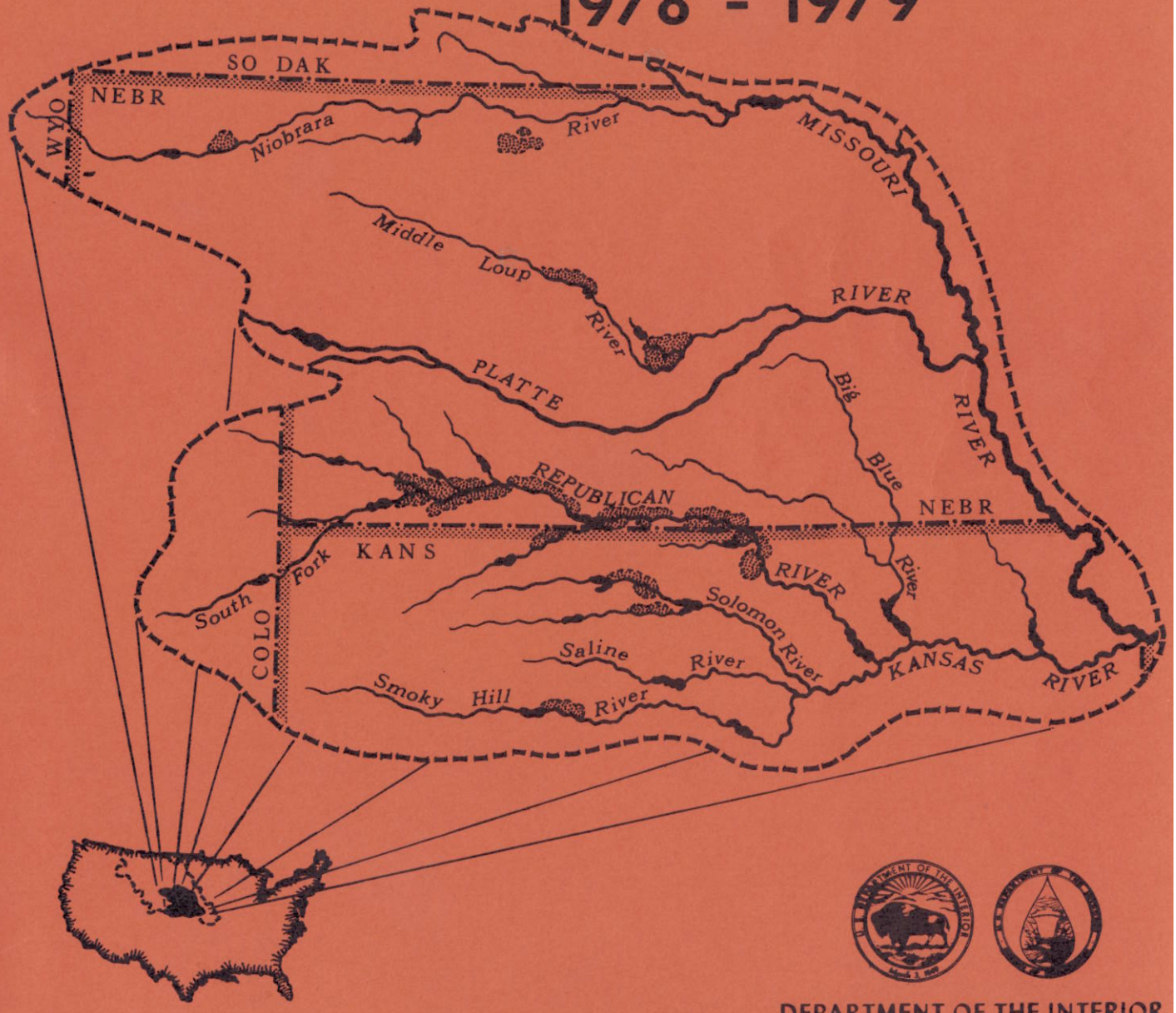
ANNUAL OPERATING PLAN

NIOBRARA, LOWER PLATTE, AND KANSAS RIVER BASINS

1978 - 1979



DEPARTMENT OF THE INTERIOR

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Lower Missouri Region · Denver, Colorado

ANNUAL OPERATING PLAN

NIOBRARA, LOWER PLATTE, AND KANSAS RIVER BASINS

1978 OPERATIONS
1979 OUTLOOK

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SYNOPSIS

GENERAL

This is the twenty-sixth 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, municipal and industrial water, these features serve flood control, 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 is being used to assist in operational management of all eleven dams under Bureau of Reclamation jurisdiction that are located in the Kansas River Basin.

The "Headlines 78" 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.

1978 SUMMARY

Climatic Conditions. The total precipitation during 1978 ranged from 71 to 126 percent of normal over the operating area. Bonny, Enders, Webster, and Cedar Bluff Reservoirs and Swanson, Hugh Butler, Harry Strunk and Waconda Lakes received below normal rainfall. Norton, Lovewell, Kirwin, Box Butte, Merritt and Sherman Reservoirs and Harlan County Lake received above normal rainfall. The temperatures were generally normal or higher than normal during the growing season.

Storage Reservoirs.

A. Conservation Operations - The 1978 inflows were below the dry-year forecast at Merritt, Bonny, Enders, Norton, Kirwin and Cedar Bluff Reservoirs and Swanson and Harlan County Lakes. Box Butte, Sherman and Webster Reservoirs and Harry Strunk and Waconda Lakes had inflows between the dry- and normal-year forecasts. Hugh Butler Lake and Lovewell Reservoir had inflows between normal- and wet-year forecasts. The active conservation storage was evacuated from Enders, Norton, Kirwin and Cedar Bluff Reservoirs and Harry Strunk Lake in 1978. Five reservoirs reached historically low levels in 1978. The following table shows the reservoirs, dates of occurrences, and previous historic lows.

Reservoir	1978 Minimum Date	Elevation (feet)	Storage (ac.-ft.)	Previous Historic Low Date	Elevation (feet)	Storage (ac.-ft.)
Enders	Aug. 28	3080.67	8,872	Sep. 1971	3080.75	8,920
Hugh Butler	Sep. 9	2565.28	16,902	Sep. 1976	2570.81	22,715
Harry Strunk	Sep. 8	2340.42	7,864	Sep. 1976	2343.25	9,726
Kirwin	Aug. 15	1696.15	8,958	Aug. 1977	1700.70	14,110
Cedar Bluff	Dec. 31	2106.97	33,610	Aug. 1977	2118.19	61,420

B. Flood control Operations - Flood control benefits accrued by operation of Kansas River Projects dams during 1978 totaled $42,000 (Lovewell - $25,000; Kirwin - $4,000; Webster - $2,000; and Waconda - $11,000). The accumulative total of flood control benefits for the years 1951 through 1978 by the facilities included in this report total $42,685,000. (See Table 5.)

Water Service. There were 484,849 acre-feet of water diverted to irrigate 233,174 acres of project lands in 13 irrigation districts. (See Tables 3 and 7.) The project water supply was inadequate for 47,015 acres of lands in Mirage Flats, Frenchman Valley, H & RW, Almena, and Webster Irrigation Districts. No project water was delivered to the Webster Irrigation District. Kirwin Irrigation District, which has 11,435 acres with available service, had a limited water supply. The project water supplies for the other units mentioned in this report were adequate in 1978.

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 with the Bureau of Reclamation for use of the Arcadia Diversion Dam, the Middle Loup Public Power and Irrigation District diverted 26,448 acre-feet to irrigate 14,754 acres of non-project lands. These diversions were made under natural flow water rights granted by the State of Nebraska.

Irrigation Production. The crop yields from project lands in 1978 were slightly lower on the average than in 1977. Corn, the principal crop, decreased from an average of 115 bushels per acre to 113 bushels per acre. In 1978, the unit prices for all commodities were higher than those in 1977. The gross crop value of $55,293,521 was 108 percent of the 1977 gross crop value, and the average crop value per acre increased from $204.02 to $237.13 in 1978. Figure 1 is a graph which compares corn prices with the gross crop value per acre.

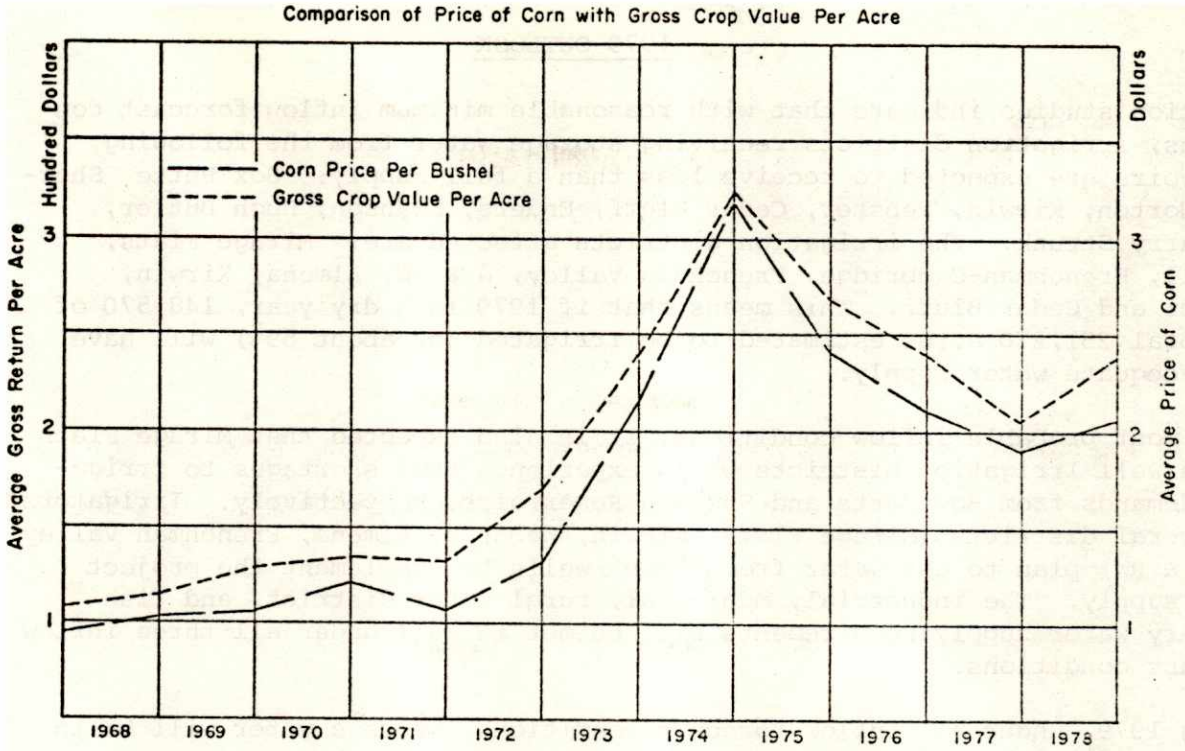


Figure 1

Fish and Wildlife and Recreation Benefits. During the early part of the 1978 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, and at Hays, and Concordia, Kansas, performed work on recreation and wildlife facilities which enhanced visitations at reservoirs in the Kansas River Projects area. Training was provided for 45 YCC members at Hays and 30 members at the other two locations.

The Young Adult Conservation Corps (YACC) was established by an Act of Congress in 1977. It is a work program designed to provide year-round jobs for unemployed and out-of-school young men and women in conservation work on national forests, national packs, fish hatcheries, wildlife refuges, reservoirs and other public lands. Its main objectives are to help alleviate the nation's youth unemployment problem and accomplish needed conservation work on public lands. This program differs from the Youth Conservation Corps (YCC) primarily in age group (older) and length of employment (longer).

The YACC located at McCook, Nebraska, is administered by the Bureau of Reclamation. Corps members perform work on projects at the local reservoirs, as well as city and state projects. Worksites extend throughout the Kansas River Projects area with crews working out of Hays, Beloit, Norton and Stockton, Kansas.

1979 OUTLOOK

Operation studies indicate that with reasonable minimum inflow forecast conditions, irrigation districts receiving storage water from the following reservoirs are expected to receive less than a full supply: Box Butte, Sherman, Norton, Kirwin, Webster, Cedar Bluff, Enders, Swanson, Hugh Butler, and Harry Strunk. The irrigation districts affected are: Mirage Flats, Farwell, Frenchman-Cambridge, Frenchman Valley, H & RW, Almena, Kirwin, Webster and Cedar Bluff. This means that if 1979 is a dry year, 148,570 of the total 251,270 acres estimated to be irrigated (or about 59%) will have an inadequate water supply.

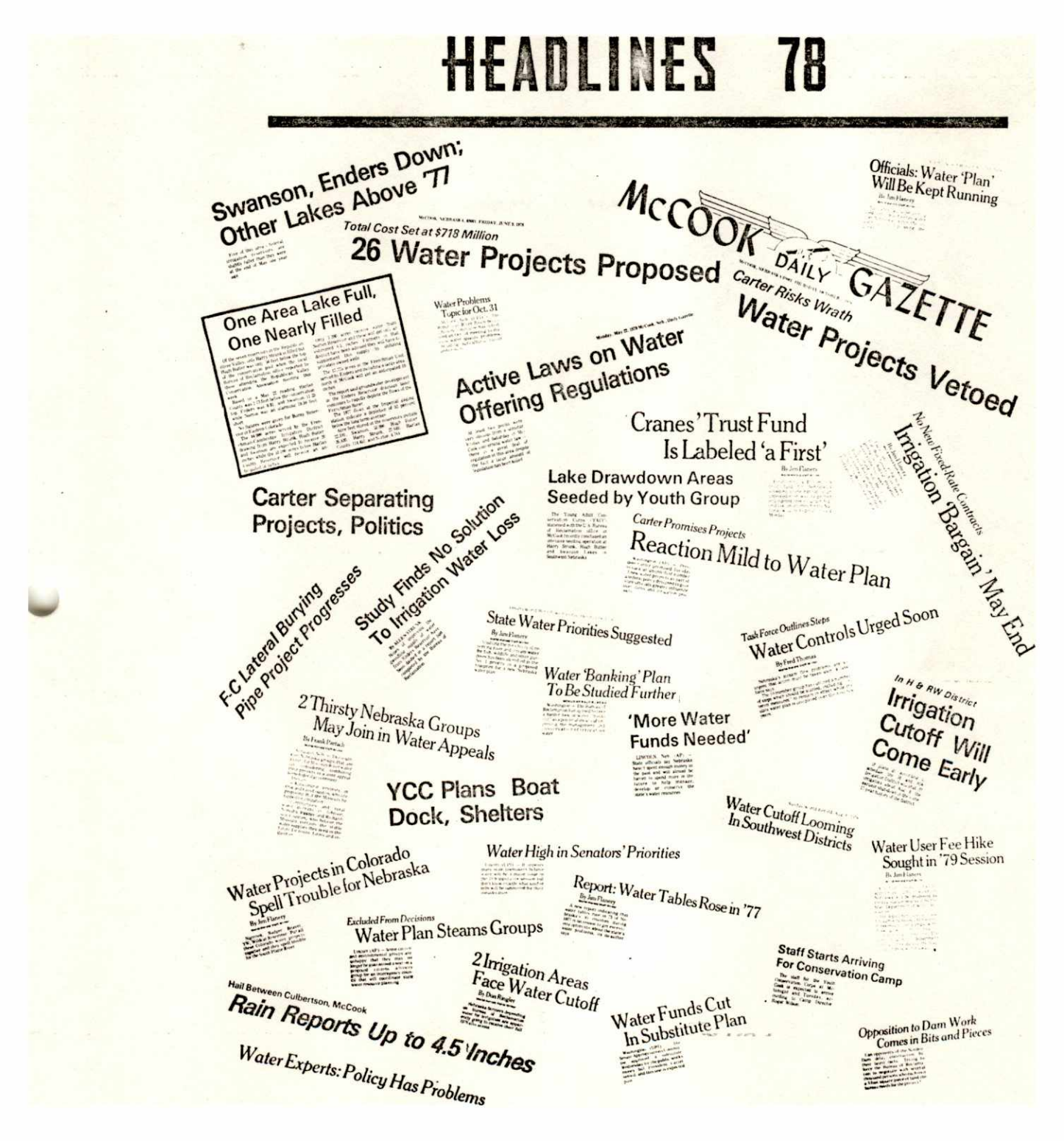
Under most probable inflow conditions, it is also expected that Mirage Flats and Farwell Irrigation Districts would experience some shortages to irrigation demands from Box Butte and Sherman Reservoirs, respectively. Irrigators in several districts (Mirage Flats, Kirwin, Webster, Almena, Frenchman Valley and H & RW) plan to use water from private wells to supplement the project water supply. The industrial, municipal, rural water district, and fish hatchery water supply requirements will be met in full under all three inflow forecast conditions.

During 1979, under all inflow forecast conditions, storage water will be in excess of project needs at Bonny Reservoir and Waconda Lake.

Even under reasonable minimum inflow conditions, the conservation pools at Merritt, Sherman and Lovewell Reservoirs will fill during 1979. 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.

HEADLINES 78



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 1978 and serves as a guideline for the 1979 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 and flood control, 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 and maintenance 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 and one reclamation district 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 responsibilities 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 through October 15; and for all other districts the contracted irrigation season is from May 1 through 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 are 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 1968 to 1977 the project water supply has averaged 17,193 acre-feet, which is about 1.47 acre-feet per acre. This is about 0.85 acre-foot per acre short of the average diversion requirement of 2.32 acre-feet per acre that was estimated to be necessary for a full water supply in the March 1965 report on the Mirage Flats Project, Nebraska. Although deliveries increased in 1978, records of farm deliveries for several previous 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 sudden large changes in the flows of the Niobrara River.

1978 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. In addition to depleting all of the active storage in Box Butte Reservoir, the irrigators within the District relied upon their private wells and pumped an estimated 8,284 acre-feet. There was no carryover storage for use in the 1979 irrigation season. The total precipitation in the Mirage Flats area was 17.43 inches, which is 114 percent of normal.

There were 10,898 acres irrigated, which is 93 percent of the acres with service available. The farm deliveries from the project water supply were 0.74 acre-foot per acre. An additional 0.76 acre-foot per acre of water was provided by privately owned irrigation wells. The gross crop value was $2,386,896, which is 102 percent of the 1977 value.

1979 OUTLOOK

The water level in the reservoir on December 31, 1978, was about 2.4 feet lower (1,851 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 1979 as it has been for the last several 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 1979.

AINSWORTH UNIT, SANDHILLS DIVISION IN NEBRASKA

GENERAL

Within the Ainsworth Irrigation District there are 34,539 acres with service available. The project water supply is provided by storage of Snake River flows in Merritt Reservoir. The reservoir is filled after the irrigation season each fall to a level varying from 2- to 6-feet below the top of conservation capacity in order to avoid ice damage to the soil cement at the same elevation. The reservoir is regulated to maintain this level until the ice clears each spring and then slowly filled. This operation greatly enhances the spring spawning of fish. 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.

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.

1978 SUMMARY

Precipitation, as recorded near Merritt Dam, totaled 18.48 inches of rainfall which was 105 percent of normal. The water supply was more than adequate to meet the project's irrigation requirement. There were 29,492 acres of land irrigated in 1978 and the gross crop value was $6,525,377, which is 105 percent of the previous year.

The Ainsworth Unit was hit by four separate storms occurring June 21 through 25, 1978. They consisted of high winds, hail, rain, tornadoes, and flooding. An estimated 15,000 acres of irrigated project lands were severely damaged, and another 5,000 acres were moderately damaged.

The District executed several temporary water service contracts which provided a total of 166 acre-feet of irrigation water from holding ponds.

1979 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 in 1979 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 station 1272+92 on the Sargent Canal 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 fo lands served under main canal lateral mile post 23.7.

1978 SUMMARY

The annual precipitation over the Sargent Unit (20.32 inches at district headquarters) was only 87 percent of normal. The diversions into the Sargent Canal totaled 28,460 acre-feet. The diversions exceeded the appropriated right for 30 days during 1978. There were 11,432 acres irrigated with a gross crop value of $2,546,831, which is $276,210 more than in 1977. The increase in corn acreage throughout the district (approximately 90%) has created very high water demands in July and August. The demands cannot be met within canal capacity so the district has instituted a rationing process through the peak period.

1979 OUTLOOK

The Loup Basin Reclamation District estimates that 13,000 acres in the Sargent Unit will be irrigated in 1979. 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 five feet below the top of the conservation capacity to minimize seepage from the reservoir into the groundwater table. Each spring, diversions into Sherman Feeder Canal from the Middle Loup River are regulated to fill the conservation capacity of Sherman Reservoir by mid-June. The gradually rising water surface in the spring is 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 through Sherman Feeder Canal into Sherman Reservoir. Flood control benefits can be accrued to Sherman Reservoir by such operations.

1978 SUMMARY

The diversions from the Middle Loup River at Arcadia Diversion Dam were 26,448 acre-feet to Middle Loup Public Power and Irrigation District and 126,500 acre-feet into Sherman Feeder Canal.

Sherman Feeder Canal diversions into Sherman Reservoir were started on March 28, and the conservation capacity was filled on May 25, 1978. The precipitation at Sherman Dam was 24.88 inches, which is 120 percent of normal. Releases into the Farwell Canals totaled 94,102 acre-feet. The Farwell Irrigation District reported that 46,729 acres of land were irrigated in 1978. The gross crop value was $11,679,142, which is $2,754,608 more than in 1977.

The Irrigation Management Services program was continued during 1978. There were 1,842 acres in the Sargent Unit and 1,322 acres in the Farwell Unit served by the program.

1979 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 early spring.

Under most probable inflow conditions, a shortage is expected in 1979. This shortage is attributable to high system losses and large irrigation requirements for corn production during the months of July and August.

The District has decided not to continue with the Irrigation Management Services program.

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 Rex Monahan for their waterflood operations in the Sleepy Hollow Oil Field, south of Bartley, Nebraska.

Bonny Reservoir inflows from the South Fork of the Republican River and Landsman Creek are released into Hale Ditch, as requested by Colorado's State Engineer. If contract procedures are clarified and approved Bonny storage water may be available to Hale Ditch and other natural flow appropriators under temporary contracts. Most of the 700 acres served by Hale Ditch are now owned and operated by the Colorado Department of Natural Resources, Division of Wildlife.

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.

1978 SUMMARY

The 12.78 inches of precipitation during 1978 was 78 percent of normal, while the inflow (15,562 acre-feet) to Bonny Reservoir was less than the reasonable minimum inflow forecast. The water supply was adequate to furnish 351 acre-feet to AMOCO Production Company and 8 acre-feet to Rex Monahan. As directed by the Colorado Water Commissioner, 1,600 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 two users. The State of Colorado Department of Natural Resources purchased 851 acre-feet for industrial or irrigation purposes and BAL Enterprises purchased 97 acre-feet for industrial use. A new contract is being prepared for sales of storage water to the State of Colorado. The water service contract with AMOCO Production Company expires in 1979. A letter agreement extends the contract to June 13, 1984. The Rex Monahan contract was previously extended to August 1, 1981, in a similar manner.

1979 OUTLOOK

AMOCO Production Company and Rex Monahan will have an adequate water supply in 1979. Water stored in Bonny Reservoir will also be available for sale to Hale Ditch and other private irrigators under temporary contracts, if contract procedures are clarified and approved.

Normal releases will be started in February to regulate the reservoir to elevation 3669.5 by the end of April, then slowly raised to elevation 3670.0 by the end of May to enhance fish spawning.

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.

1978 SUMMARY

The 14.91 inches of annual precipitation at Enders Dam was 79 percent of normal, while the 1978 inflow into Enders Reservoir (30,328 acre-feet) was slightly below 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). This was the eleventh consecutive year with below-normal inflows. The conservation pool was not filled during 1978. A total of 2,810 acre-feet of water was conserved between the 1977 and 1978 irrigation seasons by pumping seepage back into the reservoir. Irrigation releases were stopped on August 28th.

The farm delivery averaged about 0.88 acre-foot per acre for the two districts. A few farmers were able to supplement their project water supply from private irrigation wells. The Frenchman Valley Irrigation District reports that 8,360 acres received water in 1978, and the H & RW Irrigation District reports 10,820 acres, which are 87 and 94 percent, respectively, of the lands with service available. The gross crop value for Frenchman Valley Irrigation District was $2,100,471, which is an increase of $6,726 from the previous year; and the gross crop value for the H & RW Irrigation District was $2,267,059, which is a decrease of $447,201 from the previous year.

1979 OUTLOOK

The fall and early winter inflows into Enders Reservoir were a little below the dry-year forecast. If reasonable minimum runoff conditions prevail, the project water supply is expected to be inadequate to irrigate 7,500 acres in the Frenchman Valley Irrigation District and 9,820 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 DIVISON IN NEBRASKA

GENERAL

During the spring months, Swanson, Hugh Butler and Harry Strunk Lakes normally have a rising or stable pool which enhances the spawning of northern pike and walleye. These lakes provide excellent opportunities for fishing, water sports and recreation. The seepage below Red Willow and Medicine Creek Dams provides excellent fishing.

During 1978, because of plans to draw the Harlan County Lake pool down to elevation 1942.0, by August 1 (before the end of irrigation operations), it was decided to store flows in the flood control pool of Harry Strunk Lake up to elevation 2368.1, if available. By June 16, the lake reached an elevation of 2367.25 with about 2,200 acre-feet of storage in the flood control pool.

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 1978, an automatic gate controller was again installed on the north bypass gate at the Cambridge Diversion Dam. This was done to maintain a constant water surface elevation in the upstream pool for regulating diversions into the canal.

The Frenchman-Cambridge Rehabilitation and Betterment Program for placing laterals in pipe was continued during 1978. Through the end of 1978, 2.51 miles of Cambridge Canal laterals, 1.45 miles of Upper Meeker Canal laterals and 9.85 miles of Red Willow Canal laterals have been completed.

1978 SUMMARY

The precipitation of 14.53 inches at Trenton Dam was 75 percent of normal and the inflow to Swanson Lake was 74 percent of the dry-year forecast. At the beginning of the 1978 irrigation season, there was 75,920 acre-feet of water stored in Swanson Lake, which is 44,240 acre-feet below the top of

conservation capacity. This carryover storage, storage releases from Hugh Butler Lake 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 34,824 acre-feet into Meeker-Driftwood Canal to irrigate 15,722 acres, and 12,335 acre-feet into Bartley Canal for 6,080 acres. At the end of the 1978 irrigation season (October 15), there was only 28,890 acre-feet of carryover storage in Swanson Lake, which is 9,950 acre-feet less than the previous year.

The precipitation of 14.07 inches at Red Willow Dam was 71 percent of normal while the inflow into Hugh Butler Lake was about 2,000 acre-feet above the most probable forecast. The water supply was adequate to meet the diversion requirements for Red Willow Canal. The district diverted 9,475 acre-feet of water to irrigate 4,604 acres of land served by Red Willow Canal. During the latter part of the irrigation season, in order to conserve water in Swanson Lake, demands for the Bartley Canal were satisfied by supplementing natural flows with storage water from Hugh Butler Lake. At the end of the irrigation season (October 15), there was 17,360 acre-feet of carryover storage in Hugh Butler Lake.

The annual precipitation of 16.03 inches was 83 percent of normal at Medicine Creek Dam while the inflow was between the normal- and dry-year forecasts. The water supply was adequate and 34,714 acre-feet of water was diverted to irrigate 16,107 acres of land served by the Cambridge Canal. At the end of the irrigation season (October 15), there was 9,175 acre-feet of carryover storage in Harry Strunk Lake.

The 1978 gross crop value from the lands served by Meeker-Driftwood, Bartley, Red Willow, and Cambridge Canals was $10,851,687, which is $52,839 less than in 1977.

1979 OUTLOOK

Forecasts show that 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 and moderate shortages experienced.

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 1979.

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.

1978 SUMMARY

The annual precipitation at Norton Dam was 21.06 inches of rainfall, which is 103 percent of normal. The total annual inflow was 5,234 acre-feet, which is about 2,000 acre-feet less than the dry-year forecast. Of the 2.51 acre-feet per acre farm delivery (13,130 acre-feet), 0.31 acre-foot per acre was available from the project water supply (1,630 acre-feet) and the balance was supplied from private irrigation wells. This is the eighth consecutive year that the district has had to use water from privately owned irrigation wells to obtain an adequate water supply.

A total of 4,906 acre-feet was released to the river from Norton Reservoir during the irrigation season, of which the Almena Irrigation District diverted 3,694 acre-feet from Prairie Dog Creek. The water users pumped 11,500 acre-feet from irrigation wells as a supplemental supply to project lands. The 5,227 acres irrigated in 1978 produced a gross crop value of $1,311,100. This is 86 percent of the crop value for 1977.

The City of Norton used 823 acre-feet of municipal water during 1978.

1979 OUTLOOK

The Almena Irrigation District expects to deliver water to 5,500 acres if an adequate water supply is available. If 1979 is a dry year without significant run-off producing storms above Norton Reservoir, a shortage of 17,700 acre-feet may be experienced. If normal inflow into the reservoir and normal rainfall over the irrigated area occur in 1979, a full water supply can be furnished from Norton Reservoir storage and Prairie Dog Creek flows.

Requirements for the City of Norton are expected to be met in full in 1979.

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.

The Kansas Fish and Game Commission has requested 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.

1978 SUMMARY - BOSTWICK DIVISION
HARLAN COUNTY LAKE OPERATIONS

The precipitation at Harlan County Dam totaled 25.10 inches of rainfall which was 120 percent of normal, while the annual inflow (124,718 acre-feet) was about 9,000 acre-feet below the dry-year forecast. The conservation capacity of Harlan County Lake lacked about 31,000 acre-feet of being filled at the beginning of the 1978 irrigation season.

The 32,560 irrigated acres in the Bostwick Division in Nebraska and Kansas above Lovewell Dam were furnished a full water supply. In addition, 25,904 acre-feet were delivered to Lovewell Reservoir through the Courtland Canal. At the end of the irrigation season (September 30) there were 187,160 acre-feet of carryover storage in Harlan County Lake.

1978 SUMMARY - BOSTWICK DIVISION - NEBRASKA

The Bostwick Irrigation District in Nebraska diverted 50,356 acre-feet for the irrigation of 20,624 acres. The gross crop value was $4,935,156, which is $291,114 more than in 1977.

1978 SUMMARY - BOSTWICK DIVISION - KANSAS

The 1978 precipitation at Lovewell Dam totaled 31.20 inches of rainfall which was 126 percent of normal.

The Kansas-Bostwick Irrigation District diverted a total of 71,009 acre-feet to serve 11,936 acres above Lovewell Dam and 19,973 acres below Lovewell Dam. The gross crop value was $7,618,349, which is $1,703,032 higher than the previous year. Prior to the start of the irrigation season, Lovewell Reservoir's conservation pool was filled and 1,540 acre-feet were stored in the flood pool by July 1st. At the end of the irrigation season (September 30), there were 36,340 acre-feet of water stored in Lovewell Reservoir.

1979 OUTLOOK - BOSTWICK DIVISION

The Bostwick Irrigation District in Nebraska and the Kansas-Bostwick Irrigation District expect to deliver water to 20,600 and 35,100 acres, respectively. The storage in Harlan County Lake and Lovewell Reservoir and the return flows of the Republican River and White Rock Creek are expected to furnish an adequate water supply for the Bostwick lands. However, under dry-year forecasts both reservoirs would be drawn down with a minor shortage occurring near the end of the irrigation season.

Inflow to Lovewell Reservoir from the Courtland Canal will be started early in the spring to allow for filling the reservoir from natural flow in the Republican River without storage releases from Harlan County Lake. Because of the low carryover storage in Harlan County Lake available to transfer to Lovewell Reservoir during the irrigation season, water will be stored temporarily in the bottom two feet of Lovewell Reservoir flood control pool if significant inflow from White Rock Creek or natural flows below Harlan County Dam should occur.

KIRWIN UNIT, SOLOMON DIVISION IN KANSAS

GENERAL

The water supply for the 11,435 acres of land in the Kirwin Irrigation District is furnished by storage from Kirwin Reservoir and inflows from the North Fork of the Solomon River.

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.

1978 SUMMARY

The precipitation totaled 23.11 inches of rainfall which was 103 percent of normal. The inflow (15,750 acre-feet) was a little below the dry-year forecast. Due to low water levels in Kirwin Reservoir, irrigation releases were stopped August 15th.

The Kirwin Irrigation District diverted 13,192 acre-feet for irrigation of 8,437 acres. The gross crop value from these acres was $1,699,429, which is $73,153 less than in 1977.

An Irrigation Management Services (IMS) Program, started in 1976, in the Kirwin Irrigation District was continued in 1978. The Irrigation Management Services Program was operated as a joint service to farmers in the Kirwin and Webster Irrigation Districts with 1,200 acres being served in the Kirwin Unit. The IMS fieldman monitored soil moisture conditions throughout the district prior to any irrigation releases. Through his efforts the district was able to delay releases from Kirwin Reservoir until July 4, which was about three weeks later than normal.

1979 OUTLOOK

The Kirwin Irrigation District estimates that 9,000 acres will be irrigated in 1979. Carryover storage in Kirwin Reservoir, combined with normal precipitation and normal forecasted inflows from the North Fork of the Solomon River, is expected to be adequate to irrigate these lands. However, under dry-year forecasts, a shortage of about 8,500 acre-feet may be experienced.

There will be no Irrigation Management Services Program in 1979.

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.

1978 SUMMARY

In 1978, the precipitation at Webster Dam was 93 percent of normal (22.12 inches). The inflow of 21,448 acre-feet was between dry- and normal-year forecasts. On May 1, 1978, which is the beginning of the irrigation season, only 10,860 acre-feet of water were stored in the reservoir (5,560 acre-feet in active pool). The District decided to forgo project irrigation for the season since precipitation for the first four months was 61 percent of normal and a dry year appeared imminent.

A heavy rainstorm during the late afternoon of August 14 was centered over the Webster Dam drainage area. The resultant four-day runoff (about 11,000 acre-feet of inflow) raised the reservoir level seven feet.

On September 30, there was 22,930 acre-feet of water stored in the reservoir. The Webster Irrigation District reported a gross 1978 crop value of $1,014,570, which is $180,618 less than the previous year.

The Irrigation Management Services Program served about 1,100 acres in the Webster project area that received water from private pumps.

1979 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 7,000 acres in the Webster Irrigation District in 1979. Dry-year forecasts show a shortage of nearly 8,000 acre-feet.

There will be no Irrigation Management Services Program in 1979.

GLEN ELDER UNIT, SOLOMON DIVISION IN KANSAS

GENERAL

Releases from Waconda Lake will be regulated as outlined in two Memorandums of Understanding between the State of Kansas and the Bureau of Reclamation. Releases are made for the City of Beloit, temporary water service contracts and water right administration. The water service contract with Beloit, Kansas, provides for 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.

1978 SUMMARY

The precipitation at Glen Elder Dam was 89 percent of normal (22.75 inches) and the inflow (84,130 acre-feet) was between dry- and normal-year forecasts. A total of 1,729 acre-feet was released for use by the City of Beloit, Kansas; 463 acre-feet was released for use by the WCH&T Rural Water District No. 2; and 3,101 acre-feet of storage water was sold to private irrigators in the Solomon Valley under temporary contracts. On September 30, 1978, there were 231,370 acre-feet of water stored in the reservoir.

1979 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. If contract procedures are clarified and approved Waconda Lake storage water may be available to natural flow appropriators under temporary contracts. During 1979 Waconda Lake will be operated with a stable or slowly rising pool early in the year. Under dry- or normal-year conditions, Waconda Lake will be lowered to about 2.5 feet below the top of the conservation pool for the winter season.

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.

1978 SUMMARY

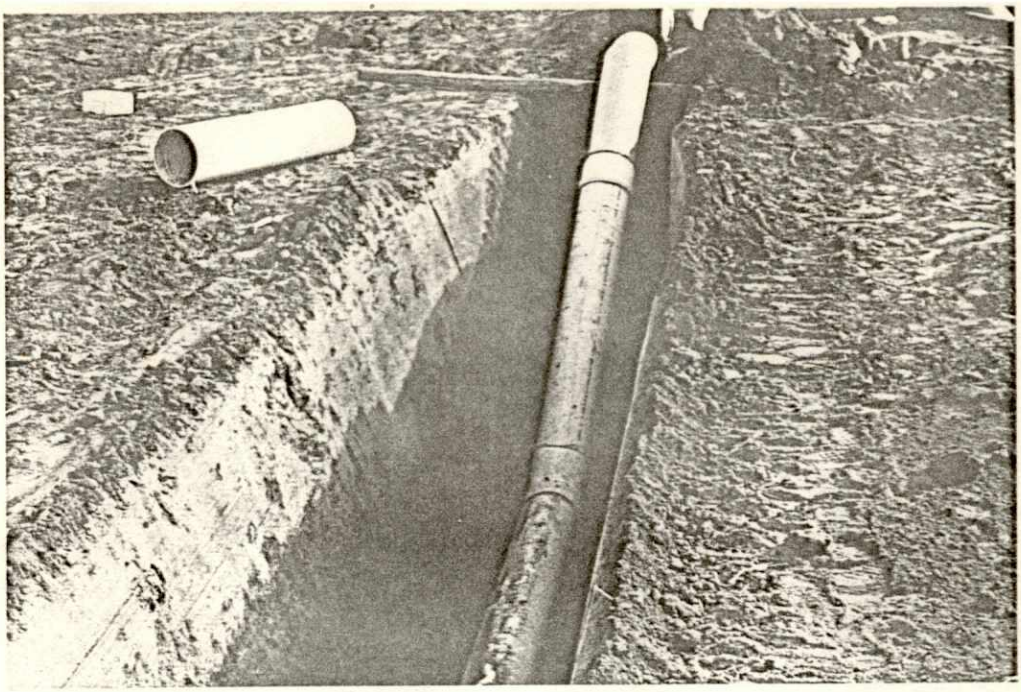
The precipitation was 71 percent of normal (15.60 inches). The inflow (11,840 acre-feet) was below the dry-year forecast. The water supplies for the Cedar Bluff Irrigation District and the Cedar Bluff National Fish Hatchery were furnished in full. The irrigation district diverted 19,035 acre-feet to irrigate 6,733 acres of project lands. The gross crop value of $1,372,024 was substantially greater ($527,619) than the previous year. The fish hatchery diverted 2,229 acre-feet, most of which is passed through the facilities and returned to the Smoky Hill River below Cedar Bluff Dam.

A total of 1,616 acre-feet of storage water was released for use by the City of Russell, Kansas, in 1978.

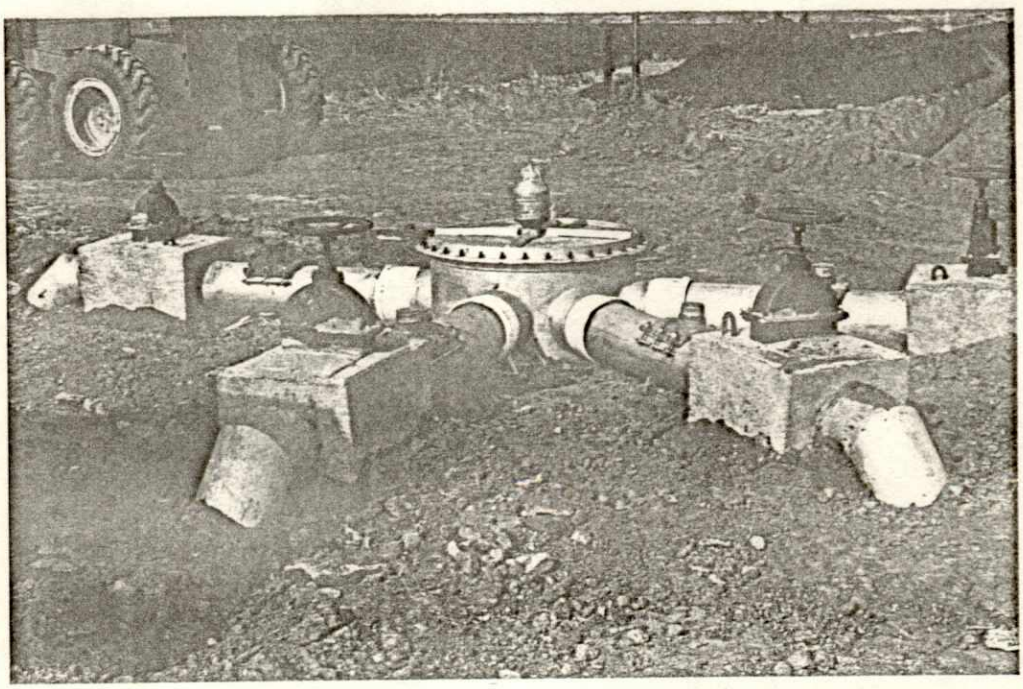
1979 OUTLOOK

The carryover storage in Cedar Bluff Reservoir and the inflows from the Smoky Hill River are expected to be adequate for irrigation of 6,750 acres in 1979 under normal- or wet-year conditions. However, with dry-year inflows, a severe shortage of over 20,000 acre-feet is expected.

The requirements of the Cedar Bluff National Fish Hatchery and the City of Russell will be satisfied in full in 1979.



Views of pipe lateral being installed under Frenchman-Cambridge Irrigation District's Rehabilitation and Betterment Program.



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 1978 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.	1,230	50	69	0.37	10,402	0	0
Feb.	1,336	48	78	0.51	11,612	0	0
Mar.	3,342	61	157	0	14,736	0	0
Apr.	1,901	60	309	2.11	16,268	0	0
May	2,269	61	369	5.84	18,107	0	0
June	486	127	549	1.71	17,917	68	0
July	17	8,537*	448	3.02	8,949	8,299	2,986
Aug.	2,747	8,348*	251	1.76	3,097	8,492	4,389
Sep.	1,527	1,407	180	0.50	3,037	1,550	711
Oct.	1,140	49	156	0.22	3,972	0	0
Nov.	2,406	48	125	0.85	6,205	0	0
Dec.	1,360	55	70	0.54	7,440	0	0
TOTAL	19,761	18,851	2,761	17.43	---	18,409	8,086

NOTE.--Mirage Flats Canal:
Acres irrigated 1978 -- 10,898. * USGS data.

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.	12,095	12,393	245	0.11	68,288	0	0
Feb.	12,412	11,564	305	0.61	68,831	0	0
Mar.	15,963	15,806	428	0.13	68,560	0	0
Apr.	19,073	12,417	730	3.77	74,486	0	0
May	16,732	15,096	1,047	3.27	75,075	2,213	80
June	12,723	11,667	1,350	2.03	74,781	4,996	1,103
July	12,962	18,395	1,331	3.06	68,017	16,435	10,058
Aug.	13,861	29,609	1,048	2.82	51,221	25,150	19,134
Sep.	13,815	10,641	941	0.96	53,454	9,667	5,349
Oct.	13,063	7,406	694	0.57	58,417	143	263
Nov.	11,519	10,856	414	0.45	58,666	0	0
Dec.	12,403	12,605	288	0.70	58,176	0	0
TOTAL	166,621	168,455	8,821	18.48	---	58,604	35,987

NOTE.--Ainsworth Canal:
Acres irrigated 1978 -- 29,492

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	1,296	82	0	48,272	0	0
Feb.	0	0	0	0	0	1,016	113	0.29	47,143	0	0
Mar.	0	0	0	220	2,122	1,230	223	0.45	47,812	0	0
Apr.	0	0	0	12,290	11,600	1,567	417	6.12	57,428	0	0
May	0	0	2,860	21,470	17,131	4,145	1,049	3.22	69,365	3,409	0
June	5,008	1,095	3,150	17,360	14,296	13,216	1,080	2.26	69,365	11,554	215
July	13,456	9,412	11,903	15,850	18,336	43,769	1,137	2.82	42,795	41,324	25,985
Aug.	7,886	5,511	6,054	24,620	24,691	31,323	1,071	5.71	35,092	29,627	19,466
Sep.	2,110	1,223	2,481	24,060	22,128	9,530	770	0.75	46,920	8,188	5,222
Oct.	0	0	0	10,630	9,331	1,077	745	2.12	54,429	0	0
Nov.	0	0	0	0	0	1,295	412	0.89	52,722	0	0
Dec.	0	0	0	0	0	1,301	127	0.25	51,294	0	0
TOTAL	28,460	17,241	26,448	126,500	119,635	110,765	7,226	24.88	---	94,102	50,888

1/ Non-Project.
NOTE.--Sargent Canal: Acres irrigated 1978 -- 11,432
Middle Loup P. P. Canals: Acres irrigated 1978 -- 14,754
Farwell Canals: Acres irrigated 1978 -- 46,729

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.	1,398	372	186	0.29	37,770	0	34
Feb.	1,842	336	196	0.55	39,080	0	31
Mar.	2,262	1,832	300	0.14	39,210	0	33
Apr.	1,332	1,052	790	0.63	38,700	0	31
May	2,416	602	904	4.34	39,610	151	30
June	1,302	638	1,234	1.98	39,040	250	31
July	754	1,066	2,178	0.42	36,550	705	28
Aug.	592	454	1,578	2.70	35,110	130	28
Sep.	444	310	1,594	0.05	33,650	82	26
Oct.	498	394	824	0.75	32,930	90	26
Nov.	1,404	464	360	0.47	33,510	192	30
Dec.	1,318	326	192	0.46	34,310	0	31
TOTAL	15,562	7,846 2/	10,336	12.78	---	1,600 2/	359

2/ Includes 948 A.F. under temporary contracts.

