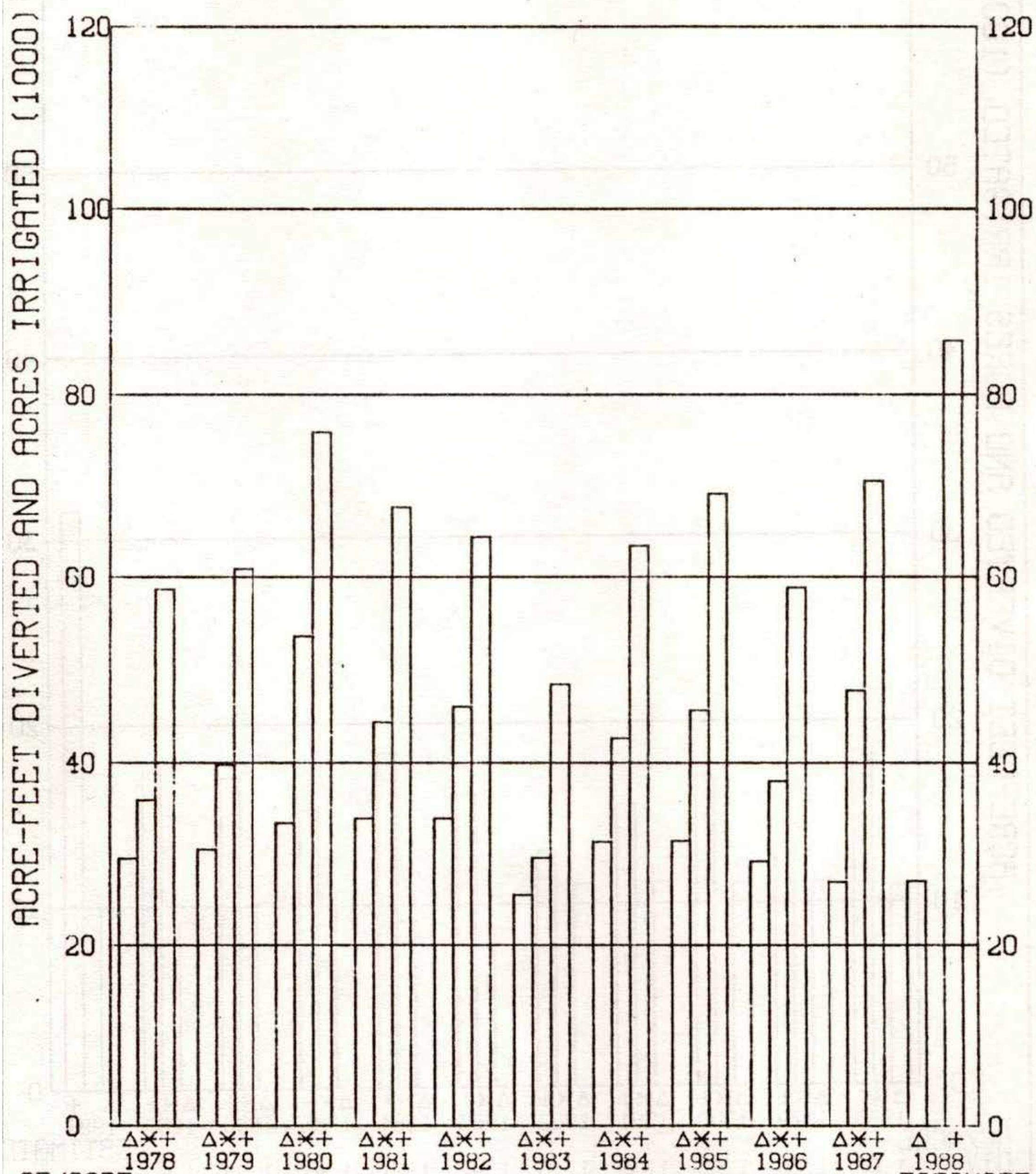


AF/ACRE	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
DIV	1.69	1.20	1.53	1.39	1.16	1.87	1.71	1.41	1.68	1.92
DEL	.74	.58	.75	.64	.57	.88	.84	.64	.76	.90
EFF(%)	43	48	49	46	49	47	49	45	45	46

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 15.60
NORMAL YEAR - 4.60

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
AINSWORTH IRRIGATION DISTRICT

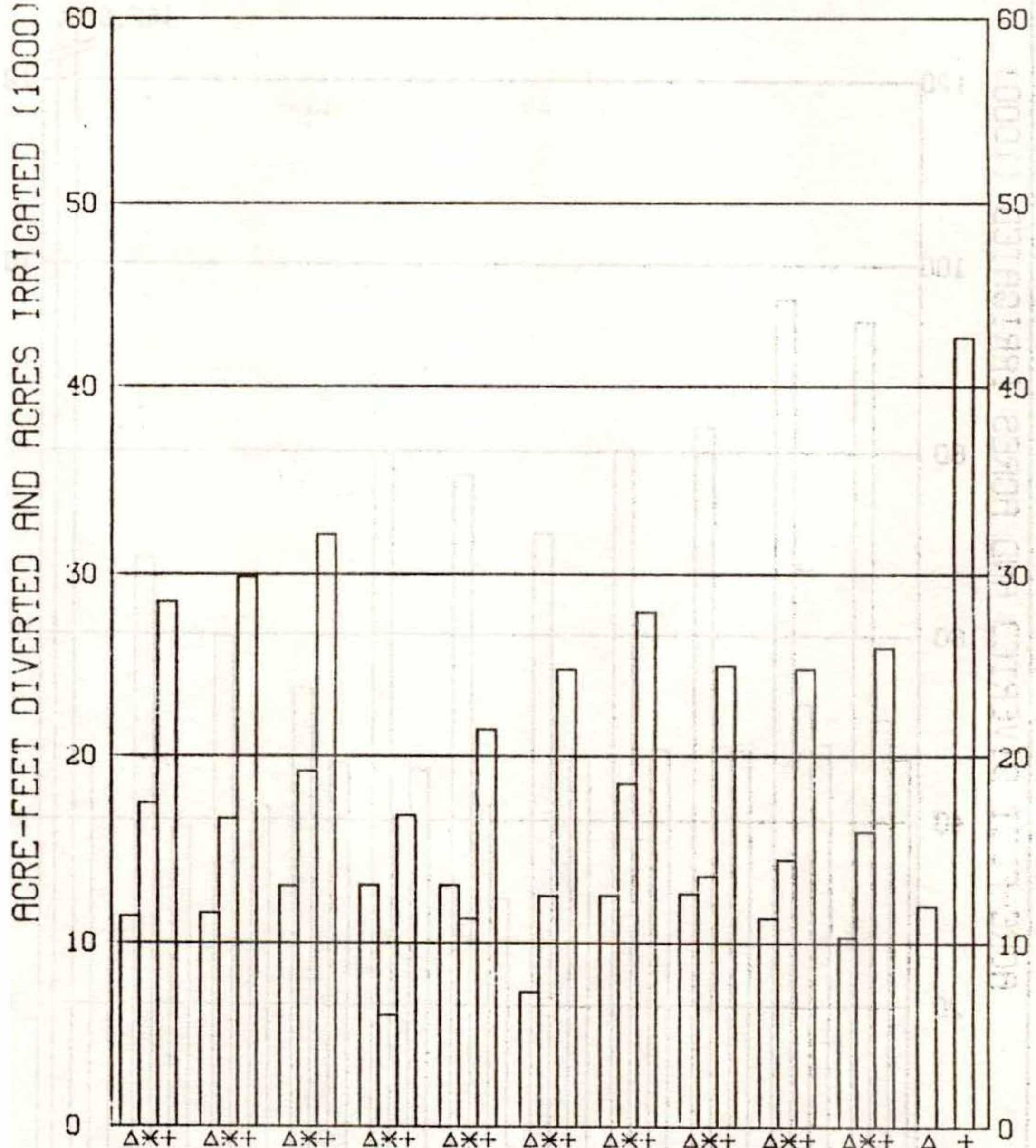


AF/ACRE	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
DIV	1.99	2.00	2.27	1.99	1.90	1.90	2.03	2.20	2.01	2.62
DEL	1.22	1.30	1.60	1.31	1.35	1.16	1.36	1.45	1.30	1.77
EFF(%)	61	64	70	65	71	61	66	65	64	67

