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INTERBASIN DIVERSION IN THE UPPER ST. JOHNS RIVER BASIN

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INTRODUCTION

A significant amount of water has been and continues to be diverted from the Upper St. Johns River Basin (USJRB) across the Atlantic Coastal Ridge to tidal waters. This interbasin diversion is a long-standing practice which began in the early part of this century when much of the vast marsh within the Upper St. Johns River floodplain was "reclaimed" for agricultural production. As large areas on the east side of the river were diked off from this riverine system, canals were built to provide for drainage to tidal waters. These systems often allowed for gravity drainage on a more economical and efficient basis than pumping drainage to the remaining marsh. The USGS estimated that by 1955, 244 square miles had been removed from the original estimated 1,340 square miles of drainage basin of the St. Johns River south of US 192 resulting in an average loss of 161 million gallons per day (MGD) (Clawson and Telfair, 1956). The U.S. Army Corps of Engineers (Flood Hazard Information, 1976) estimated diversion from this area results in a loss of 267 MGD in a wet year. Based on the streamgage data at U.S. 192 and rainfall data for the period of record through 1978, it was estimated that the current level of interbasin diversion south of U.S. 192 amounts to a daily mean discharge to tidewater of approximately one-third of the daily mean discharge at U.S. 192 (SJRWMD, 1979). There are at least 13 canals in the Upper St. Johns basin which have been identified as functioning as diversion canals during at least some portion of the time since their construction.

This widespread interbasin diversion has resulted in significant hydrologic and environmental impacts to the USJRB as well as to tidal waters. These impacts, which have been previously discussed in detail (SJRWMD, 1979) include a loss of freshwater from the Upper St. Johns River Basin resulting in alteration of the hydroperiod and reduced seasonal and mean stages and flows, and increased freshwater flows to tidewater that may adversely affect salinity concentrations.

In recognition of both the magnitude and impacts of interbasin diversion, this study was initiated with the objective of quantifying, in detail, diversion of water from the Upper St. Johns River Basin under existing conditions in order to provide information for effective basin surface water planning. This report culminates several years of ongoing data collection efforts necessary to improve the existing data base in order to meet the objective of quantifying diversion flows. An interim report has previously been prepared to provide a partial analysis of the data in order to assist in ongoing basin management planning (SJRWMD, 1981).

The first section of this report includes a basin-wide inventory of interbasin canals and identification of the canals of primary impact. A detailed description of these canals and the respective drainage basins is provided. The second section contains a summary of the flow data that has been collected. This data is presented in detail within the appendices of this report. An analysis of this data is presented to reach conclusions

regarding the magnitude and characteristics of interbasin diversion.

The information in this report is necessary for evaluating the current impact of interbasin diversions as well as developing effective components within the Upper Basin Surface Water Management Plan for mitigating adverse impacts resulting from the diversion of water from the basin. An example of the use of the information in this report has been in the development of temporary flow recapture systems for two of the primary diversion canals in the USJRB: MTWCD C-1 and Fellsmere Main. These flow recapture systems were designed by SJRWMD to partially mitigate critical water supply problems that may result in Lake Washington during drought periods, such as occurred in 1980 and 1981, before the Upper St. Johns River Project is implemented. Detailed information of the design, implementation and operation of these recapture systems is given in several appendices of this report.

DESCRIPTION OF INTERBASIN DIVERSION CANALS IN UPPER ST. JOHNS RIVER BASIN

Basin-wide Inventory of Interbasin Diversion Canals

Within the Upper St. Johns River Basin (USJRB) there are at least 13 canals which cross the Atlantic Coastal Ridge. While many of these canals were built for purposes such as water supply conveyance or localized drainage, nine of the canals have been identified as potentially functioning to divert water from the St. Johns Basin. These canals are identified as shown in Figure 1.

The most significant diversion occurs south of US 192 where vast areas of marsh have been diked and drained for agricultural development by drainage districts formed under Chapter 298 of the Florida Statutes, which was enacted in 1919. Three major canals were built in the 1920's by these "298" districts: Fellsmere Main Canal by Fellsmere Water Control District (FWCD); Sottile Canal by the Sebastian Drainage District; and C-1 Canal by the Melbourne-Tillman Water Control District (MTWCD). These canals continue to divert water to the Atlantic Ocean from extensive areas that were originally part of the headwaters of the St. Johns River.

More recently, Canal 54 was built in 1969 as part of a Federal Flood Control Project which was initiated in 1954 to alleviate severe flooding problems that had resulted primarily due to the extensive loss of floodplain to agricultural development within the USJRB. The project plans, which were completed in

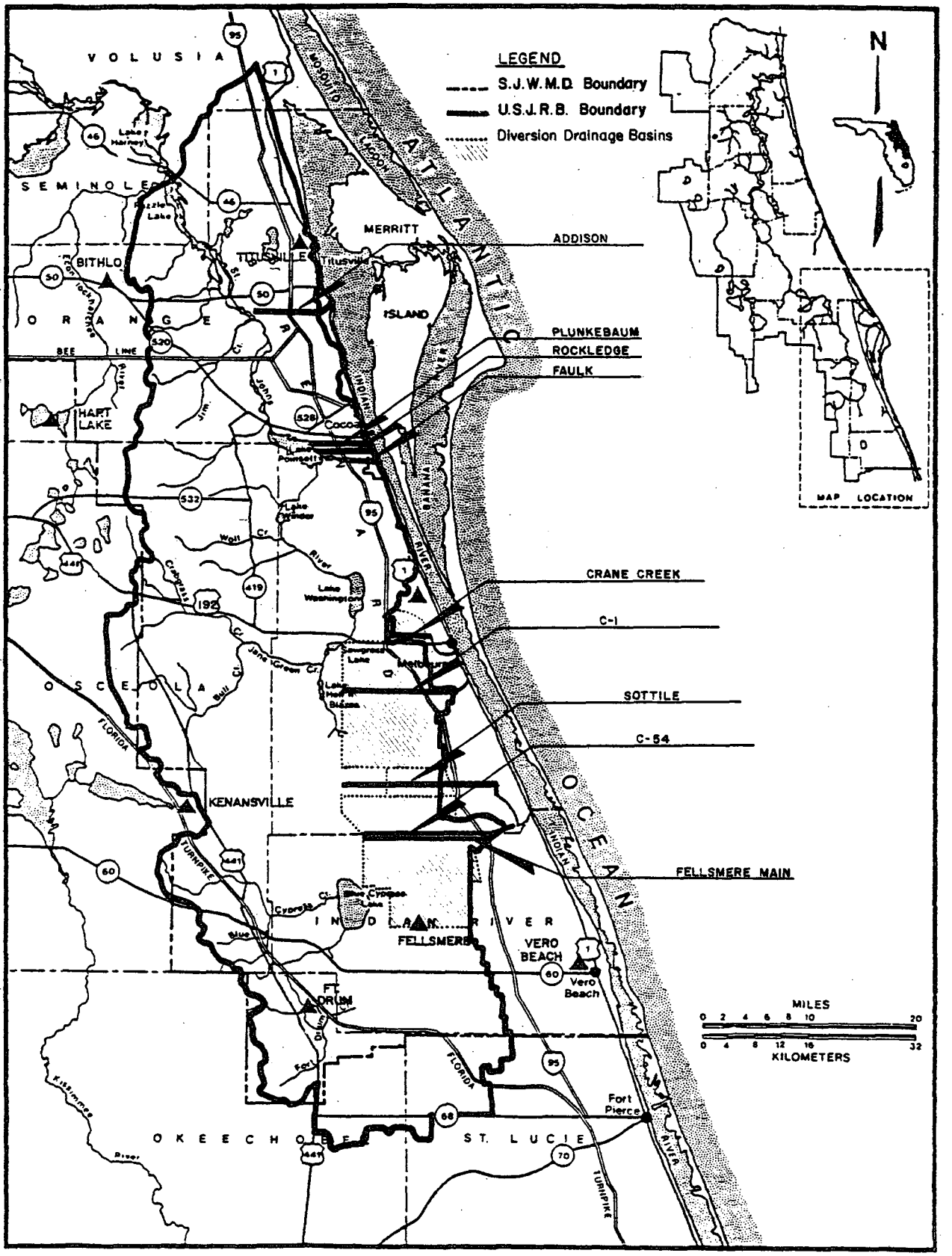


Figure 1. Location of Interbasin Diversion Canals in Upper St. Johns River Basin.

1962, called for the construction of a series of major upland reservoir/detention systems, river valley impoundments and diversion canals. Although C-54 and several upland levee systems were constructed, the project was never completed as a result of subsequent environmental impact studies that concluded that the 1962 project was environmentally unacceptable. Under the 1962 plan, C-54 was to be used for flood control by diverting excess flood waters to the Atlantic Ocean. C-54 is now owned and operated by the SJRWMD. Although the canal has significant conveyance capacity to divert flows from the Upper St. Johns, the actual diversion is limited by the infrequency of use.

North of US 192 there are several interbasin canals of relatively minor impact which have been built for agricultural and urban drainage. As a result of urban growth in the West Melbourne area, a system of drainage canals was built immediately east of I-95 and north of US 192. Crane Creek Canal and its tributaries drain a small area historically within the USJRB into Crane Creek. Further to the north, four other interbasin diversion canals have been built in the past primarily to provide adequate drainage for agricultural development. Inspection of Addison Canal indicated that it had been plugged near the McDonnel-Douglas plant near SR 405 and only flows west through Bird Lake into the St. Johns River marsh. During the past several years, periodic flow measurements were collected at Plunkebaum, Rockledge and Faulk canals at I-95. These flow measurements indicate that flow in these canals is either negligible or only westward into the USJRB. As a result, these four

canals were not considered to have any measurable impact on current diversion of water from the USJRB.

As a result of this inventory, five canals are identified as potentially having significant diversion flows under existing conditions: MTWCD C-1, C-54, Fellsmere Main, Sottile, and Crane. Each of these canals is described in detail in the following sections.

Fellsmere Main Canal

Canal and Control Structures. The Fellsmere Main Canal is located parallel to and immediately north of the north levee of the Fellsmere Water Control District (FWCD) and parallel to and immediately south of the Fellsmere Grade as shown in Figure 2 and Exhibit A. The canal extends approximately 12.5 miles from the west levee of FWCD to the Sebastian River.

The maximum design capacity of the Fellsmere Main Canal is 3,000 cfs. A profile and several typical cross-sections are given in Exhibit B and Appendix A. Near the west end of the canal a gated culvert structure (V-4) is located just west of Mile Canal as shown in Figure 2. A 60 ft. wide fixed crest weir for erosion control is located at the eastern end of the canal where it empties into the Sebastian River as shown in Figure 2 (detailed in Exhibit C).