TABLE 2
SUMMARY OF 1978 OPERATIONS

FRENCHMAN-CAMBRIDGE DIVISION
FRENCHMAN UNIT

ENDERS RESERVOIR

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End Of Month Content (AF)	CULBERTSON CANAL Diversions To Canal (AF)	CULBERTSON CANAL Delivered To Farms (AF)	CULBERTSON EXT. CANAL Diversions To Canal (AF)	CULBERTSON EXT. CANAL Delivered To Farms (AF)
Jan.	2,792	0	62	0.46	23,510	0	0	0	0
Feb.	2,670	10	90	0.99	26,080	0	0	0	0
Mar.	2,394	62	172	0.83	28,240	0	0	0	0
Apr.	2,118	60	518	1.65	29,780	2,092	405	0	0
May	2,552	62	630	4.80	31,640	1,010	483	2,715	8
June	2,194	4,594	800	0.94	28,440	1,232	544	4,718	1,037
July	3,498	17,556	742	2.56	13,640	6,490	4,054	10,292	6,303
Aug.	2,570	6,784	386	0.38	9,040	4,863	2,584	3,228	1,539
Sep.	2,380	0	360	0.20	11,060	0	0	0	0
Oct.	2,416	0	226	0.93	13,250	0	0	0	0
Nov.	2,362	62	120	0.47	15,430	0	0	0	0
Dec.	2,382	0	62	0.70	17,750	0	0	0	0
TOTAL	30,328	29,190	4,168	14.91	---	15,687	8,070	20,953	8,887

NOTE.--Culbertson Canal: Acres irrigated 1978 -- 8,360
Culbertson Extension Canal: Acres irrigated 1978 -- 10,820

FRENCHMAN-CAMBRIDGE DIVISION (Continued)
MEEKER-DRIFTWOOD UNIT

SWANSON LAKE

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End Of Month Content (AF)	MEEKER-DRIFTWOOD Diversions To Canal (AF)	MEEKER-DRIFTWOOD Delivered To Farms (AF)	BARTLEY CANAL Diversions To Canal (AF)	BARTLEY CANAL Delivered To Farms (AF)
Jan.	3,268	62	196	0.10	47,660	0	0	0	0
Feb.	3,508	56	252	0.56	50,860	0	0	0	0
Mar.	10,656	62	464	1.61	60,990	0	0	0	0
Apr.	6,540	60	1,360	1.71	66,110	0	0	0	0
May	7,284	62	1,632	3.18	71,700	0	0	0	0
June	6,432	8,134	2,308	1.22	67,690	5,816	2,521	1,758	674
July	2,452	23,712	2,760	2.36	43,670	16,462	12,238	5,843	4,945
Aug.	1,030	12,500	1,540	1.33	30,660	11,545	8,670	4,201	3,556
Sep.	600	1,250	1,770	0.13	28,240	1,001	637	533	413
Oct.	644	62	1,112	1.20	27,710	0	0	0	0
Nov.	380	60	360	0.66	27,670	0	0	0	0
Dec.	1,648	62	186	0.47	29,070	0	0	0	0
TOTAL	44,442	46,082	13,940	14.53	---	34,824	24,066	12,335	9,588

NOTE.--Meeker-Driftwood Canal: Acres irrigated 1978 -- 15,722
Bartley Canal: Acres irrigated 1978 -- 6,080

FRENCHMAN-CAMBRIDGE DIVISION (Continued)
RED WILLOW UNIT

HUGH BUTLER LAKE

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End Of Month Content (AF)	RED WILLOW CANAL Diversions To Canal (AF)	RED WILLOW CANAL Delivered To Farms (AF)
Jan.	1,084	240	124	0.14	29,610	0	0
Feb.	2,040	214	96	1.25	31,340	0	0
Mar.	4,714	216	188	0.21	35,650	0	0
Apr.	1,700	310	700	1.83	36,340	0	0
May	2,598	582	746	3.16	37,610	0	0
June	1,554	4,130	1,164	0.21	33,870	1,645	810
July	1,420	6,944	1,106	1.94	27,240	4,075	3,191
Aug.	1,738	9,694	664	3.64	18,620	3,197	2,419
Sep.	1,396	2,402	544	0.15	17,070	558	443
Oct.	1,466	308	338	0.77	17,890	0	0
Nov.	1,590	300	180	0.52	19,000	0	0
Dec.	1,606	308	68	0.25	20,230	0	0
TOTAL	22,906	25,648	5,918	14.07	---	9,475	6,863

NOTE.--Red Willow Canal: Acres irrigated 1978 -- 4,604

FRENCHMAN-CAMBRIDGE DIVISION (Continued)
CAMBRIDGE UNIT

HARRY STRUNK LAKE

MONTH	Inflow (AF)	Outflow (AF)	Gross Evap. (AF)	Precip. (Inches)	End Of Month Content (AF)	CAMBRIDGE CANAL Diversions To Canal (AF)	CAMBRIDGE CANAL Delivered To Farms (AF)
Jan.	2,756	62	124	0.33	32,650	0	0
Feb.	4,618	68	120	0.94	37,080	0	0
Mar.	10,934	10,490	464	0.27	37,060	0	0
Apr.	4,570	3,494	736	2.02	37,400	0	0
May	4,140	2,342	798	3.33	38,400	0	0
June	2,090	4,440	1,150	0.66	34,900	3,588	860
July	3,476	19,362	1,024	3.56	17,990	17,480	12,259
Aug.	2,308	11,146	522	2.40	8,630	12,162	8,443
Sep.	1,528	1,348	330	0.37	8,480	1,484	950
Oct.	2,200	62	238	1.23	10,380	0	0
Nov.	2,620	60	120	0.83	12,820	0	0
Dec.	2,672	60	62	0.09	15,370	0	0
TOTAL	43,912	52,934	5,688	16.03	---	34,714	22,512

NOTE.--Cambridge Canal: Acres irrigated 1978 -- 16,107

TABLE 2
SUMMARY OF 1978 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.	198	56	62	0.11	8,120	41	0	0
Feb.	532	52	60	0.72	8,540	46	0	0
Mar.	588	86	112	0.20	8,930	50	0	0
Apr.	438	66	362	1.25	8,940	67	0	0
May	584	82	372	4.23	9,070	69	0	0
June	302	1,190	552	0.94	7,630	89	729	109
July	1,068	3,852	466	4.22	4,380	90	2,973	1,521
Aug.	706	90	336	6.06	4,660	89	0	0
Sep.	216	80	456	0.47	4,340	103	0	0
Oct.	218	84	294	1.41	4,180	84	0	0
Nov.	188	58	60	1.28	4,250	50	0	0
Dec.	196	64	62	0.17	4,320	45	0	0
TOTAL	5,234	5,760	3,194	21.06	---	823	3,694	1,630

NOTE.--Almena Canal:
Acres irrigated 1978 -- 5,227

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.	6,908	620	558	0.07	218,040	0	0	0	0
Feb.	7,746	560	736	0.74	224,490	0	0	0	0
Mar.	37,138	620	1,428	0.34	259,580	0	0	0	0
Apr.	20,086	600	4,366	2.60	274,700	0	0	0	0
May	17,768	620	4,948	4.49	286,900	0	0	0	0
June	10,492	16,080	7,612	1.25	273,700	3,770	1,256	530	218
July	6,180	50,990	7,850	6.22	221,040	13,073	5,748	1,757	965
Aug.	8,900	27,958	5,492	6.14	196,490	8,467	3,234	620	306
Sep.	2,228	5,852	5,706	1.32	187,160	2,045	551	80	14
Oct.	1,526	620	5,066	0.77	183,000	0	0	0	0
Nov.	2,400	600	1,440	1.05	183,360	0	0	0	0
Dec.	3,346	620	696	0.11	185,390	0	0	0	0
TOTAL	124,718	105,740	45,898	25.10	---	27,355	10,789	2,987	1,503

NOTE.--Franklin Canal:
Acres irrigated 1978 -- 10,084

Naponee Canal:
Acres irrigated 1978 -- 1,681

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	0	0	0	0	0
Apr.	0	0	0	0	0	0	0	0	0
May	0	0	0	0	2,694	0	0	0	0
June	492	310	2,318	653	9,522	172	143	2,485	236
July	1,723	1,216	6,649	3,701	30,346	1,241	1,121	11,047	6,580
Aug.	478	265	5,343	2,484	17,359	620	545	10,996	5,800
Sep.	16	0	868	234	3,587	94	80	1,184	584
Oct.	0	0	0	0	0	0	0	0	0
Nov.	0	0	0	0	0	0	0	0	0
Dec.	0	0	0	0	0	0	0	0	0
TOTAL	2,709	1,791	15,178	7,072	63,508	2,127	1,889	25,712	13,200

NOTE.--Franklin Pump Canal:
Acres irrigated 1978 -- 1,937

Superior Canal:
Acres irrigated 1978 -- 5,406

NOTE.--Courtland Canal--Nebraska Use:
Acres irrigated 1978 -- 1,516

Courtland Canal--Kansas Use:
Acres irrigated 1978 -- 11,936

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.	76	0	186	0.38	40,570	0	0
Feb.	924	12	192	1.12	41,290	0	0
Mar.	10,170	7,476	374	0.71	43,610	0	0
Apr.	3,249	3,609	990	2.86	42,260	415	0
May	3,390	2,004	1,066	3.90	42,580	1,238	0
June	6,117	3,777	1,720	3.90	43,200	3,717	125
July	19,300	19,966	1,644	5.66	40,890	19,632	10,595
Aug.	7,843	16,441	1,462	3.15	30,830	16,431	8,515
Sep.	10,572	3,996	1,066	7.08	36,340	3,864	1,615
Oct.	834	1,072	1,632	0.63	34,470	0	0
Nov.	706	396	420	1.72	34,360	0	0
Dec.	462	1,102	310	0.09	33,410	0	0
TOTAL	63,643	59,851	11,062	31.20	---	45,297	20,850

NOTE.--Courtland Canal below Lovewell:
Acres irrigated 1978 -- 19,973

TABLE 2
SUMMARY OF 1978 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.	214	0	124	0.21	18,760	0	0
Feb.	330	0	120	1.35	18,970	0	0
Mar.	2,264	0	214	0.70	21,020	0	0
Apr.	1,400	0	520	1.95	21,900	0	0
May	1,930	0	640	4.33	23,190	0	0
June	664	0	1,034	3.30	22,820	0	0
July	827	8,577	1,390	3.23	13,680	8,577	4,225
Aug.	6,711	4,615	626	2.79	15,150 1/	4,615	2,900
Sep.	528	0	748	2.72	14,930	0	0
Oct.	500	0	820	0.72	14,610	0	0
Nov.	268	0	218	1.65	14,660	0	0
Dec.	114	0	124	0.16	14,650	0	0
TOTAL	15,750	13,192	6,578	23.11	---	13,192	7,125

NOTE.--Kirwin Canal:
Acres irrigated 1978 -- 8,437

1/ Reservoir level gage adjusted +1.29 feet on September 7, 1978. August inflow was adjusted to reflect correction.

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.	152	0	62	0.20	8,180	0	0
Feb.	316	0	86	1.25	8,410	0	0
Mar.	1,896	0	166	0.52	10,140	0	0
Apr.	1,562	0	952	1.18	10,750	0	0
May	1,864	0	514	4.85	12,100	0	0
June	580	0	810	2.76	11,870	Due to a severe water	
July	608	0	1,188	3.89	11,290	shortage no irrigation	
Aug.	13,120	0	910	3.90	23,500	releases were made into	
Sep.	480	0	1,050	1.07	22,930	Osborne Canal in 1978.	
Oct.	220	0	930	0.51	22,220	0	0
Nov.	370	0	590	1.77	22,000	0	0
Dec.	280	0	250	0.22	22,030	0	0
TOTAL	21,448	0	7,508	22.12	---	0	0

NOTE.--Osborne Canal:
Acres irrigated 1978 -- None

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.	1,612	992	620	0.22	219,790	572	385	35
Feb.	3,488	672	826	0.85	221,780	294	342	36
Mar.	21,562	4,158	1,624	0.82	237,560	126	3,986	46
Apr.	5,032	3,242	4,550	1.43	234,800	0	3,202	40
May	8,210	3,722	4,488	3.54	234,800	0	3,688	34
June	5,132	2,812	8,050	1.89	229,070	0	2,763	49
July	12,010	3,594	8,786	5.03	228,700	49	3,500	45
Aug.	9,338	1,874	7,464	4.15	228,700	1	1,834	39
Sep.	11,290	2,166	6,454	2.16	231,370	27	2,104	35
Oct.	2,628	1,502	7,316	0.35	225,180	55	1,413	34
Nov.	3,490	1,080	1,920	2.11	225,670	298	750	32
Dec.	338	1,116	922	0.20	223,970	307	771	38
TOTAL	84,130	26,930	53,020	22.75	---	1,729	24,738	463

2/ Flood control and water right administration. Includes 3,101 A.F. under temporary contracts.

SMOKY HILL DIVISON
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.	38	124	124	0.15	61,150	0	0	81	0
Feb.	600	116	254	0.96	61,380	0	0	80	0
Mar.	1,086	148	448	0.90	61,870	0	0	115	0
Apr.	796	180	1,566	1.09	60,920	0	0	181	0
May	2,546	318	1,458	3.56	61,690	0	0	256	0
June	3,704	2,782	2,292	3.79	60,320	2,536	714	258	0
July	768	9,032	3,316	1.89	48,740	7,743	5,992	327	813
Aug.	504	8,246	2,718	0.45	38,280	7,174	5,472	392	621
Sep.	640	2,134	1,736	0.66	35,050	1,582	1,175	225	182
Oct.	680	196	1,434	0.10	34,100	0	0	140	0
Nov.	406	166	360	1.82	33,980	0	0	97	0
Dec.	72	70	372	0.23	33,610	0	0	77	0
TOTAL	11,840	23,512	16,078	15.60	---	19,035	13,353	2,229	1,616

NOTE.--Cedar Bluff Canal:
Acres irrigated 1978 -- 6,733

TABLE 3
ACRES IRRIGATED IN 1978 AND ESTIMATES FOR 1979

Irrigation District and Canal	Acres With Service Available	Acres Irrigated in 1978	Estimated Acres to be Irrigated in 1979
Mirage Flats Irrigation District			
Mirage Flats Canal	11,662	10,898	11,000
Ainsworth Irrigation District			
Ainsworth Canal	34,539	29,492	34,000
Sargent Irrigation District			
Sargent Canal	13,363	11,432	13,000
Farwell Irrigation District			
Farwell Canal	50,051	46,729	48,000
Frenchman Valley Irrigation District			
Culbertson Canal	9,600	8,360	7,500
H & RW Irrigation District			
Culbertson Extension Canal	11,490	10,820	9,820
Frenchman-Cambridge Irrigation District			
Meeker-Driftwood Canal	16,476	15,722	16,200
Bartley Canal	6,539	6,080	6,300
Red Willow Canal	4,932	4,604	4,800
Cambridge Canal	17,053	16,107	16,700
Total Frenchman-Cambridge Irr. Dist.	45,000	42,513	44,000
Almena Irrigation District			
Almena Canal	5,763	5,227	5,500
Bostwick Irrigation District in Nebraska			
Franklin Canal	11,116	10,084	10,100
Naponee Canal	1,737	1,681	1,700
Franklin Pump Canal	2,091	1,937	2,050
Superior Canal	5,863	5,406	5,150
Courtland Canal (Nebr.)	1,980	1,516	1,600
Total Bostwick Irr. Dist. in Nebr.	22,787	20,624	20,600
Kansas-Bostwick Irrigation District			
Courtland Canal above Lovewell	12,771	11,936	11,600
Courtland Canal below Lovewell	27,329	19,973	23,500
Total Kansas-Bostwick Irr. Dist.	40,100	31,909	35,100
Kirwin Irrigation District			
Kirwin Canal	11,435	8,437	9,000
Webster Irrigation District			
Osborne Canal	8,500	0	7,000
Cedar Bluff Irrigation District			
Cedar Bluff Canal	6,800	6,733	6,750
TOTAL PROJECT USES	271,090	233,174	251,270
Non-Project Uses			
Middle Loup P. P. Canals	15,000	14,754	14,800
Hale Ditch	700	700	700
TOTAL NON-PROJECT USES	15,700	15,454	15,500
TOTAL PROJECT AND NON-PROJECT	286,790	248,628	266,770

BOX BUTTE RESERVOIR OPERATION ESTIMATES - 1979

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	3988.7	9.2	1.8
FEB	38.	2.1	1.15	.1	2.	.1	0.0	0.0	3990.9	11.1	1.9
MAR	52.	3.2	2.07	.2	2.	.1	0.0	0.0	3993.9	14.0	2.9
APR	44.	2.6	3.76	.3	29.	1.7	0.0	0.0	3994.5	14.6	.6
MAY	23.	1.4	6.32	.5	55.	3.4	0.0	0.0	3992.0	12.1	-2.5
JUN	13.	.8	7.22	.5	57.	3.4	0.0	0.0	3988.5	9.0	-3.1
JUL	8.	.5	8.60	.4	166.	10.2	0.0	3.4	3976.5	2.3	-6.7
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	2.8		34.6	0.0	18.1			-1.3
					MOST PROBABLE INFLOW CONDITIONS						
JAN	37.	2.3	.99	.1	2.	.1	0.0	0.0	3989.1	9.5	2.1
FEB	43.	2.4	1.04	.1	2.	.1	0.0	0.0	3991.6	11.7	2.2
MAR	55.	3.4	1.89	.2	2.	.1	0.0	0.0	3994.7	14.8	3.1
APR	49.	2.9	3.41	.3	20.	1.2	0.0	0.0	3996.0	16.2	1.4
MAY	24.	1.5	5.71	.5	18.	1.1	0.0	0.0	3995.9	16.1	-.1
JUN	24.	1.4	6.54	.6	42.	2.5	0.0	0.0	3994.3	14.4	-1.7
JUL	18.	1.1	7.80	.6	141.	8.7	0.0	0.0	3984.5	6.2	-8.2
AUG	16.	1.0	7.23	.3	143.	8.8	0.0	4.2	3976.5	2.3	-3.9
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	3.1		25.3	0.0	6.0			-.3
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	42.	2.6	.91	.1	2.	.1	0.0	0.0	3989.4	9.8	2.4
FEB	49.	2.7	.95	.1	2.	.1	0.0	0.0	3992.2	12.3	2.5
MAR	76.	4.7	1.72	.2	2.	.1	0.0	0.0	3996.4	16.7	4.4
APR	62.	3.7	3.12	.3	10.	.6	0.0	0.0	3998.8	19.5	2.8
MAY	39.	2.4	5.25	.6	13.	.8	0.0	0.0	3999.6	20.5	1.0
JUN	54.	3.2	6.00	.6	27.	1.6	0.0	0.0	4000.4	21.5	1.0
JUL	34.	2.1	7.14	.7	107.	6.6	0.0	0.0	3996.1	16.3	-5.2
AUG	26.	1.6	6.63	.6	106.	6.5	0.0	0.0	3990.6	10.8	-5.5
SEP	22.	1.3	4.82	.3	29.	1.7	0.0	0.0	3989.8	10.1	-.7
OCT	29.	1.8	3.85	.3	2.	.1	0.0	0.0	3991.4	11.5	1.4
NOV	42.	2.5	2.46	.2	2.	.1	0.0	0.0	3993.6	13.7	2.2
DEC	47.	2.9	1.15	.1	2.	.1	0.0	0.0	3996.2	16.4	2.7
TOTAL		31.5	44.00	4.1		18.4	0.0	0.0			9.0

MERRITT RESERVOIR OPERATION ESTIMATES - 1979

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	.2	16.	1.0	2.7	0.0	2944.0	68.8	10.6
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	8.0		120.1	49.3	0.0			-2.6
					MOST PROBABLE INFLOW CONDITIONS						
JAN	263.	16.2	1.07	.2	16.	1.0	4.4	0.0	2944.0	68.8	10.6
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	79.5	0.0			10.6
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	281.	17.3	.94	.2	16.	1.0	5.5	0.0	2944.0	68.8	10.6
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	122.6	0.0			10.6

SHERMAN RESERVOIR OPERATION ESTIMATES - 1979

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	2154.7	49.5	-1.8
FEB	0.	0.0	.71	.1	31.	1.7	0.0	0.0	2153.9	47.7	-1.8
MAR	0.	0.0	1.59	.3	28.	1.7	0.0	0.0	2153.0	45.7	-2.0
APR	301.	17.9	3.85	.8	29.	1.7	0.0	0.0	2159.4	61.1	15.4
MAY	177.	10.9	3.74	.9	33.	2.0	0.0	0.0	2162.3	69.1	8.0
JUN	200.	11.9	4.67	1.1	182.	10.8	0.0	0.0	2162.3	69.1	0.0
JUL	179.	11.0	7.91	1.3	1270.	78.1	0.0	9.8	2129.0	10.5	-58.6
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		117.9	41.72	6.9		189.9	0.0	79.2			.3
					MOST PROBABLE INFLOW CONDITIONS						
JAN	0.	0.0	.43	.1	28.	1.7	0.0	0.0	2154.7	49.5	-1.8
FEB	0.	0.0	.60	.1	31.	1.7	0.0	0.0	2153.9	47.7	-1.8
MAR	0.	0.0	1.19	.2	28.	1.7	0.0	0.0	2153.1	45.8	-1.9
APR	215.	12.8	2.08	.4	29.	1.7	0.0	0.0	2157.6	56.5	10.7
MAY	246.	15.1	2.22	.5	33.	2.0	0.0	0.0	2162.3	69.1	12.6
JUN	148.	8.8	3.32	.8	134.	8.0	0.0	0.0	2162.3	69.1	0.0
JUL	296.	18.2	5.59	1.1	872.	53.6	0.0	0.0	2146.4	32.6	-36.5
AUG	207.	12.7	5.12	.6	851.	52.3	0.0	18.1	2129.0	10.5	-22.1
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		123.0	29.93	5.4		135.2	0.0	18.1			.5
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	0.	0.0	.21	0.0	28.	1.7	0.0	0.0	2154.8	49.6	-1.7
FEB	0.	0.0	.32	.1	31.	1.7	0.0	0.0	2154.0	47.8	-1.8
MAR	0.	0.0	.42	.1	28.	1.7	0.0	0.0	2153.2	46.0	-1.8
APR	245.	14.6	.59	.1	29.	1.7	0.0	0.0	2158.5	58.8	12.8
MAY	202.	12.4	.39	.1	33.	2.0	0.0	0.0	2162.3	69.1	10.3
JUN	106.	6.3	.91	.2	103.	6.1	0.0	0.0	2162.3	69.1	0.0
JUL	384.	23.6	4.82	1.1	598.	36.8	0.0	0.0	2156.9	54.8	-14.3
AUG	268.	16.5	4.02	.7	577.	35.5	0.0	0.0	2147.8	35.1	-19.7
SEP	450.	26.8	2.14	.4	97.	5.8	0.0	0.0	2157.3	55.7	20.6
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		100.2	17.83	3.6		97.8	0.0	0.0			-1.2

BONNY RESERVOIR OPERATION ESTIMATES - 1979

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	3668.8	35.2	.9
FEB	25.	1.4	1.55	.2	0.0	1.0	18.	1.0	0.0	0.0	3668.9	35.4	.2
MAR	28.	1.7	2.45	.4	0.0	.6	10.	.6	0.0	0.0	3669.3	36.1	.7
APR	27.	1.6	4.30	.7	.3	.3	10.	.6	0.0	0.0	3669.5	36.4	.3
MAY	55.	3.4	5.35	.8	.9	.7	26.	1.6	0.0	0.0	3670.0	37.4	1.0
JUN	45.	2.7	6.95	1.1	.9	.3	20.	1.2	0.0	0.0	3670.2	37.8	.4
JUL	26.	1.6	8.30	1.3	.9	.3	20.	1.2	0.0	0.0	3669.7	36.9	-.9
AUG	23.	1.4	7.00	1.1	.8	.3	18.	1.1	0.0	0.0	3669.3	36.1	-.8
SEP	17.	1.0	5.20	.8	.6	.3	15.	.9	0.0	0.0	3668.9	35.4	-.7
OCT	18.	1.1	5.05	.8	.5	.3	13.	.8	0.0	0.0	3668.7	34.9	-.5
NOV	22.	1.3	3.05	.5	.3	.3	10.	.6	0.0	0.0	3668.8	35.1	.2
DEC	21.	1.3	1.85	.3	0.0	.3	5.	.3	0.0	0.0	3669.1	35.8	.7
TOTAL		19.9	52.50	8.2	5.2	5.0		10.2	0.0	0.0			1.5
MOST PROBABLE INFLOW CONDITIONS													
JAN	28.	1.7	1.20	.2	0.0	.3	5.	.3	0.0	0.0	3669.0	35.5	1.2
FEB	31.	1.7	1.40	.2	0.0	1.3	23.	1.3	0.0	0.0	3669.1	35.7	.2
MAR	36.	2.2	1.85	.3	0.0	2.1	34.	2.1	0.0	0.0	3669.0	35.5	-.2
APR	34.	2.0	2.80	.4	.4	.3	12.	.7	0.0	0.0	3669.5	36.4	.9
MAY	67.	4.1	3.00	.5	.6	2.0	42.	2.6	0.0	0.0	3670.0	37.4	1.0
JUN	55.	3.3	4.60	.7	.6	.3	15.	.9	0.0	0.0	3670.9	39.1	1.7
JUL	33.	2.0	6.25	1.0	.4	.3	11.	.7	0.0	0.0	3671.0	39.4	.3
AUG	28.	1.7	6.10	1.0	.4	.3	11.	.7	0.0	0.0	3671.0	39.4	0.0
SEP	20.	1.2	4.30	.7	.6	.3	15.	.9	0.0	0.0	3670.8	39.0	-.4
OCT	21.	1.3	4.55	.7	.6	.3	15.	.9	0.0	0.0	3670.7	38.7	-.3
NOV	27.	1.6	2.80	.5	.2	.3	8.	.5	0.0	0.0	3671.0	39.3	.6
DEC	26.	1.6	1.55	.3	0.0	.3	5.	.3	0.0	0.0	3671.5	40.3	1.0
TOTAL		24.4	40.40	6.5	3.8	8.1		11.9	0.0	0.0			6.0
REASONABLE MAXIMUM INFLOW CONDITIONS													
JAN	52.	3.2	.90	.1	0.0	.3	5.	.3	0.0	0.0	3669.8	37.1	2.8
FEB	58.	3.2	1.25	.2	0.0	3.5	63.	3.5	0.0	0.0	3669.6	36.6	-.5
MAR	65.	4.0	1.35	.2	0.0	3.5	57.	3.5	0.0	0.0	3669.7	36.9	.3
APR	62.	3.7	2.40	.4	.3	3.5	64.	3.8	0.0	0.0	3669.5	36.4	-.5
MAY	124.	7.6	2.05	.3	.5	5.8	102.	6.3	0.0	0.0	3670.0	37.4	1.0
JUN	104.	6.2	2.50	.4	.2	.3	8.	.5	1.4	0.0	3672.0	41.3	3.9
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	18.7		21.3	12.1	0.0			7.0

SWANSON LAKE OPERATION ESTIMATES - 1979

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	.2	2.	.1	0.0	0.0	2729.6	35.2	6.1
FEB	9.5	-.4	164.	9.1	1.20	.3	2.	.1	0.0	0.0	2732.9	43.9	8.7
MAR	11.1	-1.1	163.	10.0	1.95	.5	2.	.1	0.0	0.0	2735.9	53.3	9.4
APR	8.5	-1.0	126.	7.5	3.85	1.1	2.	.1	0.0	0.0	2737.8	59.6	6.3
MAY	7.7	-1.8	96.	5.9	4.10	1.2	99.	6.1	0.0	0.0	2737.4	58.2	-1.4
JUN	6.9	-1.5	91.	5.4	5.20	1.5	123.	7.3	0.0	0.0	2736.4	54.8	-3.4
JUL	2.4	-.5	31.	1.9	7.70	1.9	306.	18.8	0.0	0.0	2730.0	36.0	-18.8
AUG	1.9	-.4	24.	1.5	6.90	1.2	301.	18.5	0.0	0.0	2721.4	17.8	-18.2
SEP	.5	-.1	7.	.4	5.25	.7	198.	11.8	0.0	9.8	2720.0	15.5	-2.3
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	-9.9		61.1	45.80	9.8		67.0	0.0	12.0			-3.7
					MOST PROBABLE INFLOW CONDITIONS								
JAN	9.6	-1.4	133.	8.2	.75	.2	2.	.1	0.0	0.0	2730.4	37.0	7.9
FEB	12.0	-.4	209.	11.6	1.00	.2	2.	.1	0.0	0.0	2734.4	48.3	11.3
MAR	14.3	-.1	231.	14.2	1.40	.4	2.	.1	0.0	0.0	2738.4	62.0	13.7
APR	12.0	-1.3	180.	10.7	2.40	.8	2.	.1	0.0	0.0	2741.0	71.8	9.8
MAY	13.5	-1.5	195.	12.0	2.10	.7	24.	1.5	0.0	0.0	2743.5	81.6	9.8
JUN	15.7	-2.4	224.	13.3	3.70	1.3	30.	1.8	0.0	0.0	2745.9	91.8	10.2
JUL	5.7	-1.4	70.	4.3	6.10	2.1	265.	16.3	0.0	0.0	2742.5	77.7	-14.1
AUG	6.0	-1.1	80.	4.9	5.70	1.8	299.	18.4	0.0	0.0	2738.5	62.4	-15.3
SEP	5.0	-.3	79.	4.7	3.40	1.0	91.	5.4	0.0	0.0	2738.1	60.7	-1.7
OCT	4.6	-.4	68.	4.2	4.30	1.3	26.	1.6	0.0	0.0	2738.4	62.0	1.3
NOV	8.1	-1.1	118.	7.0	2.10	.6	2.	.1	0.0	0.0	2740.1	68.3	6.3
DEC	8.5	-1.3	117.	7.2	1.10	.4	2.	.1	0.0	0.0	2741.9	75.0	6.7
TOTAL	115.0	-12.7		102.3	34.05	10.8		45.6	0.0	0.0			45.9
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	11.8	-2.9	145.	8.9	.55	.1	2.	.1	0.0	0.0	2730.7	37.8	8.7
FEB	14.5	.3	266.	14.8	.60	.1	2.	.1	0.0	0.0	2735.6	52.4	14.6
MAR	19.3	-.5	306.	18.8	.60	.2	2.	.1	0.0	0.0	2740.8	70.9	18.5
APR	16.3	.1	276.	16.4	.60	.2	2.	.1	0.0	0.0	2744.8	87.0	16.1
MAY	23.1	-1.3	355.	21.8	.80	.3	13.	.8	0.0	0.0	2749.4	107.7	20.7
JUN	27.4	-4.3	388.	23.1	1.90	.8	17.	1.0	8.8	0.0	2752.0	120.2	12.5
JUL	29.3	-1.0	460.	28.3	4.00	1.7	102.	6.3	20.3	0.0	2752.0	120.2	0.0
AUG	18.3	-.8	285.	17.5	5.00	2.1	117.	7.2	8.2	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	-12.1		187.9	22.50	9.1		18.7	69.0	0.0			91.1

ENDERS RESERVOIR OPERATION ESTIMATES - 1979

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	3094.7	20.4	2.6
FEB	47.	2.6	1.20	.1	0.	0.0	0.0	0.0	3096.9	22.9	2.5
MAR	44.	2.7	1.95	.2	3.	.2	0.0	0.0	3098.9	25.2	2.3
APR	40.	2.4	4.10	.4	3.	.2	0.0	0.0	3100.4	27.0	1.8
MAY	42.	2.6	4.65	.5	44.	2.7	0.0	0.0	3099.9	26.4	-.6
JUN	47.	2.8	5.25	.5	52.	3.1	0.0	0.0	3099.2	25.6	-.8
JUL	42.	2.6	8.60	.7	299.	18.4	0.0	.9	3082.4	10.0	-15.6
AUG	39.	2.4	6.85	.4	280.	17.2	0.0	15.2	3082.4	10.0	0.0
SEP	44.	2.6	5.50	.3	108.	6.4	0.0	4.1	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	3.8		48.2	0.0	20.2			-.8
					MOST PROBABLE INFLOW CONDITIONS						
JAN	52.	3.2	.75	.1	0.	0.0	0.0	0.0	3095.1	20.9	3.1
FEB	54.	3.0	.95	.1	0.	0.0	0.0	0.0	3097.7	23.8	2.9
MAR	54.	3.3	1.35	.1	3.	.2	0.0	0.0	3100.2	26.8	3.0
APR	49.	2.9	2.60	.3	3.	.2	0.0	0.0	3102.1	29.2	2.4
MAY	52.	3.2	3.00	.3	10.	.6	0.0	0.0	3103.8	31.5	2.3
JUN	57.	3.4	3.55	.4	12.	.7	0.0	0.0	3105.5	33.8	2.3
JUL	52.	3.2	5.90	.6	211.	13.0	0.0	0.0	3097.4	23.4	-10.4
AUG	47.	2.9	6.50	.5	223.	13.7	0.0	0.0	3085.4	12.1	-11.3
SEP	50.	3.0	3.45	.2	44.	2.6	0.0	0.0	3085.7	12.3	.2
OCT	49.	3.0	4.30	.3	0.	0.0	0.0	0.0	3089.0	15.0	2.7
NOV	52.	3.1	2.30	.2	0.	0.0	0.0	0.0	3092.2	17.9	2.9
DEC	52.	3.2	.90	.1	0.	0.0	0.0	0.0	3095.2	21.0	3.1
TOTAL		37.4	35.55	3.2		31.0	0.0	0.0			3.2
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	63.	3.9	.55	0.0	0.	0.0	0.0	0.0	3095.9	21.7	3.9
FEB	63.	3.5	.30	0.0	0.	0.0	0.0	0.0	3098.9	25.2	3.5
MAR	63.	3.9	.95	.1	3.	.2	0.0	0.0	3101.8	28.8	3.6
APR	59.	3.5	.80	.1	3.	.2	0.0	0.0	3104.2	32.0	3.2
MAY	60.	3.7	1.25	.1	3.	.2	0.0	0.0	3106.6	35.4	3.4
JUN	67.	4.0	2.40	.3	3.	.2	0.0	0.0	3108.9	38.9	3.5
JUL	59.	3.6	4.35	.5	119.	7.3	0.0	0.0	3106.1	34.7	-4.2
AUG	54.	3.3	4.50	.5	133.	8.2	0.0	0.0	3102.2	29.3	-5.4
SEP	57.	3.4	2.30	.3	18.	1.1	0.0	0.0	3103.7	31.3	2.0
OCT	55.	3.4	3.35	.4	0.	0.0	0.0	0.0	3105.8	34.3	3.0
NOV	61.	3.6	1.90	.2	0.	0.0	0.0	0.0	3108.1	37.7	3.4
DEC	60.	3.7	.65	.1	0.	0.0	0.0	0.0	3110.4	41.3	3.6
TOTAL		43.5	23.30	2.6		17.4	0.0	0.0			23.5

HUGH BUTLER LAKE OPERATION ESTIMATES - 1979

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	2569.1	20.8	.6
FEB	20.	1.1	1.11	.1	5.	.3	0.0	0.0	2569.7	21.5	.7
MAR	24.	1.5	2.01	.2	5.	.3	0.0	0.0	2570.6	22.5	1.0
APR	22.	1.3	4.39	.4	5.	.3	0.0	0.0	2571.1	23.1	.6
MAY	26.	1.6	4.45	.4	29.	1.8	0.0	0.0	2570.6	22.5	-.6
JUN	39.	2.3	7.01	.7	30.	1.8	0.0	0.0	2570.4	22.3	-.2
JUL	23.	1.4	8.45	.7	122.	7.5	0.0	0.0	2563.8	15.5	-6.8
AUG	15.	.9	6.73	.5	119.	7.3	0.0	1.8	2557.9	10.4	-5.1
SEP	17.	1.0	6.08	.4	39.	2.3	0.0	1.7	2557.9	10.4	0.0
OCT	15.	.9	4.72	.3	15.	.9	0.0	.3	2557.9	10.4	0.0
NOV	15.	.9	2.63	.2	5.	.3	0.0	0.0	2558.4	10.8	.4
DEC	16.	1.0	1.20	.1	5.	.3	0.0	0.0	2559.2	11.4	.6
TOTAL		14.9	49.70	4.1		23.4	0.0	3.8			-8.8
					MOST PROBABLE INFLOW CONDITIONS						
JAN	21.	1.3	.70	.1	5.	.3	0.0	0.0	2569.4	21.1	.9
FEB	27.	1.5	.75	.1	5.	.3	0.0	0.0	2570.3	22.2	1.1
MAR	34.	2.1	1.35	.1	5.	.3	0.0	0.0	2571.8	23.9	1.7
APR	32.	1.9	2.70	.3	5.	.3	0.0	0.0	2572.9	25.2	1.3
MAY	37.	2.3	2.80	.3	16.	1.0	0.0	0.0	2573.7	26.2	1.0
JUN	54.	3.2	2.99	.3	15.	.9	0.0	0.0	2575.3	28.2	2.0
JUL	33.	2.0	6.09	.6	68.	4.2	0.0	0.0	2573.1	25.4	-2.8
AUG	21.	1.3	5.52	.5	73.	4.5	0.0	0.0	2569.9	21.7	-3.7
SEP	25.	1.5	3.81	.4	22.	1.3	0.0	0.0	2569.7	21.5	-.2
OCT	20.	1.2	3.88	.4	11.	.7	0.0	0.0	2569.8	21.6	.1
NOV	22.	1.3	1.84	.2	5.	.3	0.0	0.0	2570.5	22.4	.8
DEC	21.	1.3	.87	.1	5.	.3	0.0	0.0	2571.3	23.3	.9
TOTAL		20.9	33.30	3.4		14.4	0.0	0.0			3.1
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	31.	1.9	.40	0.0	5.	.3	0.0	0.0	2570.0	21.8	1.6
FEB	38.	2.1	.47	0.0	5.	.3	0.0	0.0	2571.6	23.6	1.8
MAR	47.	2.9	.85	.1	5.	.3	0.0	0.0	2573.6	26.1	2.5
APR	44.	2.6	1.52	.2	5.	.3	0.0	0.0	2575.3	28.2	2.1
MAY	52.	3.2	1.78	.2	13.	.8	0.0	0.0	2576.9	30.4	2.2
JUN	74.	4.4	1.82	.2	12.	.7	0.0	0.0	2579.3	33.9	3.5
JUL	46.	2.8	3.42	.4	47.	2.9	0.0	0.0	2579.0	33.4	-.5
AUG	29.	1.8	4.12	.5	47.	2.9	0.0	0.0	2577.9	31.8	-1.6
SEP	34.	2.0	3.09	.4	17.	1.0	0.0	0.0	2578.3	32.4	.6
OCT	26.	1.6	3.21	.4	8.	.5	0.0	0.0	2578.8	33.1	.7
NOV	30.	1.8	1.15	.1	5.	.3	0.0	0.0	2579.7	34.5	1.4
DEC	29.	1.8	.77	.1	5.	.3	0.0	0.0	2580.6	35.9	1.4
TOTAL		28.9	22.60	2.6		10.6	0.0	0.0			15.7

HARRY STRUNK LAKE OPERATION ESTIMATES - 1979

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	2352.1	17.4	2.0
FEB	45.	2.5	.89	.1	2.	.1	0.0	0.0	2354.2	19.7	2.3
MAR	52.	3.2	1.87	.2	2.	.1	0.0	0.0	2356.7	22.6	2.9
APR	54.	3.2	4.23	.5	2.	.1	0.0	0.0	2358.6	25.2	2.6
MAY	63.	3.9	4.07	.5	60.	3.7	0.0	0.0	2358.4	24.9	-.3
JUN	106.	6.3	5.02	.6	62.	3.7	0.0	0.0	2359.8	26.9	2.0
JUL	62.	3.8	8.41	.8	228.	14.0	0.0	0.0	2350.7	15.9	-11.0
AUG	41.	2.5	7.42	.5	226.	13.9	0.0	5.5	2343.0	9.5	-6.4
SEP	37.	2.2	4.64	.3	106.	6.3	0.0	4.4	2343.0	9.5	0.0
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	4.2		43.6	0.0	9.9			-1.7
MOST PROBABLE INFLOW CONDITIONS											
JAN	52.	3.2	.50	0.0	2.	.1	0.0	0.0	2353.2	18.5	3.1
FEB	65.	3.6	.75	.1	2.	.1	0.0	0.0	2356.1	21.9	3.4
MAR	75.	4.6	1.40	.2	2.	.1	0.0	0.0	2359.4	26.2	4.3
APR	77.	4.6	2.29	.3	2.	.1	0.0	0.0	2362.2	30.4	4.2
MAY	93.	5.7	2.41	.3	5.	.3	0.0	0.0	2365.2	35.5	5.1
JUN	151.	9.0	3.57	.5	8.	.5	6.4	0.0	2366.1	37.1	1.6
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	37.	2.2	0.0	0.0	2355.9	21.7	.6
OCT	50.	3.1	4.14	.4	5.	.3	0.0	0.0	2357.8	24.1	2.4
NOV	49.	2.9	2.00	.2	2.	.1	0.0	0.0	2359.7	26.7	2.6
DEC	49.	3.0	.81	.1	2.	.1	0.0	0.0	2361.6	29.5	2.8
TOTAL		51.9	32.66	4.0		27.4	6.4	0.0			14.1
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	80.	4.9	.25	0.0	2.	.1	0.0	0.0	2354.7	20.2	4.8
FEB	101.	5.6	.40	0.0	2.	.1	0.0	0.0	2359.0	25.7	5.5
MAR	115.	7.1	.49	.1	2.	.1	0.0	0.0	2363.5	32.6	6.9
APR	121.	7.2	.65	.1	2.	.1	2.5	0.0	2366.1	37.1	4.5
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	3.1		4.0	51.6	0.0			21.7

NORTON RESERVOIR OPERATION ESTIMATES - 1979

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	0.0	2.	.1	0.0	0.0	2278.6	4.3	0.0
FEB	4.	.2	1.00	0.0	2.	.1	0.0	0.0	2278.7	4.4	.1
MAR	7.	.4	1.98	.1	2.	.1	0.0	0.0	2279.1	4.6	.2
APR	5.	.3	4.34	.2	2.	.1	0.0	0.0	2279.1	4.6	0.0
MAY	16.	1.0	4.10	.2	7.	.4	0.0	0.0	2279.9	5.0	.4
JUN	32.	1.9	7.86	.4	10.	.6	0.0	0.0	2281.4	5.9	.9
JUL	23.	1.4	8.77	.4	135.	8.3	0.0	5.7	2278.6	4.3	-1.6
AUG	11.	.7	7.38	.3	130.	8.0	0.0	7.6	2278.6	4.3	.0
SEP	10.	.6	6.12	.3	55.	3.3	0.0	3.0	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	2.3		22.6	0.0	17.7			.0
MOST PROBABLE INFLOW CONDITIONS											
JAN	5.	.3	.80	0.0	2.	.1	0.0	0.0	2278.9	4.5	.2
FEB	11.	.6	.85	0.0	2.	.1	0.0	0.0	2279.9	5.0	.5
MAR	13.	.8	1.24	.1	2.	.1	0.0	0.0	2280.9	5.6	.6
APR	10.	.6	2.78	.1	2.	.1	0.0	0.0	2281.5	6.0	.4
MAY	37.	2.3	2.55	.2	2.	.1	0.0	0.0	2284.4	8.0	2.0
JUN	74.	4.4	3.85	.3	2.	.1	0.0	0.0	2288.8	12.0	4.0
JUL	55.	3.4	5.97	.5	78.	4.8	0.0	0.0	2286.9	10.1	-1.9
AUG	26.	1.6	5.89	.4	86.	5.3	0.0	0.0	2281.5	6.0	-4.1
SEP	24.	1.4	4.38	.2	20.	1.2	0.0	0.0	2281.5	6.0	0.0
OCT	16.	1.0	4.14	.2	7.	.4	0.0	0.0	2282.2	6.4	.4
NOV	5.	.3	2.12	.1	2.	.1	0.0	0.0	2282.3	6.5	.1
DEC	5.	.3	1.03	.1	2.	.1	0.0	0.0	2282.4	6.6	.1
TOTAL		17.0	35.60	2.2		12.5	0.0	0.0			2.3
REASONABLE MAXIMUM INFLOW CONDITIONS											
JAN	11.	.7	.50	0.0	2.	.1	0.0	0.0	2279.7	4.9	.6
FEB	27.	1.5	.52	0.0	2.	.1	0.0	0.0	2282.0	6.3	1.4
MAR	33.	2.0	.54	0.0	2.	.1	0.0	0.0	2284.6	8.2	1.9
APR	27.	1.6	1.43	.1	2.	.1	0.0	0.0	2286.3	9.6	1.4
MAY	94.	5.8	1.16	.1	2.	.1	0.0	0.0	2291.8	15.2	5.6
JUN	185.	11.0	2.52	.3	2.	.1	0.0	0.0	2299.1	25.8	10.6
JUL	137.	8.4	4.42	.7	16.	1.0	0.0	0.0	2302.7	32.5	6.7
AUG	63.	3.9	5.23	.9	34.	2.1	0.0	0.0	2303.1	33.4	.9
SEP	61.	3.6	3.07	.5	2.	.1	.5	0.0	2304.3	35.9	2.5
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	3.4		4.1	3.3	0.0			31.6

