ANNUAL OPERATING PLAN

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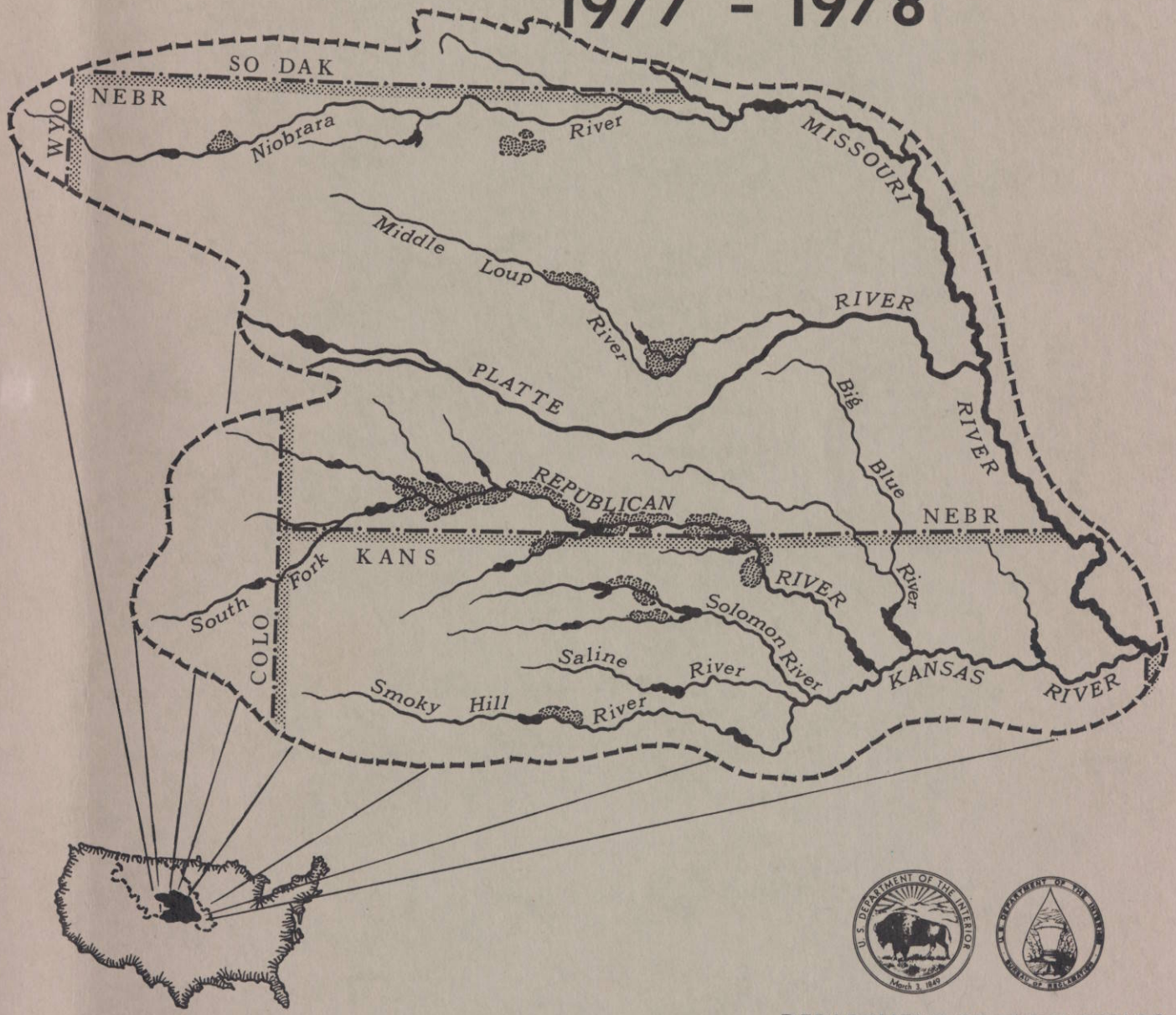
NIOBRARA, LOWER PLATTE, AND KANSAS RIVER BASINS 1977 - 1978



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Lower Missouri Region · Denver, Colorado

ANNUAL OPERATING PLAN

NIOBRARA, LOWER PLATTE, AND KANSAS RIVER BASINS

1977 OPERATIONS
1978 OUTLOOK

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Hugh Butler Lake	7A	7B	7C
Harry Strunk Lake	8A	8B	8C
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Harlan County Lake	10A	10B	10C
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22 - Frenchman-Cambridge Irrigation District
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Map - Irrigation and Flood Control Facilities

SYNOPSIS

GENERAL

This is the twenty-fifth consecutive year that an Annual Operating Plan has been prepared for the federally owned dams and reservoirs serving an irrigation function in the Niobrara, Lower Platte, and Kansas River Basins. There are 15 of these dams and reservoirs in Colorado, Nebraska and Kansas. These 15 reservoirs, together with 10 diversion dams, 10 pumping plants, and 22 canal systems, serve approximately 271,000 acres of project lands in Nebraska and Kansas. In addition to irrigation, these features serve flood control, municipal and industrial water, recreation, and fish and wildlife purposes. A map in the back 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 or the Corps of Engineers. The diversion dams, pumping plants, and canal systems are operated by either irrigation or reclamation districts.

A Programmable Master-Station Supervisory Control System, installed during 1977 and 1978, will be used to provide operational management of all eleven dams under Bureau of Reclamation jurisdiction that are located in the Kansas River Basin.

The "Headlines 77" following this Synopsis is indicative of the awareness of local people of natural resource development and conservation in the Niobrara, Lower Platte, and Kansas River Basins.

1977 SUMMARY

Climatic Conditions. The total precipitation during 1977 ranged from 90 to 152 percent of normal over the operating area. Only Cedar Bluff Dam received below normal rainfall, while the reservoirs in the Niobrara and Lower Platte Basins and the northern part of the Kansas River Basin received above-normal amounts. The temperatures were generally normal or cooler than normal during the growing season.

Storage Reservoirs.

A. Conservation Operations - The 1977 inflows were below the dry-year forecast at Cedar Bluff and Merritt Reservoirs and Swanson Lake. Box Butte, Bonny, Enders, Norton and Kirwin Reservoirs, and Harry Strunk, Harlan County, and Waconda Lakes had inflows between the dry- and normal-year forecasts. The active conservation storage was evacuated from Norton and Enders Reservoirs in 1977.

B. Flood Control Operations - No flood damages were prevented by Kansas River Projects dams during 1977.

The accumulated flood control benefits for the years 1951 through 1977 by the facilities covered in this report total $42,643,000. (See Table 5.)

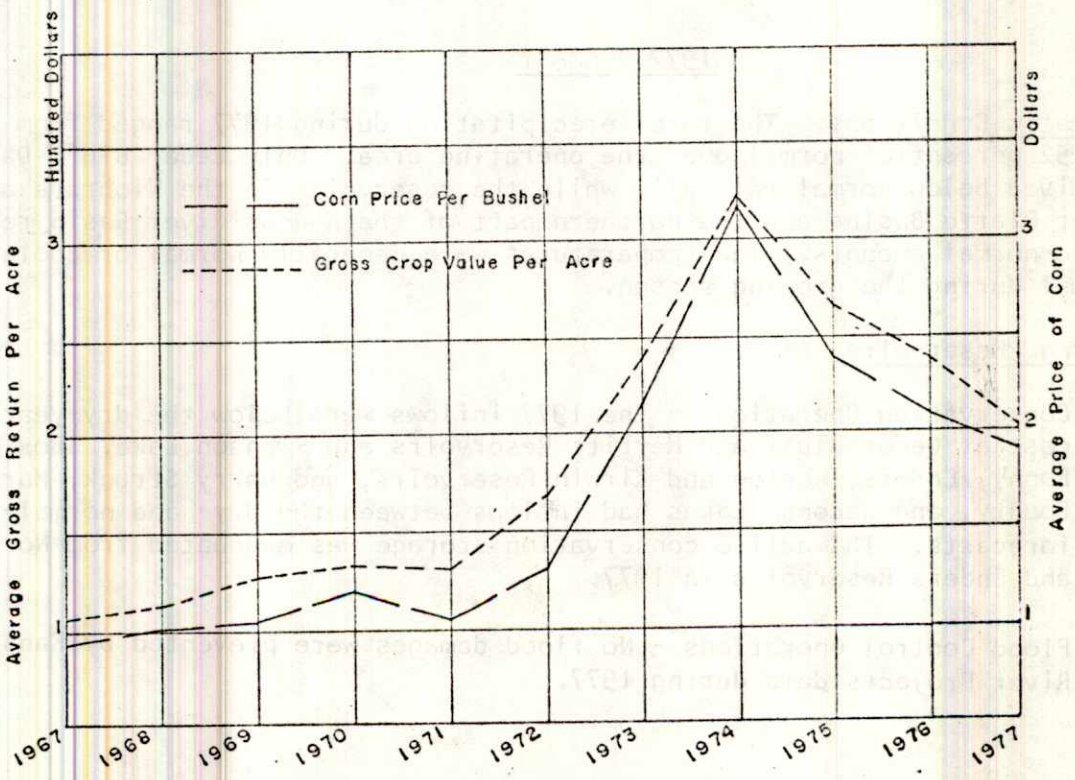
Water Service. There were 436,360 acre-feet of water diverted to irrigate 252,078 acres of project lands in 13 irrigation districts. (See Tables 3 and 7.) The project water supply was inadequate for 16,264 acres of lands irrigated in the Mirage Flats and Almena Irrigation Districts, and supplemental water was provided from private irrigation wells. The project water supplies for the other units mentioned in this report were adequate in 1977.

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

Under a long-term contract, for use of the Arcadia Diversion Dam, 25,705 acre-feet were diverted to irrigate 14,000 acres of non-project lands in the Middle Loup Public Power and Irrigation District. These diversions were made under natural flow water rights granted by the State of Nebraska.

Irrigation Production. The crop yields from project lands in 1977 were slightly lower on the average than in 1976. Corn, the principal crop, increased from an average of 108 bushels per acre to 115 bushels per acre. In 1977, the unit prices for all commodities were lower than those in 1976. The gross crop value of $51,429,410 was 89 percent of the 1976 gross crop value, and the average crop value decreased from $233.42 per acre in 1976 to $204.02 per acre in 1977. The following graph compares corn prices with the gross crop value per acre.

Comparison of Price of Corn with Gross Crop Value Per Acre



Fish and Wildlife and Recreation Benefits. During the early part of the 1977 season, reservoir operations were favorable for recreation and fish and wildlife uses. However, low water levels later in the season at some reservoirs limited the recreation benefits.

The Youth Conservation Corps (YCC) camps at McCook, Nebraska, Hays, Kansas, and the new camp at Concordia, Kansas, performed work on recreation and wildlife facilities which enhanced the visitations at Enders, Norton, Cedar Bluff, Webster, Kirwin and Lovewell Reservoirs, and Swanson, Hugh Butler and Waconda Lakes' public use areas. Training was provided for 45 YCC members at Hays and 30 members at the other two locations.

1978 OUTLOOK

The irrigation and reclamation districts estimate that 249,216 acres of project land will be irrigated in 1978. Operation studies indicate that if 1978 is a dry year, the project water supplies will be inadequate for the irrigation of 97,875 acres in Mirage Flats, H & RW, Frenchman Valley, Kirwin, Webster, Almena, and Farwell Irrigation Districts. The Farwell and Mirage Flats Irrigation Districts also anticipate some shortages under normal-year conditions. Several districts (Mirage Flats, Almena, Frenchman Valley, and H & RW) plan to use water from private irrigation wells to supplement the project water supply. The industrial, municipal, rural water district, and fish hatchery water supply requirements will be met in full under all inflow forecast conditions.

During 1978, under all inflow forecast conditions, storage water will be in excess of project needs at Bonny Reservoir and Waconda Lake and water will be available for sale to private irrigators or for other non-project uses.

Even under reasonable minimum inflow conditions, the conservation pools at Merritt, Sherman, and Lovewell Reservoirs will fill during 1978. With most probable inflow conditions, Waconda, Harry Strunk and Harlan County Lakes will also fill.

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 of Reclamation will continue to operate the reservoirs and other facilities under its jurisdiction in the best interests of all project functions and for the greatest public benefit.

Views of Supervisory Control equipment recently installed in the Water Control office at McCook, Nebraska.

HEADLINES 77

McCOOK DAILY GAZETTE

McCOOK, NEBRASKA, THURSDAY, MARCH 17, 1977

160-Acre Rule in Question

Bureau Seeking Citizens' Views

Area Facing 'Dry Stream' Danger

Wells Drying Up Due to Drought

Rainy Day Sets Record

August May Be Wettest Ever

The Salina Journal, Tuesday, March 22, 1977

Debate and research goes on

Can we coax rain from the clouds?

Many Irrigators To Get Water Until September

Bureau To Release Water at Bonny Dam

By order of the United States Bureau of Reclamation, water level at Bonny Reservoir will be lowered eight feet by the end of April.

$1.3 million in drought funds OKd

Irrigation Water Pollution Research

Ground-Water Protection Recommended by Bureau

Western Nebraska Battered By Wind, Snow and Dust

Precious Water 'Not Protected'

9 of 18 Water Project Likely In Compromise

Groundwater control area support voiced

Omaha World-Herald, Monday, February 28, 1977

Thirsty Southwest Nebraska Will Receive Water Bonus

Large Crowds Swarm To Area Reservoirs

Recovery Wells Proposed

Bureau Report: Control Needed for Irrigation

Drought Loans Top $700 Million Mark

Bureau Manager Sees Danger of Dry Streams

McCOOK, NEBRASKA, MONDAY, MAY 23, 1977

Rainfall Rejuvenates Lakes

Bureau Report Emphasizes Frenchman Water Shortage

Lack of Water Nothing New To S.W. Nebraska Irrigators

By Don Ringler

Computer Helps Bureau Keep Close Tab on Water

McCOOK, NEBRASKA, SATURDAY, MARCH 12, 1977

Snow Nightmare Follows Rain Dream

CHAPTER I - INTRODUCTION

PURPOSE OF THIS REPORT

In addition to describing the operational responsibilities of the Bureau of Reclamation, Corps of Engineers, and irrigation or reclamation districts in the three basins, this Annual Operating Plan advises water users, cooperating agencies, and other interested groups or persons of the actual operations during 1977 and serves as a guideline for the 1978 operations.

OPERATIONAL RESPONSIBILITIES

The Bureau of Reclamation is responsible for irrigation operations at all Federal reservoirs in the Kansas River Projects area. At those reservoirs which were constructed by the Bureau of Reclamation, the Bureau is also responsible for the operation and maintenance, safety of the structure, and reservoir operations not specifically associated with regulation of the flood control storage. In addition to irrigation, these reservoirs provide recreational, fish and wildlife, municipal and industrial benefits.

By contractual arrangements with the Bureau of Reclamation, the irrigation or reclamation districts are responsible for the operation of the canals and irrigation distribution facilities constructed or rehabilitated by the Bureau of Reclamation in the Niobrara, Lower Platte, and Kansas River Basins. In addition, the appropriate irrigation or reclamation districts also have the responsibility of operating and maintaining Box Butte, Merritt, and Sherman Reservoirs. The remaining 12 reservoirs in the projects area are operated and maintained by either the Corps of Engineers or the Bureau of Reclamation.

The States of Nebraska, Colorado, and Kansas are responsible for the administration and enforcement of the laws of their respective States pertaining to the water rights and priorities of all parties concerned with the use of water.

The Republican River Compact was authorized on August 4, 1942, by Public Law No. 696, which was enacted by the 77th Congress. The Compact was ratified by the States of Colorado, Kansas, and Nebraska. This Annual Operating Plan is in accordance with the objectives of the Compact, which are: "...to provide for the most efficient use of the waters of the Republican River Basin for multiple purposes; to provide for an equitable division of such waters; to remove all causes, present and future, which might lead to controversies; to promote interstate comity; to recognize that the most efficient utilization of the waters within the Basin is for beneficial consumptive use; and to promote joint action by the States and the United States in the efficient use of water and the control of destructive floods."

TABLES AND EXHIBITS

Records for the facilities reported herein are attached as tables and exhibits.

WATER SUPPLY

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

RESERVOIR OPERATIONS

All operations are scheduled for optimum benefits to 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 or not 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 fifteen storage facilities now in operation are as follows:

Constructed by the Bureau of Reclamation:

(a) 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.

(b) Operated by the Bureau of Reclamation--Bonny, Trenton, Enders, Red Willow, Medicine Creek, Norton, Lovewell, Kirwin, Webster, Glen Elder, and Cedar Bluff Dams in the Kansas River Basin.

Constructed and operated by the Corps of Engineers:

Harlan County Dam in the Kansas River Basin.

IRRIGATION DISTRICTS

Thirteen irrigation districts in the Niobrara, Lower Platte, and Kansas River Basins have contracted with the Bureau of Reclamation for water

supply and irrigation facilities. The Sargent and Farwell Irrigation Districts have contracted their operation and maintenance to the Loup Basin Reclamation District.

The normal irrigation season for 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 to October 15; and for all other districts the contracted irrigation season is from May 1 to September 30th.

MUNICIPAL AND INDUSTRIAL WATER

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

FISH HATCHERY

The Fish and Wildlife Service operates a warm-water, fish hatchery below Cedar Bluff Reservoir.

ENVIRONMENTAL CONSIDERATIONS

A "Statement of Operational Objectives" for Harlan County Lake sets forth the general operational objectives and the specific reservoir uses that were considered desirable. It indicates that fish and wildlife interests will be 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 the primary purposes, it indicates that comprehensive operational plans should be developed to permit the maximum integration of the secondary uses.

Insofar as practicable, the above-mentioned objectives are also considered in the operation of all reservoirs in the Kansas River Basin, Merritt and Box Butte Reservoirs in the Niobrara River Basin, and Sherman Reservoir in the Lower Platte River Basin. The regulated outflow will also benefit farmers, ranchers, industries, cities, and other interests below the reservoirs.

CHAPTER II - NIOBRARA AND LOWER PLATTE RIVER BASINS

MIRAGE FLATS PROJECT IN NEBRASKA

GENERAL

The flow of the Niobrara River and Box Butte Reservoir storage provide a water supply for the 11,662-acre Mirage Flats Project. During the 10-year period from 1967 to 1976 the project water supply has averaged 17,496 acre-feet which is about 1.50 acre-feet per acre. This is about 0.82 acre-foot per acre short of the average diversion requirement of 2.32 AF/acre that was estimated to be necessary for a full water supply in the March 1965 report on the Mirage Flats Project, Nebraska. Records of farm deliveries over the past few years indicate a gradual decline in project water supply. Many irrigators supplement the 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 that avoids large sudden changes in the flows of the Niobrara River.

1977 SUMMARY

The flow of the Niobrara River plus the carryover storage in Box Butte Reservoir, supplemented by above-normal rainfall this year, were not adequate to provide a full water supply for the project lands. However, instead of depleting all of the storage in Box Butte Reservoir, the irrigators within the District relied upon their private wells and pumped an estimated 8,011 acre-feet. This was the first year in eight consecutive years that all of the available active storage was not used. Carryover storage for use in the 1978 irrigation season amounted to 1,528 acre-feet. The total precipitation in the Mirage Flats area was 20.85 inches, which is 137 percent of normal.

During the 1977 irrigation season, personnel from the Kansas River Projects office assisted the Central Nebraska Projects office with a study funded under the Emergency Drought Act to evaluate water shortage problems and opportunities to augment, utilize or conserve available supplies. Flow measurements were taken throughout the summer.

There were 11,197 acres irrigated, which is 96 percent of the acres with service available. The farm deliveries from the project water supply were 0.48 acre-foot per acre. An additional 0.71 acre-foot per acre of water was provided by privately owned irrigation wells. The gross crop value was $2,347,972, which is 125 percent of the 1976 value.

1978 OUTLOOK

The water level in the reservoir on December 31, 1977, was about 5.9 feet higher (4,015 acre-feet) than it was the previous year. The Mirage Flats Irrigation District will announce to their water users in the spring the amount of water that will be available from storage in Box Butte Reservoir. The project water supply is expected to be inadequate in 1978 as it has been in most past years. However, the district plans for the irrigators to continue the use of water from privately owned irrigation wells as a supplemental supply. There are 11,000 acres expected to be irrigated in 1978.

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 in Merritt Reservoir and Snake River flows. To avoid ice damage to the soil cement on the upstream face of Merritt Dam during the winter months, releases from Merritt Reservoir are regulated to maintain a water level 2 to 5 feet below the top of the conservation capacity. When the reservoir surface clears of ice each spring, the conservation capacity is slowly filled. This operation greatly enhances the spring spawning of fish.

The Ainsworth Irrigation District cooperates with the Nebraska Game and Parks Commission by avoiding sudden large changes in reservoir releases. Although not required, minimum releases up to 15 ft^3/s are made into the Snake River below Merritt Dam for Fish, wildlife and recreation purposes.

1977 SUMMARY

Precipitation, as recorded near Merritt Dam, totaled 24.07 inches of rainfall which was 137 percent of normal. The water supply was more than adequate to meet the project's irrigation requirement of 54,645 acre-feet. There were 34,513 acres of land irrigated in 1977 and the gross crop value was $6,219,597, which is 64 percent of the previous year. This reduction is due to lower crop prices as well as a disastrous July hailstorm that covered a large part of the project area.

The basic water supply for the 34,539 acres with service available is 63,712 acre-feet. Additional water, if available, can be purchased by the district as a supplemental supply.

A total of 91 acre-feet was used under temporary water service contracts from holding ponds.

1978 OUTLOOK

Merritt Reservoir will be regulated to maintain an elevation 2 feet (rather than the normal 5 feet) below the top of conservation capacity during the winter months. This change is an effort to prevent erosion from occurring on the face of the dam at the same elevation year after year.

Releases from Merritt Reservoir will be regulated to slowly fill the conservation capacity during the spring months. The water supply is expected to be adequate for the irrigation of an estimated 34,000 acres.

SARGENT UNIT, MIDDLE LOUP DIVISION IN NEBRASKA

GENERAL

The Sargent Irrigation District has contracted with the Loup Basin Reclamation District for the operation and maintenance of the Milburn Diversion Dam and the Sargent Canal system which serves 13,363 acres. The water supply is diverted from the Middle Loup River into the Sargent Canal under an appropriated natural flow right from the State of Nebraska. These diversions may exceed the natural flow appropriation of 198 ft^3/s 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.

A detention dike at canal station 1272+92 was modified to serve as a holding pond with a capacity of 425 acre-feet. It will be filled prior to the irrigation season and used for regulation of the supply to lands served under lateral 23.7.

1977 SUMMARY

The annual precipitation over the Sargent Unit was about 150 percent of normal. The diversions into the Sargent Canal totaled 23,940 acre-feet. The diversions exceeded the appropriated right for 30 days during 1977. There were 12,555 acres irrigated with a gross crop value of $2,270,621, which is $254,570 less than in 1976.

1978 OUTLOOK

The Loup Basin Reclamation District estimates that 13,000 acres in the Sargent Unit will be irrigated in 1978. The water supply is expected to be adequate.

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 Public Power and Irrigation District under appropriated natural-flow water rights.

During the winter months, Sherman Reservoir is normally regulated to 5 feet below the top of the conservation capacity to minimize seepage from the reservoir into the groundwater table. This low pool level also avoids ice damage to the upstream face of the dam. 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 gradual rising water surface in the spring is ideal for fish spawning.

Whenever the flows in the Middle Loup River at Arcadia, Nebraska, exceed 6,000 ft^3/s, safe capacity flows will be diverted into Sherman Feeder Canal to Sherman Reservoir. Flood control benefits can be accrued to Sherman Reservoir by such operations.

1977 SUMMARY

The diversions from the Middle Loup River at Arcadia Diversion Dam were 25,705 acre-feet to Middle Loup Public Power and Irrigation District and 104,070 acre-feet into Sherman Feeder Canal.

Sherman Feeder Canal diversions into Sherman Reservoir were started on March 17, and the conservation capacity was filled on May 20, 1977, The precipitation at Sherman Dam was 31.56 inches, which is 152 percent of normal. Releases into the Farwell Canals totaled 77,307 acre-feet. The Loup Basin Reclamation District reports that 48,446 acres of land were irrigated in 1977. The gross crop value was $8,924,534, which is $1,421,026 less than in 1976.

The Irrigation Management Services program was continued during 1977. There were 3,539 acres in the Sargent Unit and 2,324 acres in the Farwell Unit served by the program.

About 10 miles of laterals were placed in pipe during 1977 under Emergency Drought assistance in the Sargent and Farwell Units.

During the 1977 irrigation season, a water distribution study was continued on the Farwell Main Canal system. Preliminary results obtained are as follows:

Month	Inflow to system (acre-feet)	Percent delivered	Percent waste	Percent unaccounted for
June	8,760	37.9	3.4	58.7
July	27,596	76.5	5.3	18.2
August	9,199	64.8	13.1	22.1
Season	45,555	66.7	6.5	26.8

1978 OUTLOOK

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

Under most probable inflow conditions, a small shortage is expected in 1978. This shortage is attributable to high system losses and large irrigation requirements for corn production during the months of July and August.

The Irrigation Management Services program is expected to be continued in 1978.

ARMEL UNIT, UPPER REPUBLICAN DIVISION IN COLORADO

GENERAL

Bonny Reservoir storage is transferred as required to Swanson Lake where releases into the Republican River are regulated to meet the industrial needs of the AMOCO Production Company and Ladd Petroleum Corporation for their water flood operations in the Sleepy Hollow Oil Field, south of Bartley, Nebraska.

Bonny Reservoir inflows from the South Fork of the Republican River and Landsman Creek are released into Hale Ditch, as requested by Colorado's State Engineer. Bonny storage water is available to Hale Ditch and other natural flow appropriators under temporary contracts. Much of the 700 acres served by Hale Ditch is now owned and operated by the Colorado Department of Natural Resources, Division of Wildlife, for wildlife purposes.

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.

1977 SUMMARY

The precipitation during 1977 was 123 percent of normal while the inflow (20,848 acre-feet) to Bonny Reservoir was a little above the reasonable minimum inflow forecast. The water supply was adequate to furnish 306 acre-feet to AMOCO Production Company and 15 acre-feet to Ladd Petroleum Corporation. As directed by the Colorado Water Commissioner, 1,858 acre-feet of reservoir inflows from the South Fork of the Republican River and Landsman Creek were passed through Bonny Reservoir into Hale Ditch.

Temporary contract sales of storage water were made to three users. The State of Colorado Department of Natural Resources purchased 747 acre-feet for industrial or irrigation purposes; BAL Enterprises purchased 184 acre-feet for industrial use; and the Frenchman-Cambridge Irrigation District purchased 3,997 acre-feet for irrigation. There were 11,204 acre-feet released to the Frenchman-Cambridge Irrigation District between February 1 and April 30 for storage in Swanson Lake. The total amount released was adjusted downward 3,617 acre-feet for spills that would have occurred with no releases from Bonny Reservoir and 3,600 acre-feet for stream losses. These adjustments reduced the net storage transferred to 3,997 acre-feet. During this period, releases were reduced to 6 ft^3/s between March 22 and April 14 to permit walleye seining by the State of Colorado.

1978 OUTLOOK

AMOCO Production Company and Ladd Petroleum Corporation will have an adequate water supply in 1978. Water stored in Bonny Reservoir will also be available for sale to Hale Ditch and other private irrigators under temporary contracts.

The prospects are excellent for hunting and limited for fishing and recreation uses.

FRENCHMAN UNIT, FRENCHMAN-CAMBRIDGE DIVISION IN NEBRASKA

GENERAL

The transportation of water from Enders Reservoir through 52 miles of Frenchman River channel to the Culbertson Diversion Dam created an erosion problem that made it necessary to initiate a control and stabilization program in 1964. All contract work has been completed and the remaining work consists of a small maintenance program.

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 Creek and Stinking Water Creek 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.

1977 SUMMARY

The annual precipitation at Enders Dam was 117 percent of normal, while the 1977 inflow into Enders Reservoir (32,380 acre-feet) was slightly above the dry-year forecast. This is only about 50 percent of the average historical pre-construction runoff at the Enders damsite (60,700 acre-feet, 1929-1947). It is the tenth consecutive year with below-normal inflows. The conservation pool was not filled during 1977. A total of 2,561 acre-feet of water was conserved between the 1976 and 1977 irrigation seasons by pumping seepage back into the reservoir. Irrigation releases were stopped on August 25, when the active storage was evacuated.

The farm delivery averaged about 11.9 inches per acre for the two districts. A few farmers were able to supplement their project water supply from private irrigation wells. Precipitation over the district lands was near normal. The Frenchman Valley Irrigation District reports that 9,044 acres received water in 1977, and the H & RW Irrigation District reports 11,407 acres, which are 94 and 99 percent, respectively, of the lands with service available. The gross crop values for Frenchman Valley Irrigation District was

$2,093,745, and for the H & RW Irrigation District, $2,714,260, which are a 20 and 1 percent increase, respectively, from the previous year.

1978 OUTLOOK

The fall and early winter inflows into Enders Reservoir were a little above the dry-year forecasts. If reasonable minimum runoff conditions prevail, the project water supply is expected to be inadequate to irrigate 8,100 acres in the Frenchman Valley Irrigation District and 9,675 acres in the H & RW Irrigation District. As much as 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 are normally operated such that the reservoirs have a slowly rising or stable pool which enhances the spawning of northern and walleye pike. These lakes provide excellent opportunities for fishing, water sports, and recreation. The seepage below Red Willow and Medicine Creek Dams provides excellent fishing.

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.

During 1977, an automatic gate controller was installed on the north bypass gate at the Cambridge Diversion Dam. This was accomplished for the purpose of maintaining a constant water surface elevation in the upstream pool for regulating diversions into the canal.

1977 SUMMARY

The precipitation at Trenton Dam was 127 percent of normal and the inflow to Swanson Lake was 90 percent of the dry-year forecast. At the beginning of the 1977 irrigation season, there was 77,960 acre-feet of water stored in Swanson Lake which is 42,200 acre-feet below the top of conservation capacity. This carryover storage 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 28,425 acre-feet into Meeker-Driftwood Canal to irrigate 16,160 acres, and 10,382 acre-feet into Bartley Canal for 6,290 acres. At the end of the 1977 irrigation

season (October 15), there was only 38,840 acre-feet of carryover storage in Swanson Lake which is 12,040 acre-feet more than there was the previous year.

The precipitation at Red Willow Dam was 109 percent of normal while the inflow into Hugh Butler Lake was slightly above the most probable forecasts. The water supply was adequate to meet the diversion requirements for Red Willow Canal. The district diverted 7,549 acre-feet of water to irrigate 4,790 acres of land served by Red Willow Canal. There were an estimated 600 acre-feet of Red Willow Creek flows used downstream from Red Willow Dam for irrigation of non-project lands under senior water rights. During late August, in order to conserve water in Swanson Lake, part of the demand for the Bartley Canal was satisfied by utilizing storage water from Hugh Butler Lake.

The annual precipitation was 147 percent of normal at Medicine Creek Dam while the inflow was between the normal- and dry-year forecasts. The water supply was adequate and 31,185 acre-feet of water was diverted to irrigate 16,720 acres of land served by the Cambridge Canal. At the end of the irrigation season, there was 23,660 acre-feet of carryover storage in Harry Strunk Lake.

The 1977 gross crop value from the lands served by Meeker-Driftwood, Bartley, Red Willow, and Cambridge Canals was $10,904,526, which is $653,775 more than in 1976.

1978 OUTLOOK

Forecasts show that almost the entire conservation storage of the three lakes supplying the Frenchman-Cambridge Irrigation District would be used to meet the full dry-year irrigation requirement. Therefore, the district has declared a farm delivery of 20 inches for the 1978 irrigation season if available.

It is estimated that 16,200 acres will be served from the Meeker-Driftwood Canal, 16,700 acres will be served from the Cambridge Canal, 4,800 acres will be served from Red Willow Canal, and 6,300 acres will be served from the Bartley Canal.

No surplus storage will be available for sale as a supplemental supply to non-project lands in 1978.

ALMENA UNIT, KANASKA DIVISION IN KANSAS

GENERAL

There are 5,763 acres with service available in the Almena Irrigation District. The project water supply is provided by Prairie Dog Creek flows and Norton Reservoir storage.

The water service contract for the City of Norton, Kansas, provides for a maximum annual use of 1,600 acre-feet from Norton Reservoir.

1977 SUMMARY

The annual precipitation at Norton Dam was 27.58 inches of rainfall which is 135 percent of normal. The total annual inflow was 11,238 acre-feet which is between the normal- and dry-year forecast. Of the 1.30 acre-foot per acre farm delivery (6,601 acre-feet), 0.17 acre-foot per acre was available from the project water supply (854 acre-feet) and the balance was supplied from private irrigation wells. This is the seventh consecutive year that the district has had to use water from privately owned irrgation wells to obtain an adequate water supply.

A total 3,655 acre-feet were released to the river from Norton Reservoir during the irrigation season, of which the Almena Irrigation District diverted 2,841 acre-feet from Prairie Dog Creek. The water users pumped 5,747 acre-feet from irrigation wells as a supplemental supply to project lands. This well water, combined with available project water, provided the highest average corn yields of the 13 districts discussed in this report. The 5,067 acres that were irrigated in 1977 produced a gross crop value of $1,532,621 ($302.47 per acre). This is 113 percent of the crop value for 1976.

The City of Norton used 660 acre-feet of municipal water during 1977.

1978 OUTLOOK

The Almena Irrigation District expects to deliver water to 5,200 acres if an adequate water supply is available. If 1978 is a dry year without significant run-off producing storms above Norton Reservoir, a shortage of over 18,000 acre-feet may be experienced. If normal inflow into the reservoir and normal rainfall over the irrigated area occur in 1978, a full water supply can be furnished from Norton Reservoir storage and Prairie Dog Creek flows.

The City of Norton's requirements are expected to be met in full in 1978.

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 12,771 acres in the Kansas-Bostwick Irrigation District above Lovewell Reservoir and, together with White Rock Creek flows and Lovewell Reservoir storage, furnish a water supply for 27,329 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.

As recommended by the Kansas State Board of Health, the Nebraska State Department of Health, and the U. S. Public Health Service, it is desirable, for the sanitary quality of the stream, to maintain daily flows of 40 ft^3/s in the Republican River below Superior, Nebraska, from June through September. During normal years when the Superior Canal and Courtland Canal (in Nebraska) are in operation, the return flows, seepage and surface irrigation runoff, plus the natural flow pickup in the Republican River below the Superior-Courtland Diversion Dam, will meet this recommended flow. If through normal reservoir operations it is possible to comply with the above recommendations, the Bureau will do so, as it has done in the past. However, during dry years when the forecasted reasonable minimum inflows will not fill Harlan County Lake before the start of the next irrigation season, the available flows in the Republican River below Harlan County Dam, plus the minimum releases from Harlan County Lake, are diverted into the Courtland Canal to be stored in Lovewell Reservoir. When this condition exists, the flow in the Republican River below Superior, Nebraska, will be less than the 40 ft^3/s that was recommended.

At the request of the Kansas Forestry, Fish and Game Commission, the Kansas-Bostwick Irrigation District and the Bureau of Reclamation maintain, when it is possible, a flow of 20 ft^3/s 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.

1977 SUMMARY - BOSTWICK DIVISION HARLAN COUNTY LAKE OPERATIONS

The precipitation at Harlan County Dam totaled 25.88 inches of rainfall which was 124 percent of normal, while the annual inflow (174,062 acre-feet) was between the normal- and dry-year forecast. The conservation capacity of Harlan County Lake lacked 55,000 acre-feet of being filled at the beginning of the 1977 irrigation season.

The 31,456 irrigated acres in the Bostwick Division in Nebraska and Kansas above Lovewell Dam were furnished a full water supply. Also 43,281 acre-feet were delivered to Lovewell Reservoir through Courtland Canal. At the end of the irrigation season (September 30), there were 201,300 acre-feet of carryover storage in Harlan County Lake.

1977 SUMMARY - BOSTWICK DIVISION - NEBRASKA

The Bostwick Irrigation District in Nebraska diverted 40,226 acre-feet for the irrigation of 20,997 acres. The gross crop value was $4,644,042, which is about $537,499 less than in 1976.

1977 SUMMARY - BOSTWICK DIVISION - KANSAS

The 1977 precipitation at Lovewell Dam totaled 33.04 inches of rainfall which was 134 percent of normal.

The Kansas-Bostwick Irrigation District diverted a total of 59,353 acre-feet to serve 10,459 acres above Lovewell Dam and 21,788 acres below Lovewell Dam. The gross crop value was $5,915,317, which is $930,883 less than the previous year. On September 30, 1977, there were 41,810 acre-feet of water stored in Lovewell Reservoir.

1978 OUTLOOK - BOSTWICK DIVISION

The Bostwick Irrigation District in Nebraska and the Kansas-Bostwick Irrigation District expect to deliver water to 21,091 and 32,500 acres, respectively. The storage in Harlan County Lake and Lovewell Reservoir and the return flows of the Republican River and White Rock Creek are forecasted to furnish an adequate water supply for the Bostwick lands. However, under dry-year forecasts both reservoirs would be drawn down extremely low by the end of the irrigation season, leaving little carryover storage to the 1979 irrigation season. Therefore, farmers within the districts are being encouraged to limit farm deliveries to 18 inches (80,387 acre-feet) for the upcoming season.

Inflow to Lovewell Reservoir from the Courtland Canal will be started early in the spring in time to allow for filling the reservoir from natural flow in the Republican River without storage releases from Harlan County Lake.

CHAPTER IV - SMOKY HILL RIVER BASIN

KIRWIN UNIT, SOLOMON DIVISION IN KANSAS

GENERAL

The water supply for the 11,435 acres of land in the Kirwin Irrigation Districk is furnished by storage from Kirwin Reservoir and inflows from the North Fork of the Solomon River. The project area is about 1,500 acres larger than the area originally planned to be irrigated with the available water supply.

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

During 1977, there were 6.73 miles of laterals placed in pipe under the Emergency Drouth Act assistance.

1977 SUMMARY

The precipitation totaled 22.83 inches of rainfall which was 102 percent of normal. The inflow (20,054 acre-feet) was a little above the dry-year forecase. The water supply was adequate to fully meet the irrigation requirements.

The Kirwin Irrigation District diverted 20,031 acre-feet for irrigation of 9,412 acres. The gross crop value from these acres was $1,772,582, which is about $406,969 less than in 1976.

An Irrigation Management Services program, started in 1976, in the Kirwin Irrigation District was continued in 1977. The Irrigation Management Services program was operated as a joint service to farmers in the Kirwin and Webster Irrigation Districts and served a combined total of 2,337 acres.

1978 OUTLOOK

The Kirwin Irrigation District estimates that 9,400 acres will be irrigated in 1978. The carryover storage in Kirwin Reservoir and the forecasted inflows from the North Fork of the Solomon River are expected to be adequate to irrigate these lands. However, under dry-year forecasts the reservoir would be lowered to the inactive level.

The Irrigation Management Services program is expected to serve about the same acreage in 1978.

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.

The Kansas Forestry, Fish and Game Commission operates a seasonal fish hatchery at the Webster Dam spillway stilling basin during the spring months. Unless absolutely necessary for flood control releases, the spillway gates are not opened while the hatchery is in operation.

1977 SUMMARY

In 1977, the precipitation at Webster Dam was 104 percent of normal (24.78 inches). The inflow of 35,042 acre-feet was a little above normal-year forecasts. On May 1, 1977, which is the beginning of the irrigation season, 17,736 acre-feet of water were stored in the reservoir.

During 1977, 15,818 acre-feet were released from the reservoir, of which 11,758 acre-feet were diverted to the Osborne Canal providing a full water supply for irrigation of 6,486 acres. At the end of the irrigation season (September 30), there was 8,412 acre-feet of water stored in the reservoir. The Webster Irrigation District reports a gross 1977 crop value of $1,195,188, which is $439,848 less than the previous year.

An Irrigation Management Services program started in 1976, in the Webster Irrigation District, was continued during the 1977 season. This program covered 2,337 acres in both districts.

1978 OUTLOOK

The carryover storage and the flows in the South Fork of the Solomon River are expected to be adequate under normal- or wet-year forecasts to irrigate 6,500 acres in the Webster Irrigation District in 1978. Dry-year forecasts show a severe shortage of over 18,000 acre-feet.

The Irrigation Management Services program is expected to serve about the same acreage in 1978.

GLEN ELDER UNIT, SOLOMON DIVISION IN KANSAS

GENERAL

Releases from Waconda Lake will be regulated as required for the City of Beloit, Kansas, and water right administration. The water service contract

with Beloit, Kansas, provides for a normal annual use of up to 2,000 acre-feet of Waconda Lake storage, and 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 delivered to 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, not to exceed 1,009 acre-feet per calendar year.

To avoid 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 water surface level 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 many 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.

1977 SUMMARY

The precipitation at Glen Elder Dam was 120 percent of normal (30.60 inches) and the inflow (87,354 acre-feet) was between dry- and normal-year forecasts. A total of 879 acre-feet was released for use by the City of Beloit, Kansas; 385 acre-feet was released for use by the WCH&T Rural Water District No. 2; and 4,194 acre-feet of storage water was sold to private irrigators in the Solomon Valley under temporary contracts. On September 30, 1977, there was 222,386 acre-feet of water stored in the reservoir.

1978 OUTLOOK

The municipal requirements 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 the Water Commissioner of the State of Kansas will request that inflows be passed through the lake for water right administration.

CEDAR BLUFF UNIT, SMOKY HILL DIVISION IN KANSAS

GENERAL

Cedar Bluff Reservoir storage and Smoky Hill River flows provide a full water supply for the 6,800 acres in the Cedar Bluff Irrigation District, and up to 4,000 acre-feet for the Cedar Bluff National Fish Hatchery. Cedar Bluff

storage also furnishes a maximum of 2,000 acre-feet per annum, if required, for the City of Russell, Kansas.

The return flows from the Cedar Bluff National Fish Hatchery and seepage from Cedar Bluff Reservoir maintain the fisheries and enhance fishing in the Smoky Hill River below Cedar Bluff Dam.

1977 SUMMARY

The precipitation was 90 percent of normal (19.89 inches). The inflow (14,709 acre-feet) was between dry- and normal-year forecasts. The water supplies for the Cedar Bluff Irrigation District and the Cedar Bluff National Fish Hatchery were furnished in full. The irrigation district diverted 14,953 acre-feet to irrigate 6,747 acres of project lands. The gross crop value of $894,405 was a decrease of $524,833 from the previous year. The fish hatchery diverted 2,316 acre-feet. Of this amount, 2,003 acre-feet were passed through the hatchery facilities and returned to the Smoky Hill River below Cedar Bluff Dam.

A total of 678 acre-feet of storage water was released for use by the City of Russell, Kansas. This was the second year since 1968 that releases were made for Russell (785 acre-feet were released in 1976).

1978 OUTLOOK

The carryover storage in Cedar Bluff Reservoir and the inflows from the Smoky Hill River are expected to fully meet the requirements of the Cedar Bluff National Fish Hatchery, the City of Russell, and the irrigation of 6,750 acres of project lands. With dry-year inflow, nearly all conservation storage will be used.

TABLES

AND

EXHIBITS

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	---
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
Swanson Lake	- Elevation Ft.	2710.0	2720.0	2752.0	2773.0
	Total Acre-feet	4,101	15,510	120,160	253,950
	Net Acre-feet	4,101	11,409	104,650	133,790
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
Hugh Butler Lake	- Elevation Ft.	2552.0	2558.0	2581.8	2604.9
	Total Acre-feet	6,313	10,450	37,776	86,630
	Net Acre-feet	6,313	4,137	27,326	48,854
Harry Strunk Lake	- Elevation Ft.	2335.0	2343.0	2366.1	2386.2
	Total Acre-feet	4,911	9,548	37,141	89,313
	Net Acre-feet	4,911	4,637	27,593	52,172
Norton	- Elevation Ft.	2275.0	2280.4	2304.3	2331.4
	Total Acre-feet	2,718	5,284	35,935	134,740
	Net Acre-feet	2,718	2,566	30,651	98,805
Harlan County Lake	- Elevation Ft.	1885.0	1927.0	1946.0	1973.5
	Total Acre-feet	0	126,727	319,787	828,776
	Net Acre-feet	0	126,727	193,060	508,989
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	77,370	260,740
	Net Acre-feet	2,184	3,116	72,070	183,370
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.)		57,141	303,028	1,456,286	3,646,254
Total Net Acre-feet		57,141	245,887	1,153,258	2,364,590

1/ Includes space for sediment storage.

TABLE 2
SUMMARY OF 1977 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.	1,509	50	50	0.18	6,685	0	0
Feb.	1,866	44	61	0.17	8,446	0	0
Mar.	2,774	49	132	1.62	11,039	0	0
Apr.	2,665	60	270	1.80	13,374	0	0
May	1,966	61	449	3.94	14,830	0	0
June	0	2,731	748	2.51	11,351	2,604	749
July	1,913	6,149	371	5.22	6,744	6,492	2,461
Aug.	1,551	4,350	142	3.29	3,803	5,045	2,081
Sep.	1,268	87	171	1.33	4,813	66	28
Oct.	1,339	50	201	0.28	5,901	0	0
Nov.	1,812	48	148	0.39	7,517	0	0
Dec.	1,890	50	66	0.12	9,291	0	0
TOTAL	20,553	13,729	2,809	20.85	---	14,207	5,319

NOTE.--Mirage Flats Canal:
Acres irrigated 1977 -- 11,197

SANDHILLS DIVISION
AINSWORTH UNIT
MERRITT RESERVOIR

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End Of Month Content (AF)	AINSWORTH CANAL Diversions To Canal (AF)	AINSWORTH CANAL Delivered To Farms (AF)
Jan.	11,578	11,062	245	0.19	68,831	0	0
Feb.	11,965	11,659	306	0.26	68,831	0	0
Mar.	17,984	11,298	442	2.97	75,075	0	0
Apr.	15,996	15,832	753	4.33	74,486	0	0
May	15,833	14,408	1,130	5.74	74,781	1,353	10
June	11,954	10,903	1,346	2.39	74,486	4,144	593
July	13,405	26,989	1,488	1.44	59,414	26,598	19,267
Aug.	15,628	20,914	898	3.91	53,230	19,800	17,302
Sep.	13,522	3,971	845	0.79	61,936	2,750	576
Oct.	13,176	5,502	779	1.07	63,831	0	0
Nov.	12,406	11,663	464	0.47	69,110	0	0
Dec.	12,486	12,524	241	0.51	68,831	0	0
TOTAL	165,933	156,725	8,937	24.07	---	54,645	37,748

NOTE.--Ainsworth Canal:
Acres irrigated 1977 -- 34,513

MIDDLE LOUP DIVISION

MONTH	SARGENT UNIT SARGENT CANAL Diversions To Canal (AF)	SARGENT UNIT SARGENT CANAL Delivered To Farms (AF)	MIDDLE LOUP UNIT 1/ MIDDLE LOUP PUBLIC POWER CANALS Diversions To Canals (AF)	Diversion To Sherman Feeder Canal (AF)	FARWELL UNIT SHERMAN RESERVOIR Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End Of Month Content (AF)	FARWELL CANALS Release To Canals (AF)	FARWELL CANALS Delivered To Farms (AF)
Jan.	0	0	0	0	0	1,258	79	0.18	45,583	0	0
Feb.	0	0	0	0	0	972	108	0.02	44,503	0	0
Mar.	0	0	0	4,260	4,159	1,970	217	4.24	46,475	0	0
Apr.	0	0	0	16,690	20,206	1,666	431	7.25	64,584	0	0
May	0	0	2,005	8,610	7,761	1,970	1,010	5.37	69,365	0	0
June	4,814	1,130	4,695	17,200	16,601	17,117	1,199	2.14	67,650	14,458	2,127
July	11,730	7,695	13,363	14,950	12,527	45,600	1,296	2.01	33,281	46,400	28,768
Aug.	7,396	4,720	4,767	23,860	22,940	17,294	796	5.30	38,131	16,499	9,295
Sep.	0	0	875	18,500	18,196	972	682	2.02	54,673	0	43
Oct.	0	0	0	0	197	1,375	773	1.54	52,722	0	0
Nov.	0	0	0	0	0	1,077	351	0.69	51,294	0	0
Dec.	0	0	0	0	0	1,531	113	0.53	49,650	0	0
TOTAL	23,940	13,545	25,705	104,070	102,587	92,802	7,055	31.29	---	77,307	40,233

1/ Non-Project.