There are several water control structures along the canal as shown in Figure 2. There are four sets of culverts between Fellsmere Main and C-54 which can be operated to discharge water from the Fellsmere Main into C-54 during periods of extreme high

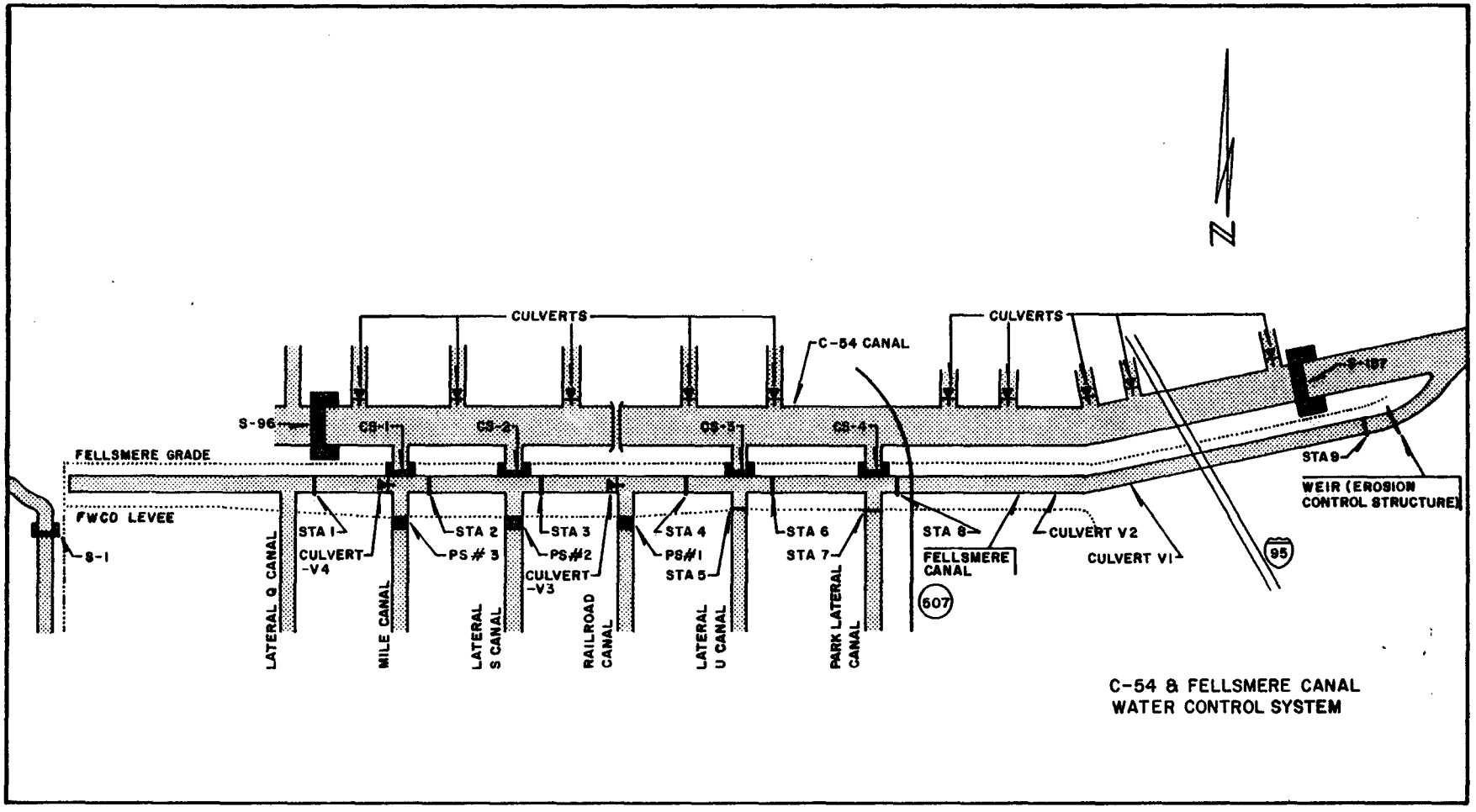


Figure 2. Fellsmere Main Canal and C-54 Canal Water Control System.

water. There are six canals and two culverts which discharge flow into Fellsmere Main from the drainage basin which is located south of the canal. Discharge from three of these canals is controlled by pump stations.

Drainage Basin. The Fellsmere Main Canal was built by the FWCD to provide drainage for lands within their district. The entire area within FWCD was leveed and thus separated from the Upper St. Johns Marsh. In addition to gravity drainage through the system of interior canals, eight pump stations were built along the outside levee and two pump stations within FWCD for drainage and circulation of irrigation water. A summary of the water control structures in the basin is given in Table 1.

The drainage basin of Fellsmere Canal includes 75 square miles. The land use in this basin is predominantly agriculture with 16,400 acres of citrus, 12,100 acres of improved pasture, 1,500 acres of vegetables and 6,400 acres of unimproved pasture. The entire FWCD comprises the majority of the drainage basin. The boundary of the FWCD, the boundary of Fellsmere Joint Venture (the major landowner in FWCD) and locations of water control structures are given in Figure 3.

Describing the drainage of water from the Fellsmere Main Canal Basin is complex because of the flexibility resulting from the specific operation of each of the ten pump stations. Drainage from the basin can be described in general terms by considering five sub-basins as delineated in Figure 3.

Sub-basin 1, known as the Barney Green tract, is located in the northwest corner within the FWCD and is under SJRWMD

TABLE 1.--Summary of Water Control Structures in Fellsmere Main Canal and Drainage Basin

STRUCTURE	SPECIFICATION	INFLOW/OUTLFOW	OWNER
Erosion Control Structure	60' Fixed Crest Weir Crest @ 2.0' msl	Fellsmere Canal to Sebastian River	SJRWMD
SJRWMD C.S.-1	2-72" Culverts With Screw Gates	Fellsmere Canal to C-54	SJRWMD
SJRWMD C.S.-2	2-72" Culverts With Screw Gates	Fellsmere Canal to C-54	SJRWMD
SJRWMD-C.S.-3	2-72" Culverts With Screw Gates	Fellsmere Canal to C-54	SJRWMD
SJRWMD-C.S.-4	2-72" Culverts With Screw Gates	Fellsmere Canal to C-54	SJRWMD
Culvert V1	1-42" Culvert With Gate	Sub-basin 4 Into Fellsmere Canal	FWCD
Culvert V2	1-24" X 30" Culvert With Gate	Sub-basin 4 Into Fellsmere Canal	FWCD
Culvert V3	8-72" X 100' Culverts	In Fellsmere Canal for Ranch Access	FJV
Culvert V4	1-72" X 40' With Control Gate @ 11.2' msl Invert	In Fellsmere Canal for Ranch Access	FJV
Pump Station 1	5-24,000 GPM Pumps	Sub-basin 2 (Railroad Canal) to Fellsmere Canal	FJV
Pump Station 2	5-36,400 GPM Pumps	Sub-basin 2 (Lateral S Canal) to Fellsmere Canal	FJV
Pump Station 3	1-32,000 GPM Pump 2-28,000 GPM Pumps	Sub-basin 2 (Mile Canal) to Fellsmere Canal	FJV
Pump Station 4	2-50,000 GPM Pumps	Sub-basin 2 to SJRM via Lateral M	FJV
Pump Station 5	2-50,000 GPM Pumps	Sub-basin 2 to SJRM via Zig Zag	FJV
Pump Station 6	3-50,000 GPM Pumps	Sub-basin 2 to SJRM via FJV Ditch 34	FJV
Pump Station 7	2-25,000 GPM Pumps	Sub basin 3 to SJRM via FJV Ditch 34	FJV
Pump Station 10	2-25,000 GPM Pumps	Sub basin 3 Park Lateral to SJRM via FJV Ditch 34	FJV

NOTE: SJRWMD - St. Johns River Water Management District
FWCD - Fellsmere Water Control District
FJV - Fellsmere Joint Venture

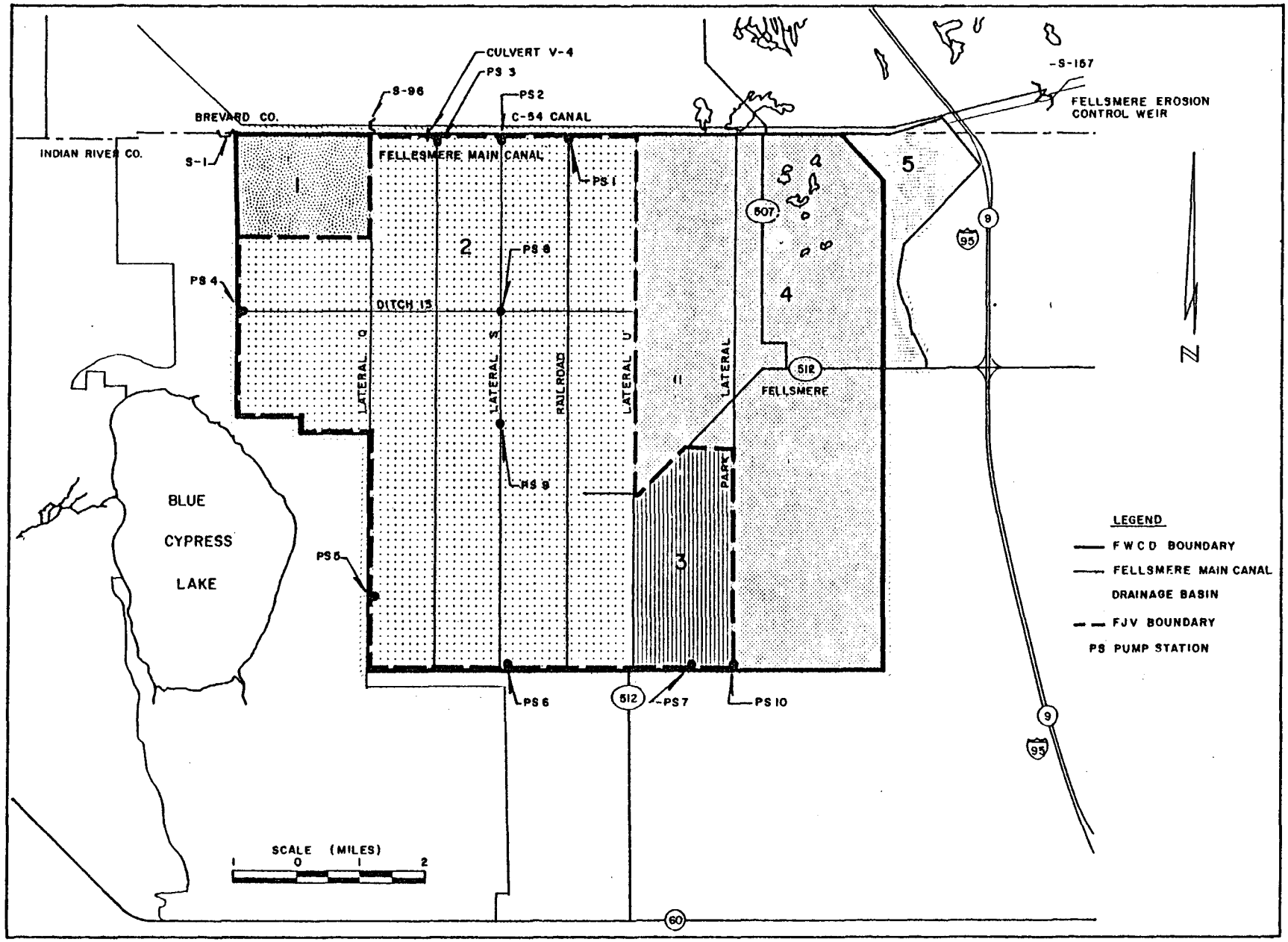


FIGURE 3. Fellsmere Main Canal Drainage Basin and Water Control Structures.

ownership. This sub-basin consists of 2,650 acres of freshwater marsh. The water in this sub-basin drains by gravity through Lateral Q Canal into Fellsmere Canal where it only flows east during times of high water when culvert V-4 is opened.