HARLAN COUNTY LAKE OPERATION ESTIMATES - 1979

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	.7	10.	.6	0.0	0.0	1934.9	191.7	6.3
FEB	24.3	-14.2	182.	10.1	.78	.6	11.	.6	0.0	0.0	1935.8	200.6	8.9
MAR	32.1	-17.0	246.	15.1	1.74	1.4	10.	.6	0.0	0.0	1937.1	213.7	13.1
APR	28.0	-13.8	239.	14.2	4.70	4.0	10.	.6	0.0	0.0	1938.0	223.3	9.6
MAY	36.5	-14.6	356.	21.9	4.38	3.8	273.	16.8	0.0	0.0	1938.2	224.6	1.3
JUN	42.0	-16.3	432.	25.7	6.60	5.7	279.	16.6	0.0	0.0	1938.5	228.0	3.4
JUL	15.4	1.5	275.	16.9	9.71	8.1	673.	41.4	0.0	0.0	1935.2	195.4	-32.6
AUG	13.6	-13.6	0.	0.0	8.41	5.9	709.	43.6	0.0	0.0	1929.5	145.9	-49.5
SEP	6.2	-6.2	0.	0.0	5.56	3.5	287.	17.1	0.0	1.4	1927.0	126.7	-19.2
OCT	5.6	-5.6	0.	0.0	4.52	2.7	10.	.6	0.0	.6	1926.6	124.0	-2.7
NOV	13.2	-8.8	74.	4.4	2.58	1.6	10.	.6	0.0	.5	1927.0	126.7	2.7
DEC	16.9	-10.2	109.	6.7	1.12	.7	10.	.6	0.0	0.0	1927.7	132.1	5.4
TOTAL	253.0	-130.4		122.6	51.00	38.7		139.7	0.0	2.5			-53.3
					MOST PROBABLE INFLOW CONDITIONS								
JAN	22.4	-15.7	109.	6.7	.65	.5	10.	.6	0.0	0.0	1934.8	191.0	5.6
FEB	31.2	-19.0	220.	12.2	.61	.5	11.	.6	0.0	0.0	1935.9	202.1	11.1
MAR	38.0	-23.2	241.	14.8	1.13	.9	10.	.6	0.0	0.0	1937.3	215.4	13.3
APR	38.8	-20.1	314.	18.7	1.31	1.1	10.	.6	0.0	0.0	1938.9	232.4	17.0
MAY	59.9	-26.7	540.	33.2	3.27	3.1	24.	1.5	0.0	0.0	1941.4	261.0	28.6
JUN	106.6	-28.6	1311.	78.0	5.46	5.7	29.	1.7	11.8	0.0	1946.0	319.8	58.8
JUL	42.1	-7.1	569.	35.0	7.70	8.6	382.	23.5	2.9	0.0	1946.0	319.8	0.0
AUG	26.6	-2.3	395.	24.3	6.01	6.6	468.	28.8	0.0	0.0	1945.2	308.7	-11.1
SEP	19.7	-9.5	171.	10.2	4.47	4.9	97.	5.8	0.0	0.0	1945.1	308.2	-.5
OCT	16.4	-12.7	60.	3.7	3.43	3.7	10.	.6	0.0	0.0	1945.1	307.6	-.6
NOV	20.8	-13.0	131.	7.8	1.55	1.7	10.	.6	0.0	0.0	1945.5	313.1	5.5
DEC	23.5	-13.9	156.	9.6	.71	.8	10.	.6	1.5	0.0	1946.0	319.8	6.7
TOTAL	446.0	-191.8		254.2	36.30	38.1		65.5	16.2	0.0			134.4
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	28.1	-21.3	111.	6.8	0.00	0.0	10.	.6	0.0	0.0	1934.9	191.6	6.2
FEB	42.6	-25.5	308.	17.1	.26	.2	11.	.6	0.0	0.0	1936.5	207.9	16.3
MAR	57.1	-33.3	387.	23.8	.70	.6	10.	.6	0.0	0.0	1938.7	230.5	22.6
APR	55.8	-26.8	487.	29.0	.21	.2	10.	.6	0.0	0.0	1941.2	258.7	28.2
MAY	105.5	-35.1	1145.	70.4	1.78	1.9	13.	.8	6.6	0.0	1946.0	319.8	61.1
JUN	166.5	-37.3	2171.	129.2	1.58	1.8	13.	.8	126.6	0.0	1946.0	319.8	0.0
JUL	105.4	-28.1	1257.	77.3	6.53	7.3	99.	6.1	63.9	0.0	1946.0	319.8	0.0
AUG	63.8	-23.0	664.	40.8	3.43	3.8	104.	6.4	30.6	0.0	1946.0	319.8	0.0
SEP	75.0	-12.1	1057.	62.9	3.84	4.3	25.	1.5	57.1	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	-4.4	454.	27.0	1.03	1.1	10.	.6	25.3	0.0	1946.0	319.8	0.0
DEC	30.4	-4.1	428.	26.3	.40	.4	10.	.6	25.3	0.0	1946.0	319.8	0.0
TOTAL	796.0	-259.4		536.6	22.06	24.1		19.8	358.3	0.0			134.4

LOVEWELL RESERVOIR OPERATION ESTIMATES - 1979

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	1579.6	33.3	-.1
FEB	.2	0.0	4.	.2	.75	.2	0.	0.0	0.0	0.0	1579.6	33.3	.0
MAR	.2	1.2	23.	1.4	1.69	.4	0.	0.0	0.0	0.0	1579.9	34.3	1.0
APR	.2	1.2	24.	1.4	3.79	.8	0.	0.0	0.0	0.0	1580.2	34.9	.6
MAY	.6	9.4	163.	10.0	3.55	.8	99.	6.1	0.0	0.0	1581.3	38.0	3.1
JUN	1.3	9.9	188.	11.2	5.84	1.4	103.	6.1	0.0	0.0	1582.6	41.7	3.7
JUL	.8	12.9	223.	13.7	7.75	1.8	294.	18.1	0.0	0.0	1580.4	35.5	-6.2
AUG	.5	9.8	168.	10.3	6.09	1.2	343.	21.1	0.0	0.0	1575.3	23.5	-12.0
SEP	.4	3.0	57.	3.4	5.15	.8	155.	9.2	0.0	0.0	1571.8	16.9	-6.6
OCT	.3	1.2	24.	1.5	3.45	.5	0.	0.0	0.0	0.0	1572.3	17.9	1.0
NOV	.1	1.2	22.	1.3	2.37	.4	0.	0.0	0.0	0.0	1572.9	18.8	.9
DEC	.1	0.0	2.	.1	.96	.1	0.	0.0	0.0	0.0	1572.9	18.8	.0
TOTAL	4.8	49.8		54.6	42.16	8.6		60.6	0.0	0.0			-14.6
					MOST PROBABLE INFLOW CONDITIONS								
JAN	.3	0.0	5.	.3	.50	.1	0.	0.0	0.0	0.0	1579.7	33.6	.2
FEB	.9	0.0	16.	.9	.40	.1	0.	0.0	0.0	0.0	1580.0	34.4	.8
MAR	1.0	1.2	36.	2.2	.92	.2	0.	0.0	0.0	0.0	1580.7	36.4	2.0
APR	1.1	1.2	39.	2.3	1.97	.5	0.	0.0	0.0	0.0	1581.4	38.2	1.8
MAY	3.0	1.2	68.	4.2	1.58	.4	34.	2.1	0.0	0.0	1582.0	39.9	1.7
JUN	5.9	1.2	119.	7.1	1.75	.4	35.	2.1	2.8	0.0	1582.6	41.7	1.8
JUL	3.9	4.2	132.	8.1	5.22	1.2	283.	17.4	0.0	0.0	1578.7	31.2	-10.5
AUG	2.2	6.6	143.	8.8	4.22	.8	286.	17.6	0.0	0.0	1574.3	21.6	-9.6
SEP	2.0	1.2	54.	3.2	3.36	.5	76.	4.5	0.0	0.0	1573.4	19.8	-1.8
OCT	1.2	1.2	39.	2.4	2.09	.3	0.	0.0	0.0	0.0	1574.5	21.9	2.1
NOV	.4	1.2	27.	1.6	1.41	.2	0.	0.0	0.0	0.0	1575.2	23.3	1.4
DEC	.3	0.0	5.	.3	.43	.1	0.	0.0	0.0	0.0	1575.3	23.5	.2
TOTAL	22.2	19.2		41.4	23.85	4.8		43.7	2.8	0.0			-9.9
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	.8	0.0	13.	.8	.16	0.0	0.	0.0	0.0	0.0	1579.9	34.2	.8
FEB	2.5	0.0	45.	2.5	.26	.1	0.	0.0	0.0	0.0	1580.8	36.6	2.4
MAR	2.9	0.0	47.	2.9	.35	.1	0.	0.0	0.0	0.0	1581.8	39.4	2.8
APR	3.1	0.0	52.	3.1	.44	.1	0.	0.0	.7	0.0	1582.6	41.7	2.3
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	20.	1.2	17.1	0.0	1582.6	41.7	0.0
JUL	11.1	1.2	200.	12.3	4.30	1.1	138.	8.5	2.7	0.0	1582.6	41.7	0.0
AUG	6.1	1.2	119.	7.3	3.06	.7	138.	8.5	0.0	0.0	1582.0	39.8	-1.9
SEP	5.7	1.2	116.	6.9	1.78	.4	35.	2.1	2.5	0.0	1582.6	41.7	1.9
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	2.9		21.2	36.4	0.0			8.3

KIRWIN RESERVOIR OPERATION ESTIMATES - 1979

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	1701.3	14.9	.2
FEB	9.	.5	1.04	.1	0.	0.0	0.0	0.0	1701.6	15.3	.4
MAR	13.	.8	1.79	.2	0.	0.0	0.0	0.0	1702.0	15.9	.6
APR	17.	1.0	4.60	.5	0.	0.0	0.0	0.0	1702.3	16.4	.5
MAY	31.	1.9	4.77	.6	39.	2.4	0.0	0.0	1701.6	15.3	-1.1
JUN	72.	4.3	6.32	.7	40.	2.4	0.0	0.0	1702.4	16.5	1.2
JUL	46.	2.8	8.80	.9	117.	7.2	0.0	0.0	1698.3	11.2	-5.3
AUG	33.	2.0	7.74	.7	137.	8.4	0.0	5.7	1697.0	9.8	-1.4
SEP	22.	1.3	5.66	.5	61.	3.6	0.0	2.8	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	5.0		24.0	0.0	8.5			-4.1
					MOST PROBABLE INFLOW CONDITIONS						
JAN	10.	.6	.73	.1	0.	0.0	0.0	0.0	1701.5	15.2	.5
FEB	23.	1.3	.77	.1	0.	0.0	0.0	0.0	1702.3	16.4	1.2
MAR	29.	1.8	1.04	.1	0.	0.0	0.0	0.0	1703.5	18.1	1.7
APR	39.	2.3	1.89	.2	0.	0.0	0.0	0.0	1704.9	20.2	2.1
MAY	73.	4.5	3.60	.5	13.	.8	0.0	0.0	1706.8	23.4	3.2
JUN	168.	10.0	4.65	.8	13.	.8	0.0	0.0	1711.1	31.8	8.4
JUL	107.	6.6	6.33	1.2	106.	6.5	0.0	0.0	1710.5	30.7	-1.1
AUG	76.	4.7	5.56	1.0	106.	6.5	0.0	0.0	1709.2	27.9	-2.8
SEP	50.	3.0	4.25	.7	27.	1.6	0.0	0.0	1709.5	28.6	.7
OCT	33.	2.0	3.59	.6	0.	0.0	0.0	0.0	1710.2	30.0	1.4
NOV	15.	.9	1.85	.3	0.	0.0	0.0	0.0	1710.5	30.6	.6
DEC	11.	.7	.74	.1	0.	0.0	0.0	0.0	1710.8	31.2	.6
TOTAL		38.4	35.00	5.7		16.2	0.0	0.0			16.5
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	24.	1.5	.45	.1	0.	0.0	0.0	0.0	1702.1	16.1	1.4
FEB	54.	3.0	.50	.1	0.	0.0	0.0	0.0	1704.1	19.0	2.9
MAR	65.	4.0	.56	.1	0.	0.0	0.0	0.0	1706.5	22.9	3.9
APR	87.	5.2	.53	.1	0.	0.0	0.0	0.0	1709.3	28.0	5.1
MAY	169.	10.4	1.68	.3	8.	.5	0.0	0.0	1713.4	37.6	9.6
JUN	383.	22.8	1.66	.5	8.	.5	0.0	0.0	1720.1	59.4	21.8
JUL	247.	15.2	5.47	1.8	65.	4.0	0.0	0.0	1722.5	68.8	9.4
AUG	174.	10.7	4.67	1.6	67.	4.1	0.0	0.0	1723.7	73.8	5.0
SEP	118.	7.0	2.75	1.0	17.	1.0	0.0	0.0	1724.9	78.8	5.0
OCT	73.	4.5	2.27	.8	0.	0.0	0.0	0.0	1725.7	82.5	3.7
NOV	37.	2.2	1.02	.4	0.	0.0	0.0	0.0	1726.1	84.3	1.8
DEC	26.	1.6	.54	.2	0.	0.0	0.0	0.0	1726.4	85.7	1.4
TOTAL		88.1	22.10	7.0		10.1	0.0	0.0			71.0

WEBSTER RESERVOIR OPERATION ESTIMATES - 1979

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	1872.2	22.1	.1
FEB	7.	.4	1.11	.2	0.	0.0	0.0	0.0	1872.4	22.3	.2
MAR	10.	.6	2.08	.3	0.	0.0	0.0	0.0	1872.5	22.6	.3
APR	12.	.7	4.92	.8	0.	0.0	0.0	0.0	1872.5	22.5	-.1
MAY	24.	1.5	4.75	.7	49.	3.0	0.0	0.0	1871.3	20.3	-2.2
JUN	47.	2.8	7.50	1.1	66.	3.9	0.0	0.0	1870.0	18.1	-2.2
JUL	36.	2.2	9.04	1.1	135.	8.3	0.0	0.0	1865.1	10.9	-7.2
AUG	20.	1.2	8.08	.7	151.	9.3	0.0	3.2	1860.0	5.3	-5.6
SEP	15.	.9	6.70	.5	84.	5.0	0.0	4.6	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	6.2		29.5	0.0	7.8			-16.2
					MOST PROBABLE INFLOW CONDITIONS						
JAN	10.	.6	.67	.1	0.	0.0	0.0	0.0	1872.5	22.5	.5
FEB	22.	1.2	.81	.1	0.	0.0	0.0	0.0	1873.1	23.6	1.1
MAR	26.	1.6	1.48	.2	0.	0.0	0.0	0.0	1873.8	25.0	1.4
APR	32.	1.9	2.72	.5	0.	0.0	0.0	0.0	1874.5	26.4	1.4
MAY	65.	4.0	3.13	.5	13.	.8	0.0	0.0	1875.8	29.1	2.7
JUN	131.	7.8	4.40	.8	17.	1.0	0.0	0.0	1878.5	35.1	6.0
JUL	99.	6.1	7.02	1.3	120.	7.4	0.0	0.0	1877.3	32.5	-2.6
AUG	55.	3.4	5.72	1.0	120.	7.4	0.0	0.0	1875.0	27.5	-5.0
SEP	39.	2.3	4.69	.8	37.	2.2	0.0	0.0	1874.7	26.8	-.7
OCT	29.	1.8	3.37	.6	0.	0.0	0.0	0.0	1875.3	28.0	1.2
NOV	13.	.8	1.61	.3	0.	0.0	0.0	0.0	1875.5	28.5	.5
DEC	10.	.6	.78	.1	0.	0.0	0.0	0.0	1875.7	29.0	.5
TOTAL		32.1	36.40	6.3		18.8	0.0	0.0			7.0
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	29.	1.8	.53	.1	0.	0.0	0.0	0.0	1873.1	23.7	1.7
FEB	59.	3.3	.48	.1	0.	0.0	0.0	0.0	1874.7	26.9	3.2
MAR	72.	4.4	.70	.1	0.	0.0	0.0	0.0	1876.8	31.2	4.3
APR	92.	5.5	1.00	.2	0.	0.0	0.0	0.0	1879.1	36.5	5.3
MAY	181.	11.1	1.74	.4	0.	0.0	0.0	0.0	1883.2	47.2	10.7
JUN	366.	21.8	.72	.2	0.	0.0	0.0	0.0	1890.1	68.8	21.6
JUL	278.	17.1	5.63	1.7	62.	3.8	3.0	0.0	1892.4	77.4	8.6
AUG	155.	9.5	4.03	1.3	63.	3.9	4.3	0.0	1892.4	77.4	0.0
SEP	109.	6.5	3.75	1.2	5.	.3	5.0	0.0	1892.4	77.4	0.0
OCT	85.	5.2	2.83	.9	0.	0.0	4.3	0.0	1892.4	77.4	0.0
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	6.7		8.0	20.1	0.0			55.4

WACONDA LAKE OPERATION ESTIMATES - 1979

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	-.1	28.	1.7	.89	.9	11.	.7	0.0	0.0	1454.2	224.1	.1
FEB	3.2	-.6	47.	2.6	1.00	1.0	13.	.7	0.0	0.0	1454.3	225.0	.9
MAR	4.4	-1.0	55.	3.4	1.83	1.8	15.	.9	0.0	0.0	1454.3	225.7	.7
APR	5.3	-1.1	71.	4.2	4.55	4.6	2.	.1	0.0	0.0	1454.3	225.2	-.5
MAY	8.0	-1.9	99.	6.1	4.48	4.5	2.	.1	0.0	0.0	1454.4	226.7	1.5
JUN	15.1	-4.6	176.	10.5	6.57	6.7	2.	.1	0.0	0.0	1454.7	230.4	3.7
JUL	11.1	-2.3	143.	8.8	8.05	8.2	34.	2.1	0.0	0.0	1454.6	228.9	-1.5
AUG	6.0	-.3	93.	5.7	8.50	8.6	34.	2.1	0.0	0.0	1454.2	223.9	-5.0
SEP	4.5	-.8	62.	3.7	6.19	6.1	34.	2.0	0.0	0.0	1453.8	219.5	-4.4
OCT	2.0	-.8	20.	1.2	4.42	4.3	33.	2.0	0.0	0.0	1453.4	214.4	-5.1
NOV	1.9	-.3	27.	1.6	2.46	2.4	34.	2.0	0.0	0.0	1453.1	211.6	-2.8
DEC	2.2	.1	37.	2.3	1.16	1.1	20.	1.2	0.0	0.0	1453.1	211.6	0.0
TOTAL	65.5	-13.7		51.8	50.10	50.2		14.0	0.0	0.0			-12.4
					MOST PROBABLE INFLOW CONDITIONS								
JAN	4.4	-.8	59.	3.6	.53	.5	23.	1.4	0.0	0.0	1454.3	225.7	1.7
FEB	6.3	-2.2	74.	4.1	.63	.6	63.	3.5	0.0	0.0	1454.3	225.7	0.0
MAR	7.5	-3.0	73.	4.5	.84	.8	60.	3.7	0.0	0.0	1454.3	225.7	0.0
APR	11.6	-3.6	134.	8.0	2.90	2.9	61.	3.6	0.0	0.0	1454.4	227.2	1.5
MAY	27.5	-7.7	322.	19.8	2.96	3.0	172.	10.6	0.0	0.0	1455.0	233.4	6.2
JUN	49.0	-16.8	541.	32.2	3.32	3.5	301.	17.9	2.7	0.0	1455.6	241.5	8.1
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	4.1	264.	15.7	0.0	0.0	1454.8	231.9	-9.6
OCT	6.0	-3.1	47.	2.9	3.24	3.3	171.	10.5	0.0	0.0	1453.9	221.0	-10.9
NOV	4.8	-1.3	59.	3.5	1.85	1.8	187.	11.1	0.0	0.0	1453.1	211.6	-9.4
DEC	5.0	-.7	70.	4.3	.76	.7	59.	3.6	0.0	0.0	1453.1	211.6	0.0
TOTAL	173.0	-58.6		114.4	31.50	32.3		84.8	9.7	0.0			-12.4
					REASONABLE MAXIMUM INFLOW CONDITIONS								
JAN	9.5	-2.9	107.	6.6	.36	.4	73.	4.5	0.0	0.0	1454.3	225.7	1.7
FEB	15.5	-6.0	171.	9.5	.21	.2	167.	9.3	0.0	0.0	1454.3	225.7	0.0
MAR	19.0	-8.0	179.	11.0	.34	.3	174.	10.7	0.0	0.0	1454.3	225.7	0.0
APR	36.4	-10.1	442.	26.3	1.39	1.4	301.	17.9	0.0	0.0	1454.9	232.7	7.0
MAY	56.6	-21.2	576.	35.4	.87	.9	299.	18.4	7.3	0.0	1455.6	241.5	8.8
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	-28.3	675.	41.5	4.46	4.7	2.	.1	36.7	0.0	1455.6	241.5	0.0
AUG	41.8	-14.6	442.	27.2	3.27	3.4	2.	.1	23.7	0.0	1455.6	241.5	0.0
SEP	53.5	-8.1	763.	45.4	2.29	2.4	2.	.1	42.9	0.0	1455.6	241.5	0.0
OCT	28.5	-4.7	387.	23.8	2.41	2.5	299.	18.4	2.9	0.0	1455.6	241.5	0.0
NOV	14.9	-2.1	215.	12.8	.92	1.0	301.	17.9	0.0	0.0	1455.1	235.4	-6.1
DEC	9.6	-1.2	137.	8.4	.38	.4	130.	8.0	0.0	0.0	1455.1	235.4	0.0
TOTAL	521.0	-151.5		369.5	16.70	17.4		105.5	235.2	0.0			11.4

CEDAR BLUFF RESERVOIR OPERATION ESTIMATES - 1979

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	.2	8.	.5	0.0	0.0	2106.7	33.1	-.5
FEB	5.	.3	1.39	.2	7.	.4	0.0	0.0	2106.6	32.8	-.3
MAR	8.	.5	2.48	.4	10.	.6	0.0	0.0	2106.3	32.3	-.5
APR	15.	.9	5.30	.9	7.	.4	0.0	0.0	2106.1	31.9	-.4
MAY	34.	2.1	5.10	.8	44.	2.7	0.0	2.1	2106.5	32.6	.7
JUN	79.	4.7	7.76	1.3	44.	2.6	0.0	1.9	2107.8	35.3	2.7
JUL	39.	2.4	9.16	1.5	111.	6.8	0.0	5.9	2107.8	35.3	0.0
AUG	36.	2.2	8.88	1.5	115.	7.1	0.0	6.3	2107.7	35.2	-.1
SEP	20.	1.2	6.41	1.1	72.	4.3	0.0	3.1	2107.2	34.1	-1.1
OCT	15.	.9	4.93	.8	28.	1.7	0.0	1.0	2106.9	33.5	-.6
NOV	5.	.3	2.90	.5	7.	.4	0.0	0.0	2106.6	32.9	-.6
DEC	3.	.2	1.46	.2	7.	.4	0.0	0.0	2106.4	32.5	-.4
TOTAL		15.9	57.00	9.4		27.9	0.0	20.3			-1.1
					MOST PROBABLE INFLOW CONDITIONS						
JAN	8.	.5	1.08	.2	8.	.5	0.0	0.0	2106.9	33.4	-.2
FEB	16.	.9	1.13	.2	7.	.4	0.0	0.0	2107.0	33.7	.3
MAR	21.	1.3	1.72	.3	10.	.6	0.0	0.0	2107.2	34.1	.4
APR	37.	2.2	3.77	.7	7.	.4	0.0	0.0	2107.7	35.2	1.1
MAY	86.	5.3	3.22	.6	21.	1.3	0.0	0.0	2109.3	38.6	3.4
JUN	200.	11.9	4.29	.9	20.	1.2	0.0	0.0	2113.4	48.4	9.8
JUL	101.	6.2	7.39	1.5	93.	5.7	0.0	0.0	2113.1	47.4	-1.0
AUG	93.	5.7	6.04	1.2	107.	6.6	0.0	0.0	2112.2	45.3	-2.1
SEP	49.	2.9	4.48	.9	35.	2.1	0.0	0.0	2112.2	45.2	-.1
OCT	37.	2.3	3.73	.8	21.	1.3	0.0	0.0	2112.2	45.4	.2
NOV	13.	.8	2.46	.5	7.	.4	0.0	0.0	2112.2	45.3	-.1
DEC	10.	.6	1.20	.2	7.	.4	0.0	0.0	2112.2	45.3	0.0
TOTAL		40.6	40.51	8.0		20.9	0.0	0.0			11.7
					REASONABLE MAXIMUM INFLOW CONDITIONS						
JAN	23.	1.4	.92	.2	8.	.5	0.0	0.0	2107.3	34.3	.7
FEB	45.	2.5	.87	.2	7.	.4	0.0	0.0	2108.2	36.2	1.9
MAR	60.	3.7	1.20	.2	10.	.6	0.0	0.0	2109.5	39.1	2.9
APR	104.	6.2	2.32	.4	7.	.4	0.0	0.0	2111.9	44.5	5.4
MAY	239.	14.7	2.02	.4	18.	1.1	0.0	0.0	2116.9	57.7	13.2
JUN	553.	32.9	1.25	.4	17.	1.0	0.0	0.0	2126.2	89.2	31.5
JUL	276.	17.0	5.22	1.8	62.	3.8	0.0	0.0	2128.9	100.6	11.4
AUG	257.	15.8	4.25	1.6	70.	4.3	0.0	0.0	2131.1	110.5	9.9
SEP	136.	8.1	3.86	1.5	24.	1.4	0.0	0.0	2132.2	115.7	5.2
OCT	106.	6.5	2.56	1.1	16.	1.0	0.0	0.0	2133.1	120.1	4.4
NOV	37.	2.2	1.62	.7	7.	.4	0.0	0.0	2133.3	121.2	1.1
DEC	24.	1.5	.92	.4	7.	.4	0.0	0.0	2133.4	121.9	.7
TOTAL		112.5	27.01	8.9		15.3	0.0	0.0			88.3

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
1978	25,000	2,557,000

KIRWIN

Year	Damages Prevented	Cumulative Total
1957	$ 522,000	$ 522,000
1958	10,000	532,000
1960	499,000	1,031,000
1961	1,000	1,032,000
1962	1,000	1,033,000
1964	34,000	1,067,000
1965	325,000	1,392,000
1967	191,000	1,583,000
1968	44,000	1,627,000
1969	2,000	1,629,000
1971	3,000	1,632,000
1973	40,000	1,672,000
1975	618,000	2,290,000
1978	4,000	2,294,000

WEBSTER

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

WACONDA

Year	Damages Prevented	Cumulative Total
1968	$ 280,000	$ 280,000
1969	606,000	886,000
1971	9,000	895,000
1973	3,797,000	4,692,000
1974	1,000	4,693,000
1975	967,000	5,660,000
1978	11,000	5,671,000

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
1978	42,000	42,685,000

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 1978
Annual Totals

Features	Visitors	Cars in Area	Water Craft	Sport Fish Caught	Season Take Ducks	Season Take Geese
Colorado						
Bonny Reservoir	529,561	73,144	7,965	37,900	2,595	68
Kansas						
Norton Reservoir	150,260	46,955	2,465	18,987	200	15
Almena Diversion Dam	1,325	300	0	130	0	0
Lovewell Reservoir	267,673	89,077	5,975	2,950	600	30
Kirwin Reservoir	97,860	42,366	525	26,000(est.)	1	111
Webster Reservoir	301,012	90,643	5,300	33,169	450	100
Woodston Diversion Dam	2,055	700	0	1,500	0	0
Waconda Lake	343,641	97,800	5,670	179,000	1,250	275
Cedar Bluff Reservoir	171,070	47,529	4,734	58,000	250	50
Nebraska						
Box Butte Reservoir	72,066	24,022	6,745	19,800	198	40
Merritt Reservoir	103,254	34,321	8,906	156,470	1,565	Closed
Arcadia Diversion Dam	9,850	2,000	0	6,500	100	0
Milburn Diversion Dam	1,095	615	0	600	12	0
Sherman Reservoir	190,700	67,500	17,850	75,000	1,800	500
Swanson Lake	29,486	7,242	932	15,000	500	250
Enders Reservoir	61,609	15,341	2,543	34,500	750	150
Hugh Butler Lake	166,577	41,737	7,941	25,000	500	50
Harry Strunk Lake	114,283	28,081	4,107	1,600	300	40
Harlan County Lake	919,976	298,081	560 1/	92,000 2/	400	650
TOTAL REPORTED	3,533,353	1,007,454	82,218	784,106	11,471	2,329

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 (May 28) - excluded from total.
2/ lbs. - excluded from total.

TABLE 7

WATER DIVERTED IN 1978 AND THE
ESTIMATED DIVERSION FOR 1979

Irrigation District and Canal	10-Year Average Diversion (1968-77)	1978 Diversion	Estimated Diversion in 1979
Mirage Flats Irrigation District			
Mirage Flats Canal	17,193	18,409	18,000
Ainsworth Irrigation District			
Ainsworth Canal	68,147	58,604	80,000
Sargent Irrigation District			
Sargent Canal	25,450	28,460	29,000
Farwell Irrigation District			
Farwell Canal	88,856	94,102	97,000
Frenchman Valley Irrigation District			
Culbertson Canal	19,788	15,687	15,000
H & RW Irrigation District			
Culbertson Extension Canal	27,439	20,953	19,000
Frenchman-Cambridge Irrigation District			
Meeker-Driftwood Canal	38,109	34,824	31,000
Bartley Canal	12,463	12,335	11,000
Red Willow Canal	9,719	9,475	9,000
Cambridge Canal	34,134	34,714	28,000
Total Frenchman-Cambridge Irrigation District	94,425	91,348	79,000
Almena Irrigation District			
Almena Canal	6,517	3,694	3,000
Bostwick Irrigation District in Nebraska			
Franklin Canal	28,910	27,355	23,000
Naponee Canal	3,514	2,987	3,800
Franklin Pump Canal	3,360	2,709	4,700
Superior Canal	14,471	15,178	13,000
Courtland Canal (Nebraska)	2,111	2,127	3,200
Total Bostwick Irrigation District in Nebraska	52,366	50,356	47,700
Kansas-Bostwick Irrigation District			
Courtland Canal above Lovewell	25,355	25,712	26,000
Courtland Canal below Lovewell	44,779	45,297	45,000
Total Kansas-Bostwick Irrigation District	70,134	71,009	71,000
Kirwin Irrigation District			
Kirwin Canal	21,349	13,192	16,000
Webster Irrigation District			
Osborne Canal	12,923	0	10,000
Cedar Bluff Irrigation District			
Cedar Bluff Canal	14,579	19,035	8,000
Total	519,166	484,849	492,700

EXHIBIT 1A

BOX BUTTE RESERVOIR OPERATION

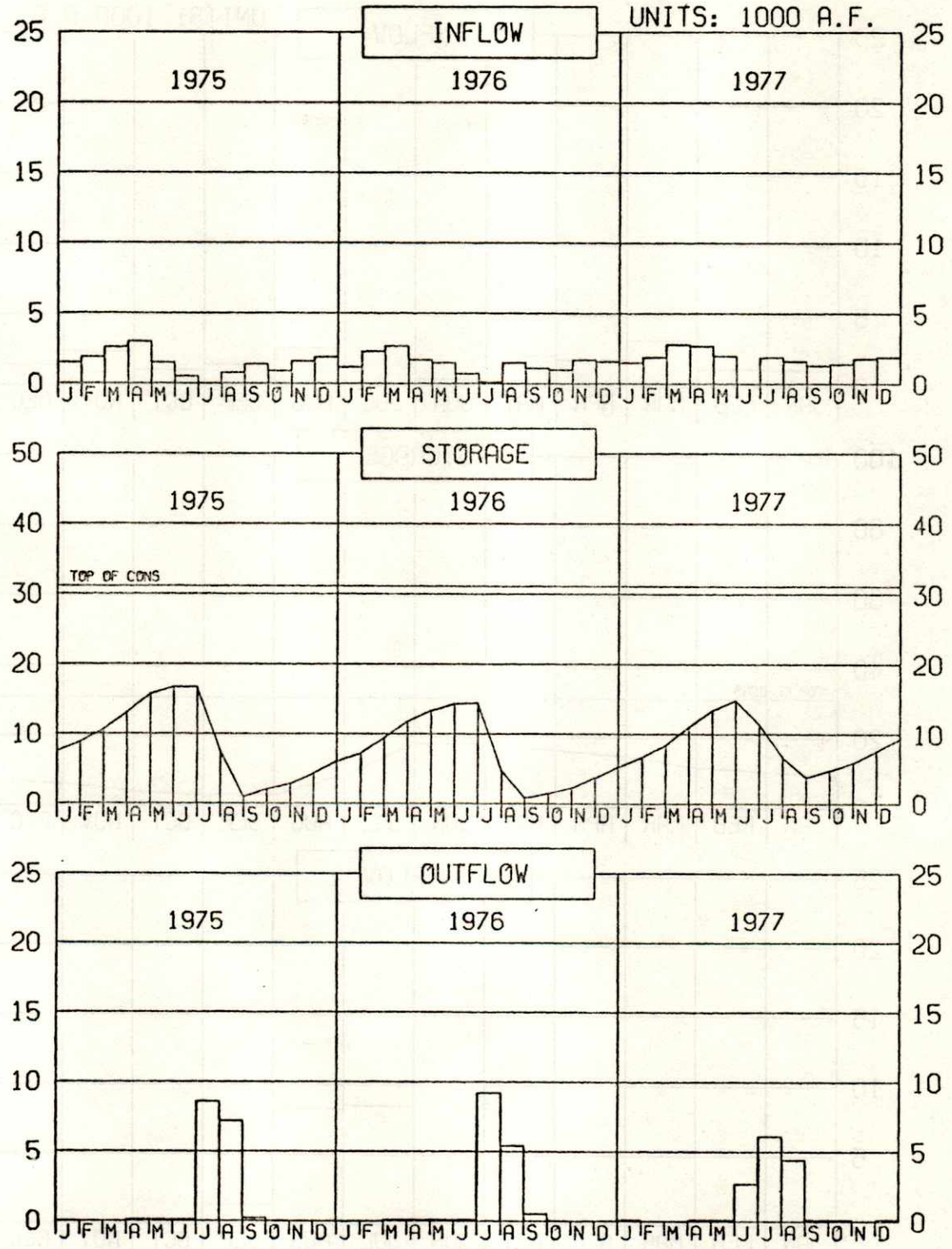


EXHIBIT 1B

BØX BUTTE RESERVØIR 1978 ØPERATIØN

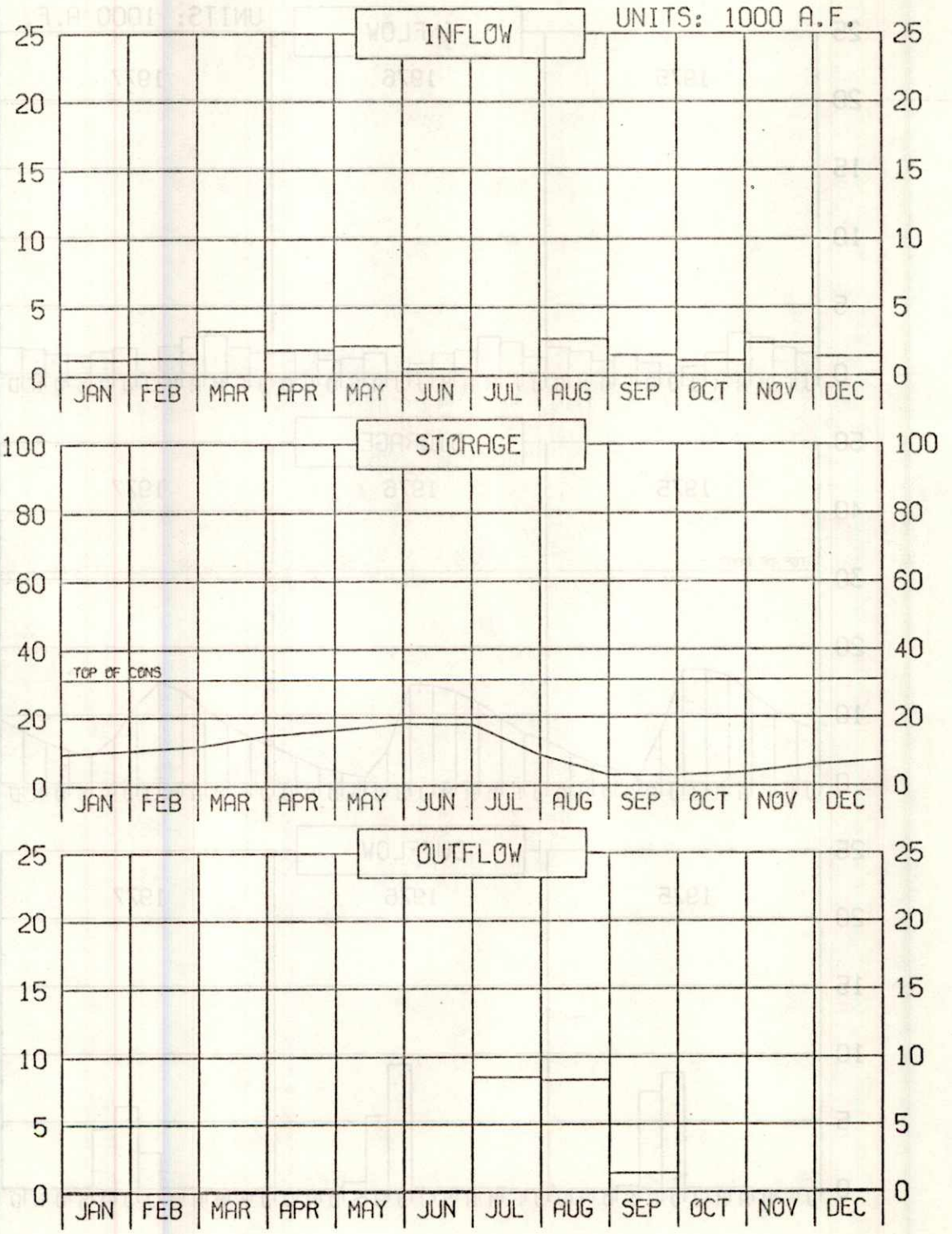
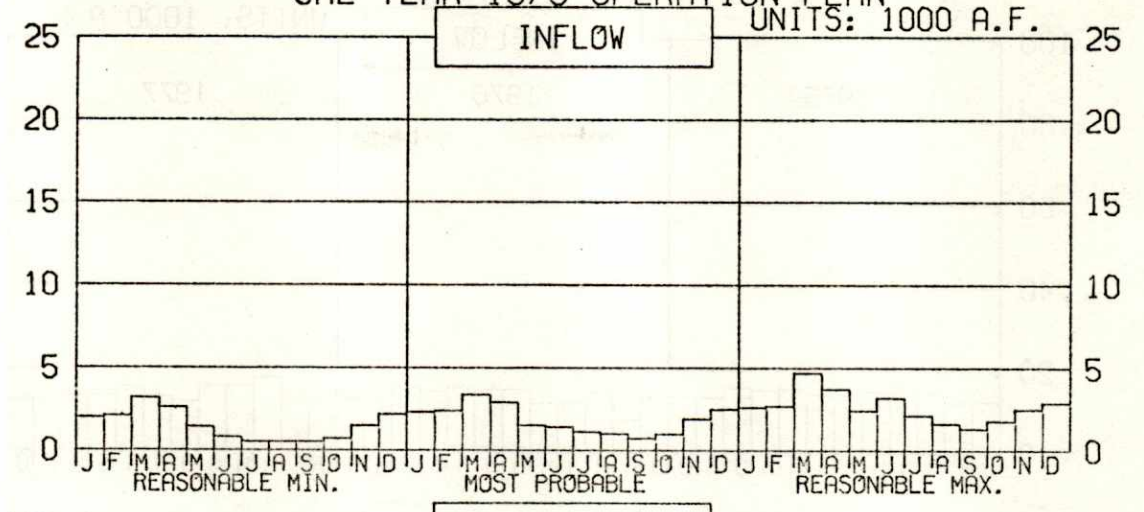


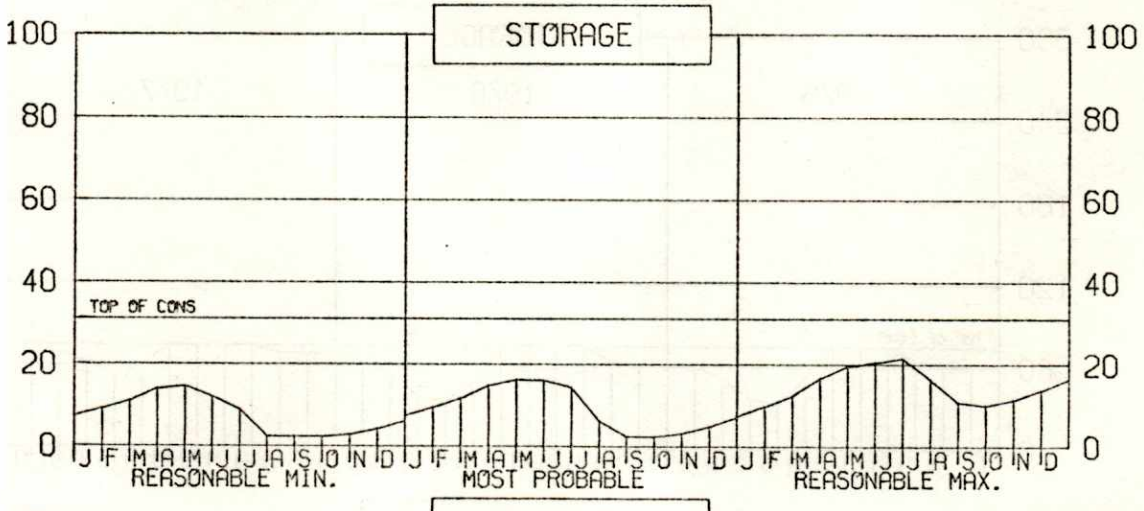
EXHIBIT 1C

BOX BUTTE RESERVOIR

CAL YEAR 1979 OPERATION PLAN

UNITS: 1000 A.F.