NOTE.--Sargent Canal:
Acres irrigated 1977 -- 12,555

Middle Loup P. P. Canals:
Acres irrigated 1977 -- 14,000

Farwell Canals:
Acres irrigated 1977 -- 48,446

UPPER REPUBLICAN DIVISION
ARMEL UNIT
BONNY RESERVOIR

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End Of Month Content (AF)	Outflow To Hale Ditch (AF)	Industrial Uses (AF)
Jan.	1,512	372	0	0.49	39,960	0	31
Feb.	1,160	5,504	226	0.04	35,390	0	29
Mar.	2,986	2,416	310	1.42	35,650	0	26
Apr.	2,674	3,384	600	2.05	34,340	14	26
May	6,544	528	826	5.48	39,530	178	24
June	596	510	1,086	1.89	38,530	178	24
July	902	1,130	1,432	2.29	36,870	745	24
Aug.	1,720	874	796	5.89	36,920	492	25
Sep.	156	494	952	0.07	35,630	222	23
Oct.	514	374	590	0.26	35,180	29	25
Nov.	1,382	380	252	0.23	35,930	0	22
Dec.	1,558	372	186	0.07	36,930	0	42
TOTAL	21,704	16,338 2/	7,256	20.18	---	1,858 2/	321

2/ Includes 4,929 A.F. under temporary contracts.

TABLE 2
SUMMARY OF 1977 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 1/ (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	2,850	0	0	0.24	24,260	0	0	0	0
Feb.	2,222	46	96	0.12	26,340	0	0	0	0
Mar.	3,738	152	156	3.18	29,770	0	0	0	0
Apr.	3,230	60	420	4.50	32,520	2,361	468	0	0
May	2,346	112	654	3.31	34,100	706	306	3,280	20
June	2,178	2,256	782	2.41	33,240	693	421	3,583	597
July	2,518	17,986	802	3.18	16,970	7,046	4,724	10,834	6,652
Aug.	2,388	8,418	330	4.01	10,610	5,459	3,535	5,596	3,477
Sep.	2,834	4	310	0.57	13,130	0	0	0	0
Oct.	2,672	0	212	0.08	15,590	0	0	0	0
Nov.	2,488	0	128	0.13	17,950	0	0	0	0
Dec.	2,916	0	86	0.18	20,780	0	0	0	0
TOTAL	32,380	29,034	3,976	21.91	---	16,265	9,454	23,293	10,746

1/ A.F. delivery to farms estimated.

NOTE.--Culbertson Canal: Acres irrigated 1977 -- 9,044

Culbertson Extension Canal: Acres irrigated 1977 -- 11,407

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)	Diversions To Canal (AF)	Delivered To Farms (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)
Jan.	3,052	62	0	0.27	32,400	0	0	0	0
Feb.	9,012	56	216	0.36	41,140	0	0	0	0
Mar.	14,010	62	368	5.12	54,720	0	0	0	0
Apr.	15,226	60	1,056	3.58	68,830	0	0	0	0
May	9,190	62	1,638	4.07	76,320	0	0	0	0
June	4,454	5,336	2,098	1.75	73,340	4,227	626	2,071	212
July	236	22,642	3,244	0.68	47,690	15,975	11,394	5,493	4,427
Aug.	2,616	8,570	1,306	5.43	40,430	7,774	5,126	2,599	2,029
Sep.	632	552	1,000	2.46	39,510	449	99	219	65
Oct.	730	62	778	0.25	39,400	0	0	0	0
Nov.	2,718	60	378	0.13	41,680	0	0	0	0
Dec.	3,280	62	248	0.60	44,650	0	0	0	0
TOTAL	65,156	37,586	12,330	24.70	---	28,425	17,245	10,382	6,733

NOTE.--Meeker-Driftwood Canal: Acres irrigated 1977 -- 16,160

Bartley Canal: Acres irrigated 1977 -- 6,290

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.	966	186	0	0.07	27,200	0	0
Feb.	1,482	170	82	0.32	28,430	0	0
Mar.	3,062	198	154	2.82	31,140	0	0
Apr.	3,646	172	574	4.17	34,040	0	0
May	2,426	228	638	6.60	35,600	0	0
June	1,296	1,836	980	1.57	34,080	1,335	295
July	1,552	6,476	1,036	1.44	28,120	4,024	3,052
Aug.	2,660	3,378	642	3.27	26,760	1,985	1,228
Sep.	892	462	550	0.37	26,640	205	56
Oct.	1,024	246	378	0.09	27,040	0	0
Nov.	1,116	240	166	0.33	27,750	0	0
Dec.	1,510	246	124	0.55	28,890	0	0
TOTAL	21,632	13,838	5,324	21.60	---	7,549	4,631

NOTE.--Red Willow Canal: Acres irrigated 1977 -- 4,790

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.	2,442	62	0	0.12	21,020	0	0
Feb.	3,066	56	80	0.16	23,950	0	0
Mar.	4,558	62	166	3.74	28,280	0	0
Apr.	5,984	60	594	3.88	33,610	0	0
May	9,048	1,384	724	7.98	40,550	0	0
June	3,962	5,406	1,066	2.82	38,040	5,085	927
July	2,880	13,468	1,242	3.79	26,210	15,184	11,871
Aug.	3,086	7,476	610	3.51	21,210	10,187	6,353
Sep.	2,138	66	522	0.70	22,760	729	227
Oct.	2,488	62	316	0.37	24,870	0	0
Nov.	2,700	60	190	0.57	27,320	0	0
Dec.	2,946	62	124	0.51	30,080	0	0
TOTAL	45,298	28,224	5,634	28.15	---	31,185	19,378

NOTE.--Cambridge Canal: Acres irrigated 1977 -- 16,720

TABLE 2
SUMMARY OF 1977 OPERATIONS

KANASKA DIVISION
ALMENA UNIT

	NORTON RESERVOIR						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.	132	62	0	0.20	4,370	45	0	0
Feb.	216	90	36	0.09	4,460	41	0	0
Mar.	386	124	62	2.55	4,660	31	0	0
Apr.	702	120	222	4.62	5,020	34	0	0
May	2,258	124	284	6.21	6,870	44	0	0
June	860	232	408	2.55	7,090	80	0	0
July	1,006	2,976	460	2.16	4,660	89	2,223	554
Aug.	3,846	796	220	6.30	7,490	64	618	300
Sep.	1,052	146	346	1.19	8,050	81	0	0
Oct.	276	140	226	0.65	7,960	67	0	0
Nov.	198	120	118	0.54	7,920	43	0	0
Dec.	306	124	62	0.52	8,040	41	0	0
TOTAL	11,238	5,054	2,444	27.58	---	660	2,841	854

NOTE.--Almena Canal:
Acres irrigated 1977 -- 5,067

BOSTWICK DIVISION
FRANKLIN UNIT

	HARLAN COUNTY LAKE					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.	4,330	310	0	0.17	182,820	0	0	0	0
Feb.	10,264	280	464	0.00	192,340	0	0	0	0
Mar.	15,940	310	900	2.89	207,070	0	0	0	0
Apr.	24,408	300	3,688	3.73	227,490	0	0	0	0
May	41,358	310	4,048	4.85	264,490	0	0	0	0
June	17,962	12,618	6,924	1.79	262,910	3,789	744	641	271
July	7,732	68,900	7,672	2.71	194,070	13,710	6,588	1,856	1,138
Aug.	12,312	18,270	4,382	4.71	183,730	4,161	1,728	418	218
Sep.	21,980	600	3,810	2.04	201,300	0	0	0	0
Oct.	6,068	620	2,478	0.58	204,270	0	0	0	0
Nov.	4,904	600	1,704	0.68	206,870	0	0	0	0
Dec.	6,804	620	744	0.39	212,310	0	0	0	0
TOTAL	174,062	103,738	36,814	24.54	---	21,660	9,060	2,915	1,627

NOTE.--Franklin Canal:
Acres irrigated 1977 -- 10,439

Naponee Canal:
Acres irrigated 1977 -- 1,703

BOSTWICK DIVISION (Continued)
SUPERIOR-COURTLAND UNIT

	FRANKLIN PUMP CANAL		SUPERIOR CANAL			COURTLAND CANAL - ABOVE LOVEWELL			
						NEBRASKA USE		KANSAS USE	
MONTH	Diversions To Canal (AF)	Delivered To Farms (AF)	Diversions To Canal (AF)	Delivered To Farms (AF)	Total Diversion (AF)	Total (AF)	Delivered To Farms (AF)	Diversions 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	2,302	0	0	0	0
Apr.	0	0	0	0	6,992	0	0	0	0
May	0	0	143	0	4,087	0	0	18	12
June	892	477	516	74	7,731	4	0	1,936	63
July	1,990	1,451	8,324	5,366	34,870	1,237	1,179	15,544	9,933
Aug.	210	142	2,210	442	17,541	125	114	2,287	1,055
Sep.	0	0	0	0	0	0	0	0	0
Oct.	0	0	0	0	0	0	0	0	0
Nov.	0	0	0	0	0	0	0	0	0
Dec.	0	0	0	0	0	0	0	0	0
TOTAL	3,092	2,070	11,193	5,882	73,523	1,366	1,293	19,785	11,063

NOTE.--Franklin Pump Canal:
Acres irrigated 1977 -- 2,073

Superior Canal:
Acres irrigated 1977 -- 5,242

NOTE.--Courtland Canal--Nebraska Use:
Acres irrigated 1977 -- 1,540

Courtland Canal--Kansas Use:
Acres irrigated 1977 -- 10,459

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.	92	62	0	0.38	33,670	0	0
Feb.	142	56	86	0.00	33,670	0	0
Mar.	1,458	62	186	3.94	34,880	0	0
Apr.	5,772	56	906	1.71	39,690	0	0
May	4,905	1,157	1,278	5.98	42,160	1,095	0
June	5,602	3,938	1,654	3.71	42,170	3,786	6
July	20,177	29,521	3,346	0.78	29,480	29,457	18,109
Aug.	19,198	5,262	1,316	10.32	42,100	5,230	1,501
Sep.	662	60	902	2.77	41,800	0	0
Oct.	336	58	868	1.65	41,210	0	0
Nov.	164	60	364	1.47	40,950	0	0
Dec.	40	62	248	0.00	40,680	0	0
TOTAL	58,548	40,354	11,154	32.71	---	39,568	19,616

NOTE.--Courtland Canal below Lovewell:
Acres irrigated 1977 -- 21,788

TABLE 2
SUMMARY OF 1977 OPERATIONS

SOLOMON DIVISION
KIRWIN UNIT
KIRWIN RESERVOIR

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End Of Month Content (AF)	KIRWIN CANAL Release To Canal (AF)	KIRWIN CANAL Delivered To Farms (AF)
Jan.	250	0	210	0.50	25,270	0	0
Feb.	430	0	120	0.05	25,580	0	0
Mar.	1,140	0	460	1.62	26,260	0	0
Apr.	4,510	0	610	3.80	30,160	0	0
May	3,310	0	830	4.27	32,640	0	0
June	1,928	5,056	1,142	0.86	28,370	5,056	2,152
July	1,836	11,044	1,112	2.47	18,050	10,790	6,559
Aug.	2,666	4,438	368	4.82	15,910	4,185	2,511
Sep.	3,146	0	456	2.07	18,600	0	0
Oct.	264	2	442	1.20	18,420	0	0
Nov.	260	0	200	1.01	18,480	0	0
Dec.	314	0	124	0.16	18,670	0	0
TOTAL	20,054	20,540	6,074	22.83	---	20,031	11,222

NOTE.--Kirwin Canal:
Acres irrigated 1977 -- 9,412

SOLOMON DIVISION (Continued)
WEBSTER UNIT
WEBSTER RESERVOIR

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End Of Month Content (AF)	OSBORNE CANAL Diversions To Canal (AF)	OSBORNE CANAL Delivered To Farms (AF)
Jan.	70	0	160	0.56	14,720	0	0
Feb.	152	0	102	0.08	14,770	0	0
Mar.	630	0	360	1.26	15,040	0	0
Apr.	3,124	0	494	5.02	17,670	0	0
May	3,616	0	686	6.01	20,600	0	0
June	1,858	2,920	1,458	0.93	18,080	1,545	325
July	1,850	11,090	1,020	2.95	7,820	8,646	4,892
Aug.	3,046	1,798	458	5.88	8,610	1,567	922
Sep.	228	0	428	0.78	8,410	0	0
Oct.	112	2	320	0.77	8,200	0	0
Nov.	94	8	146	0.48	8,140	0	0
Dec.	136	0	186	0.06	8,090	0	0
TOTAL	14,316	15,818	5,818	24.78	---	11,758	6,139

NOTE.--Osborne Canal:
Acres irrigated 1977 -- 6,486

SOLOMON DIVISION (Continued)
GLEN ELDER UNIT
WAGONDA LAKE

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End Of Month Content (AF)	OUTFLOW TO RIVER City of Beloit (AF)	OUTFLOW TO RIVER Controlled Releases 2/ (AF)	Release To W.C.H.&T. R.W.D. No. 2 (AF)
Jan.	3,978	1,468	1,380	0.82	200,170	0	1,432	36
Feb.	3,104	1,400	584	0.03	201,290	0	1,366	34
Mar.	5,810	1,550	3,130	2.90	202,420	0	1,520	30
Apr.	9,538	1,400	3,968	2.67	206,590	0	1,373	27
May	10,930	1,238	5,032	3.99	211,250	0	1,210	28
June	8,366	1,514	8,022	3.64	210,080	20	1,460	34
July	1,774	5,704	9,500	0.91	196,650	190	5,470	44
Aug.	24,310	1,802	4,918	8.13	214,240	54	1,723	25
Sep.	12,922	778	4,004	4.37	222,380	0	750	28
Oct.	3,138	1,302	3,386	1.97	220,830	0	1,269	33
Nov.	1,944	978	1,686	1.15	220,110	0	946	32
Dec.	1,540	992	868	0.02	219,790	615	343	34
TOTAL	87,354	20,126	46,478	30.60	---	879	18,862	385

2/ Flood control and water right administration. Includes 4,194 A.F. under 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)	CEDAR BLUFF CANAL Release To Canal (AF)	CEDAR BLUFF CANAL Delivered To Farms (AF)	Release To Fish Hatchery (AF)	City of Russell (AF)
Jan.	16	126	570	0.57	79,930	0	0	186	0
Feb.	474	240	344	0.07	79,820	0	0	228	0
Mar.	858	358	1,180	0.27	79,140	0	0	346	0
Apr.	1,176	252	1,204	2.91	78,860	0	0	245	0
May	2,562	1,168	1,754	3.72	78,500	829	96	333	0
June	1,111	4,671	2,110	2.89	72,830	4,373	2,648	269	0
July	434	8,214	2,870	2.04	62,180	7,329	5,820	229	631
Aug.	7,932	2,206	1,516	6.14	66,390	1,901	1,003	158	47
Sep.	32	726	1,436	0.05	64,260	521	126	121	0
Oct.	88	172	1,206	0.32	62,970	0	0	92	0
Nov.	6	126	1,090	0.58	61,760	0	0	45	0
Dec.	20	110	310	0.33	61,360	0	0	59	0
TOTAL	14,709	18,369	15,590	19.89	---	14,953	9,693	2,316	678

NOTE.--Cedar Bluff Canal:
Acres irrigated 1977 -- 6,747

TABLE 3
ACRES IRRIGATED IN 1977 AND ESTIMATES FOR 1978

Irrigation District and Canal	Acres With Service Available	Acres Irrigated in 1977	Estimated Acres to be Irrigated in 1978
Mirage Flats Irrigation District			
Mirage Flats Canal	11,662	11,197	11,000
Ainsworth Irrigation District			
Ainsworth Canal	34,539	34,513	34,000
Sargent Irrigation District			
Sargent Canal	13,363	12,555	13,000
Farwell Irrigation District			
Farwell Canal	50,051	48,446	48,000
Frenchman Valley Irrigation District			
Culbertson Canal	9,600	9,044	8,100
H & RW Irrigation District			
Culbertson Extension Canal	11,490	11,407	9,675
Frenchman-Cambridge Irrigation District			
Meeker-Driftwood Canal	16,476	16,160	16,200
Bartley Canal	6,539	6,290	6,300
Red Willow Canal	4,932	4,790	4,800
Cambridge Canal	17,053	16,720	16,700
Total Frenchman-Cambridge Irr. District	45,000	43,960	44,000
Almena Irrigation District			
Almena Canal	5,763	5,067	5,200
Bostwick Irrigation District in Nebraska			
Franklin Canal	11,116	10,439	10,400
Naponee Canal	1,737	1,703	1,700
Franklin Pump Canal	2,091	2,073	2,091
Superior Canal	5,863	5,242	5,300
Courtland Canal (Nebr.)	1,980	1,540	1,600
Total Bostwick Irr. Dist. in Nebraska	22,787	20,997	21,091
Kansas-Bostwick Irrigation District			
Courtland Canal above Lovewell	12,771	10,459	10,500
Courtland Canal below Lovewell	27,329	21,788	22,000
Total Kansas-Bostwick Irr. District	40,100	32,247	32,500
Kirwin Irrigation District			
Kirwin Canal	11,435	9,412	9,400
Webster Irrigation District			
Osborne Canal	8,500	6,486	6,500
Cedar Bluff Irrigation District			
Cedar Bluff Canal	6,800	6,747	6,750
TOTAL PROJECT USES	271,090	252,078	249,216
Non-Project Uses			
Middle Loup P. P. Canals	15,000	14,000	14,600
Hale Ditch	700	700	700
TOTAL NON-PROJECT USES	15,700	14,700	15,300
TOTAL PROJECT AND NON-PROJECT	286,790	266,778	264,516

BOX BUTTE RESERVOIR OPERATION ESTIMATES - 1978

MONTH	HISTORICAL INFLOW MEAN CFS	HISTORICAL 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	33.	2.0	1.09	.1	2.	.1	0.0	0.0	3990.9	11.1	1.8
FEB	38.	2.1	1.15	.1	2.	.1	0.0	0.0	3992.9	13.0	1.9
MAR	52.	3.2	2.07	.2	2.	.1	0.0	0.0	3995.7	15.9	2.9
APR	44.	2.6	3.76	.3	29.	1.7	0.0	0.0	3996.2	16.5	.6
MAY	23.	1.4	6.32	.6	55.	3.4	0.0	0.0	3993.8	13.9	-2.6
JUN	13.	.8	7.22	.6	57.	3.4	0.0	0.0	3990.5	10.7	-3.2
JUL	8.	.5	8.60	.5	166.	10.2	0.0	1.8	3976.5	2.3	-8.4
AUG	8.	.5	7.98	.2	166.	10.2	0.0	9.9	3976.5	2.3	0.0
SEP	8.	.5	5.81	.2	86.	5.1	0.0	4.8	3976.5	2.3	0.0
OCT	11.	.7	4.64	.1	2.	.1	0.0	0.0	3977.9	2.8	.5
NOV	25.	1.5	2.97	.1	2.	.1	0.0	0.0	3980.8	4.1	1.3
DEC	36.	2.2	1.39	.1	2.	.1	0.0	0.0	3984.3	6.1	2.0
TOTAL		18.0	53.00	3.1		34.6	0.0	16.5			-3.2
					MOST PROBABLE INFLOW CONDITIONS						
JAN	37.	2.3	.99	.1	2.	.1	0.0	0.0	3991.2	11.4	2.1
FEB	43.	2.4	1.04	.1	2.	.1	0.0	0.0	3993.5	13.6	2.2
MAR	55.	3.4	1.89	.2	2.	.1	0.0	0.0	3996.4	16.7	3.1
APR	49.	2.9	3.41	.3	20.	1.2	0.0	0.0	3997.6	18.1	1.4
MAY	24.	1.5	5.71	.6	18.	1.1	0.0	0.0	3997.5	17.9	-.2
JUN	24.	1.4	6.54	.6	42.	2.5	0.0	0.0	3996.0	16.2	-1.7
JUL	18.	1.1	7.80	.6	141.	8.7	0.0	0.0	3987.2	8.0	-8.2
AUG	16.	1.0	7.23	.3	143.	8.8	0.0	2.4	3976.5	2.3	-5.7
SEP	12.	.7	5.24	.1	40.	2.4	0.0	1.8	3976.5	2.3	0.0
OCT	16.	1.0	4.19	.1	2.	.1	0.0	0.0	3978.6	3.1	.8
NOV	32.	1.9	2.70	.1	2.	.1	0.0	0.0	3982.1	4.8	1.7
DEC	41.	2.5	1.26	.1	2.	.1	0.0	0.0	3985.9	7.1	2.3
TOTAL		22.1	48.00	3.2		25.3	0.0	4.2			-2.2
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	42.	2.6	.91	.1	2.	.1	0.0	0.0	3991.6	11.7	2.4
FEB	49.	2.7	.95	.1	2.	.1	0.0	0.0	3994.1	14.2	2.5
MAR	76.	4.7	1.72	.2	2.	.1	0.0	0.0	3998.1	18.6	4.4
APR	62.	3.7	3.12	.3	10.	.6	0.0	0.0	4000.3	21.4	2.8
MAY	39.	2.4	5.25	.6	13.	.8	0.0	0.0	4001.1	22.4	1.0
JUN	54.	3.2	6.00	.7	27.	1.6	0.0	0.0	4001.7	23.3	.9
JUL	34.	2.1	7.14	.8	107.	6.6	0.0	0.0	3997.6	18.0	-5.3
AUG	26.	1.6	6.63	.6	106.	6.5	0.0	0.0	3992.4	12.5	-5.5
SEP	22.	1.3	4.82	.4	29.	1.7	0.0	0.0	3991.6	11.7	-.8
OCT	29.	1.8	3.85	.3	2.	.1	0.0	0.0	3993.0	13.1	1.4
NOV	42.	2.5	2.46	.2	2.	.1	0.0	0.0	3995.2	15.3	2.2
DEC	47.	2.9	1.15	.1	2.	.1	0.0	0.0	3997.6	18.0	2.7
TOTAL		31.5	44.00	4.4		18.4	0.0	0.0			8.7

MERRITT RESERVOIR OPERATION ESTIMATES - 1978

MONTH	HISTORICAL INFLOW MEAN CFS	HISTORICAL 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	236.	14.5	1.13	.3	16.	1.0	13.2	0.0	2944.0	68.8	0.0
FEB	254.	14.1	1.43	.3	18.	1.0	12.8	0.0	2944.0	68.8	0.0
MAR	270.	16.6	1.99	.5	16.	1.0	9.4	0.0	2946.0	74.5	5.7
APR	257.	15.3	3.31	.8	17.	1.0	13.5	0.0	2946.0	74.5	0.0
MAY	257.	15.8	4.79	1.2	104.	6.4	8.2	0.0	2946.0	74.5	0.0
JUN	235.	14.0	6.20	1.5	165.	9.8	2.7	0.0	2946.0	74.5	0.0
JUL	216.	13.3	8.03	1.6	719.	44.2	0.0	0.0	2932.3	42.0	-32.5
AUG	218.	13.4	7.33	.7	719.	44.2	0.0	0.0	2903.5	10.5	-31.5
SEP	224.	13.3	5.39	.3	143.	8.5	0.0	0.0	2910.3	15.0	4.5
OCT	241.	14.8	3.76	.3	16.	1.0	0.0	0.0	2923.6	28.5	13.5
NOV	245.	14.6	2.15	.3	17.	1.0	0.0	0.0	2932.2	41.8	13.3
DEC	246.	15.1	1.49	.3	16.	1.0	0.0	0.0	2938.8	55.6	13.8
TOTAL		174.8	47.00	8.1		120.1	59.8	0.0			-13.2
					MOST PROBABLE INFLOW CONDITIONS						
JAN	263.	16.2	1.07	.2	16.	1.0	15.0	0.0	2944.0	68.8	0.0
FEB	274.	15.2	1.34	.3	18.	1.0	13.9	0.0	2944.0	68.8	0.0
MAR	283.	17.4	1.87	.4	16.	1.0	10.3	0.0	2946.0	74.5	5.7
APR	284.	16.9	3.10	.8	17.	1.0	15.1	0.0	2946.0	74.5	0.0
MAY	280.	17.2	4.48	1.1	83.	5.1	11.0	0.0	2946.0	74.5	0.0
JUN	260.	15.5	5.80	1.4	131.	7.8	6.3	0.0	2946.0	74.5	0.0
JUL	241.	14.8	7.50	1.6	530.	32.6	0.0	0.0	2938.6	55.1	-19.4
AUG	241.	14.8	6.85	1.1	530.	32.6	0.0	0.0	2928.9	36.2	-18.9
SEP	249.	14.8	5.04	.7	109.	6.5	0.0	0.0	2933.2	43.8	7.6
OCT	259.	15.9	3.52	.6	16.	1.0	0.0	0.0	2939.9	58.1	14.3
NOV	266.	15.8	2.02	.4	17.	1.0	3.7	0.0	2944.0	68.8	10.7
DEC	262.	16.1	1.41	.3	16.	1.0	14.8	0.0	2944.0	68.8	0.0
TOTAL		190.6	44.00	8.9		91.6	90.1	0.0			.0
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	281.	17.3	.94	.2	16.	1.0	16.1	0.0	2944.0	68.8	0.0
FEB	293.	16.3	1.19	.3	18.	1.0	15.0	0.0	2944.0	68.8	0.0
MAR	304.	18.7	1.65	.4	16.	1.0	11.6	0.0	2946.0	74.5	5.7
APR	316.	18.8	2.75	.7	17.	1.0	17.1	0.0	2946.0	74.5	0.0
MAY	299.	18.4	3.97	1.0	55.	3.4	14.0	0.0	2946.0	74.5	0.0
JUN	279.	16.6	5.15	1.2	86.	5.1	10.3	0.0	2946.0	74.5	0.0
JUL	265.	16.3	6.66	1.6	348.	21.4	0.0	0.0	2943.6	67.8	-6.7
AUG	257.	15.8	6.08	1.3	348.	21.4	0.0	0.0	2941.0	60.9	-6.9
SEP	266.	15.8	4.47	1.0	74.	4.4	0.0	0.0	2944.9	71.3	10.4
OCT	275.	16.9	3.12	.7	16.	1.0	17.7	0.0	2944.0	68.8	-2.5
NOV	279.	16.6	1.78	.4	17.	1.0	15.2	0.0	2944.0	68.8	0.0
DEC	285.	17.5	1.24	.3	16.	1.0	16.2	0.0	2944.0	68.8	0.0
TOTAL		205.0	39.00	9.1		62.7	133.2	0.0			.0

SHERMAN RESERVOIR OPERATION ESTIMATES - 1978

MONTH	HISTORICAL INFLOW MEAN CFS	HISTORICAL 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.	0.0	.65	.1	28.	1.7	0.0	0.0	2154.0	47.9	-1.8
FEB	0.	0.0	.71	.1	31.	1.7	0.0	0.0	2153.2	46.1	-1.8
MAR	0.	0.0	1.59	.3	28.	1.7	0.0	0.0	2152.3	44.1	-2.0
APR	301.	17.9	3.85	.8	29.	1.7	0.0	0.0	2156.8	59.5	15.4
MAY	203.	12.5	3.74	.9	33.	2.0	0.0	0.0	2162.3	69.1	9.6
JUN	188.	11.2	4.67	1.1	182.	10.8	0.0	0.0	2162.1	68.4	-.7
JUL	179.	11.0	7.91	1.3	1270.	78.1	0.0	10.5	2129.0	10.5	-57.9
AUG	120.	7.4	7.12	.5	1241.	76.3	0.0	69.4	2129.0	10.5	0.0
SEP	424.	25.2	4.27	.4	187.	11.1	0.0	0.0	2141.1	24.2	13.7
OCT	546.	33.6	4.16	.7	23.	1.4	0.0	0.0	2157.3	55.7	31.5
NOV	0.	0.0	2.26	.5	29.	1.7	0.0	0.0	2156.4	53.5	-2.2
DEC	0.	0.0	.79	.2	28.	1.7	0.0	0.0	2155.6	51.6	-1.9
TOTAL		118.6	41.72	6.9		189.9	0.0	79.9			1.9
					MOST PROBABLE INFLOW CONDITIONS						
JAN	0.	0.0	.43	.1	28.	1.7	0.0	0.0	2154.0	47.9	-1.8
FEB	0.	0.0	.60	.1	31.	1.7	0.0	0.0	2153.2	46.1	-1.8
MAR	0.	0.0	1.19	.2	28.	1.7	0.0	0.0	2152.4	44.2	-1.9
APR	215.	12.8	2.08	.4	29.	1.7	0.0	0.0	2157.0	54.9	10.7
MAY	272.	16.7	2.22	.5	33.	2.0	0.0	0.0	2162.3	69.1	14.2
JUN	139.	8.3	3.32	.8	134.	8.0	0.0	0.0	2162.1	68.6	-.5
JUL	296.	18.2	5.59	1.1	872.	53.6	0.0	0.0	2146.1	32.1	-36.5
AUG	207.	12.7	5.12	.6	851.	52.3	0.0	18.6	2129.0	10.5	-21.6
SEP	541.	32.2	3.23	.4	129.	7.7	0.0	0.0	2147.5	34.6	24.1
OCT	377.	23.2	3.81	.7	23.	1.4	0.0	0.0	2157.3	55.7	21.1
NOV	0.	0.0	1.76	.4	29.	1.7	0.0	0.0	2156.5	53.6	-2.1
DEC	0.	0.0	.58	.1	28.	1.7	0.0	0.0	2155.7	51.8	-1.8
TOTAL		124.1	29.93	5.4		135.2	0.0	18.6			2.1
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	0.	0.0	.21	0.0	28.	1.7	0.0	0.0	2154.1	48.0	-1.7
FEB	0.	0.0	.32	.1	31.	1.7	0.0	0.0	2153.3	46.2	-1.8
MAR	0.	0.0	.42	.1	28.	1.7	0.0	0.0	2152.4	44.4	-1.8
APR	245.	14.6	.59	.1	29.	1.7	0.0	0.0	2157.9	57.2	12.8
MAY	228.	14.0	.39	.1	33.	2.0	0.0	0.0	2162.3	69.1	11.9
JUN	99.	5.9	.91	.2	103.	6.1	0.0	0.0	2162.2	68.7	-.4
JUL	384.	23.6	4.82	1.1	598.	36.8	0.0	0.0	2156.8	54.4	-14.3
AUG	268.	16.5	4.02	.7	577.	35.5	0.0	0.0	2147.6	34.7	-19.7
SEP	457.	27.2	2.14	.4	97.	5.8	0.0	0.0	2157.3	55.7	21.0
OCT	0.	0.0	3.37	.7	23.	1.4	0.0	0.0	2156.5	53.6	-2.1
NOV	0.	0.0	.40	.1	29.	1.7	0.0	0.0	2155.7	51.8	-1.8
DEC	0.	0.0	.24	0.0	28.	1.7	0.0	0.0	2155.0	50.1	-1.7
TOTAL		101.8	17.83	3.6		97.8	0.0	0.0			.4

BONNY RESERVOIR OPERATION ESTIMATES - 1978

MONTH	HISTORICAL INFLOW MEAN CFS	HISTORICAL INFLOW 1000 AF	NET EVAPORATION INCHES	NET EVAPORATION 1000 AF	RELEASE REQUIREMENT HALE 1000 AF	RELEASE REQUIREMENT RIVER 1000 AF	RELEASE REQUIREMENT TOTAL MEAN CFS	RELEASE REQUIREMENT TOTAL 1000 AF	RES SPILL 1000 AF	REQUIREMENT SHORTAGE 1000 AF	END OF MONTH ELEV FT	END OF MONTH CONT 1000 AF	RESERVOIR CHANGE 1000 AF
REASONABLE MINIMUM INFLOW CONDITIONS													
JAN	23.	1.4	1.45	.2	0.0	.3	5.	.3	0.0	0.0	3670.2	37.8	.9
FEB	25.	1.4	1.55	.3	0.0	.3	5.	.3	0.0	0.0	3670.6	38.6	.8
MAR	28.	1.7	2.45	.4	0.0	.3	5.	.3	0.0	0.0	3671.1	39.6	1.0
APR	27.	1.6	4.30	.7	.3	.3	10.	.6	0.0	0.0	3671.3	39.9	.3
MAY	55.	3.4	5.35	.9	.9	.3	20.	1.2	0.0	0.0	3671.9	41.2	1.3
JUN	45.	2.7	6.95	1.2	.9	.3	20.	1.2	.2	0.0	3672.0	41.3	.1
JUL	26.	1.6	8.30	1.4	.9	.3	20.	1.2	0.0	0.0	3671.5	40.3	-1.0
AUG	23.	1.4	7.00	1.2	.8	.3	18.	1.1	0.0	0.0	3671.0	39.4	-.9
SEP	17.	1.0	5.20	.9	.6	.3	15.	.9	0.0	0.0	3670.6	38.6	-.8
OCT	18.	1.1	5.05	.8	.5	.3	13.	.8	0.0	0.0	3670.4	38.1	-.5
NOV	22.	1.3	3.05	.5	.3	.3	10.	.6	0.0	0.0	3670.5	38.3	.2
DEC	21.	1.3	1.85	.3	0.0	.3	5.	.3	0.0	0.0	3670.8	39.0	.7
TOTAL		19.9	52.50	8.8	5.2	3.6		8.8	.2	0.0			2.1
MOST PROBABLE INFLOW CONDITIONS													
JAN	28.	1.7	1.20	.2	0.0	.3	5.	.3	0.0	0.0	3670.4	38.1	1.2
FEB	31.	1.7	1.40	.2	0.0	.3	5.	.3	0.0	0.0	3671.0	39.3	1.2
MAR	36.	2.2	1.85	.3	0.0	.3	5.	.3	0.0	0.0	3671.8	40.9	1.6
APR	34.	2.0	2.80	.5	.4	.3	12.	.7	.4	0.0	3672.0	41.3	.4
MAY	67.	4.1	3.00	.5	.6	.3	15.	.9	2.7	0.0	3672.0	41.3	0.0
JUN	55.	3.3	4.60	.8	.6	.3	15.	.9	1.6	0.0	3672.0	41.3	0.0
JUL	33.	2.0	6.25	1.1	.4	.3	11.	.7	.2	0.0	3672.0	41.3	0.0
AUG	28.	1.7	6.10	1.0	.4	.3	11.	.7	0.0	0.0	3672.0	41.3	0.0
SEP	20.	1.2	4.30	.7	.6	.3	15.	.9	0.0	0.0	3671.8	40.9	-.4
OCT	21.	1.3	4.55	.8	.6	.3	15.	.9	0.0	0.0	3671.6	40.5	-.4
NOV	27.	1.6	2.80	.5	.2	.3	8.	.5	0.0	0.0	3671.9	41.1	.6
DEC	26.	1.6	1.55	.3	0.0	.3	5.	.3	.8	0.0	3672.0	41.3	.2
TOTAL		24.4	40.40	6.9	3.8	3.6		7.4	5.7	0.0			4.4
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	52.	3.2	.90	.1	0.0	.3	5.	.3	0.0	0.0	3671.2	39.7	2.8
FEB	58.	3.2	1.25	.2	0.0	.3	5.	.3	1.1	0.0	3672.0	41.3	1.6
MAR	65.	4.0	1.35	.2	0.0	.3	5.	.3	3.5	0.0	3672.0	41.3	0.0
APR	62.	3.7	2.40	.4	.3	.3	10.	.6	2.7	0.0	3672.0	41.3	0.0
MAY	124.	7.6	2.05	.3	.5	.3	13.	.8	6.5	0.0	3672.0	41.3	0.0
JUN	104.	6.2	2.50	.4	.2	.3	8.	.5	5.3	0.0	3672.0	41.3	0.0
JUL	60.	3.7	5.05	.9	.2	.3	8.	.5	2.3	0.0	3672.0	41.3	0.0
AUG	50.	3.1	4.00	.7	.4	.3	11.	.7	1.7	0.0	3672.0	41.3	0.0
SEP	37.	2.2	3.20	.5	.4	.3	12.	.7	1.0	0.0	3672.0	41.3	0.0
OCT	41.	2.5	3.40	.6	.3	.3	10.	.6	1.3	0.0	3672.0	41.3	0.0
NOV	49.	2.9	2.60	.4	.3	.3	10.	.6	1.9	0.0	3672.0	41.3	0.0
DEC	49.	3.0	1.30	.2	0.0	.3	5.	.3	2.5	0.0	3672.0	41.3	0.0
TOTAL		45.3	30.00	4.9	2.6	3.6		6.2	29.8	0.0			4.4

SWANSON LAKE OPERATION ESTIMATES - 1978

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	7.5	-1.1	104.	6.4	1.05	.3	2.	.1	0.0	0.0	2735.1	50.7	6.0
FEB	9.5	-1.1	151.	8.4	1.20	.3	2.	.1	0.0	0.0	2737.5	58.7	8.0
MAR	11.1	-1.4	158.	9.7	1.95	.6	2.	.1	0.0	0.0	2740.0	67.7	9.0
APR	8.5	-1.0	126.	7.5	3.85	1.2	2.	.1	0.0	0.0	2741.6	73.9	6.2
MAY	7.7	-2.2	89.	5.5	4.10	1.3	99.	6.1	0.0	0.0	2741.1	72.0	-1.9
JUN	6.9	-1.3	94.	5.6	5.20	1.7	123.	7.3	0.0	0.0	2740.2	68.6	-3.4
JUL	2.4	-.5	31.	1.9	7.70	2.2	348.	21.4	0.0	0.0	2733.9	46.9	-21.7
AUG	1.9	-.4	24.	1.5	6.90	1.5	343.	21.1	0.0	0.0	2725.6	25.8	-21.1
SEP	.5	-.1	7.	.4	5.25	.8	198.	11.8	0.0	1.9	2720.0	15.5	-10.3
OCT	2.6	-.3	37.	2.3	4.60	.6	63.	3.9	0.0	2.2	2720.0	15.5	0.0
NOV	5.7	-.7	84.	5.0	2.70	.4	2.	.1	0.0	0.0	2722.6	20.0	4.5
DEC	6.7	-1.0	93.	5.7	1.30	.2	2.	.1	0.0	0.0	2725.4	25.4	5.4
TOTAL	71.0	-11.1		59.9	45.80	11.1		72.2	0.0	4.1			-19.3
					MOST PROBABLE INFLOW CONDITIONS								
JAN	9.6	-1.4	133.	8.2	.75	.2	2.	.1	0.0	0.0	2735.7	52.6	7.9
FEB	12.0	-1.4	191.	10.6	1.00	.3	2.	.1	0.0	0.0	2738.7	62.8	10.2
MAR	14.3	-1.9	202.	12.4	1.40	.4	2.	.1	0.0	0.0	2741.8	74.7	11.9
APR	12.0	-.9	187.	11.1	2.40	.8	2.	.1	0.0	0.0	2744.3	84.9	10.2
MAY	13.5	-.5	211.	13.0	2.10	.8	24.	1.5	0.0	0.0	2746.8	95.6	10.7
JUN	15.7	-.8	250.	14.9	3.70	1.4	27.	1.6	0.0	0.0	2749.4	107.5	11.9
JUL	5.7	-1.2	73.	4.5	6.10	2.3	265.	16.3	0.0	0.0	2746.3	93.4	-14.1
AUG	6.0	-1.1	80.	4.9	5.70	2.0	299.	18.4	0.0	0.0	2742.6	77.9	-15.5
SEP	5.0	-.3	79.	4.7	3.40	1.1	91.	5.4	0.0	0.0	2742.1	76.1	-1.8
OCT	4.6	-.4	68.	4.2	4.30	1.4	26.	1.6	0.0	0.0	2742.4	77.3	1.2
NOV	8.1	-1.1	118.	7.0	2.10	.7	2.	.1	0.0	0.0	2744.0	83.5	6.2
DEC	8.5	-.5	130.	8.0	1.10	.4	2.	.1	0.0	0.0	2745.7	91.0	7.5
TOTAL	115.0	-11.5		103.5	34.05	11.8		45.4	0.0	0.0			46.3
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	11.8	-2.9	145.	8.9	.55	.1	2.	.1	0.0	0.0	2736.0	53.4	8.7
FEB	14.5	-1.8	229.	12.7	.60	.2	2.	.1	0.0	0.0	2739.5	65.8	12.4
MAR	19.3	-.2	311.	19.1	.60	.2	2.	.1	0.0	0.0	2744.2	84.6	18.8
APR	16.3	-.4	267.	15.9	.60	.2	2.	.1	0.0	0.0	2747.8	100.2	15.6
MAY	23.1	-.3	371.	22.8	.80	.3	13.	.8	1.7	0.0	2752.0	120.2	20.0
JUN	27.4	-.4	454.	27.0	1.90	.8	17.	1.0	25.2	0.0	2752.0	120.2	0.0
JUL	29.3	-1.0	460.	28.3	4.00	1.7	145.	8.9	17.7	0.0	2752.0	120.2	0.0
AUG	18.3	-.8	285.	17.5	5.00	2.1	166.	10.2	5.2	0.0	2752.0	120.2	0.0
SEP	10.5	-.5	168.	10.0	2.40	1.0	30.	1.8	7.2	0.0	2752.0	120.2	0.0
OCT	8.7	-.6	132.	8.1	3.80	1.6	16.	1.0	5.5	0.0	2752.0	120.2	0.0
NOV	10.1	-.4	163.	9.7	1.60	.7	2.	.1	8.9	0.0	2752.0	120.2	0.0
DEC	10.7	-.2	171.	10.5	.65	.3	2.	.1	10.1	0.0	2752.0	120.2	0.0
TOTAL	200.0	-9.5		190.5	22.50	9.2		24.3	81.5	0.0			75.5

ENDERS RESERVOIR OPERATION ESTIMATES - 1978

MONTH	HISTORICAL INFLOW MEAN CFS	HISTORICAL 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	44.	2.7	1.05	.1	0.	0.0	0.0	0.0	3097.4	23.4	2.6
FEB	47.	2.6	1.20	.1	0.	0.0	0.0	0.0	3099.5	25.9	2.5
MAR	44.	2.7	1.95	.2	3.	.2	0.0	0.0	3101.3	28.2	2.3
APR	40.	2.4	4.10	.4	3.	.2	0.0	0.0	3102.7	30.0	1.8
MAY	42.	2.6	4.65	.5	46.	2.8	0.0	0.0	3102.2	29.3	-.7
JUN	47.	2.8	5.25	.6	54.	3.2	0.0	0.0	3101.4	28.3	-1.0
JUL	42.	2.6	8.60	.7	306.	18.8	0.0	0.0	3084.5	11.4	-16.9
AUG	39.	2.4	6.85	.4	288.	17.7	0.0	14.3	3082.4	10.0	-1.4
SEP	44.	2.6	5.50	.3	111.	6.6	0.0	4.3	3082.4	10.0	0.0
OCT	39.	2.4	4.60	.3	0.	0.0	0.0	0.0	3085.4	12.1	2.1
NOV	44.	2.6	2.65	.2	0.	0.0	0.0	0.0	3088.5	14.5	2.4
DEC	42.	2.6	1.20	.1	0.	0.0	0.0	0.0	3091.3	17.0	2.5
TOTAL		31.0	47.60	3.9		49.5	0.0	18.6			-3.8
					MOST PROBABLE INFLOW CONDITIONS						
JAN	52.	3.2	.75	.1	0.	0.0	0.0	0.0	3097.8	23.9	3.1
FEB	54.	3.0	.95	.1	0.	0.0	0.0	0.0	3100.2	26.8	2.9
MAR	54.	3.3	1.35	.1	3.	.2	0.0	0.0	3102.5	29.8	3.0
APR	49.	2.9	2.60	.3	3.	.2	0.0	0.0	3104.3	32.2	2.4
MAY	52.	3.2	3.00	.4	10.	.6	0.0	0.0	3105.9	34.4	2.2
JUN	57.	3.4	3.55	.4	12.	.7	0.0	0.0	3107.4	36.7	2.3
JUL	52.	3.2	5.90	.7	218.	13.4	0.0	0.0	3099.4	25.8	-10.9
AUG	47.	2.9	6.50	.6	229.	14.1	0.0	0.0	3087.9	14.0	-11.8
SEP	50.	3.0	3.45	.2	45.	2.7	0.0	0.0	3088.0	14.1	.1
OCT	49.	3.0	4.30	.3	0.	0.0	0.0	0.0	3091.0	16.8	2.7
NOV	52.	3.1	2.30	.2	0.	0.0	0.0	0.0	3094.0	19.7	2.9
DEC	52.	3.2	.90	.1	0.	0.0	0.0	0.0	3096.8	22.8	3.1
TOTAL		37.4	35.55	3.5		31.9	0.0	0.0			2.0
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	63.	3.9	.55	.1	0.	0.0	0.0	0.0	3098.4	24.6	3.8
FEB	63.	3.5	.30	0.0	0.	0.0	0.0	0.0	3101.2	28.1	3.5
MAR	63.	3.9	.95	.1	3.	.2	0.0	0.0	3104.0	31.7	3.6
APR	59.	3.5	.80	.1	3.	.2	0.0	0.0	3106.2	34.9	3.2
MAY	60.	3.7	1.25	.2	3.	.2	0.0	0.0	3108.4	38.2	3.3
JUN	67.	4.0	2.40	.3	3.	.2	0.0	0.0	3110.6	41.7	3.5
JUL	59.	3.6	4.35	.6	120.	7.4	0.0	0.0	3107.8	37.3	-4.4
AUG	54.	3.3	4.50	.5	137.	8.4	0.0	0.0	3104.0	31.7	-5.6
SEP	57.	3.4	2.30	.3	20.	1.2	0.0	0.0	3105.3	33.6	1.9
OCT	55.	3.4	3.35	.4	0.	0.0	0.0	0.0	3107.4	36.6	3.0
NOV	61.	3.6	1.90	.2	0.	0.0	0.0	0.0	3109.6	40.0	3.4
DEC	60.	3.7	.65	.1	0.	0.0	0.0	0.0	3111.8	43.6	3.6
TOTAL		43.5	23.30	2.9		17.8	0.0	0.0			22.8