Sub-basin 2 includes 25,910 acres of FJV ownership drained exclusively by pump stations. Land use east of Lateral S is primarily citrus, between Lateral S and Lateral Q canals it is improved pasture, and west of Lateral Q it is improved pasture and row crops. Drainage within this basin is complex and variable depending on the operation of the pump stations. There are six pump stations along the boundary of this sub-basin: three stations pump excess water to the St. Johns Marsh (PS 4, PS 5 and PS 6) and three pump to Fellsmere Main Canal (PS 1, PS 2, and PS 3). Two pump stations (PS 8 and PS 9), located as shown in Figure 3, are used for circulation of irrigation water. Typically, excess water resulting during an irrigation return cycle or normal rainfall conditions flows south in Lateral S to PS 6 and west in Ditch 13 to PS 4 where it is pumped to the St. Johns Marsh. Excess water resulting from heavy rainfall is also drained north in Mile Canal, Lateral S, and Railroad Canal by pumping into Fellsmere Main Canal through PS 1, PS 2, and PS 3. The specific portion of the excess water pumped to the marsh and Fellsmere Main may also vary depending on the specific operation of the two interior pump stations.

Sub-basin 3 is the balance of FJV ownership that is not drained exclusively by pump stations. Land use is citrus and pasture within the sub-basin. It covers 3,320 acres and lies

east of sub-basin 2 and south of sub-basin 4 within the FWCD. Excess water is generally drained westward to Lateral U and discharged to Fellsmere Main Canal by gravity. In addition, excess water can be pumped to the St. Johns River Marsh by Pump Station 7 located along Ditch 34 between Park Lateral and Lateral U Canals.

Sub-basin 4 is the remaining portion of FWCD not under FJV ownership. It is located north of sub-basin 3 and covers 18,380 acres. This area is drained westward to Lateral U and Park Lateral canals which discharge into Fellsmere Main Canal by gravity. Water in this sub-basin can also be drained to the St. Johns River Marsh by pump station 10 on Park Lateral Canal.

Sub-basin 5 contains 1,900 acres which lies immediately east of the FWCD and west of natural drainage divide of the Upper St. Johns River Basin and the Coastal Basin. This area is mostly marsh and forested wetland. The area drains into sub-basin 5 through three culverts in the levee along the east boundary of the FWCD. This area also drains directly into the Fellsmere Main Canal through two culverts along the boundary of Fellsmere Main Canal as shown in Figure 2.

C-54 Canal

Canal and Control Structures. Canal C-54 is located on the Indian River County and Brevard County line and separated from Fellsmere Main Canal by the Fellsmere Grade as shown in Figure 2. It extends 10 miles from S-96 to S-157 before emptying into the Sebastian River. C-54 Extension extends west from S-96 to S-1,

thus connecting C-54 to the St. Johns River Marsh. A complete profile and typical cross-sections of the C-54 Canal are given in Exhibit B and Appendix B, respectively.

Canal C-54 was built in 1969 by the U.S. Army Corps of Engineers as part of a federal flood control project for the USJRB. As discussed earlier, this project was never completed as originally planned for environmental reasons. The primary purpose of C-54 was to divert water from the St. Johns River Marsh by connecting Lake Wilmington Reservoir to the Sebastian River.

Two major water control structures were built in the C-54 system. S-96 is a gated spillway with two 25 ft. by 14.3 ft. vertical lift gates at an invert elevation of 11.2 feet (msl). This structure has a maximum discharge capacity of 6,000 cfs. In the original General Design Memorandum (GDM), the regulation schedule for S-96, which controls discharge from the St. Johns River Marsh into C-54, called for the structure to be opened when Blue Cypress Lake exceeds an elevation of 25.0 ft. msl.

Structure-157, which is located east of S-96, is a gated spillway with maximum discharge capacity of 6,500 cfs. 157 has three 25 ft. by 12.5 ft. vertical lift gates at an invert elevation of 7.5 ft. msl. These gates automatically open when the water level in C-54 Canal reaches 16.3 ft. msl, remain stationary at elevation 16.0 ft. msl and close when stages fall below 15.8 ft. msl. Originally, at the top of each of these lift gates were three slide gates each being 6.67 ft. by 1.5 ft. and having an invert elevation of 15 ft. msl when the vertical lift gates are closed. The purpose of these slide gates was to minimize the

operation of the vertical lift gates while maintaining the headwater elevation upstream of S-157 at or near the optimum design elevation of 20.0 ft. msl. After the construction of S-157, these gates were not needed because the optimum stage was reduced to about 15.0 ft. msl to insure the stability of the culvert structure which connect C-54 and the Fellsmere Canal. Consequently, the slide gates were removed in 1978 to minimize maintenance expenses.

There are also four sets of culverts located between C-54 and Fellsmere Main Canal, as described in the previous section, to drain water from Fellsmere Canal into C-54 Canal during flooding events. These would only be opened at times of extreme high water to lower the stage in Fellsmere Canal, thus reducing some damage to the town of Fellsmere and FWCD.

In addition, water transfer between C-54 and the St. Johns River Marsh may potentially occur by the use of Pump Station 14, which is located near S-96, as shown in Figure 2. In 1979, this pump station was reported to be inoperative. More recently, this unpermitted station has become functional although operation records specifying the use of this pump station have not been maintained or are available.

Drainage Basin. The C-54 drainage basin is located to the north of the canal between S-96 and S-157 and consists of 24.5 square miles which may be divided into two basins as shown in Figure 4. Sub-basin 1, as shown in Figure 4, is the major portion of land that is continuously drained by C-54 Canal. This parcel, which is owned by FJV, consists of 13,250 acres of the

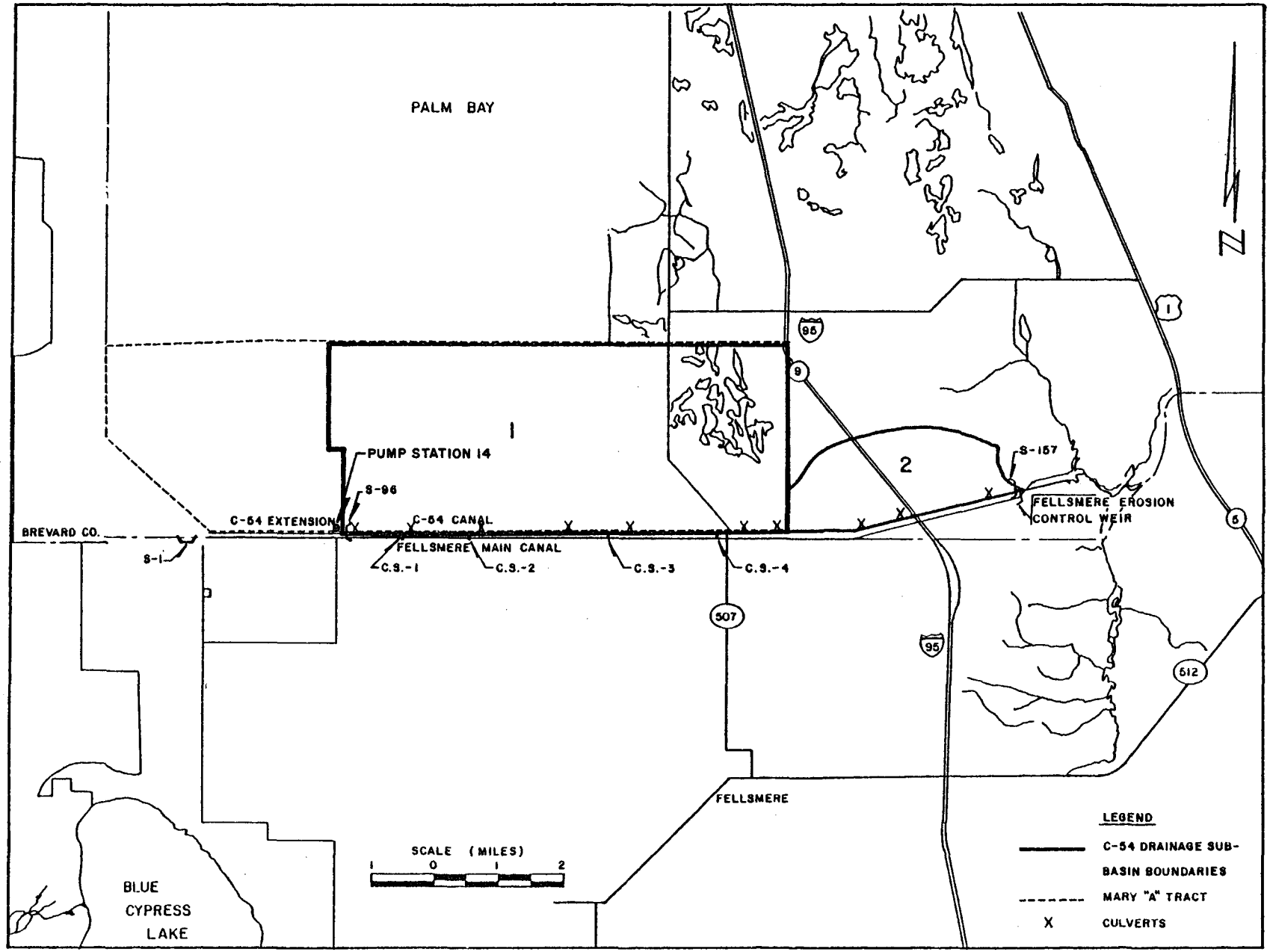


FIGURE 4. C-54 Canal Drainage Basin

eastern portion of Mary "A" Ranch. The predominant land use in this sub-basin is improved pasture. Drainage is provided by seven canals which connect to C-54 through 60 inch diameter culverts which are controlled by Fellsmere Joint Ventures. The location of these culverts are shown in Figure 2 and Exhibit A.

The remaining portion of the C-54 drainage basin lies east of the Mary "A" Ranch and is bounded on the north and east by the coastal ridge. This section is 2,430 acres, all of which is unimproved pasture. This area is drained by three canals, each of which drain to C-54 through 60 inch diameter culverts.

Under extreme high water conditions in the basin, two additional inflows can occur to C-54 from FWCD and the St. Johns River Marsh. Flow can occur from the Fellsmere Main Canal Basin via four sets of culverts opened under flood conditions. More significantly, water from the St. Johns Marsh is discharged into C-54 when S-96 is opened.

MTWCD C-1 Canal

Canal and Control Structures. MTWCD C-1 Canal is the primary drainage canal for the Melbourne Tillman Water Control District (MTWCD) in southern Brevard County (Figure 5). The canal is located 4.5 miles south of the highway, US 192. The canal extends east 10 miles from the western MTWCD levee to Turkey Creek. MTWCD C-1 Canal diverts water from the MTWCD, historically part of the St. Johns River Marsh, into the Atlantic Coastal Basin.