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

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

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
SARGENT IRRIGATION DISTRICT



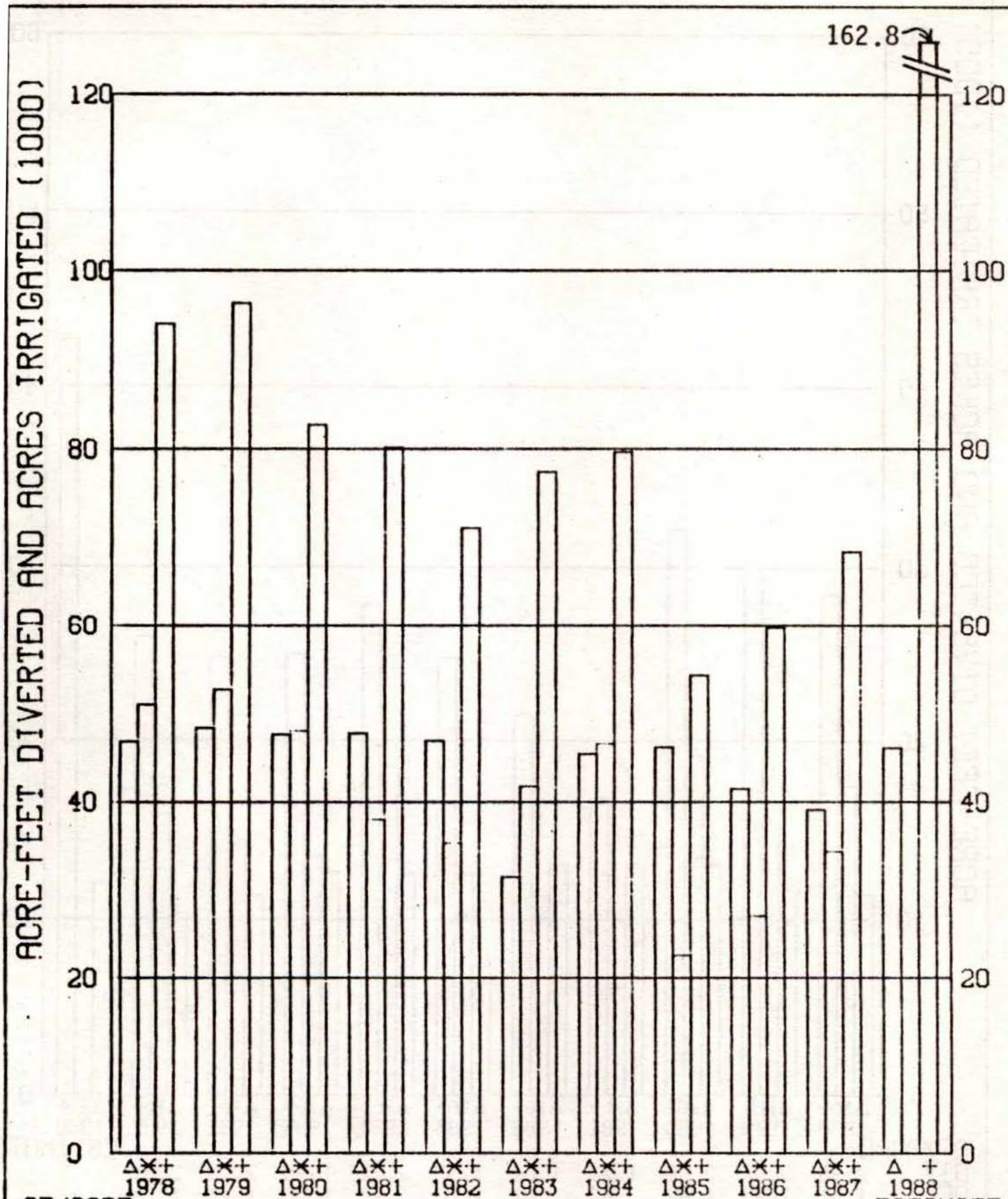
AF/ACRE	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
DIV	2.49	2.57	2.46	1.28	1.64	3.37	2.22	1.98	2.18	2.52
DEL	1.51	1.43	1.47	.47	.87	1.70	1.47	1.08	1.27	1.54
EFF(%)	60	55	59	36	53	50	66	54	58	61

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 19.80
NORMAL YEAR - 3.90

EXHIBIT 20

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED FARWELL IRRIGATION DISTRICT