HUGH BUTLER LAKE OPERATION ESTIMATES - 1978

MONTH	HISTORICAL INFLOW MEAN CFS	HISTORICAL 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	16.	1.0	.92	.1	5.	.3	0.0	0.0	2576.3	29.5	.6
FEB	20.	1.1	1.11	.1	5.	.3	0.0	0.0	2576.8	30.2	.7
MAR	24.	1.5	2.01	.2	5.	.3	0.0	0.0	2577.5	31.2	1.0
APR	22.	1.3	4.39	.5	5.	.3	0.0	0.0	2577.9	31.7	.5
MAY	26.	1.6	4.45	.5	29.	1.8	0.0	0.0	2577.4	31.0	-.7
JUN	39.	2.3	7.01	.8	30.	1.8	0.0	0.0	2577.1	30.7	-.3
JUL	23.	1.4	8.45	.9	80.	4.9	0.0	0.0	2573.8	26.3	-4.4
AUG	15.	.9	6.73	.7	76.	4.7	0.0	0.0	2570.0	21.8	-4.5
SEP	17.	1.0	6.08	.5	39.	2.3	0.0	0.0	2568.3	20.0	-1.8
OCT	15.	.9	4.72	.4	15.	.9	0.0	0.0	2568.0	19.6	-.4
NOV	15.	.9	2.63	.2	5.	.3	0.0	0.0	2568.3	20.0	.4
DEC	16.	1.0	1.20	.1	5.	.3	0.0	0.0	2568.9	20.6	.6
TOTAL		14.9	49.70	5.0		18.2	0.0	0.0			-8.3
					MOST PROBABLE INFLOW CONDITIONS						
JAN	21.	1.3	.70	.1	5.	.3	0.0	0.0	2576.5	29.8	.9
FEB	27.	1.5	.75	.1	5.	.3	0.0	0.0	2577.3	30.9	1.1
MAR	34.	2.1	1.35	.2	5.	.3	0.0	0.0	2578.4	32.5	1.6
APR	32.	1.9	2.70	.3	5.	.3	0.0	0.0	2579.3	33.8	1.3
MAY	37.	2.3	2.80	.4	16.	1.0	0.0	0.0	2579.9	34.7	.9
JUN	54.	3.2	2.99	.4	15.	.9	0.0	0.0	2581.1	36.6	1.9
JUL	33.	2.0	6.09	.8	68.	4.2	0.0	0.0	2579.1	33.6	-3.0
AUG	21.	1.3	5.52	.7	73.	4.5	0.0	0.0	2576.4	29.7	-3.9
SEP	25.	1.5	3.81	.4	22.	1.3	0.0	0.0	2576.3	29.5	-.2
OCT	20.	1.2	3.88	.4	11.	.7	0.0	0.0	2576.3	29.6	.1
NOV	22.	1.3	1.84	.2	5.	.3	0.0	0.0	2576.9	30.4	.8
DEC	21.	1.3	.87	.1	5.	.3	0.0	0.0	2577.6	31.3	.9
TOTAL		20.9	33.30	4.1		14.4	0.0	0.0			2.4
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	31.	1.9	.40	0.0	5.	.3	0.0	0.0	2577.0	30.5	1.6
FEB	38.	2.1	.47	.1	5.	.3	0.0	0.0	2578.2	32.2	1.7
MAR	47.	2.9	.85	.1	5.	.3	0.0	0.0	2579.9	34.7	2.5
APR	44.	2.6	1.52	.2	5.	.3	0.0	0.0	2581.2	36.8	2.1
MAY	52.	3.2	1.78	.2	13.	.8	1.2	0.0	2581.8	37.8	1.0
JUN	74.	4.4	1.82	.2	12.	.7	3.5	0.0	2581.8	37.8	0.0
JUL	46.	2.8	3.42	.5	47.	2.9	0.0	0.0	2581.4	37.2	-.6
AUG	29.	1.8	4.12	.5	47.	2.9	0.0	0.0	2580.4	35.6	-1.6
SEP	34.	2.0	3.09	.4	17.	1.0	0.0	0.0	2580.8	36.2	.6
OCT	26.	1.6	3.21	.4	8.	.5	0.0	0.0	2581.3	36.9	.7
NOV	30.	1.8	1.15	.2	5.	.3	.4	0.0	2581.8	37.8	.9
DEC	29.	1.8	.77	.1	5.	.3	1.4	0.0	2581.8	37.8	0.0
TOTAL		28.9	22.60	2.9		10.6	6.5	0.0			8.9

HARRY STRUNK LAKE OPERATION ESTIMATES - 1978

MONTH	HISTORICAL INFLOW MEAN CFS	HISTORICAL 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	36.	2.2	.76	.1	2.	.1	0.0	0.0	2363.2	32.1	2.0
FEB	45.	2.5	.89	.1	2.	.1	0.0	0.0	2364.6	34.4	2.3
MAR	52.	3.2	1.87	.3	2.	.1	.1	0.0	2366.1	37.1	2.7
APR	54.	3.2	4.23	.7	2.	.1	2.4	0.0	2366.1	37.1	0.0
MAY	63.	3.9	4.07	.6	60.	3.7	0.0	0.0	2365.9	36.7	-.4
JUN	106.	6.3	5.02	.8	62.	3.7	1.4	0.0	2366.1	37.1	.4
JUL	62.	3.8	8.41	1.1	228.	14.0	0.0	0.0	2359.1	25.8	-11.3
AUG	41.	2.5	7.42	.7	226.	13.9	0.0	0.0	2348.3	13.7	-12.1
SEP	37.	2.2	4.64	.3	106.	6.3	0.0	.2	2343.0	9.5	-4.2
OCT	36.	2.2	4.52	.3	23.	1.4	0.0	0.0	2343.7	10.0	.5
NOV	35.	2.1	2.57	.2	2.	.1	0.0	0.0	2346.0	11.8	1.8
DEC	34.	2.1	1.10	.1	2.	.1	0.0	0.0	2348.3	13.7	1.9
TOTAL		36.2	45.50	5.3		43.6	3.9	.2			-16.4
					MOST PROBABLE INFLOW CONDITIONS						
JAN	52.	3.2	.50	.1	2.	.1	0.0	0.0	2363.8	33.1	3.0
FEB	65.	3.6	.75	.1	2.	.1	0.0	0.0	2365.8	36.5	3.4
MAR	75.	4.6	1.40	.2	2.	.1	3.7	0.0	2366.1	37.1	.6
APR	77.	4.6	2.29	.4	2.	.1	4.1	0.0	2366.1	37.1	0.0
MAY	93.	5.7	2.41	.4	5.	.3	5.0	0.0	2366.1	37.1	0.0
JUN	151.	9.0	3.57	.6	8.	.5	7.9	0.0	2366.1	37.1	0.0
JUL	89.	5.5	5.95	.9	177.	10.9	0.0	0.0	2362.4	30.8	-6.3
AUG	57.	3.5	5.33	.6	205.	12.6	0.0	0.0	2355.4	21.1	-9.7
SEP	54.	3.2	3.51	.4	20.	1.2	0.0	0.0	2356.8	22.7	1.6
OCT	50.	3.1	4.14	.5	5.	.3	0.0	0.0	2358.5	25.0	2.3
NOV	49.	2.9	2.00	.2	2.	.1	0.0	0.0	2360.3	27.6	2.6
DEC	49.	3.0	.81	.1	2.	.1	0.0	0.0	2362.2	30.4	2.8
TOTAL		51.9	32.66	4.5		26.4	20.7	0.0			.3
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	80.	4.9	.25	0.0	2.	.1	0.0	0.0	2364.9	34.9	4.8
FEB	101.	5.6	.40	.1	2.	.1	3.2	0.0	2366.1	37.1	2.2
MAR	115.	7.1	.49	.1	2.	.1	6.9	0.0	2366.1	37.1	0.0
APR	121.	7.2	.65	.1	2.	.1	7.0	0.0	2366.1	37.1	0.0
MAY	141.	8.7	.42	.1	3.	.2	8.4	0.0	2366.1	37.1	0.0
JUN	235.	14.0	.98	.2	3.	.2	13.6	0.0	2366.1	37.1	0.0
JUL	138.	8.5	5.13	.8	20.	1.2	6.5	0.0	2366.1	37.1	0.0
AUG	89.	5.5	4.19	.6	21.	1.3	3.6	0.0	2366.1	37.1	0.0
SEP	82.	4.9	2.33	.4	5.	.3	4.2	0.0	2366.1	37.1	0.0
OCT	78.	4.8	3.66	.6	3.	.2	4.0	0.0	2366.1	37.1	0.0
NOV	76.	4.5	.46	.1	2.	.1	4.3	0.0	2366.1	37.1	0.0
DEC	76.	4.7	.34	.1	2.	.1	4.5	0.0	2366.1	37.1	0.0
TOTAL		80.4	19.30	3.2		4.0	66.2	0.0			7.0

NORTON RESERVOIR OPERATION ESTIMATES - 1977

MONTH	HISTORICAL INFLOW MEAN CFS	HISTORICAL INFLOW 1000 AF	NET EVAPORATION INCHES	NET EVAPORATION 1000 AF	RELEASE REQUIREMENT MEAN CFS	RELEASE REQUIREMENT 1000 AF	RESERVOIR SPILL 1000 AF	REQUIREMENT SHORTAGE 1000 AF	END OF MONTH ELEV FT	END OF MONTH CONT 1000 AF	RESERVOIR CHANGE 1000 AF
					REASONABLE MINIMUM INFLOW CONDITIONS						
JAN	2.	.1	.95	.1	2.	.1	0.0	0.0	2284.2	7.9	-.1
FEB	4.	.2	1.00	.1	2.	.1	0.0	0.0	2284.2	7.9	0.0
MAR	7.	.4	1.98	.1	2.	.1	0.0	0.0	2284.5	8.1	.2
APR	5.	.3	4.34	.3	2.	.1	0.0	0.0	2284.4	8.0	-.1
MAY	16.	1.0	4.10	.3	7.	.4	0.0	0.0	2284.7	8.3	.3
JUN	32.	1.9	7.86	.5	10.	.6	0.0	0.0	2285.7	9.1	.8
JUL	23.	1.4	8.77	.5	128.	7.9	0.0	2.2	2278.6	4.3	-4.8
AUG	11.	.7	7.38	.3	125.	7.7	0.0	7.3	2278.6	4.3	.0
SEP	10.	.6	6.12	.3	52.	3.1	0.0	2.8	2278.6	4.3	.0
OCT	7.	.4	4.66	.2	23.	1.4	0.0	1.2	2278.6	4.3	.0
NOV	2.	.1	2.62	.1	2.	.1	0.0	.1	2278.6	4.3	.0
DEC	2.	.1	1.22	.1	2.	.1	0.0	.1	2278.6	4.3	.0
TOTAL		7.2	51.00	2.9		21.7	0.0	13.7			-3.7
					MOST PROBABLE INFLOW CONDITIONS						
JAN	5.	.3	.80	.1	2.	.1	0.0	0.0	2284.5	8.1	.1
FEB	11.	.6	.85	.1	2.	.1	0.0	0.0	2285.0	8.5	.4
MAR	13.	.8	1.24	.1	2.	.1	0.0	0.0	2285.7	9.1	.6
APR	10.	.6	2.78	.2	2.	.1	0.0	0.0	2286.1	9.4	.3
MAY	37.	2.3	2.55	.2	2.	.1	0.0	0.0	2288.3	11.4	2.0
JUN	74.	4.4	3.85	.4	2.	.1	0.0	0.0	2291.9	15.3	3.9
JUL	55.	3.4	5.97	.6	73.	4.5	0.0	0.0	2290.4	13.6	-1.7
AUG	26.	1.6	5.89	.5	83.	5.1	0.0	0.0	2286.3	9.6	-4.0
SEP	24.	1.4	4.38	.3	20.	1.2	0.0	0.0	2286.2	9.5	-.1
OCT	16.	1.0	4.14	.3	7.	.4	0.0	0.0	2286.5	9.8	.3
NOV	5.	.3	2.12	.2	2.	.1	0.0	0.0	2286.5	9.8	0.0
DEC	5.	.3	1.03	.1	2.	.1	0.0	0.0	2286.6	9.9	.1
TOTAL		17.0	35.60	3.1		12.0	0.0	0.0			1.9
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	11.	.7	.50	0.0	2.	.1	0.0	0.0	2285.1	8.6	.6
FEB	27.	1.5	.52	0.0	2.	.1	0.0	0.0	2286.8	10.0	1.4
MAR	33.	2.0	.54	0.0	2.	.1	0.0	0.0	2288.8	11.9	1.9
APR	27.	1.6	1.43	.1	2.	.1	0.0	0.0	2290.1	13.3	1.4
MAY	94.	5.8	1.16	.1	2.	.1	0.0	0.0	2294.7	18.9	5.6
JUN	185.	11.0	2.52	.3	2.	.1	0.0	0.0	2301.1	29.5	10.6
JUL	137.	8.4	4.42	.8	13.	.8	.4	0.0	2304.3	35.9	6.4
AUG	63.	3.9	5.23	1.0	31.	1.9	1.0	0.0	2304.3	35.9	0.0
SEP	61.	3.6	3.07	.6	2.	.1	2.9	0.0	2304.3	35.9	0.0
OCT	41.	2.5	2.72	.5	2.	.1	1.9	0.0	2304.3	35.9	0.0
NOV	12.	.7	1.25	.2	2.	.1	.4	0.0	2304.3	35.9	0.0
DEC	11.	.7	.64	.1	2.	.1	.5	0.0	2304.3	35.9	0.0
TOTAL		42.4	24.00	3.7		3.7	7.1	0.0			27.9

HARLAN COUNTY LAKE OPERATION ESTIMATES - 1978

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	19.2	-11.6	124.	7.6	.90	.8	10.	.6	0.0	0.0	1937.7	219.5	6.2
FEB	24.3	-14.2	182.	10.1	.78	.7	11.	.6	0.0	0.0	1938.5	228.3	8.8
MAR	32.1	-16.9	247.	15.2	1.74	1.6	10.	.6	0.0	0.0	1939.7	241.3	13.0
APR	28.0	-11.3	281.	16.7	4.70	4.5	10.	.6	0.0	0.0	1940.7	252.9	11.6
MAY	36.5	-14.5	358.	22.0	4.38	4.2	216.	13.3	0.0	0.0	1941.1	257.4	4.5
JUN	42.0	-14.8	457.	27.2	6.60	6.5	212.	12.6	0.0	0.0	1941.8	265.5	8.1
JUL	15.4	6.1	350.	21.5	9.71	9.3	618.	38.0	0.0	0.0	1939.5	239.7	-25.8
AUG	13.6	-11.5	34.	2.1	8.41	7.1	706.	43.4	0.0	0.0	1934.8	191.3	-48.4
SEP	6.2	-6.2	0.	0.0	5.56	4.1	336.	20.0	0.0	0.0	1932.1	167.2	-24.1
OCT	5.6	-5.6	0.	0.0	4.52	3.1	10.	.6	0.0	0.0	1931.7	163.5	-3.7
NOV	13.2	-8.7	76.	4.5	2.58	1.7	10.	.6	0.0	0.0	1931.9	165.7	2.2
DEC	16.9	-10.1	111.	6.8	1.12	.8	10.	.6	0.0	0.0	1932.6	171.1	5.4
TOTAL	253.0	-119.3		133.7	51.00	44.4		131.5	0.0	0.0			-42.2
MOST PROBABLE INFLOW CONDITIONS													
JAN	22.4	-15.7	109.	6.7	.65	.5	10.	.6	0.0	0.0	1937.6	218.9	5.6
FEB	31.2	-19.0	220.	12.2	.61	.5	11.	.6	0.0	0.0	1938.6	230.0	11.1
MAR	38.0	-19.5	301.	18.5	1.13	1.0	10.	.6	0.0	0.0	1940.2	246.9	16.9
APR	38.8	-16.0	383.	22.8	1.31	1.3	10.	.6	0.0	0.0	1942.0	267.8	20.9
MAY	59.9	-21.7	621.	38.2	3.27	3.4	26.	1.6	0.0	0.0	1944.6	301.0	33.2
JUN	106.6	-27.3	1333.	79.3	5.46	6.0	29.	1.7	52.8	0.0	1946.0	319.8	18.8
JUL	42.1	-6.9	572.	35.2	7.70	8.5	468.	28.8	0.0	0.0	1945.8	317.7	-2.1
AUG	26.6	-2.1	398.	24.5	6.01	6.6	496.	30.5	0.0	0.0	1944.9	305.1	-12.6
SEP	19.7	-10.4	156.	9.3	4.47	4.8	121.	7.2	0.0	0.0	1944.7	302.4	-2.7
OCT	16.4	-12.7	60.	3.7	3.43	3.7	10.	.6	0.0	0.0	1944.6	301.8	-.6
NOV	20.8	-13.0	131.	7.8	1.55	1.7	10.	.6	0.0	0.0	1945.0	307.3	5.5
DEC	23.5	-13.9	156.	9.6	.71	.8	10.	.6	0.0	0.0	1945.7	315.5	8.2
TOTAL	446.0	-178.2		267.8	36.30	38.8		74.0	52.8	0.0			102.2
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	28.1	-21.3	111.	6.8	0.00	0.0	10.	.6	0.0	0.0	1937.7	219.5	6.2
FEB	42.6	-22.3	366.	20.3	.28	.2	11.	.6	0.0	0.0	1939.5	239.0	19.5
MAR	57.1	-26.4	499.	30.7	.70	.7	10.	.6	0.0	0.0	1942.0	268.4	29.4
APR	55.8	-22.3	563.	33.5	.21	.2	10.	.6	0.0	0.0	1944.6	301.1	32.7
MAY	105.5	-32.2	1192.	73.3	1.78	1.9	13.	.8	51.9	0.0	1946.0	319.8	18.7
JUN	166.5	-17.4	2506.	149.1	1.58	1.8	15.	.9	146.4	0.0	1946.0	319.8	0.0
JUL	105.4	-27.5	1267.	77.9	6.53	7.3	107.	6.6	64.0	0.0	1946.0	319.8	0.0
AUG	63.8	-21.7	685.	42.1	3.43	3.8	107.	6.6	31.7	0.0	1946.0	319.8	0.0
SEP	75.0	-9.6	1099.	65.4	3.84	4.3	27.	1.6	59.5	0.0	1946.0	319.8	0.0
OCT	34.4	-8.4	423.	26.0	2.28	2.5	10.	.6	22.9	0.0	1946.0	319.8	0.0
NOV	31.4	-4.0	460.	27.4	1.03	1.1	10.	.6	25.7	0.0	1946.0	319.8	0.0
DEC	30.4	-2.7	450.	27.7	.40	.4	10.	.6	26.7	0.0	1946.0	319.8	0.0
TOTAL	796.0	-215.8		580.2	22.06	24.2		20.7	428.8	0.0			106.5

LOVEWELL RESERVOIR OPERATION ESTIMATES - 1978

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	0.0	2.	.1	.77	.2	0.	0.0	0.0	0.0	1582.2	40.6	-.1
FEB	.2	0.0	4.	.2	.75	.2	0.	0.0	0.0	0.0	1582.2	40.6	.0
MAR	.2	0.0	3.	.2	1.69	.4	0.	0.0	0.0	0.0	1582.2	40.4	-.2
APR	.2	2.0	37.	2.2	3.79	.9	0.	0.0	0.0	0.0	1582.6	41.7	1.3
MAY	.6	6.0	107.	6.6	3.55	.9	93.	5.7	0.0	0.0	1582.6	41.7	0.0
JUN	1.3	5.9	121.	7.2	5.84	1.5	96.	5.7	0.0	0.0	1582.6	41.7	0.0
JUL	.8	10.0	176.	10.8	7.75	1.8	275.	16.9	0.0	0.0	1579.7	33.8	-7.9
AUG	.5	10.3	176.	10.8	6.09	1.2	322.	19.8	0.0	0.0	1575.3	23.6	-10.2
SEP	.4	6.0	108.	6.4	5.15	.8	145.	8.6	0.0	0.0	1573.8	20.6	-3.0
OCT	.3	0.0	5.	.3	3.45	.5	0.	0.0	0.0	0.0	1573.7	20.4	-.2
NOV	.1	0.0	2.	.1	2.37	.4	0.	0.0	0.0	0.0	1573.6	20.1	-.3
DEC	.1	0.0	2.	.1	.96	.2	0.	0.0	0.0	0.0	1573.5	20.0	-.1
TOTAL	4.8	40.2		45.0	42.16	9.0		56.7	0.0	0.0			-20.7
					MOST PROBABLE INFLOW CONDITIONS								
JAN	.3	0.0	5.	.3	.50	.1	0.	0.0	0.0	0.0	1582.3	40.9	.2
FEB	.9	0.0	16.	.9	.40	.1	0.	0.0	0.0	0.0	1582.6	41.7	.8
MAR	1.0	0.0	16.	1.0	.92	.2	0.	0.0	.8	0.0	1582.6	41.7	0.0
APR	1.1	0.0	18.	1.1	1.97	.5	0.	0.0	.6	0.0	1582.6	41.7	0.0
MAY	3.0	1.2	68.	4.2	1.58	.4	33.	2.0	1.8	0.0	1582.6	41.7	0.0
JUN	5.9	1.2	119.	7.1	1.75	.4	34.	2.0	4.7	0.0	1582.6	41.7	0.0
JUL	3.9	8.8	207.	12.7	5.22	1.2	263.	16.2	0.0	0.0	1581.0	37.0	-4.7
AUG	2.2	7.5	158.	9.7	4.22	.9	268.	16.5	0.0	0.0	1577.9	29.3	-7.7
SEP	2.0	2.5	76.	4.5	3.36	.7	71.	4.2	0.0	0.0	1577.7	28.9	-.4
OCT	1.2	0.0	20.	1.2	2.09	.4	0.	0.0	0.0	0.0	1578.1	29.7	.8
NOV	.4	0.0	7.	.4	1.41	.3	0.	0.0	0.0	0.0	1578.1	29.8	.1
DEC	.3	0.0	5.	.3	.43	.1	0.	0.0	0.0	0.0	1578.2	30.0	.2
TOTAL	22.2	21.2		43.4	23.85	5.3		40.9	7.9	0.0			-10.7
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	.8	0.0	13.	.8	.16	0.0	0.	0.0	0.0	0.0	1582.5	41.5	.8
FEB	2.5	0.0	45.	2.5	.26	.1	0.	0.0	2.2	0.0	1582.6	41.7	.2
MAR	2.9	0.0	47.	2.9	.35	.1	0.	0.0	2.8	0.0	1582.6	41.7	0.0
APR	3.1	0.0	52.	3.1	.44	.1	0.	0.0	3.0	0.0	1582.6	41.7	0.0
MAY	8.5	1.2	158.	9.7	.54	.1	15.	.9	8.7	0.0	1582.6	41.7	0.0
JUN	16.8	1.2	303.	18.0	-1.08	-.3	18.	1.1	17.2	0.0	1582.6	41.7	0.0
JUL	11.1	1.2	200.	12.3	4.30	1.1	128.	7.9	3.3	0.0	1582.6	41.7	0.0
AUG	6.1	1.2	119.	7.3	3.06	.8	128.	7.9	0.0	0.0	1582.1	40.3	-1.4
SEP	5.7	1.2	116.	6.9	1.78	.4	34.	2.0	3.1	0.0	1582.6	41.7	1.4
OCT	3.4	0.0	55.	3.4	1.49	.4	0.	0.0	3.0	0.0	1582.6	41.7	0.0
NOV	1.1	0.0	18.	1.1	1.00	.2	0.	0.0	.9	0.0	1582.6	41.7	0.0
DEC	.8	0.0	13.	.8	-.15	0.0	0.	0.0	.8	0.0	1582.6	41.7	0.0
TOTAL	62.8	6.0		68.8	12.15	3.0		19.8	45.0	0.0			1.0

KIRWIN RESERVOIR OPERATION ESTIMATES - 1978

MONTH	HISTORICAL INFLOW MEAN CFS	HISTORICAL 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	5.	.3	.91	.1	0.	0.0	0.0	0.0	1704.0	18.9	.2
FEB	9.	.5	1.04	.1	0.	0.0	0.0	0.0	1704.3	19.3	.4
MAR	13.	.8	1.79	.2	0.	0.0	0.0	0.0	1704.7	19.9	.6
APR	17.	1.0	4.60	.6	0.	0.0	0.0	0.0	1705.0	20.3	.4
MAY	31.	1.9	4.77	.6	41.	2.5	0.0	0.0	1704.2	19.1	-1.2
JUN	72.	4.3	6.32	.8	44.	2.6	0.0	0.0	1704.8	20.0	.9
JUL	46.	2.8	8.80	1.1	122.	7.5	0.0	0.0	1700.8	14.2	-5.8
AUG	33.	2.0	7.74	.8	141.	8.7	0.0	3.1	1697.0	9.8	-4.4
SEP	22.	1.3	5.66	.5	64.	3.8	0.0	3.0	1697.0	9.8	.0
OCT	13.	.8	4.61	.4	0.	0.0	0.0	0.0	1697.4	10.2	.4
NOV	7.	.4	2.54	.2	0.	0.0	0.0	0.0	1697.6	10.4	.2
DEC	5.	.3	1.22	.1	0.	0.0	0.0	0.0	1697.7	10.6	.2
TOTAL		16.4	50.00	5.5		25.1	0.0	6.1			-8.1
MOST PROBABLE INFLOW CONDITIONS											
JAN	10.	.6	.73	.1	0.	0.0	0.0	0.0	1704.2	19.2	.5
FEB	23.	1.3	.77	.1	0.	0.0	0.0	0.0	1705.0	20.4	1.2
MAR	29.	1.8	1.04	.1	0.	0.0	0.0	0.0	1706.0	22.1	1.7
APR	39.	2.3	1.89	.3	0.	0.0	0.0	0.0	1707.2	24.1	2.0
MAY	73.	4.5	3.60	.6	13.	.8	0.0	0.0	1708.9	27.2	3.1
JUN	168.	10.0	4.65	.9	13.	.8	0.0	0.0	1712.6	35.5	8.3
JUL	107.	6.6	6.33	1.3	111.	6.8	0.0	0.0	1712.0	34.0	-1.5
AUG	76.	4.7	5.56	1.1	111.	6.8	0.0	0.0	1710.6	30.8	-3.2
SEP	50.	3.0	4.25	.8	29.	1.7	0.0	0.0	1710.8	31.3	.5
OCT	33.	2.0	3.59	.7	0.	0.0	0.0	0.0	1711.4	32.6	1.3
NOV	15.	.9	1.85	.4	0.	0.0	0.0	0.0	1711.6	33.1	.5
DEC	11.	.7	.74	.1	0.	0.0	0.0	0.0	1711.8	33.7	.6
TOTAL		38.4	35.00	6.5		16.9	0.0	0.0			15.0
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	24.	1.5	.45	.1	0.	0.0	0.0	0.0	1704.8	20.1	1.4
FEB	54.	3.0	.50	.1	0.	0.0	0.0	0.0	1706.6	23.0	2.9
MAR	65.	4.0	.56	.1	0.	0.0	0.0	0.0	1708.7	26.9	3.9
APR	87.	5.2	.53	.1	0.	0.0	0.0	0.0	1711.1	32.0	5.1
MAY	169.	10.4	1.68	.4	8.	.5	0.0	0.0	1714.8	41.5	9.5
JUN	383.	22.8	1.66	.5	10.	.6	0.0	0.0	1721.1	63.2	21.7
JUL	247.	15.2	5.47	1.8	68.	4.2	0.0	0.0	1723.4	72.4	9.2
AUG	174.	10.7	4.67	1.7	68.	4.2	0.0	0.0	1724.5	77.2	4.8
SEP	118.	7.0	2.75	1.0	17.	1.0	0.0	0.0	1725.6	82.2	5.0
OCT	73.	4.5	2.27	.9	0.	0.0	0.0	0.0	1726.4	85.8	3.6
NOV	37.	2.2	1.02	.4	0.	0.0	0.0	0.0	1726.8	87.6	1.8
DEC	26.	1.6	.54	.2	0.	0.0	0.0	0.0	1727.1	89.0	1.4
TOTAL		88.1	22.10	7.3		10.5	0.0	0.0			70.3

WEBSTER RESERVOIR OPERATION ESTIMATES - 1978

MONTH	HISTORICAL INFLOW MEAN CFS	HISTORICAL INFLOW 1000 AF	NET EVAPORATION INCHES	NET EVAPORATION 1000 AF	RELEASE REQUIREMENT MEAN CFS	RELEASE REQUIREMENT 1000 AF	RESERVOIR SPILL 1000 AF	REQUIREMENT SHORTAGE 1000 AF	END OF MONTH ELEV FT	END OF MONTH CONT 1000 AF	RESERVOIR CHANGE 1000 AF
					REASONABLE MINIMUM INFLOW CONDITIONS						
JAN	3.	.2	.96	.1	0.	0.0	0.0	0.0	1862.9	8.2	.1
FEB	7.	.4	1.11	.1	0.	0.0	0.0	0.0	1863.1	8.5	.3
MAR	10.	.6	2.08	.2	0.	0.0	0.0	0.0	1863.5	8.9	.4
APR	12.	.7	4.92	.5	0.	0.0	0.0	0.0	1863.6	9.1	.2
MAY	24.	1.5	4.75	.4	46.	2.8	0.0	0.0	1862.1	7.4	-1.7
JUN	47.	2.8	7.50	.6	62.	3.7	0.0	0.0	1860.6	5.9	-1.5
JUL	36.	2.2	9.04	.7	128.	7.9	0.0	5.8	1860.0	5.3	-.6
AUG	20.	1.2	8.08	.6	143.	8.8	0.0	8.2	1860.0	5.3	.0
SEP	15.	.9	6.70	.5	81.	4.8	0.0	4.4	1860.0	5.3	.0
OCT	11.	.7	4.71	.4	0.	0.0	0.0	0.0	1860.3	5.6	.3
NOV	5.	.3	2.45	.2	0.	0.0	0.0	0.0	1860.4	5.7	.1
DEC	3.	.2	1.20	.1	0.	0.0	0.0	0.0	1860.5	5.8	.1
TOTAL		11.7	53.50	4.4		28.0	0.0	18.4			-2.3
					MOST PROBABLE INFLOW CONDITIONS						
JAN	10.	.6	.67	.1	0.	0.0	0.0	0.0	1863.2	8.6	.5
FEB	22.	1.2	.81	.1	0.	0.0	0.0	0.0	1864.2	9.7	1.1
MAR	26.	1.6	1.48	.2	0.	0.0	0.0	0.0	1865.3	11.1	1.4
APR	32.	1.9	2.72	.3	0.	0.0	0.0	0.0	1866.5	12.7	1.6
MAY	65.	4.0	3.13	.4	13.	.8	0.0	0.0	1868.4	15.5	2.8
JUN	131.	7.8	4.40	.6	15.	.9	0.0	0.0	1872.1	21.8	6.3
JUL	99.	6.1	7.02	1.0	114.	7.0	0.0	0.0	1871.0	19.9	-1.9
AUG	55.	3.4	5.72	.8	114.	7.0	0.0	0.0	1868.4	15.5	-4.4
SEP	39.	2.3	4.69	.6	35.	2.1	0.0	0.0	1868.1	15.1	-.4
OCT	29.	1.8	3.37	.4	0.	0.0	0.0	0.0	1869.0	16.5	1.4
NOV	13.	.8	1.61	.2	0.	0.0	0.0	0.0	1869.4	17.1	.6
DEC	10.	.6	.78	.1	0.	0.0	0.0	0.0	1869.7	17.6	.5
TOTAL		32.1	36.40	4.8		17.8	0.0	0.0			9.5
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	29.	1.8	.53	.1	0.	0.0	0.0	0.0	1864.2	9.8	1.7
FEB	59.	3.3	.48	.1	0.	0.0	0.0	0.0	1866.7	13.0	3.2
MAR	72.	4.4	.70	.1	0.	0.0	0.0	0.0	1869.5	17.3	4.3
APR	92.	5.5	1.00	.1	0.	0.0	0.0	0.0	1872.6	22.7	5.4
MAY	181.	11.1	1.74	.3	0.	0.0	0.0	0.0	1877.8	33.5	10.8
JUN	366.	21.8	.72	.2	0.	0.0	0.0	0.0	1885.9	55.1	21.6
JUL	278.	17.1	5.63	1.5	57.	3.5	0.0	0.0	1889.6	67.2	12.1
AUG	155.	9.5	4.03	1.2	60.	3.7	0.0	0.0	1890.9	71.8	4.6
SEP	109.	6.5	3.75	1.1	3.	.2	0.0	0.0	1892.3	77.0	5.2
OCT	85.	5.2	2.83	.9	0.	0.0	3.9	0.0	1892.4	77.4	.4
NOV	37.	2.2	.99	.3	0.	0.0	1.9	0.0	1892.4	77.4	0.0
DEC	29.	1.8	.60	.2	0.	0.0	1.6	0.0	1892.4	77.4	0.0
TOTAL		90.2	23.00	6.1		7.4	7.4	0.0			69.3

WACONDA LAKE OPERATION ESTIMATES - 1976

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	1.8	0.0	29.	1.8	.89	.9	11.	.7	0.0	0.0	1453.8	220.0	.2
FEB	3.2	-.5	49.	2.7	1.00	1.0	13.	.7	0.0	0.0	1453.9	221.0	1.0
MAR	4.4	-.9	57.	3.5	1.83	1.8	11.	.7	0.0	0.0	1454.0	222.0	1.0
APR	5.3	-1.1	71.	4.2	4.55	4.5	2.	.1	0.0	0.0	1454.0	221.6	-.4
MAY	8.0	-1.9	99.	6.1	4.48	4.5	2.	.1	0.0	0.0	1454.1	223.1	1.5
JUN	15.1	-4.6	176.	10.5	6.57	6.6	2.	.1	0.0	0.0	1454.4	226.9	3.8
JUL	11.1	-2.3	143.	8.8	8.05	8.1	34.	2.1	0.0	0.0	1454.3	225.5	-1.4
AUG	6.0	-.3	93.	5.7	8.50	8.5	34.	2.1	0.0	0.0	1453.9	220.6	-4.9
SEP	4.5	.5	84.	5.0	6.19	6.1	2.	.1	0.0	0.0	1453.8	219.4	-1.2
OCT	2.0	-.8	20.	1.2	4.42	4.3	2.	.1	0.0	0.0	1453.5	216.2	-3.2
NOV	1.9	-.3	27.	1.6	2.46	2.4	2.	.1	0.0	0.0	1453.4	215.3	-.9
DEC	2.2	.1	37.	2.3	1.16	1.1	11.	.7	0.0	0.0	1453.5	215.8	.5
TOTAL	65.5	-12.1		53.4	50.10	49.8		7.6	0.0	0.0			-4.0
					MOST PROBABLE INFLOW CONDITIONS								
JAN	4.4	-.7	60.	3.7	.53	.5	11.	.7	0.0	0.0	1454.0	222.3	2.5
FEB	6.3	-2.1	76.	4.2	.63	.6	13.	.7	0.0	0.0	1454.3	225.2	2.9
MAR	7.5	-2.9	75.	4.6	.84	.8	11.	.7	0.0	0.0	1454.5	228.3	3.1
APR	11.6	-3.6	134.	8.0	2.90	3.0	2.	.1	0.0	0.0	1454.9	233.2	4.9
MAY	27.5	-7.7	322.	19.8	2.96	3.1	2.	.1	8.3	0.0	1455.6	241.5	8.3
JUN	49.0	-16.8	541.	32.2	3.32	3.5	2.	.1	28.6	0.0	1455.6	241.5	0.0
JUL	24.1	-10.3	224.	13.8	6.05	6.4	26.	1.6	5.8	0.0	1455.6	241.5	0.0
AUG	13.0	-5.5	122.	7.5	4.46	4.7	26.	1.6	1.2	0.0	1455.6	241.5	0.0
SEP	13.8	-3.6	171.	10.2	3.96	4.2	2.	.1	5.9	0.0	1455.6	241.5	0.0
OCT	6.0	-3.1	47.	2.9	3.24	3.4	2.	.1	0.0	0.0	1455.6	240.9	-.6
NOV	4.8	-1.3	59.	3.5	1.85	1.9	2.	.1	.9	0.0	1455.6	241.5	.6
DEC	5.0	-.7	70.	4.3	.76	.8	11.	.7	2.8	0.0	1455.6	241.5	0.0
TOTAL	173.0	-58.3		114.7	31.50	32.9		6.6	53.5	0.0			21.7
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	9.5	-2.8	109.	6.7	.36	.4	2.	.1	0.0	0.0	1454.3	226.0	6.2
FEB	15.5	-5.9	173.	9.6	.21	.2	2.	.1	0.0	0.0	1455.1	235.3	9.3
MAR	19.0	-7.9	181.	11.1	.34	.4	2.	.1	4.4	0.0	1455.6	241.5	6.2
APR	36.4	-10.1	442.	26.3	1.39	1.5	2.	.1	24.7	0.0	1455.6	241.5	0.0
MAY	56.6	-21.2	576.	35.4	.87	.9	2.	.1	34.4	0.0	1455.6	241.5	0.0
JUN	165.9	-44.3	2044.	121.6	-.20	-.2	2.	.1	121.7	0.0	1455.6	241.5	0.0
JUL	69.8	-31.3	626.	38.5	4.46	4.7	2.	.1	33.7	0.0	1455.6	241.5	0.0
AUG	41.8	-18.9	372.	22.9	3.27	3.4	2.	.1	19.4	0.0	1455.6	241.5	0.0
SEP	53.5	-13.1	679.	40.4	2.29	2.4	2.	.1	37.9	0.0	1455.6	241.5	0.0
OCT	28.5	-5.1	381.	23.4	2.41	2.5	2.	.1	20.8	0.0	1455.6	241.5	0.0
NOV	14.9	-2.1	215.	12.8	.92	1.0	2.	.1	11.7	0.0	1455.6	241.5	0.0
DEC	9.6	-1.2	137.	8.4	.38	.4	2.	.1	7.9	0.0	1455.6	241.5	0.0
TOTAL	521.0	-163.9		357.1	16.70	17.6		1.2	316.6	0.0			21.7

CEDAR BLUFF RESERVOIR OPERATION ESTIMATES - 1978

MONTH	HISTORICAL INFLOW MEAN CFS	HISTORICAL 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	1.23	.3	8.	.5	0.0	0.0	2118.0	60.8	-.6
FEB	5.	.3	1.39	.3	7.	.4	0.0	0.0	2117.8	60.4	-.4
MAR	8.	.5	2.48	.6	10.	.6	0.0	0.0	2117.6	59.7	-.7
APR	15.	.9	5.30	1.3	7.	.4	0.0	0.0	2117.3	58.9	-.8
MAY	34.	2.1	5.10	1.2	44.	2.7	0.0	0.0	2116.7	57.1	-1.8
JUN	79.	4.7	7.76	1.8	44.	2.6	0.0	0.0	2116.8	57.4	.3
JUL	39.	2.4	9.16	2.1	111.	6.8	0.0	0.0	2114.4	50.9	-6.5
AUG	36.	2.2	8.88	1.9	111.	6.8	0.0	0.0	2111.8	44.4	-6.5
SEP	20.	1.2	6.41	1.3	61.	3.6	0.0	0.0	2110.2	40.7	-3.7
OCT	15.	.9	4.93	.9	24.	1.5	0.0	0.0	2109.6	39.2	-1.5
NOV	5.	.3	2.90	.5	7.	.4	0.0	0.0	2109.3	38.6	-.6
DEC	3.	.2	1.46	.3	7.	.4	0.0	0.0	2109.1	38.1	-.5
TOTAL		15.9	57.00	12.5		26.7	0.0	0.0			-23.3
					MOST PROBABLE INFLOW CONDITIONS						
JAN	8.	.5	1.08	.3	8.	.5	0.0	0.0	2118.1	61.1	-.3
FEB	16.	.9	1.13	.3	7.	.4	0.0	0.0	2118.1	61.3	.2
MAR	21.	1.3	1.72	.4	10.	.6	0.0	0.0	2118.2	61.6	.3
APR	37.	2.2	3.77	.9	7.	.4	0.0	0.0	2118.5	62.5	.9
MAY	86.	5.3	3.22	.8	21.	1.3	0.0	0.0	2119.6	65.7	3.2
JUN	200.	11.9	4.29	1.2	20.	1.2	0.0	0.0	2122.4	75.2	9.5
JUL	101.	6.2	7.39	2.1	93.	5.7	0.0	0.0	2122.0	73.6	-1.6
AUG	93.	5.7	6.04	1.7	106.	6.5	0.0	0.0	2121.2	71.1	-2.5
SEP	49.	2.9	4.48	1.3	34.	2.0	0.0	0.0	2121.1	70.7	-.4
OCT	37.	2.3	3.73	1.0	21.	1.3	0.0	0.0	2121.1	70.7	0.0
NOV	13.	.8	2.46	.7	7.	.4	0.0	0.0	2121.0	70.4	-.3
DEC	10.	.6	1.20	.3	7.	.4	0.0	0.0	2121.0	70.3	-.1
TOTAL		40.6	40.51	11.0		20.7	0.0	0.0			8.9
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	23.	1.4	.92	.2	8.	.5	0.0	0.0	2118.4	62.1	.7
FEB	45.	2.5	.87	.2	7.	.4	0.0	0.0	2119.0	64.0	1.9
MAR	60.	3.7	1.20	.3	10.	.6	0.0	0.0	2119.9	66.8	2.8
APR	104.	6.2	2.32	.6	7.	.4	0.0	0.0	2121.5	72.0	5.2
MAY	239.	14.7	2.02	.6	18.	1.1	0.0	0.0	2125.1	85.0	13.0
JUN	553.	32.9	1.25	.5	17.	1.0	0.0	0.0	2132.3	116.4	31.4
JUL	276.	17.0	5.22	2.2	62.	3.8	0.0	0.0	2134.5	127.4	11.0
AUG	257.	15.8	4.25	1.9	70.	4.3	0.0	0.0	2136.3	137.0	9.6
SEP	136.	8.1	3.86	1.8	24.	1.4	0.0	0.0	2137.2	141.9	4.9
OCT	106.	6.5	2.56	1.2	16.	1.0	0.0	0.0	2137.9	146.2	4.3
NOV	37.	2.2	1.62	.8	7.	.4	0.0	0.0	2138.1	147.2	1.0
DEC	24.	1.5	.92	.5	7.	.4	0.0	0.0	2138.2	147.8	.6
TOTAL		112.5	27.01	10.8		15.3	0.0	0.0			86.4

TABLE 5

FLOOD DAMAGES PREVENTED BY KANSAS RIVER 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

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

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

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

NORTON

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

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

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

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

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

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

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

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

TABLE 6
OTHER USES AT FEDERALLY CONSTRUCTED STORAGE AND DIVERSION DAMS
NIOBRARA, LOWER PLATTE AND KANSAS RIVER BASINS
DURING 1977
Annual Totals

Features	Visitors	Cars in Area	Water Craft	Sport Fish Caught	Season Take Ducks	Season Take Geese
Colorado						
Bonny Reservoir	517,385	72,314	7,410	104,370	2,500	75
Kansas						
Norton Reservoir	184,984	50,250	2,680	39,900	300	15
Almena Diversion Dam	1,325	300	0	130	0	0
Lovewell Reservoir	194,597	63,959	5,125	2,850	950	35
Kirwin Reservoir	125,088	54,102	720	29,500(est.)	0	105
Webster Reservoir	284,867	71,390	5,056	20,000	500	100
Woodston Diversion Dam	2,055	685	0	1,500	0	0
Waconda Lake	337,042	96,583	5,790	177,000	1,066	220
Cedar Bluff Reservoir	182,520	45,620	5,380	68,000	300	75
Nebraska						
Box Butte Reservoir	65,713	19,300	6,425	19,800	180	35
Merritt Reservoir	84,800	32,329	7,798	127,365	1,739	0
Arcadia Diversion Dam	9,700	2,500	0	6,500	100	25
Milburn Diversion Dam	1,095	615	0	0	12	0
Sherman Reservoir	188,900	53,900	17,000	75,000	1,800	500
Swanson Lake	44,977	12,070	1,553	16,000	500	300
Enders Reservoir	72,636	19,176	3,166	6,000	1,000	200
Hugh Butler Lake	201,798	52,171	9,926	30,000	500	50
Harry Strunk Lake	145,853	35,101	5,134	16,000	500	40
Harlan County Lake	767,021	244,380	475 1/	115,000 2/	375	535
TOTAL REPORTED	3,412,356	926,745	83,163	739,915	12,322	2,310

Visitors = Total visitor-days which includes fishing, hunting, boating, skiing, camping, picknicking and sightseeing.
Water Craft = Boating days which includes rentals, inboards, outboards, rowboats and sailboats.
1/ Peak day -- excluded from total.
2/ lbs. -- excluded from total.