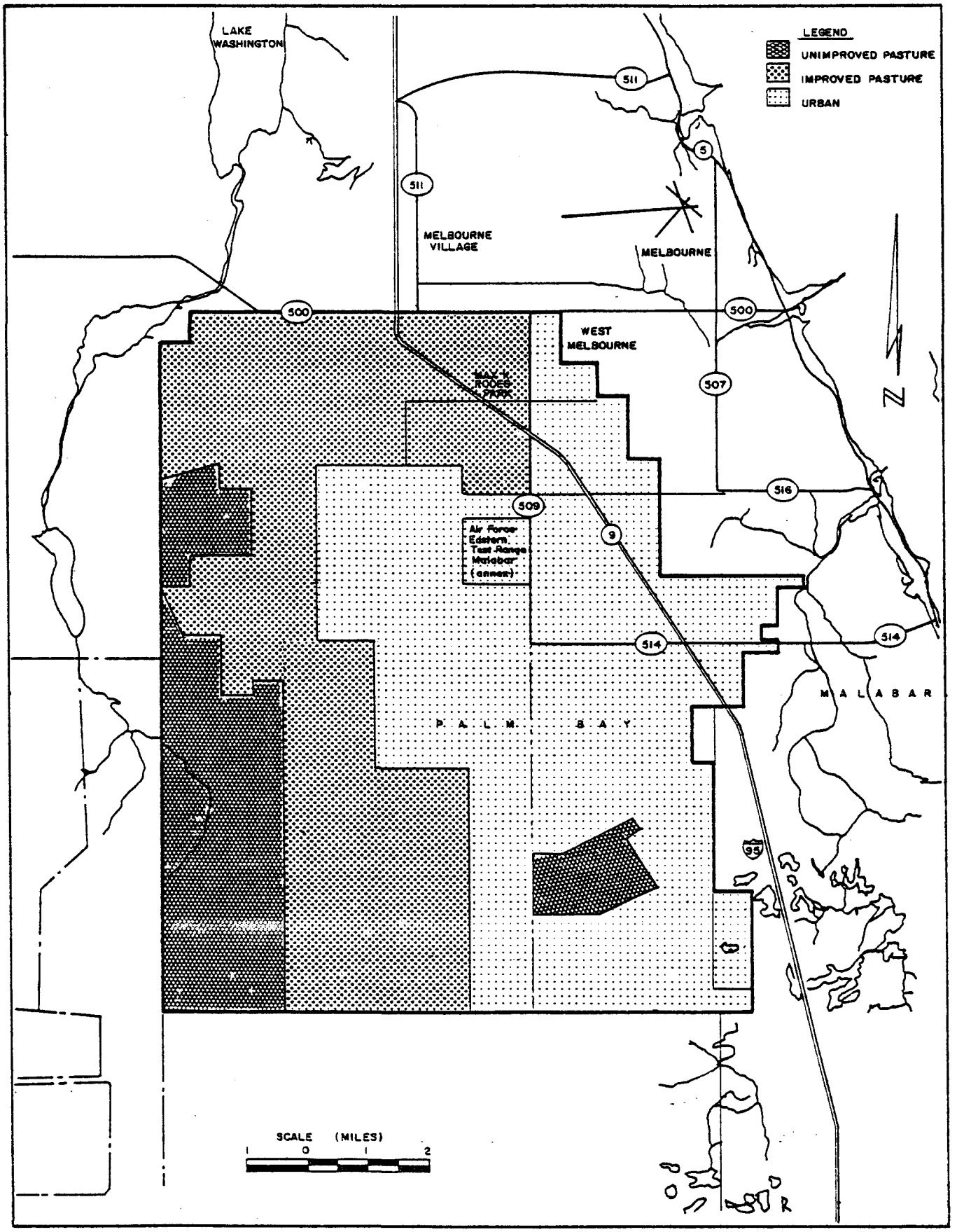


FIGURE 5. C-1 Canal Drainage Basin and Land Use Map

Presently, MTWCD C-1 Canal has only one water control structure. This structure (MS-1) is located just west of where MTWCD C-1 Canal enters into Turkey Creek as shown in Figure 5. Since November 1980, the structure has been operated to maintain the water level in MTWCD C-1 Canal at 8.0 feet msl during dry periods and 4.0 feet msl during wet periods with a maximum discharge of 3,000 cfs as permitted by the SJRWMD.

Several approximate cross-sections of MTWCD C-1 Canal are given in Appendix C. The canal has a side slope steeper than 1:1 for most of its length with a bottom width ranging from 14 feet at the western end to 140 feet downstream from MS-1 structure. A profile of MTWCD C-1 Canal is given in Exhibit E. The average slope of the canal is 1.09 ft/mile and the elevation of the channel bottom ranges from 6 feet msl to -5 feet msl.

Drainage Basin. The MTWCD is about 99.8 square miles in area and is bounded on the north by US 192, on the east by the coastal ridge and on the south and west by a levee. This levee was built in the 1920's by the MTWCD for the purpose of protecting the MTWCD from flooding from the St. Johns River in order to make the area suitable for agricultural development. Also built at this time was a complex system of canals which drained the area of excess water.

In the 1950's and 60's the central coastal region of Florida became a rapidly growing area. This growth caused a shift in land use from predominantly agricultural to residential within the eastern portion of MTWCD. So far, approximately 23,400 acres of land within the MTWCD has been subdivided with roads and

drainage canals, most of it within the City of Palm Bay. The existing agriculture in the MTWCD is nearly all ranching with very few citrus farms. Of the agricultural areas, 19,000 acres are improved pasture, 21,300 acres are native or semi-improved pasture (Figure 5), while only 100 acres are developed for citrus.

The complex system of canals built within the MTWCD to drain excess storm water is shown in Figure 6. While this canal system primarily drains to MTWCD C-1, there is a 25,000 gpm discharge capacity pump located on the western border of MTWCD just south of MTWCD C-1 Canal which is the only pump used for pumping storm water from MTWCD into the St. Johns River Marsh. Although no discharge records have been kept for this pump, it is known that it has been operated on a very infrequent basis.

Crane Creek and Sottile Canal

Crane Creek has been channelized and extended west of the coastal ridge for urban drainage of West Melbourne causing interbasin diversion in this area. The drainage area is 5,040 acres lying between the coastal ridge and I-95 as shown in Figure 7. Most of this basin is urban with some undeveloped land in the northwest portion of the basin. There are no structures regulating flow in this canal.

Sottile Canal was built by the Sebastian Drainage District, which is no longer in existence. Although the canal extends westward across the Sartori property, as shown in Figure 7, it has been plugged at the location as shown. The existing drainage basin is limited to the 7,710 acres west of the coastal ridge and

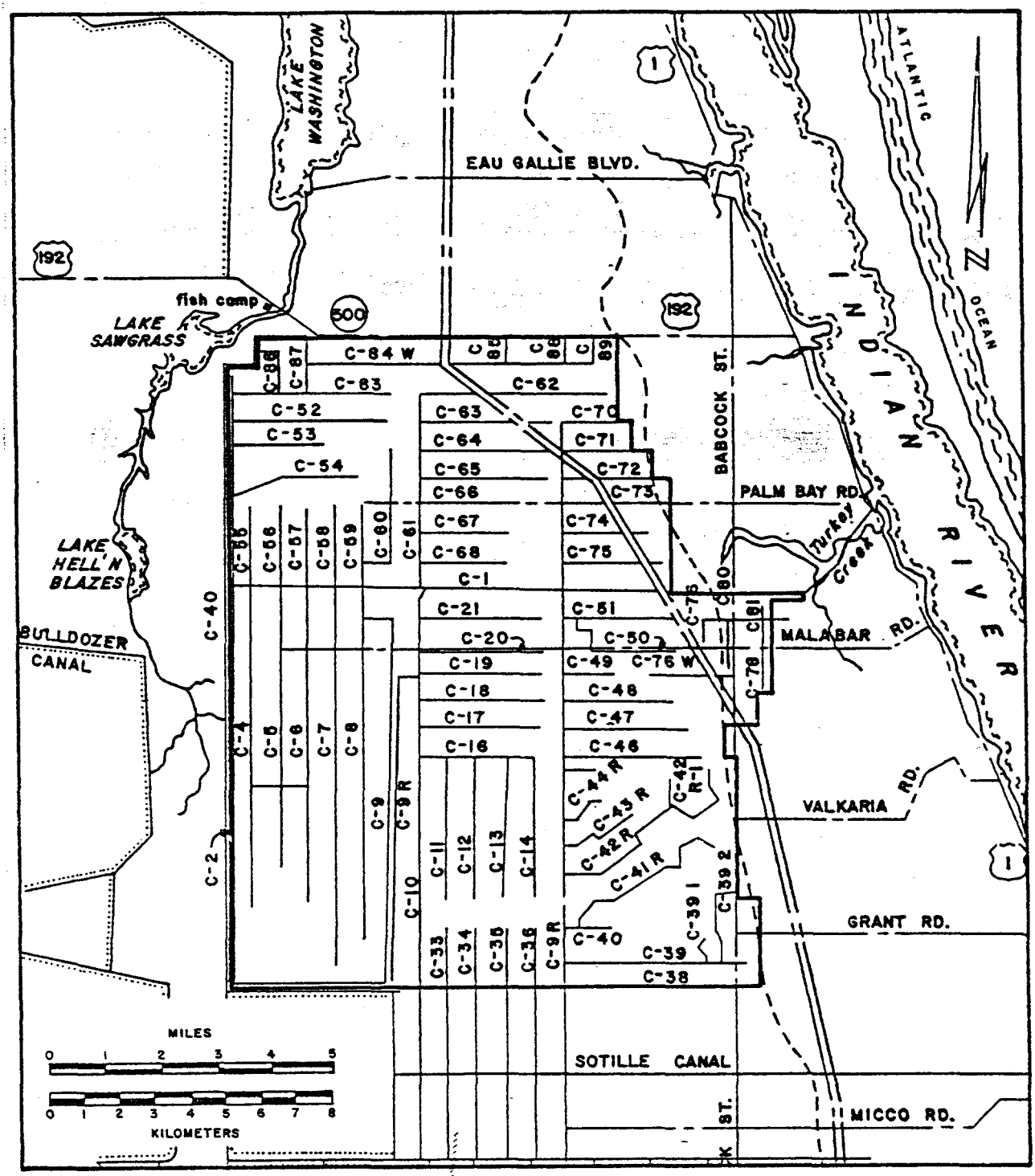


FIGURE 6. Canal System in the Melbourne-Tillman Water Control District.