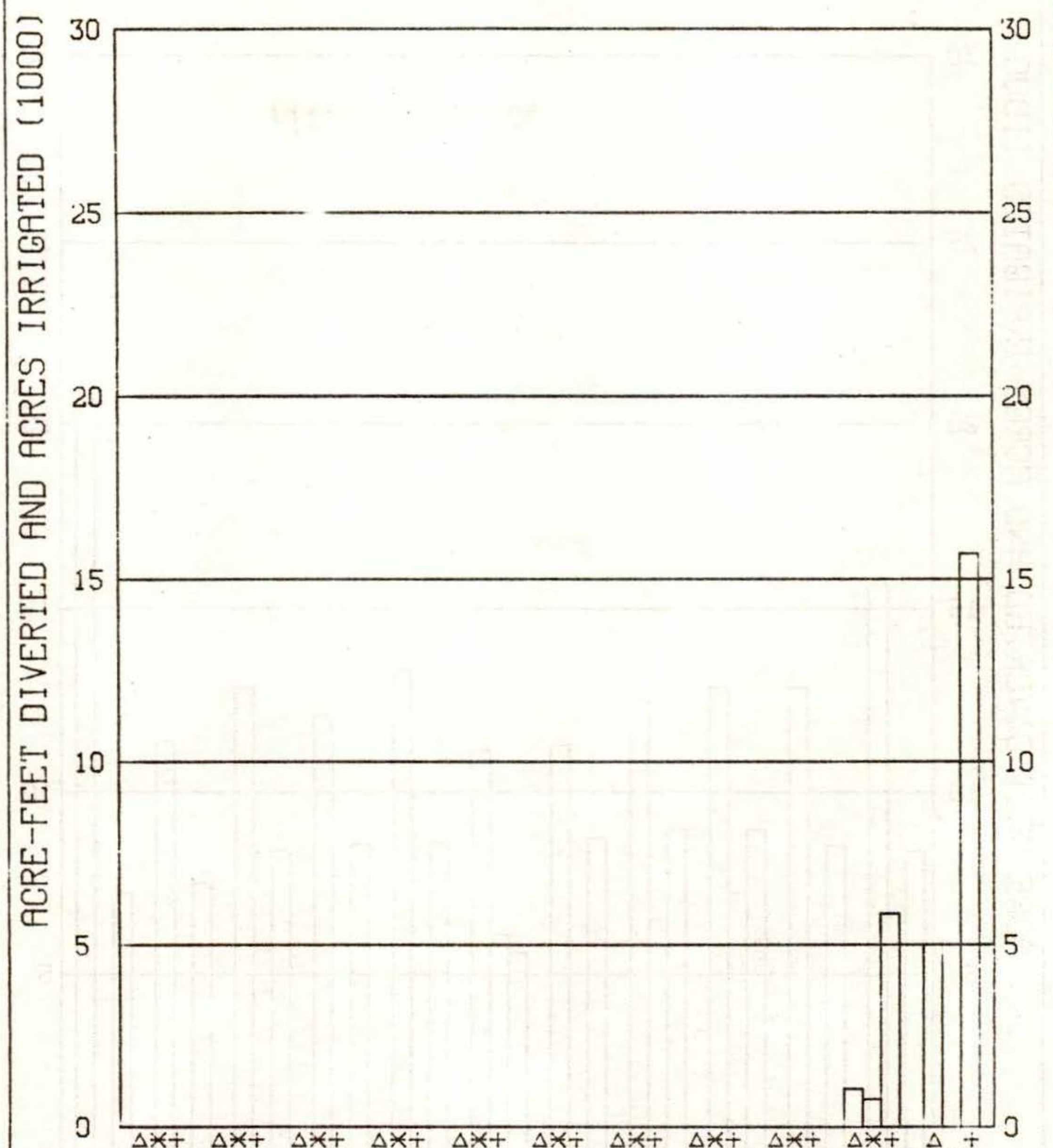


AF/ACRE	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
DIV	2.01	2.00	1.74	1.68	1.52	2.45	1.76	1.18	1.44	1.75
DEL	1.09	1.09	1.01	.80	.76	1.32	1.03	.49	.65	.88
EFF(%)	54	54	58	47	50	53	58	41	45	50

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 74.90
NORMAL YEAR - 12.40

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
TWIN LOUPS IRRIGATION DISTRICT



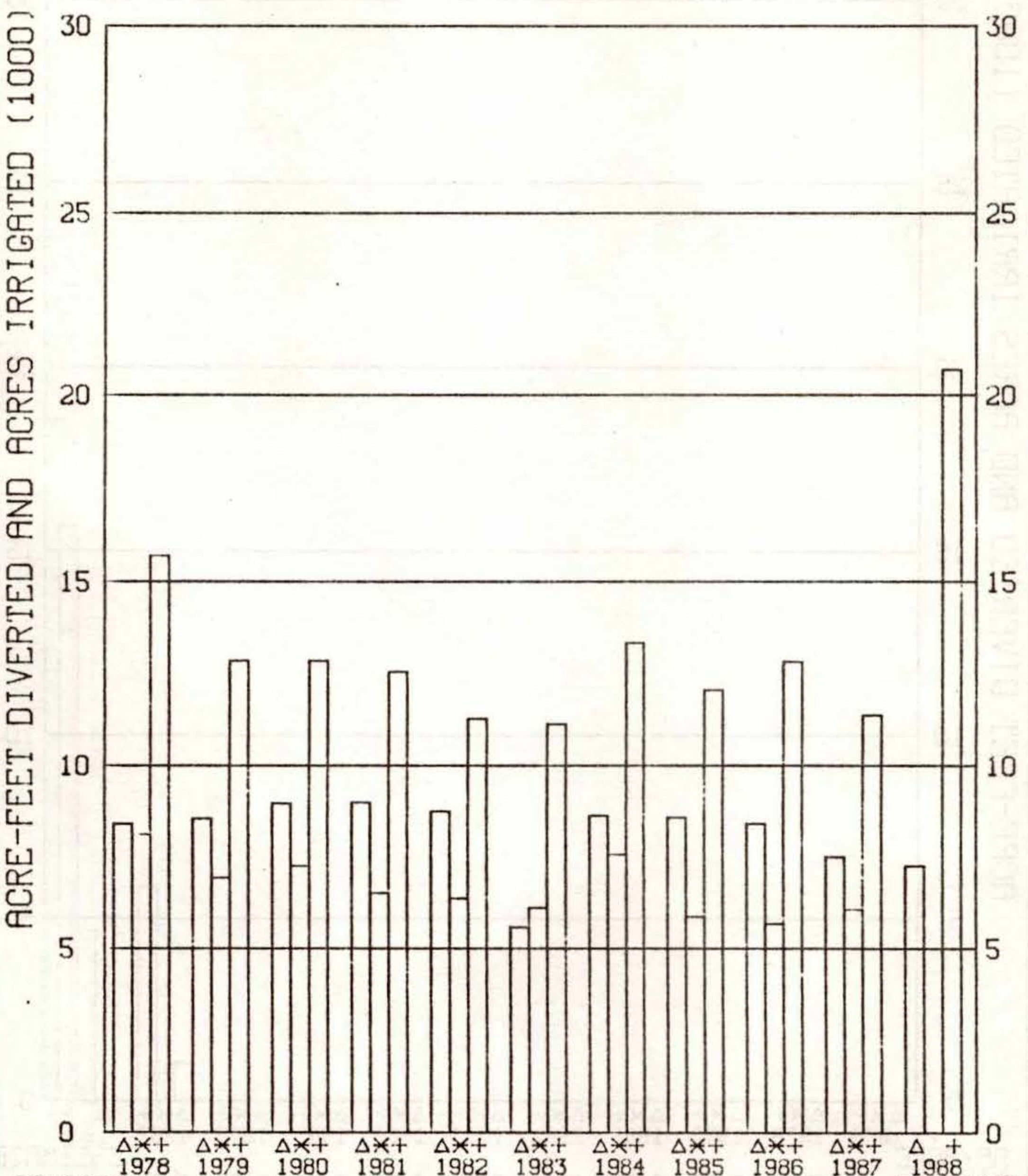
AF/ACRE	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
DIV	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.03
DEL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	.73
EFF(%)	0	0	0	0	0	0	0	0	0	12