TABLE 7

WATER DIVERTED IN 1977 AND THE ESTIMATED DIVERSION FOR 1978

Irrigation District and Canal	10-Year Average Diversion (1967-76)	1977 Diversion	Estimated Diversion in 1978
Mirage Flats Irrigation District			
Mirage Flats Canal	17,496	14,207	22,300
Ainsworth Irrigation District			
Ainsworth Canal	67,730	54,645	79,600
Sargent Irrigation District			
Sargent Canal	25,492	23,940	29,400
Farwell Irrigation District			
Farwell Canal	89,115	77,307	96,600
Frenchman Valley Irrigation District			
Culbertson Canal	20,333	16,265	16,200
H&RW Irrigation District			
Culbertson Extension Canal	27,765	23,293	19,400
Frenchman-Cambridge Irrigation District			
Meeker-Driftwood Canal	38,518	28,425	30,800
Bartley Canal	12,331	10,382	11,300
Red Willow Canal	9,633	7,549	8,600
Cambridge Canal	33,185	31,185	28,400
Total Frenchman-Cambridge Irrigation District	93,667	77,541	79,100
Almena Irrigation District			
Almena Canal	6,897	2,841	9,700
Bostwick Irrigation District in Nebraska			
Franklin Canal	29,185	21,660	23,200
Naponee Canal	3,483	2,915	3,800
Franklin Pump Canal	3,311	3,092	4,700
Superior Canal	14,631	11,193	11,300
Courtland Canal (Nebraska)	2,143	1,366	3,200
Total Bostwick Irrigation District in Nebraska	52,753	40,226	46,200
Kansas-Bostwick Irrigation District			
Courtland Canal above Lovewell	25,957	19,785	19,500
Courtland Canal below Lovewell	45,067	39,568	40,900
Total Kansas-Bostwick Irrigation District	71,024	59,353	60,400
Kirwin Irrigation District			
Kirwin Canal	21,043	20,031	16,900
Webster Irrigation District			
Osborne Canal	12,983	11,758	13,800
Cedar Bluff Irrigation District			
Cedar Bluff Canal	14,240	14,953	14,900
Total	520,538	436,360	504,500

EXHIBIT 1A

BOX BUTTE RESERVOIR OPERATION

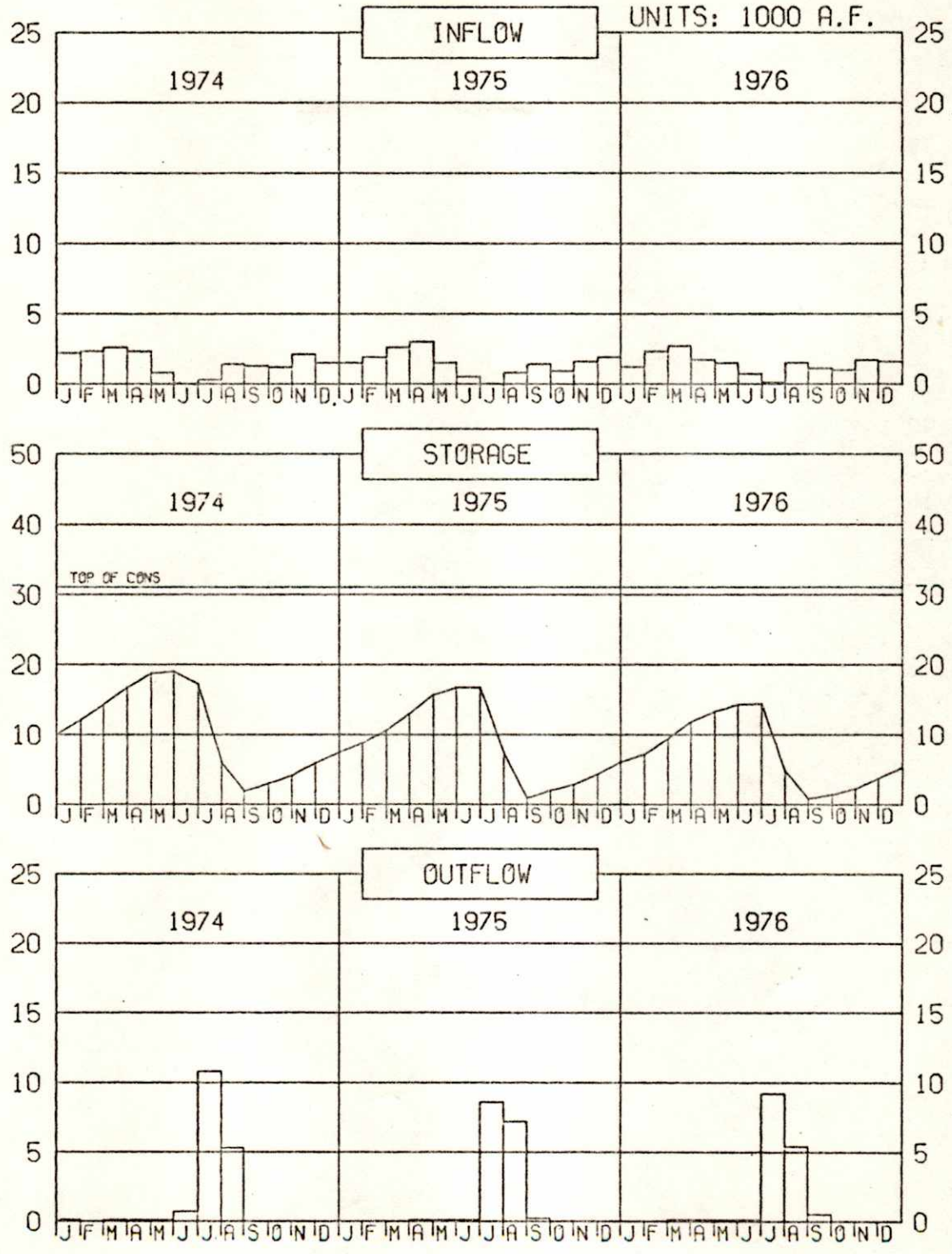
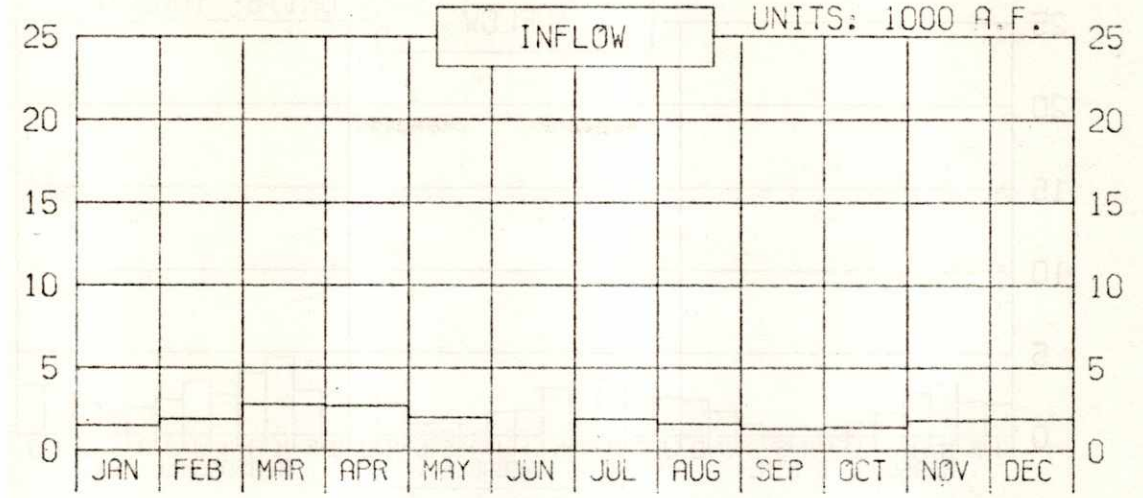
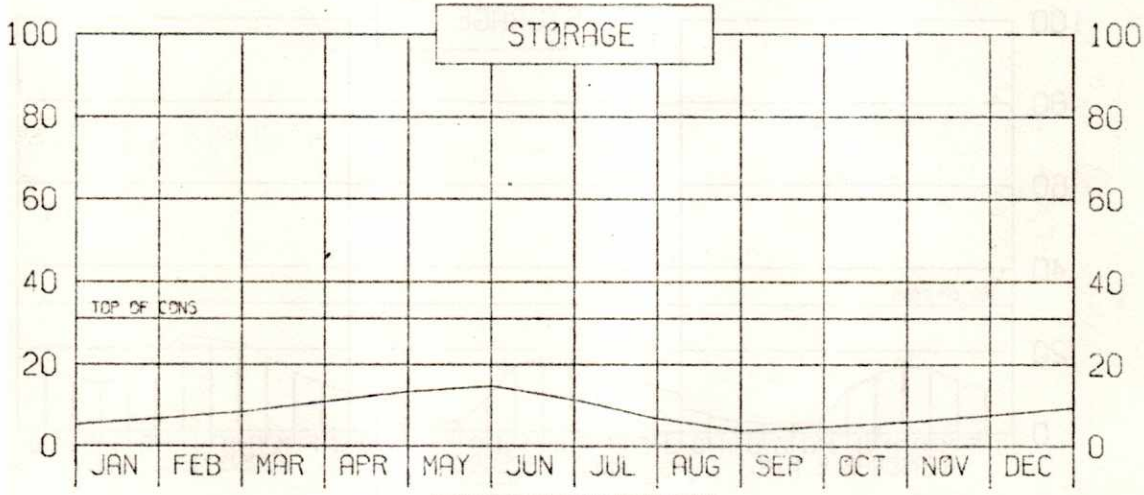


EXHIBIT 1B

BØX BUTTE RESERVØIR 1977 ØPERATION





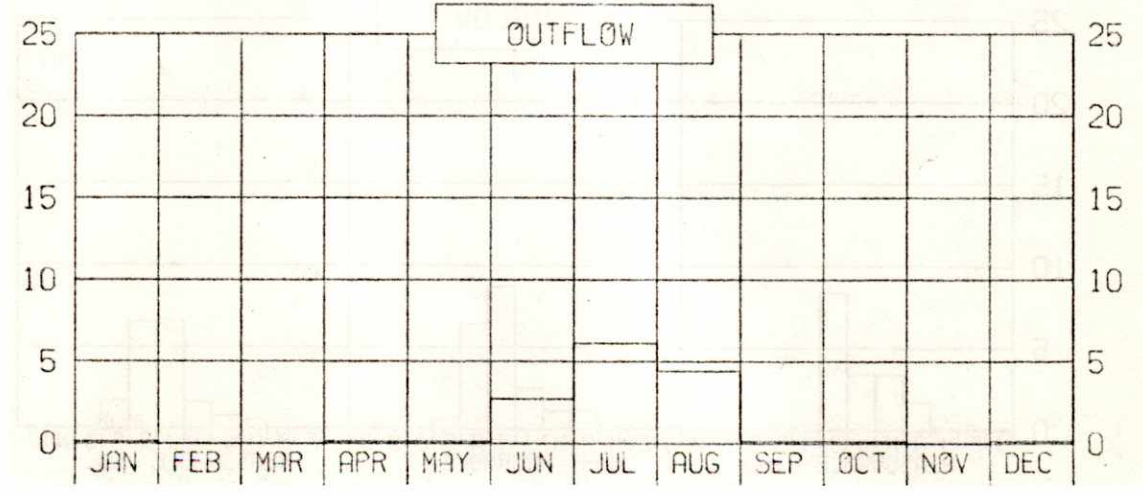


EXHIBIT 1C

BOX BUTTE RESERVOIR

CAL YEAR 1978 OPERATION PLAN

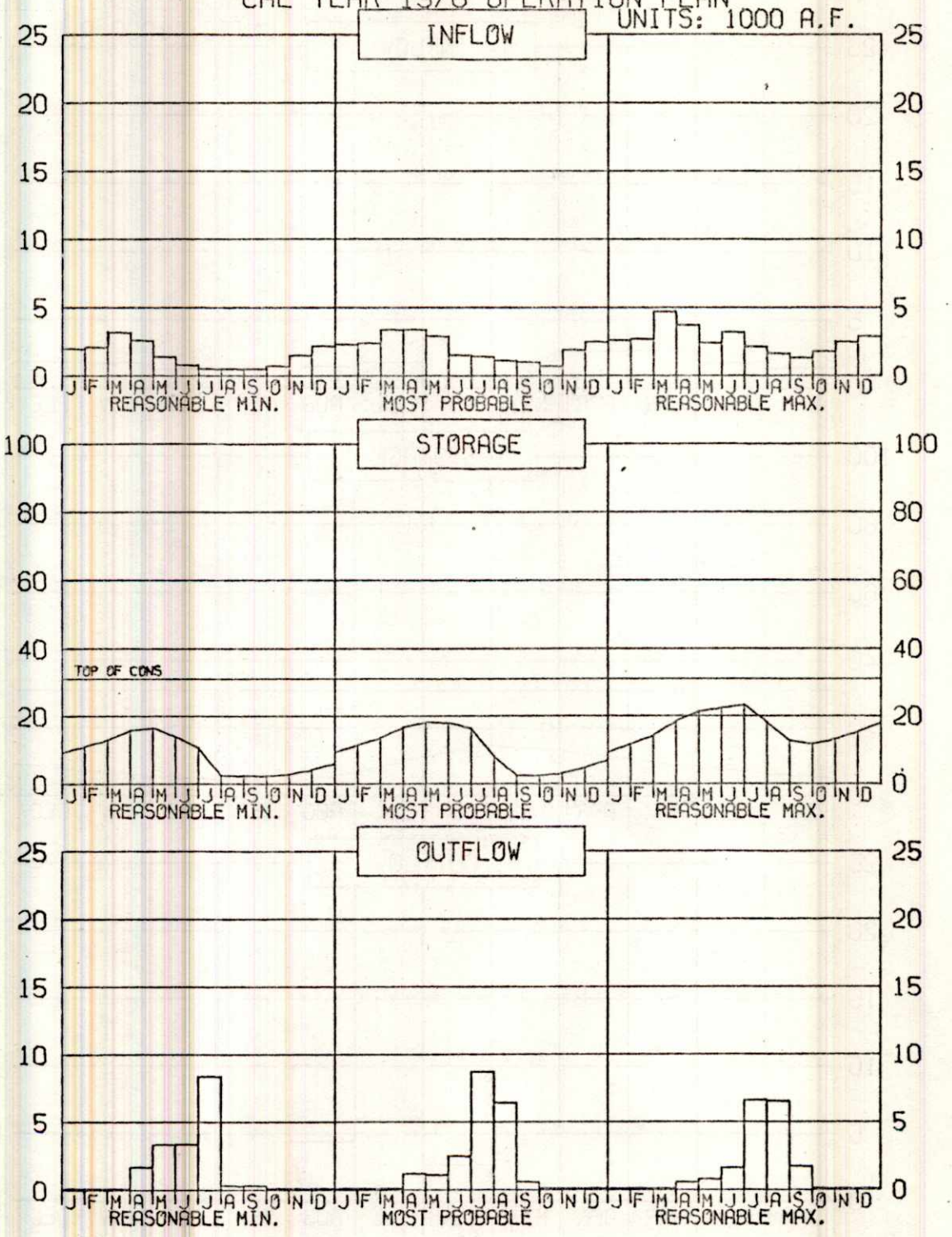


EXHIBIT 2A

MERRITT RESERVOIR OPERATION

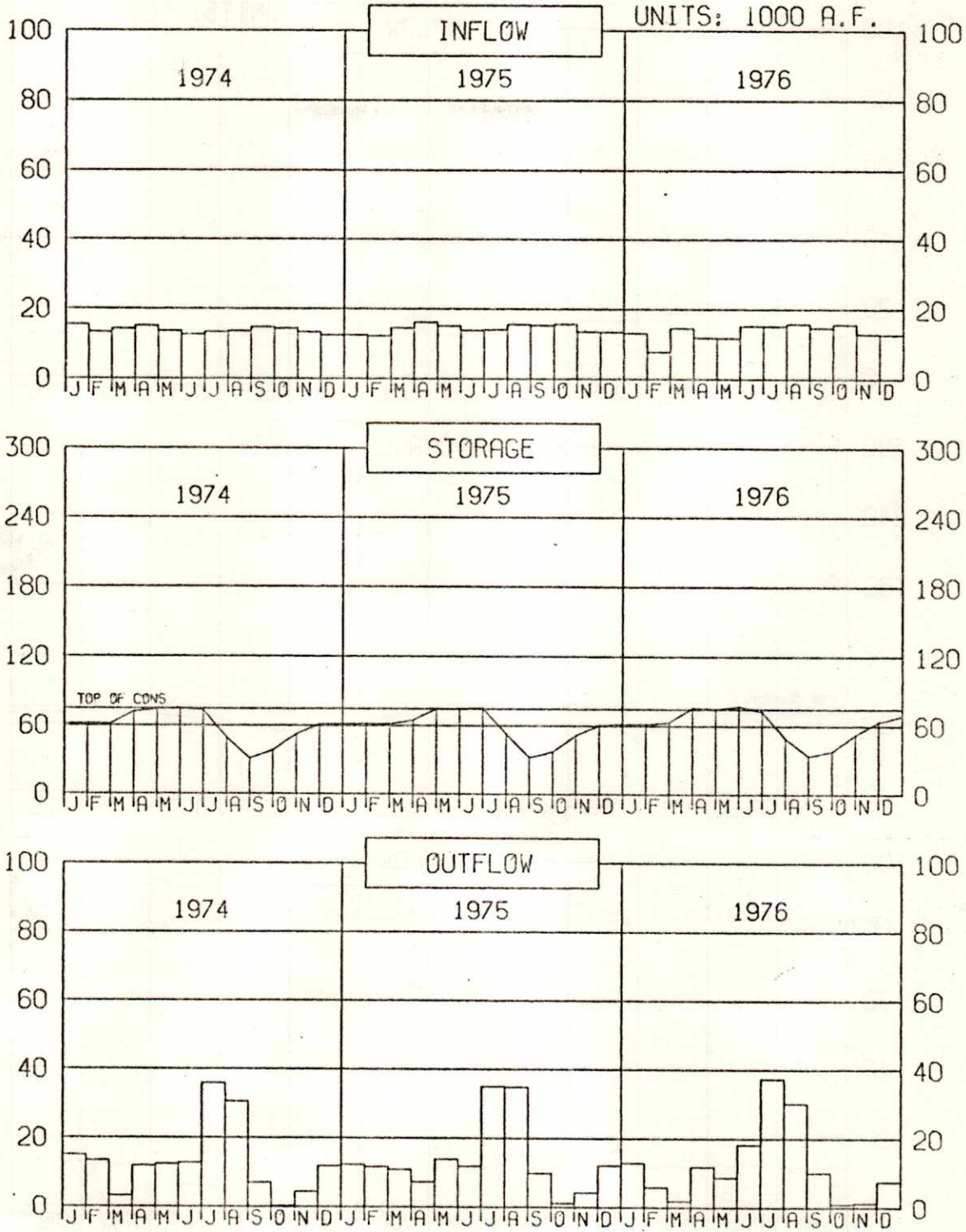


EXHIBIT 2B

MERRITT RESERVOIR 1977 OPERATION

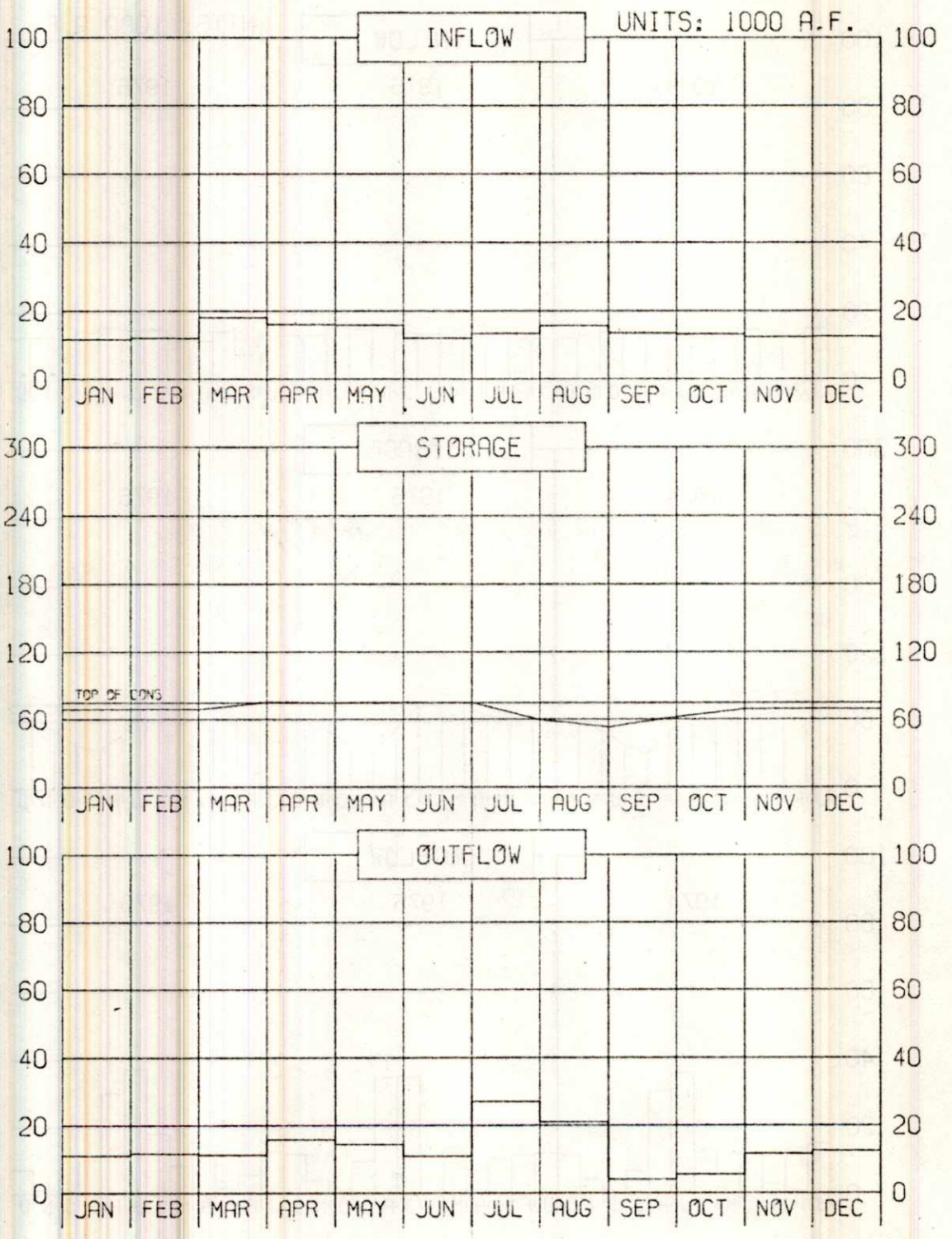


EXHIBIT 2C

MERRITT RESERVOIR
CAL YEAR 1978 OPERATION PLAN

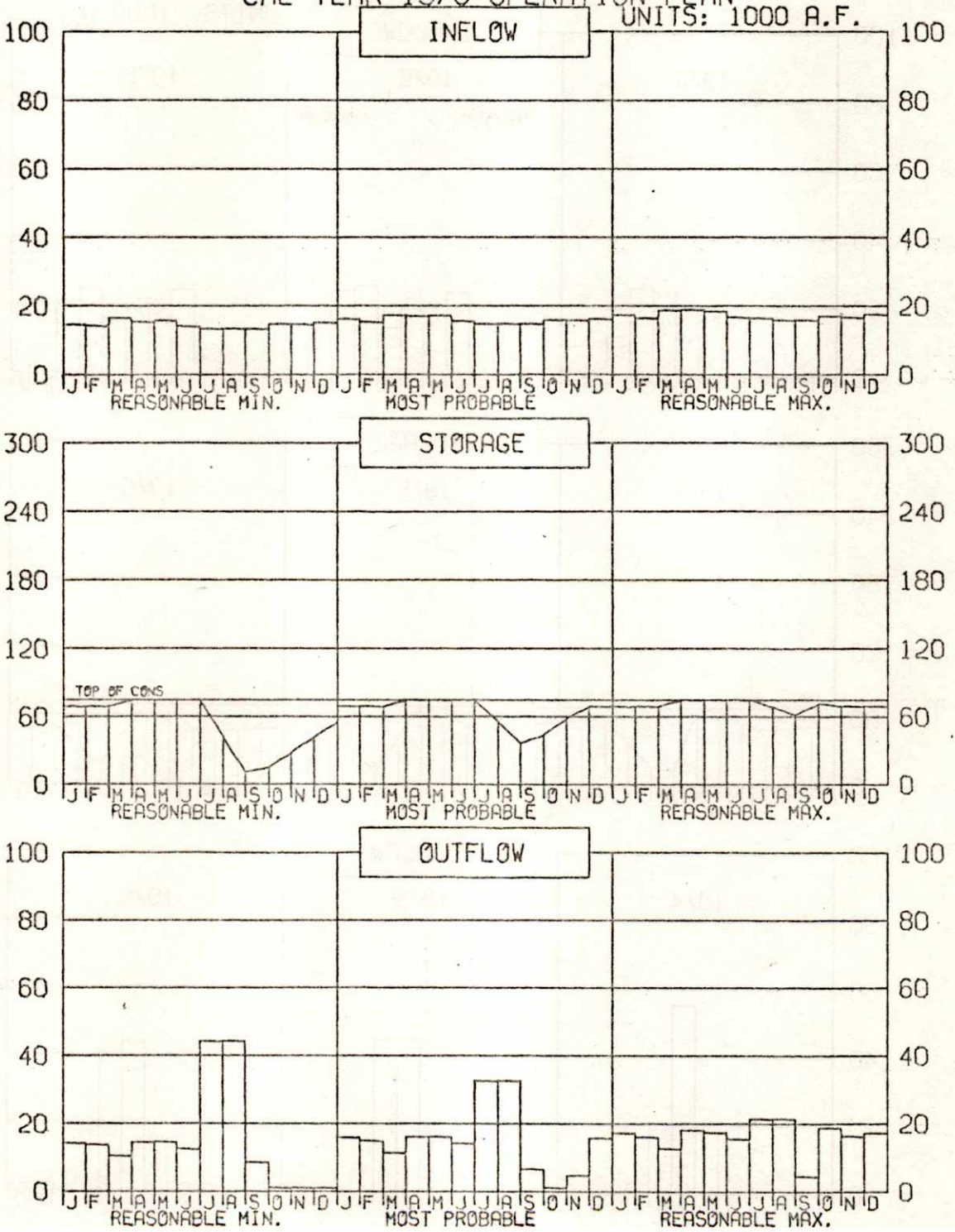


EXHIBIT 3A

SHERMAN RESERVOIR OPERATION

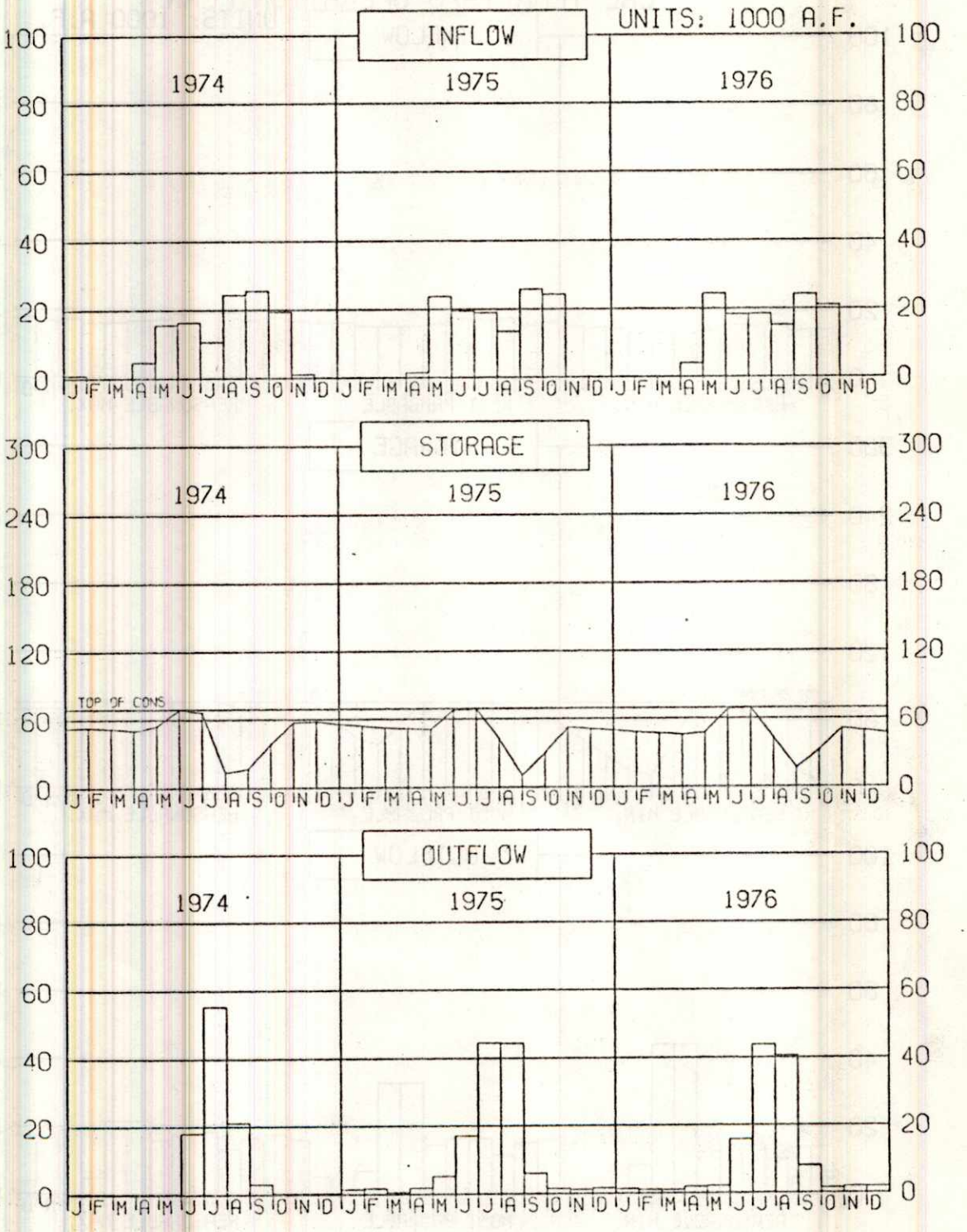
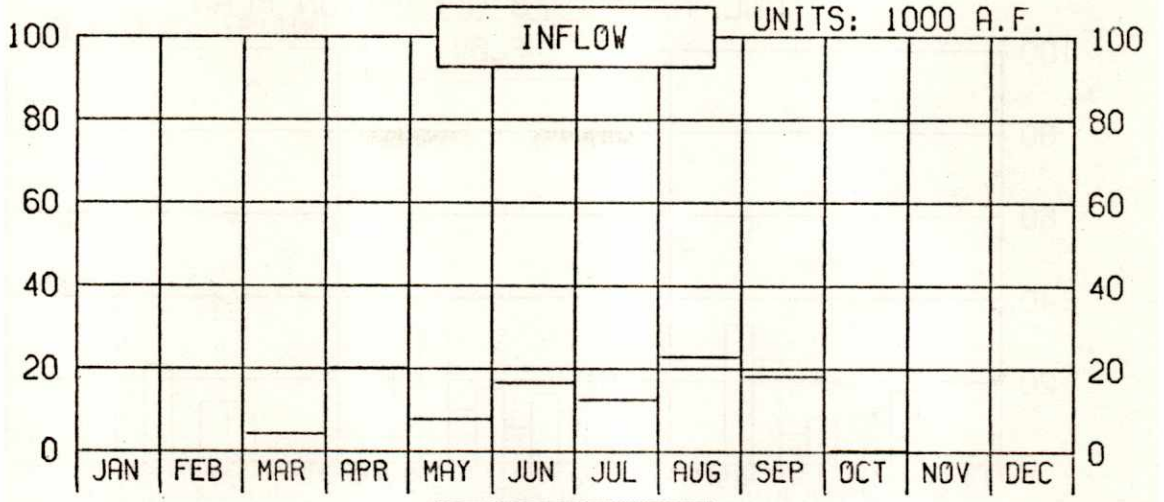
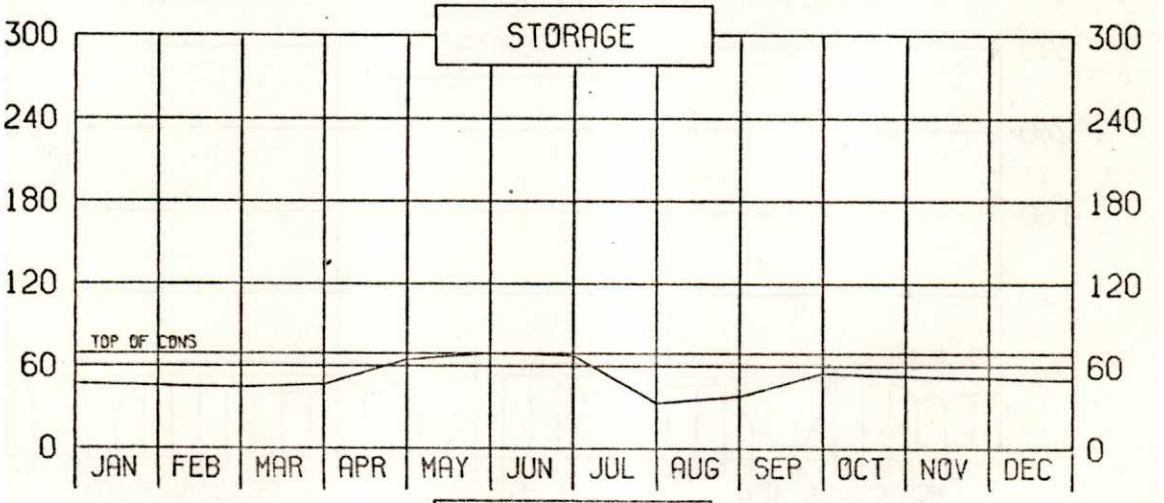