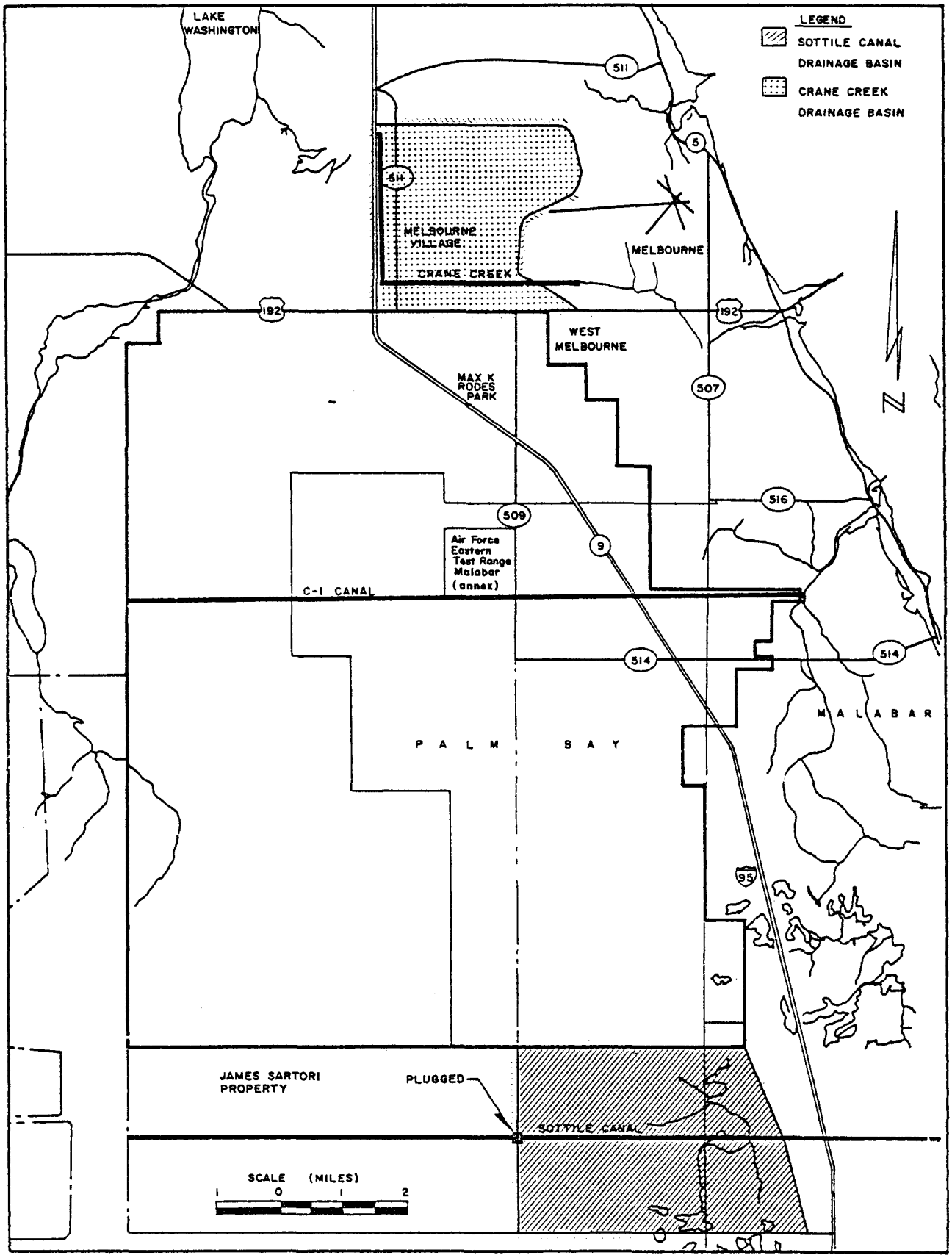


FIGURE 7. Crane Creek and Sotille Canal Drainage Basins

east of the Sartori property. This land is mostly improved pasture west of SR-507 and citrus and undeveloped land east of SR-507. There are no structures regulating flow in this canal.

ANALYSIS OF INTERBASIN DIVERSION FLOWS

Fellsmere Main Canal

Data Collection. Stage on Fellsmere Main Canal has been monitored by a recording stage gauge during two separate periods of record since 1969. This recording station is located about 300 feet upstream of the fixed crest weir at the eastern end of Fellsmere Main Canal. The first period of record from July 1969 to February 1976 was collected by the South Florida Water Management District. The second period of record from February 1977 to present was collected by the St. Johns River Water Management District. During the year between these two periods, bi-weekly staff gauge readings were taken.

Analysis of Diversion Flows. A stage-discharge relationship was developed from flow measurements at the gauging station and is given in Figure 8. Using this rating curve, the discharge for Fellsmere Main Canal has been calculated and is presented in Appendices D and E. The monthly mean discharge over the twelve year period is given in Table 2 and Figure 9. Average discharge over this twelve year period was 133 cfs, with an average of 177 cfs for the five month rainy season of June to October. The maximum discharge during this period was 2,030 cfs on October 4, 1969 caused by a 5.5 inch five day rainfall. This maximum discharge was not exceeded during Hurricane David in 1979 primarily because antecedent conditions during the 1969 storm were much wetter than the 1979 storm. The minimum daily mean discharge was 22.7 cfs on April 12, 1976.

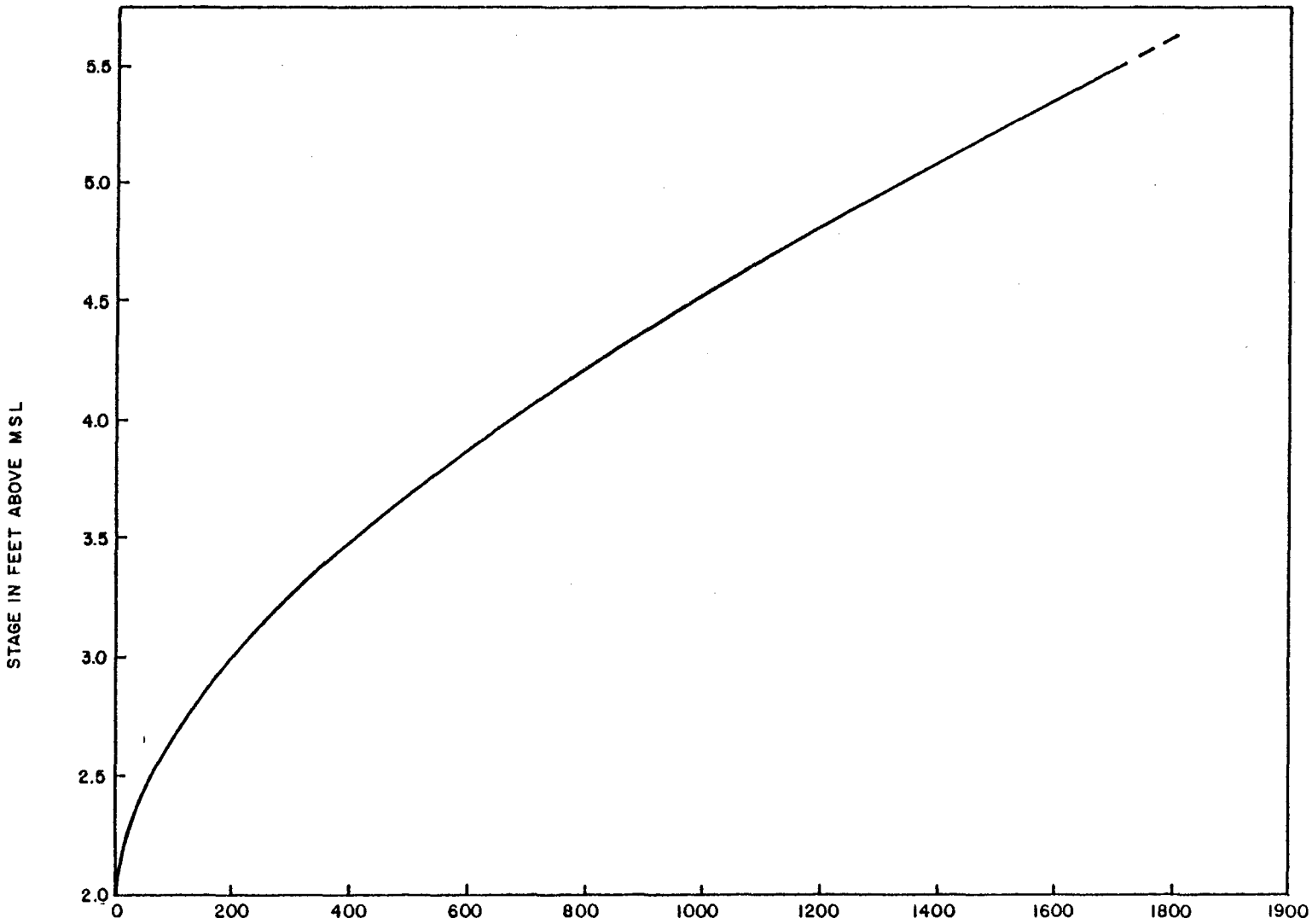


FIGURE 8. Discharge Rating Curve for Fellsmere Main Canal Erosion Control Weir

TABLE 2.--Monthly Mean Discharge of Fellsmere Main Canal

MONTHLY MEAN DISCHARGE
(in cfs)

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	ANNUAL
1969	-	-	-	-	-	-	-	322	290	719	301	186	-
1970	264	172	194	132	179	174	263	167	114	145	73	67	162
1971	50	99	48	72	75	87	115	105	105	145	108	71	90
1972	56	179	99	94	-	465	276	173	90	84	54	68	149
1973	105	120	103	172	164	473	315	422	206	230	83	81	206
1974	59	64	63	67	93	192	273	311	153	110	111	119	135
1975	96	104	100	132	149	222	-	132	151	141	94	91	128
1976	85	79	33	27	244	224	109	159	140	118	97	66	115
1977	66	68	60	55	81	128	57	46	203	55	57	121	83
1978	102	141	138	41	119	135	351	412	165	84	66	98	154
1979	222	144	91	56	172	140	110	101	430	145	95	51	146
1980	92	95	77	97	87	98	72	65	78	84	67	62	81
1981	62	58	90	67	72	71	44	68	181	48	57	48	72
1982	50	68	78	66	86	194	169	126	170	117	183	98	117
1983	140	297	167	59	38	114	68	211	112	268	76	151	142
MEAN	104	121	96	81	120	194	171	188	173	166	101	92	134

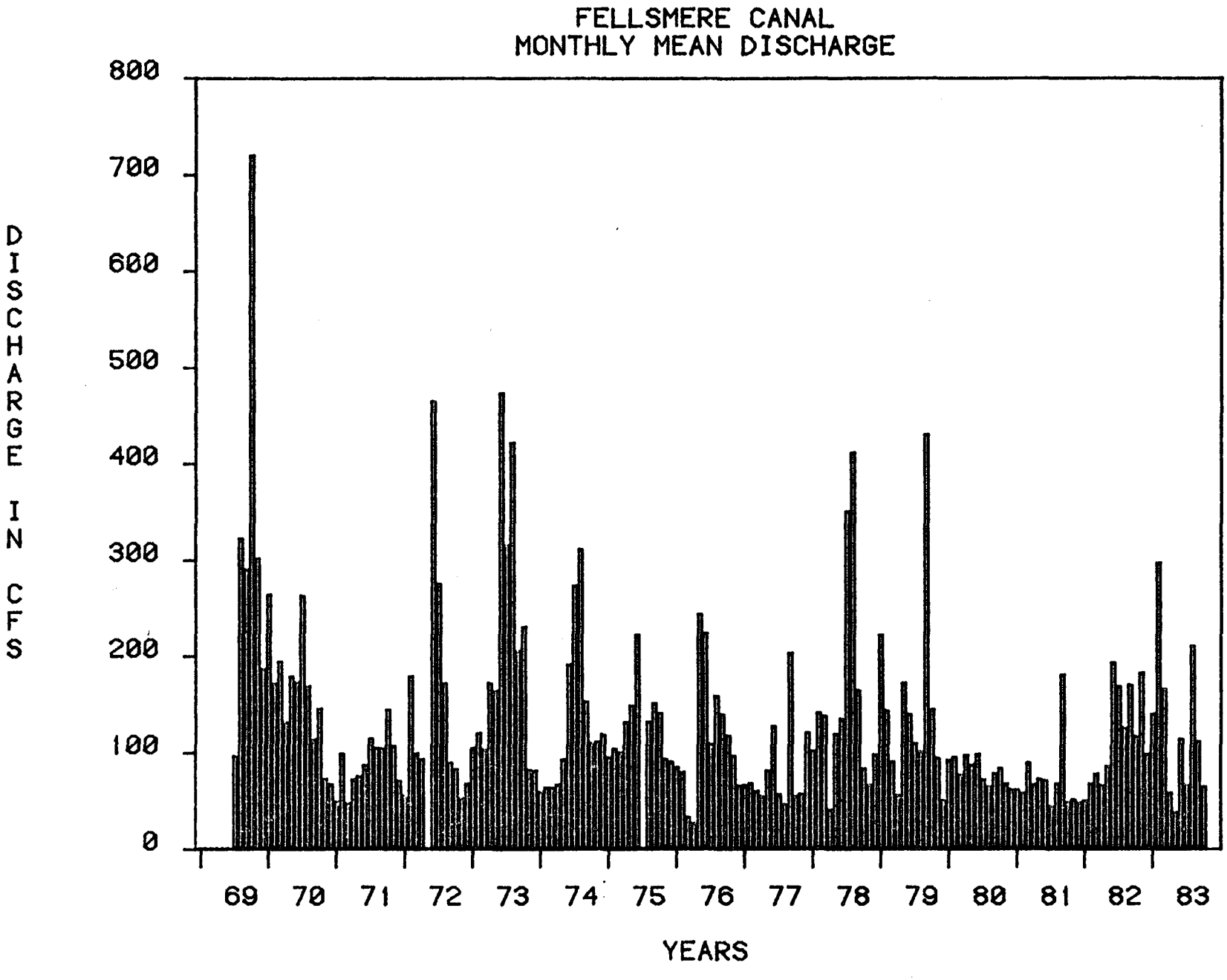


FIGURE 9. Monthly Mean Discharge of Fellsmere Main Canal.