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 22

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

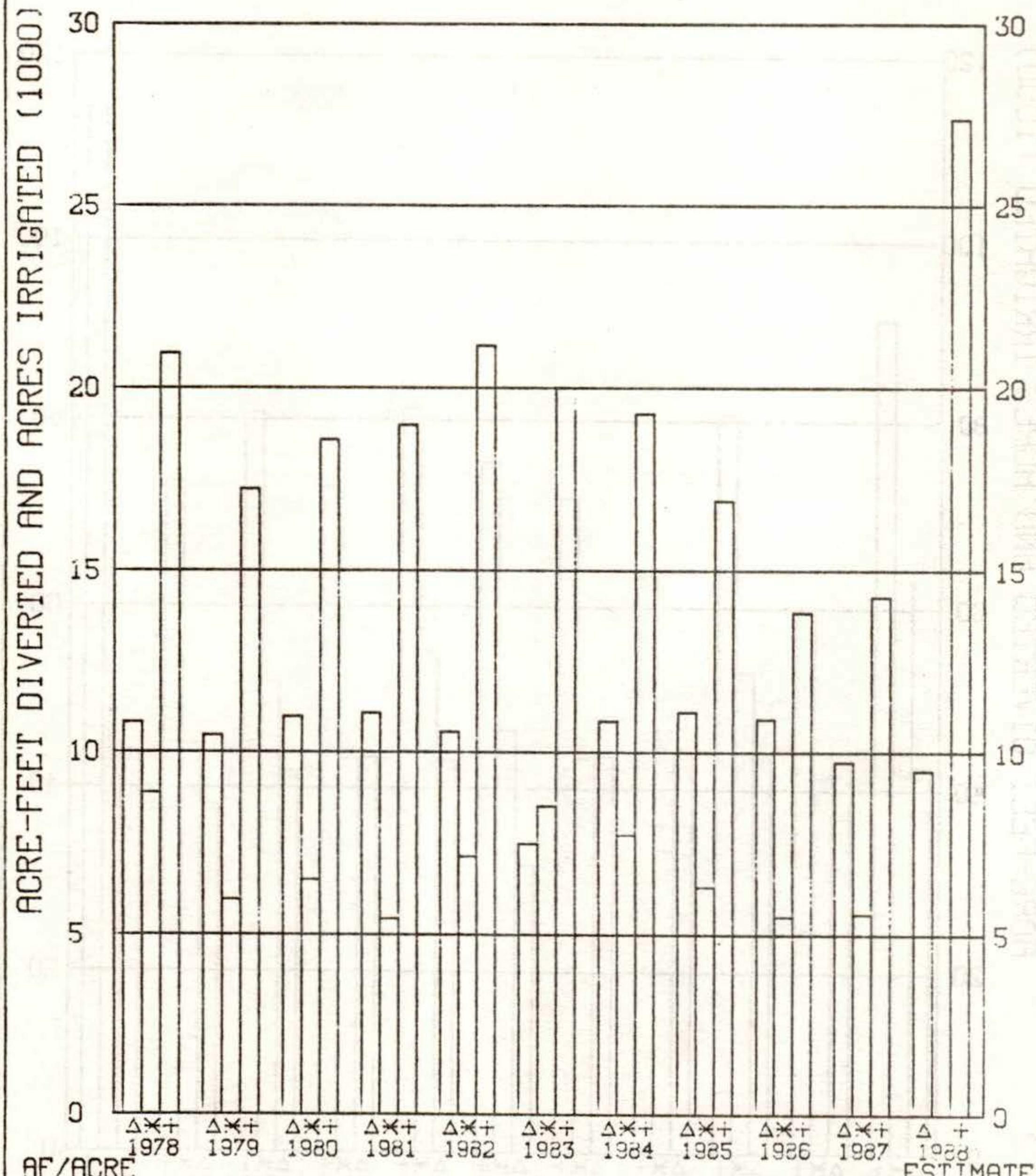


AF/ACRE	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
DIV	1.88	1.51	1.44	1.40	1.30	2.00	1.55	1.42	1.54	1.53
DEL	.97	.81	.81	.72	.73	1.09	.87	.68	.68	.81
EFF(%)	51	53	56	51	56	54	56	47	44	52

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 7.40
NORMAL YEAR - 0.00

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



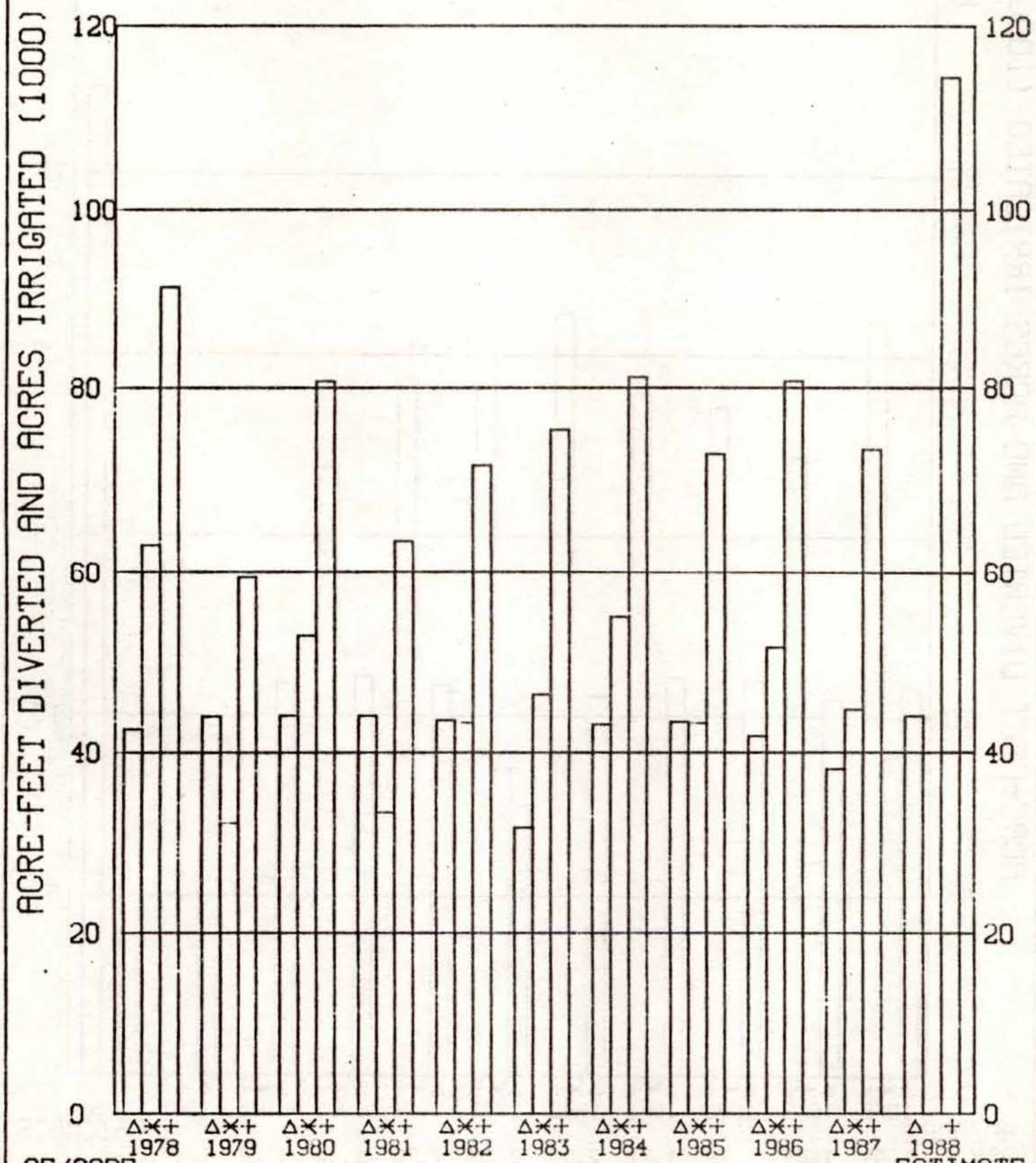
AF/ACRE	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
DIV	1.94	1.65	1.69	1.71	2.00	2.06	1.78	1.52	1.27	1.47
DEL	.82	.57	.59	.49	.68	1.14	.71	.57	.50	.57
EFF(%)	42	34	34	28	33	42	39	37	39	38