EXHIBIT 3B

SHERMAN RESERVOIR 1977 OPERATION





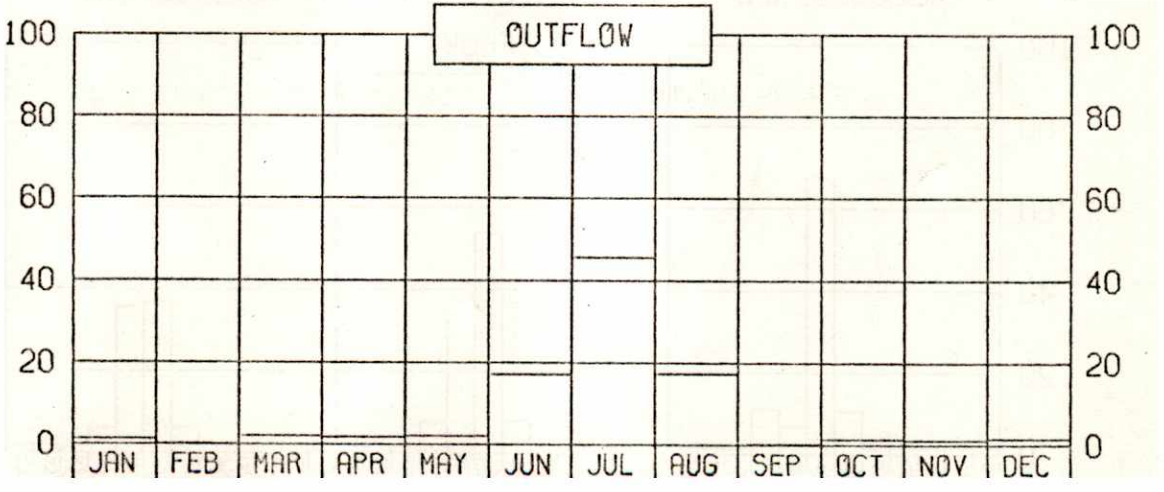


EXHIBIT 3C

SHERMAN RESERVOIR

CAL YEAR 1978 OPERATION PLAN

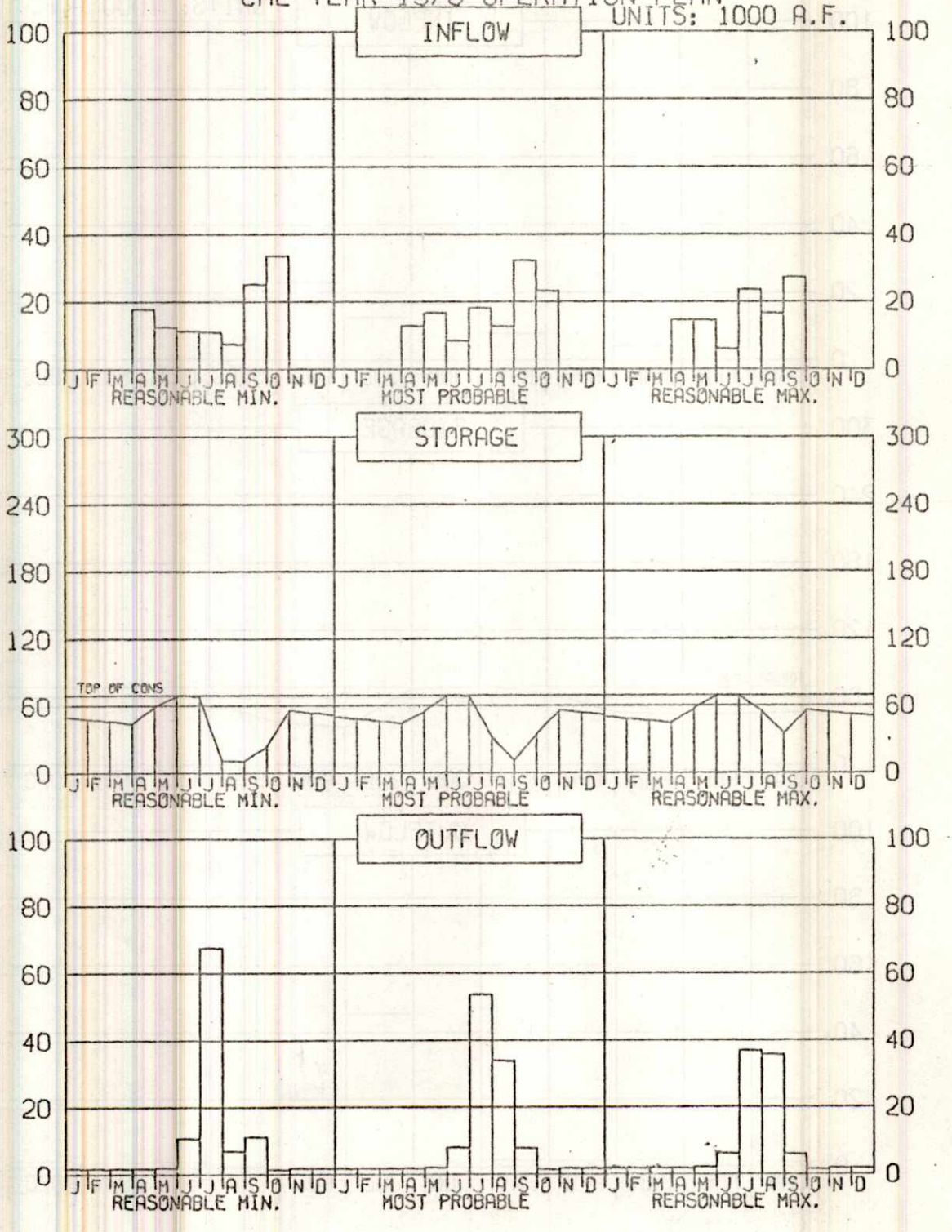


EXHIBIT · 4A

BONNY RESERVOIR OPERATION

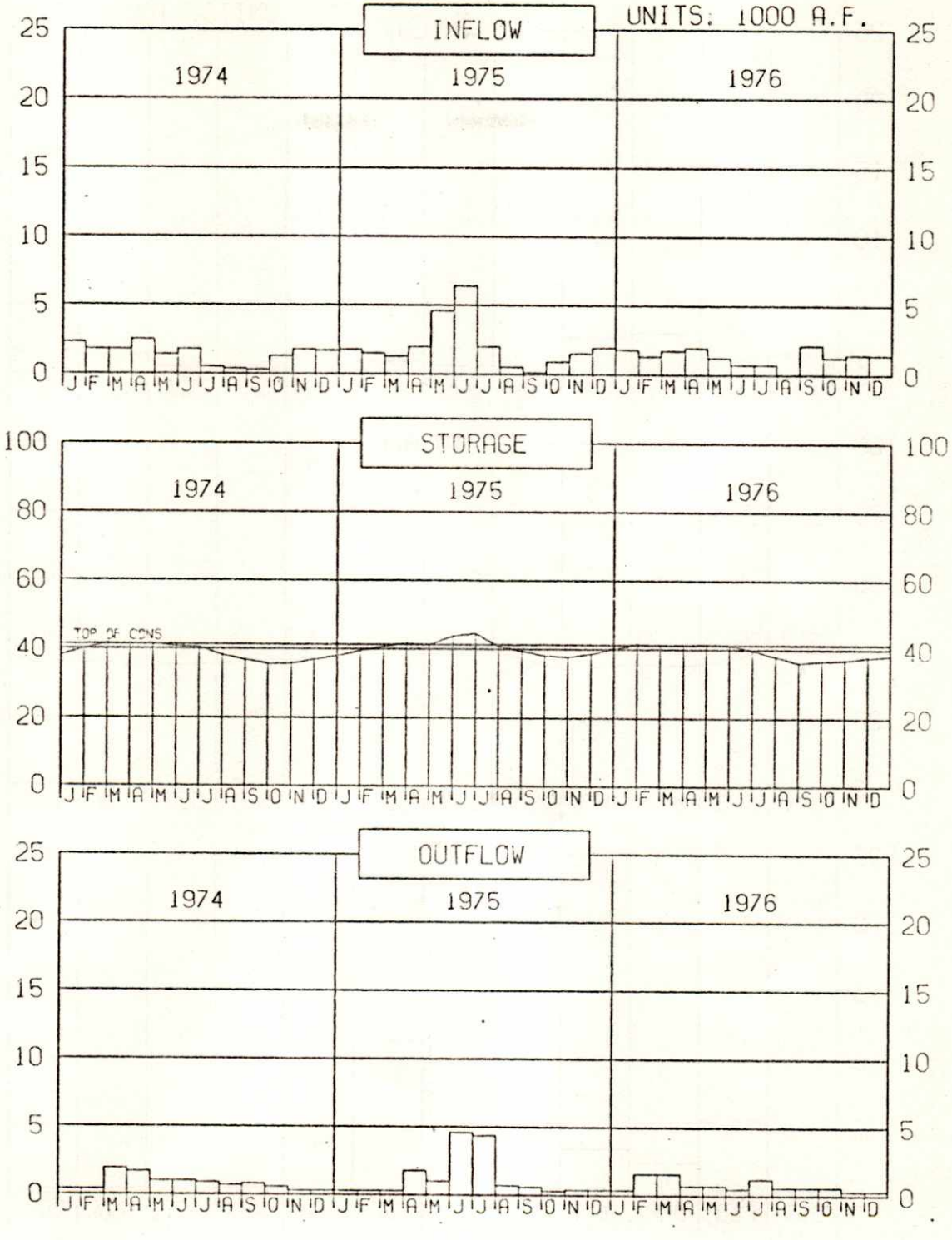


EXHIBIT 4B

BONNY RESERVOIR 1977 OPERATION

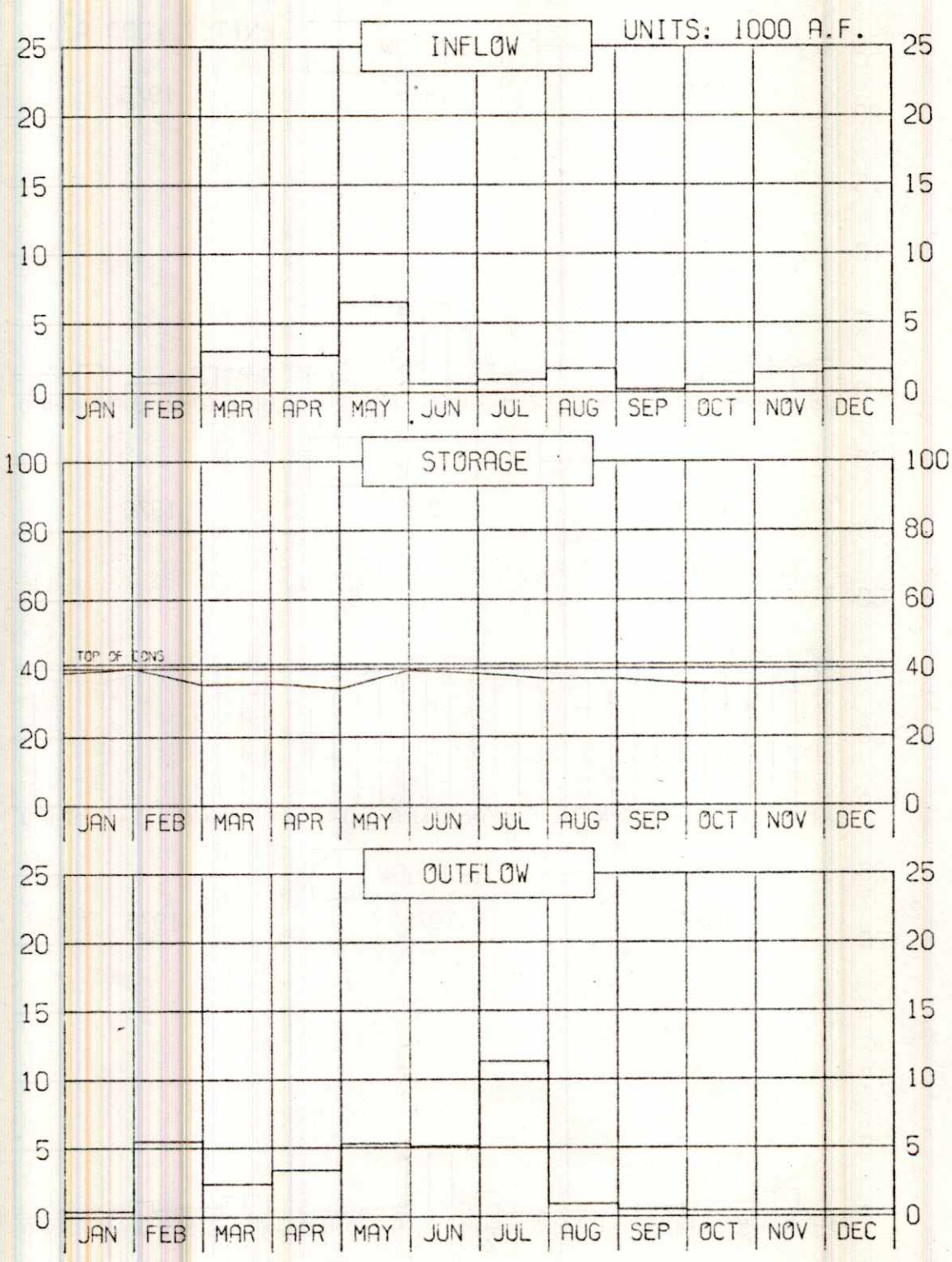


EXHIBIT 4C

BONNY RESERVOIR

CAL YEAR 1978 OPERATION PLAN

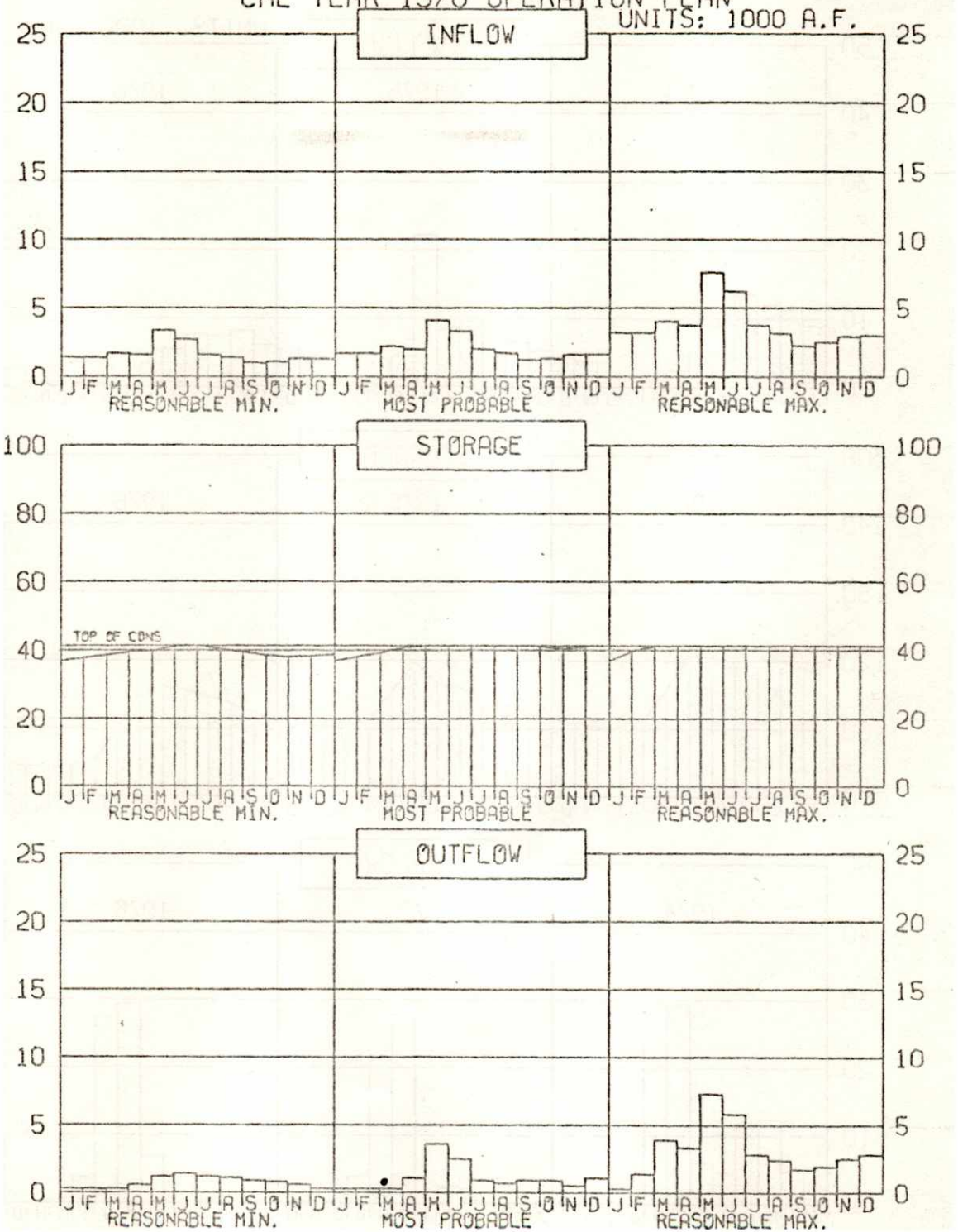


EXHIBIT 5A

SWANSON LAKE OPERATION

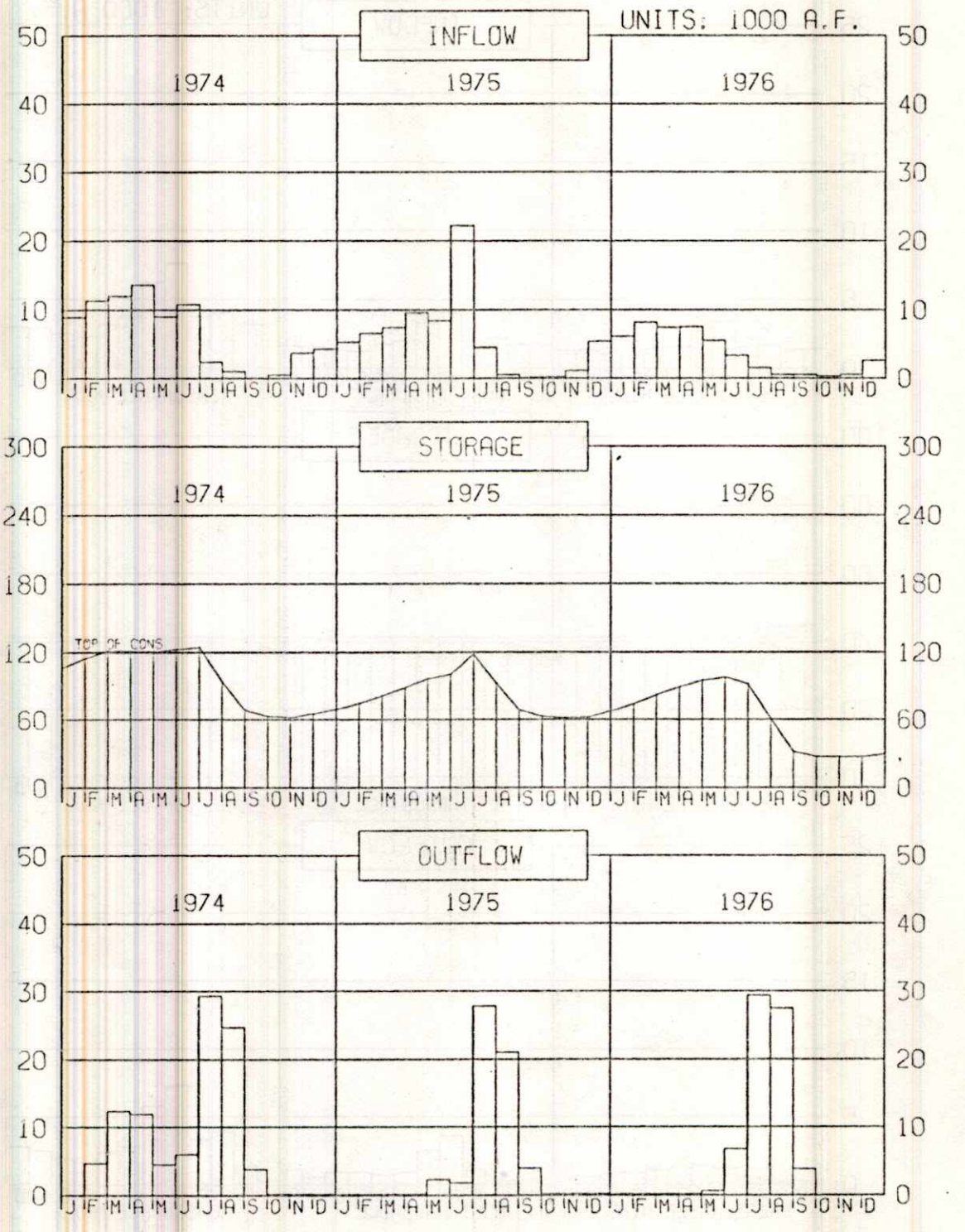
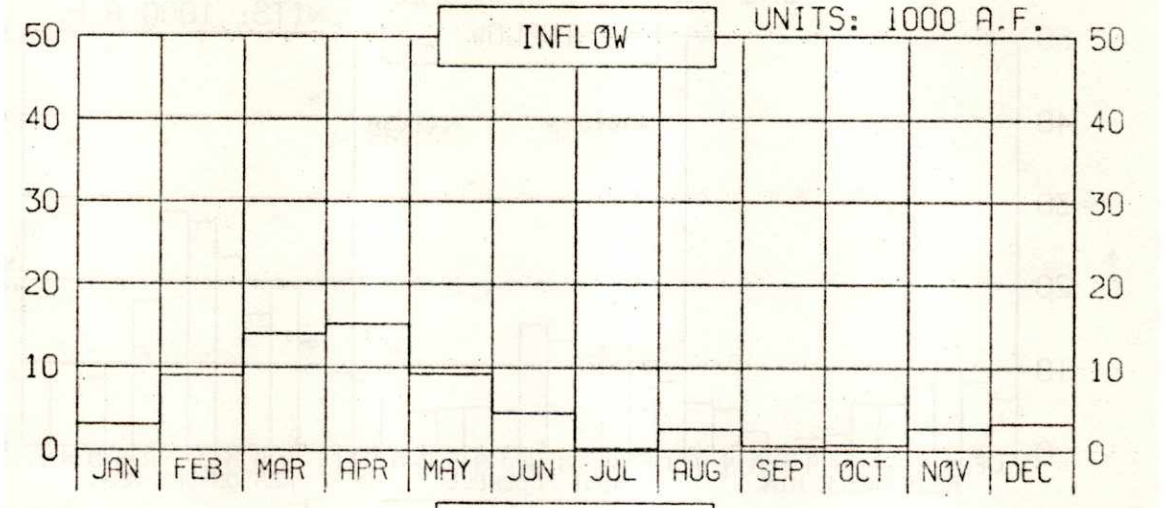
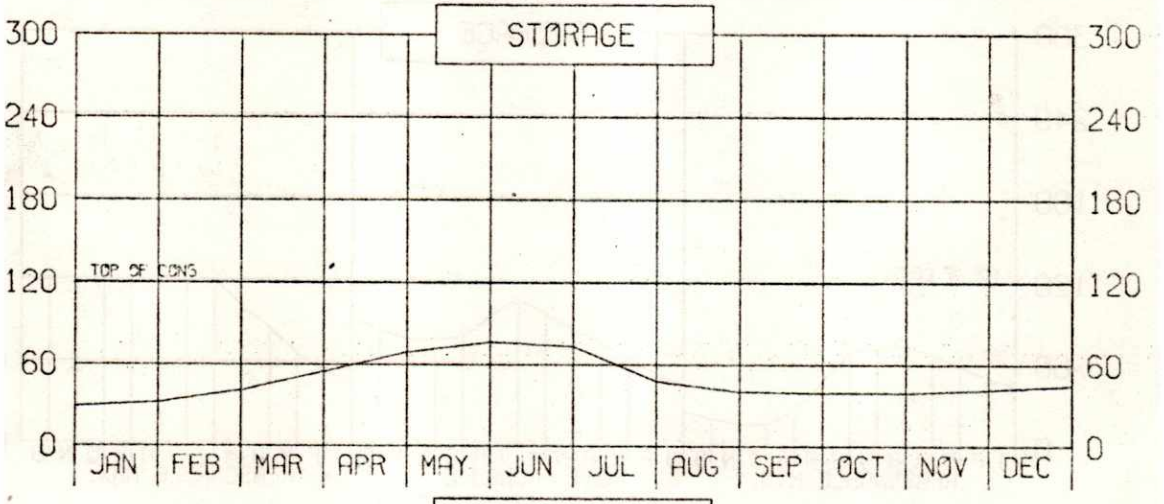


EXHIBIT 5B

SWANSON LAKE 1977 OPERATION





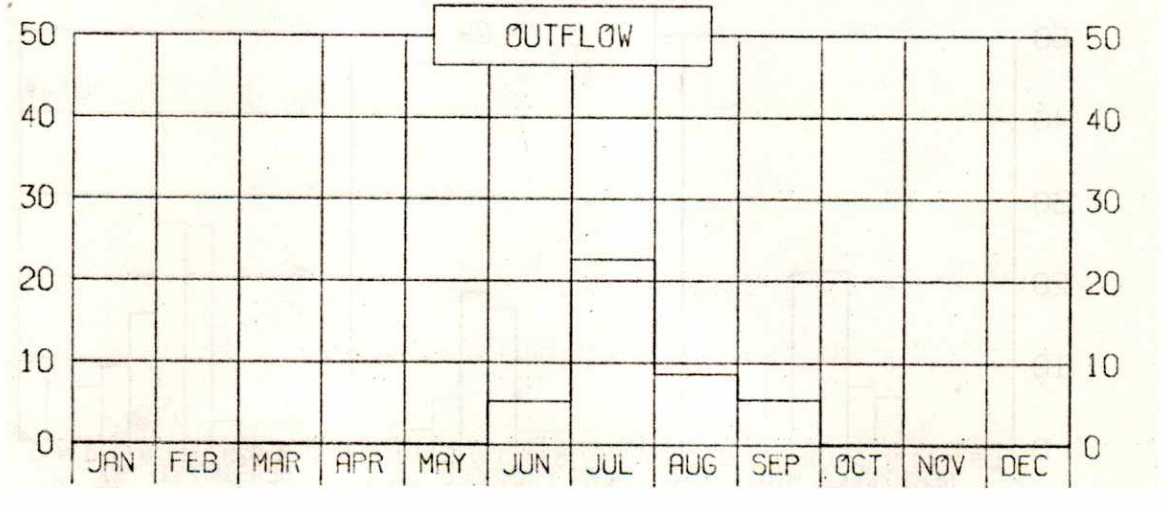


EXHIBIT 5C

SWANSON LAKE

CAL YEAR 1978 OPERATION PLAN

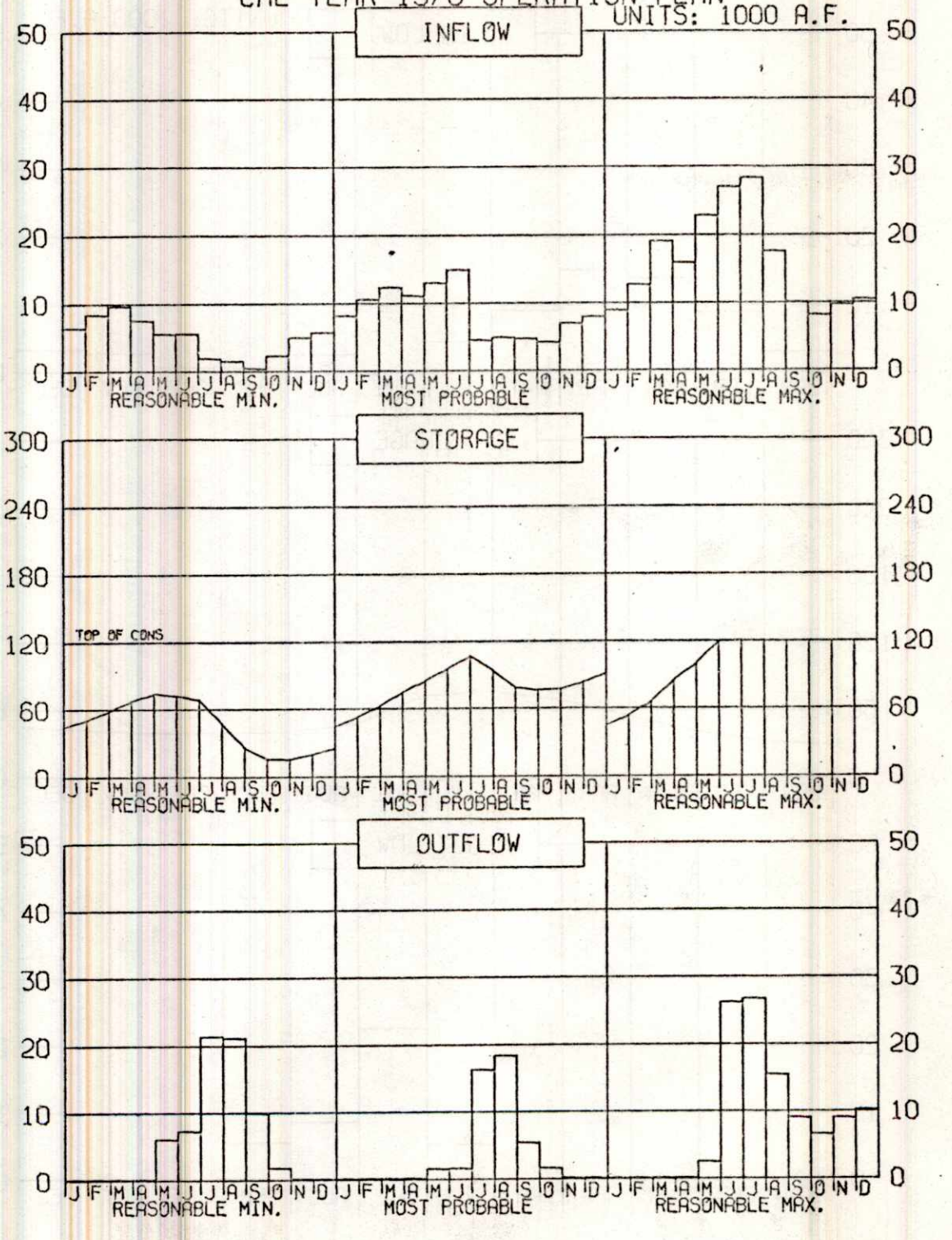


EXHIBIT 6A

ENDERS RESERVOIR OPERATION

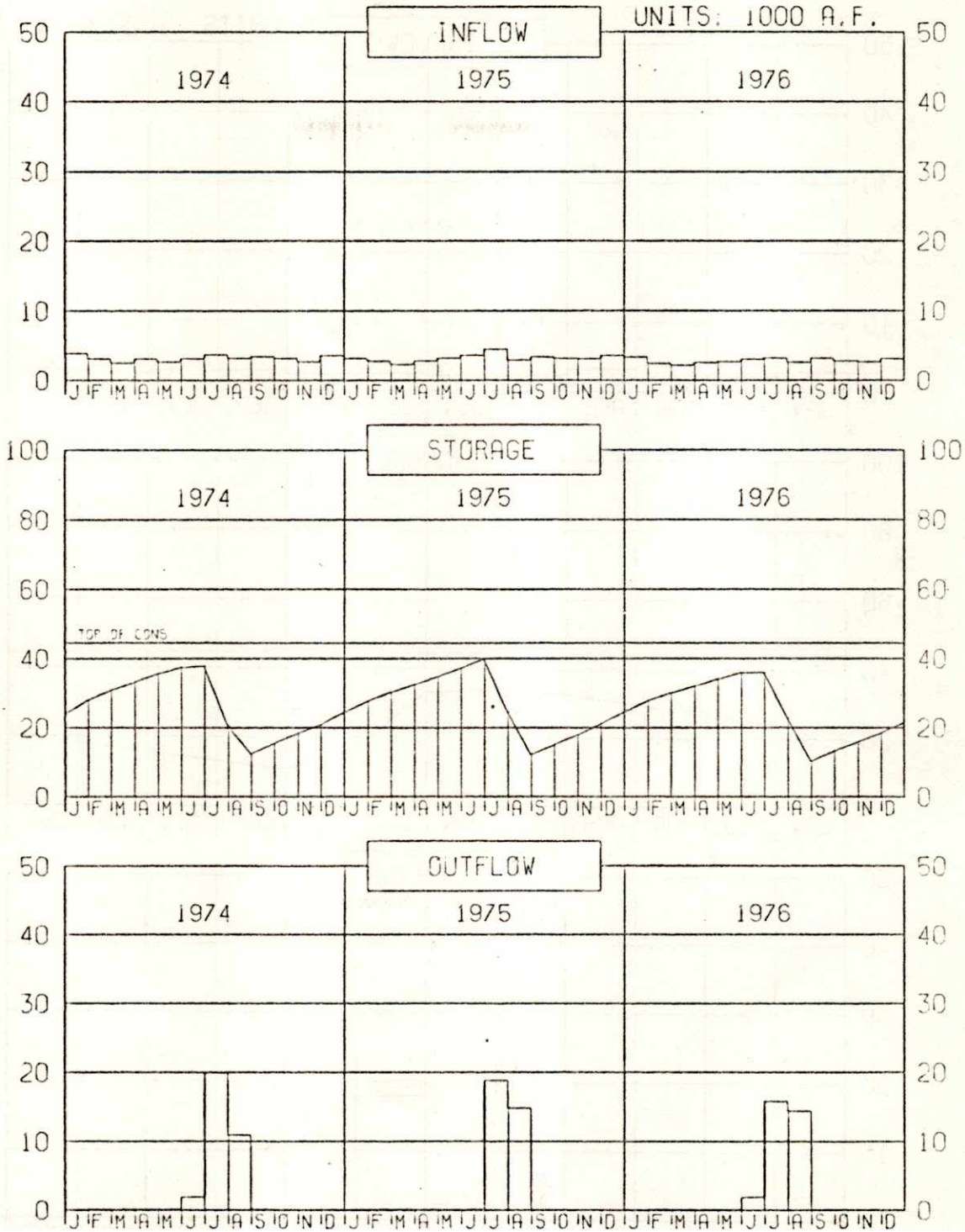


EXHIBIT 6B

ENDERS RESERVOIR 1977 OPERATION

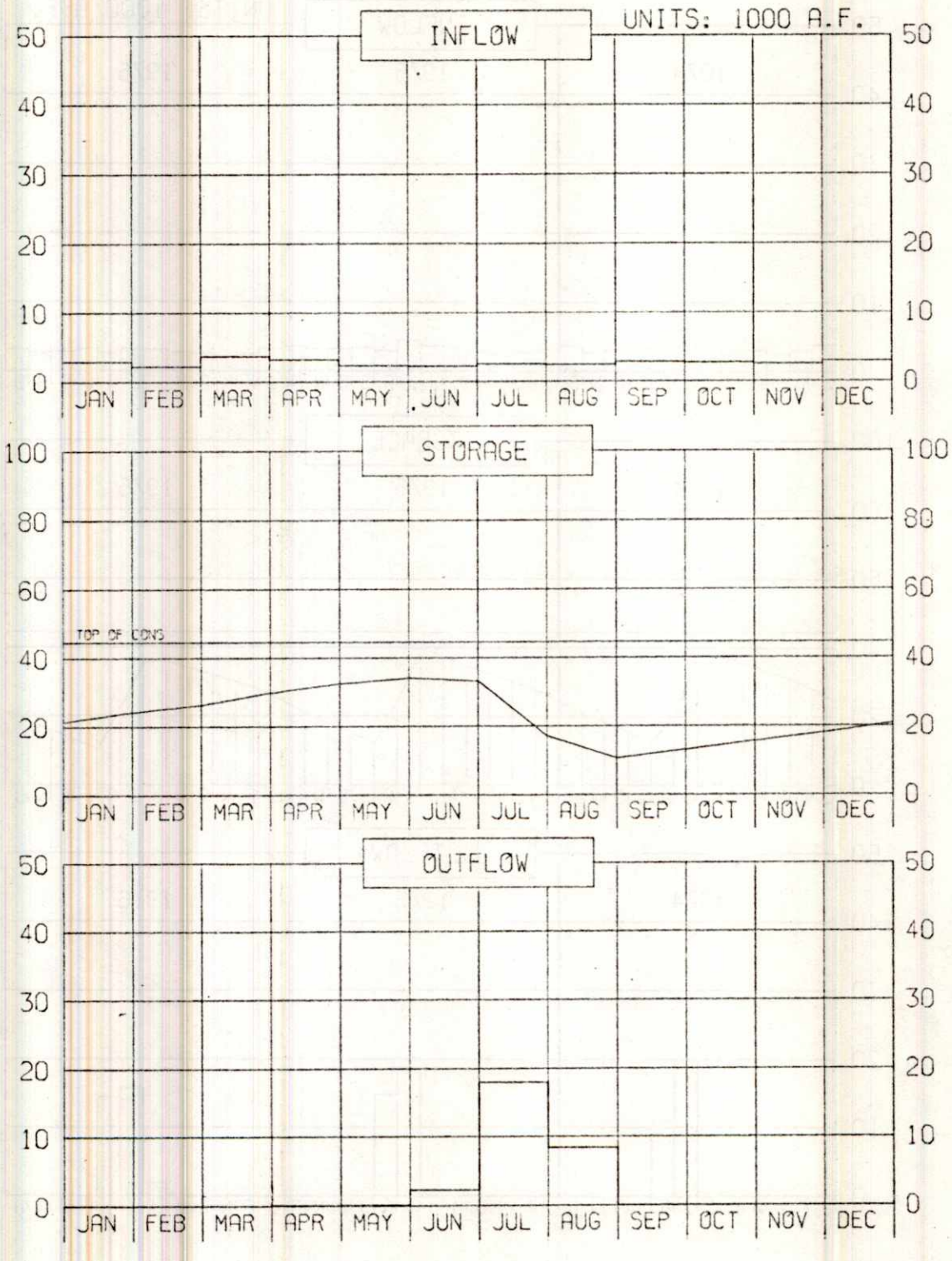


EXHIBIT 6C

ENDERS RESERVOIR

CAL YEAR 1978 OPERATION PLAN

UNITS: 1000 A.F.