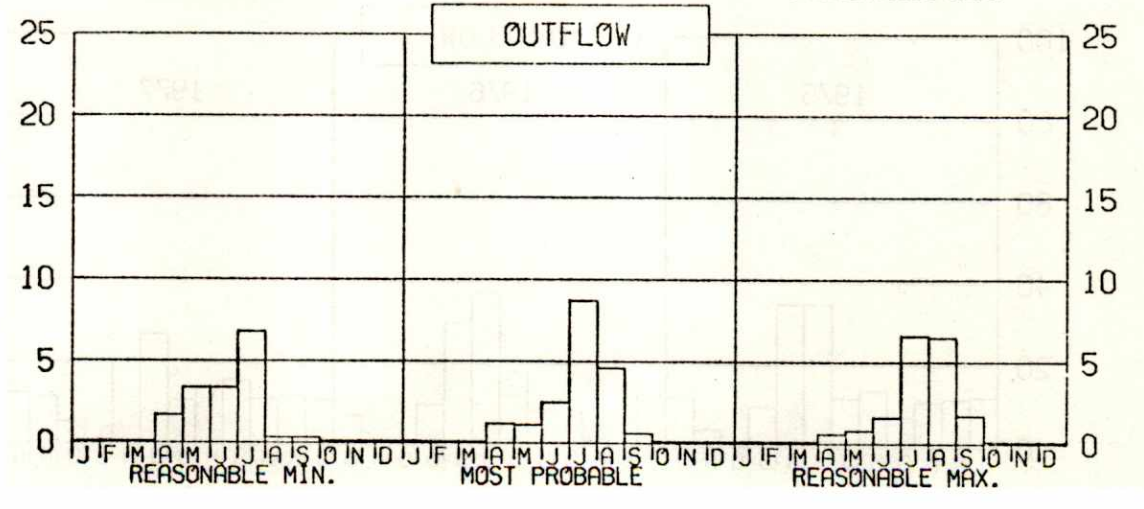


EXHIBIT 2A

MERRITT RESERVOIR OPERATION

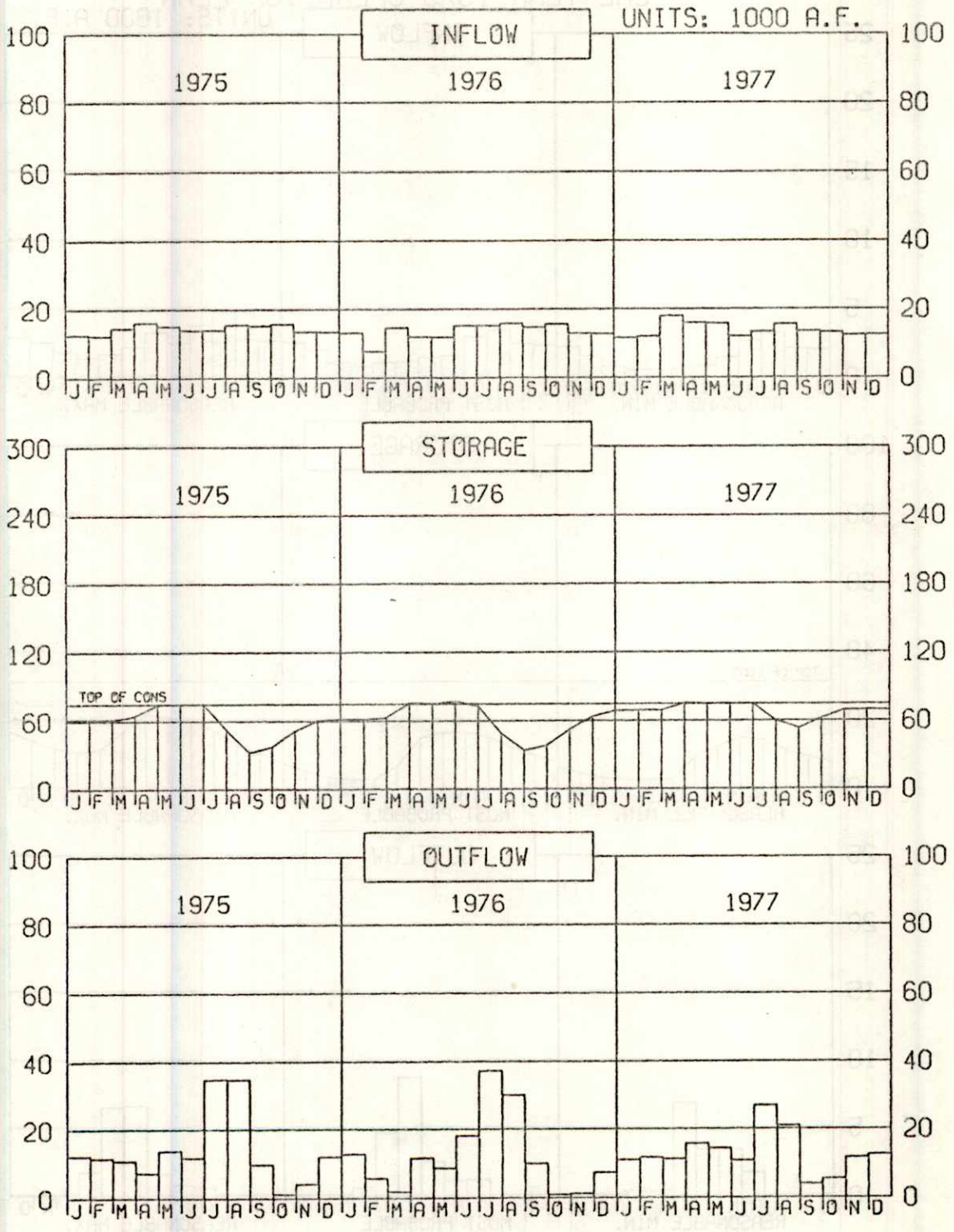


EXHIBIT 2B

MERRITT RESERVOIR 1978 OPERATION

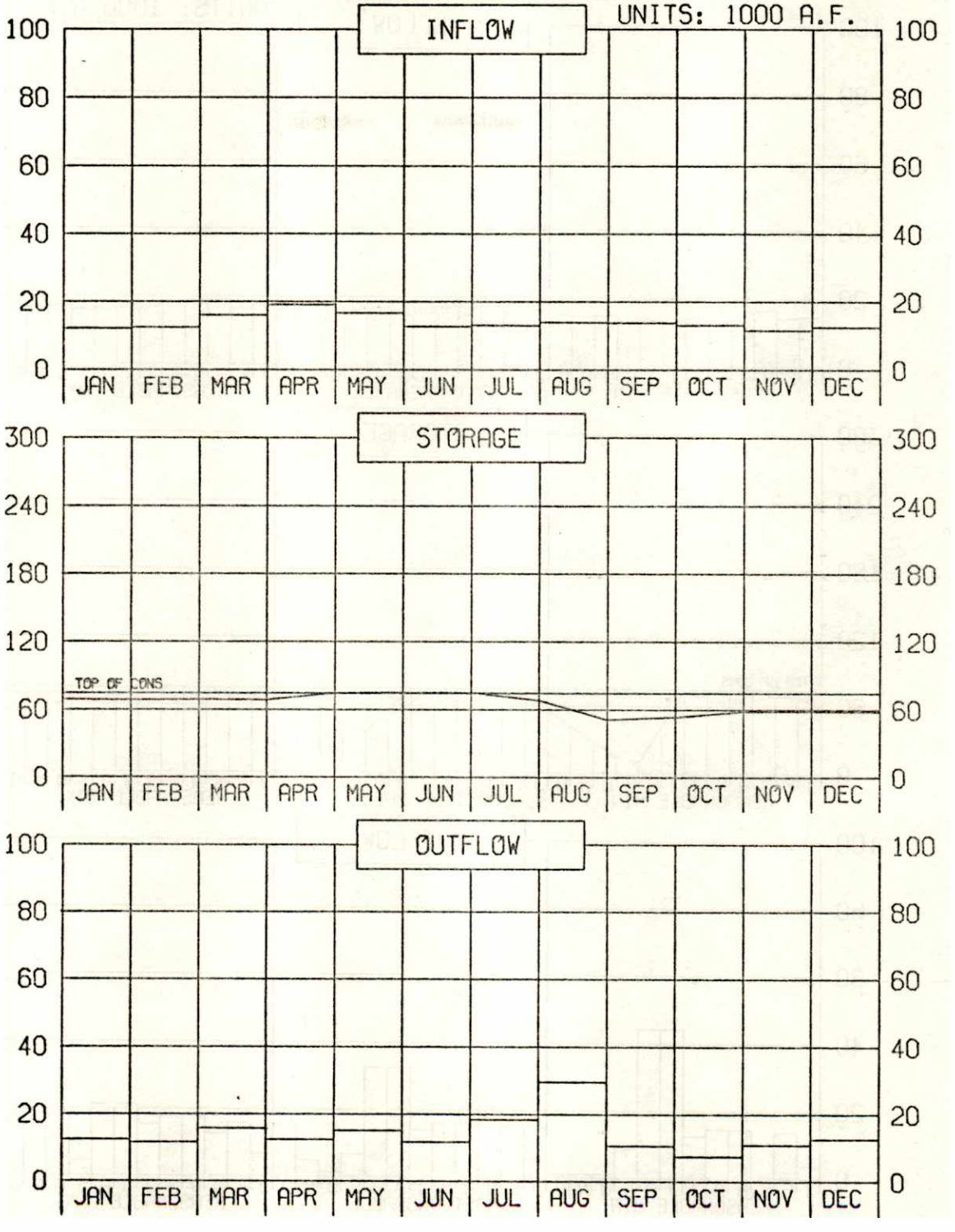
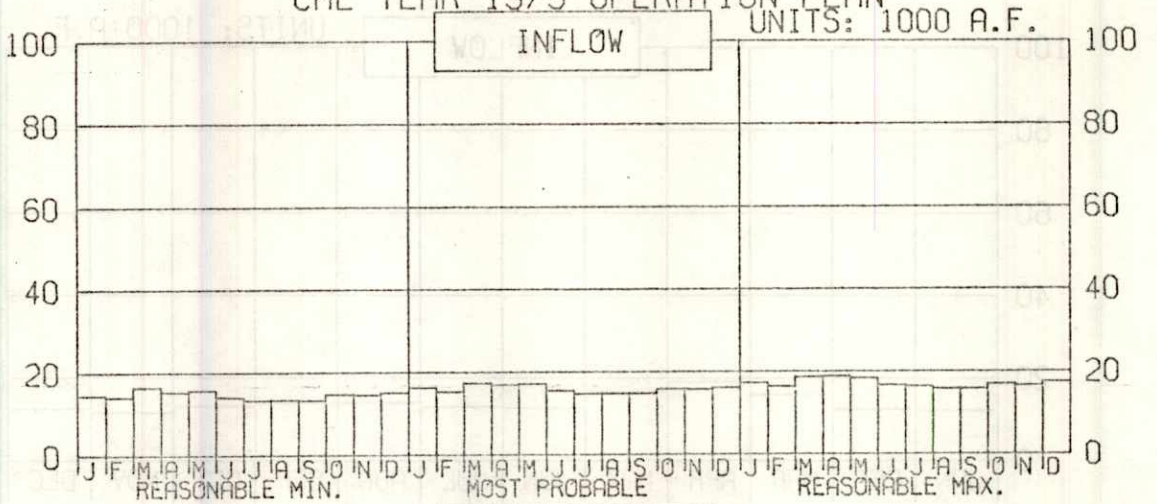


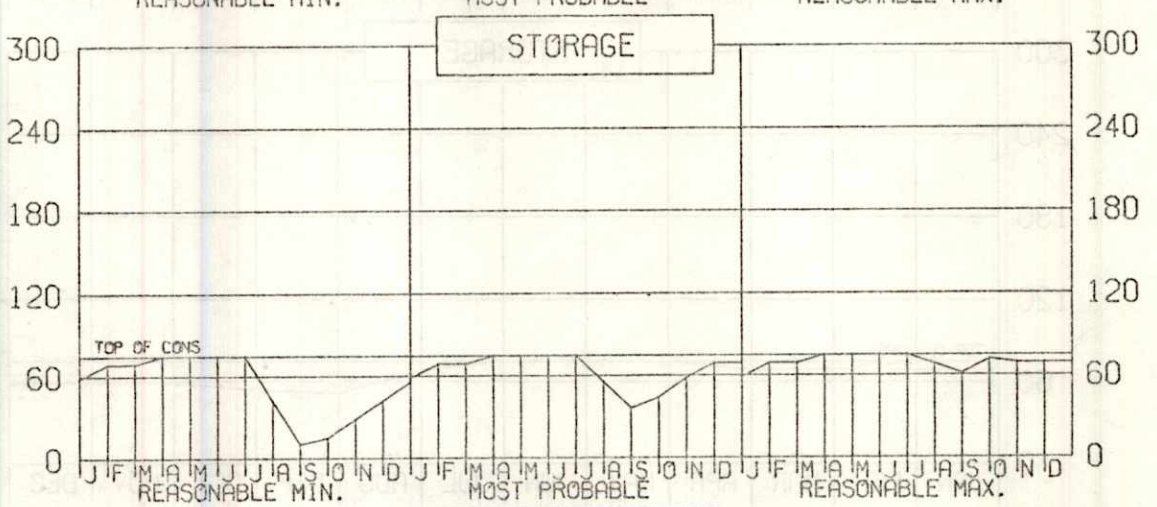
EXHIBIT 2C

MERRITT RESERVOIR

CAL YEAR 1979 OPERATION PLAN

UNITS: 1000 A.F.





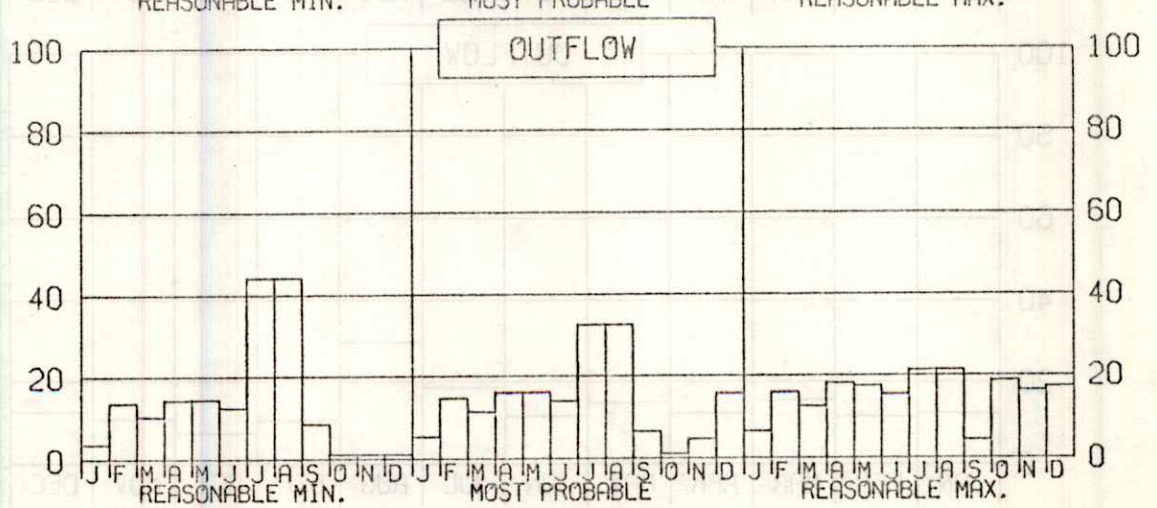


EXHIBIT 3A

SHERMAN RESERVOIR OPERATION

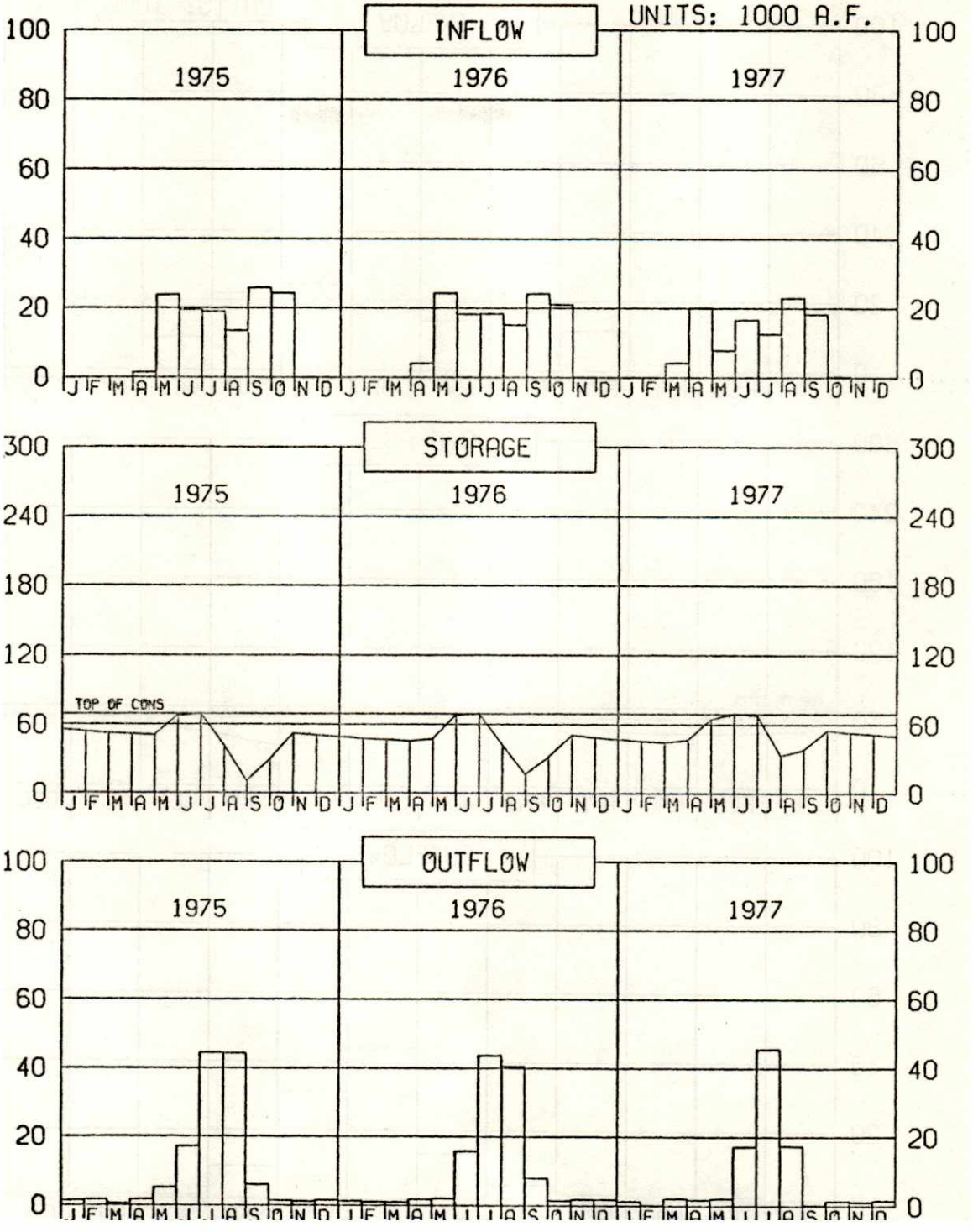


EXHIBIT 3B

SHERMAN RESERVOIR 1978 OPERATION

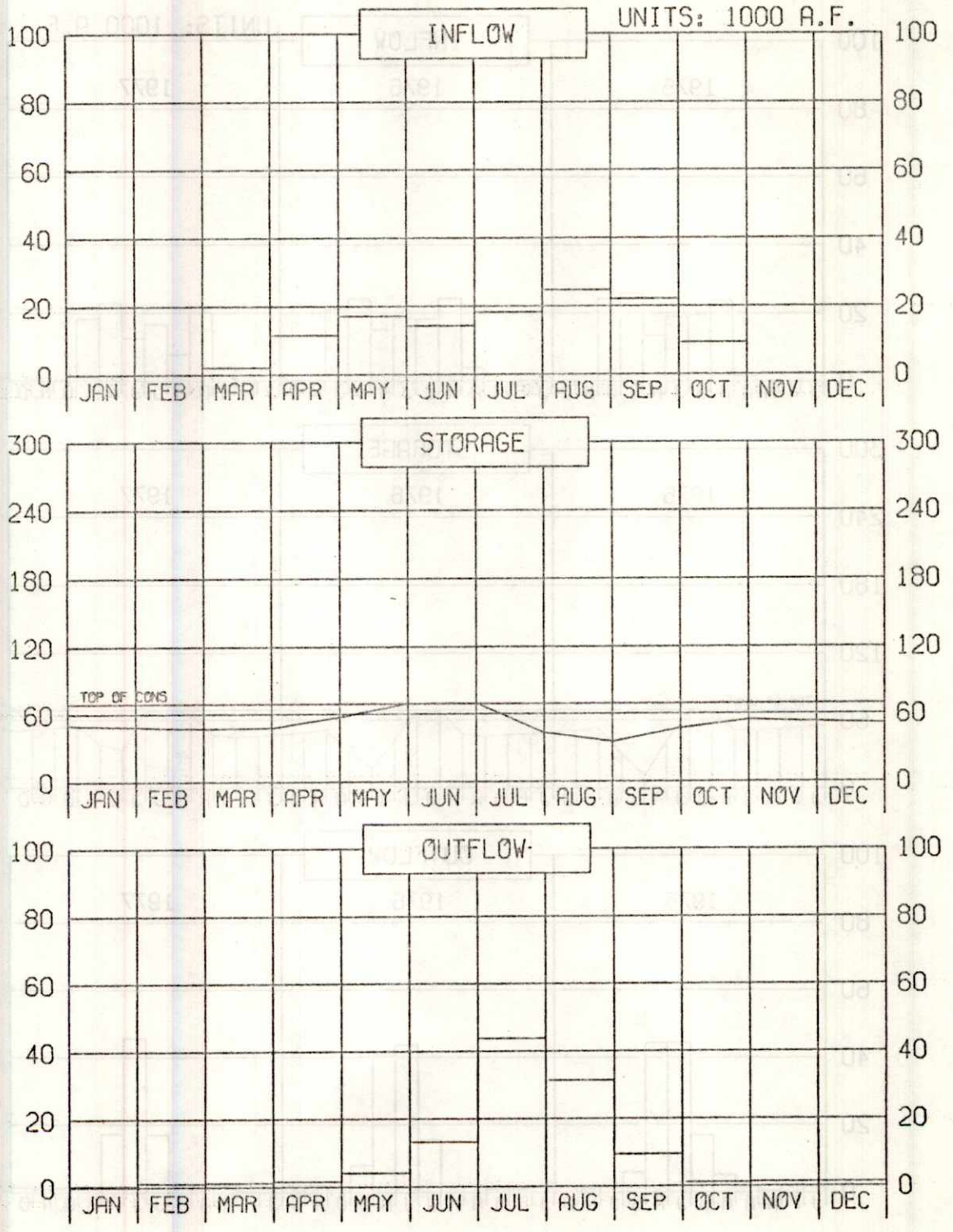


EXHIBIT 3C

SHERMAN RESERVOIR

CAL YEAR 1979 OPERATION PLAN

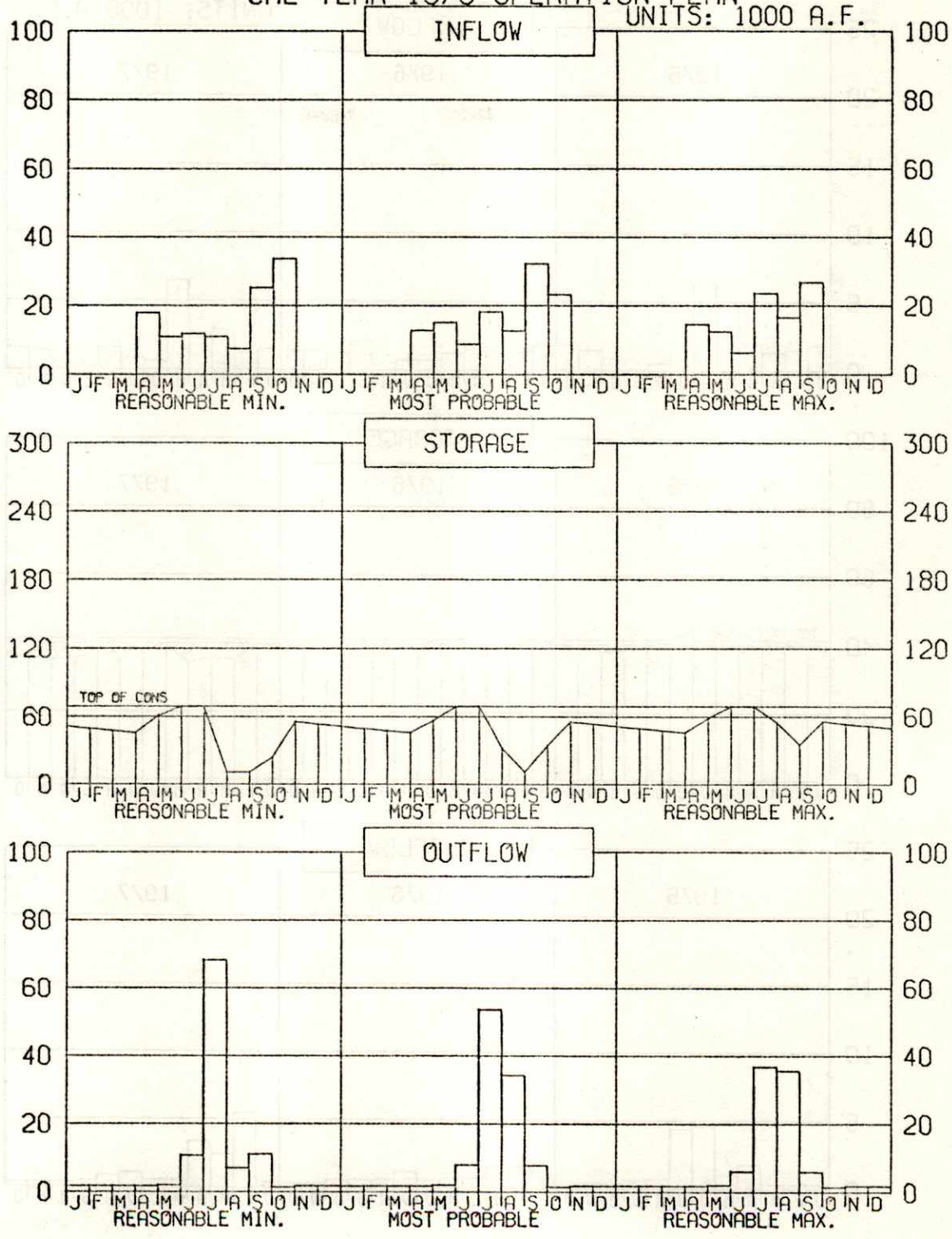


EXHIBIT 4A

BØNNY RESERVØIR ØPERATIØN

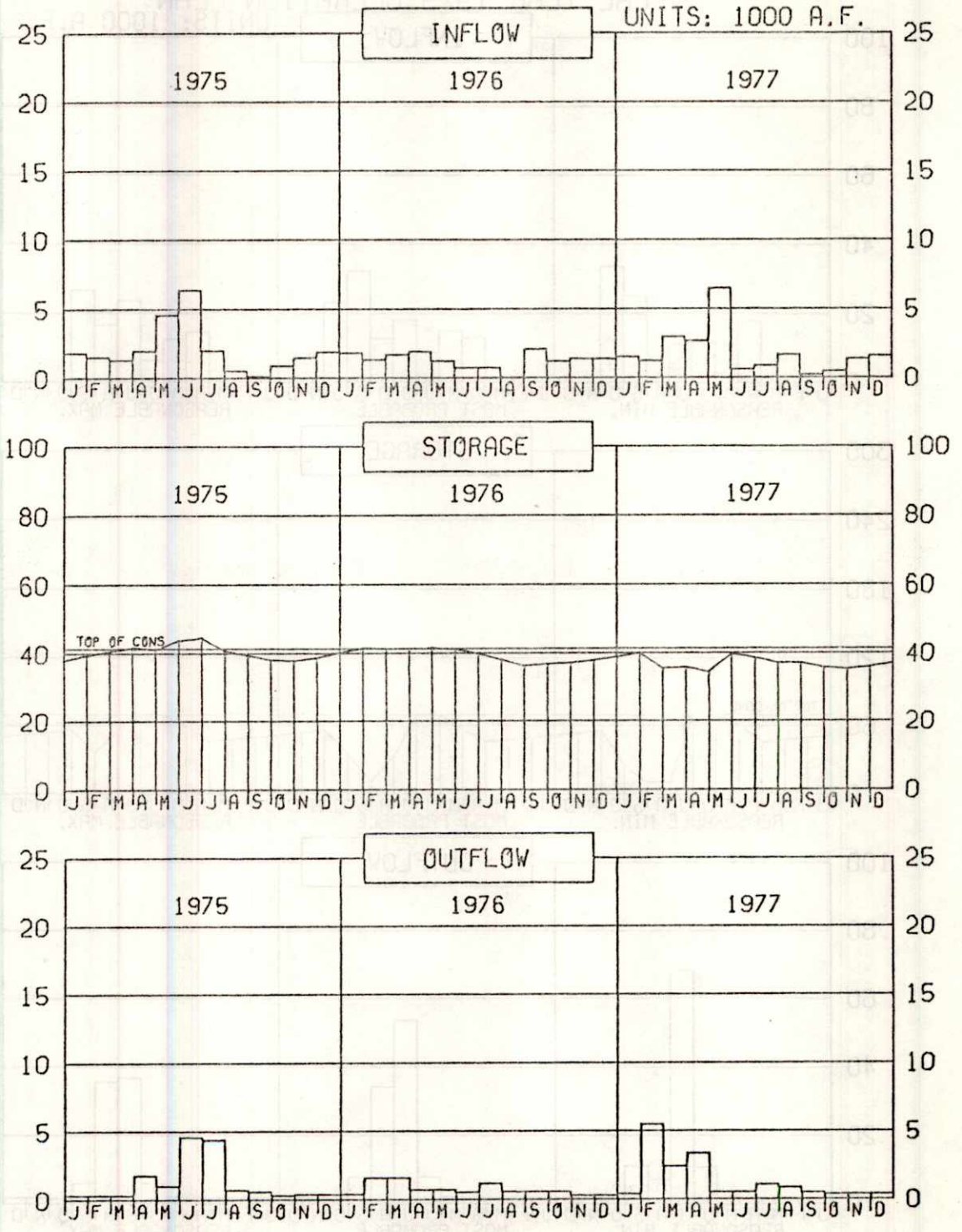
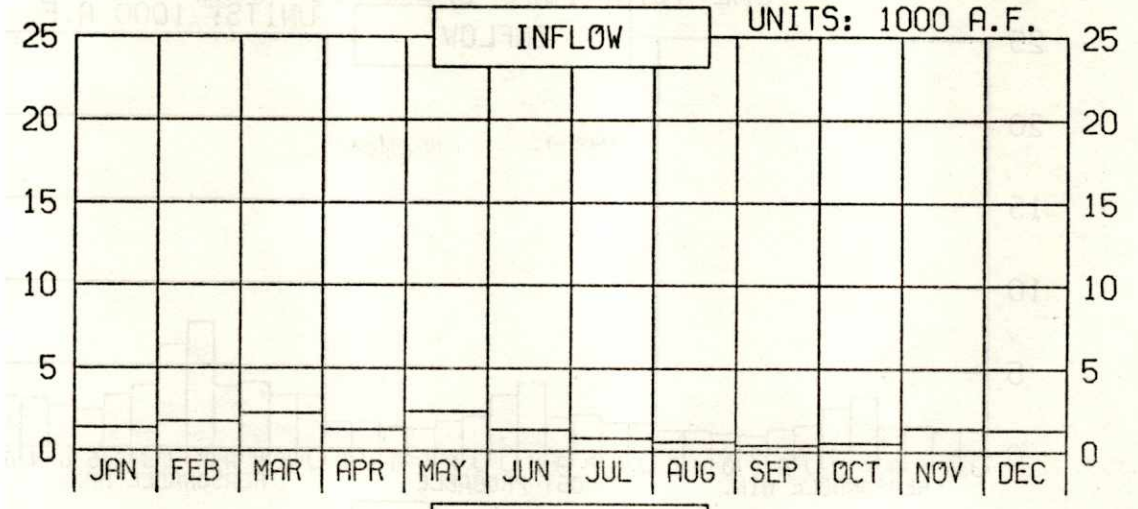
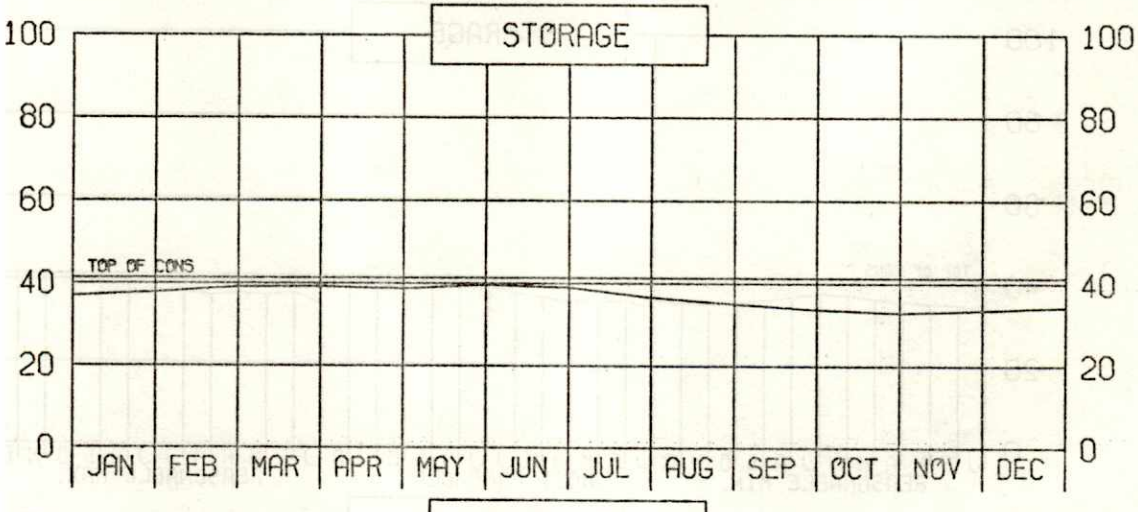


EXHIBIT 4B

BØNNY RESERVØIR 1978 ØPERATIØN





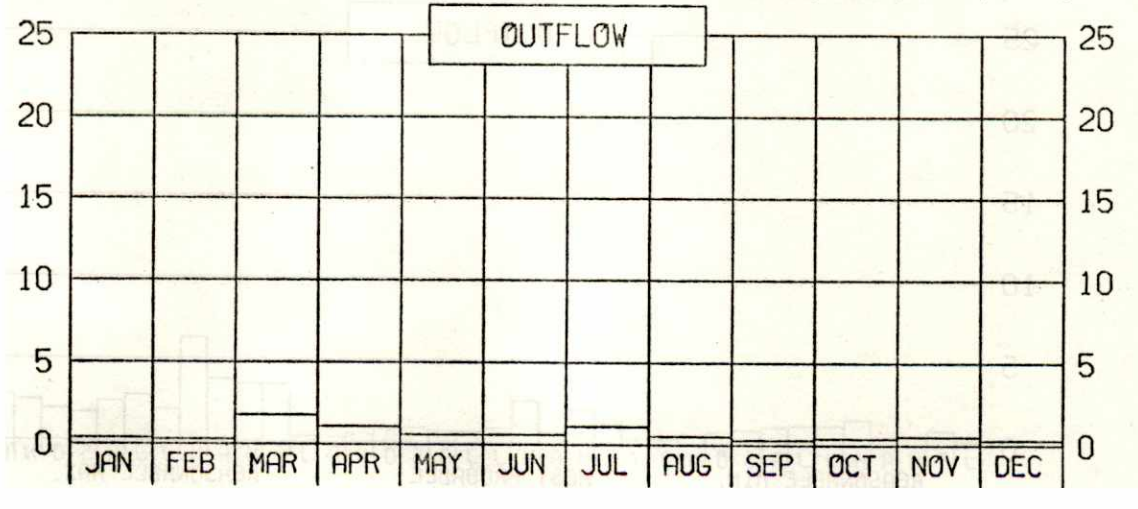


EXHIBIT 4C

BONNY RESERVOIR

CAL YEAR 1979 OPERATION PLAN

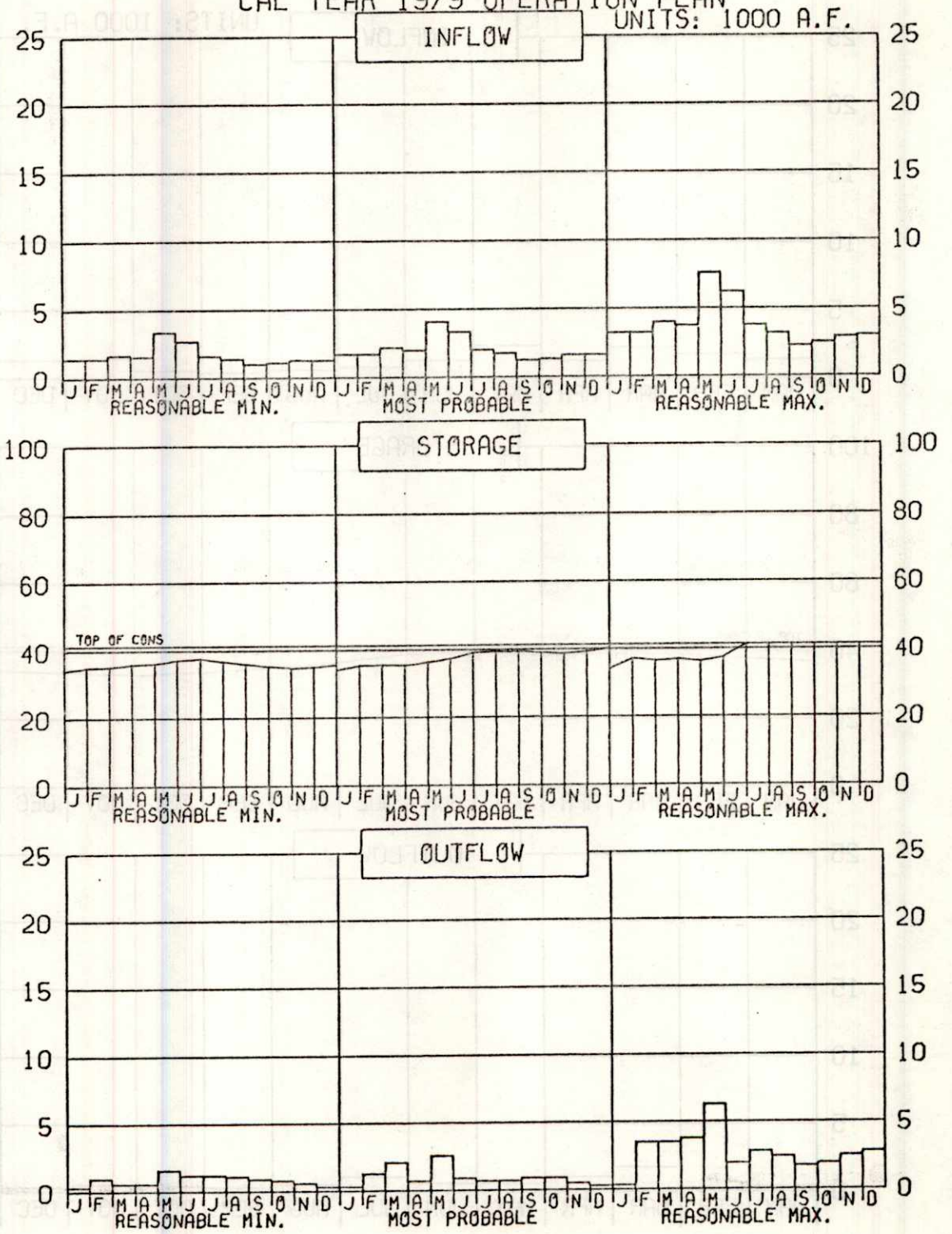


EXHIBIT 5A

SWANSON LAKE OPERATION

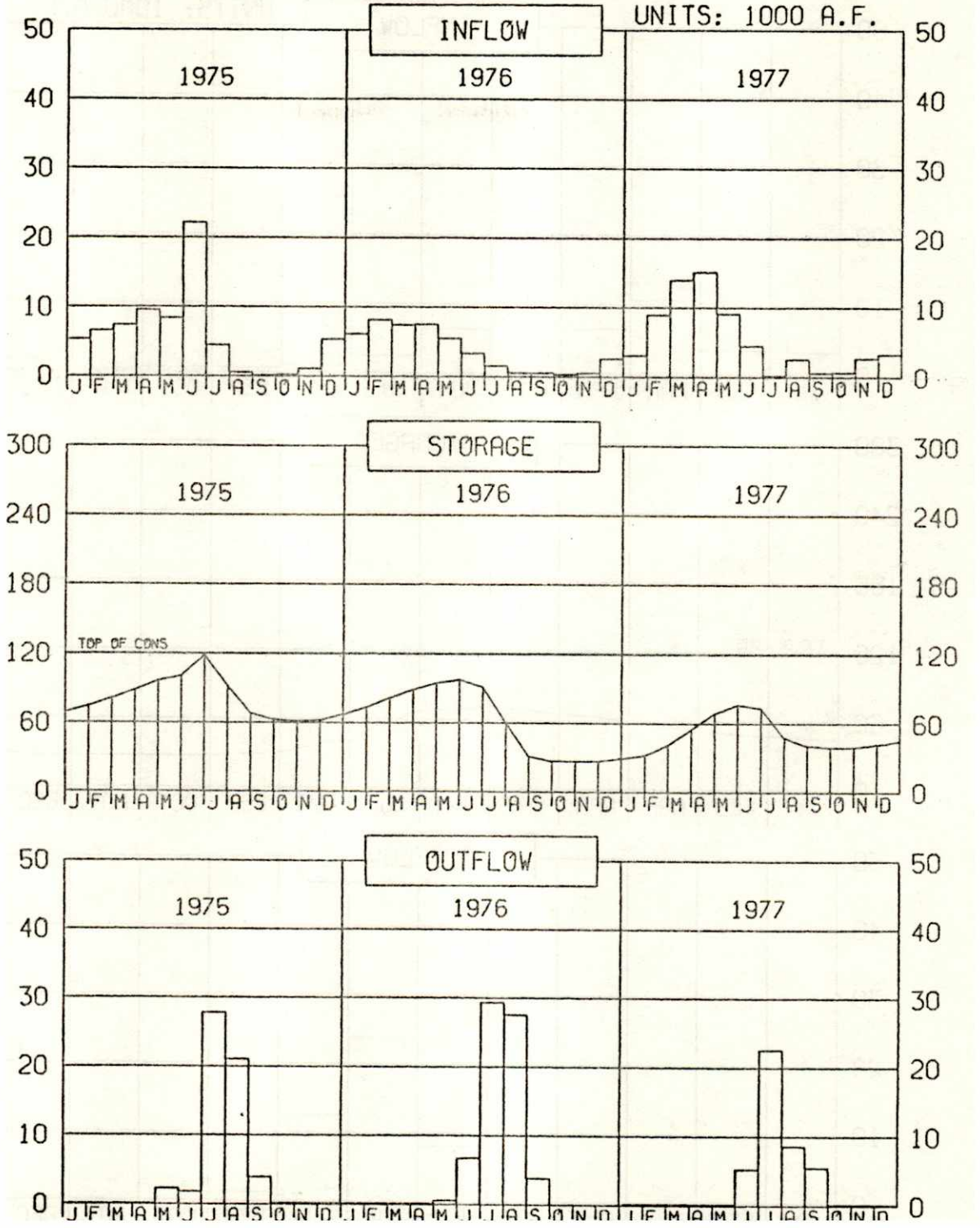


EXHIBIT 5B

SWANSON LAKE 1978 OPERATION

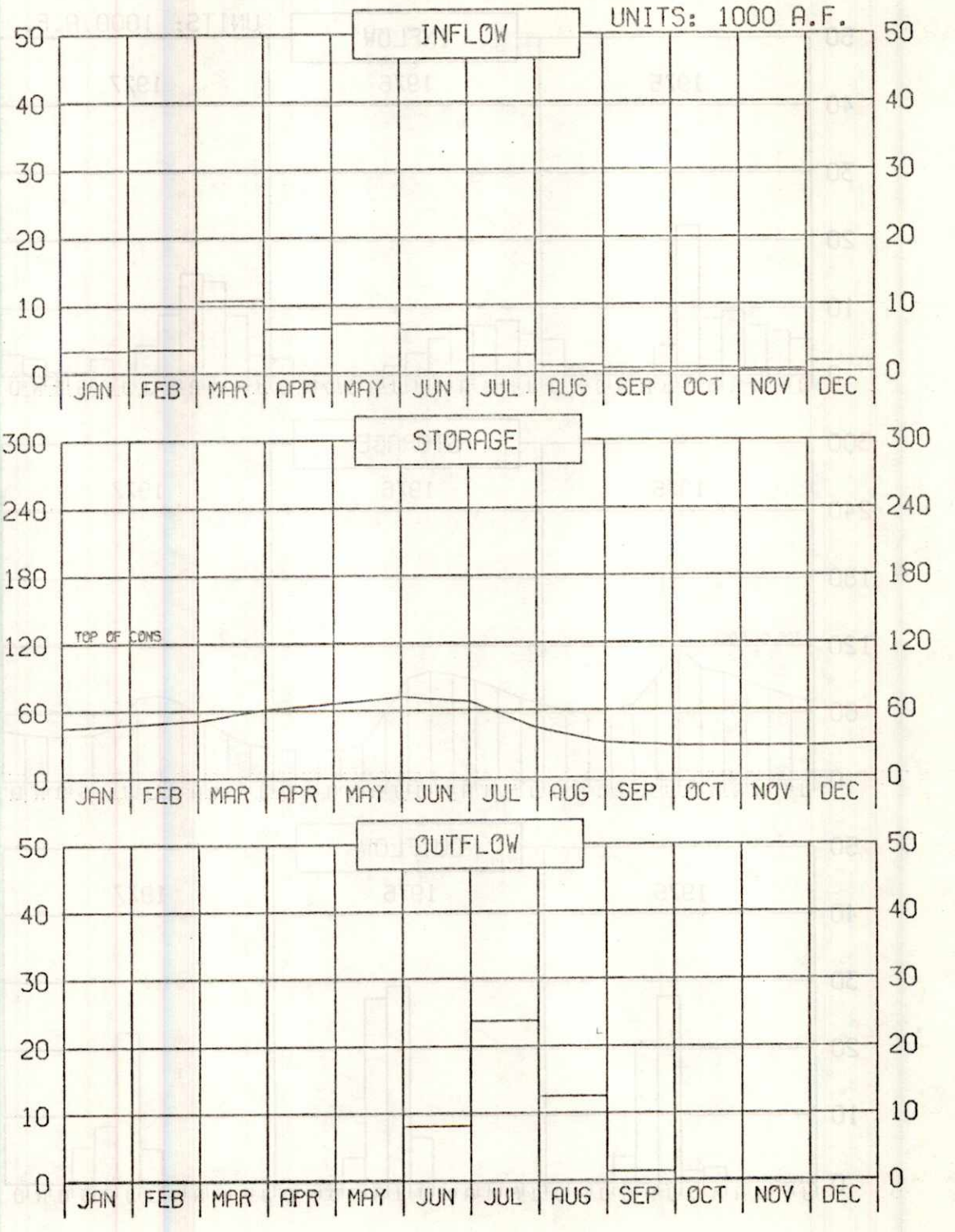


EXHIBIT 5C

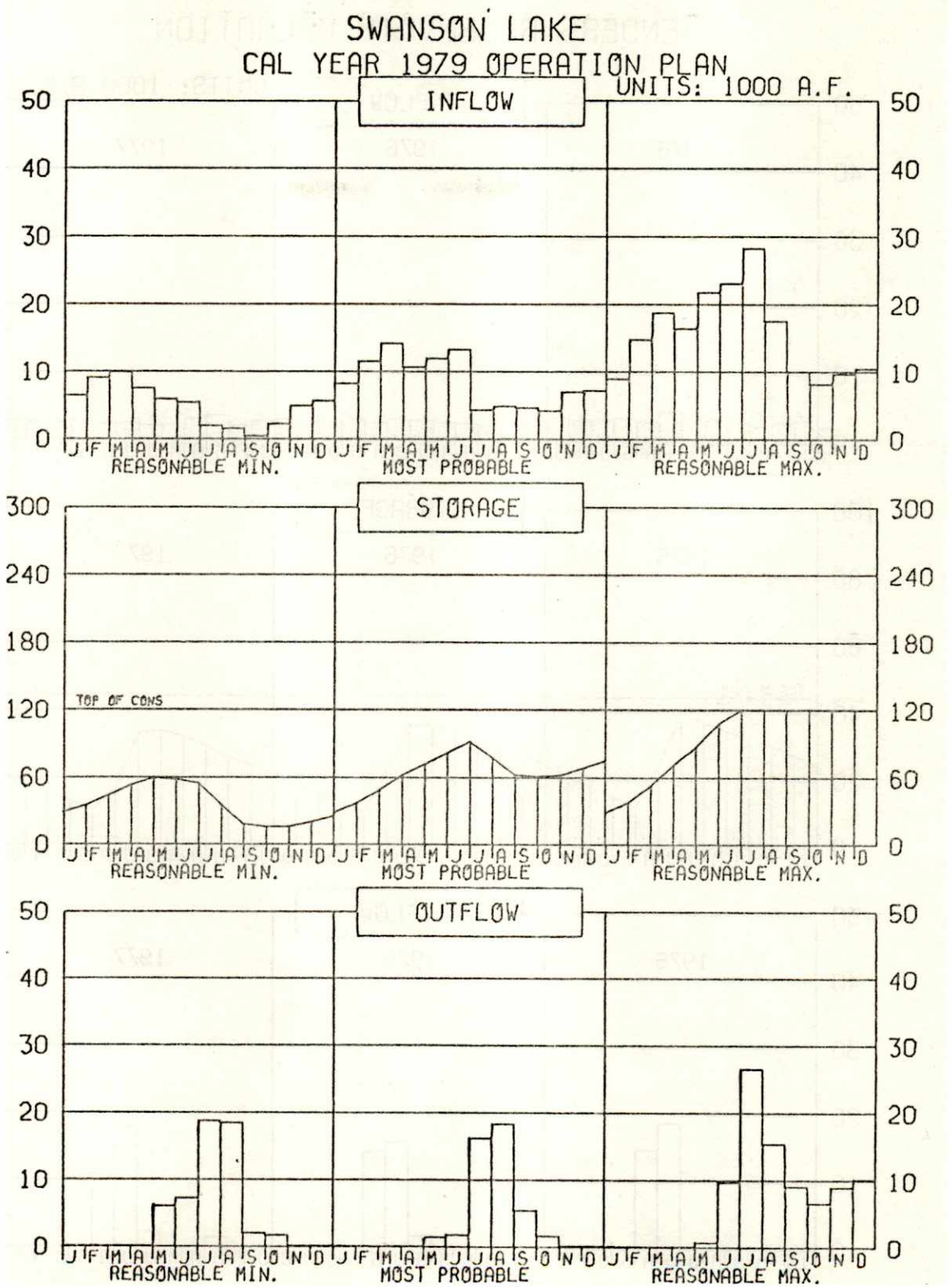

SWANSON LAKE
CAL YEAR 1979 OPERATION PLAN
UNITS: 1000 A.F.
INFLOW
50
40
30
20
10
0
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.
STORAGE
300
240
180
120
60
0
TOP OF CONS
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.
OUTFLOW
50
40
30
20
10
0
J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D
REASONABLE MIN.
MOST PROBABLE
REASONABLE MAX.