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 8.70
NORMAL YEAR - 0.00

EXHIBIT 24

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



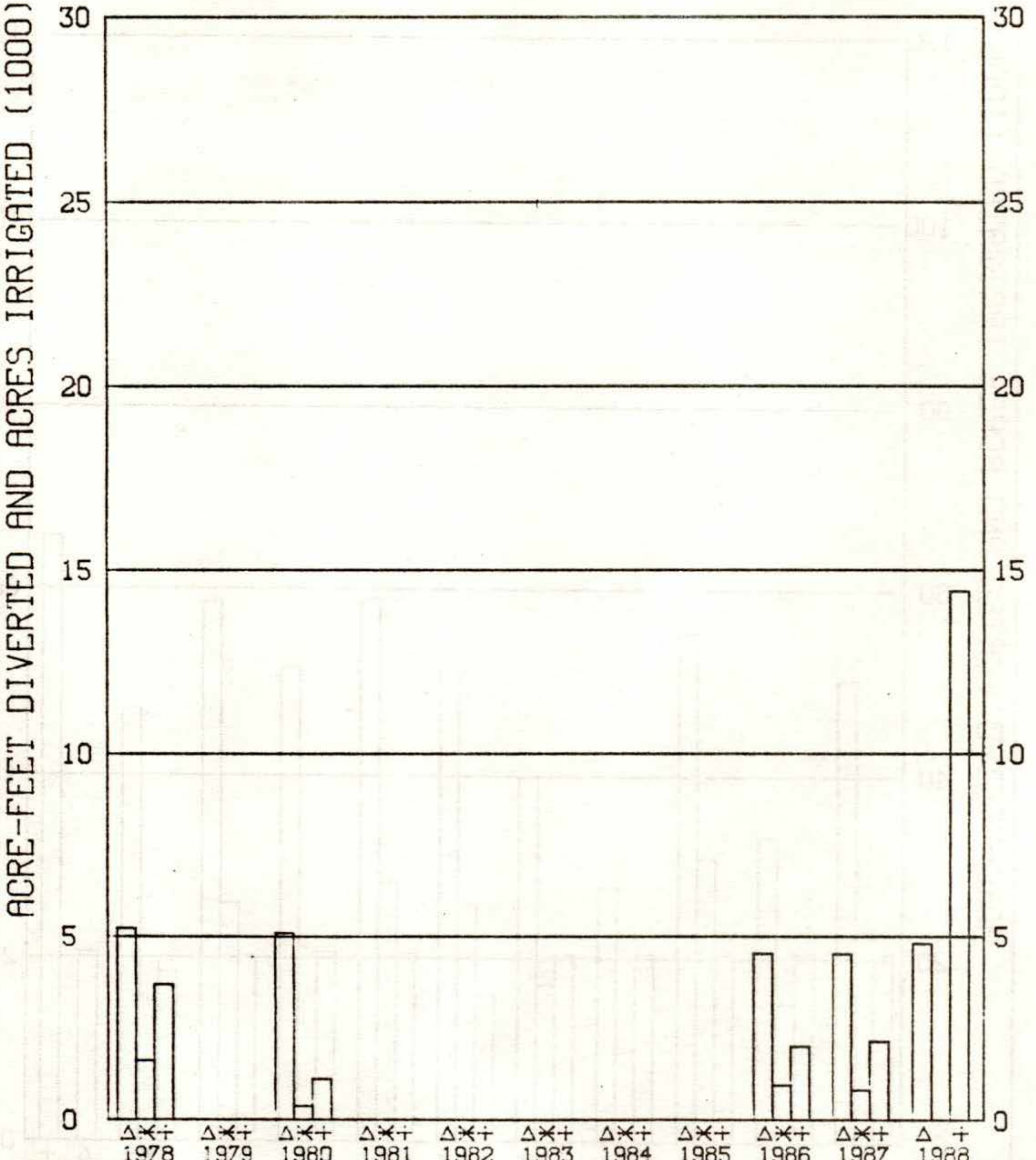
AF/ACRE	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
DIV	2.15	1.35	1.83	1.44	1.64	2.39	1.89	1.68	1.93	1.92
DEL	1.48	.73	1.20	.75	.99	1.47	1.28	1.00	1.24	1.17
EFF(%)	68	54	65	52	60	61	67	59	64	60

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 25

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED ALMENA IRRIGATION DISTRICT



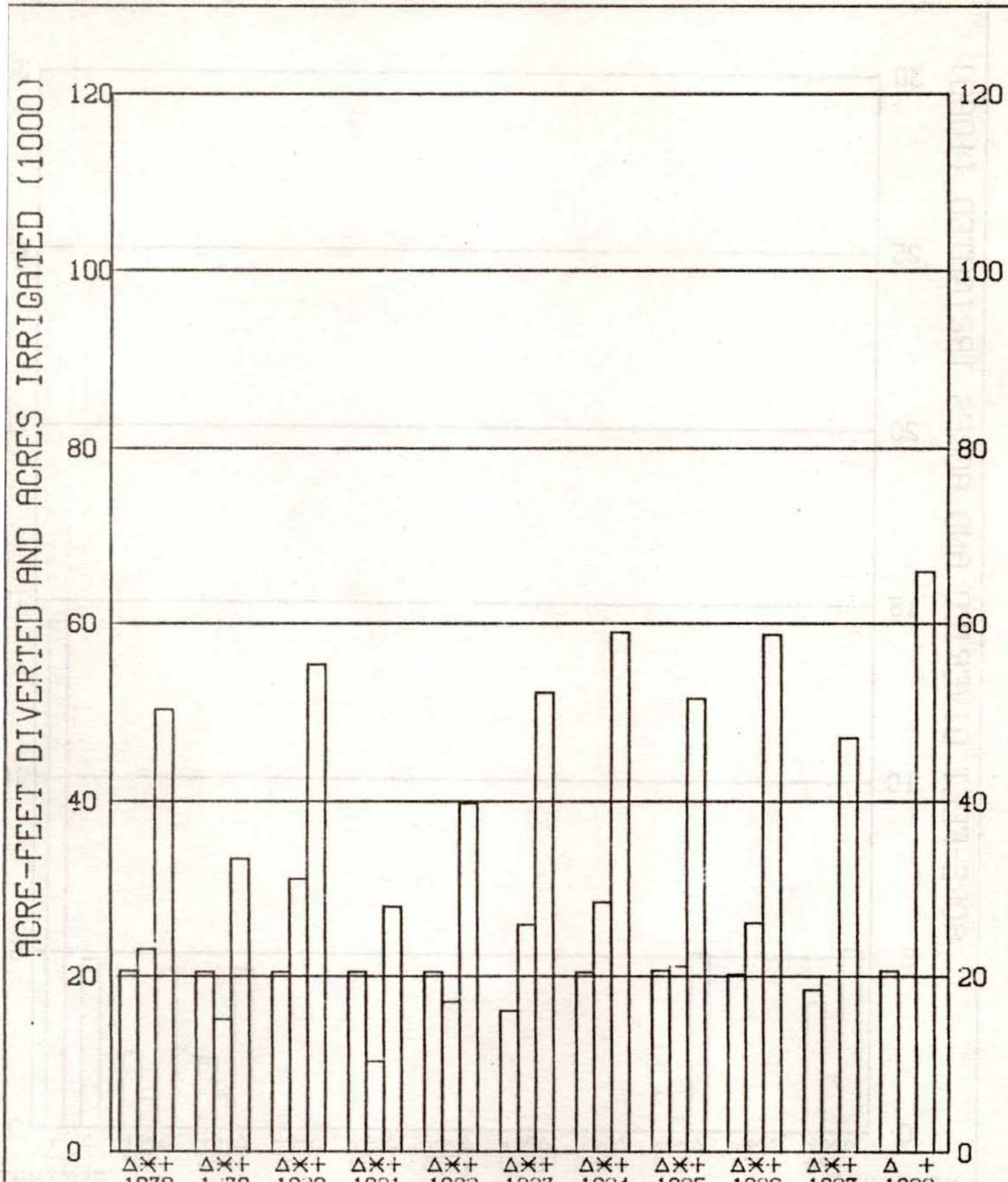
AF/ACRE	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988 ESTIMATE
DIV	.71	0.00	.22	0.00	0.00	0.00	0.00	0.00	.45	.48	
DEL	.31	0.00	.08	0.00	0.00	0.00	0.00	0.00	.21	.18	
EFF(%)	43	0	36	0	0	0	0	0	46	37	