To understand the percentage of basin flow contributed by each sub-basin to the total flow in Fellsmere Canal during dry periods, flow measurements were taken during the 1981 drought at various points along Fellsmere Main Canal and the tributary canals at locations (stations) as shown in Figure 2. Flow measurements, taken on August 5, 1981 during an extended period of no significant rainfall and then on September 10, 1981 after a brief rainfall event, are given in Table 3. When these measurements were taken, there was zero flow from sub-basin 1 and none of the pump stations were operating. On August 5, about 15% of the flow was resulting from leakage through the three pump stations along the Main Canal. As a result of maintenance that occurred on these pump stations before the second flow measurement, no measureable flow was measured from these pump stations on September 10. On August 5, after an extended period of little rainfall, the flow from Lateral U, Park Lateral and the two culverts east of Park Lateral was approximately 34%, 36% and 15%, respectively, of the total measured flow of 40 cfs at the erosion control weir. After a period of rainfall, the contribution of flow from Lateral U, Park Lateral, and the culverts was approximately 25%, 29% and 46%, respectively.

Rainfall - Runoff Relation. Annual runoff volumes are given as a function of annual rainfall in Figure 10. Average annual rainfall from September 1969 through September 1983 in the Fellsmere Main Canal basin was about 47.07 inches while the average annual runoff was about 23.8 inches, giving a runoff-rainfall ratio for the period of record of 0.51. The average

TABLE 3.--Discharge Measurements Along Fellsmere Canal (in cfs) During Low Flow Periods

	MEASUREMENT STATIONS								
DATE MEASURED	1	2	3	4	5	6	7	8	9
August 5, 1981	0	3.8	4.0	6.5	14.1	18.4	15.3	28.3	40.2
September 10, 1981	0	0	0	0	-	151.0	182.7	-	615.2

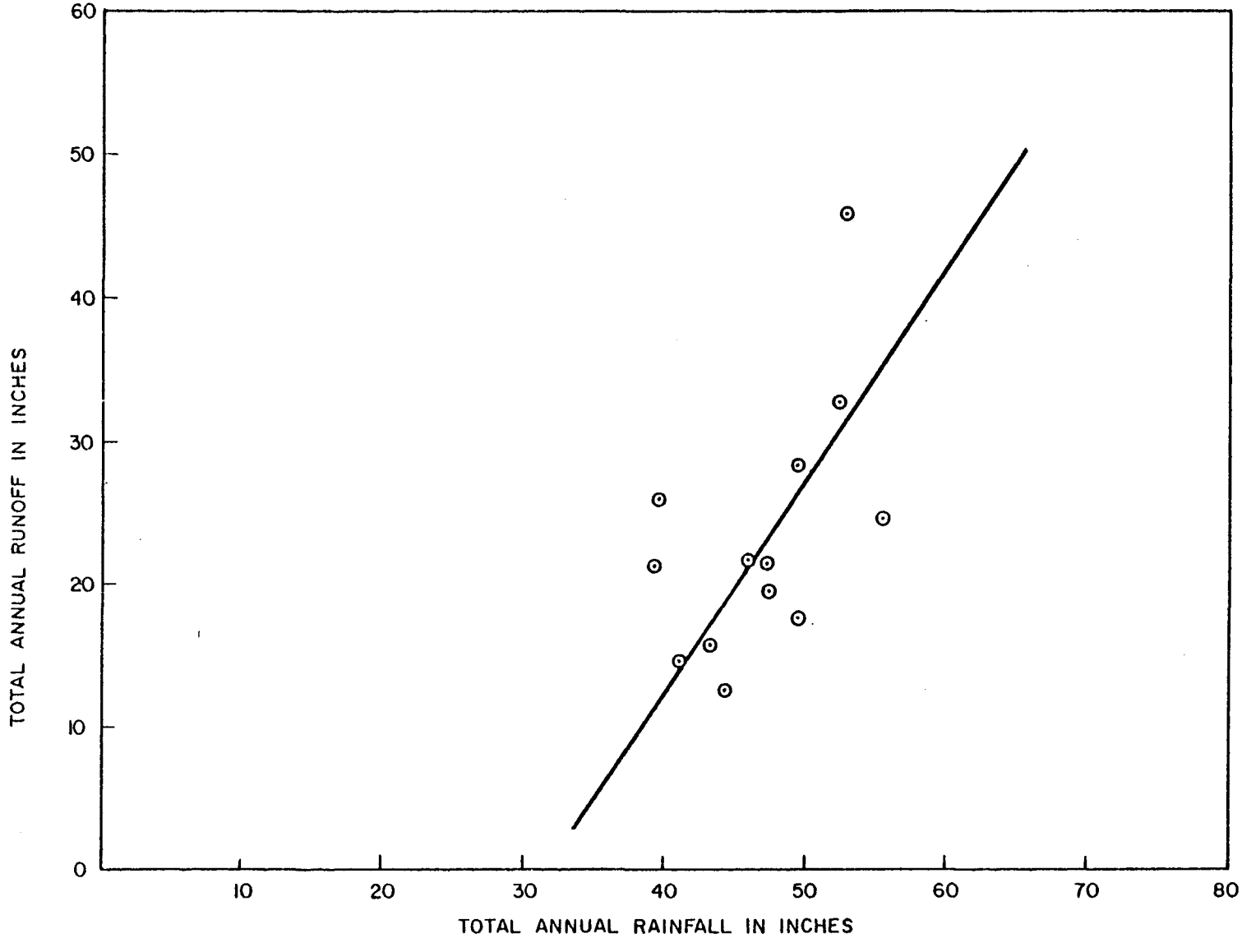


FIGURE 10. Rainfall-Runoff Relationship in Fellsmere Main Canal.

ratio for rainy season is about Ø.45 and for dry season is Ø.59. The difference indicates a significant portion of runoff was contributed by ground water or soil water storage and irrigation water during the dry season. The runoff-rainfall ratios for different storm events are highly variable, ranging from Ø.17 to Ø.91 due to varying antecedent soil moisture, rainfall duration and intensity and variations in operation of pump stations.

C-54 Canal

Flow Data at S-96. Structure S-96 has been operated for discharge only three times since Canal C-54 was built. The structure was first opened in 1969 as indicated by the 3,5ØØ cfs being discharged from S-157 during November 19, 1969 through December 1, 1969. There was, however, no record of gate openings for S-96 in 1969. S-96 was again opened on August 4, 1978 through August 9, 1978. The average discharge during this period was 1,ØØØ cfs with a peak of 1,3ØØ cfs on August 5, 1978. The third time the structure was opened was during Hurricane David in 1979. It was opened from September 2 to October 15 with an average discharge of 1,38Ø cfs and a peak discharge of 2,17Ø cfs on October 2, 1979.

Flow Data at S-157. Since July 1978, the main lift gates of S-157 have been set to automatically open when elevations in C-54 reach 16.3 feet msl. Prior to July 1978, these gates were set to open at 15.3 feet msl. The slot gates at the top of the main lift gates of S-157 were opened continuously prior to July 1978 allowing overflow from S-157 when stages in C-54 Canal exceed

15.Ø feet msl. In July 1968 these slot gates were removed so overflow is no longer controlled by these gates. Daily mean discharge from this structure since 1969 was calculated and is given in Appendices F and G. Monthly mean discharges for the period of record are given in Table 4 and Figure 11. Average discharge from this structure is 71 cfs with an average of 1Ø3 cfs during the five month rainy season of June to October. The maximum discharge from the structure was 3,582 cfs on November 24, 1969. As indicated by the data in the Appendices F and G, there have been many long periods with little or no discharge from this structure since it became operational in 1969.

MTWCD C-1 Canal

Data Collection. Discharge from MTWCD C-1 Canal has been gauged during two separate periods. The first period was 1957 to 1968 and the second period is from 1977 to present. Prior to February 198Ø discharge was calculated using a rating curve developed from flow measurement data. In February 198Ø the new structure MS-1 was completed except for the radial gates which became operational the following November. Following completion of MS-1 the discharges were calculated based on the recorded gate opening and the upstream and downstream stage readings at this structure. The rating curve for this structure was developed by the consulting engineers, Gee and Jenson, Inc.

Daily discharge data and discharge hydrographs are given in Appendices H and I, respectively. Monthly mean discharge data is given in Table 5 and Figures 12a and 12b.

Table 4. Monthly Mean Discharge of C-54 Canal at S-157 (1969-1982)

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	ANNUAL
1969	-	-	-	-	-	-	10.4	537.6	497.1	1091.4	2213.0	1273.0	937.1 P
1970	48.7	56.1	34.2	12.0	8.7	9.5	66.2	33.9	31.4	43.2	19.0	7.9	30.9
1971	4.7	15.7	5.0	0.4	0.0	11.0	8.5	5.0	7.7	16.6	12.9	11.5	8.3
1972	5.8	14.2	12.7	6.3	22.1	190.2	37.7	13.0	15.2	6.2	12.9	18.3	29.6
1973	23.9	36.8	11.2	29.3	2.7	77.2	54.8	94.4	75.5	215.6	26.9	8.7	54.8
1974	9.5	0.1	0.0	0.0	0.0	37.6	79.0	86.0	17.1	5.1	0.5	4.4	19.9
1975	1.9	0.4	0.4	0.0	0.0	16.9	7.0	5.8	12.3	12.1	6.6	1.8	5.4
1976	3.3	2.2	0.0	0.0	36.8	44.7	13.5	10.9	28.6	13.2	6.6	15.1	14.6
1977	15.6	12.9	5.0	0.0	0.0	1.4	0.9	1.1	78.0	20.8	19.7	60.6	18.0
1978	16.9	28.5	34.0	1.0	4.6	37.1	170.6	356.7	21.1	99.4	5.9	1.2	64.8
1979	68.2	13.5	10.0	0.4	24.0	16.6	11.2	6.8	1527.5	981.3	6.9	4 0	222.5
1980	7.6	36.6	16.6	6.4	3.3	2.0	5.7	4.0	6.0	0.0	0.0	0.0	7.4
1981	0	6.1	3.9	3.4	1.3	0.2	0.0	2.1	85.3	14.3	11.1	2.2	10.8
1982	2.6	14.3	23.6	33.7	19.6	53.2	75.9	33.9	26.6	13.9	23.6	16.2	28.1
1983	36.7	82.2	47.0	19.6	5.6	9.8	7.6	26.3	9.5	40.1	12.7	51.2 (P)	29.0
Average	17.5	22.8	14.5	8.0	9.2	36.2	36.6	81.2	162.6	171.5	158.5	98.4	68.0