EXHIBIT 6A

ENDERS RESERVOIR OPERATION

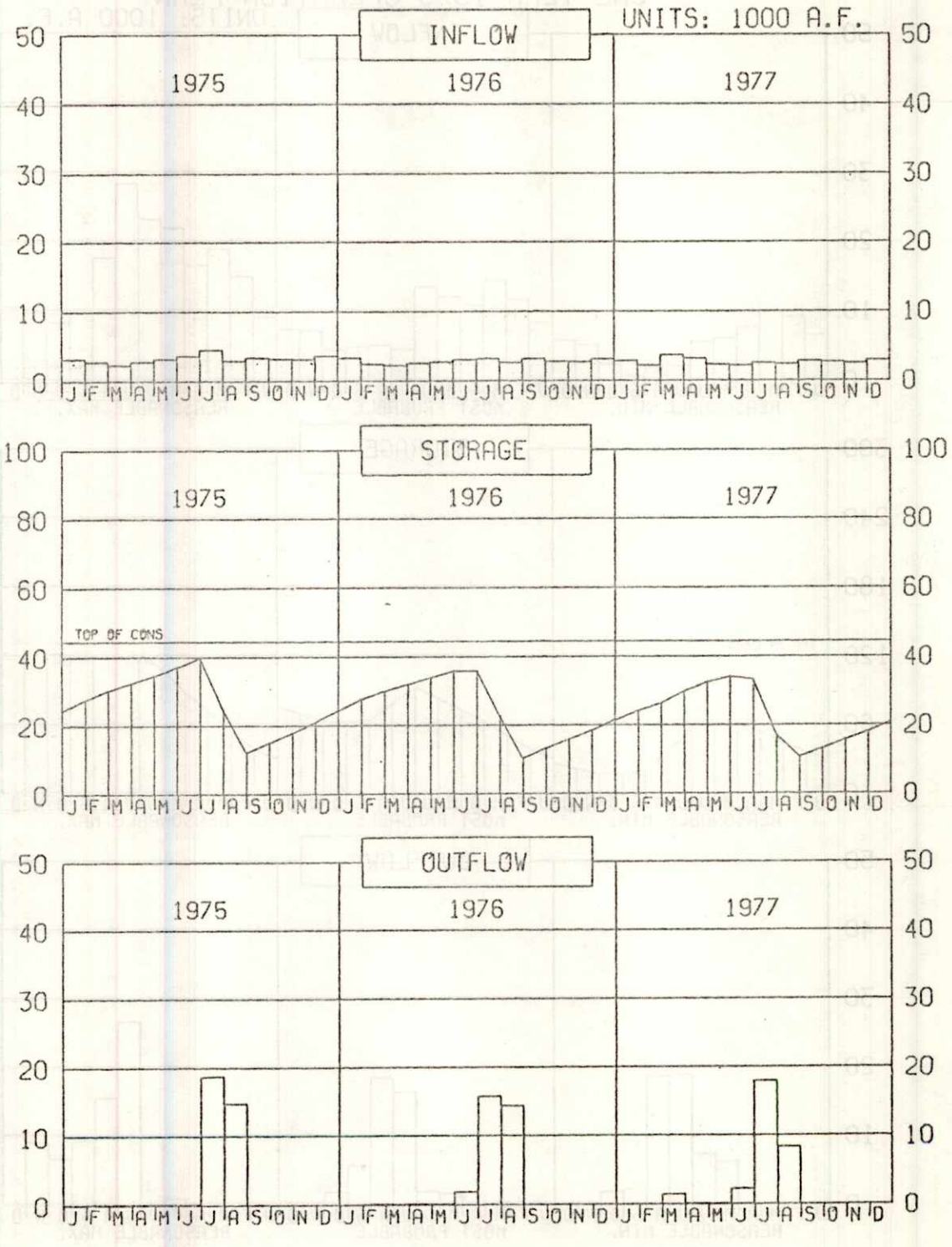


EXHIBIT 6B

ENDERS RESERVOIR 1978 OPERATION

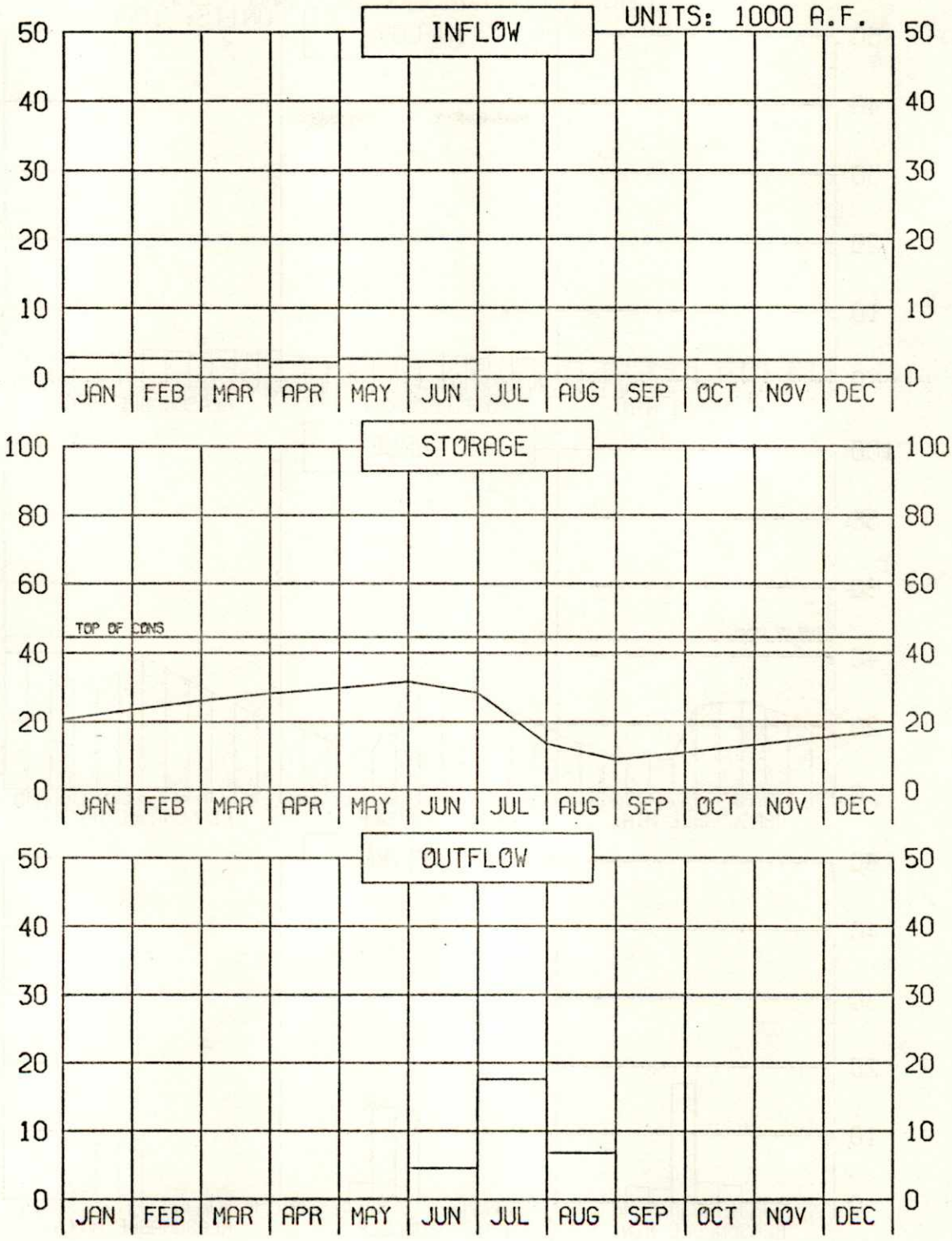
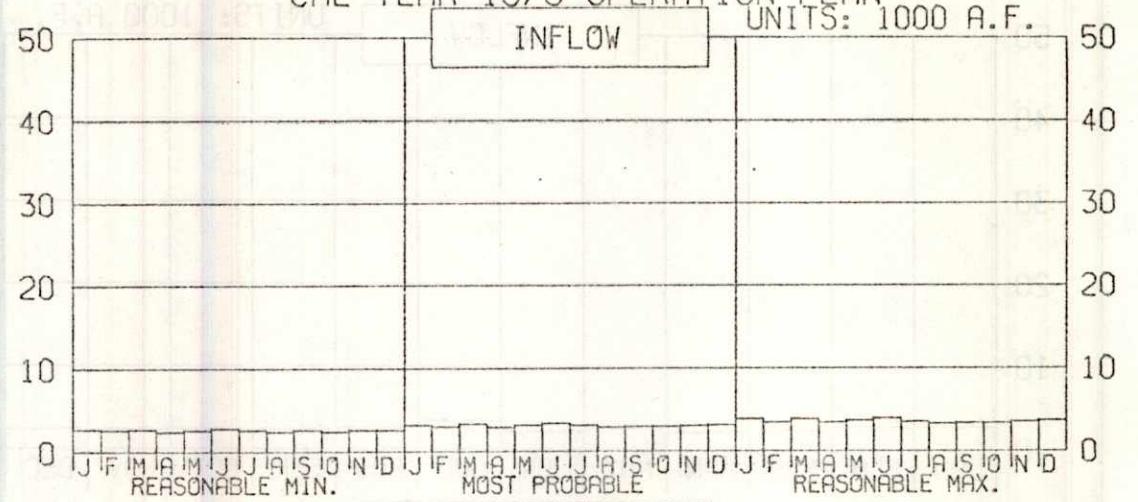


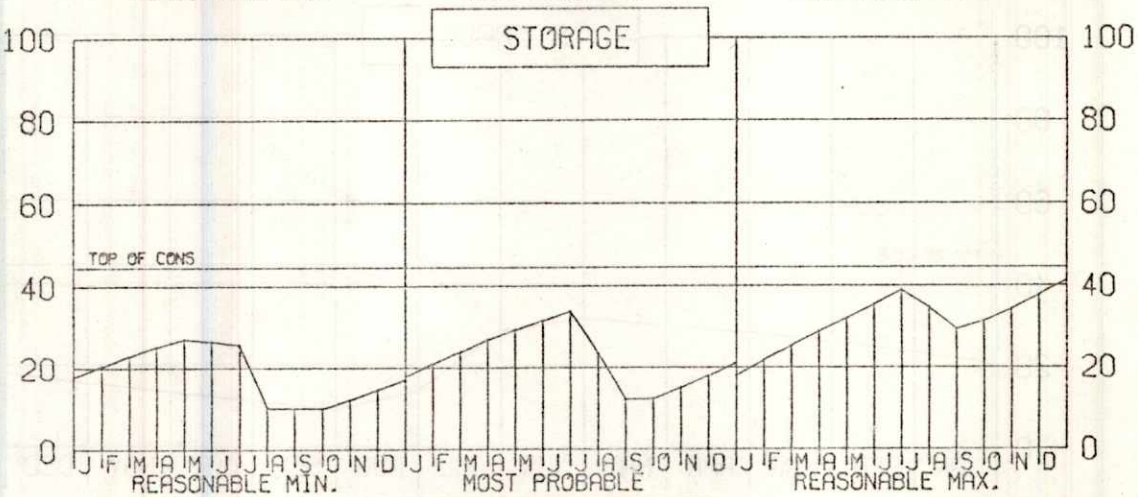
EXHIBIT 6C

ENDERS RESERVOIR

CAL YEAR 1979 OPERATION PLAN

UNITS: 1000 A.F.





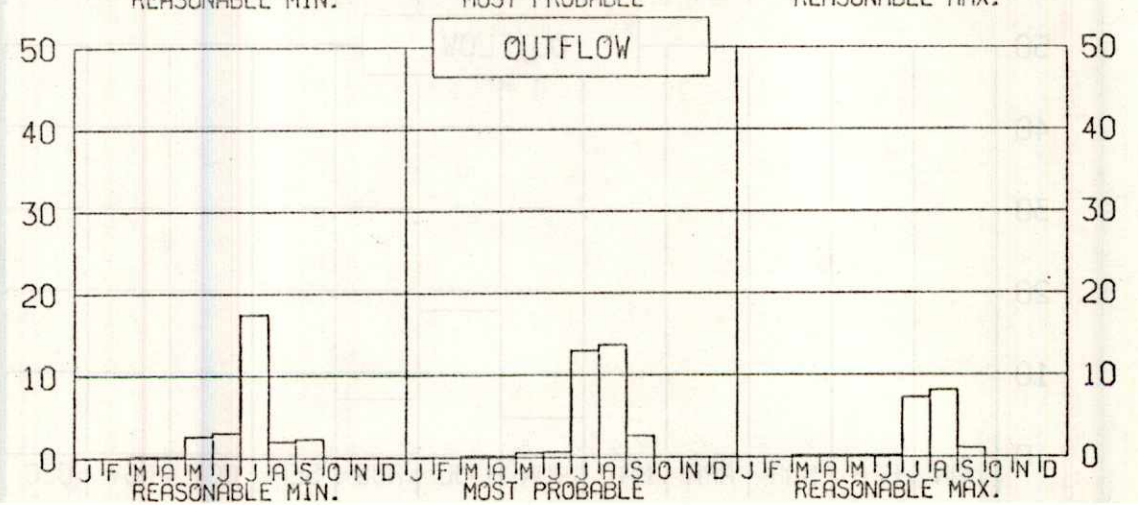


EXHIBIT 7A

HUGH BUTLER LAKE OPERATION

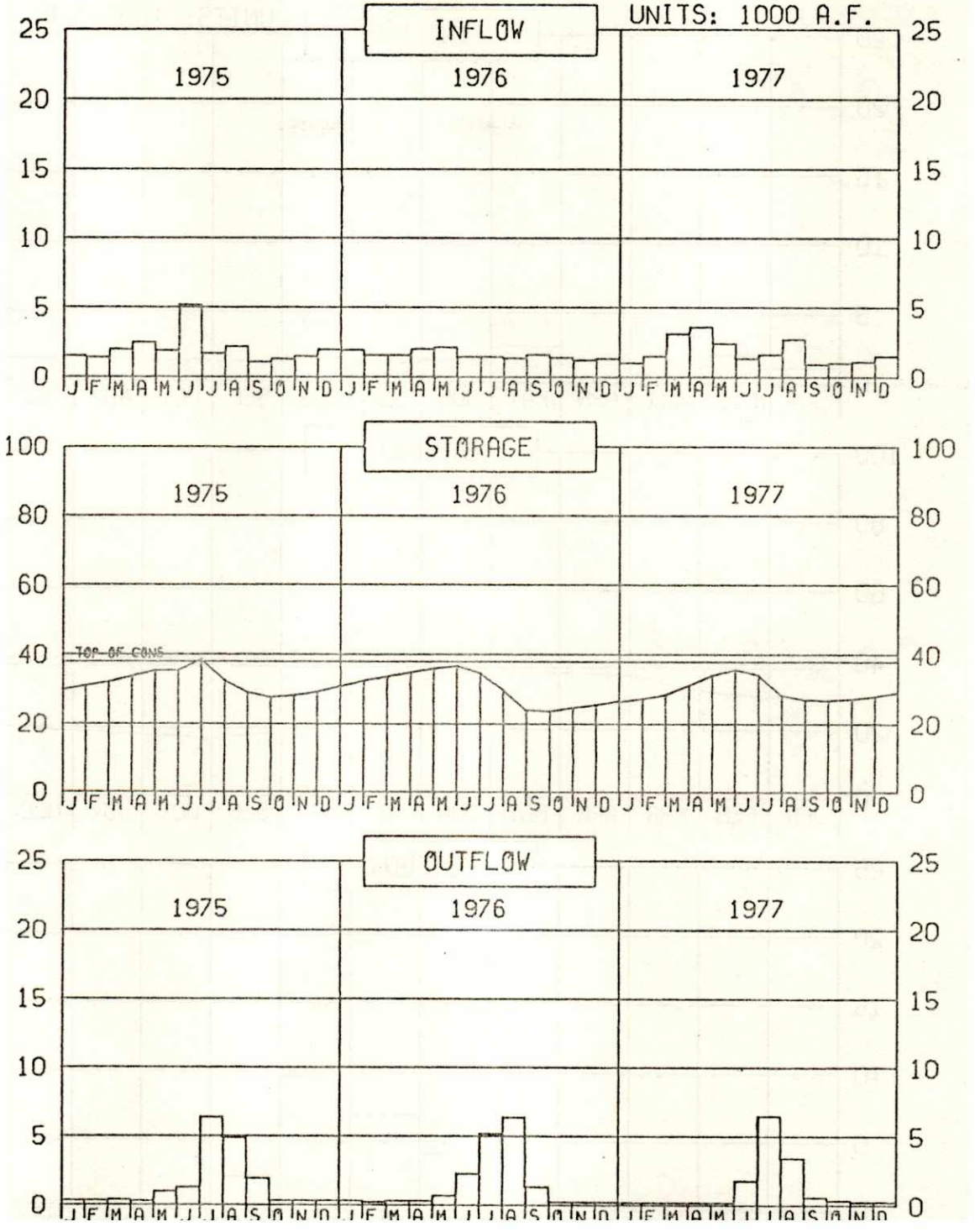


EXHIBIT 7B

HUGH BUTLER LAKE 1978 OPERATION

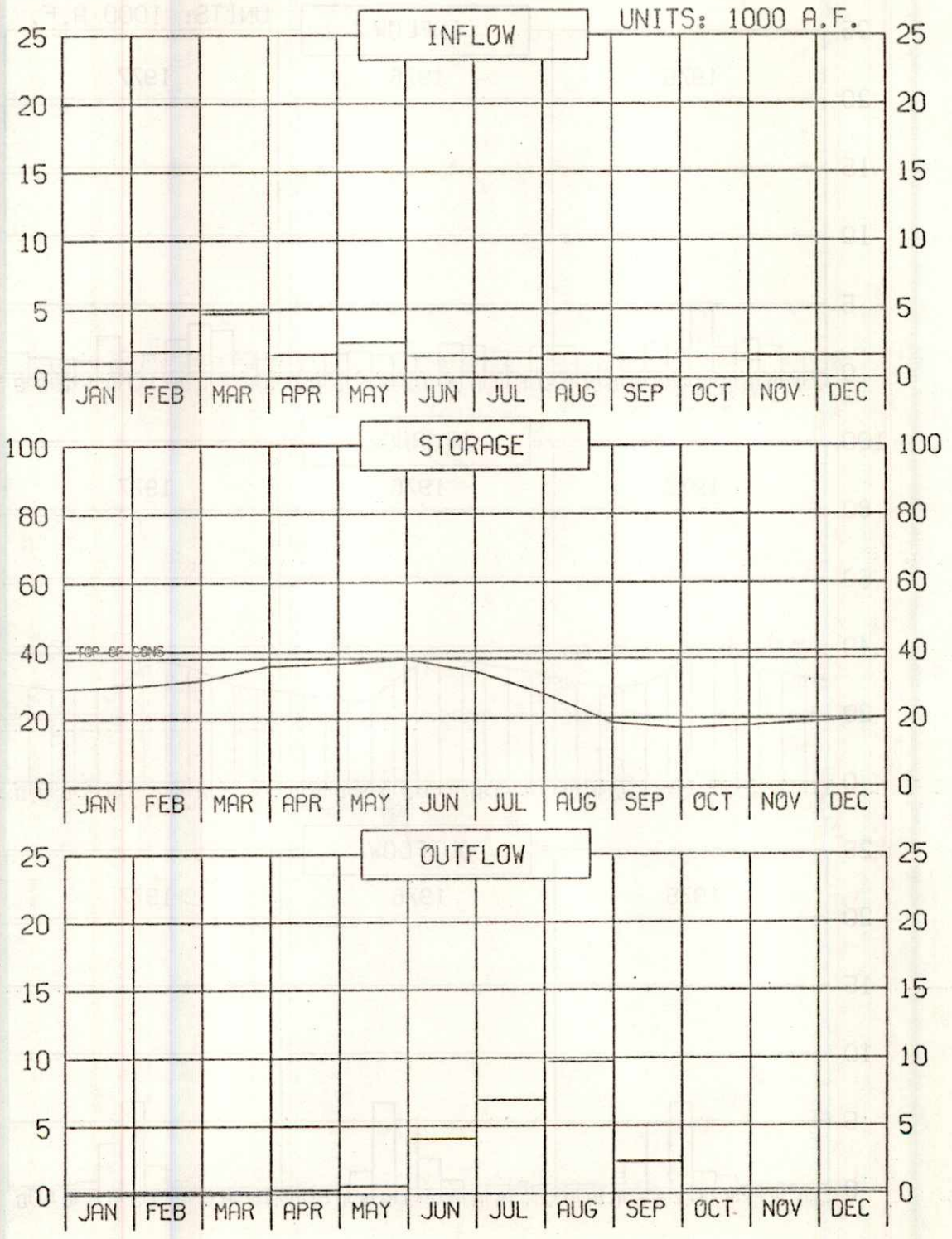


EXHIBIT 7C

HUGH BUTLER LAKE

CAL YEAR 1979 OPERATION PLAN

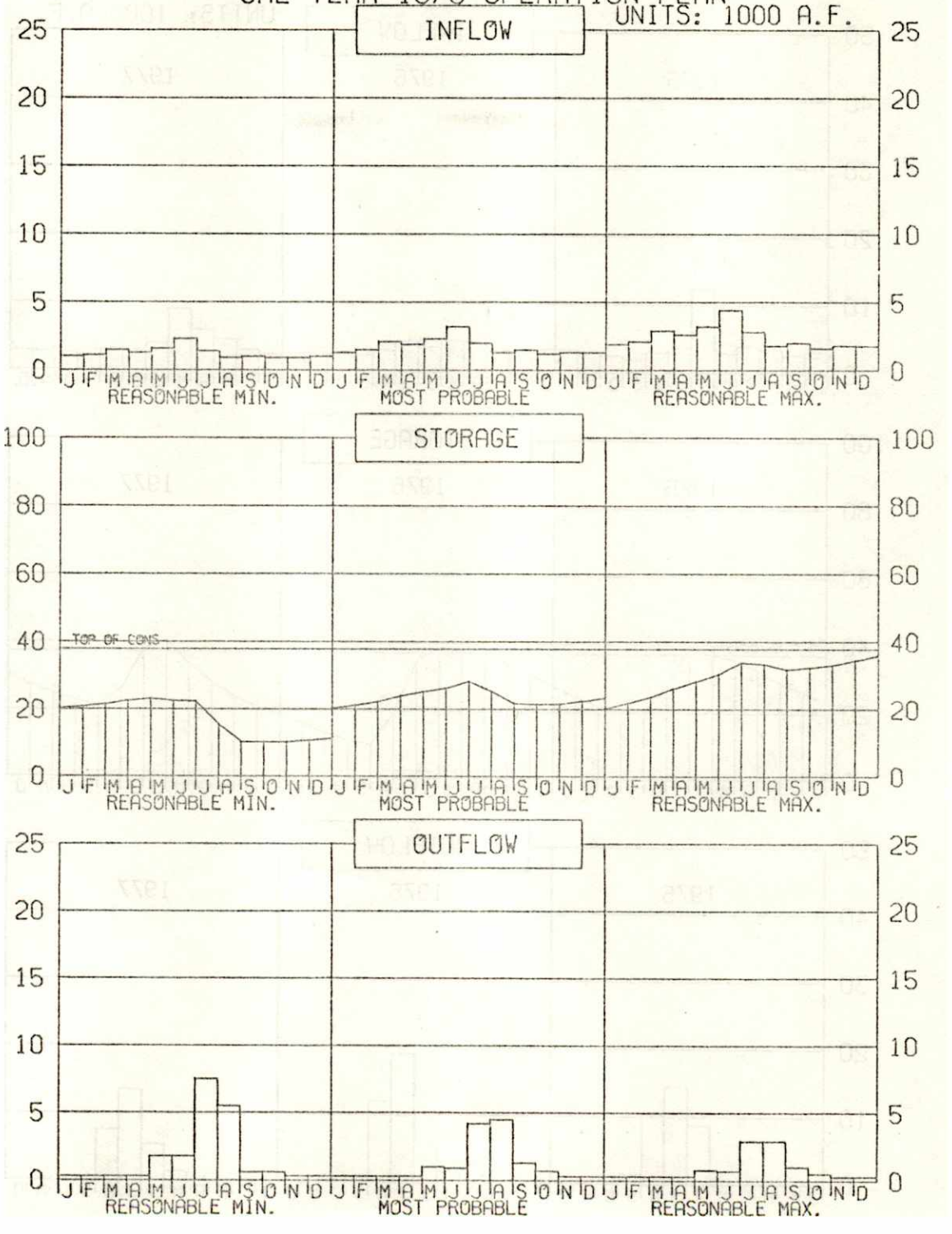
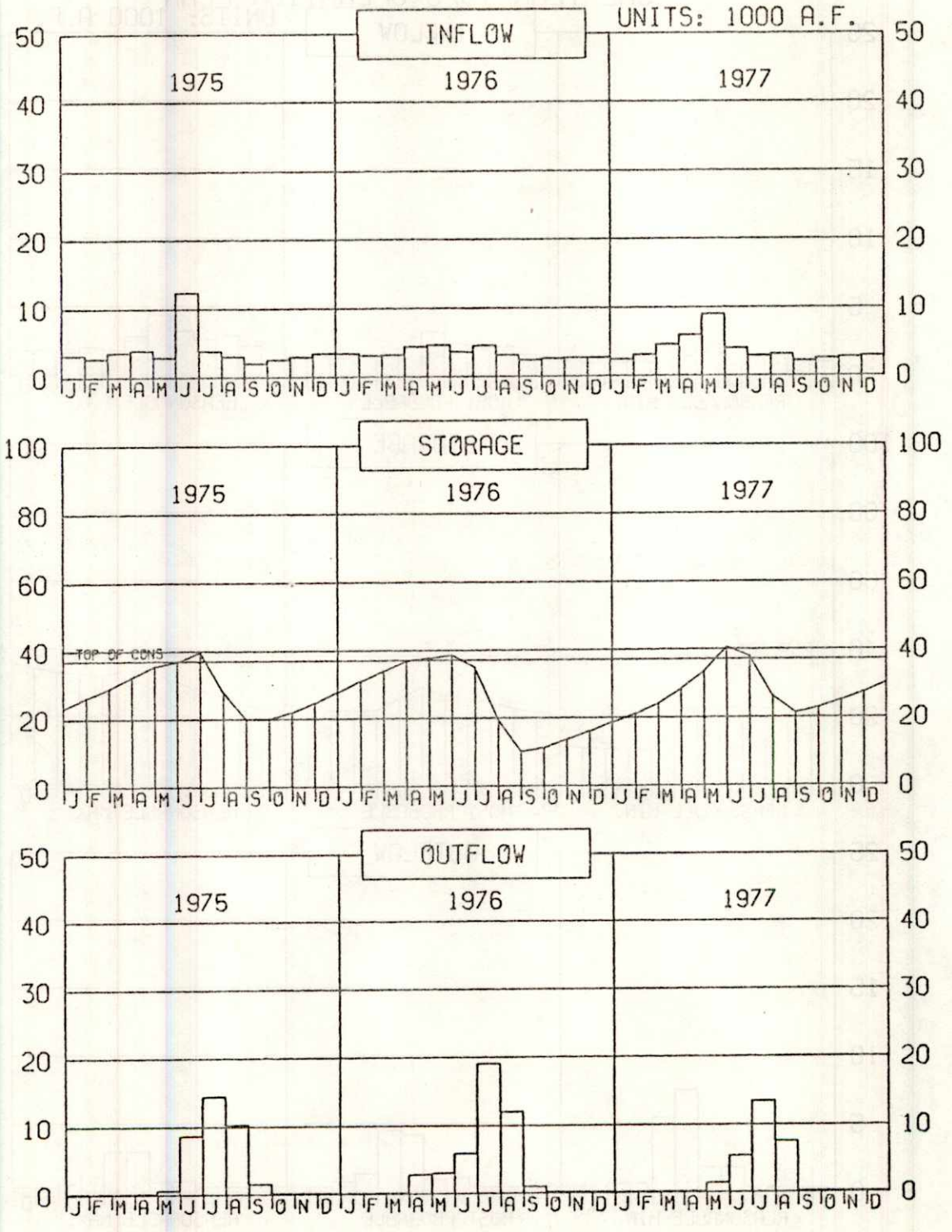
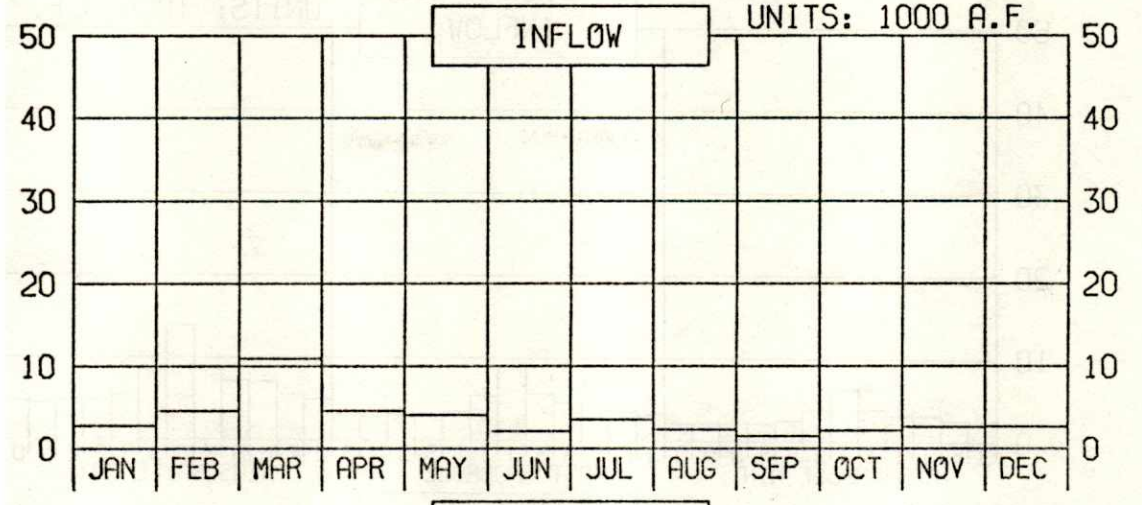