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR - 11.40
NORMAL YEAR - 0.00

EXHIBIT 26

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

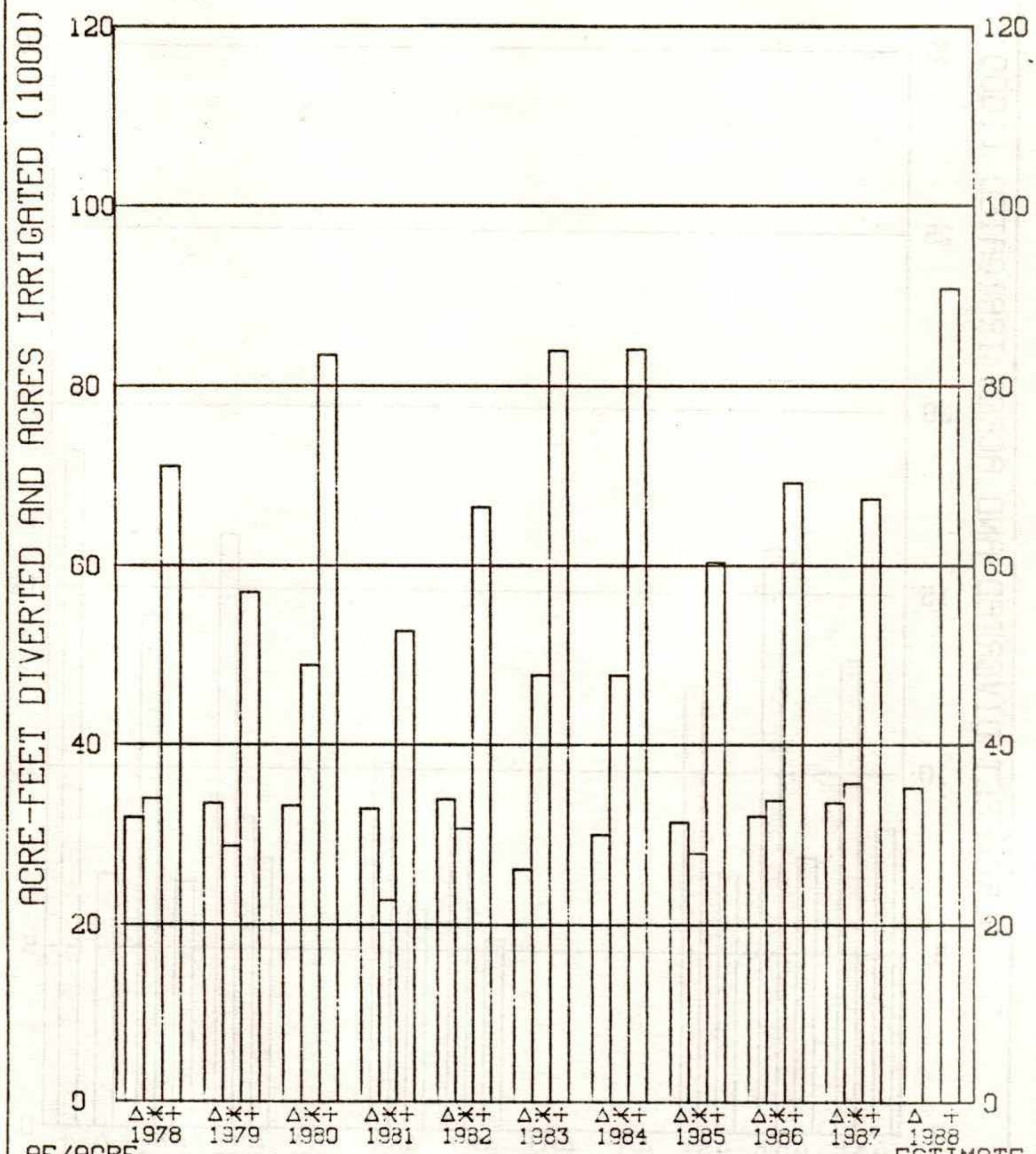


AF/ACRE	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
DIV	2.44	1.63	2.70	1.36	1.94	3.27	2.88	2.50	2.90	2.56
DEL	1.12	.97	1.52	.50	.83	1.62	1.39	1.02	1.29	1.08
EFF(%)	45	59	56	36	42	49	48	40	44	42