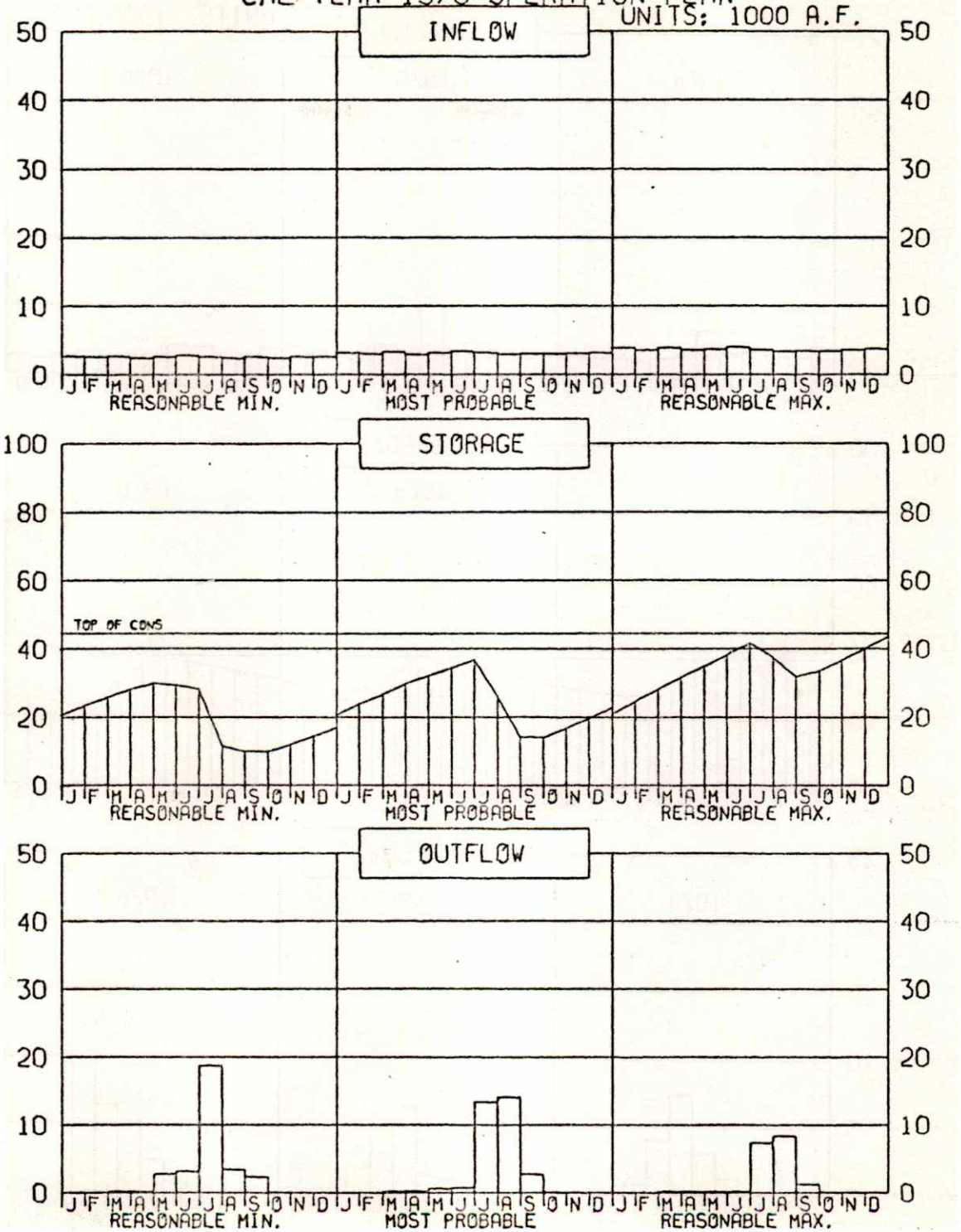


EXHIBIT 7A

HUGH BUTLER LAKE OPERATION

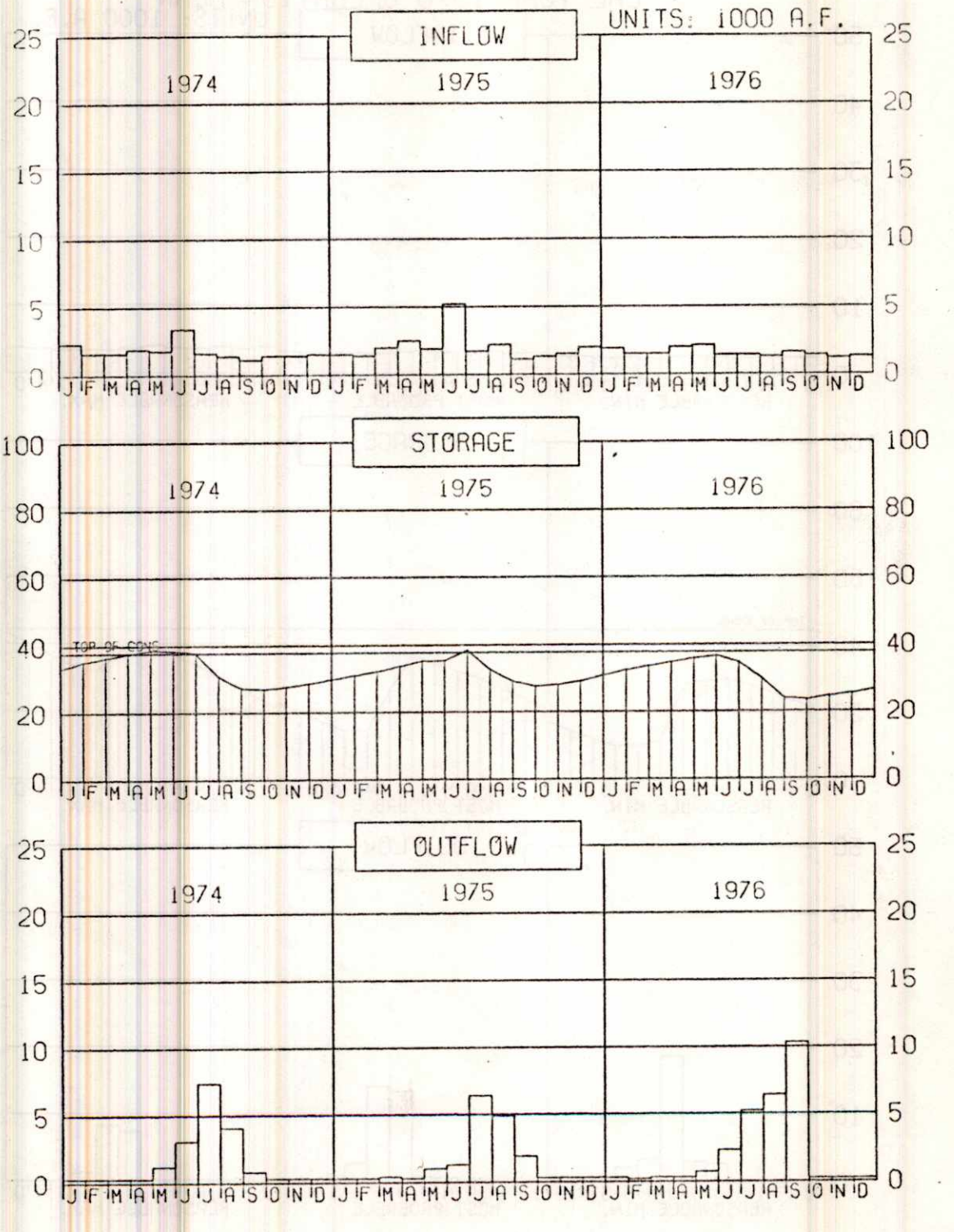


EXHIBIT 7B

HUGH BUTLER LAKE 1977 OPERATION

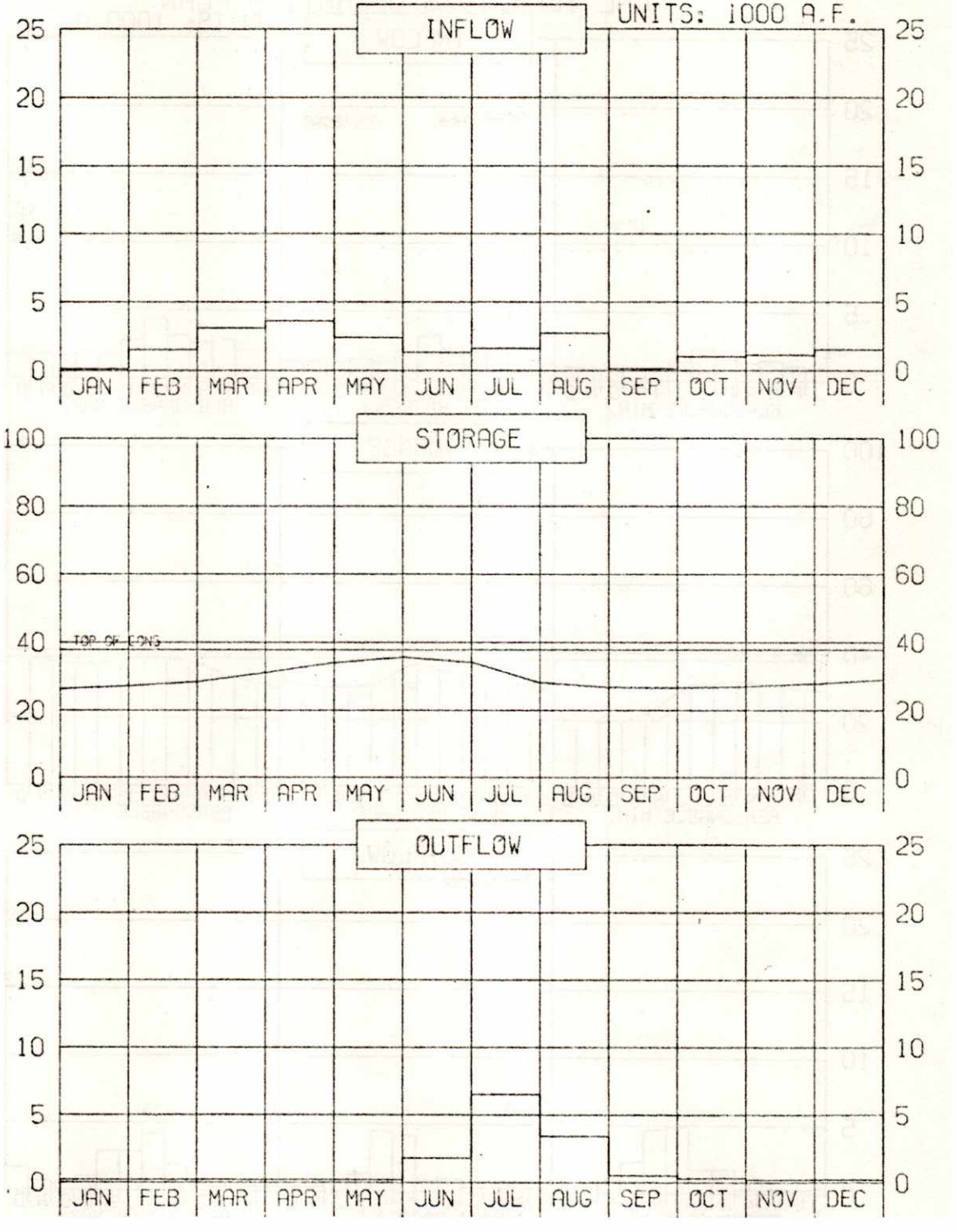


EXHIBIT 7C

HUGH BUTLER LAKE

CAL YEAR 1978 OPERATION PLAN

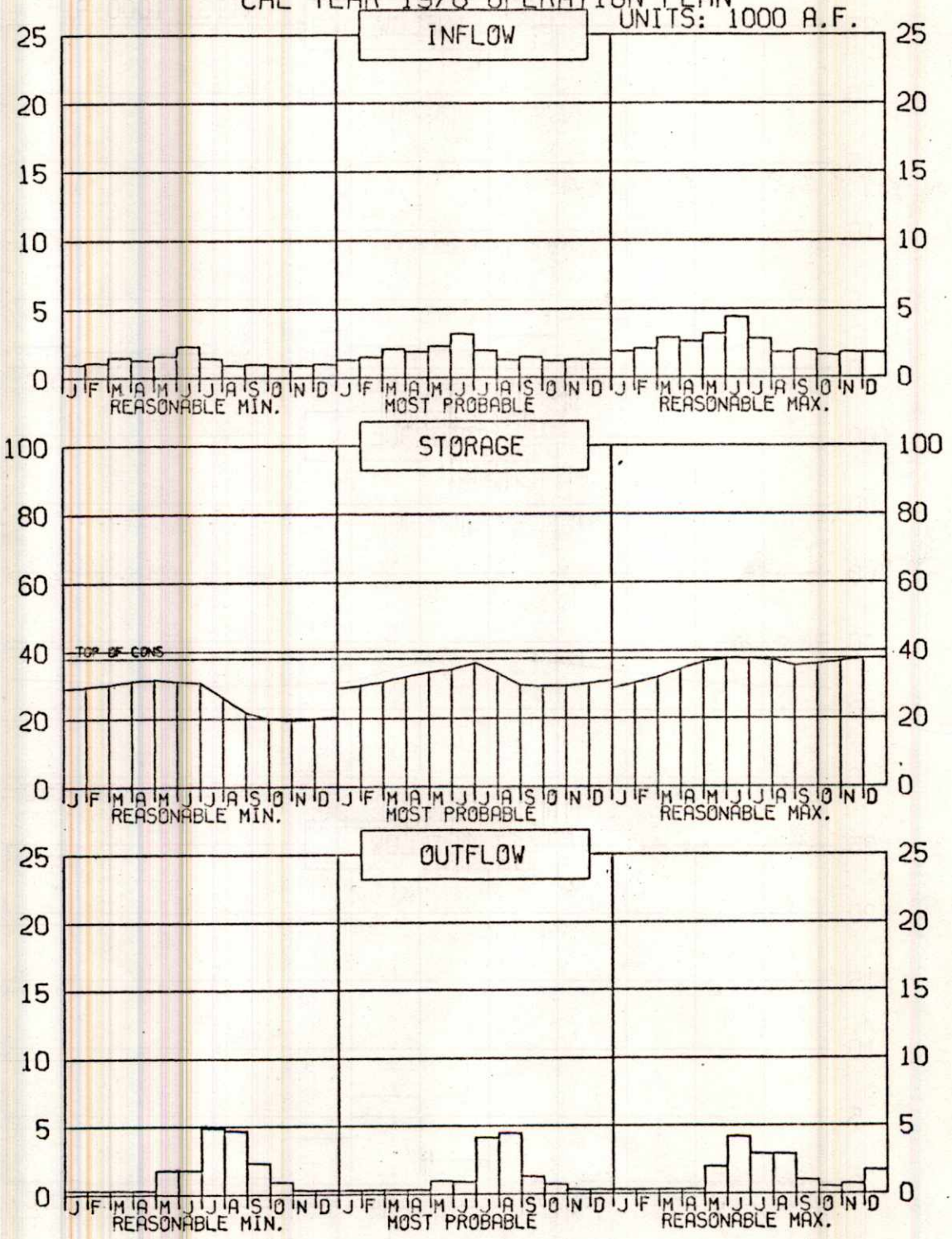


EXHIBIT 8A

HARRY STRUNK LAKE OPERATION

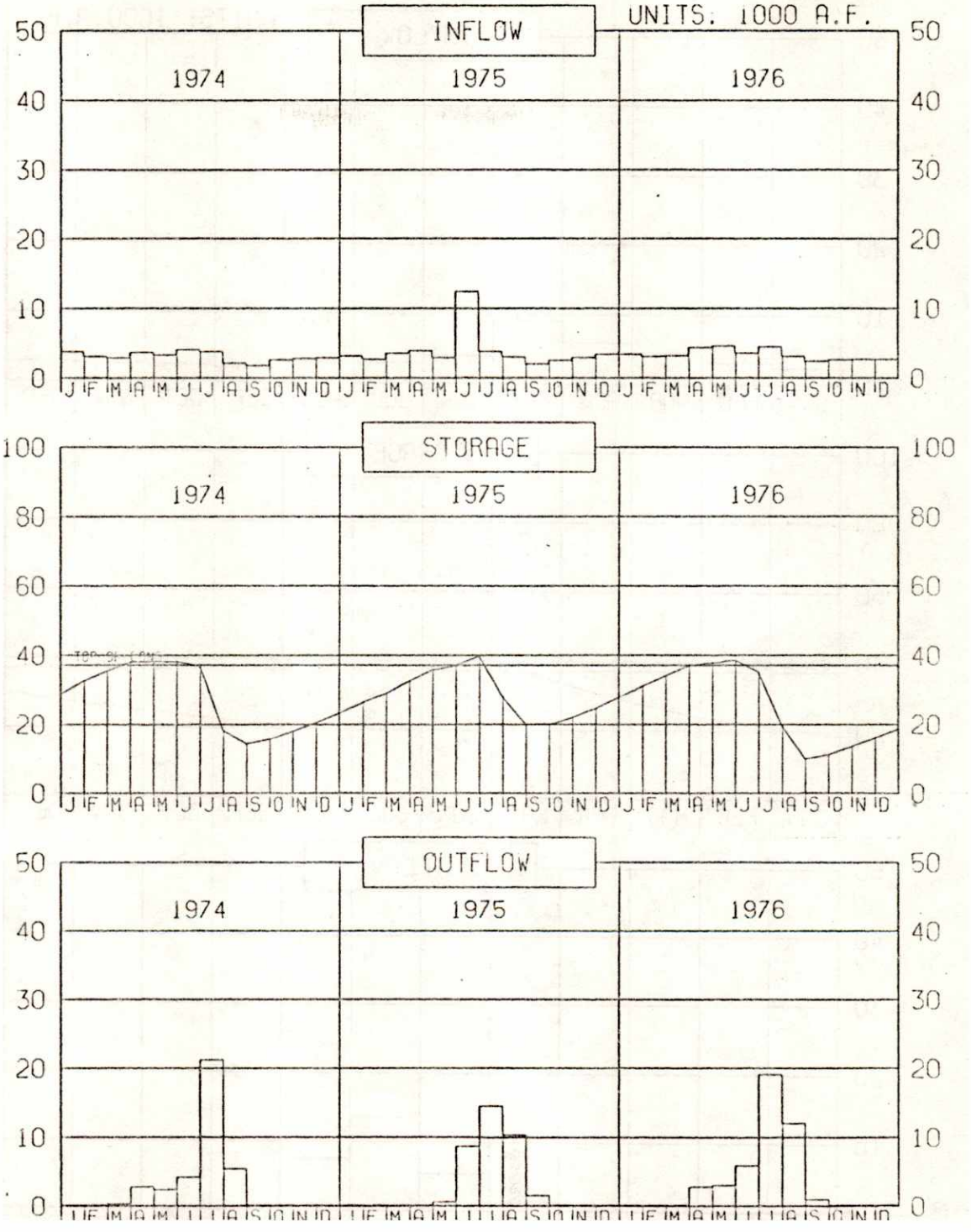


EXHIBIT 8B

HARRY STRUNK LAKE 1977 OPERATION

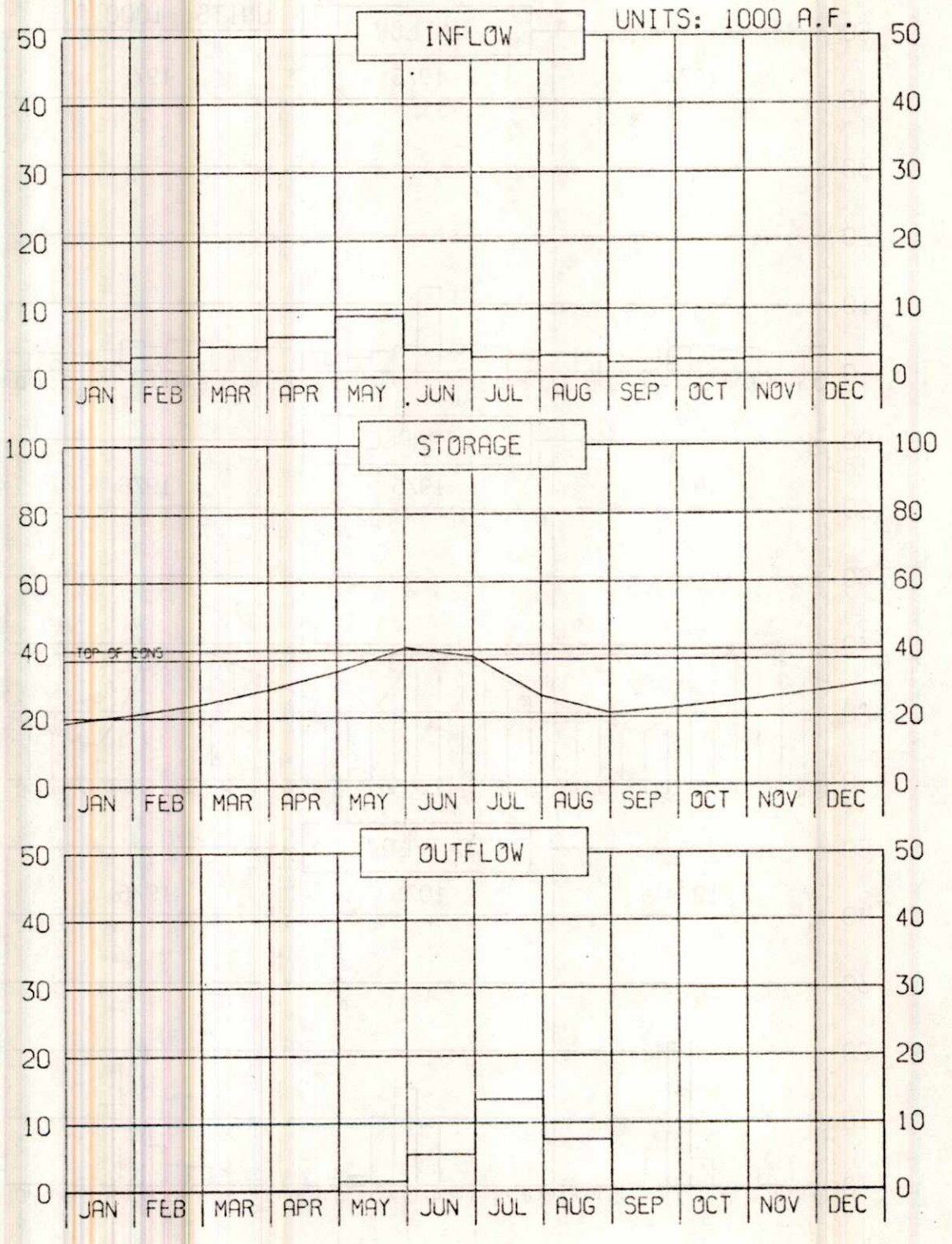


EXHIBIT 8C

HARRY STRUNK LAKE

CAL YEAR 1978 OPERATION PLAN

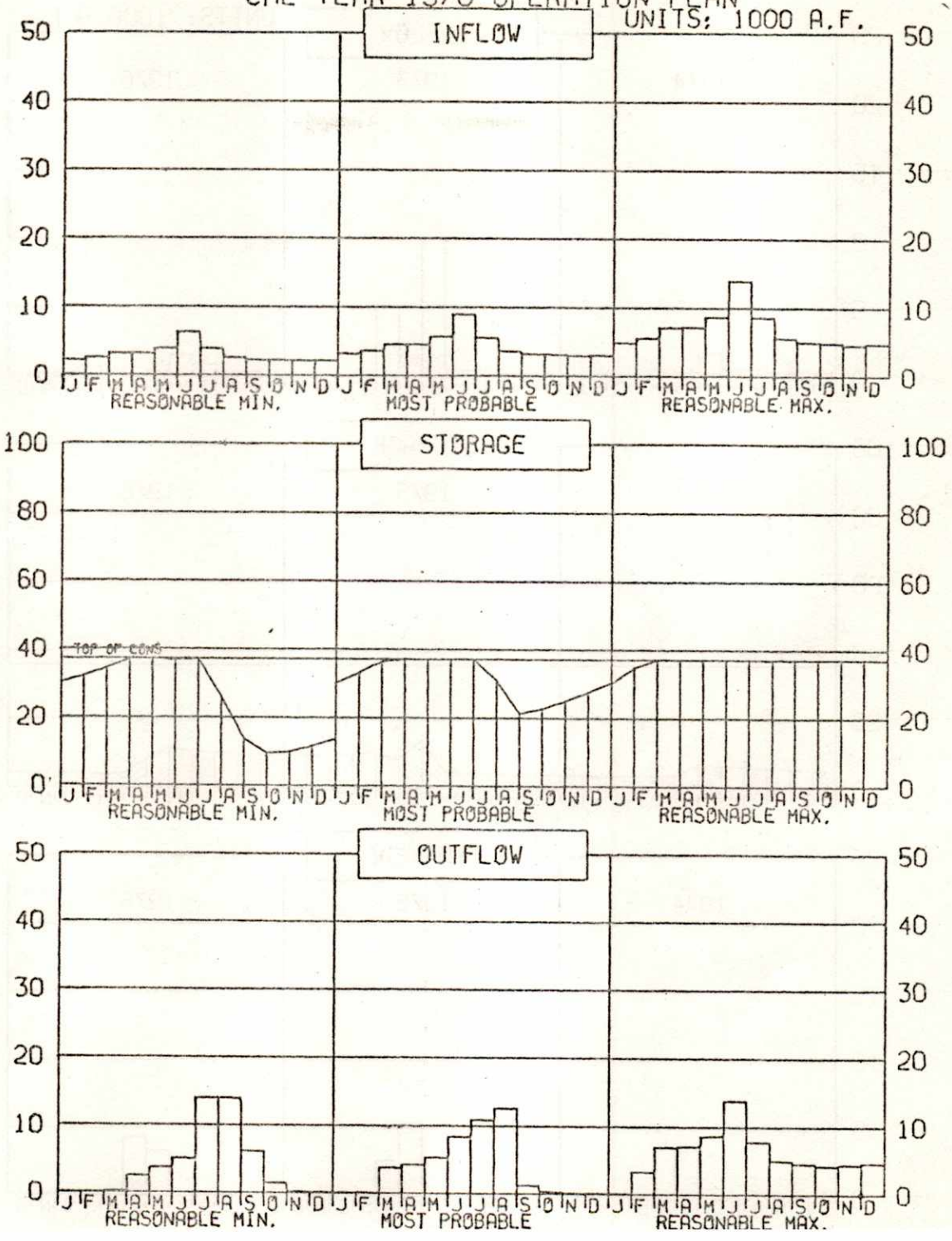


EXHIBIT 9A

NORTON RESERVOIR OPERATION

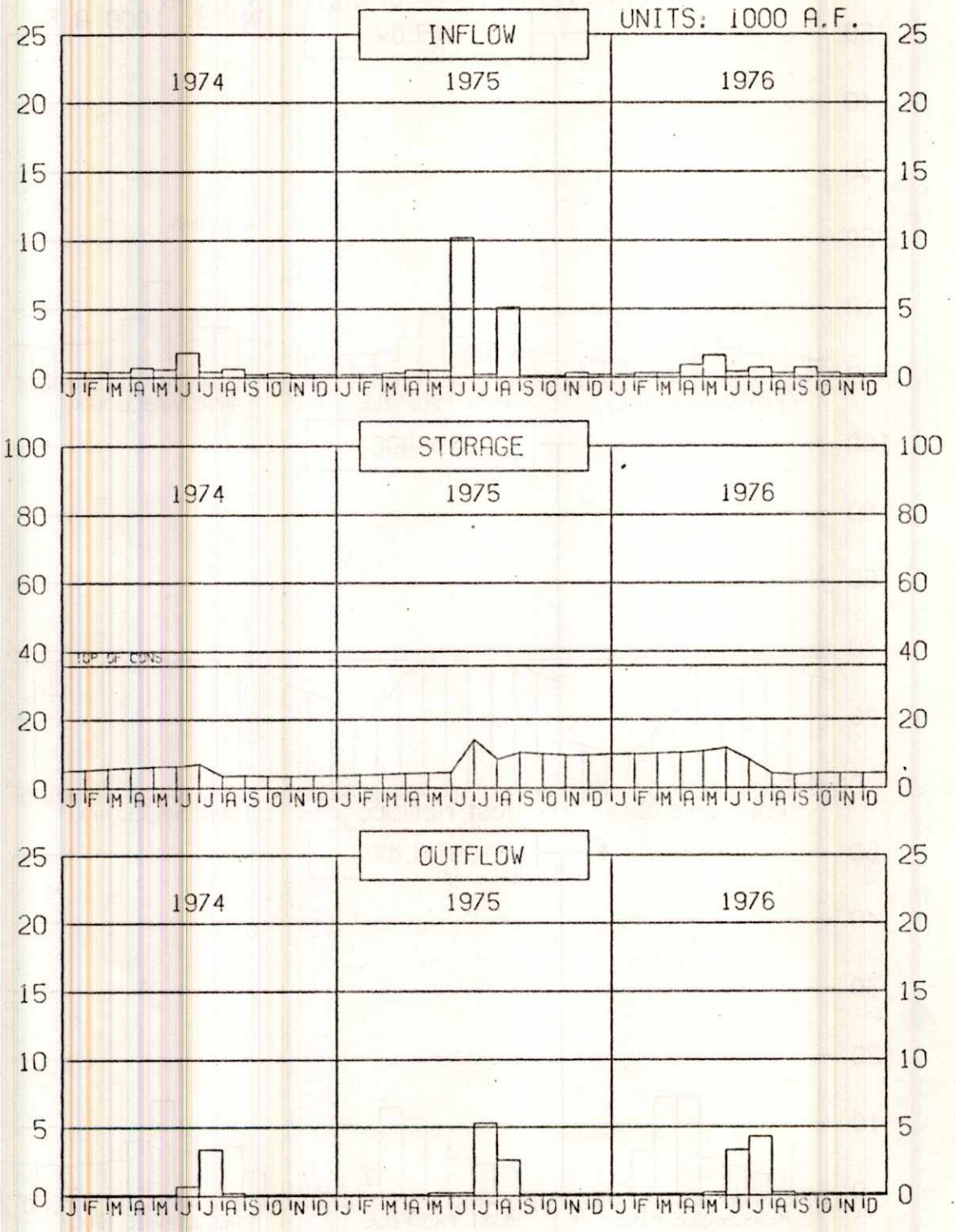


EXHIBIT 9B

NORTON RESERVOIR 1977 OPERATION

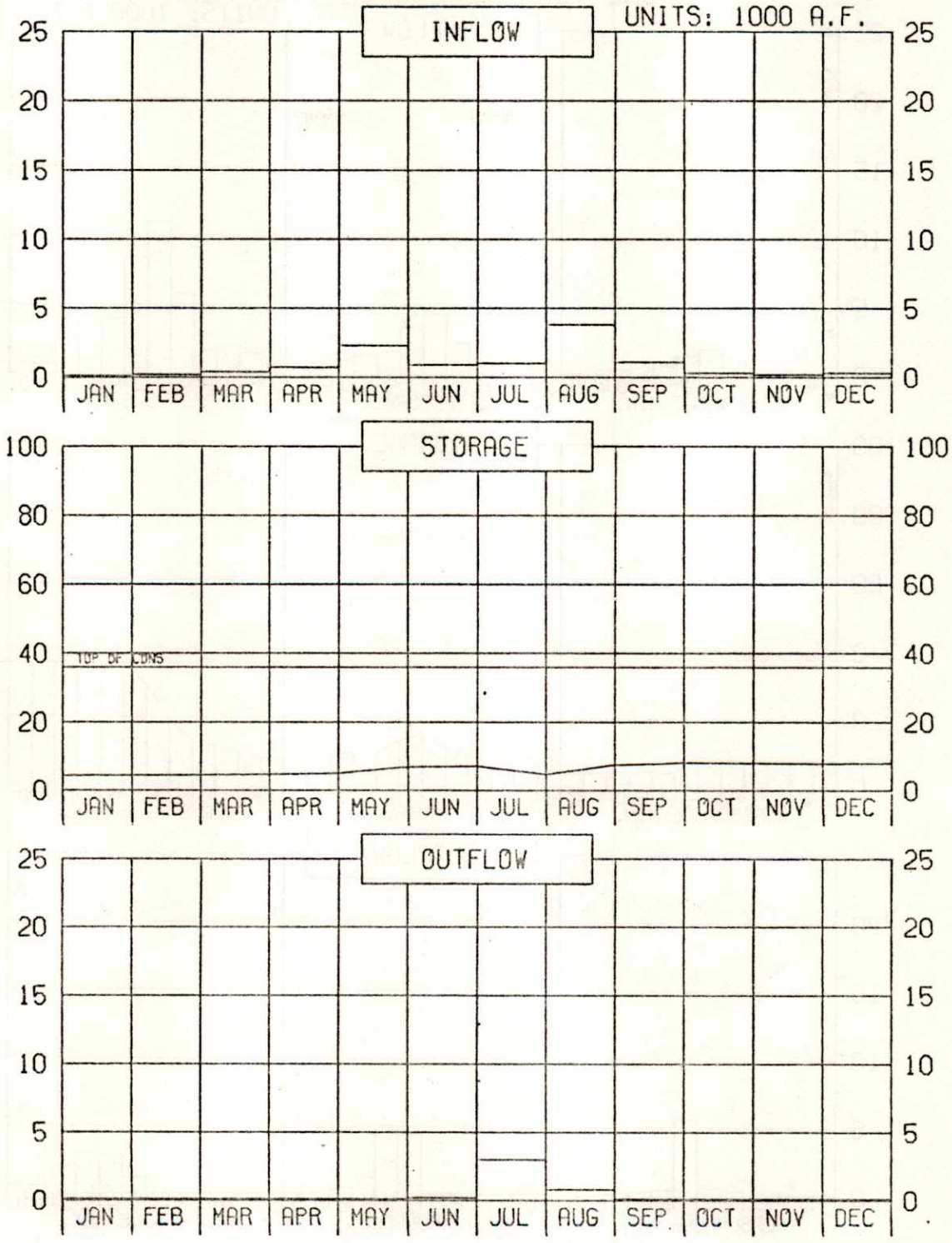


EXHIBIT 9C

NORTON RESERVOIR

CAL YEAR 1978 OPERATION PLAN

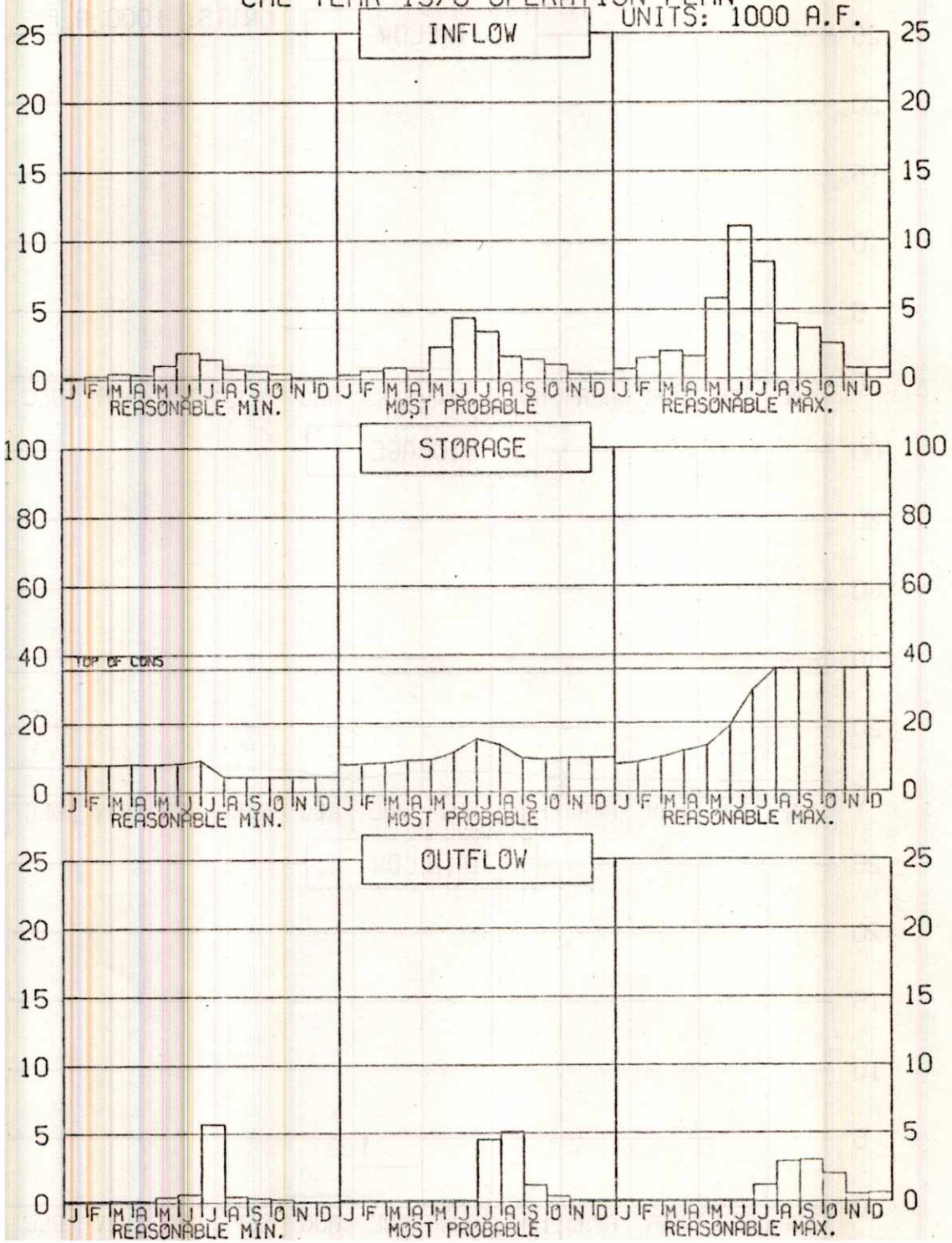


EXHIBIT 10A

HARLAN COUNTY LAKE OPERATION

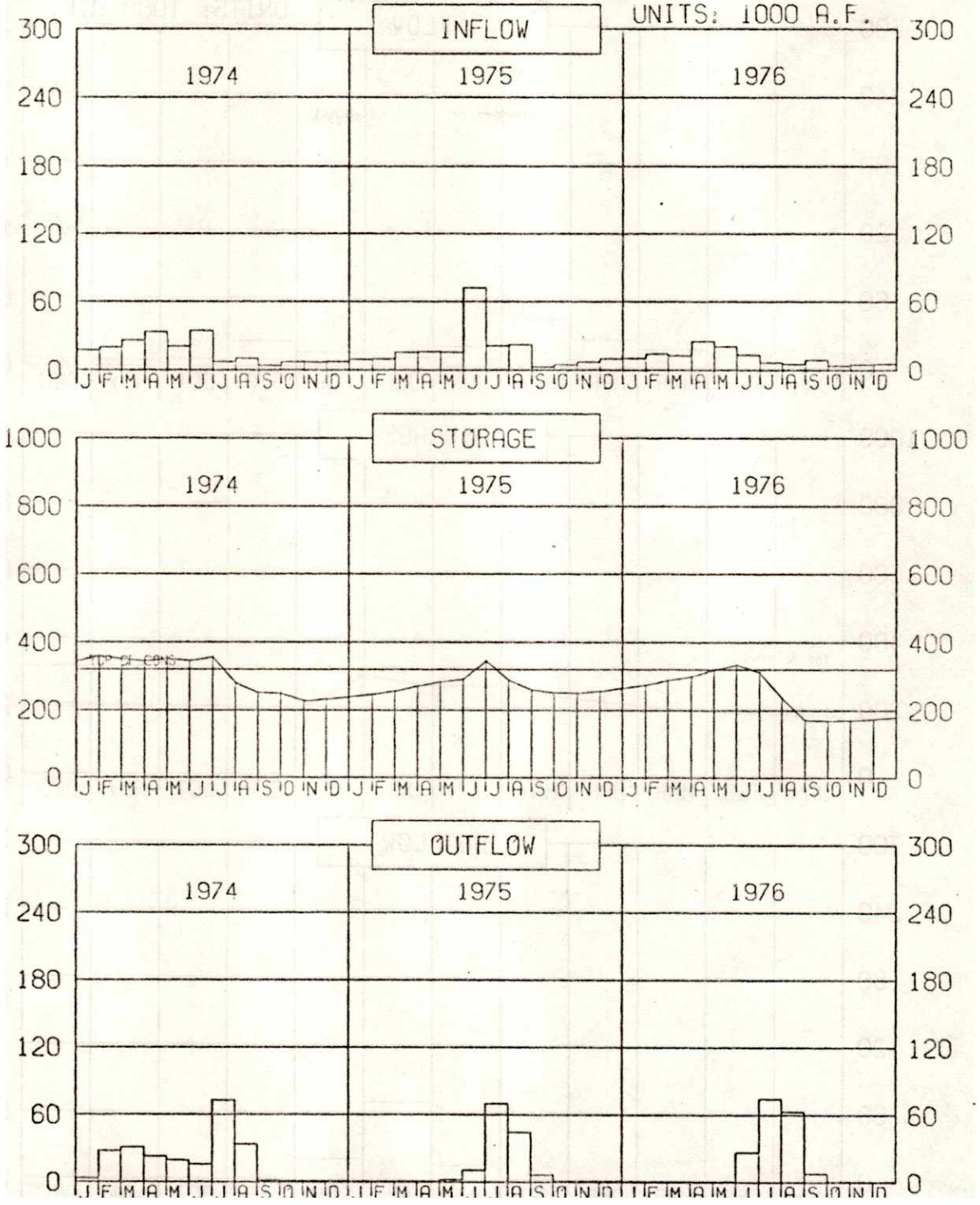


EXHIBIT 10B

HARLAN COUNTY LAKE 1977 OPERATION

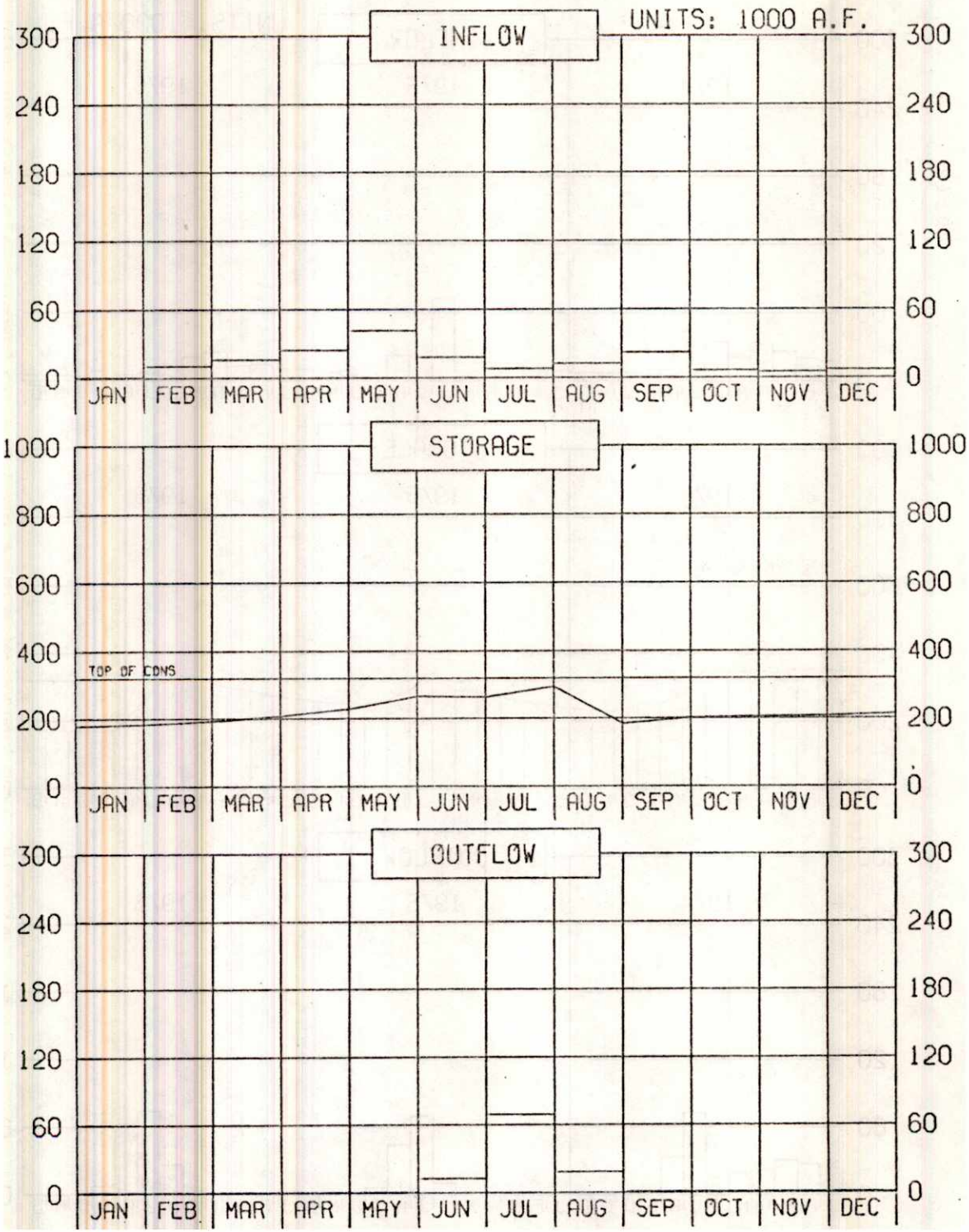


EXHIBIT 10C

HARLAN COUNTY LAKE

CAL YEAR 1978 OPERATION PLAN

UNITS: 1000 A.F.

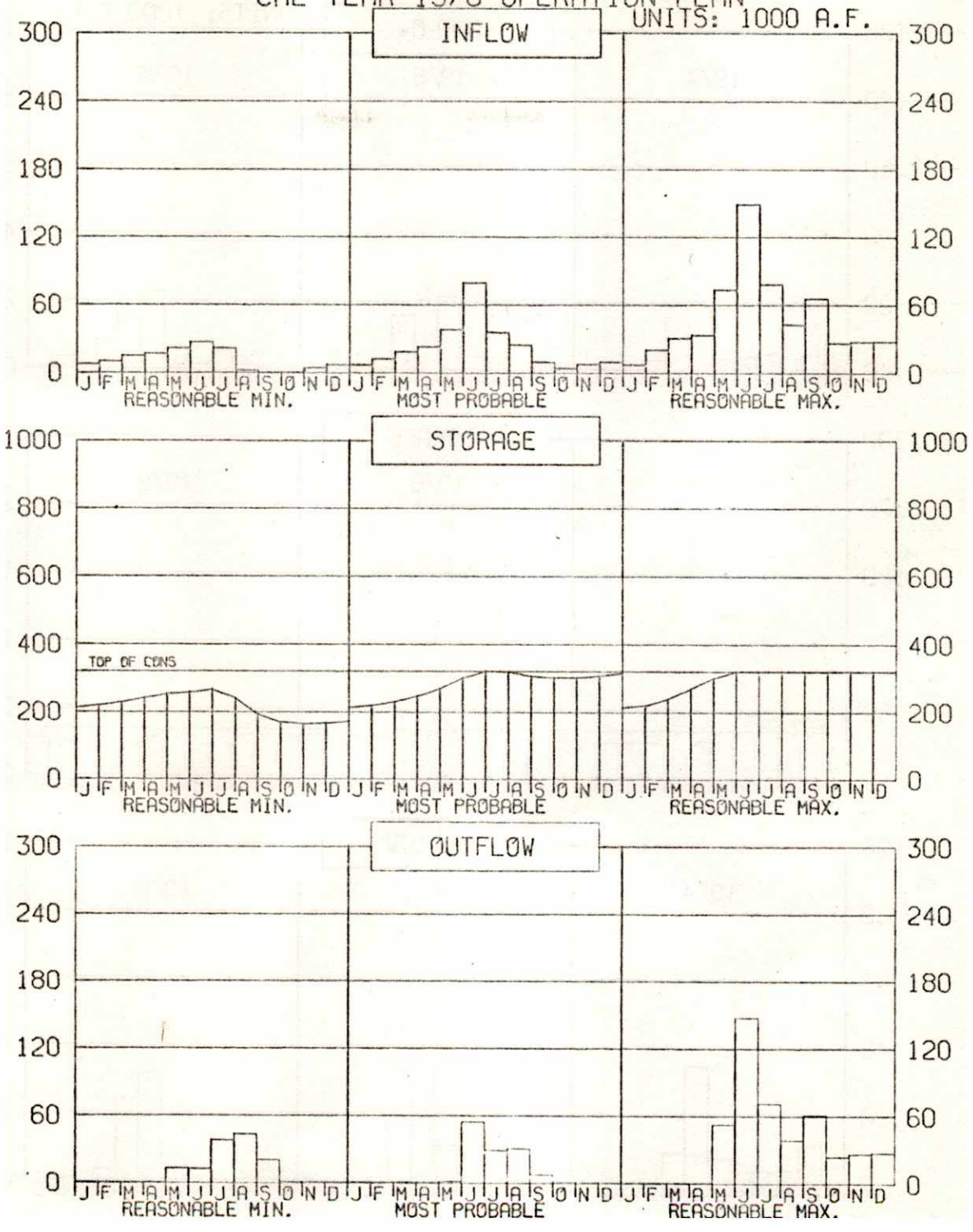


EXHIBIT 11A

LOVEWELL RESERVOIR OPERATION

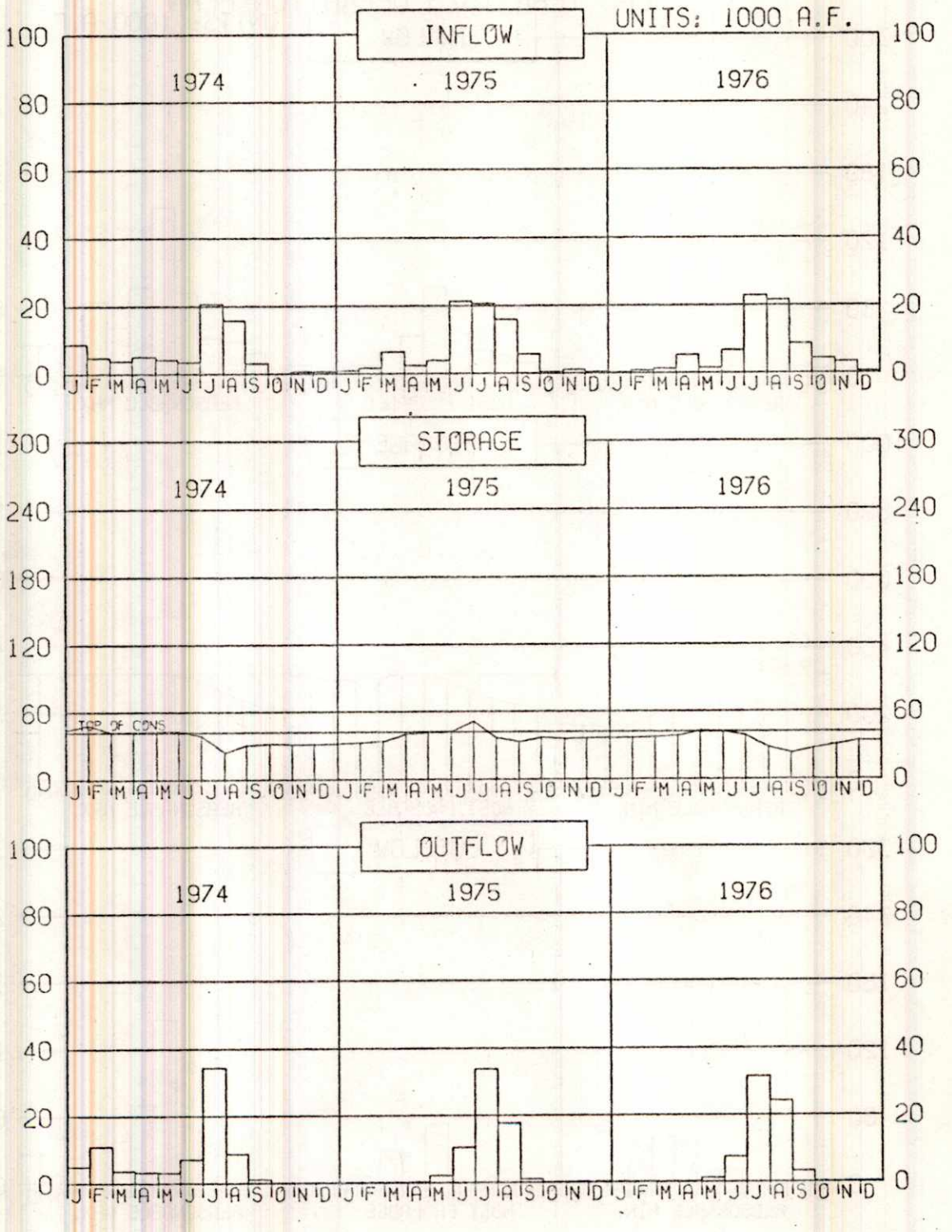


EXHIBIT 11B

LØVEWELL RESERVØIR 1977 ØPERATIØN

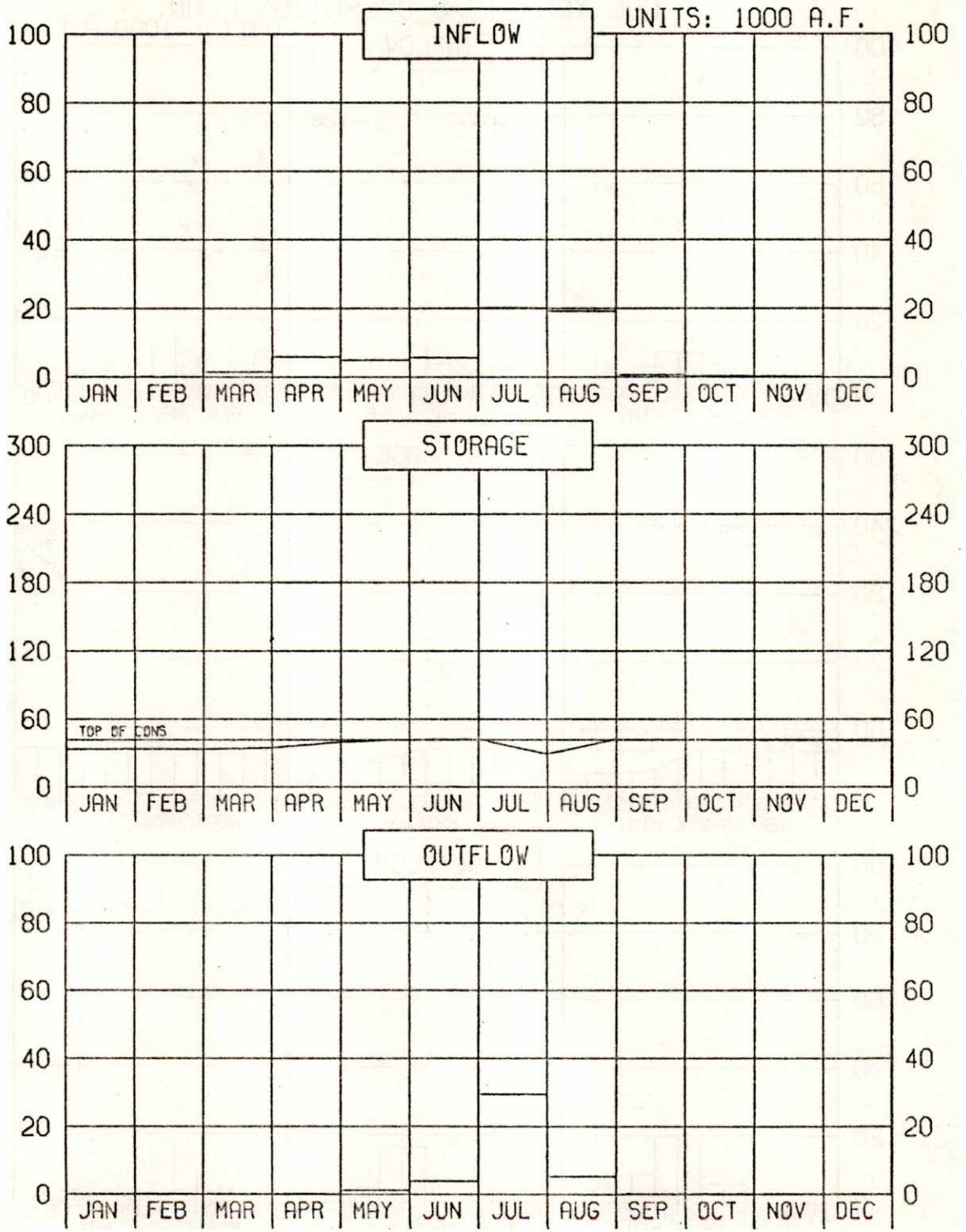


EXHIBIT 11C

LOVEWELL RESERVOIR

CAL YEAR 1978 OPERATION PLAN

UNITS: 1000 A.F.

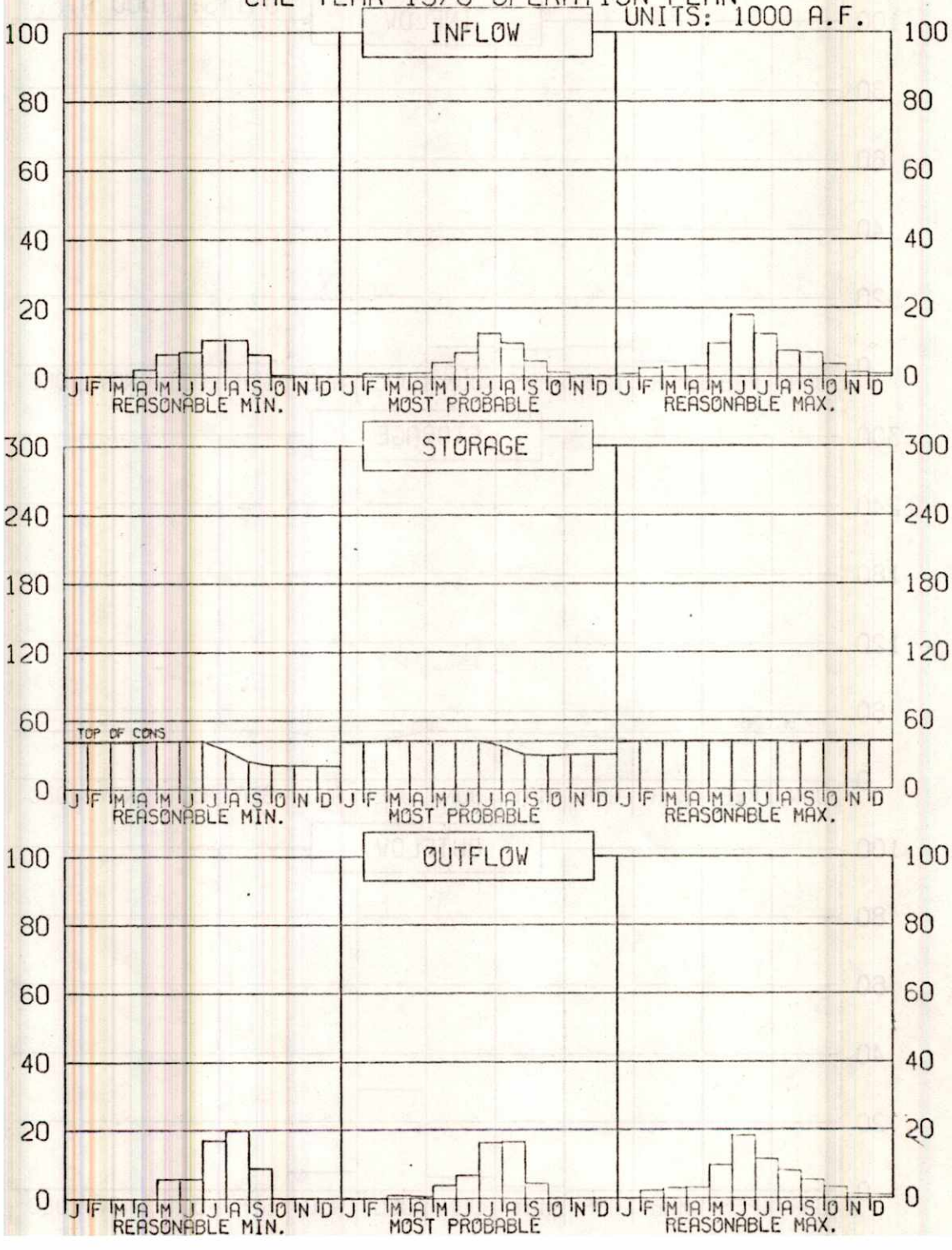


EXHIBIT 12A

KIRWIN RESERVOIR OPERATION

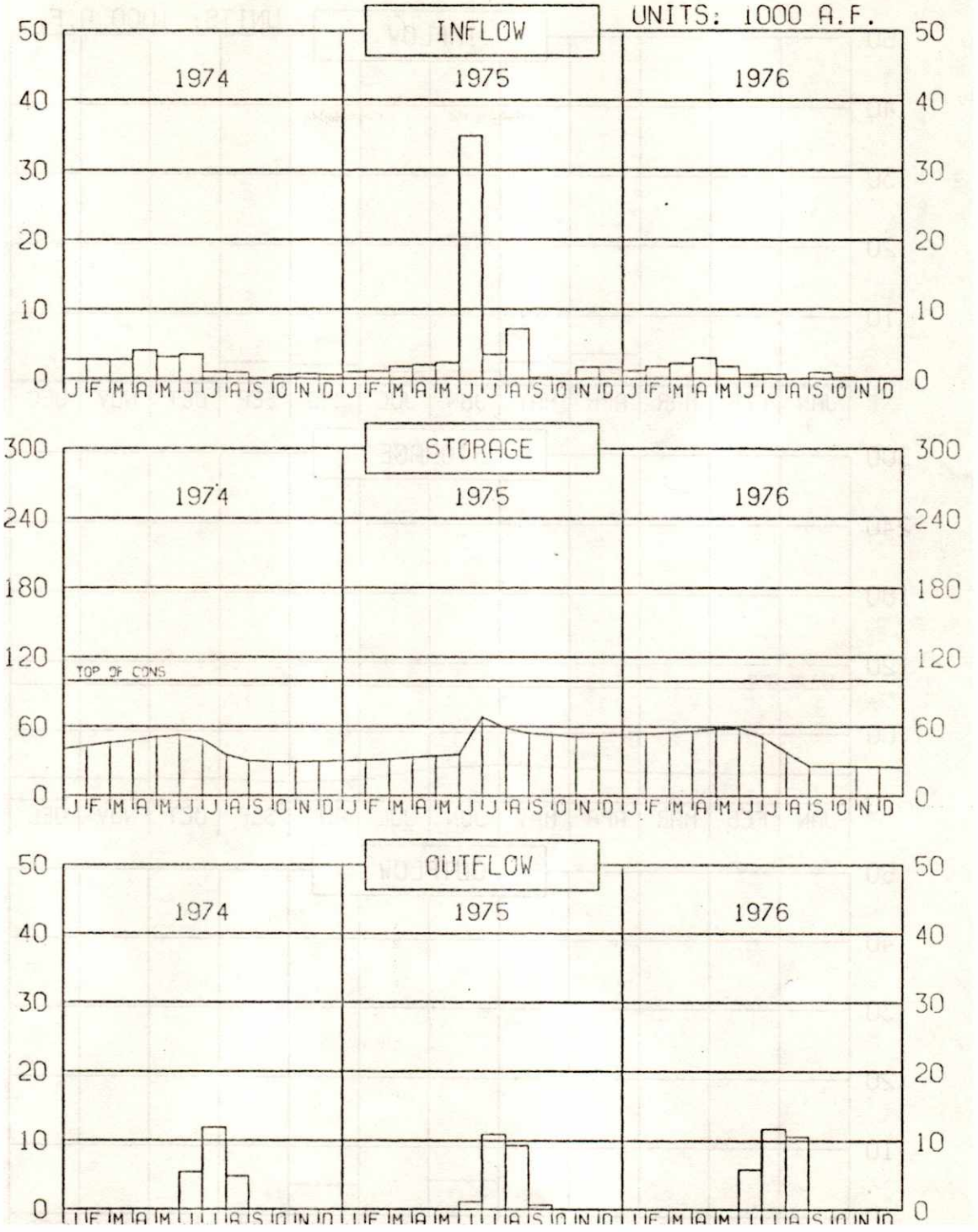


EXHIBIT 12B

KIRWIN RESERVOIR 1977 OPERATION

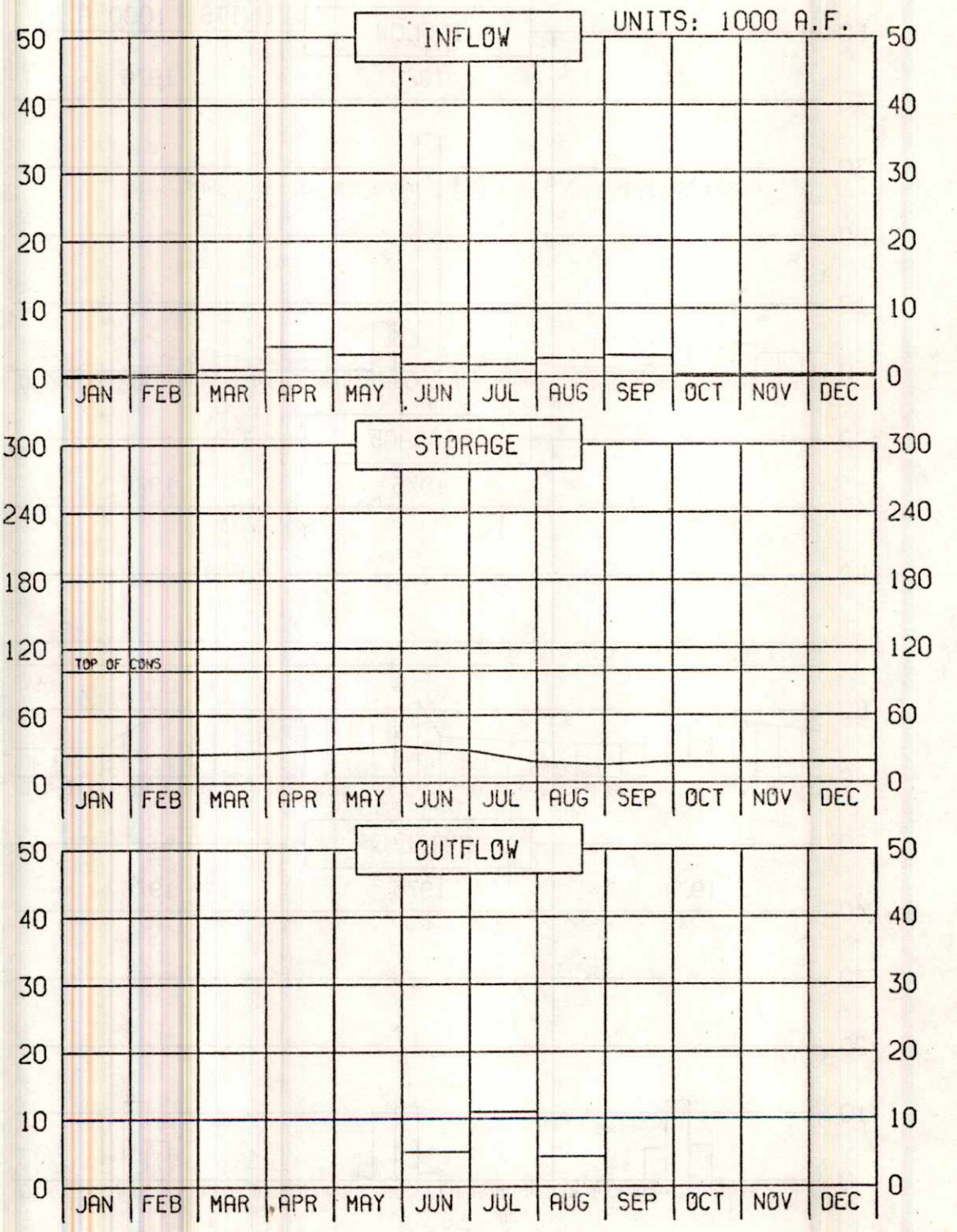
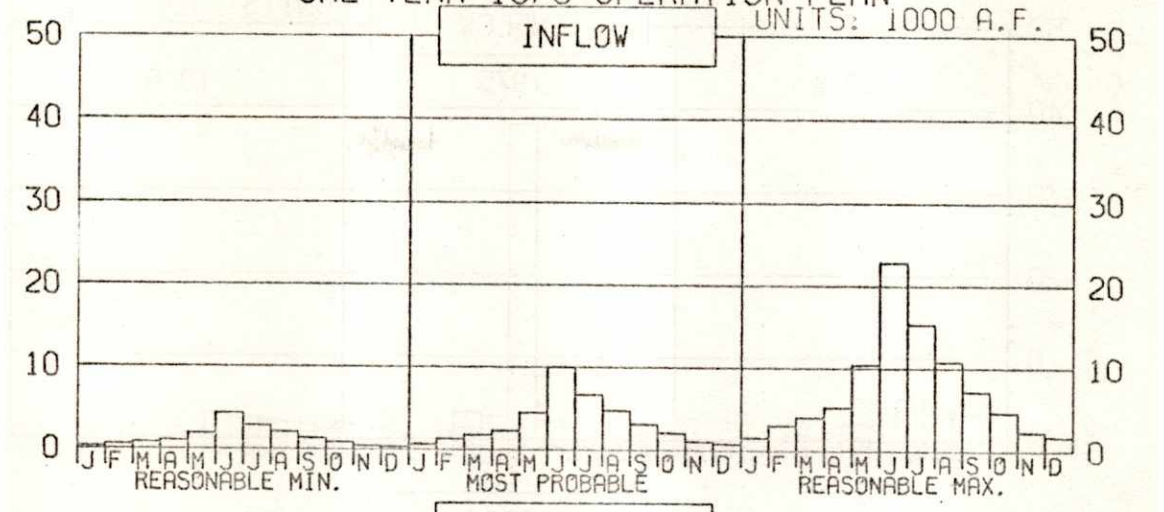
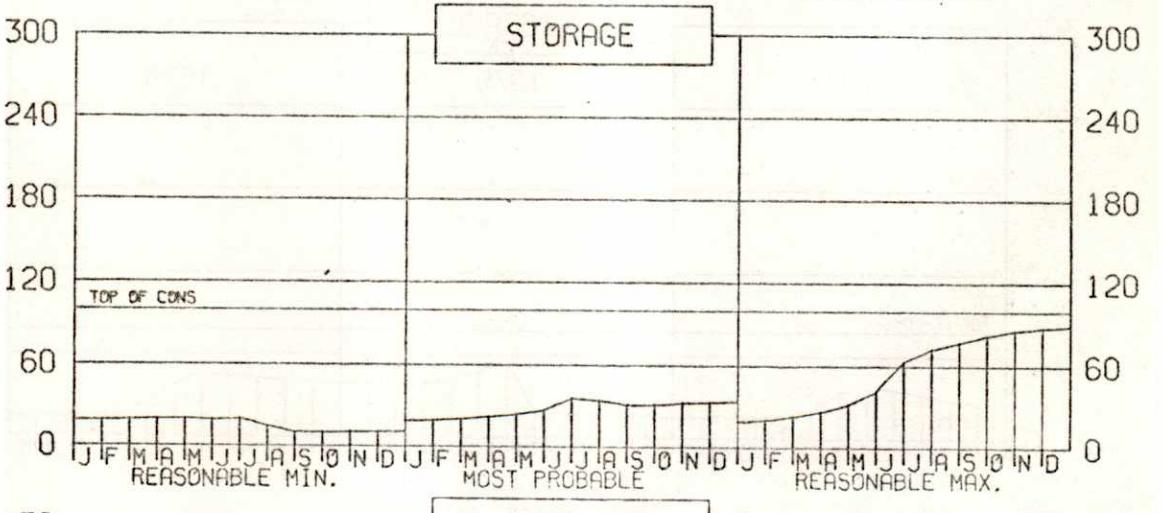