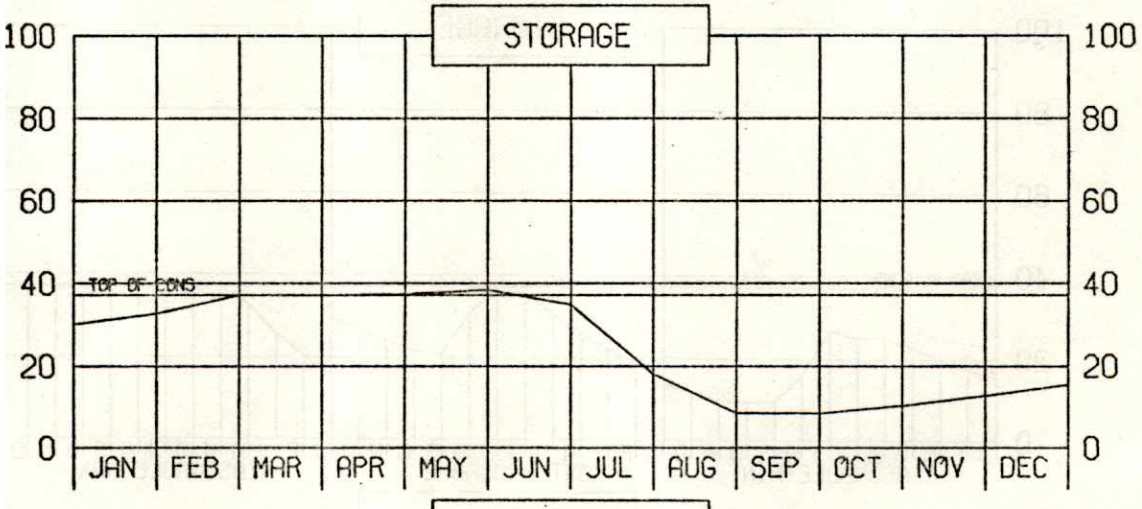
EXHIBIT 8A

HARRY STRUNK LAKE OPERATION



HARRY STRUNK LAKE 1978 OPERATION





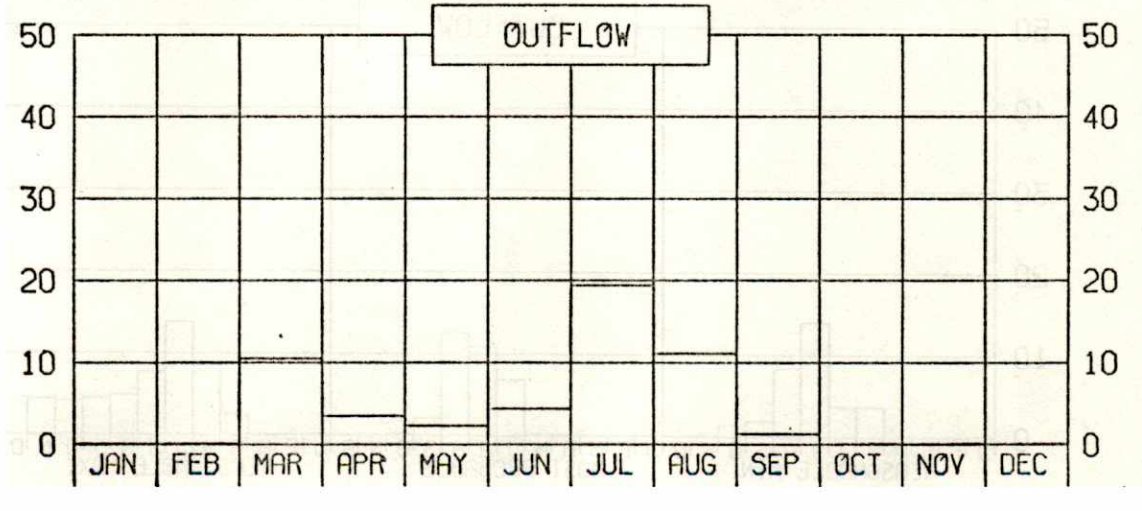


EXHIBIT 8C

HARRY STRUNK LAKE

CAL YEAR 1979 OPERATION PLAN

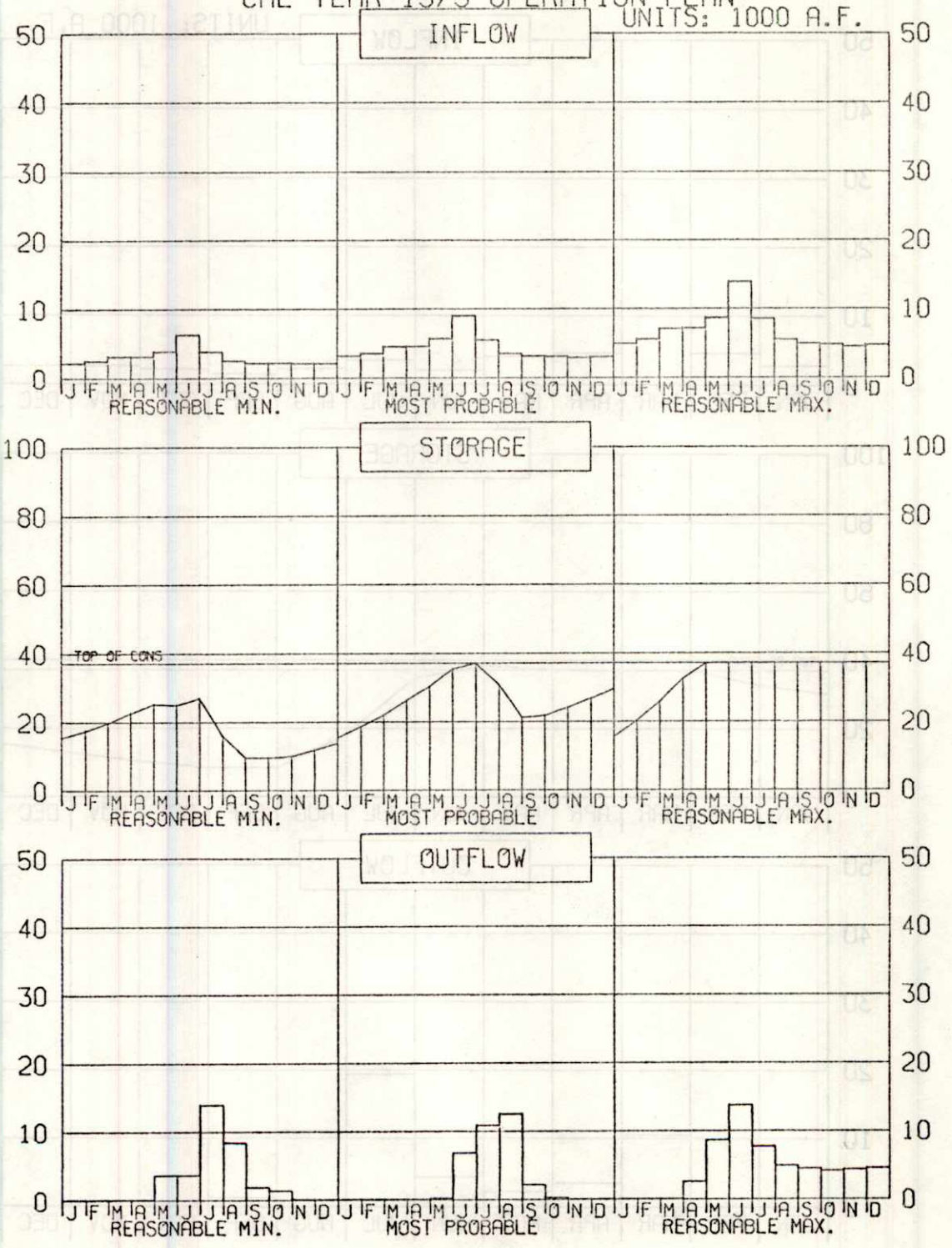


EXHIBIT 9A

NORTON RESERVOIR OPERATION

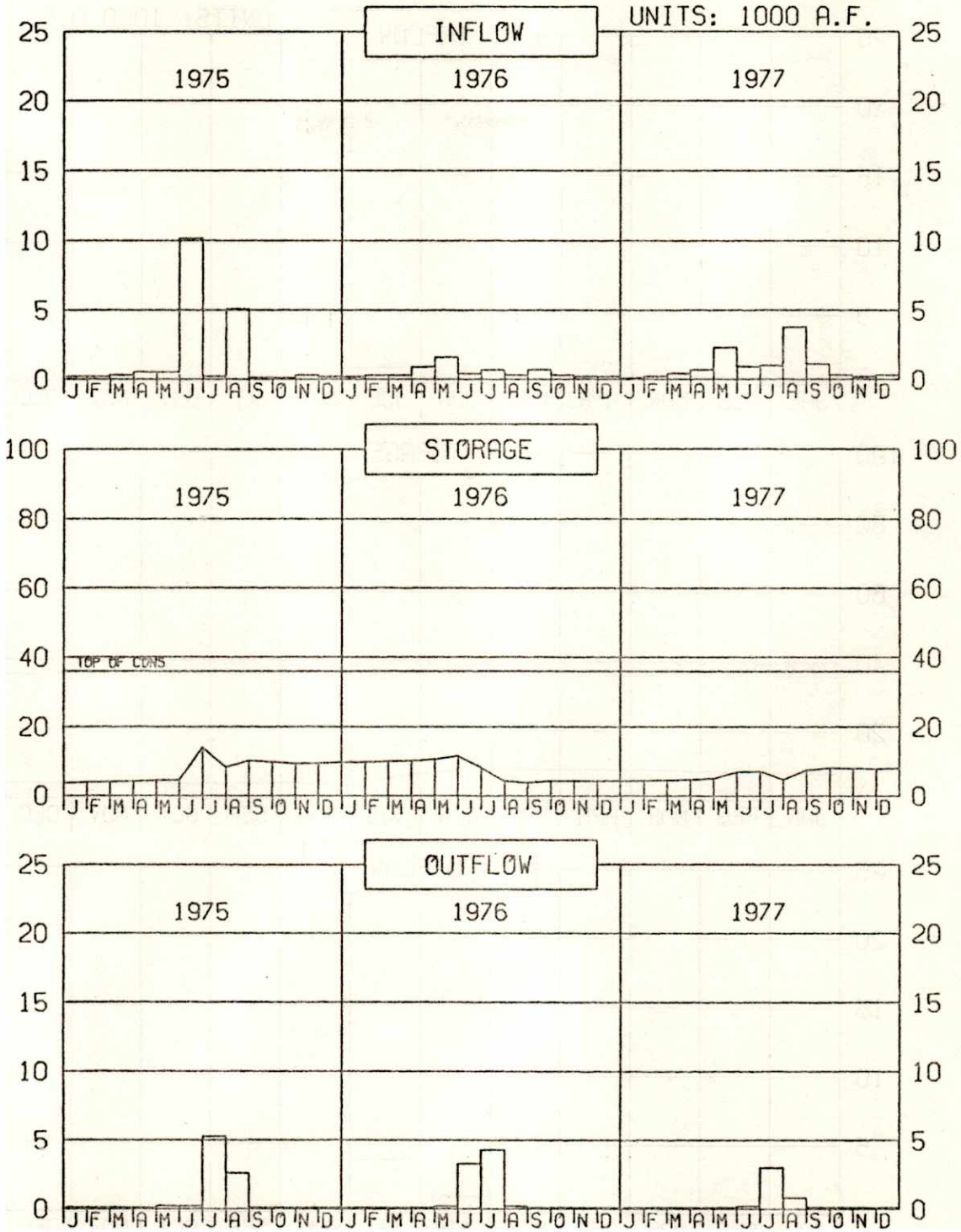


EXHIBIT 9B

NORTON RESERVOIR 1978 OPERATION

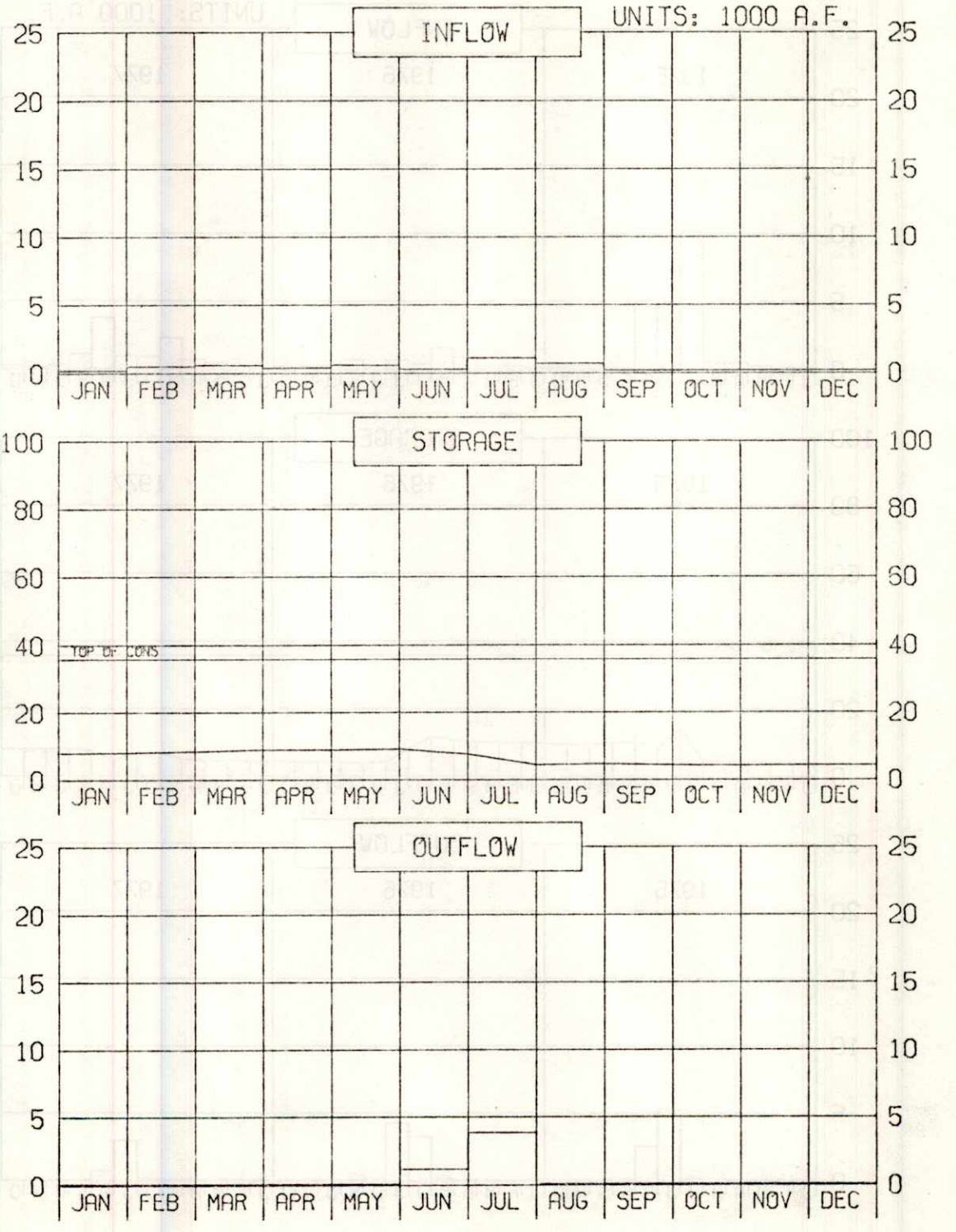


EXHIBIT 9C

NORTON RESERVOIR

CAL YEAR 1979 OPERATION PLAN

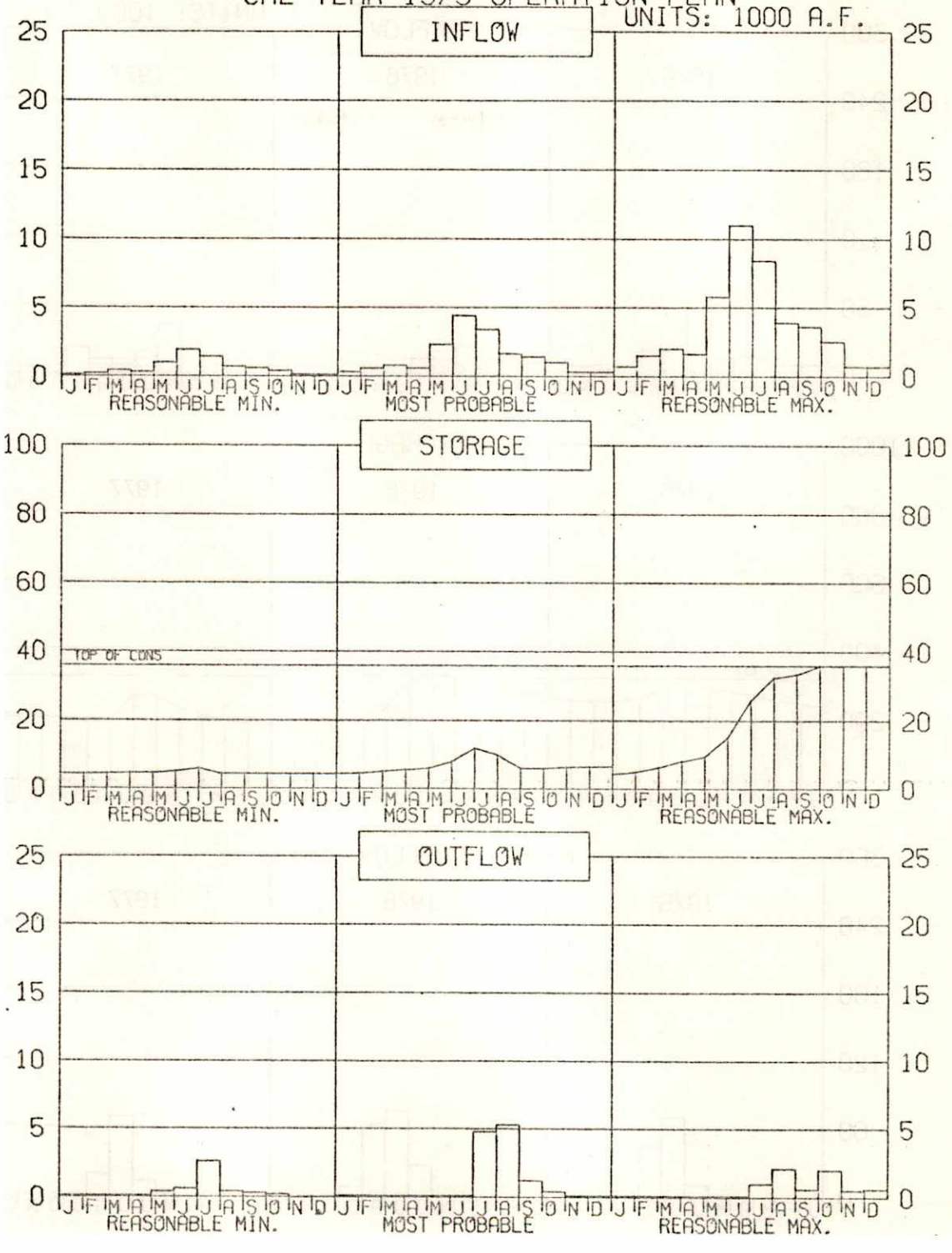


EXHIBIT 10A

HARLAN COUNTY LAKE OPERATION

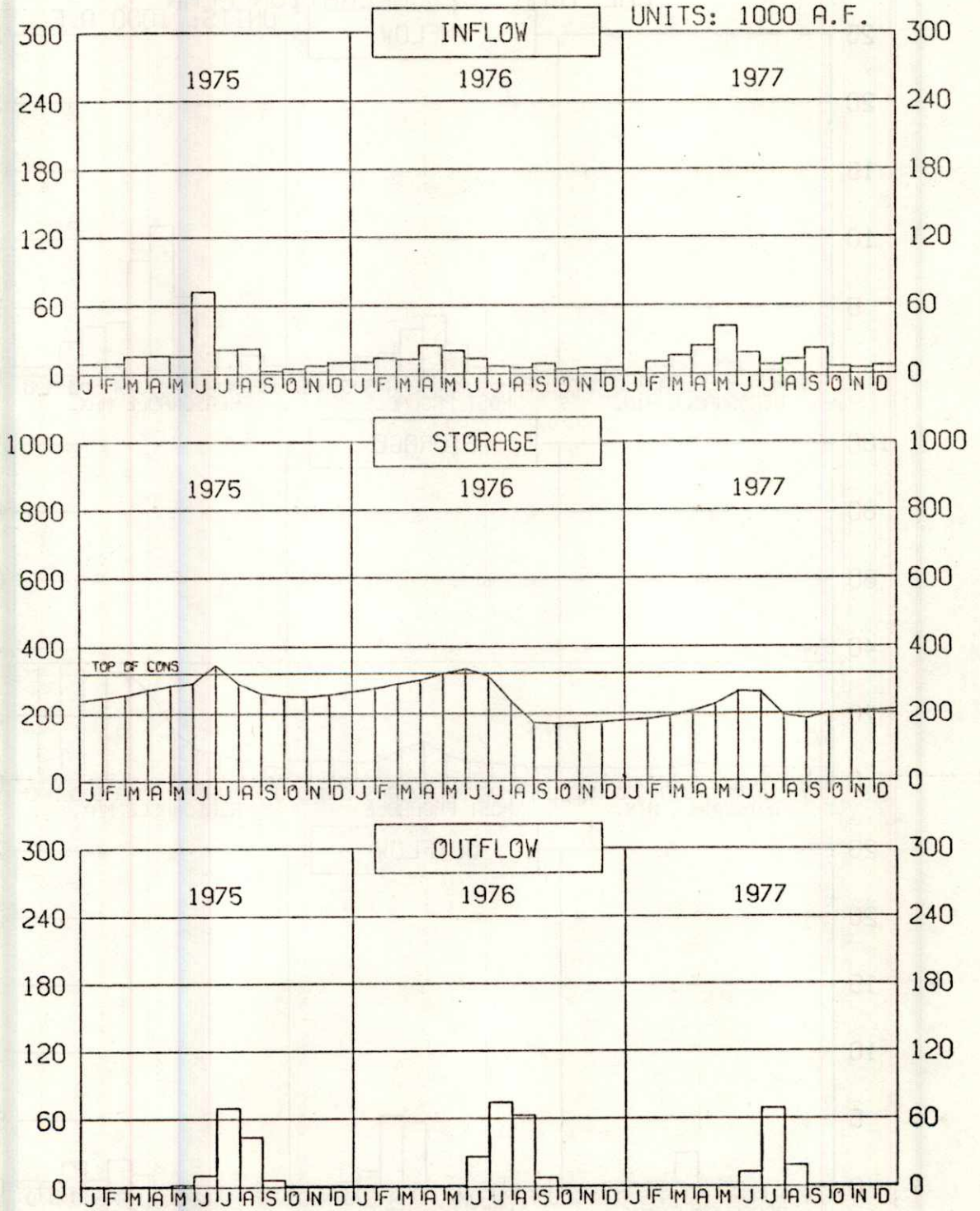


EXHIBIT 10B

HARLAN COUNTY LAKE 1978 OPERATION

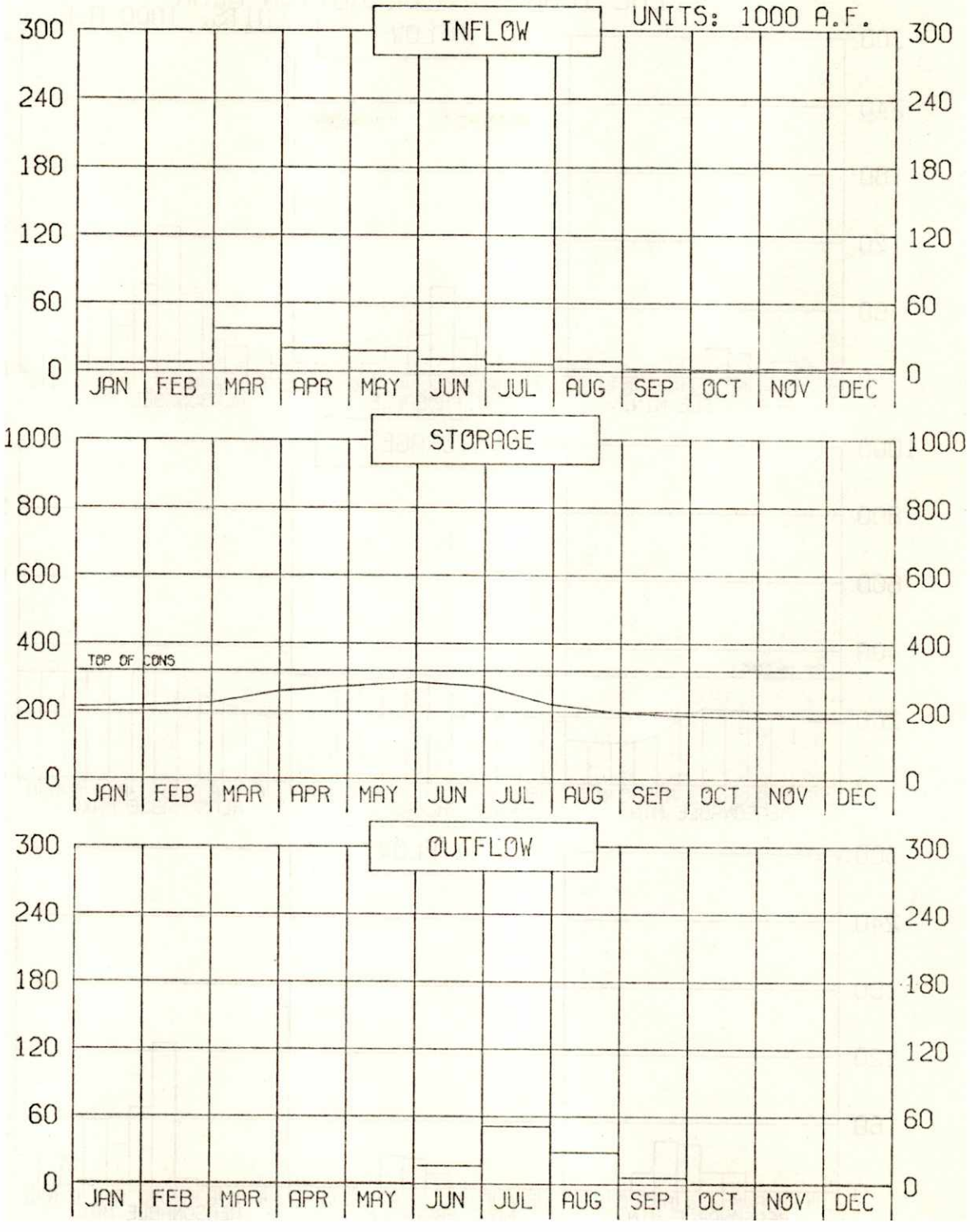


EXHIBIT 10C

HARLAN COUNTY LAKE

CAL YEAR 1979 OPERATION PLAN

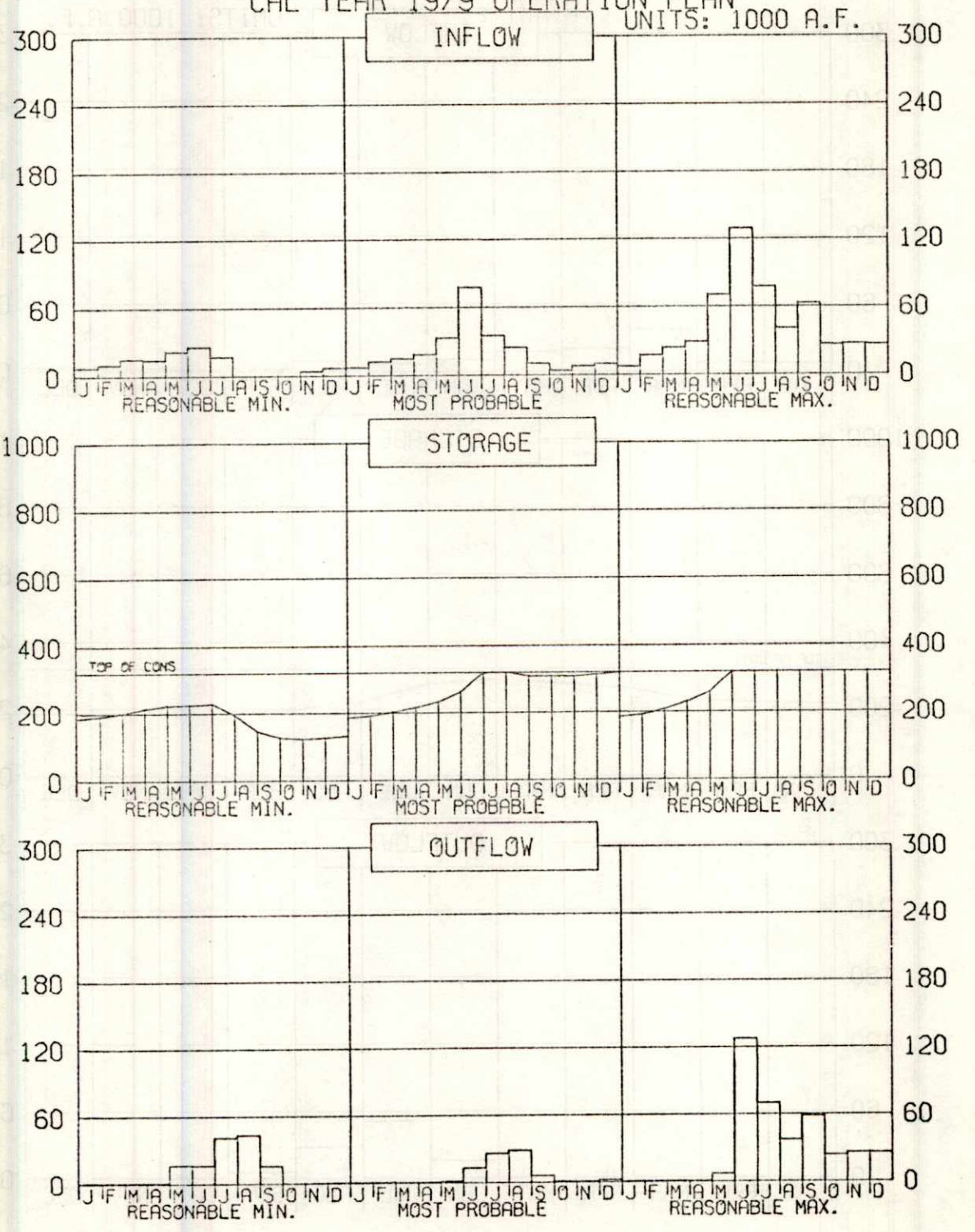


EXHIBIT 11A

LOVEWELL RESERVOIR OPERATION

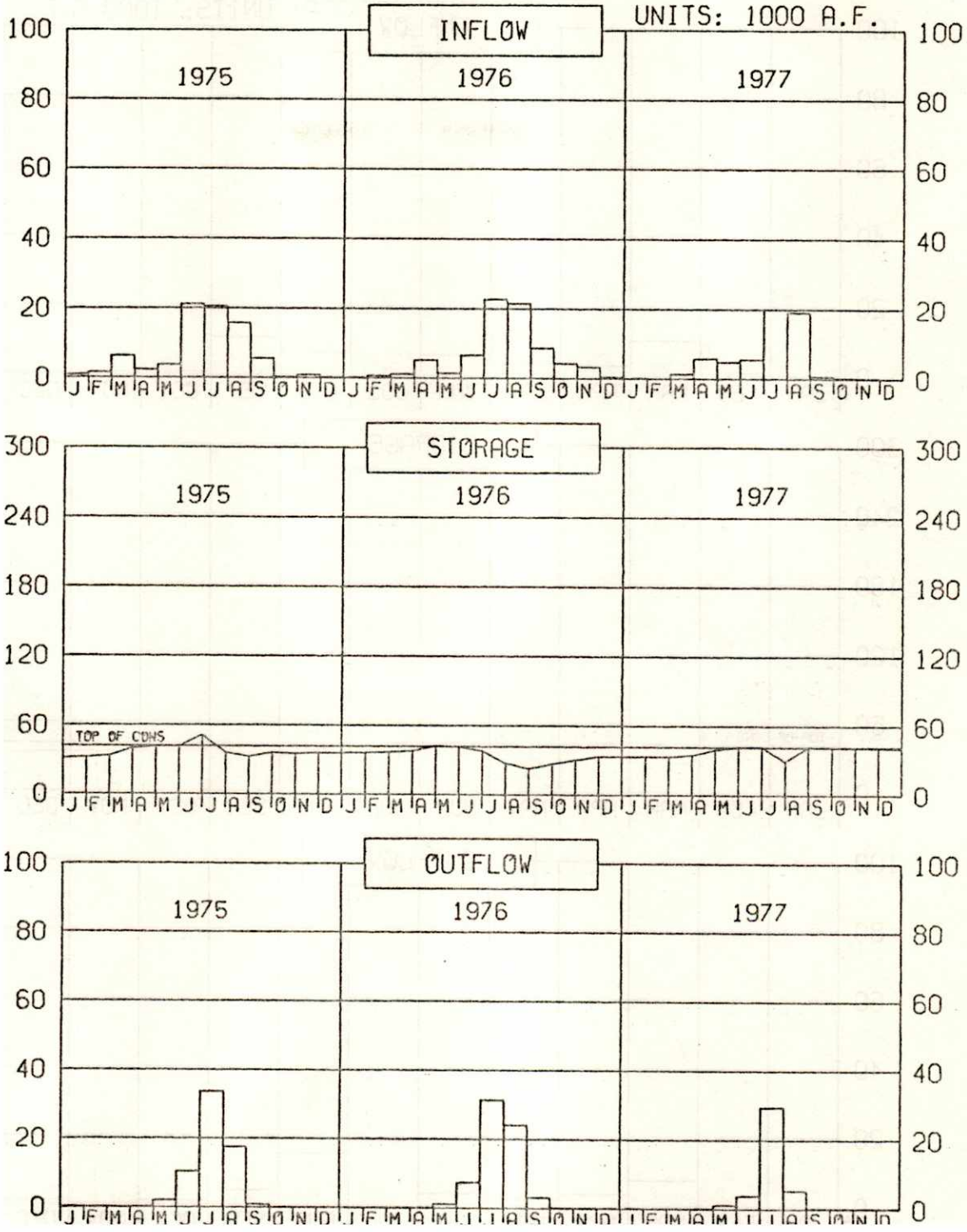


EXHIBIT 11B

LOVEWELL RESERVOIR 1978 OPERATION

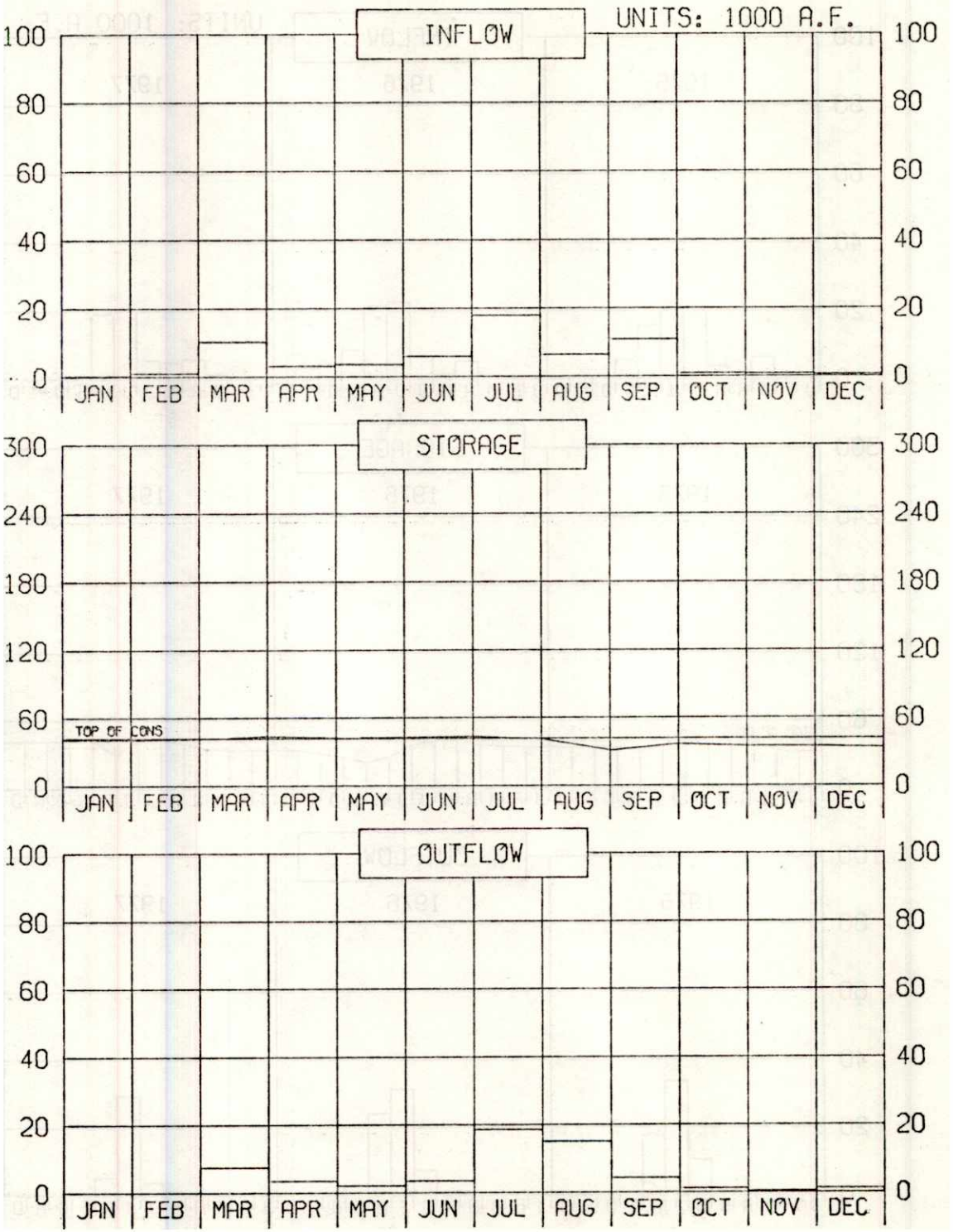


EXHIBIT 11C

LOVEWELL RESERVOIR

CAL YEAR 1979 OPERATION PLAN

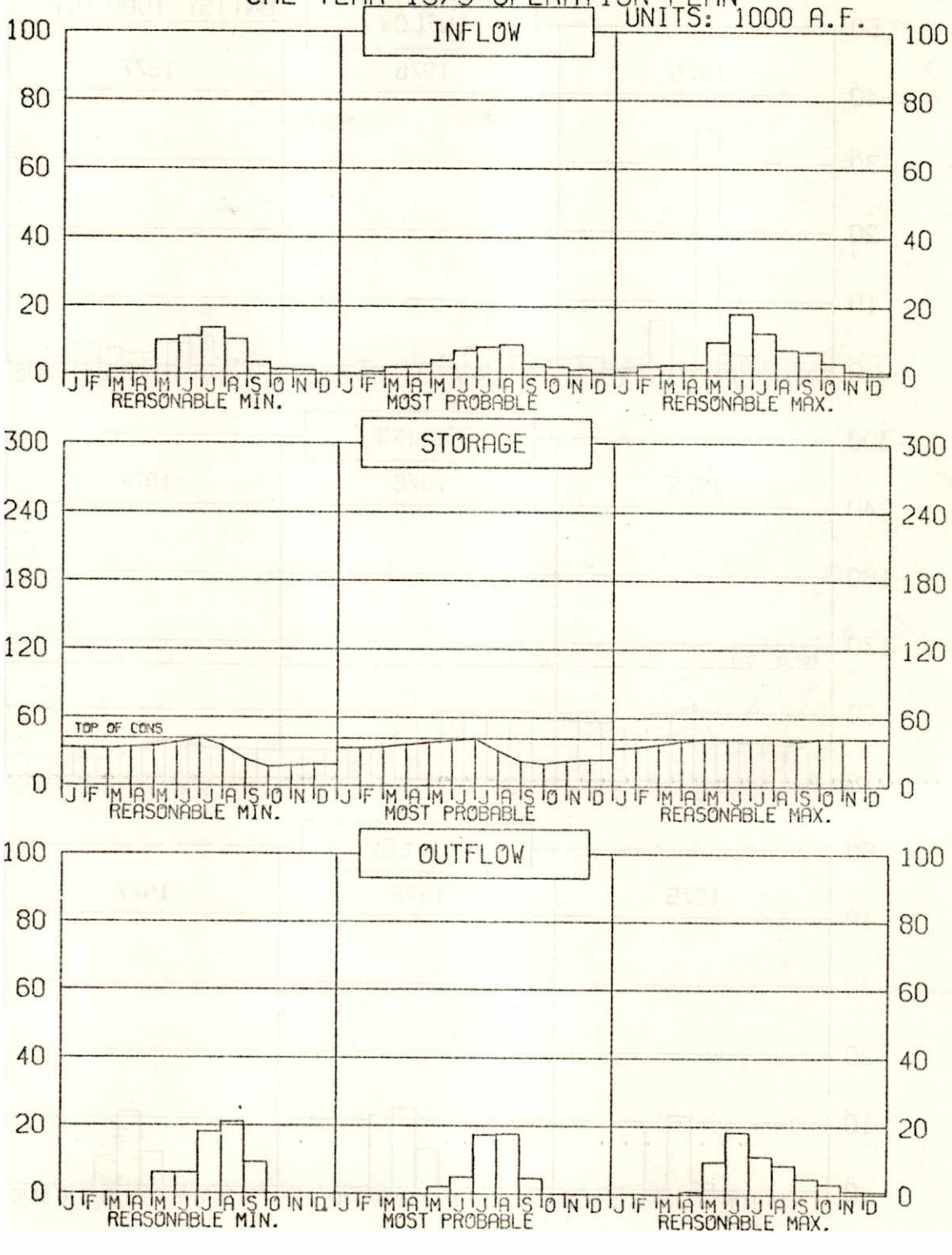


EXHIBIT 12A

KIRWIN RESERVOIR OPERATION

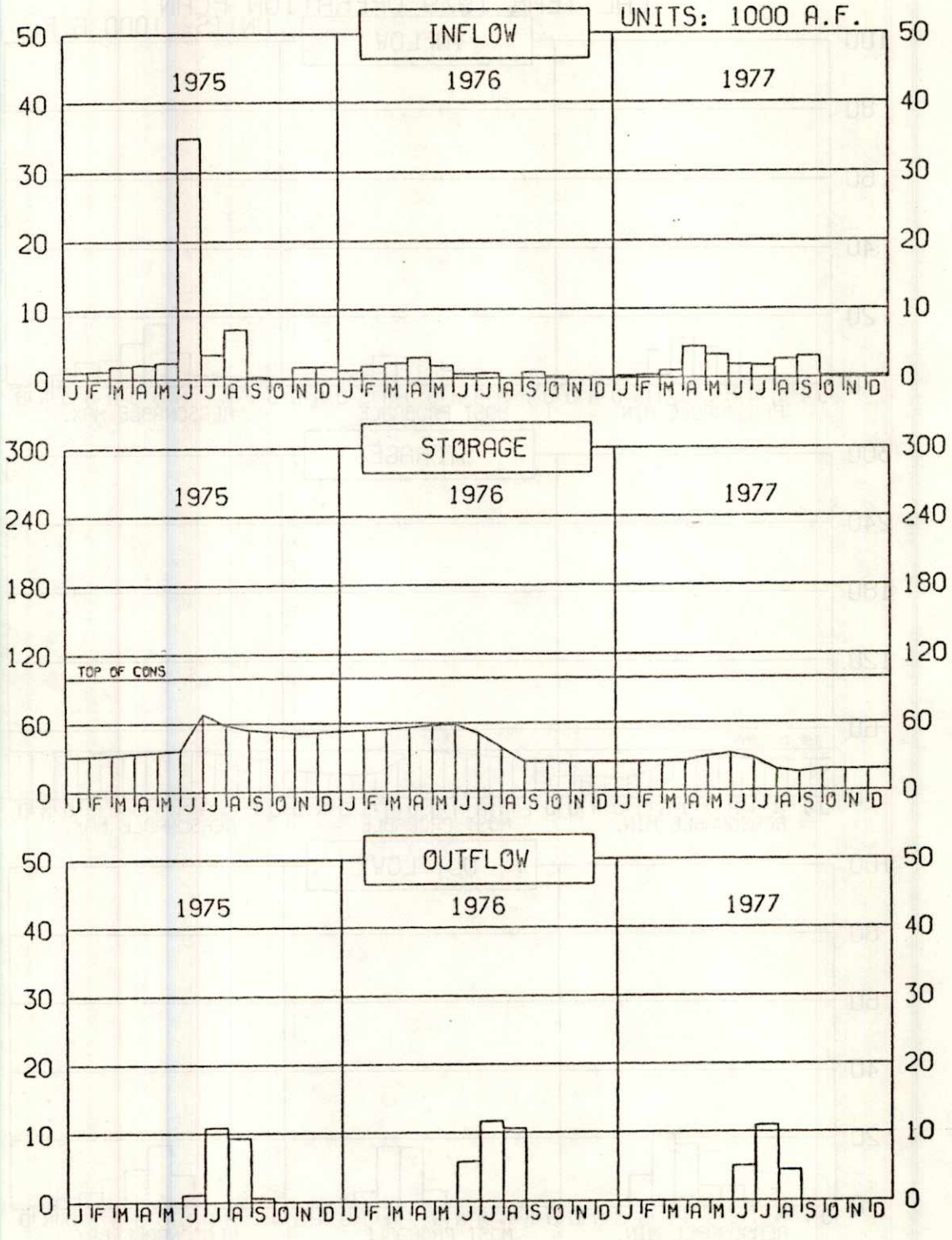


EXHIBIT 12B

KIRWIN RESERVOIR 1978 OPERATION

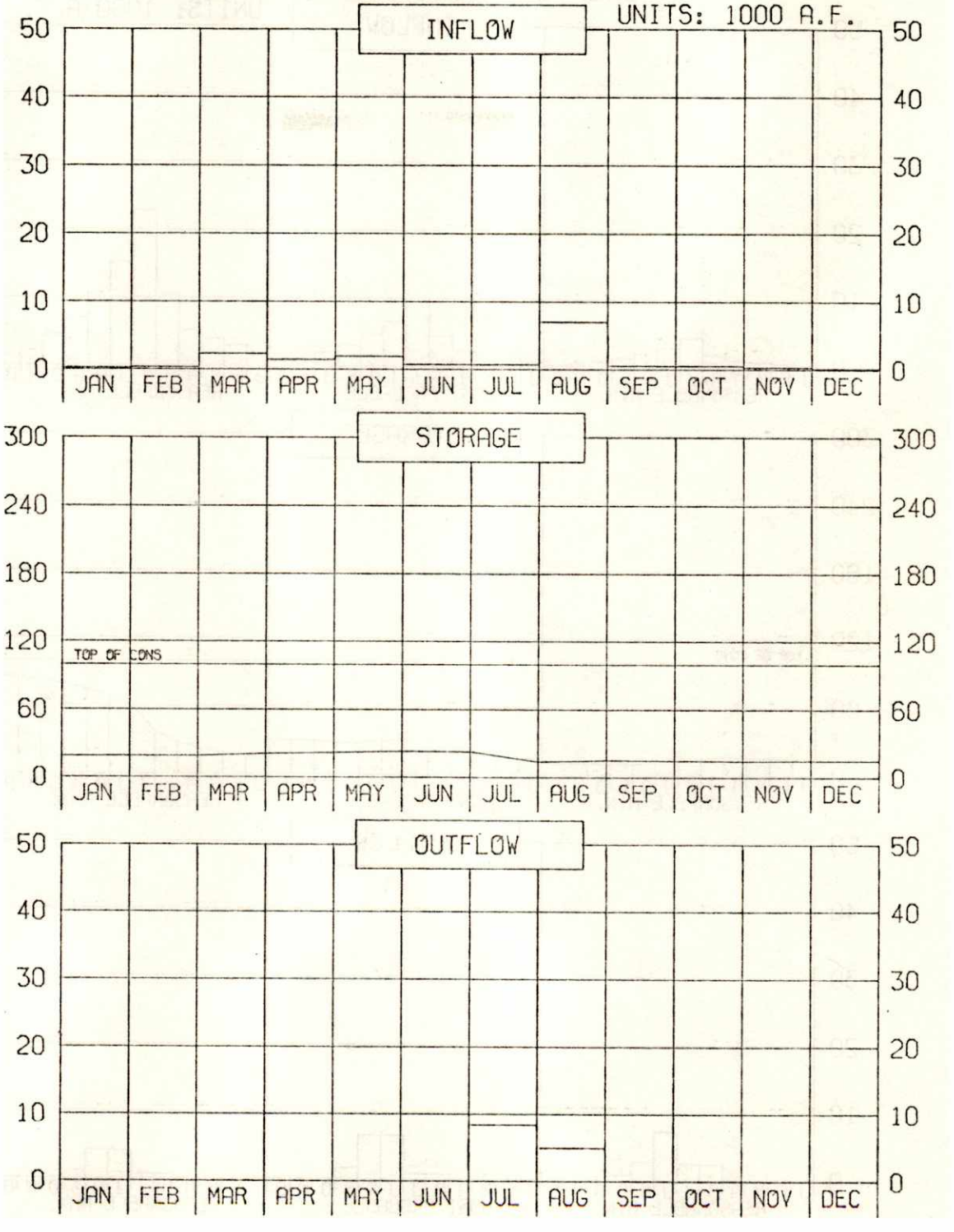