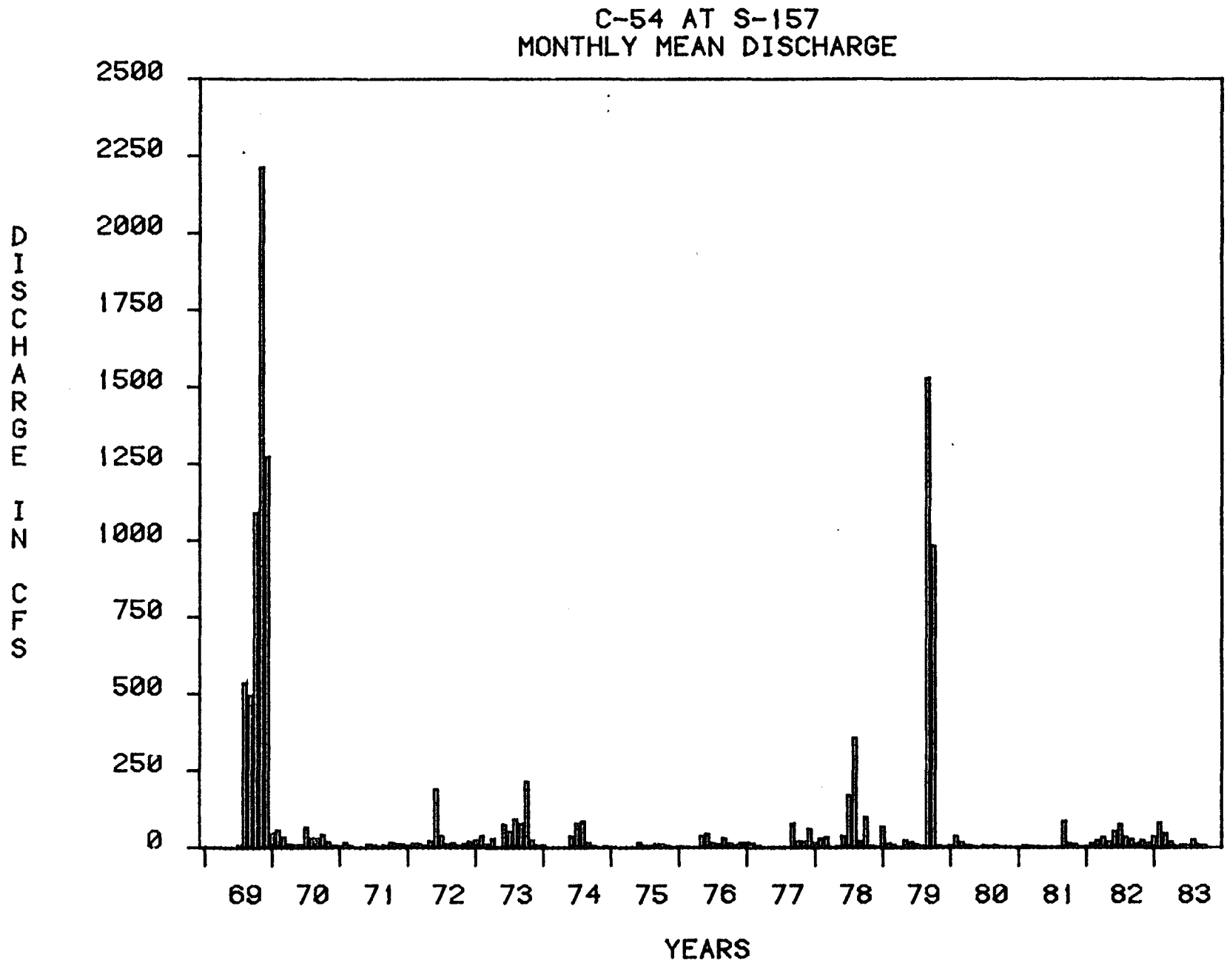


FIGURE 11. Monthly Mean Discharge of C-54.

TABLE 5. Monthly Mean Discharge of C-1 Canal at MS-1 (in cfs).

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANNUAL
1956	43	36	29	38	43	43	56	58	145	931	366	136	160
1957	106	52	108	82	104	86	119	154	195	135	41	64	104
1958	353	162	250	105	40	33	45	58	56	87	51	41	107
1959	67	85	275	93	52	326	147	120	172	311	112	64	152
1960	42	98	478	102	136	396	517	209	770	655	81	44	319
1961	67	48	42	52	32	38	105	44	57	40	35	31	49
1962	30	27	36	24	19	31	109	297	436	104	57	35	100
1963	40	128	106	34	35	66	72	86	337	197	187	91	115
1964	168	205	55	30	39	59	35	180	483	135	56	59	125
1965	38	49	52	44	23	115	123	73	35	76	107	44	65
1966	133	232	136	38	52	477	208	282	151	331	57	48	179
1967	45	68	43	34	28	132	376	285	86	70	36	44	82
1968	42	43	40	38	92	1015	-	-	-	-	-	-	-
1977	-	-	75	38	41	166	96	126	312	230	238	370	169
1978	175	216	226	79	87	197	270	384	127	153	131	89	178
1979	340	112	70	34	181	108	118	161	621	219	114	92	181
1980	128	174	109	87	94	65	76	60	80	72	65	88	92
1981	80	77	90	78	107	123	132	231	354	324	211	195	167
1982	186	195	207	204	-	635	406	161	194	118	156	82	231
1983	211	497	318	184	107	170	119	219	226	210	148	260	222
MEAN	121	132	137	71	69	214	165	168	247	232	119	99	148

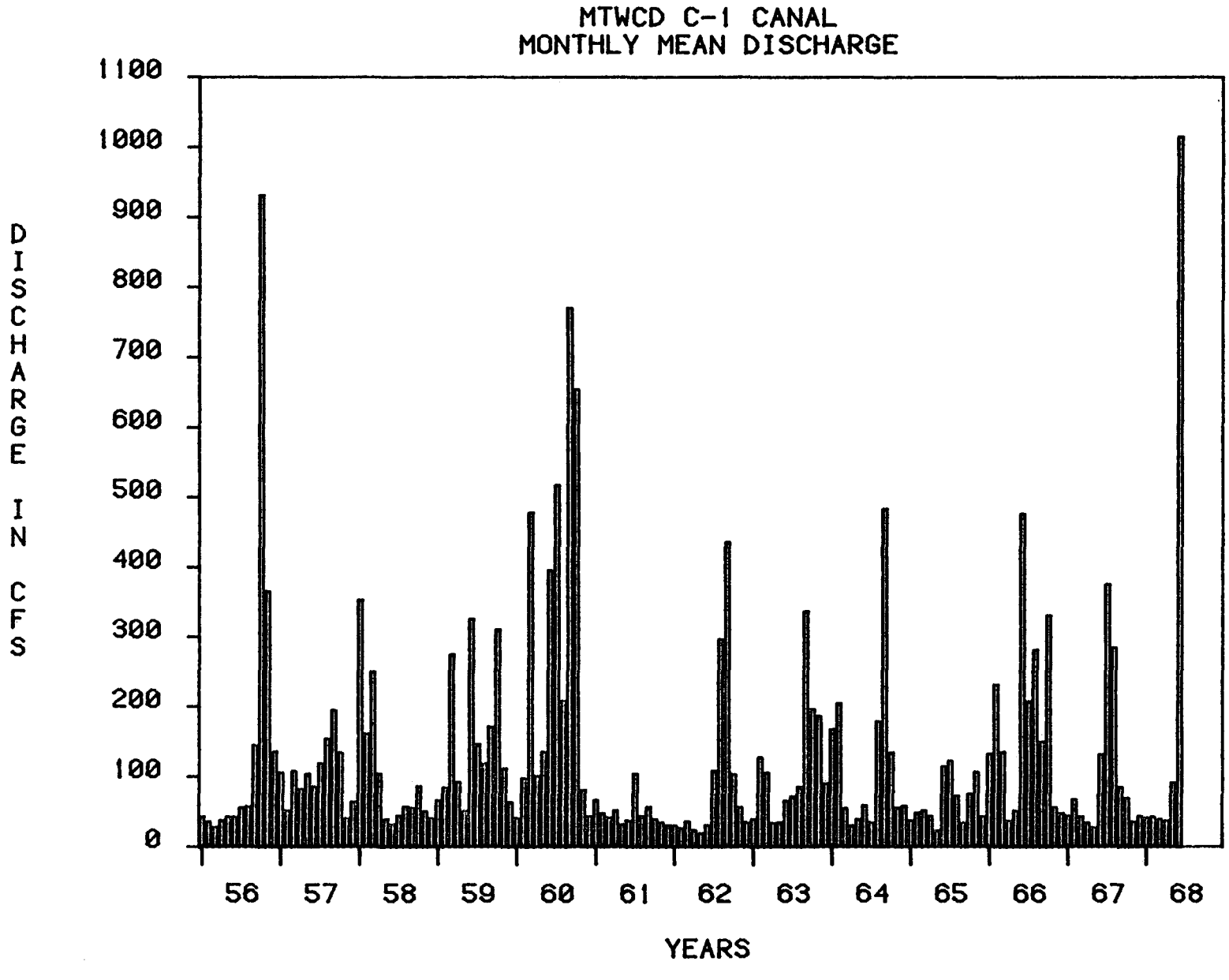


FIGURE 12A. Monthly Mean Discharge of C-1 (1956-1968).

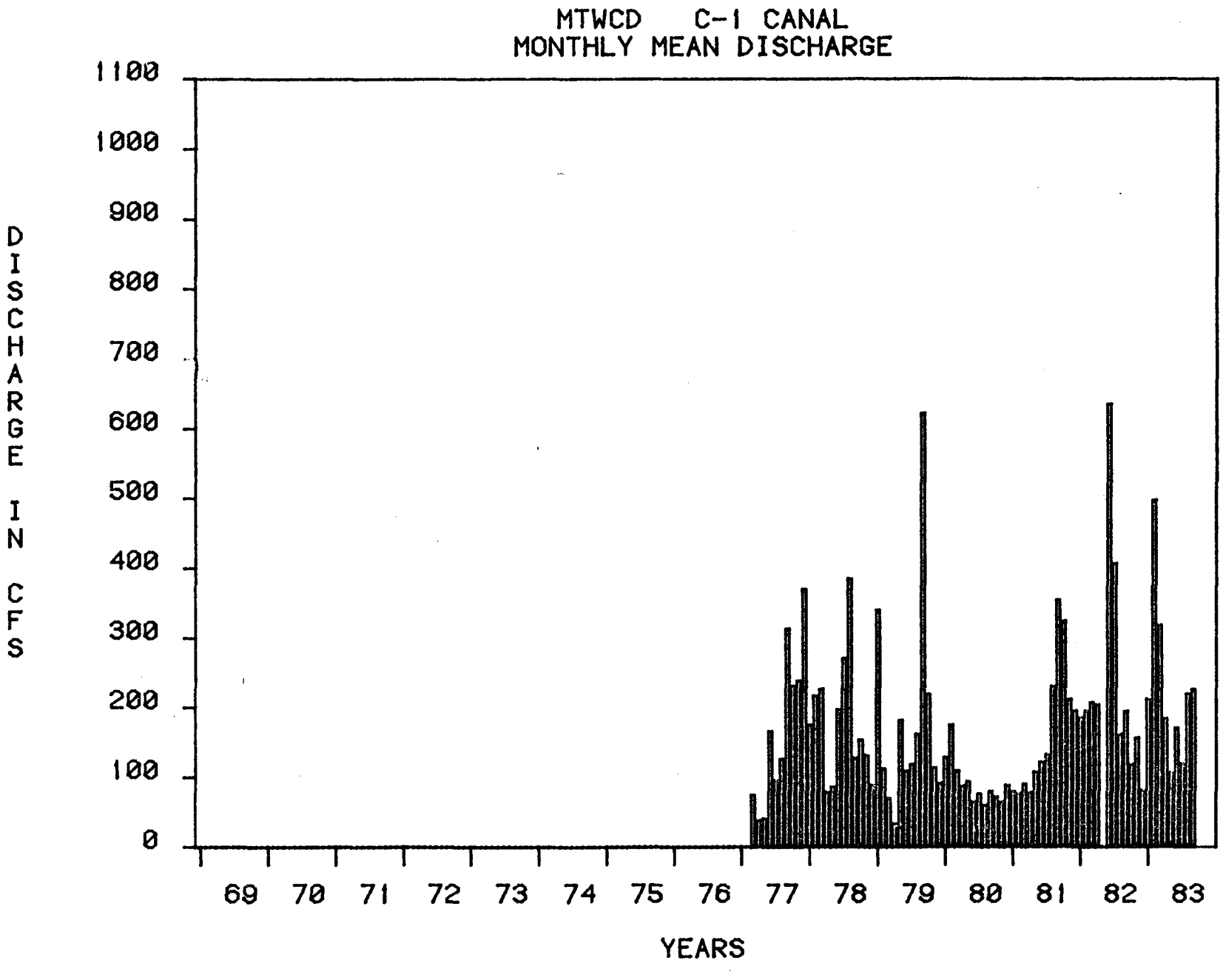


FIGURE 12B. Monthly Mean Discharge of C-1 (1977-1983).