EXHIBIT 12C

KIRWIN RESERVOIR

CAL YEAR 1978 OPERATION PLAN





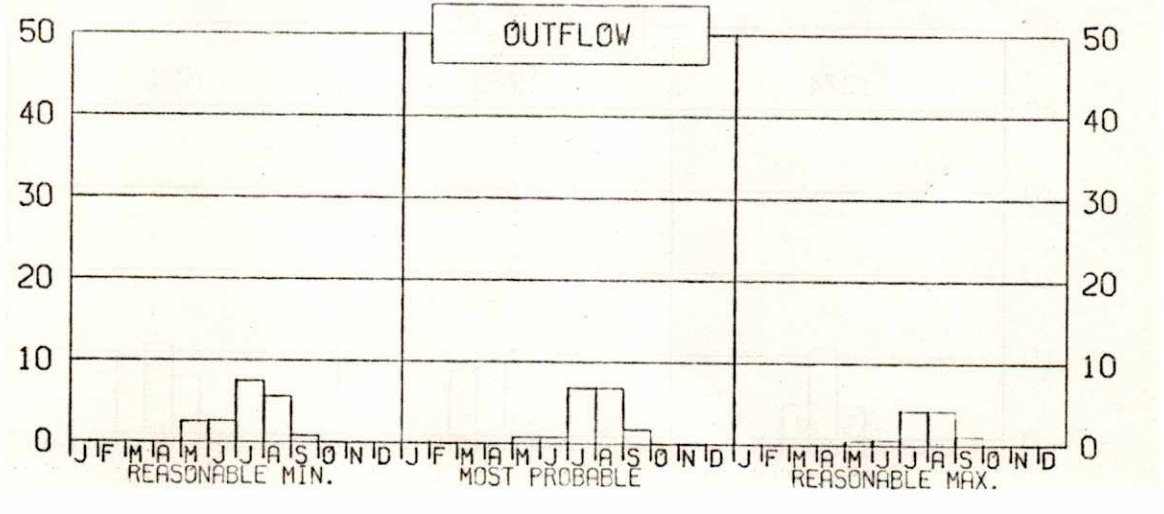


EXHIBIT 13A

WEBSTER RESERVOIR OPERATION

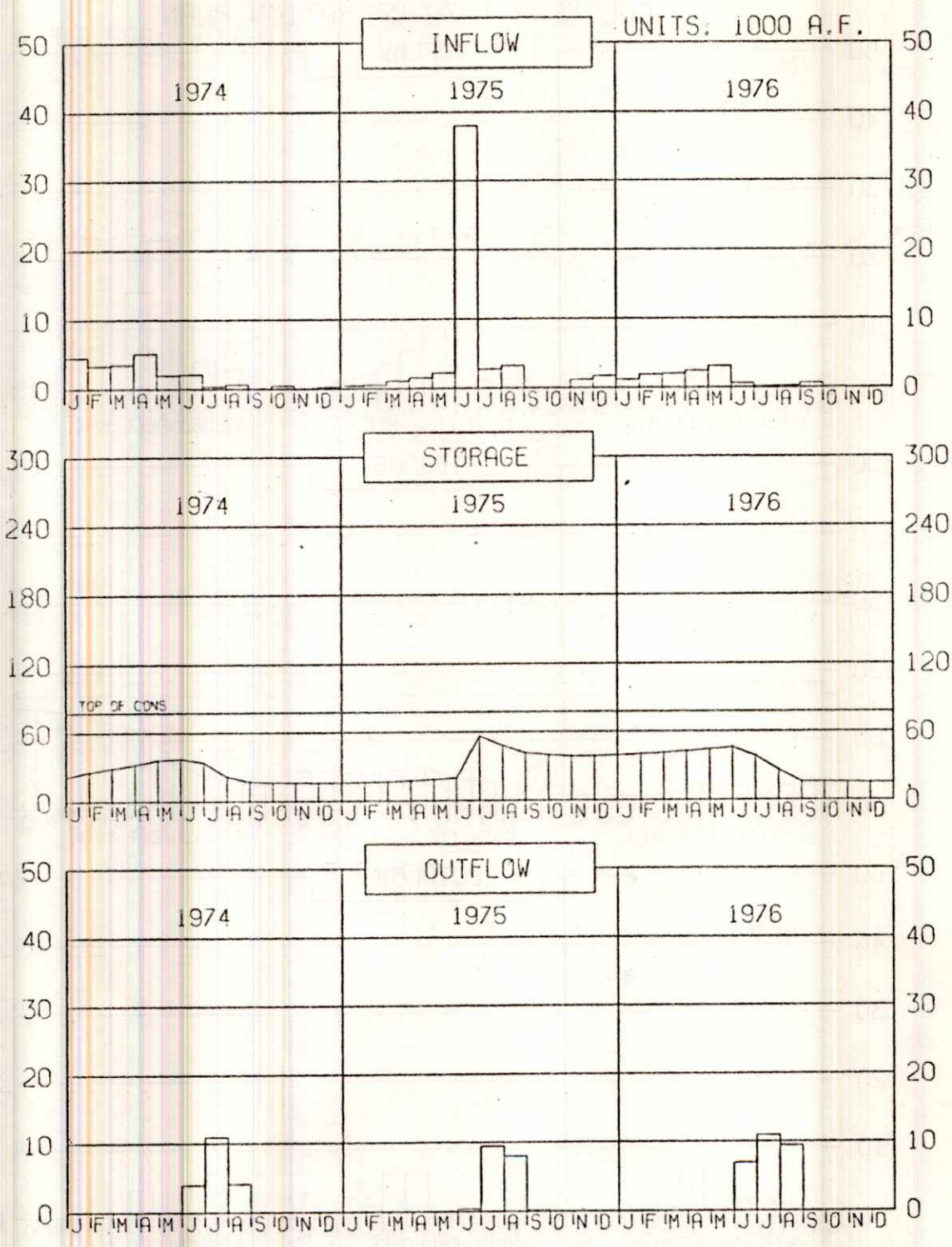


EXHIBIT 13B

WEBSTER RESERVOIR 1977 OPERATION

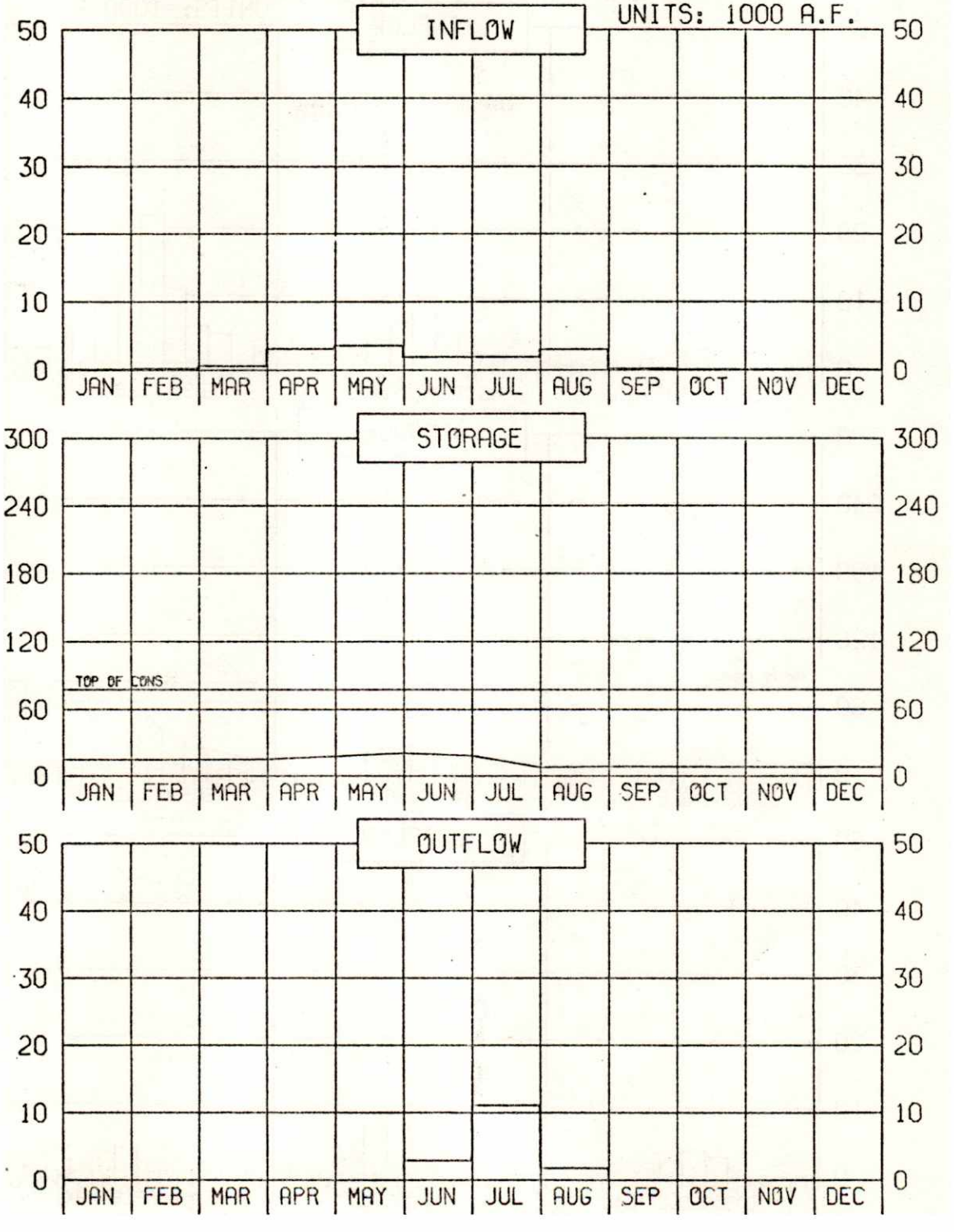


EXHIBIT 13C

WEBSTER RESERVOIR

CAL YEAR 1978 OPERATION PLAN

UNITS: 1000 A.F.

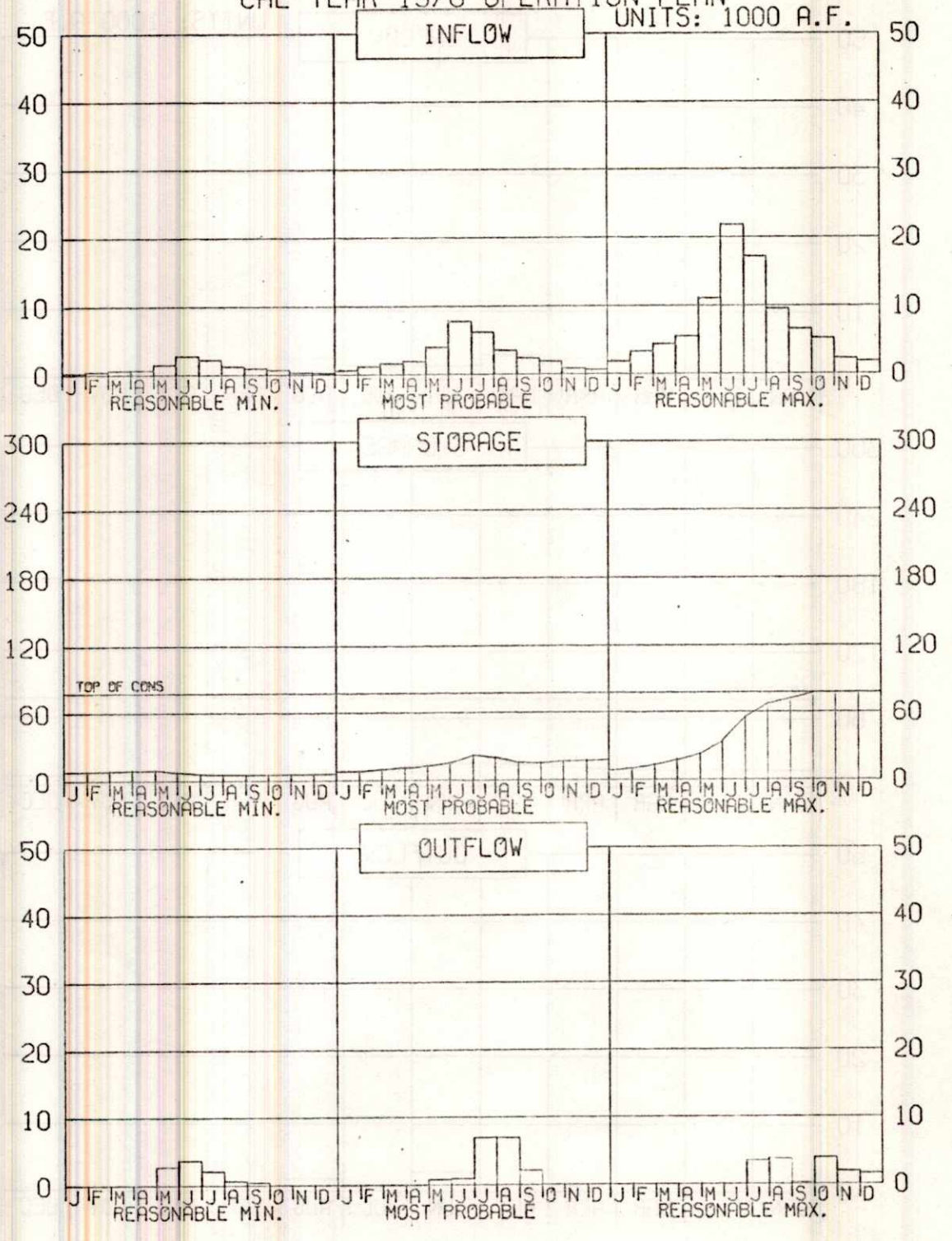


EXHIBIT 14A

WACONDA LAKE OPERATION

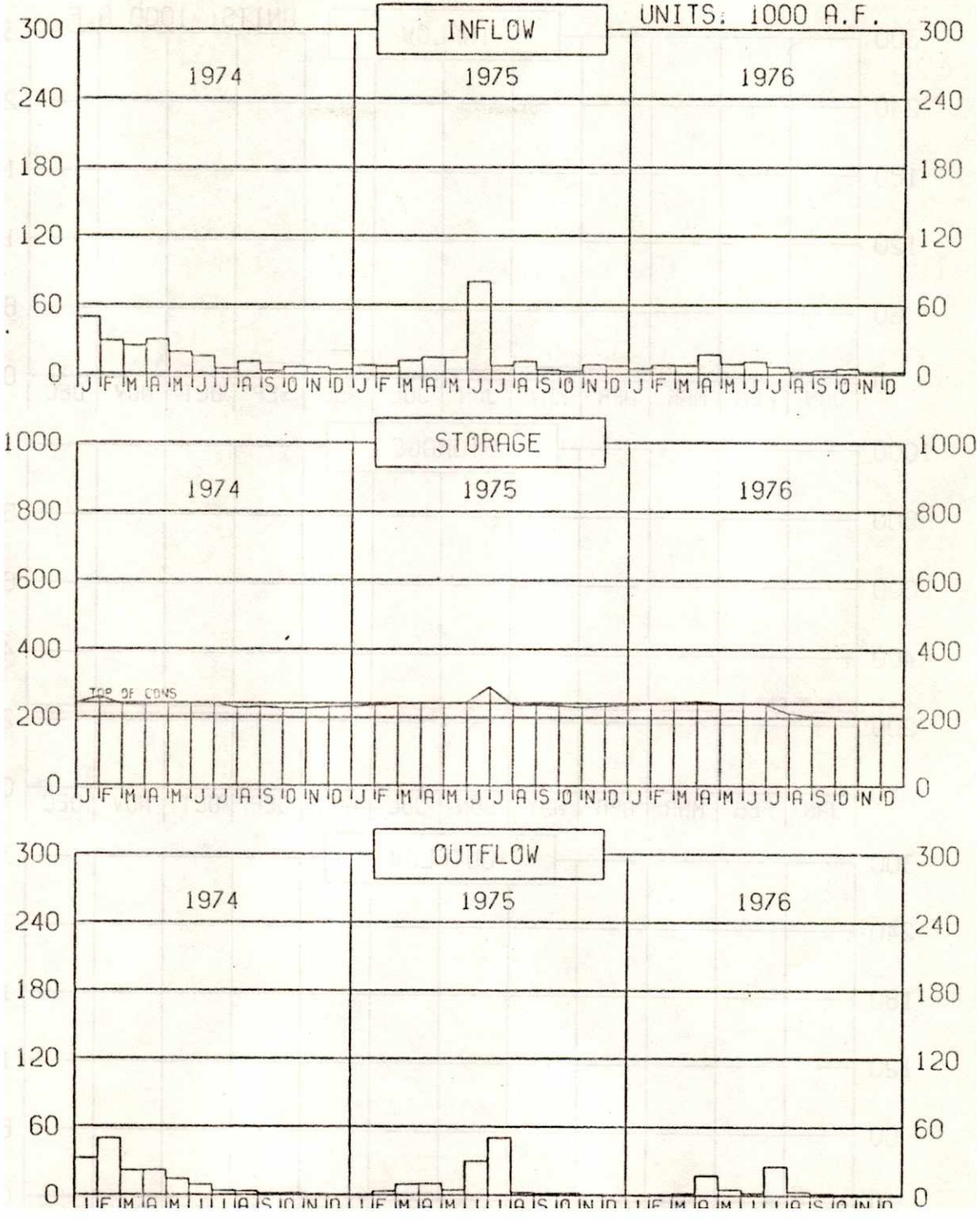


EXHIBIT 14B

WACONDA LAKE 1977 OPERATION

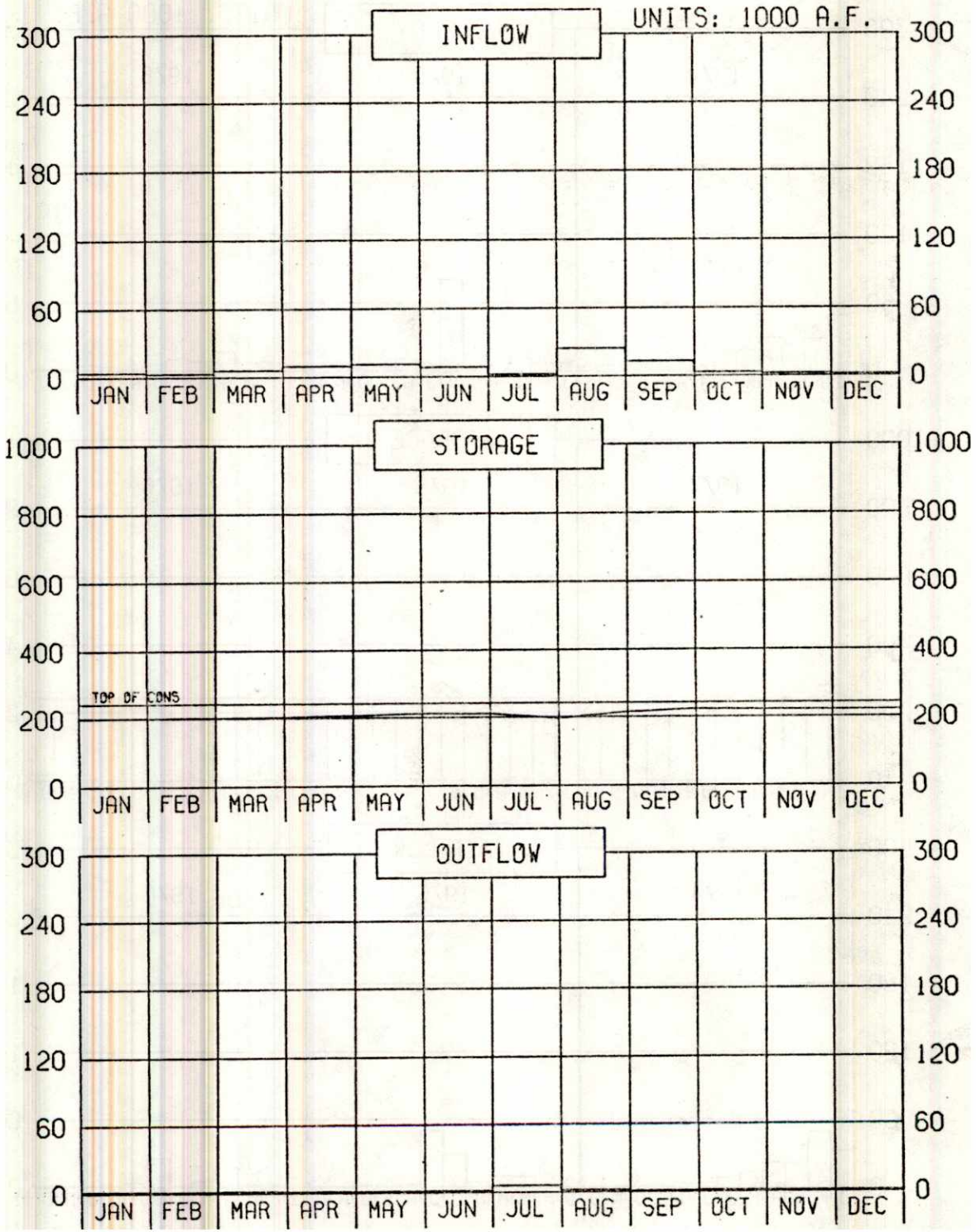


EXHIBIT 14C

WACONDA LAKE

CAL YEAR 1978 OPERATION PLAN

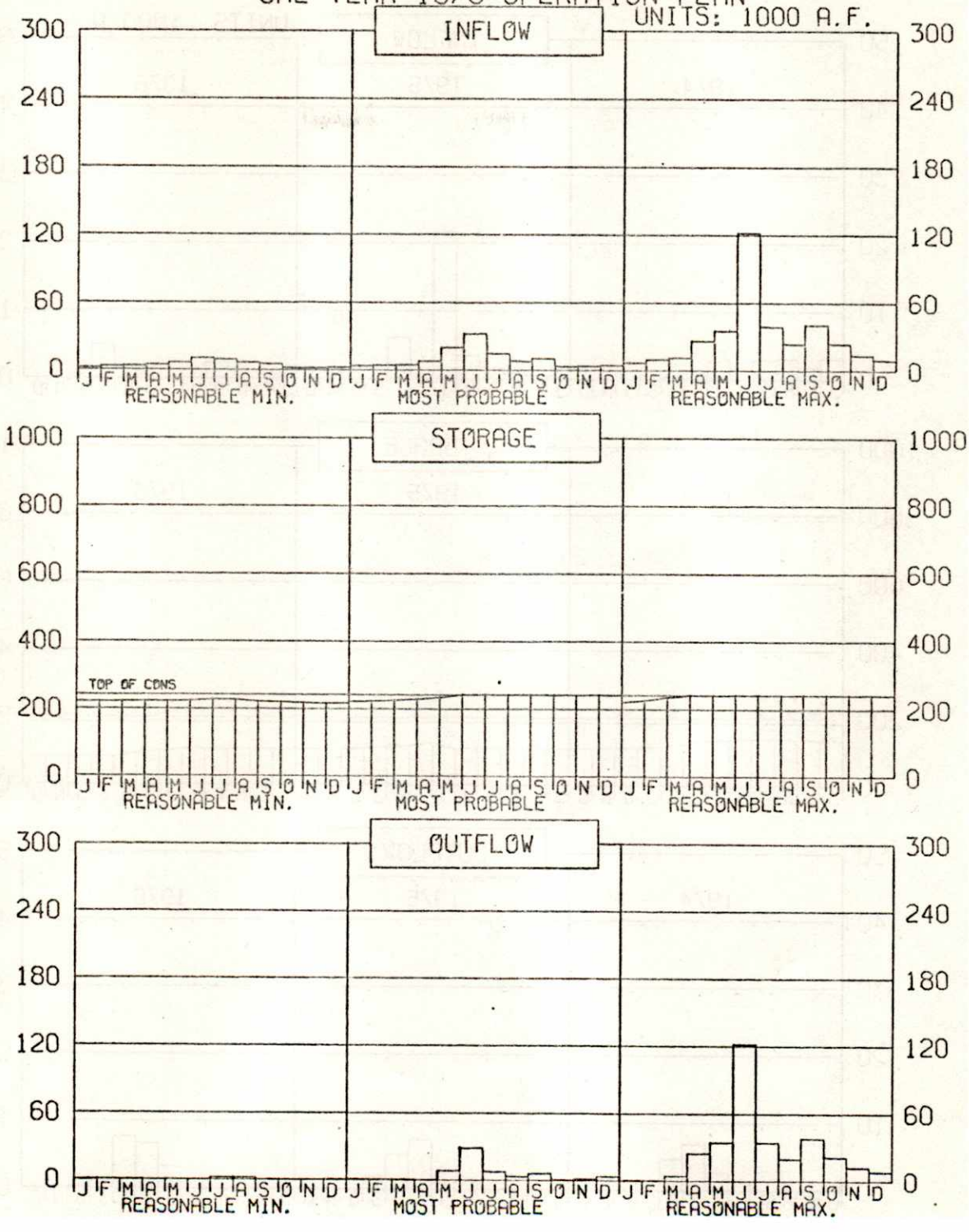


EXHIBIT 15A

CEDAR BLUFF RESERVOIR OPERATION

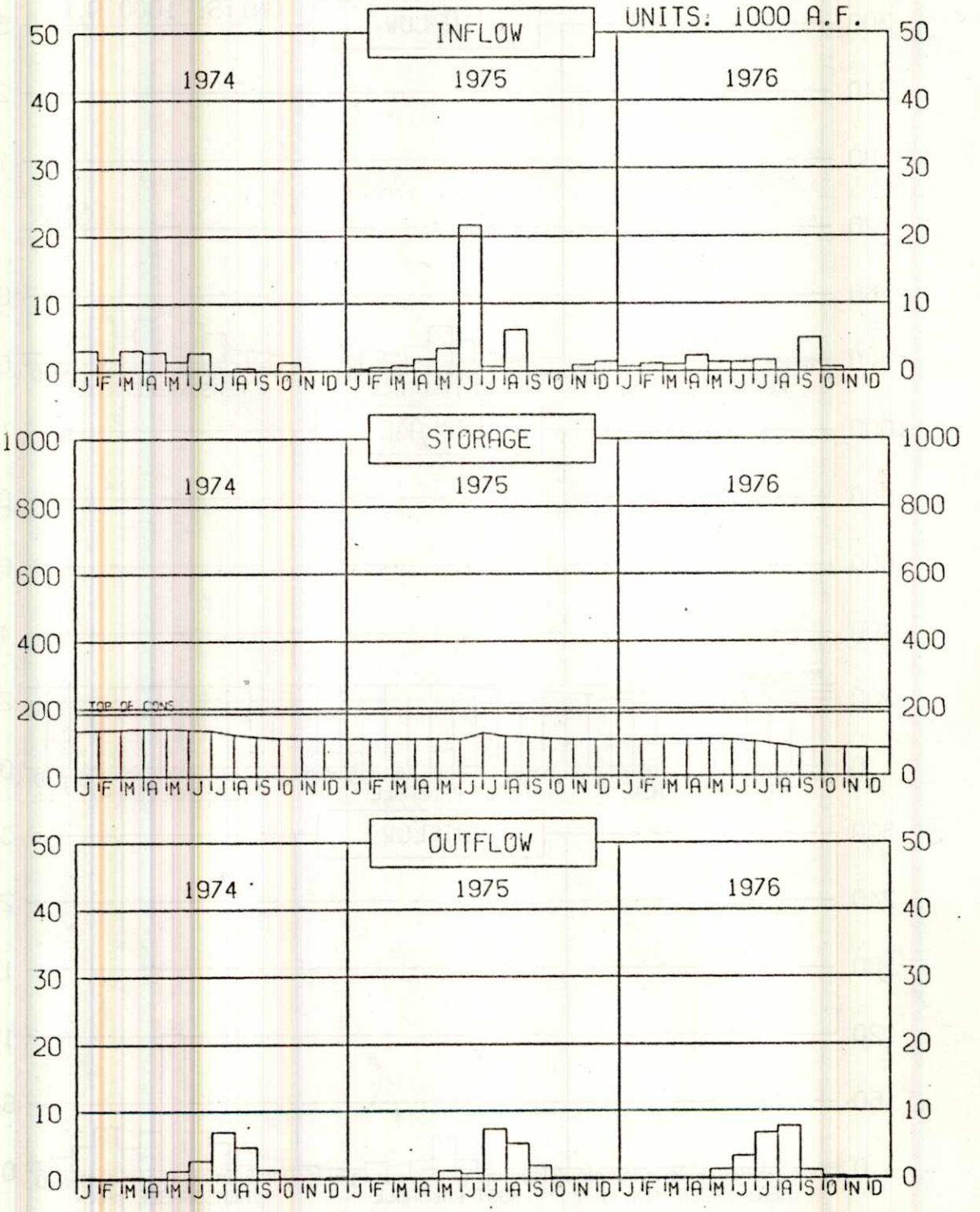


EXHIBIT 15B

CEDAR BLUFF RESERVOIR 1977 OPERATION

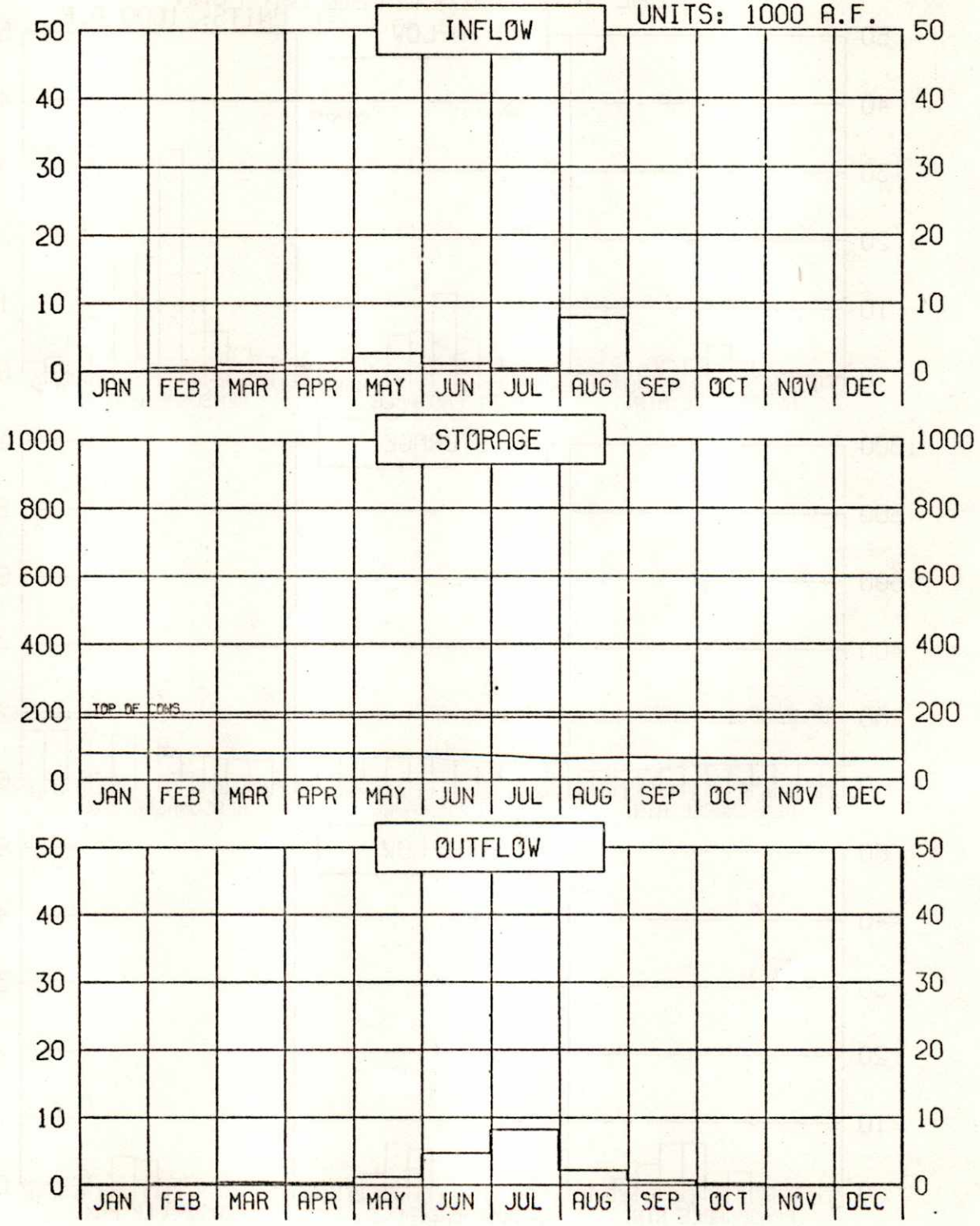


EXHIBIT 15C

CEDAR BLUFF RESERVOIR

CAL YEAR 1978 OPERATION PLAN

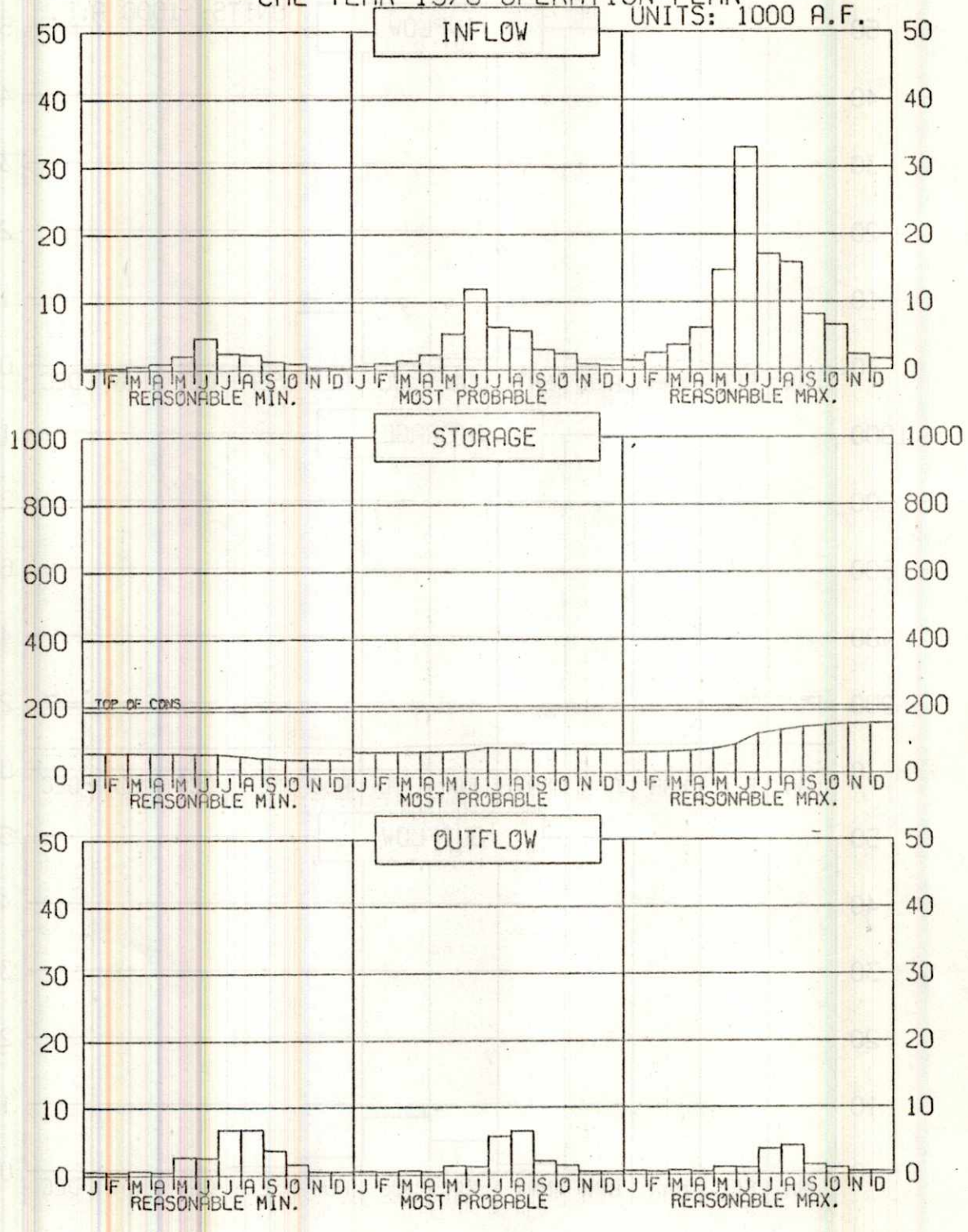
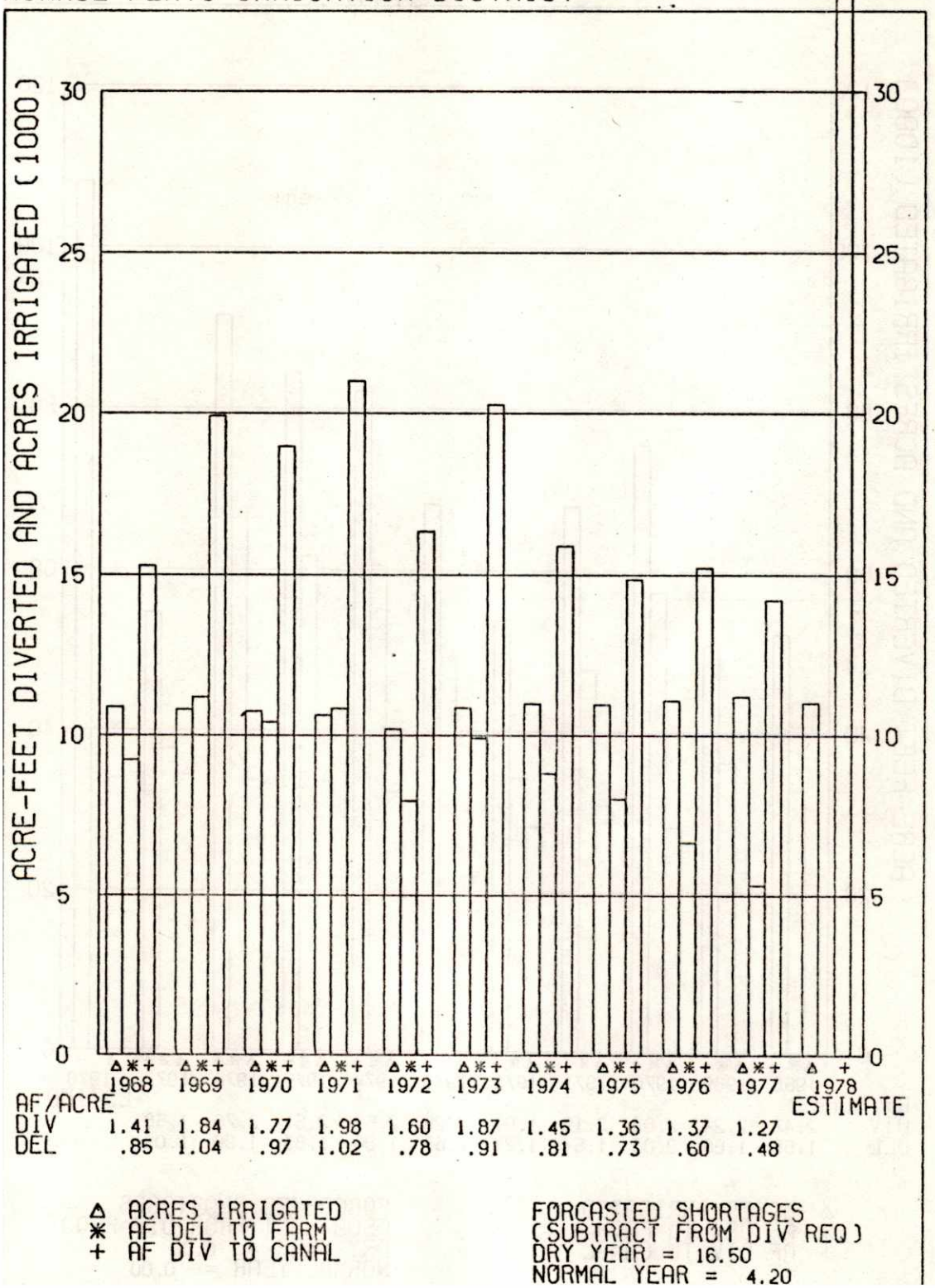


EXHIBIT 16

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



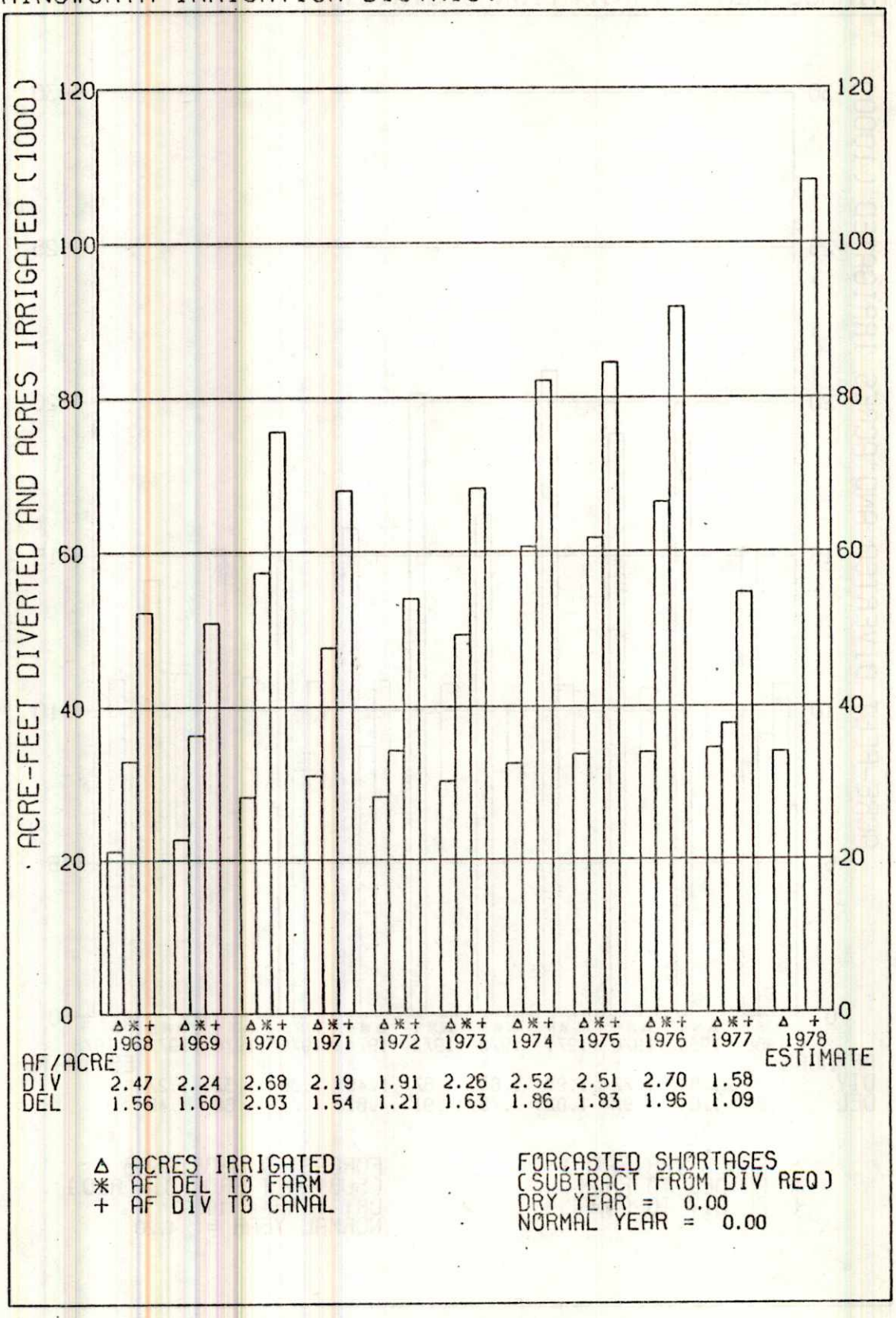
AF/ACRE	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
DIV	1.41	1.84	1.77	1.98	1.60	1.87	1.45	1.36	1.37	1.27
DEL	.85	1.04	.97	1.02	.78	.91	.81	.73	.60	.48

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR = 16.50
NORMAL YEAR = 4.20

EXHIBIT 17

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
AINSWORTH IRRIGATION DISTRICT



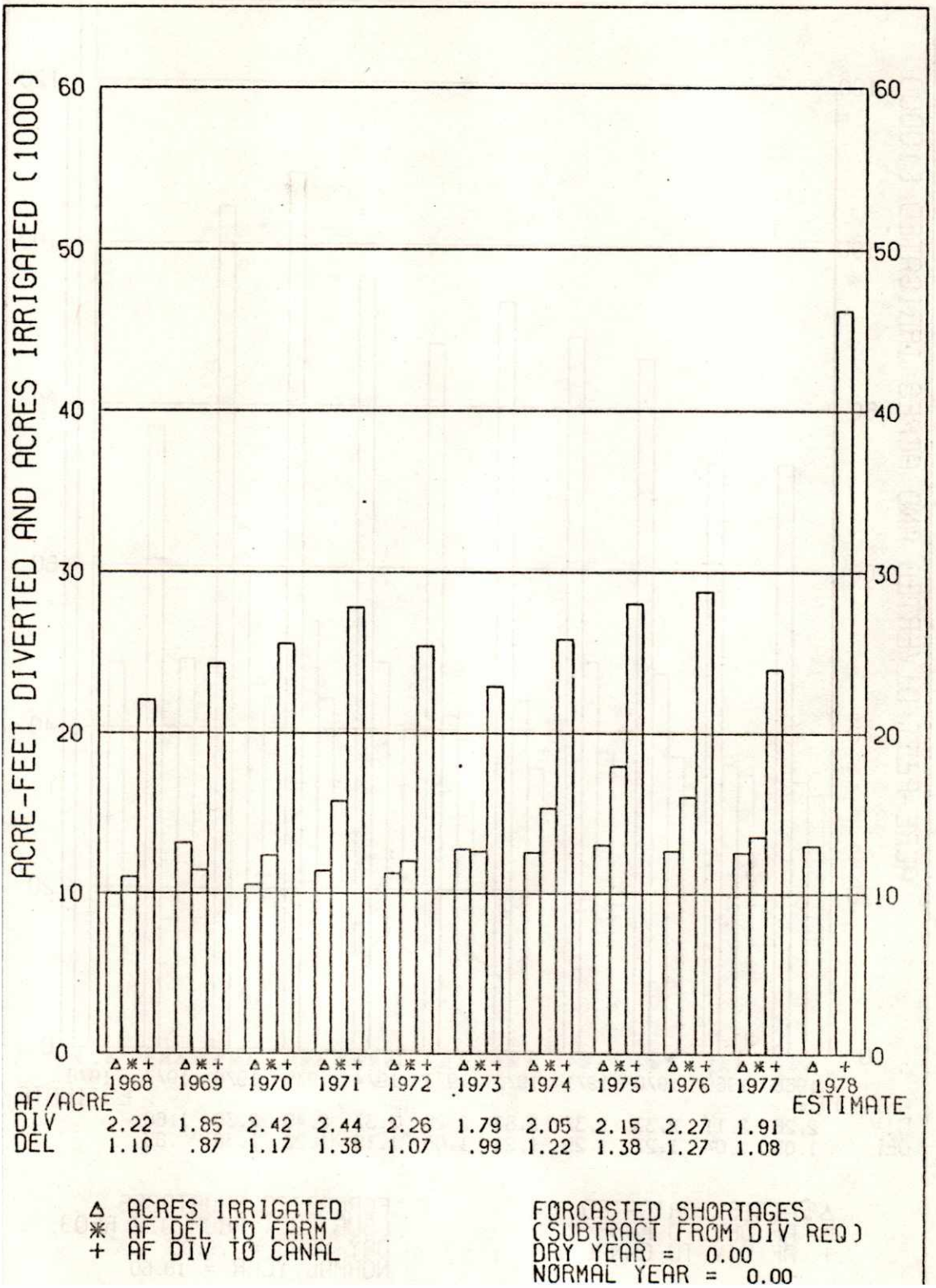
AF/ACRE	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
DIV	2.47	2.24	2.68	2.19	1.91	2.26	2.52	2.51	2.70	1.58
DEL	1.56	1.60	2.03	1.54	1.21	1.63	1.86	1.83	1.96	1.09