EXHIBIT 12C

KIRWIN RESERVOIR

CAL YEAR 1979 OPERATION PLAN

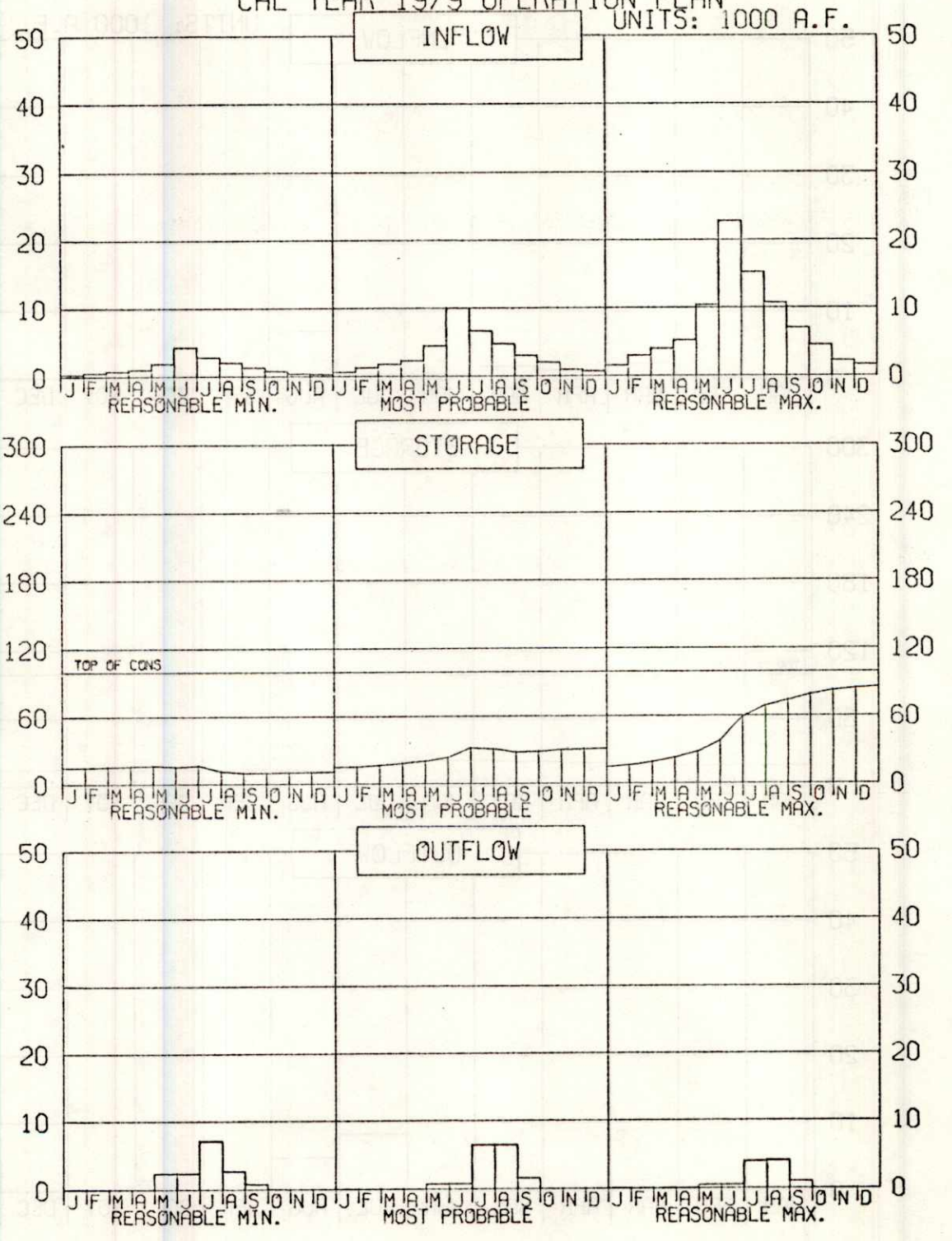


EXHIBIT 13A

WEBSTER RESERVOIR OPERATION

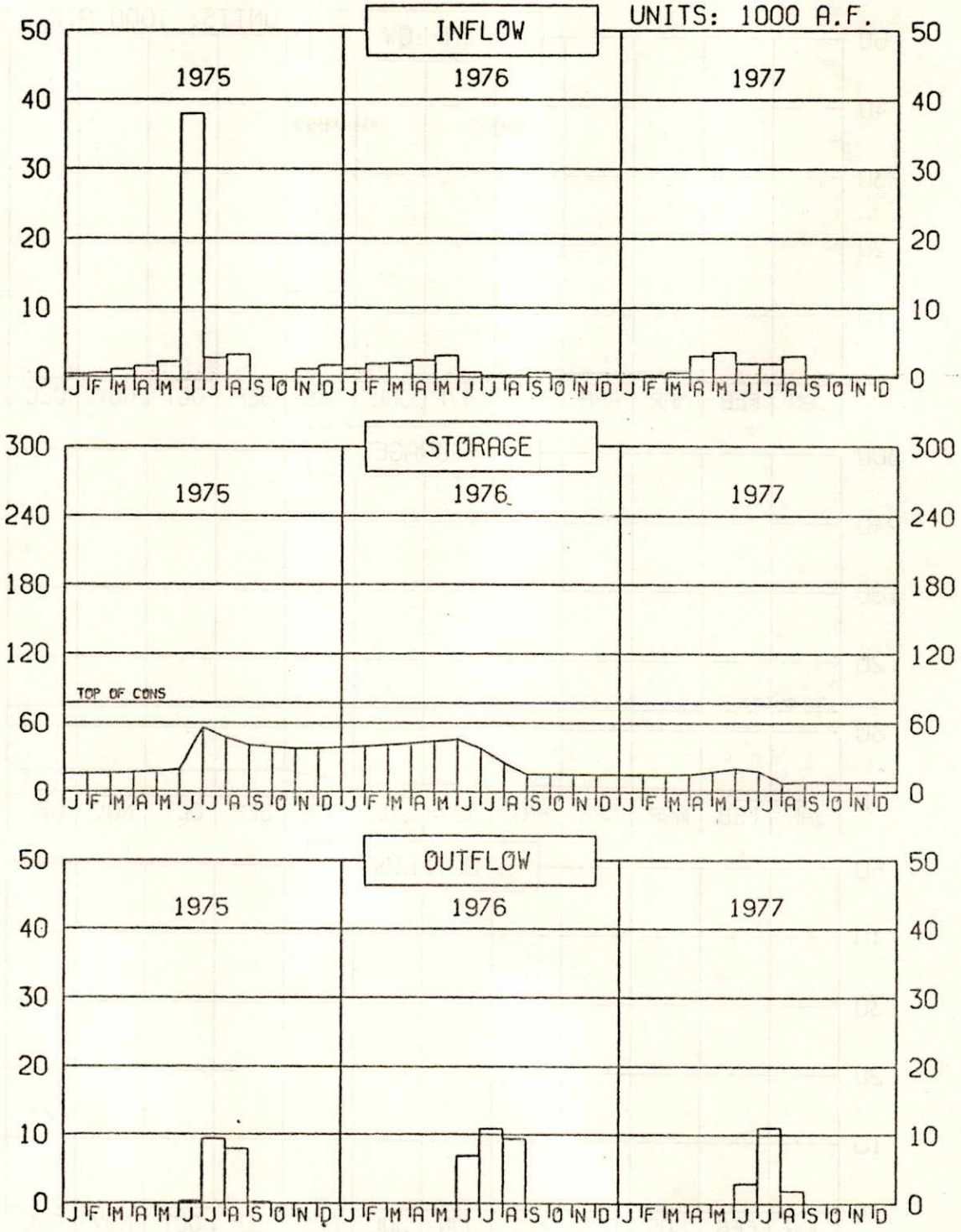


EXHIBIT 13B

WEBSTER RESERVOIR 1978 OPERATION

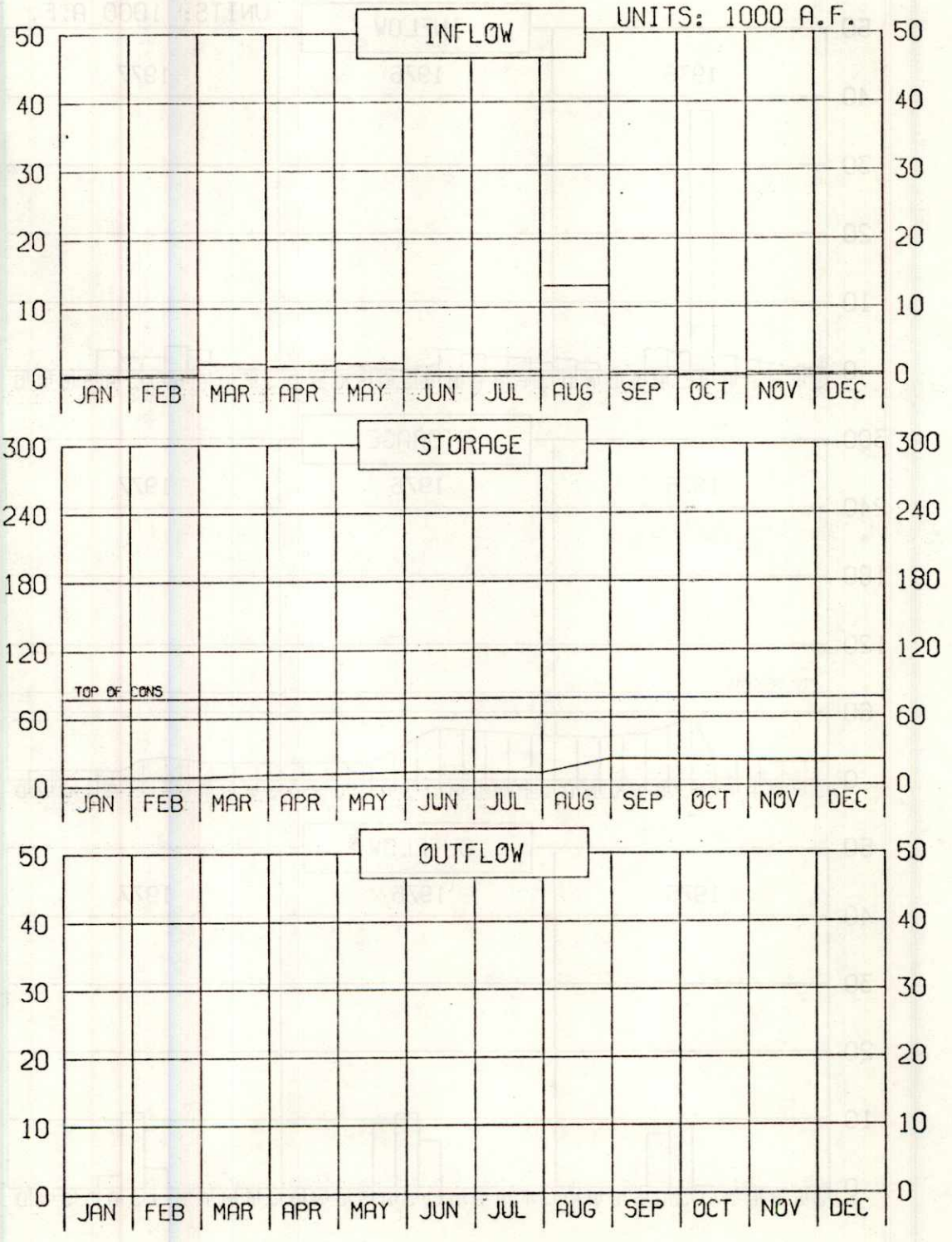


EXHIBIT 13C

WEBSTER RESERVOIR

CAL YEAR 1979 OPERATION PLAN

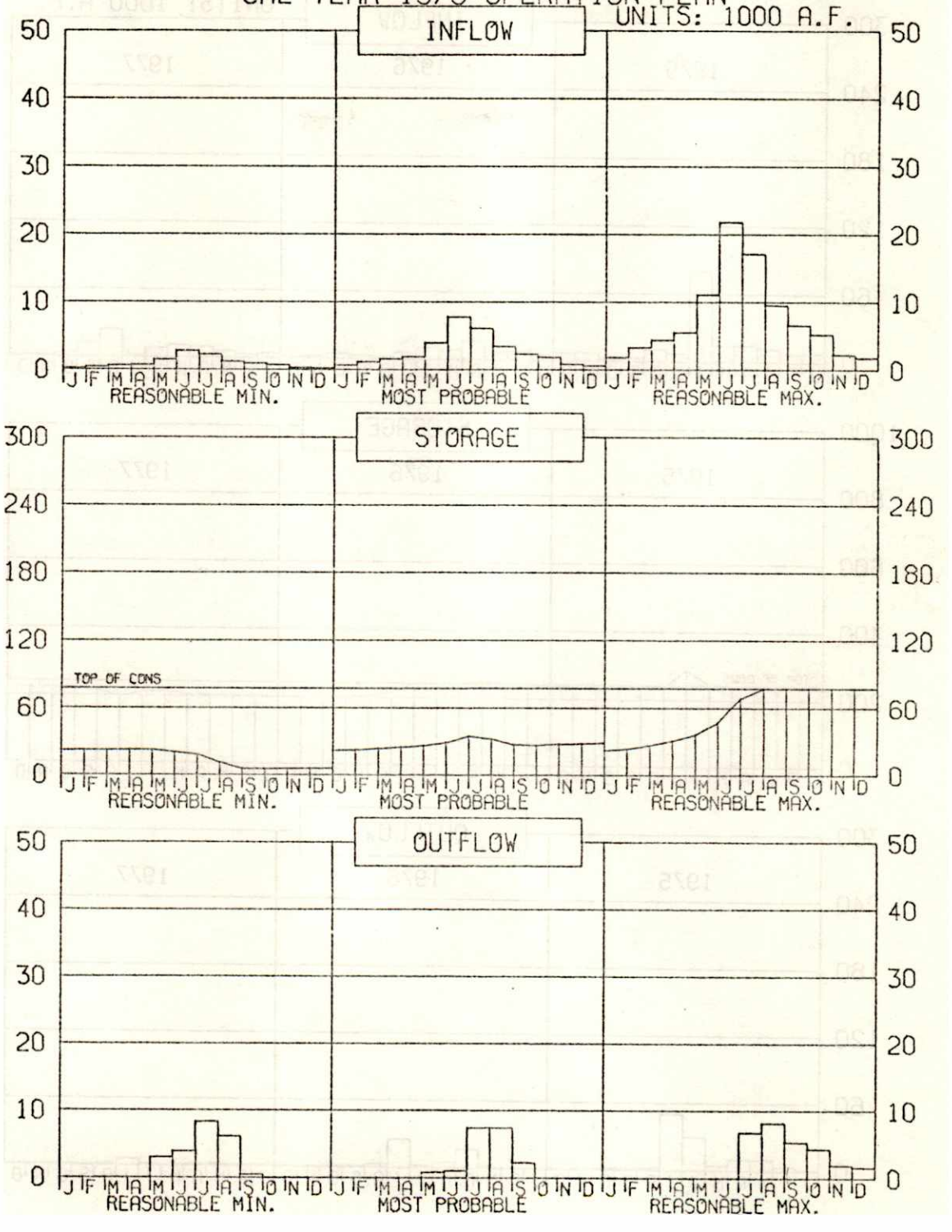


EXHIBIT 14A

WACONDA LAKE OPERATION

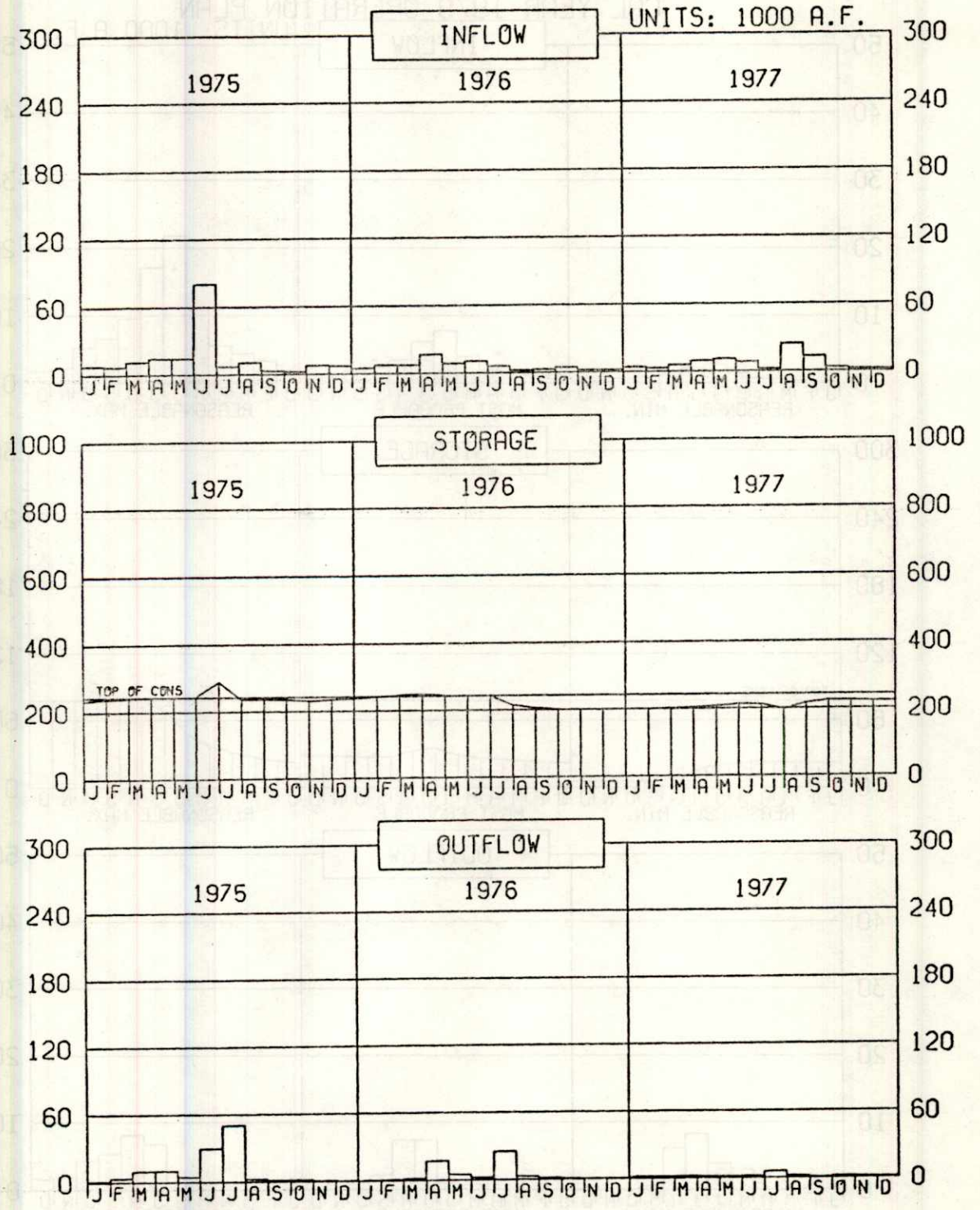
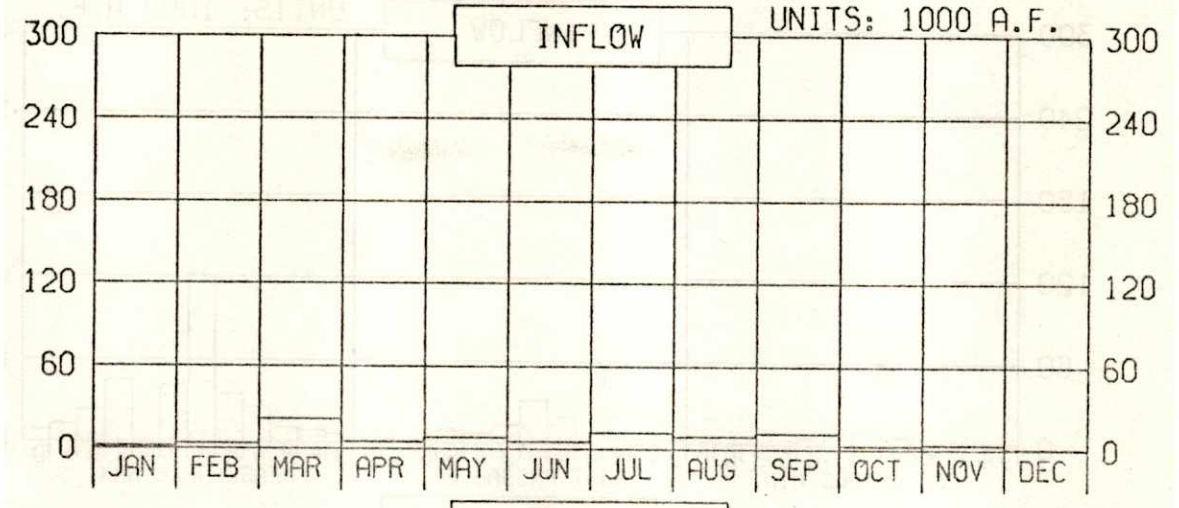
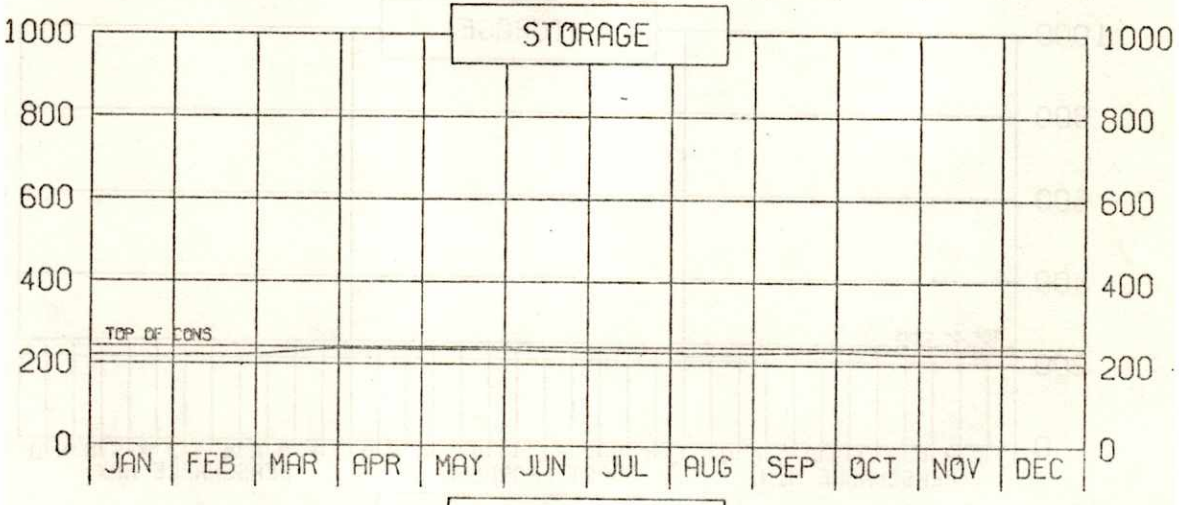


EXHIBIT 14B

WACONDA LAKE 1978 OPERATION





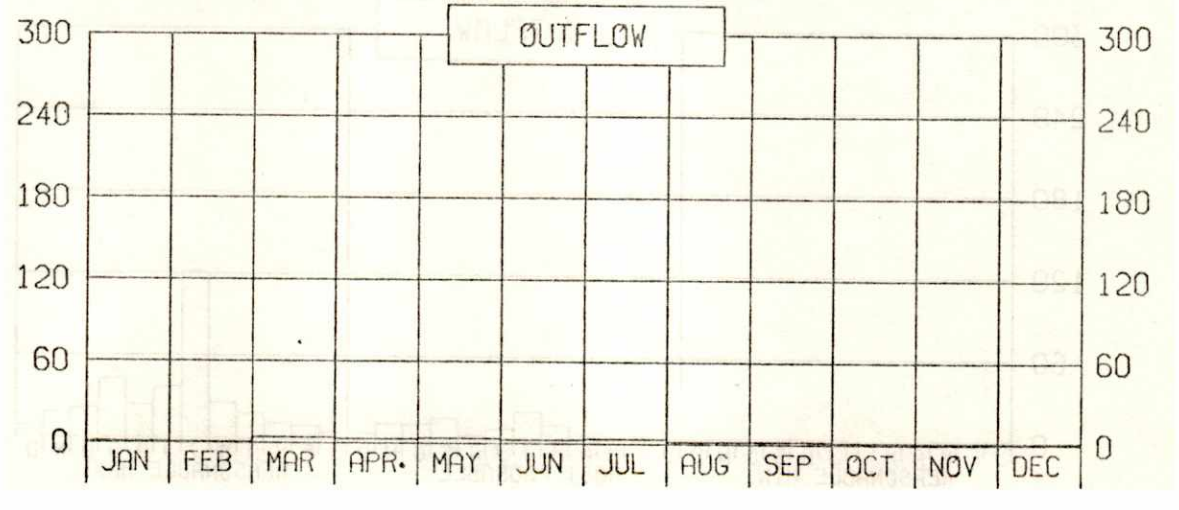
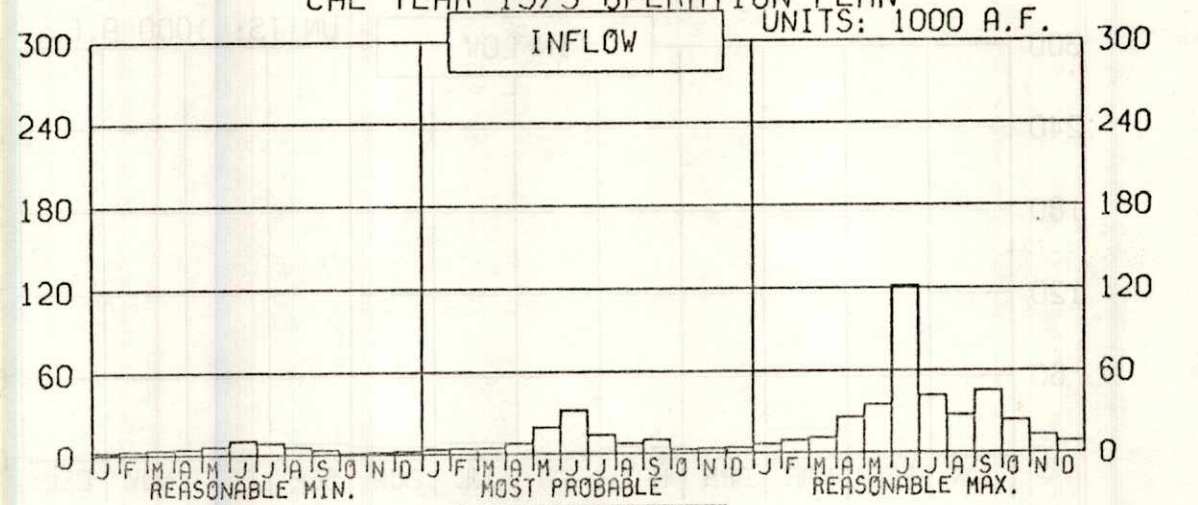


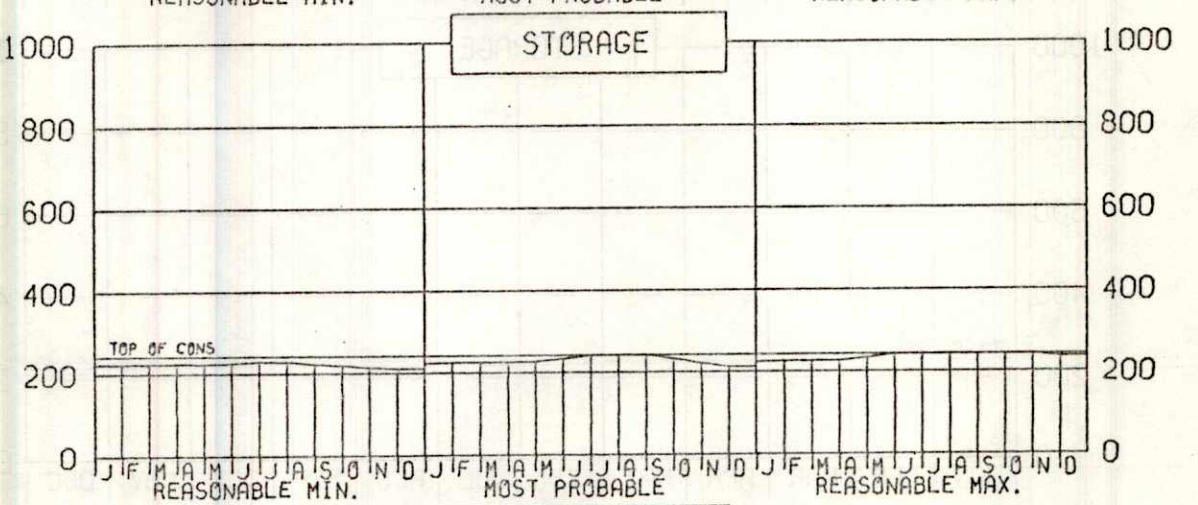
EXHIBIT 14C

WACONDA LAKE

CAL YEAR 1979 OPERATION PLAN

UNITS: 1000 A.F.





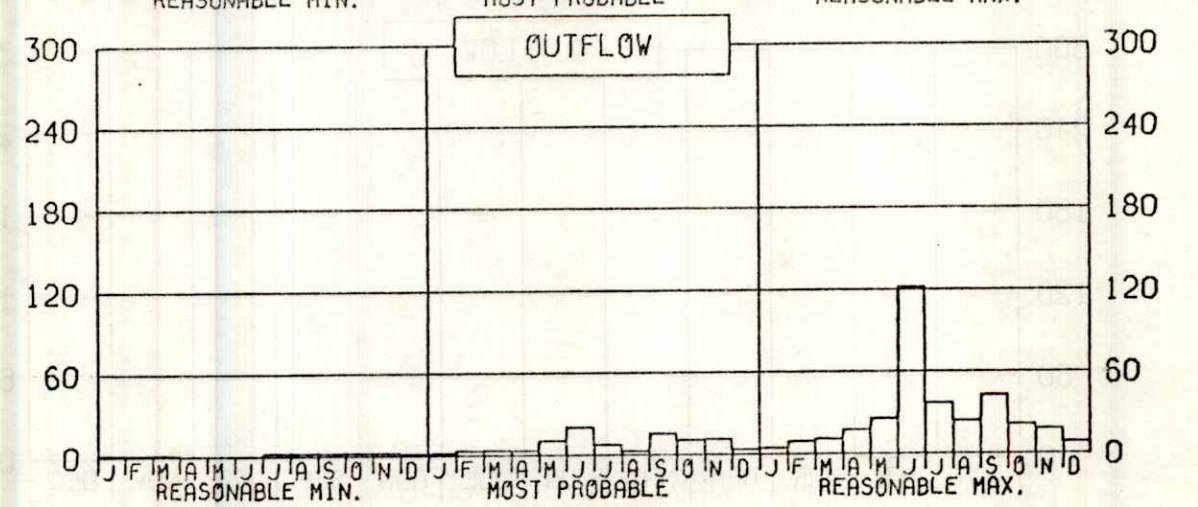


EXHIBIT 15A

CEDAR BLUFF RESERVOIR OPERATION

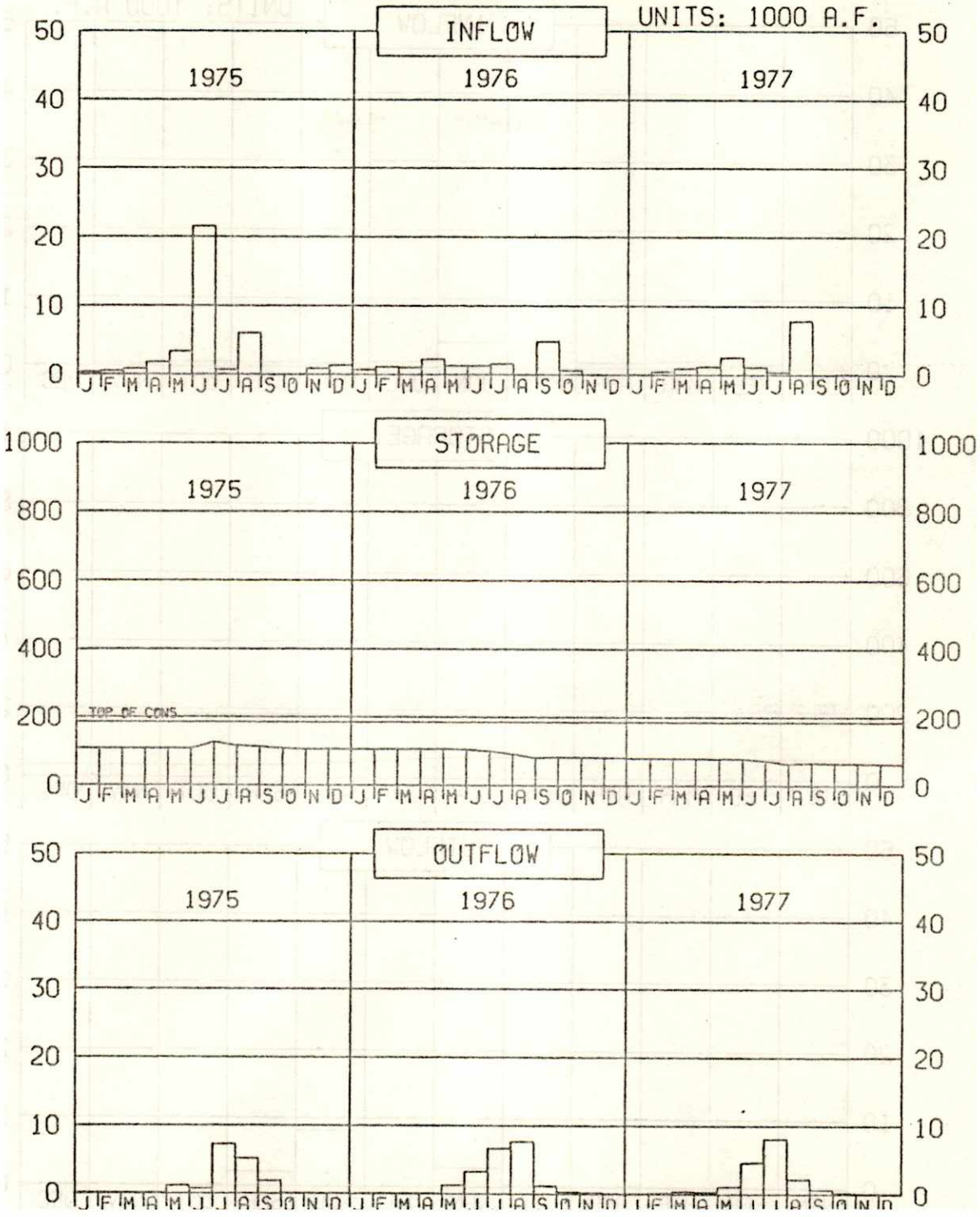


EXHIBIT 15B

CEDAR BLUFF RESERVOIR 1978 OPERATION

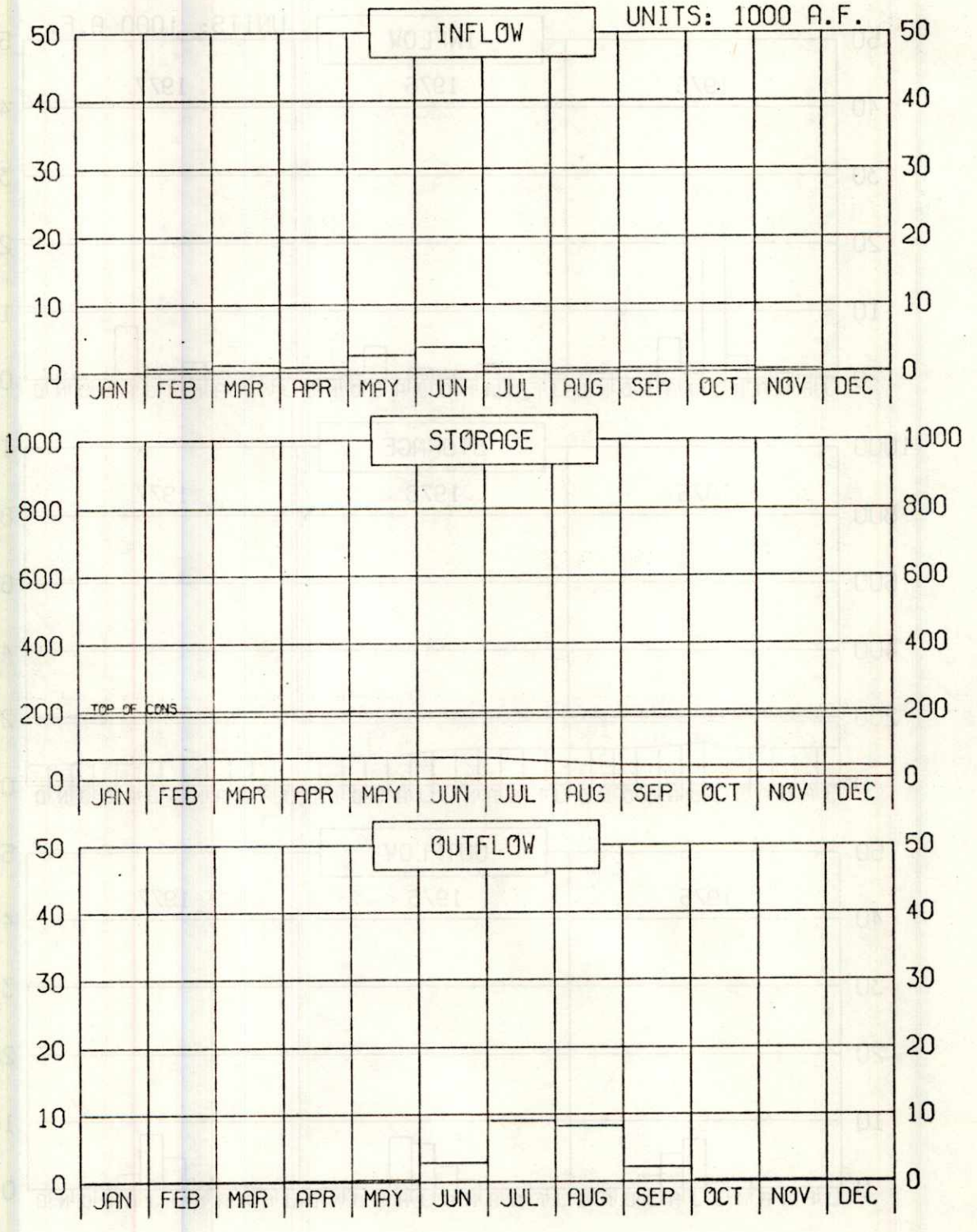


EXHIBIT 15C

CEDAR BLUFF RESERVOIR

CAL YEAR 1979 OPERATION PLAN

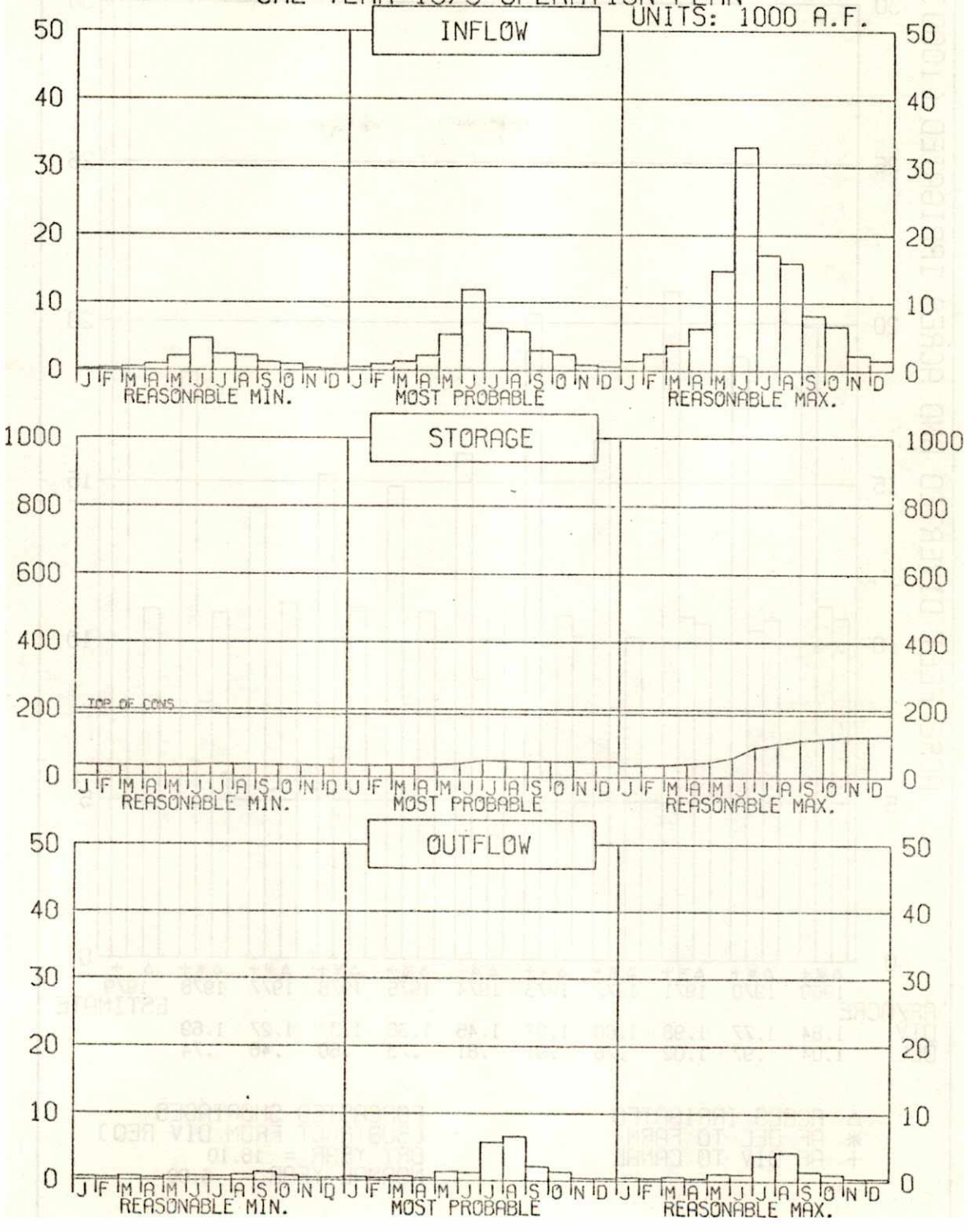


EXHIBIT 16

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

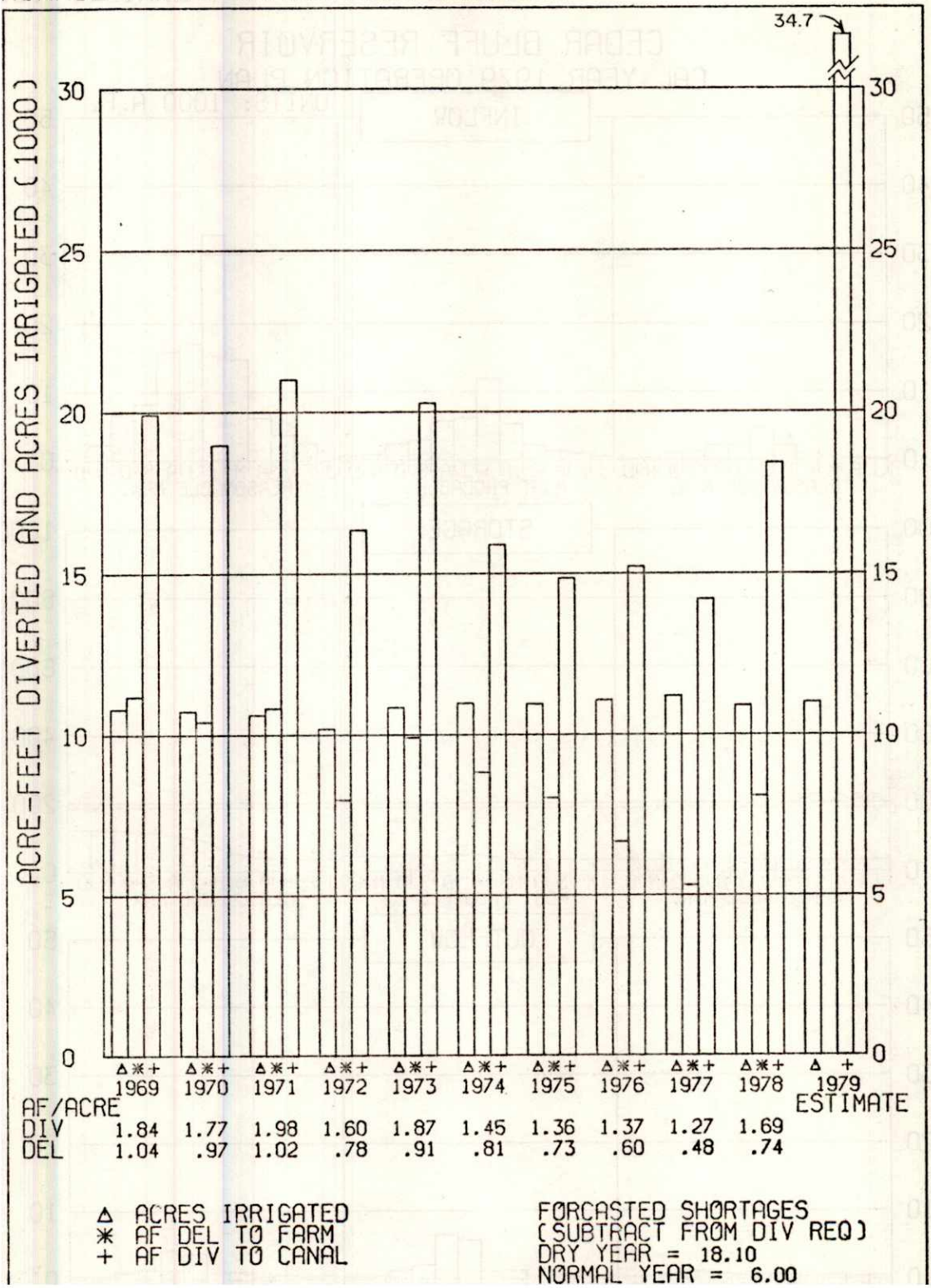
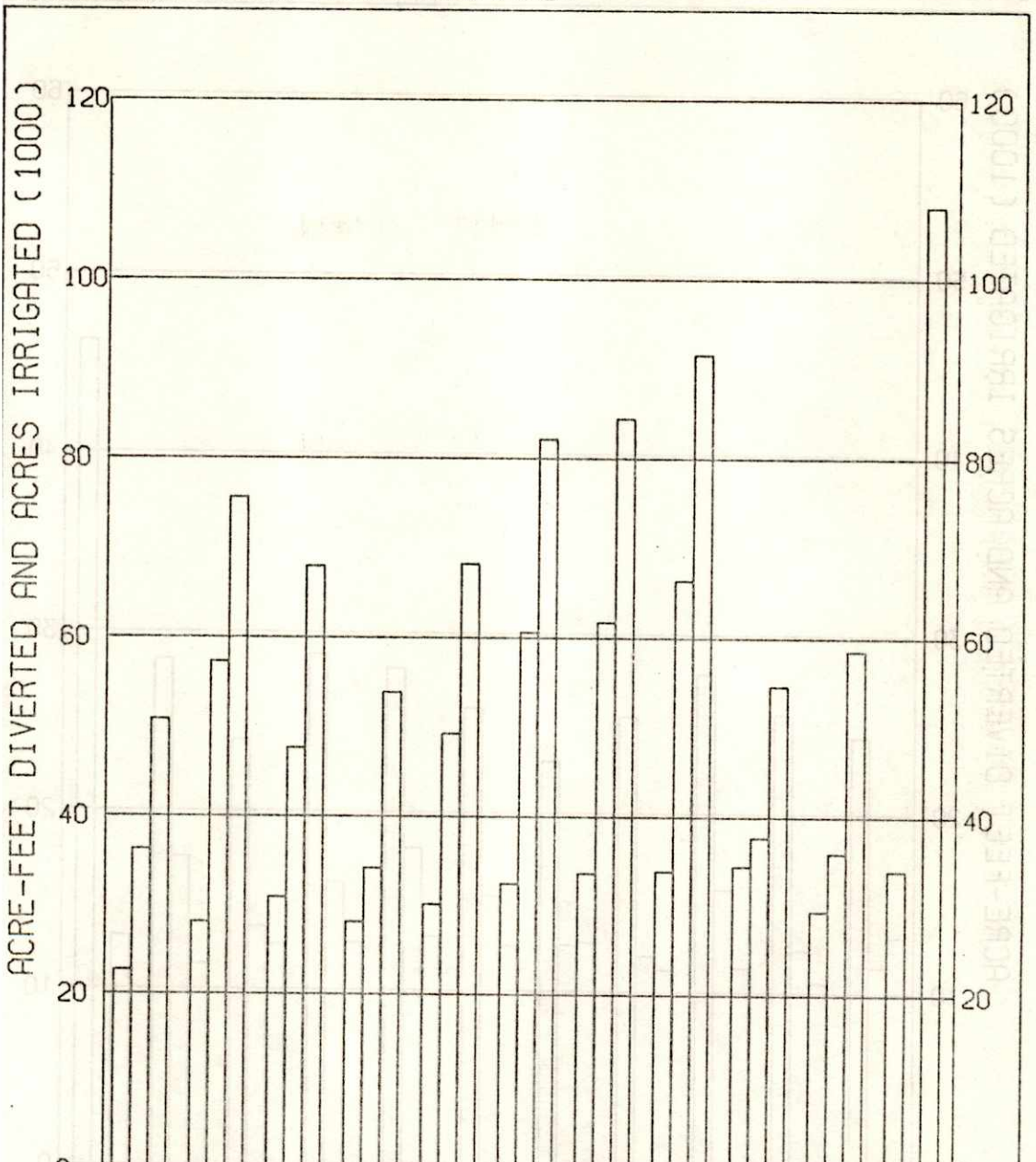