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

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

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



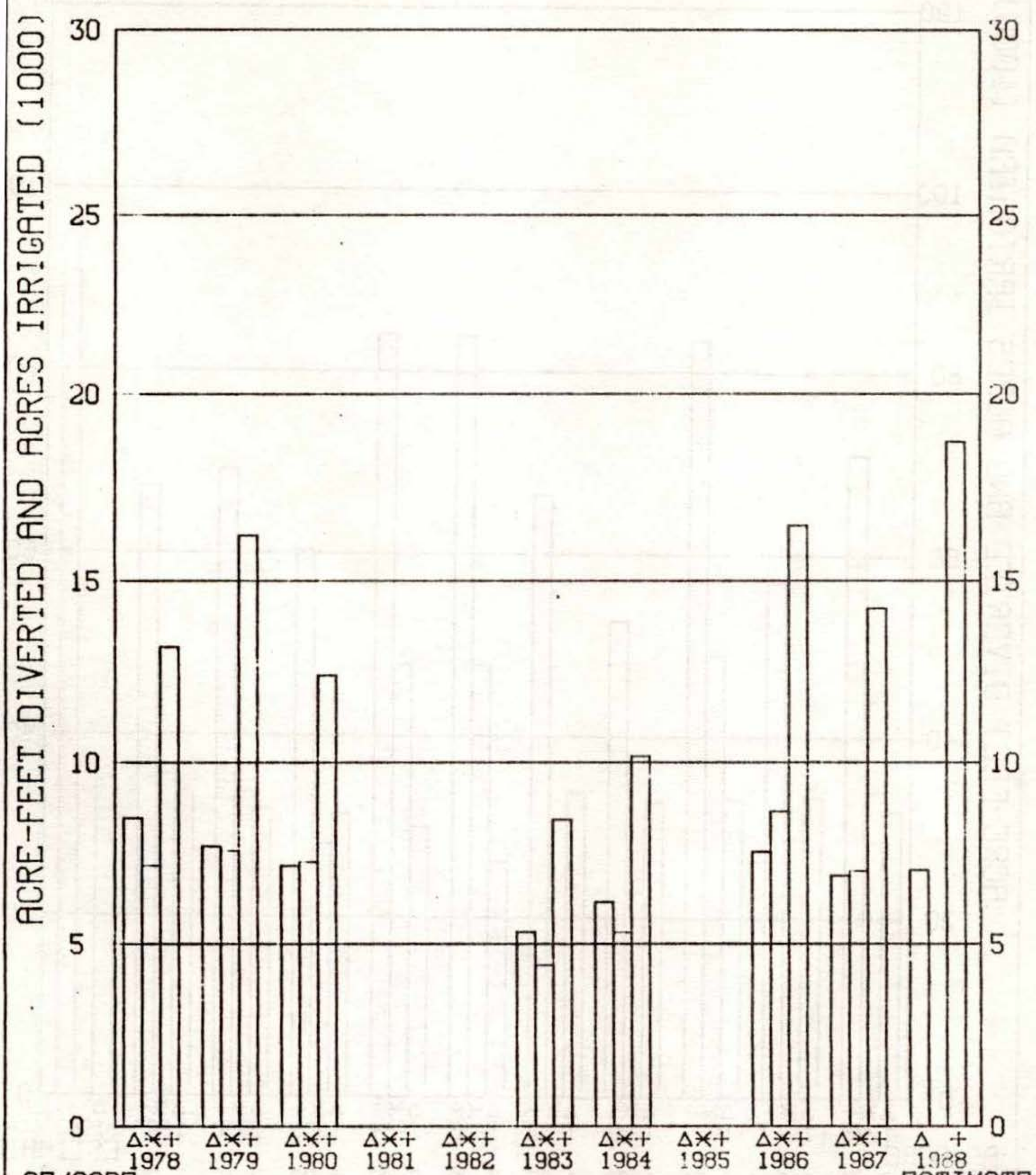
AF/ACRE	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
DIV	2.23	1.70	2.51	1.60	1.96	3.20	2.80	1.92	2.16	2.00
DEL	1.07	.86	1.47	.69	.90	1.82	1.59	.89	1.05	1.06
EFF(%)	47	50	58	43	45	56	56	46	48	53

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 28

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
KIRWIN IRRIGATION DISTRICT



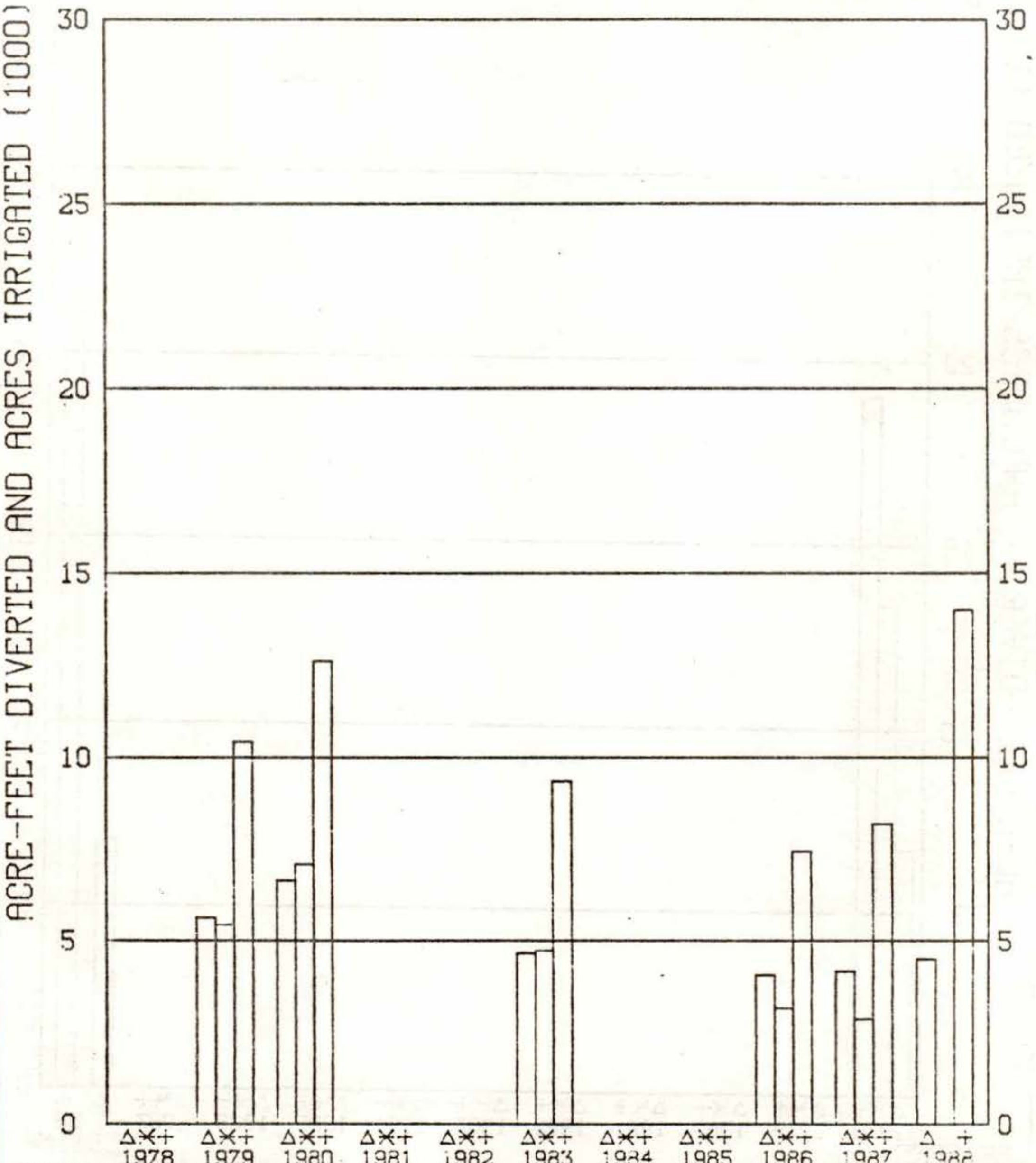
AF/ACRE	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
DIV	1.56	2.12	1.74	0.00	0.00	1.58	1.66	0.00	2.20	2.08
DEL	.84	.98	1.01	0.00	0.00	.83	.87	0.00	1.15	1.02
EFF(%)	53	46	58	0	0	52	52	0	52	49

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 29

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
WEBSTER IRRIGATION DISTRICT