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 18

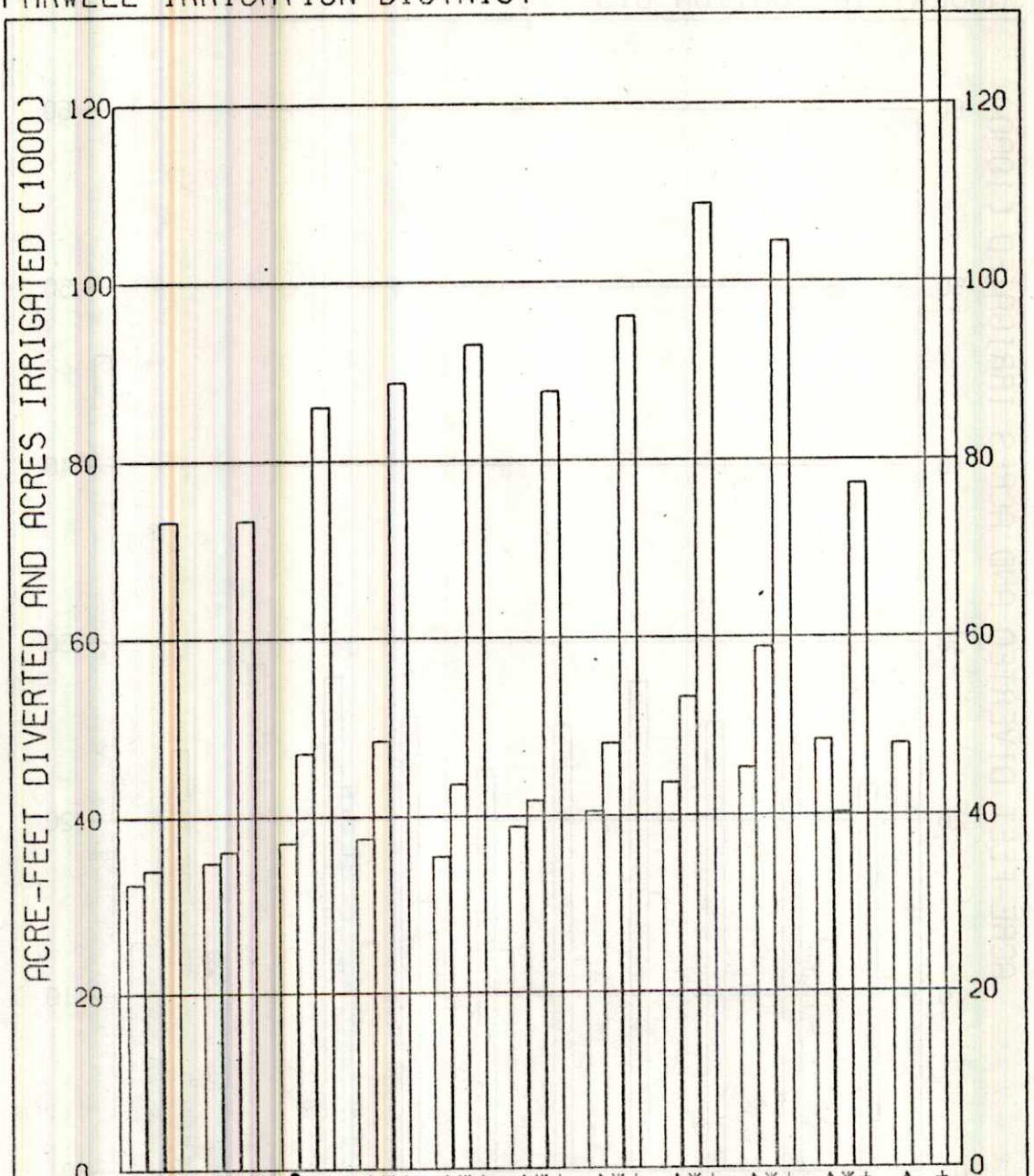
CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
SARGENT IRRIGATION DISTRICT



169.9→

EXHIBIT 19

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
FARWELL IRRIGATION DISTRICT



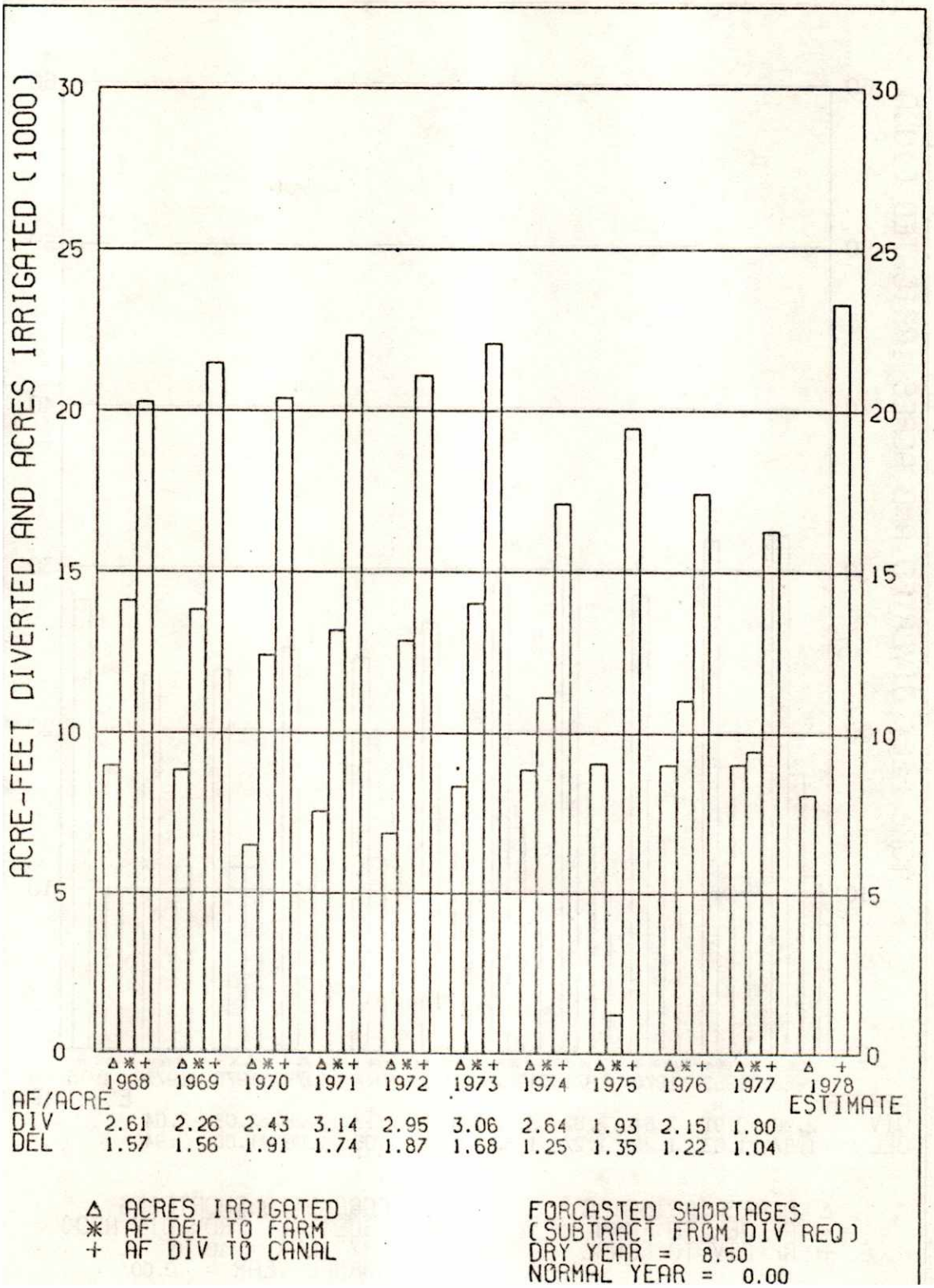
AF/ACRE	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
DIV	2.26	2.11	2.33	2.37	2.63	2.26	2.37	2.49	2.30	1.60
DEL	1.05	1.04	1.27	1.29	1.23	1.08	1.19	1.22	1.30	.83

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR = 79.90
NORMAL YEAR = 18.60

EXHIBIT 20

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



AF/ACRE	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977
DIV	2.61	2.26	2.43	3.14	2.95	3.06	2.64	1.93	2.15	1.80
DEL	1.57	1.56	1.91	1.74	1.87	1.68	1.25	1.35	1.22	1.04

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR = 8.50
NORMAL YEAR = 0.00

EXHIBIT 21

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

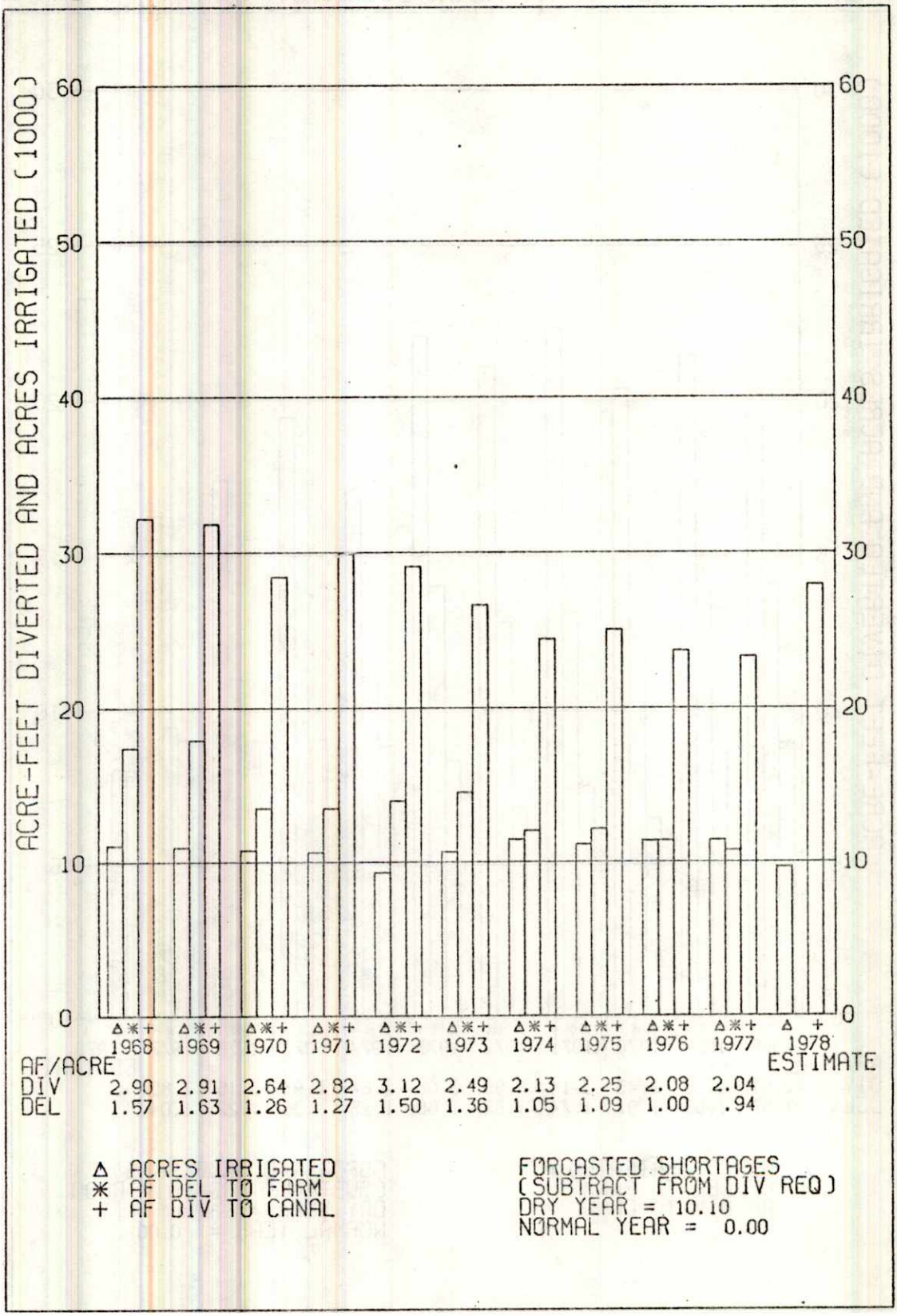
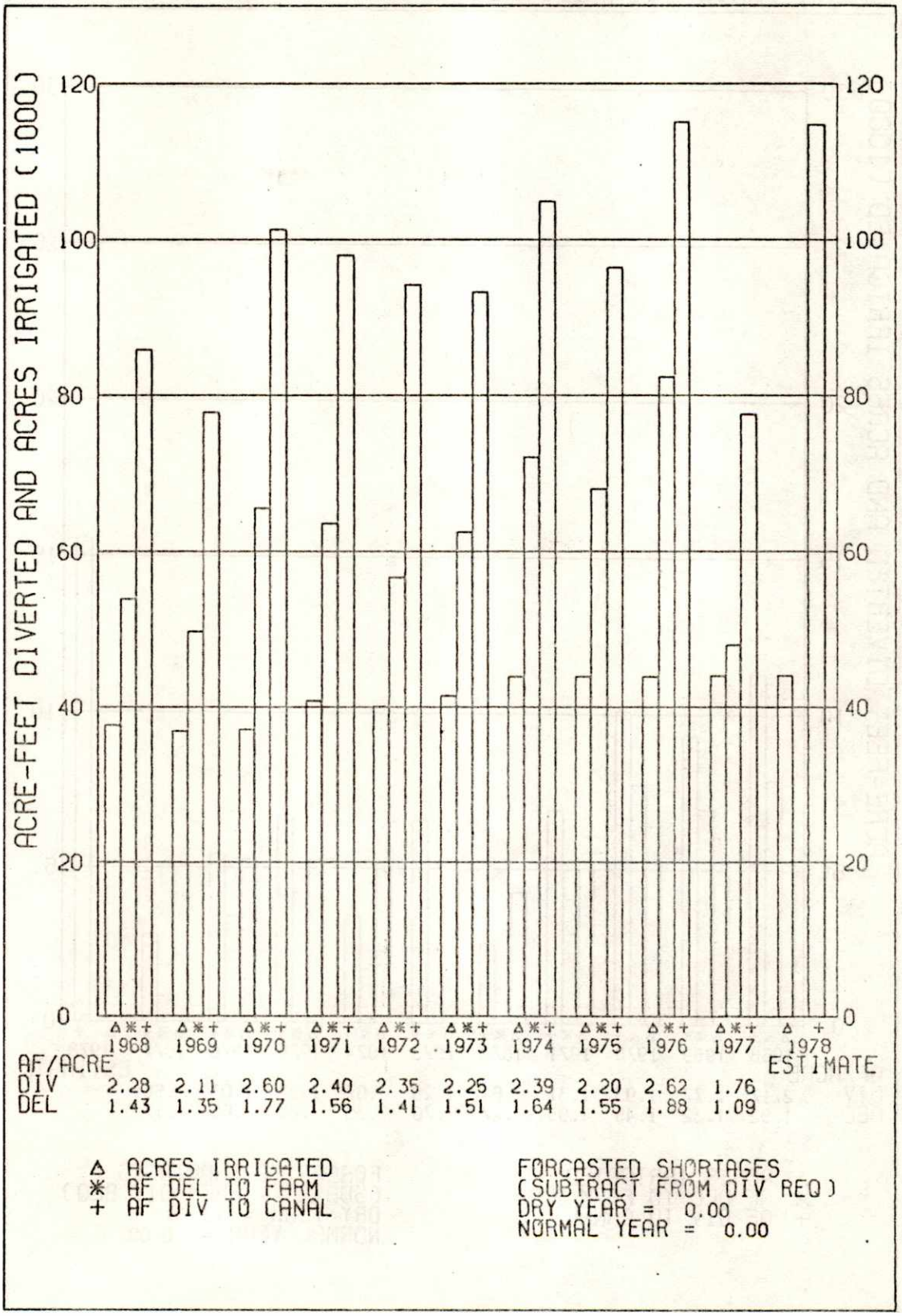


EXHIBIT 22

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



AF/ACRE	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978 ESTIMATE
DIV	2.28	2.11	2.60	2.40	2.35	2.25	2.39	2.20	2.62	1.76	
DEL	1.43	1.35	1.77	1.56	1.41	1.51	1.64	1.55	1.88	1.09	

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 23

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
ALMENA IRRIGATION DISTRICT

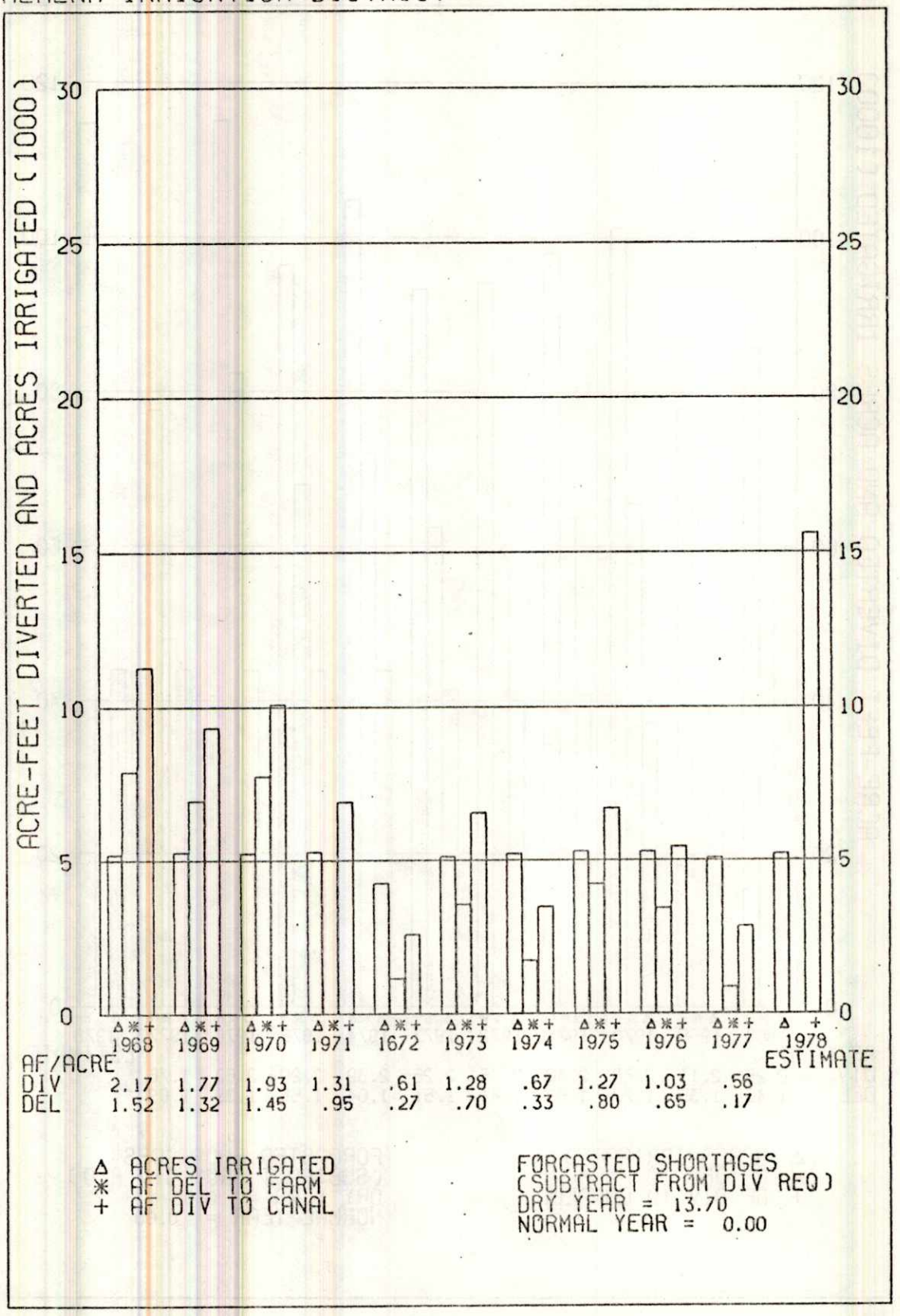


EXHIBIT 24

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

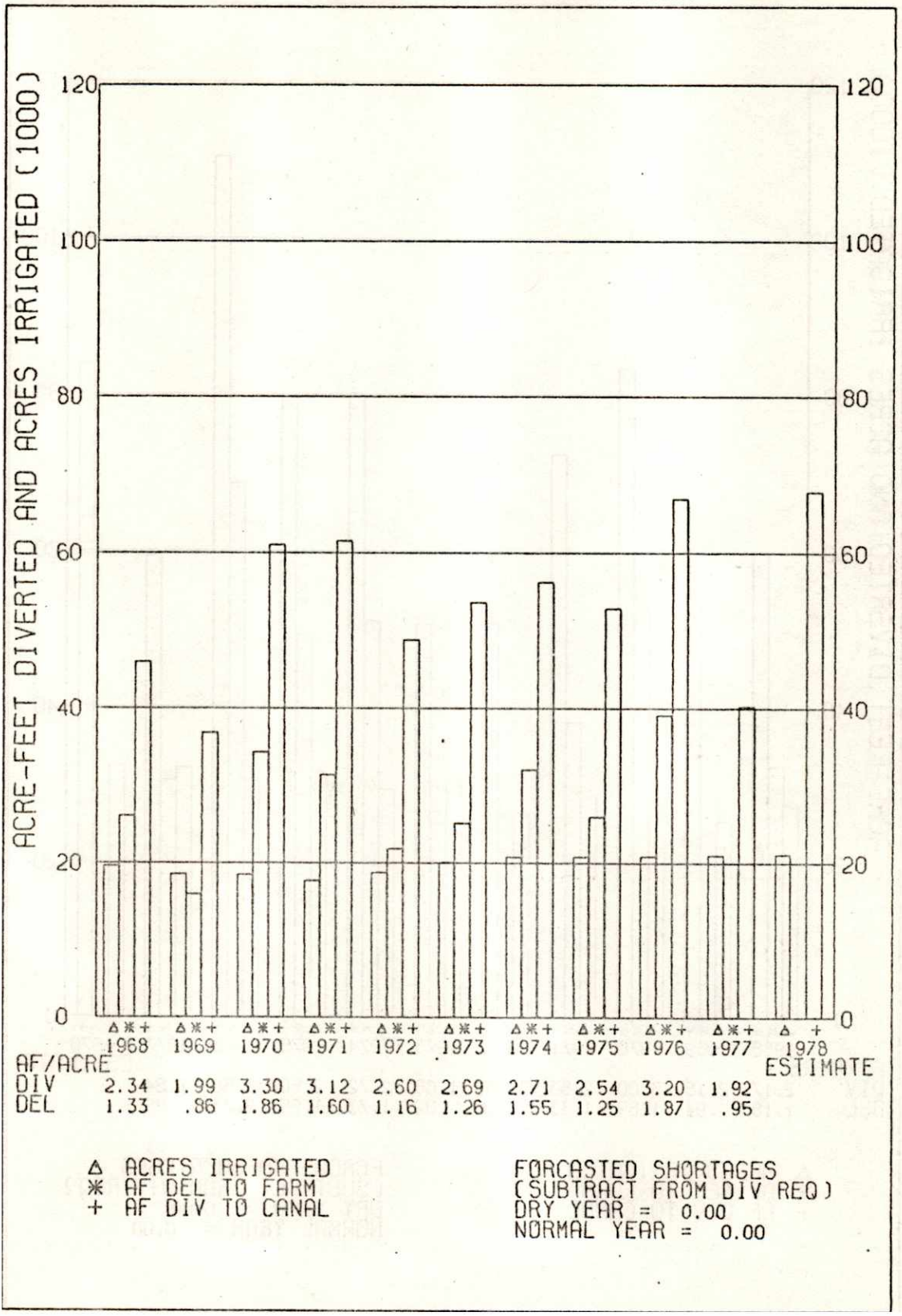


EXHIBIT 25

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

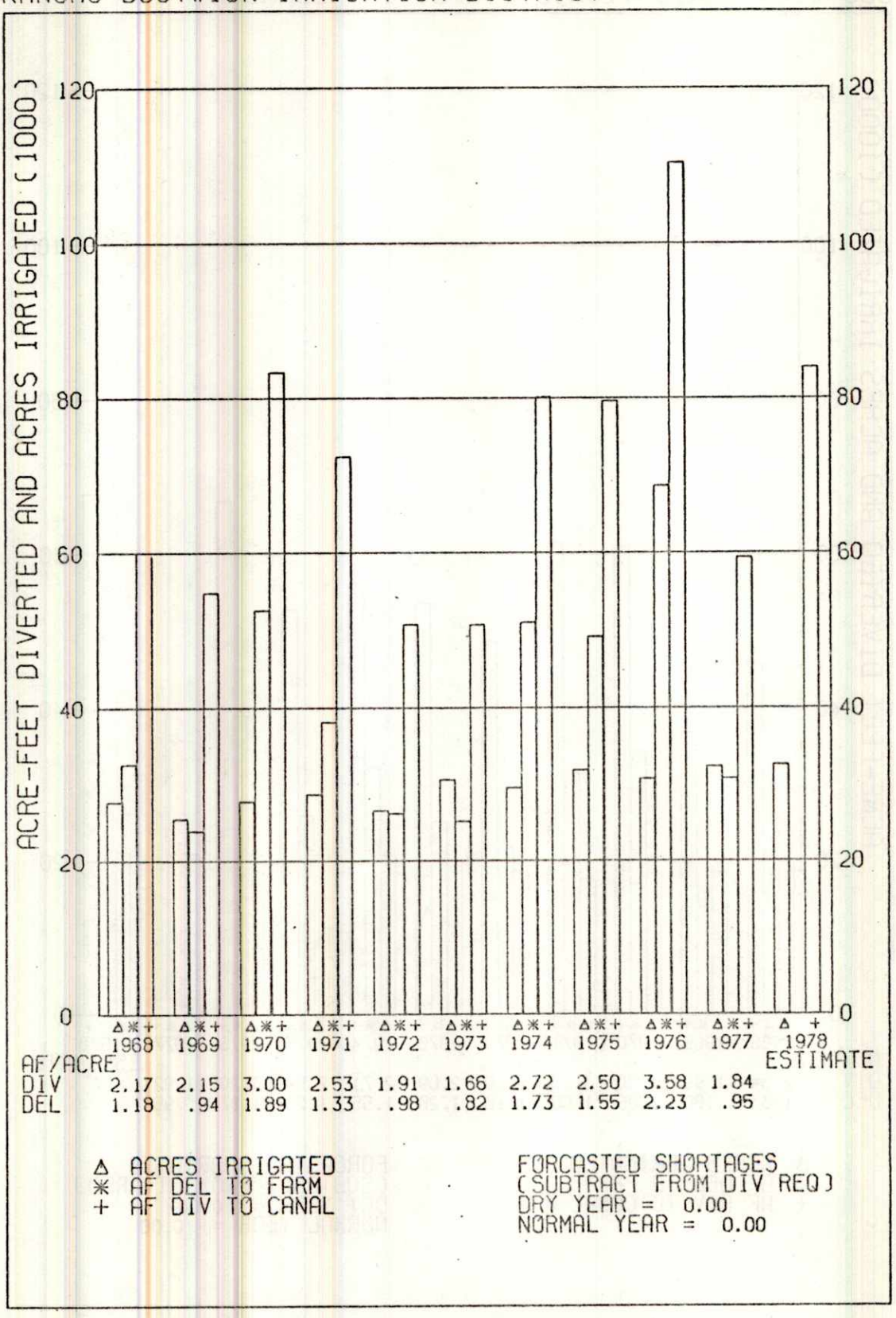


EXHIBIT 26

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED KIRWIN IRRIGATION DISTRICT

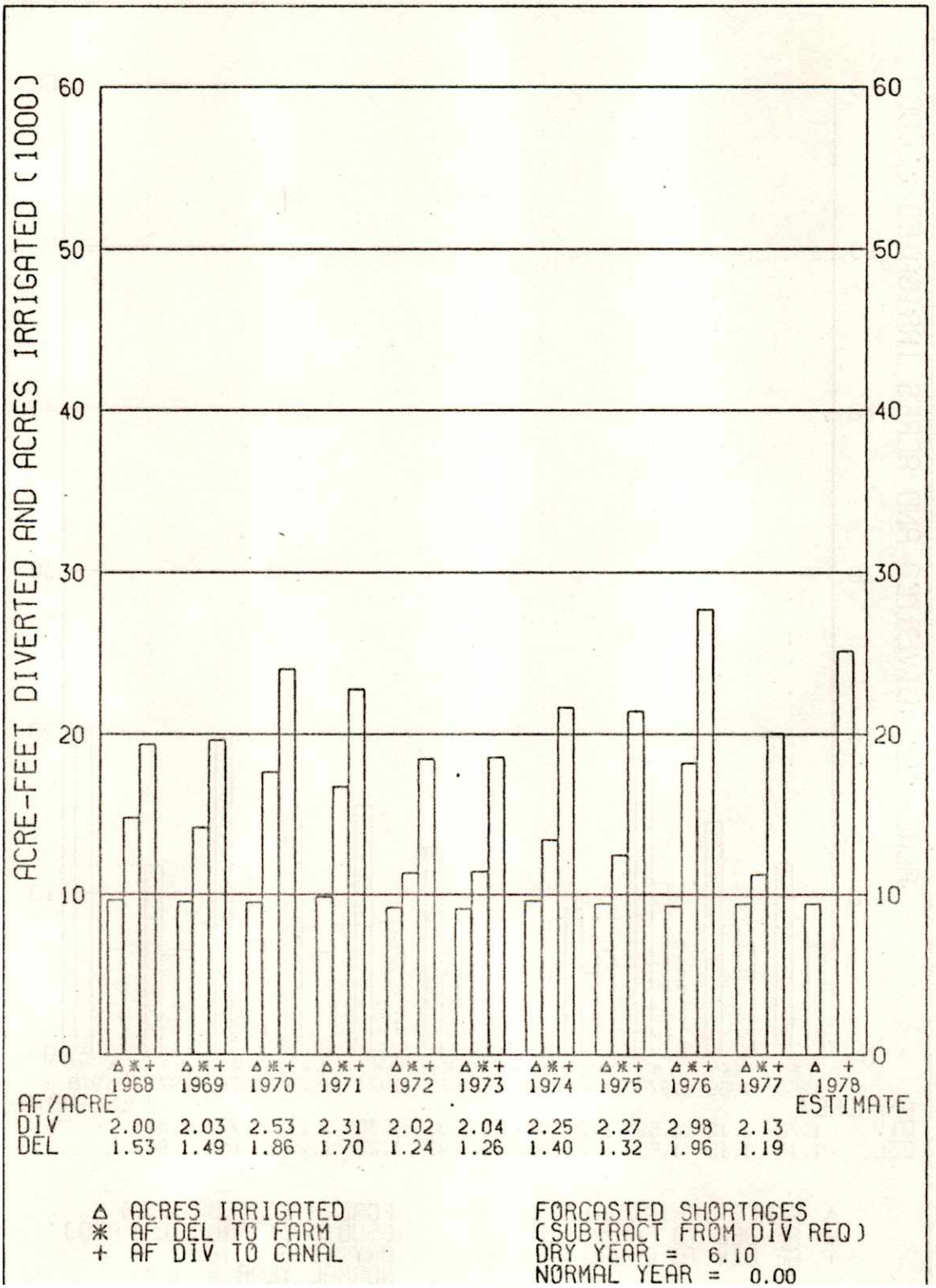


EXHIBIT 27

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
WEBSTER IRRIGATION DISTRICT

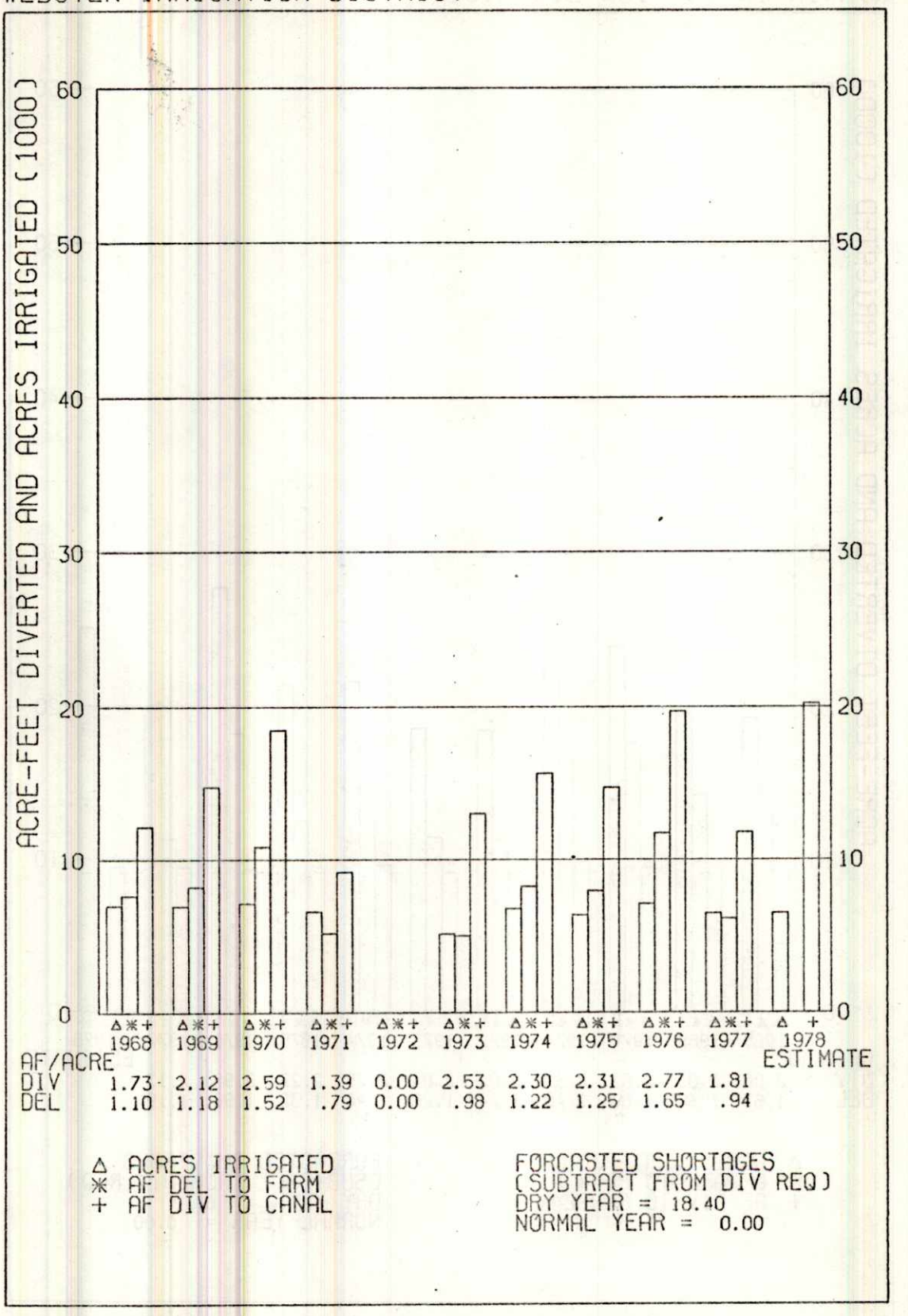
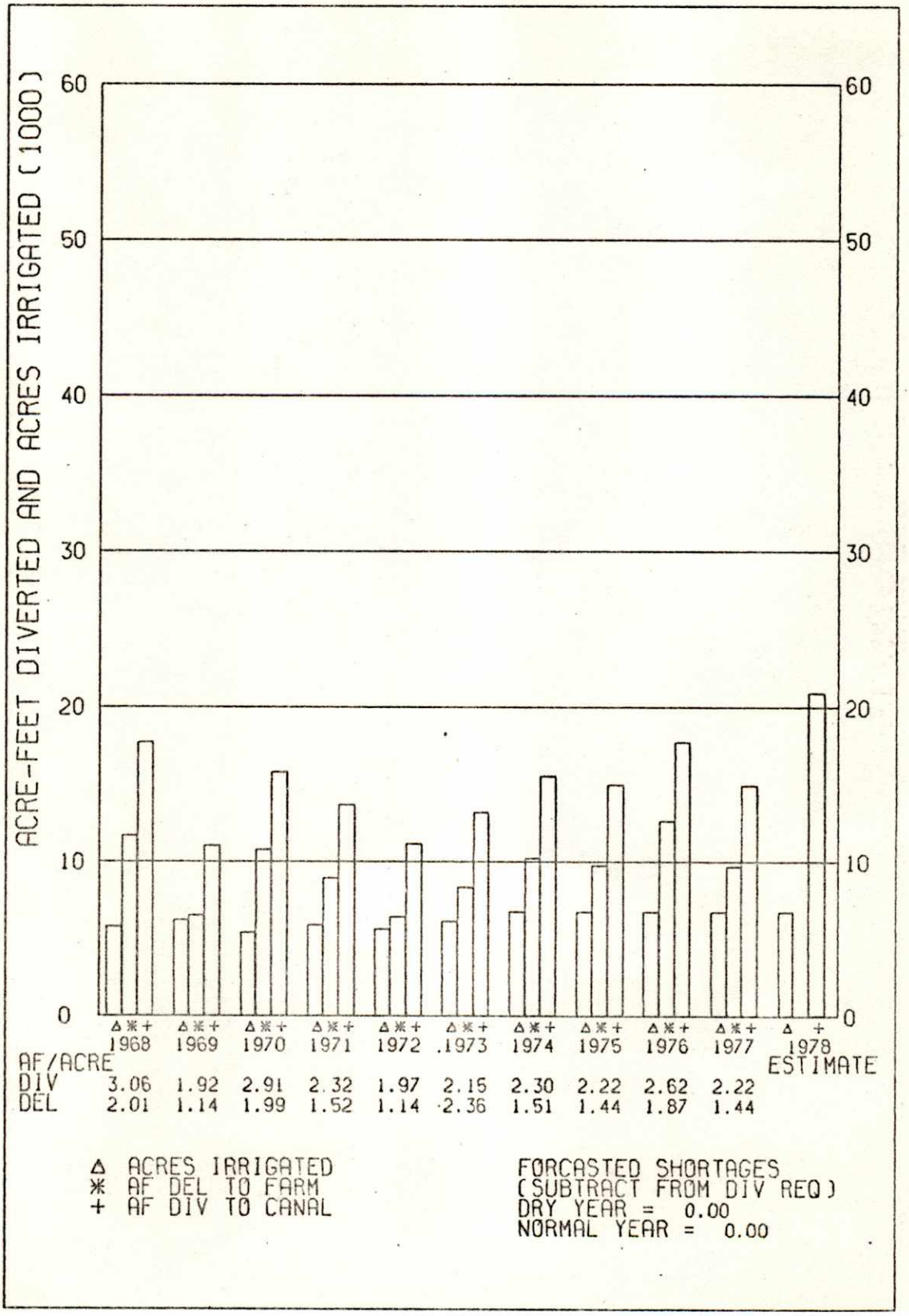


EXHIBIT 28

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



Chadron
Gordon
Valentine
Hay Springs
Niobrara River
Niobrara
Niobrara River
Missouri River
MERRITT DAM
BOX BUTTE DAM
Mirage Flats Canal
Dunlap Diversion Dam
Snake River
SANDHILLS DIVISION
AINSWORTH UNIT
Ainsworth Canal
Ainsworth
MERRITT RESERVOIR
Capacity Allocation
Conser. 72,872 a.f.
Dead 1,614 a.f.
Total 74,486 a.f.
O'Neill
BOX BUTTE RESERVOIR
Capacity Allocation
Conser. 30,420 a.f.
Dead 640 a.f.
Total 31,060 a.f.
MIRAGE FLATS PROJECT
Alliance
Norfolk
Middle North Loup River
Thedford
Scottsbluff
Burwell
Milburn Diversion Dam
Sargent Canal
SARGENT UNIT
Woods Park Pumping Plant
Arcadia Diversion Dam
Sherman Feeder Canal
SHERMAN DAM
SHERMAN RESERVOIR
Capacity Allocation
Conser. 62,407 a.f.
Dead 3,839 a.f.
Total 66,246 a.f.
FARWELL UNIT
North Platte River
Oshkosh
Broken Bow
Columbus
Platte River
Lake McConaughy
MIDDLE
South Loup Rivers
Deer Station Lateral and Pumping Plant
Dunning Creek
Farwell Main Canal
Farwell Lower Main Canal
Farwell Central Canal
Farwell Upper South Canal
Farwell South Canal
LOUP
DIVISION
Omaha
Sidney
Ogallala
North Platte
Grand Island
Lincoln
NEBRASKA
COLORADO
FRENCHMAN – CAMBRIDGE DIVISION
RED WILLOW UNIT
Red Willow Creek
Medicine Creek
Lexington
Platte River
Kearney
Big Blue River
ENDERS RESERVOIR
Capacity Allocation
Flood 30,040 a.f.
Conser. 36,010 a.f.
Dead 8,470 a.f.
Total 74,520 a.f.
HUGH BUTLER LAKE
Capacity Allocation
Flood 48,850 a.f.
Conser. 31,470 a.f.
Dead 6,310 a.f.
Total 86,630 a.f.
HARRY STRUNK LAKE
Capacity Allocation
Flood 52,170 a.f.
Conser. 32,230 a.f.
Dead 4,910 a.f.
Total 89,310 a.f.
FRENCHMAN UNIT
CAMBRIDGE UNIT
Imperial
Holyoke
Frenchman River
Stinking Water Creek
Culbertson Diversion Dam
Culbertson Canal
Culbertson Extension Canal
RED WILLOW DAM
MEDICINE CREEK DAM
Red Willow Diversion Dam
Red Willow Canal
Cambridge Diversion Dam
Cambridge Canal
ENDERS DAM
SWANSON LAKE
Capacity Allocation
Flood 133,790 a.f.
Conser. 116,060 a.f.
Dead 4,100 a.f.
Total 253,950 a.f.
TRENTON DAM
Upper Meeker Sub Canal
Trenton
McCook
Bartley Canal
Bartley Diversion Dam
Meeker Extension Canal
Driftwood Canal
Driftwood West Canal
Driftwood Sub Canal
Upper Meeker Canal
HARLAN COUNTY RESERVOIR
Capacity Allocation
Flood 508,989 a.f.
Conser. & Sed. 319,787 a.f.
Total 828,776 a.f.
HARLAN COUNTY DAM (U.S.C.E.)
FRANKLIN UNIT
BOSTWICK – SUPERIOR-COURTLAND UNIT
Republican River
Alma
Franklin Canal
Franklin
Red Cloud
Superior-Courtland Diversion Dam
Superior Canal
Superior
Franklin Pump Canal
Naponee Canal
Courtland Canal
Pump No.1 Canal
North Canal
Ridge Canal
White Rock Canal & Extension
Miller Canal
Pumps No. 3A & 3B Canals
Courtland West Canal
Pump No. 4 Canal
COURTLAND UNIT
DIVISION
UPPER REPUBLICAN DIVISION
Wray
North Fork Republican River
MEEKER-DRIFTWOOD UNIT
KANASKA DIVISION
ALMENA UNIT
Almena Main Canal
Almena South Canal
Almena Diversion Dam
Norton
KIRWIN UNIT
Kirwin Main Canal
Kirwin North Canal
Kirwin South Canal
KIRWIN DAM
GLEN ELDER DAM
KIRWIN RESERVOIR
Capacity Allocation
Flood 215,115 a.f.
Conser. 93,050 a.f.
Dead 6,385 a.f.
Total 314,550 a.f.
LOVEWELL DAM
LOVEWELL RESERVOIR
Capacity Allocation
Flood 50,460 a.f.
Conser. 36,640 a.f.
Dead 5,050 a.f.
Total 92,150 a.f.
NORTON RESERVOIR
Capacity Allocation
Flood 98,800 a.f.
Conser. 33,220 a.f.
Dead 2,720 a.f.
Total 134,740 a.f.
NORTON DAM
Phillipsburg
Glen Elder
Beloit
Stockton
Osborne Canal
Osborne
Woodston Diversion Dam
WEBSTER RESERVOIR
Capacity Allocation
Flood 183,370 a.f.
Conser. 75,190 a.f.
Dead 2,180 a.f.
Total 260,740 a.f.
WEBSTER DAM
WEBSTER UNIT
GLEN ELDER UNIT
SOLOMON DIVISION
WACONDA LAKE
Capacity Allocation
Flood 722,315 a.f.
Conser. 240,224 a.f.
Dead 1,236 a.f.
Total 963,775 a.f.
Tuttle Creek Dam (U.S.C.E.)
Manhattan
Kansas City
Topeka
Kansas River
Milford Dam (U.S.C.E.)
Junction City
Abilene
Beatrice
Atwood
Oberlin
St. Francis
Hale
Burlington
Arikaree River
Bonny Dam
BONNY RESERVOIR
Capacity Allocation
Flood 128,820 a.f.
Conser. 39,920 a.f.
Dead 1,420 a.f.
Total 170,160 a.f.
ARMEL UNIT
Sappa Creek
Beaver Creek
South Fork Prairie Dog Creek
North Fork Solomon River
South Fork Solomon River
Wakeeney
Hays
Russell
Lincoln
Salina
Lindsborg
Saline River
Smoky Hill River
WILSON DAM (USCE)
KANOPOLIS DAM (U.S.C.E.)
CEDAR BLUFF RESERVOIR
Capacity Allocation
Flood 191,860 a.f.
Conser. 176,830 a.f.
Dead 8,260 a.f.
Total 376,950 a.f.
CEDAR BLUFF DAM
CEDAR BLUFF UNIT
Cedar Bluff Canal
FISH HATCHERY
SMOKY HILL DIVISION
COLORADO
KANSAS
Ness City
10 0 10 20 30
SCALE OF MILES

N

EXPLANATION
RESERVOIR
DIVERSION DAM
PUMPING PLANT
CANAL
IRRIGATED LAND

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION – LM REGION

MIRAGE FLATS PROJECT AND PICK-SLOAN MISSOURI BASIN PROGRAM
NIOBRARA, LOWER PLATTE AND KANSAS RIVER BASINS

IRRIGATION AND FLOOD CONTROL FACILITIES

Mc COOK, NEBRASKA — JULY 1, 1970

DWG. NO. 60-701-250