EXHIBIT 17

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED AINSWORTH IRRIGATION DISTRICT



AF/ACRE	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 ESTIMATE
DIV	2.24	2.68	2.19	1.91	2.26	2.52	2.51	2.70	1.58	1.99	
DEL	1.60	2.03	1.54	1.21	1.63	1.86	1.83	1.96	1.09	1.22	

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

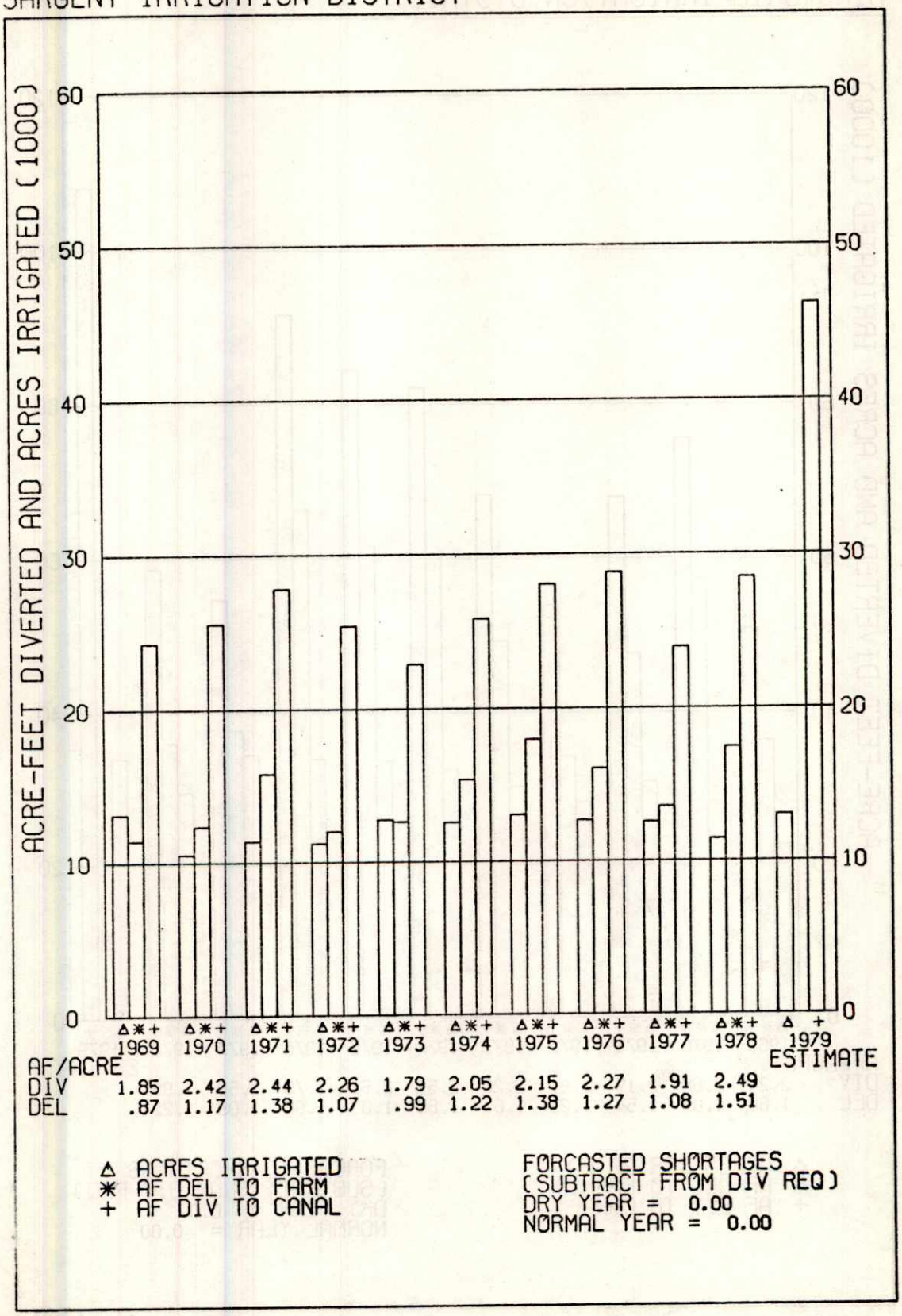
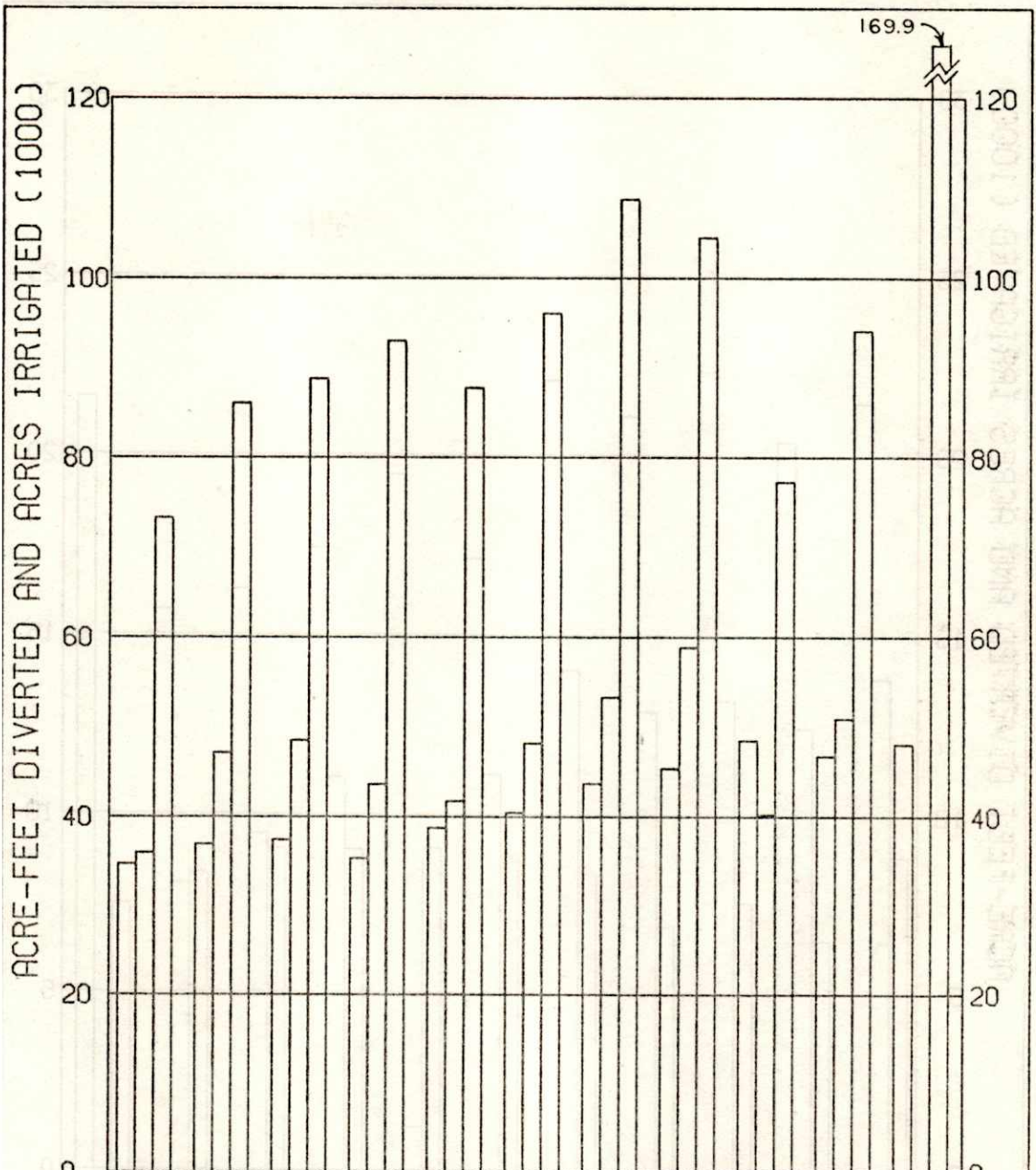


EXHIBIT 19

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED FARWELL IRRIGATION DISTRICT



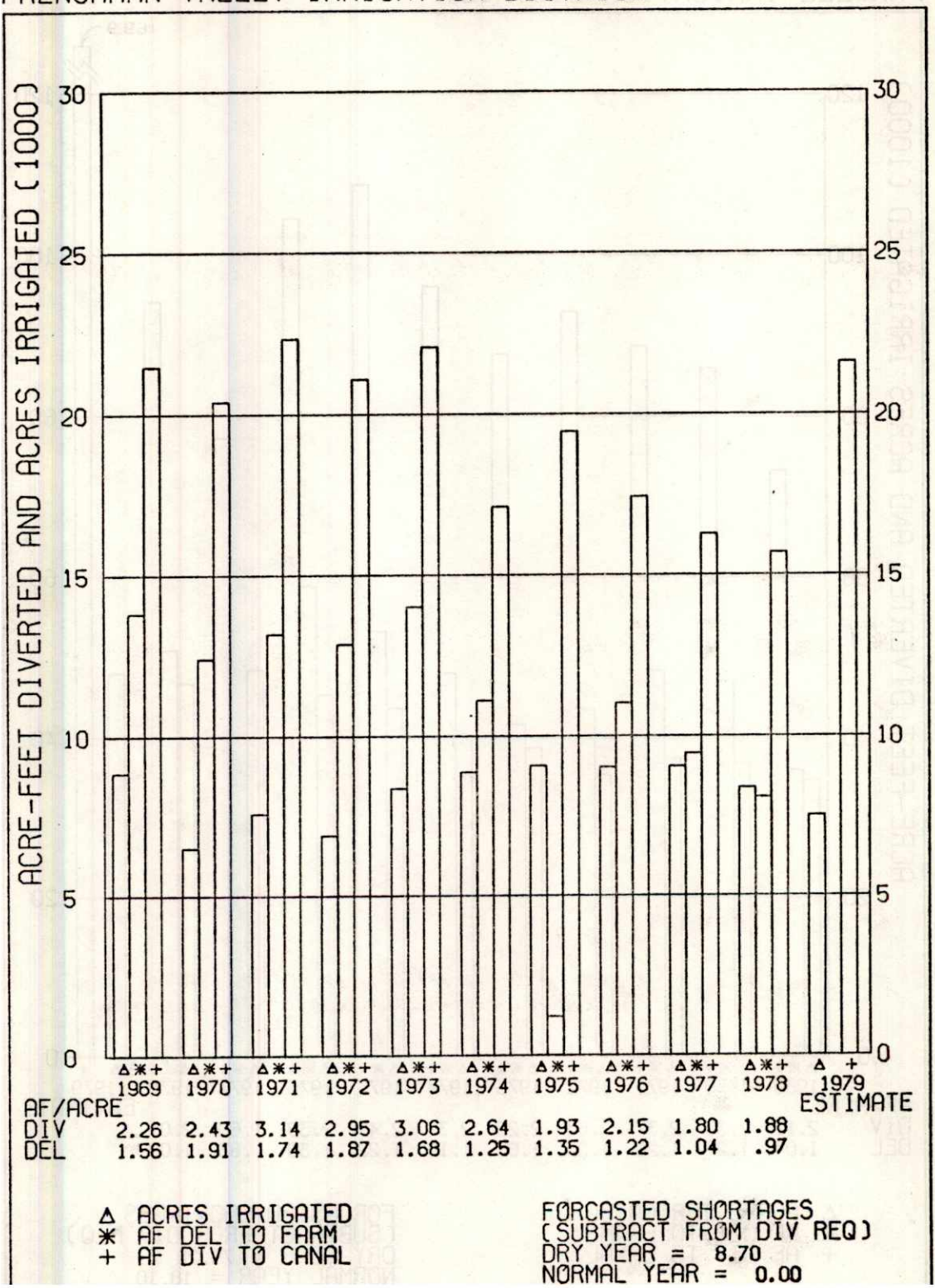
AF/ACRE	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
DIV	2.11	2.33	2.37	2.63	2.26	2.37	2.49	2.30	1.60	2.01
DEL	1.04	1.27	1.29	1.23	1.08	1.19	1.22	1.30	.83	1.09

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR = 79.20
NORMAL YEAR = 18.10

EXHIBIT 20

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



AF/ACRE	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
DIV	2.26	2.43	3.14	2.95	3.06	2.64	1.93	2.15	1.80	1.88
DEL	1.56	1.91	1.74	1.87	1.68	1.25	1.35	1.22	1.04	.97

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

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

EXHIBIT 21

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

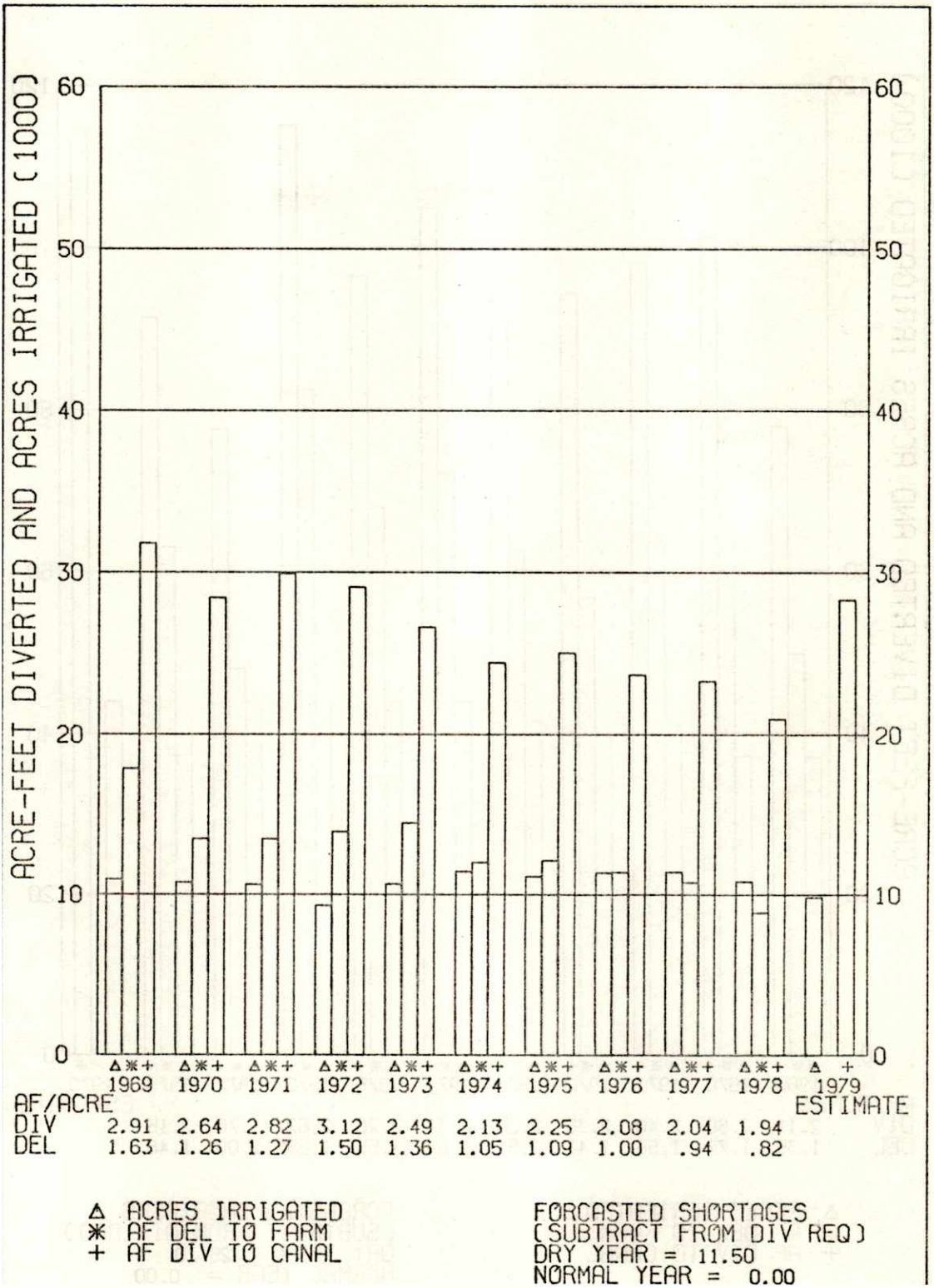


EXHIBIT 22

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

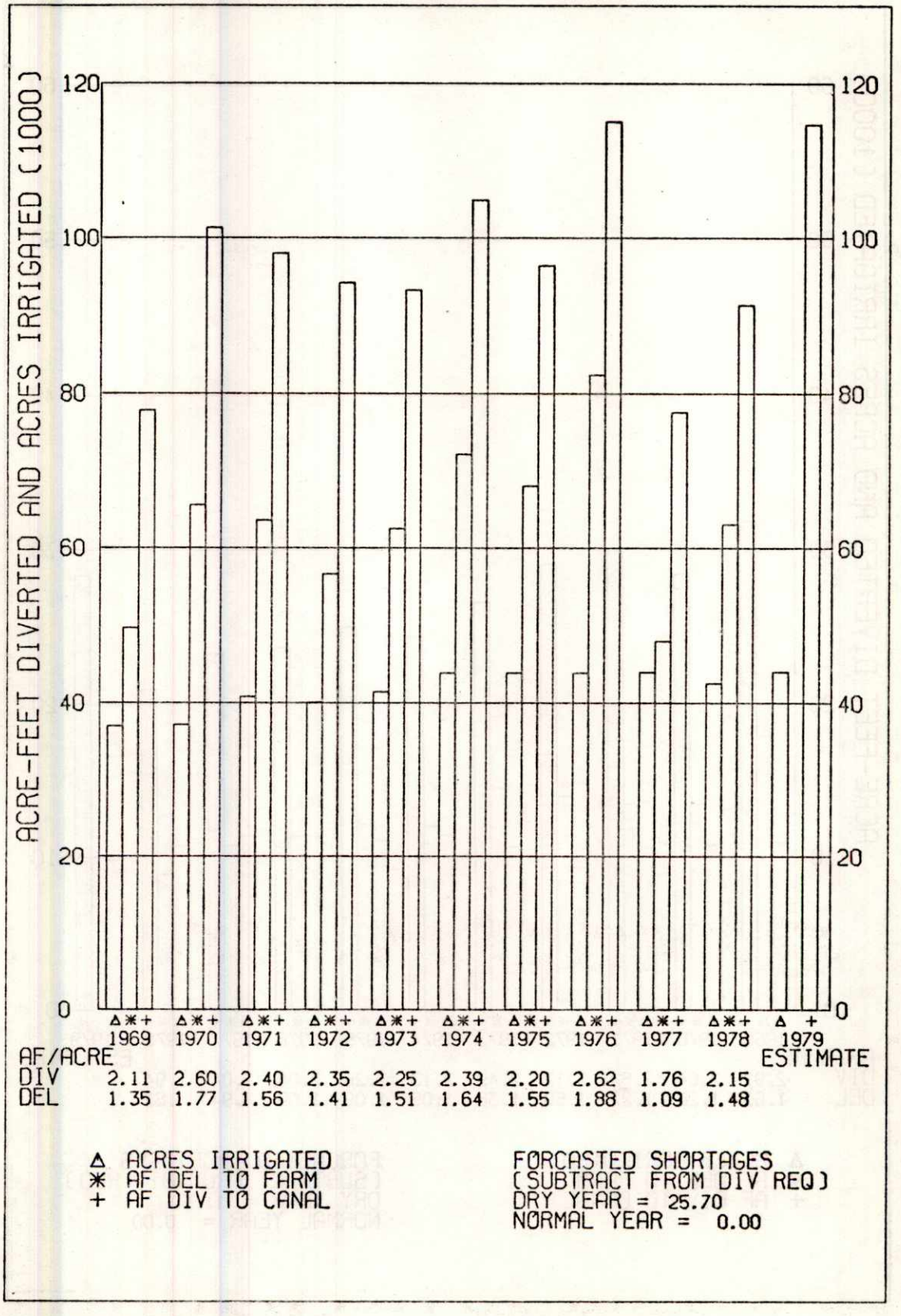
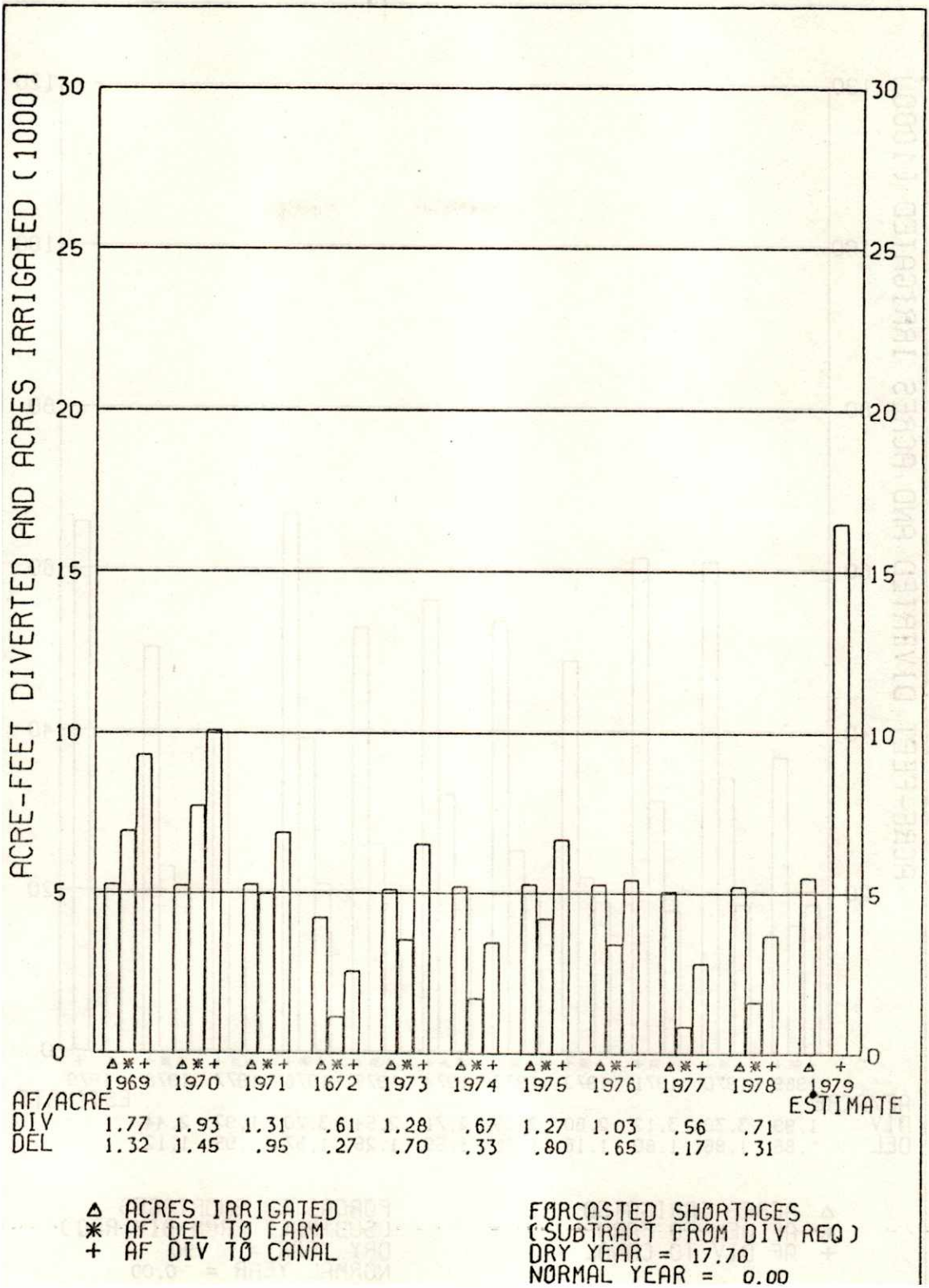


EXHIBIT 23

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
ALMENA IRRIGATION DISTRICT



AF/ACRE	1969	1970	1971	1672	1973	1974	1975	1976	1977	1978	1979
DIV	1.77	1.93	1.31	.61	1.28	.67	1.27	1.03	.56	.71	
DEL	1.32	1.45	.95	.27	.70	.33	.80	.65	.17	.31	

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR = 17.70
NORMAL YEAR = 0.00

EXHIBIT 24

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

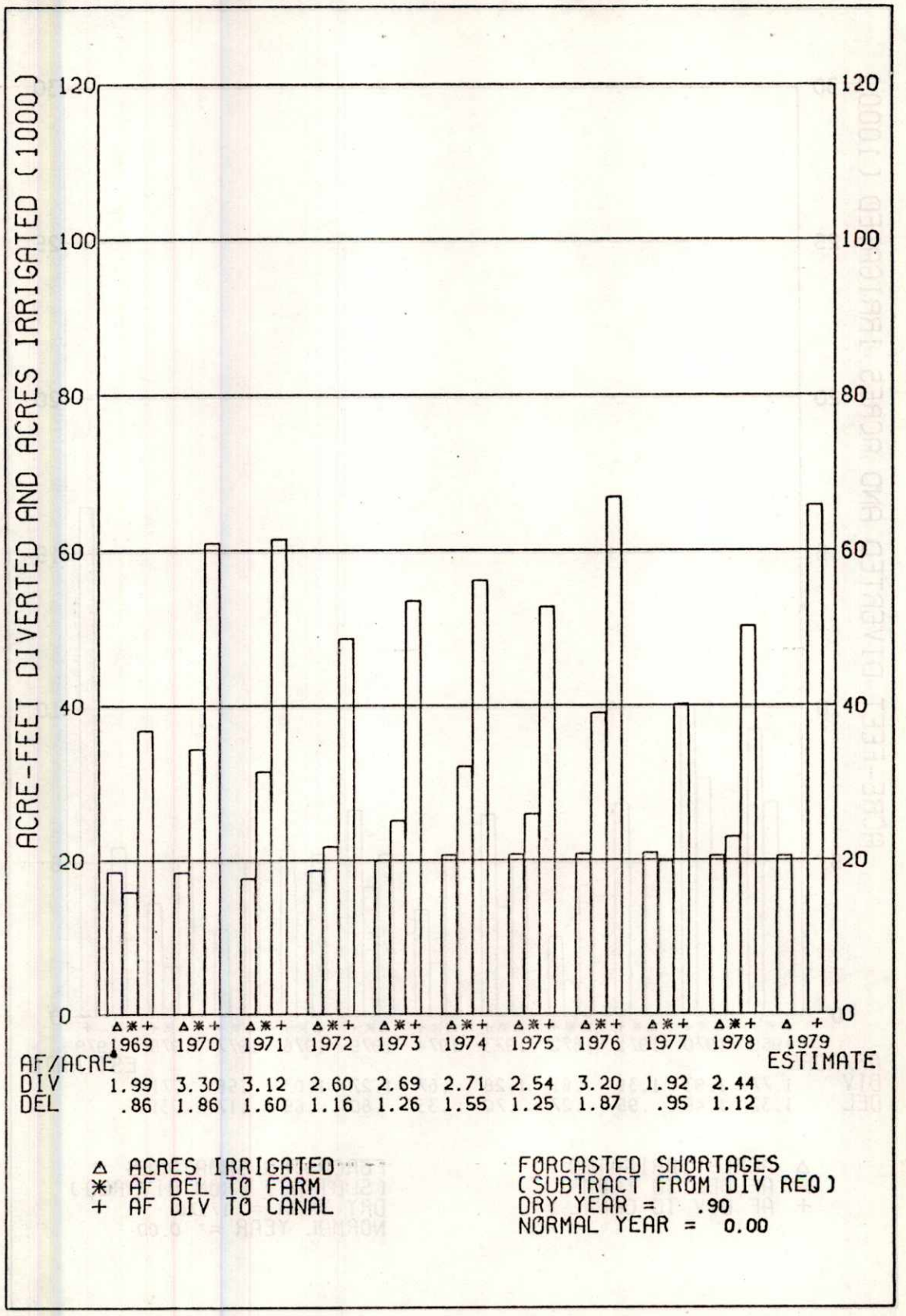
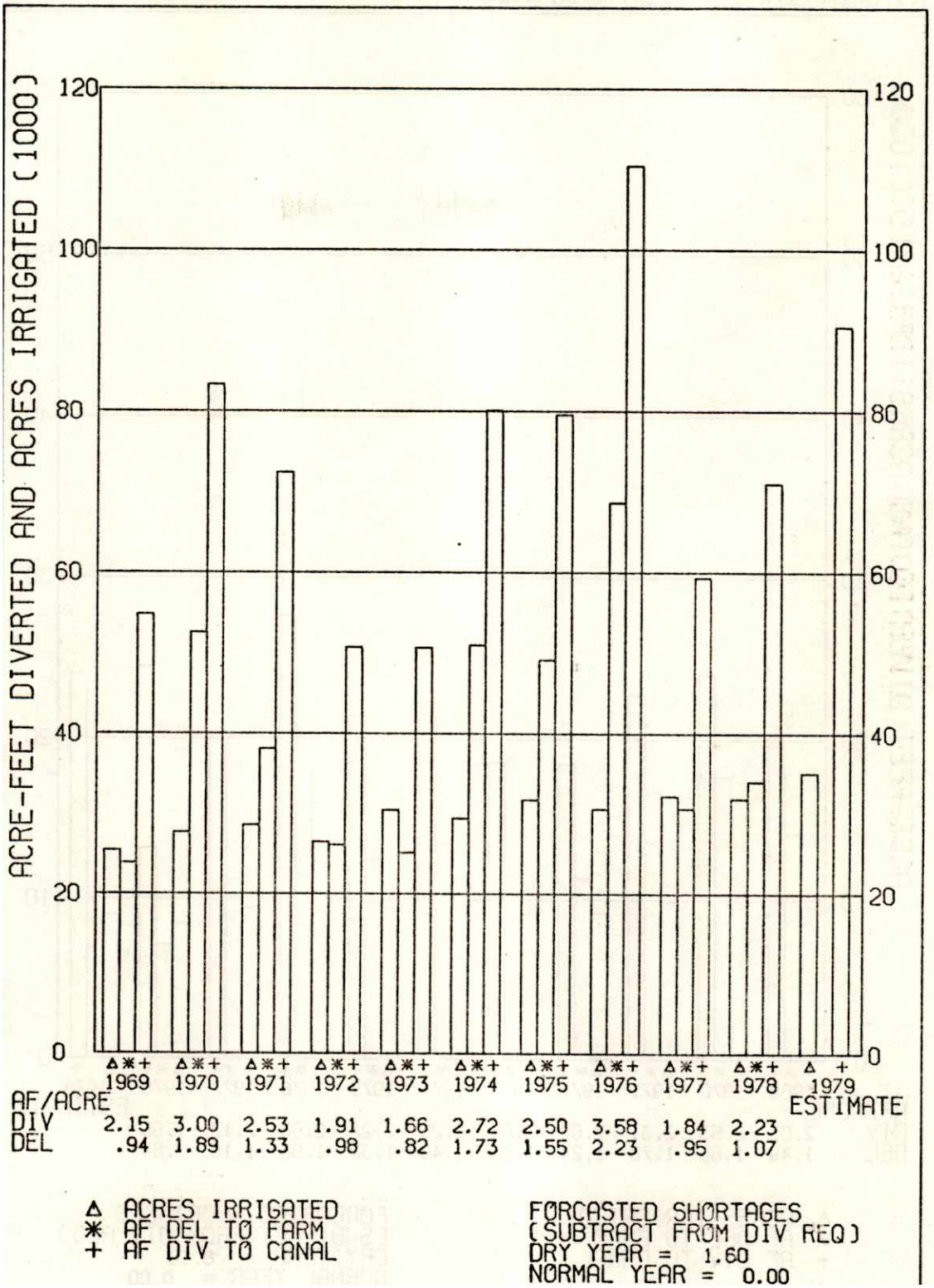


EXHIBIT 25

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



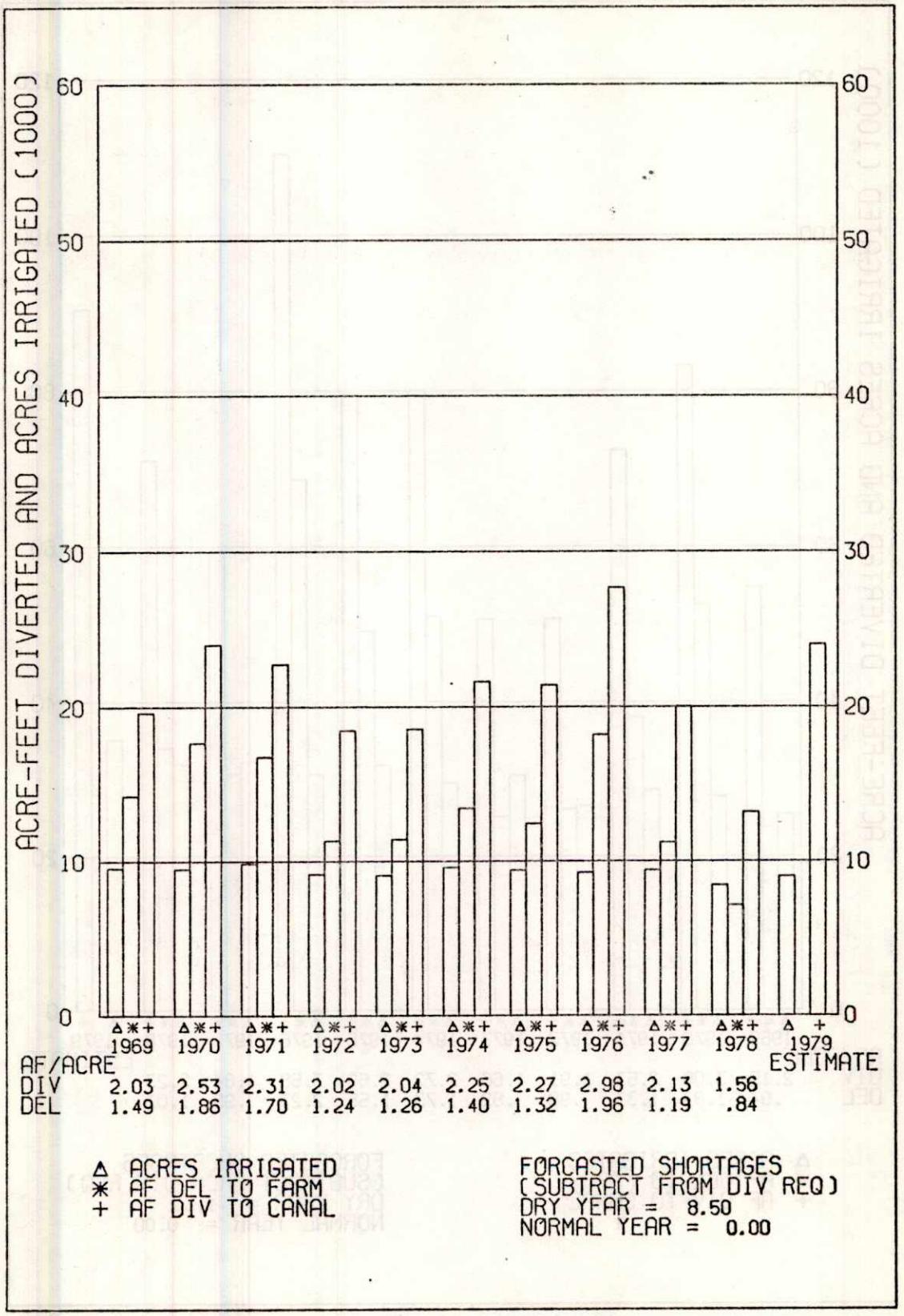
AF/ACRE	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 ESTIMATE
DIV	2.15	3.00	2.53	1.91	1.66	2.72	2.50	3.58	1.84	2.23	
DEL	.94	1.89	1.33	.98	.82	1.73	1.55	2.23	.95	1.07	

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR = 1.60
NORMAL YEAR = 0.00

EXHIBIT 26

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED
KIRWIN IRRIGATION DISTRICT



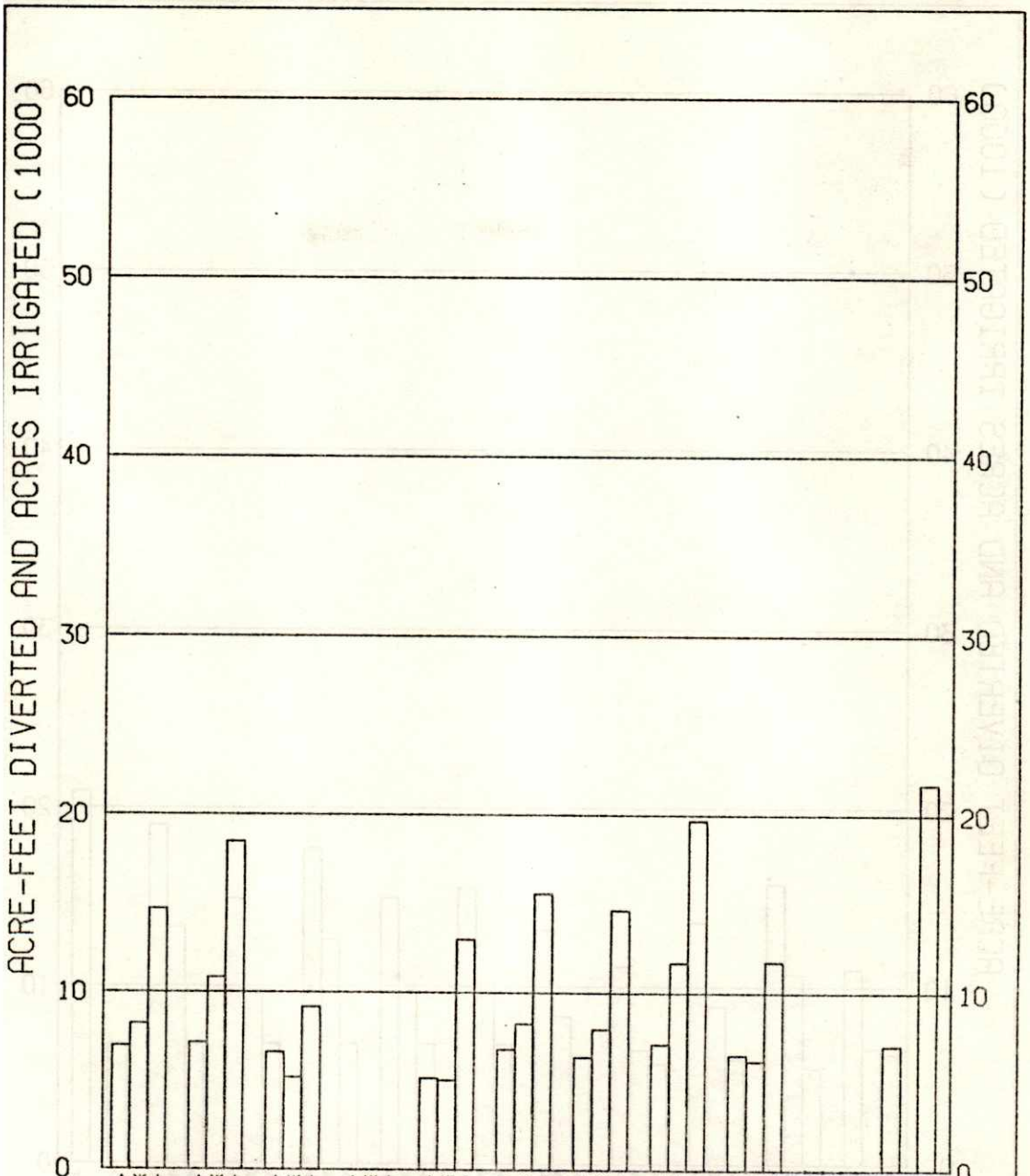
AF/ACRE	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 ESTIMATE
DIV	2.03	2.53	2.31	2.02	2.04	2.25	2.27	2.98	2.13	1.56	
DEL	1.49	1.86	1.70	1.24	1.26	1.40	1.32	1.96	1.19	.84	

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 27

CANAL DIVERSIONS, FARM DELIVERIES AND ACRES IRRIGATED WEBSTER IRRIGATION DISTRICT



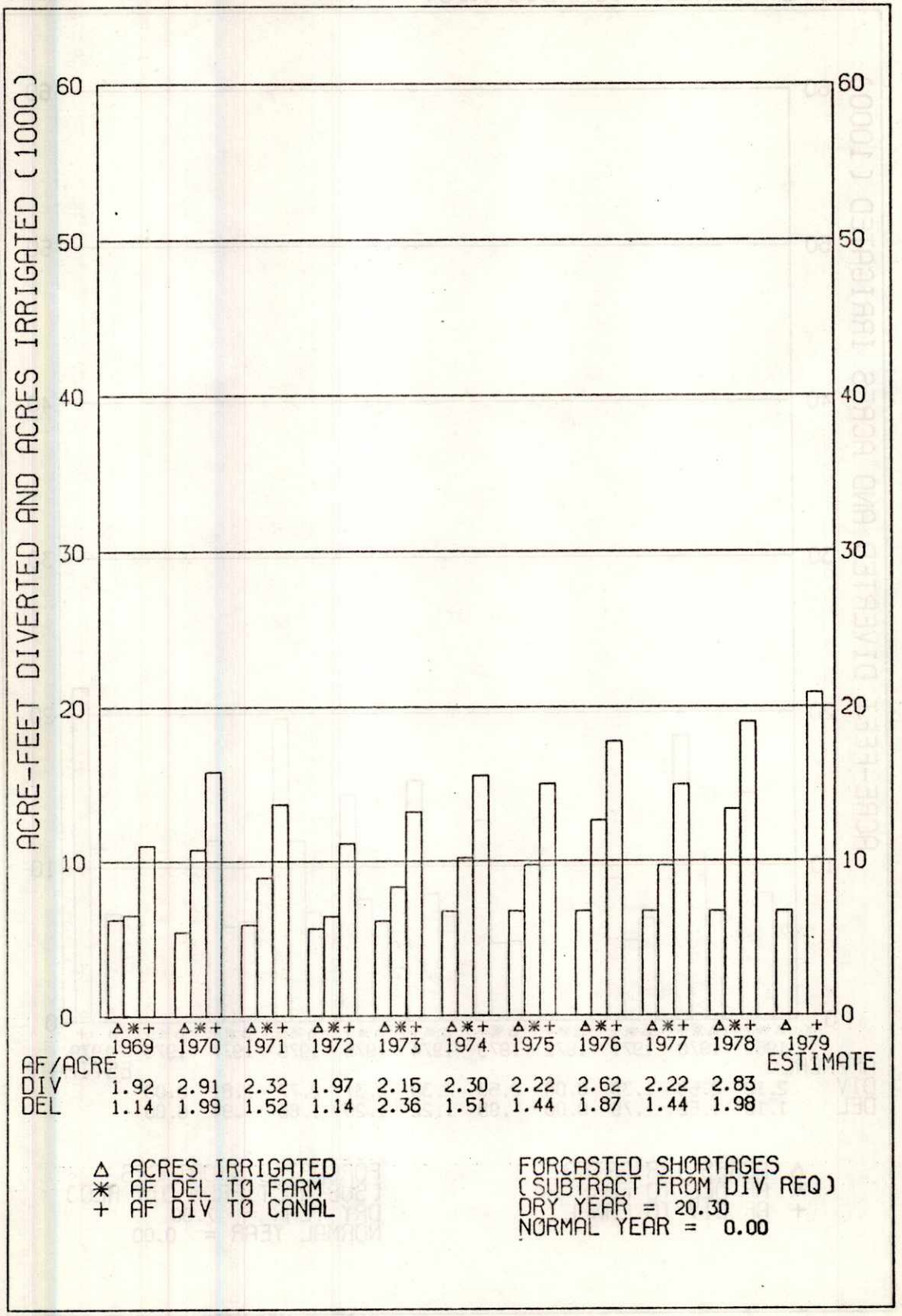
AF/ACRE	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
DIV	2.12	2.59	1.39	0.00	2.53	2.30	2.31	2.77	1.81	0.00
DEL	1.18	1.52	.79	0.00	.98	1.22	1.25	1.65	.94	0.00

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR = 7.80
NORMAL YEAR = 0.00

EXHIBIT 28

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



AF/ACRE	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
DIV	1.92	2.91	2.32	1.97	2.15	2.30	2.22	2.62	2.22	2.83
DEL	1.14	1.99	1.52	1.14	2.36	1.51	1.44	1.87	1.44	1.98

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

FORCASTED SHORTAGES
(SUBTRACT FROM DIV REQ)
DRY YEAR = 20.30
NORMAL YEAR = 0.00

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