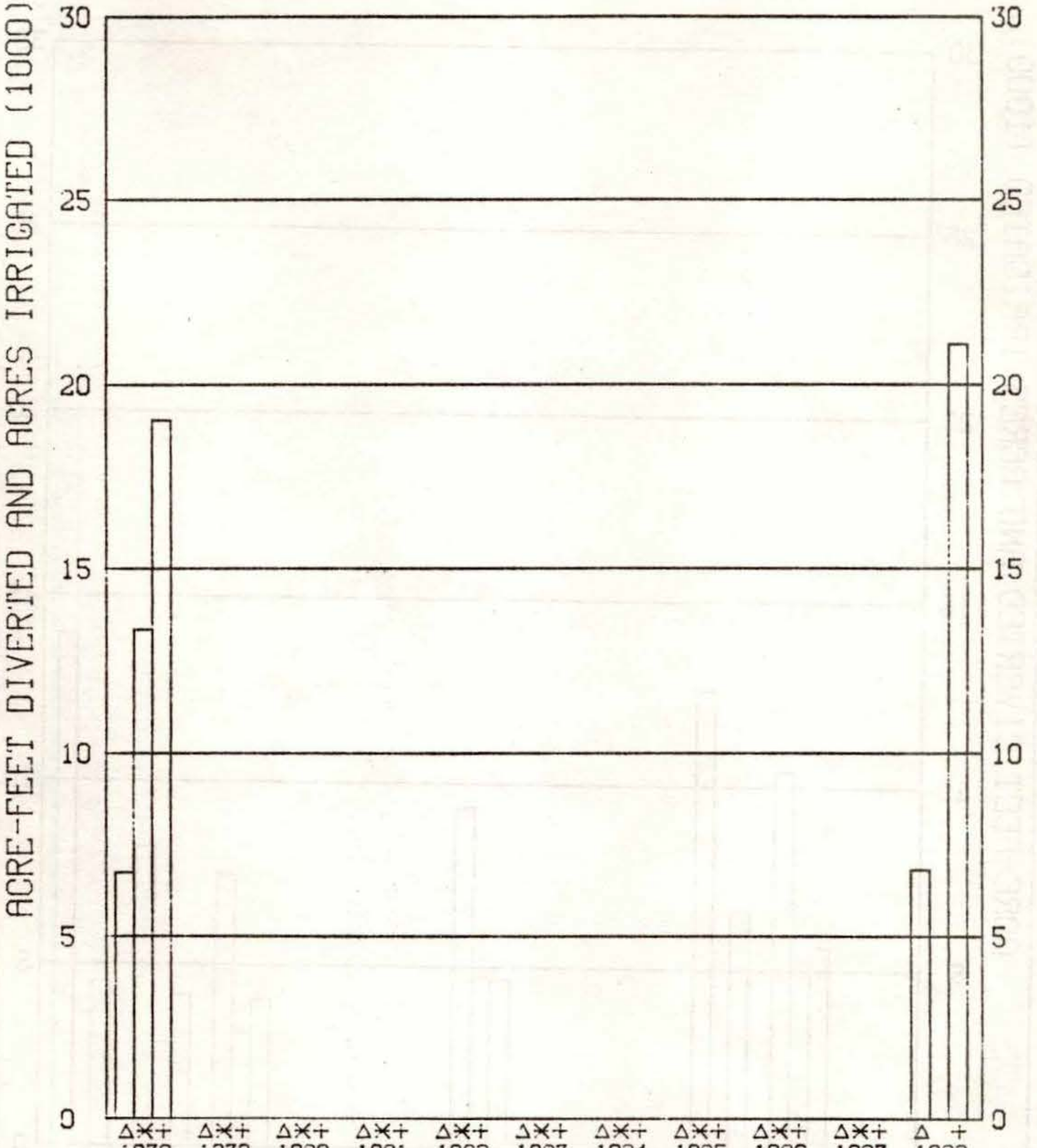
AF/ACRE	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
DIV	0.00	1.85	1.90	0.00	0.00	2.01	0.00	0.00	1.83	1.97
DEL	0.00	.97	1.07	0.00	0.00	1.02	0.00	0.00	.78	.69
EFF(%)	0	52	56	0	0	50	0	0	42	35

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 30

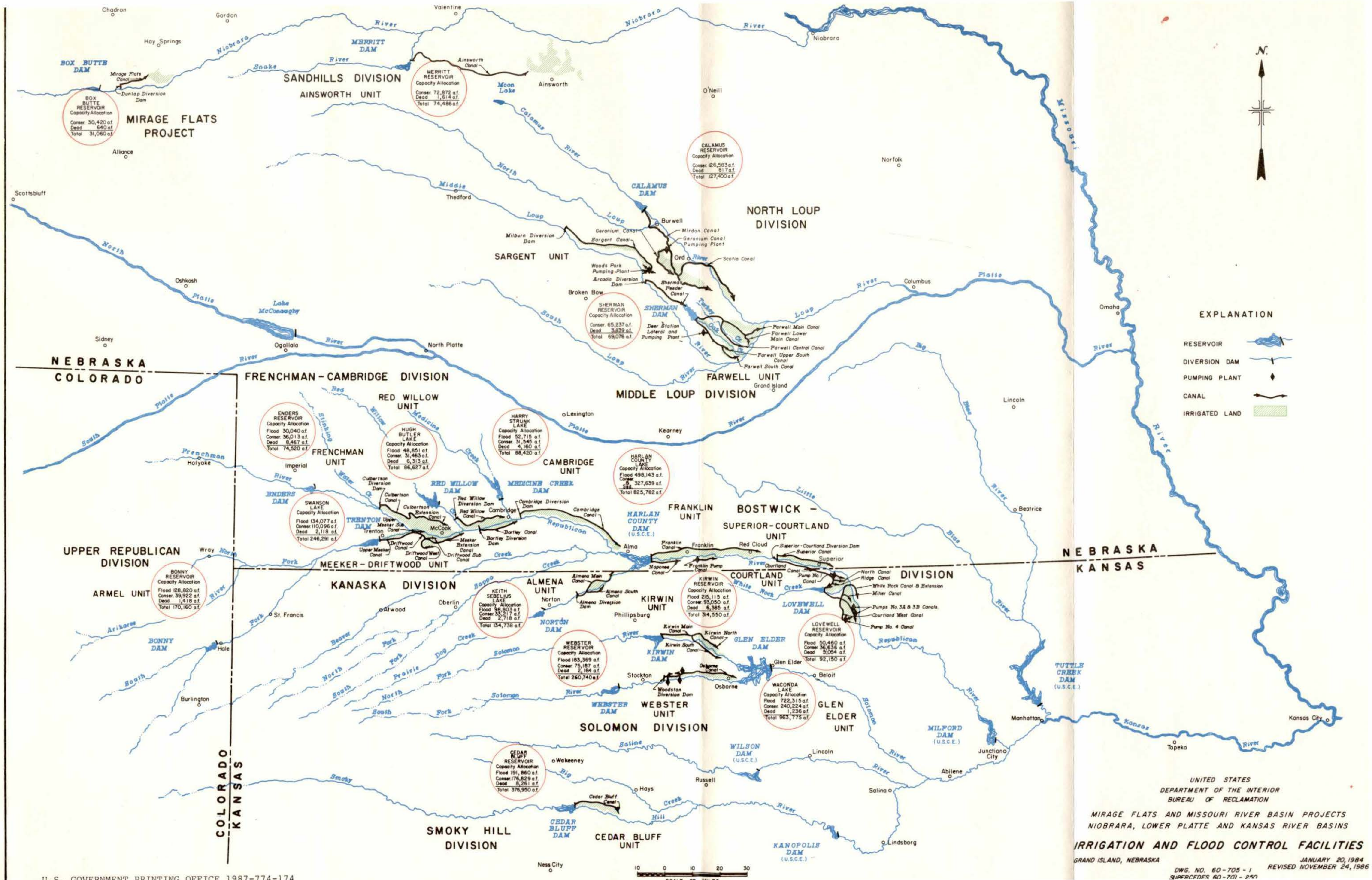
CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
CEDAR BLUFF IRRIGATION DISTRICT



AF/ACRE	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
DIV	2.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DEL	1.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EFF (%)	69	0	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 - 23.10
NORMAL YEAR - .10



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