Flow Data Analysis. The maximum recorded daily mean discharge in MTWCD C-1 Canal was 2,500 cfs on October 16, 1956 following a two day rainfall of 5.76 inches. The minimum recorded daily mean discharge was 15 cfs (May 27-28, 1962). The average discharge for the period of record was 147 cfs. An analysis of the monthly flow data for MTWCD C-1 Canal indicated that over the period of record the average annual wet season (June to October) discharges ranged from 56 cfs to 509 cfs while the average annual dry season (November-May) discharges ranged from 29 cfs to 204 cfs.

Rainfall-Runoff Relation. The total annual runoff is given as a function of total annual rainfall in Figure 13. Over the period of record, the average rainfall over MTWCD was 48.77 inches while the average runoff through C-1 Canal was 20.03 inches, giving a ratio of runoff to rainfall of 0.41 for the period of record. The runoff-rainfall ratio was 0.41 for both the rainy season and dry season. This indicates that rainfall-runoff characteristics of this area remain nearly the same in both the rainy season and dry season. Runoff-rainfall ratios are highly variable for different individual storm events and ranged from 0.13 to 0.88. This variation can be attributed to differences in soil moisture at the time of the storm and the areal rainfall distributions.

Comparison of Flow Data Over Period of Record. In Figure 13, two regression lines are shown: one fit to the data for the period of record, and one fit to the data for the period from 1978 to 1983. Although a rigorous statistical analysis was not

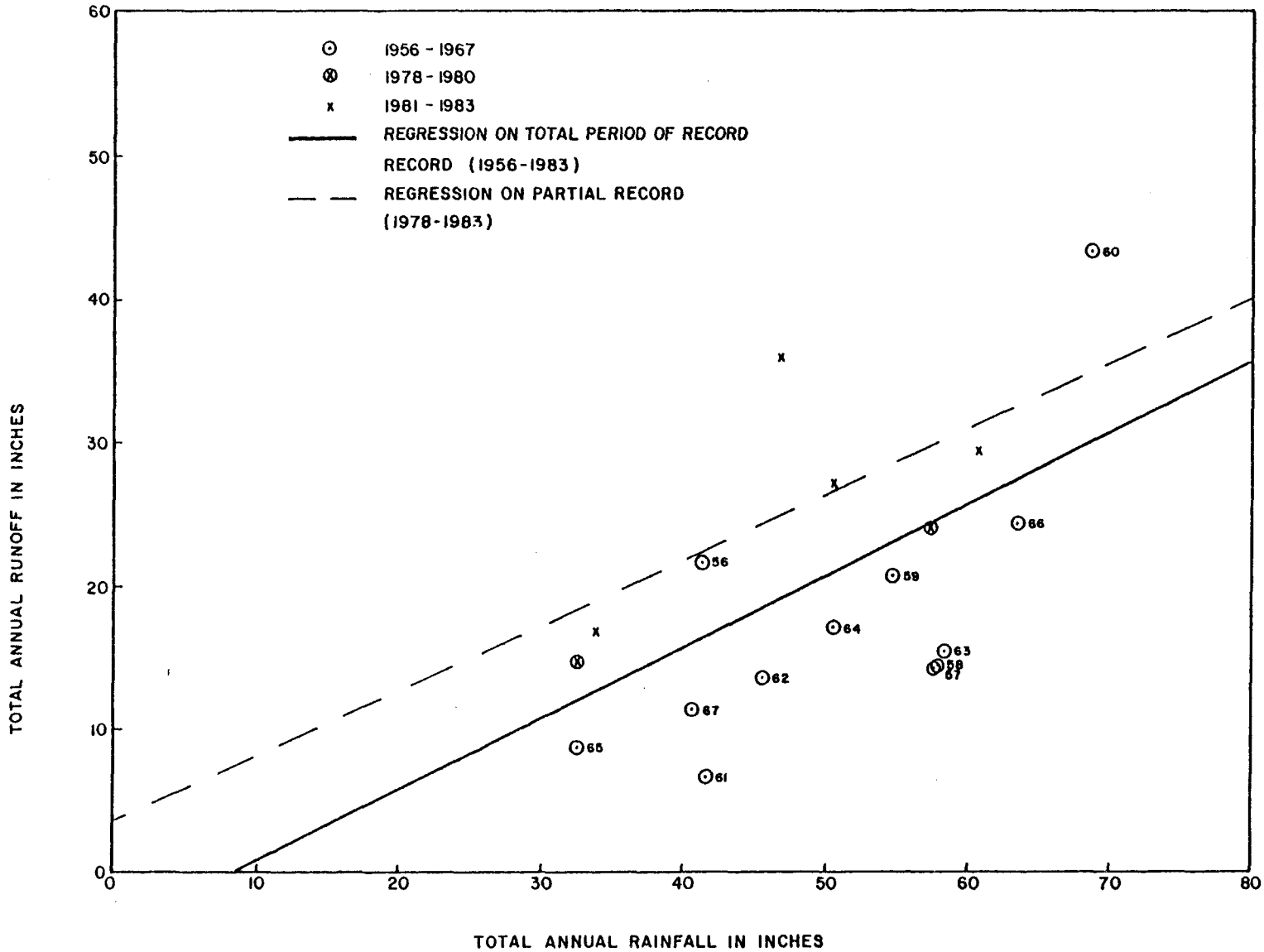


FIGURE 13. Rainfall-Runoff Relationship in C-1 Drainage Basin.

carried out, the difference in the two regresion lines is indicative of a shift in the rainfall-runoff ratio for the basin. During the period from 1956-68, runoff and rainfall has averaged 17.69 inches and 51.07 inches, respectively, a runoff-rainfall ratio of 0.35. Since 1977, runoff and rainfall has averaged 24.77 inches and 47.01 inches, respectively, a runoff-rainfall ratio of 0.53, possibly as a result of increased drainage efficiency due to recent development. This increase in the runoff-rainfall ratio can be explained by urbanization within the MTWCD C-1 drainage basin since the early period of record.

Low flows have also increased significantly between the 1956-68 record and the record since 1977, especially since MS-1 became operational in November 1980. For the period from 1956-1968 the mean annual low monthly mean discharge averaged 34 cfs and was never above 60 cfs. Since 1977, however, mean annual low monthly mean discharge has averaged 68 cfs while falling below 60 cfs only twice, both of which being before MS-1 became operational. Monthly mean discharge has not fallen below 76 cfs in MTWCD C-1 Canal since MS-1 became operational.

Crane Creek and Sottile Canal

Periodic flow measurements on Crane Creek at US 192 since July 1981 are given in Table 6. The average of these flow measurements is 10 cfs. However, because of the small number of samples, the 10 cfs average is not necessarily the average flow of Crane Creek, but is indicative of the magnitude of diversion flows in Crane Creek.

Table 6. Steam flow measurements for Sottile Canal and Crane Creek (in CFS)

Date	Sottile Canal	Crane Creek
3-19-81	3.69	8.56
4-6-81	1.91	
5-11-81	0.82	
6-2-81	3.10	
7-1-81	3.08	
7-15-81	0.86	
7-28-81	3.00	8.74
9-11-81	43.58	11.97
1-4-82	10.35	8.65
10-25-82	7.2	11.5
1-22-83	4.35	7.16
7-25-83	51.01	11.00

Flow measurements taken on Sottile Canal at SR-507 since April 1981 are also given in Table 6. The average of all flow measurements taken during the 1980-81 drought was 3.2 cfs and the average for measurements after July 1981 was 28 cfs. As with Crane Creek, these averages only indicate the magnitude of base flow in Sottile Canal and do not necessarily represent the average discharge.

DISCUSSION

A summary of the average interbasin flows for each of the major canals is given in Table 7. A comparison of the average flows indicates that while diversion from the USJRB does occur north of US 192, it is insignificant compared to the diversion occurring south of US 192. South of US 192, the average diversion flow is 350 cfs (225 mgd). During the wet season the diversion increases to an average 485 cfs (314 mgd). Even during the dry season diversion continues to occur at an average flow of 257 cfs (166 mgd). This continued flow during the dry season is particularly indicative of the adverse impact that interbasin diversion has on maintaining low flows in the St. Johns River.

A comparison of the flows given in Table 7 indicates that the average daily flows in MTWCD C-1, Fellsmere Main and C-54 (at S-157) were 42%, 38% and 20%, respectively, of the total average daily flow diverted from the Basin south of US 192, excluding Sotille Canal. During the dry season, when these diversions often have the greatest impact on the St. Johns River system, each of the three canals provided approximately the same percentage (as given above). However, there were long periods of little or no diversion through C-54, while diversion flows in MTWCD C-1 and Fellsmere Main continued on a more consistent basis. Based on this comparison of the magnitude and consistency of diversion flows during the dry season, MTWCD C-1 and Fellsmere Main have a greater impact on the flows in the St. Johns River than C-54.

TABLE 7. Summary of Interbasin Diversion Flows for Period of Record.

Canal	Avg. Daily Mean Flow (cfs)	Wet Season Avg. Daily Mean Flow (cfs)	Dry Season Avg. Daily Mean Flow (cfs)	Historic Daily Mean High Flow (cfs)	Historic Daily Mean Low Flow (cfs)
Fellsmere Main at Weir	133	177	102	2030	23
C-1 at MS-1	147	205	105	2500	15
C-54 at S-157	70	103	50	3582	0
Sottile	30*	-	-	-	-
Crane Creek	10*	-	-	-	-

*Average of miscellaneous discharge measurements.

The possible benefits of returning diversion flows in MTWCD C-1 and Fellsmere Main can be evaluated by comparing diversion flows to the flow in the St. Johns River at US 192 during the severe drought that occurred during 1980 and 1981. During this period, critical low stages in Lake Washington severely reduced the potable water supply in Lake Washington which is used by the City of Melbourne. During the 14-month period (June 1980 to July 1981) preceeding the occurrence of critical low stages in Lake Washington, the average daily mean flow and minimum monthly mean flow at US 192 was 97.5 cfs and 10.9 cfs, respectively. During this same period, the average daily mean diversion flows in MTWCD C-1 and Fellsmere Main was 71 cfs and 85 cfs, respectively, while the minimum monthly mean flows were 27 cfs and 19 cfs, respectively.

If 65% of the combined diversion flows in Fellsmere Main and MTWCD C-1 were returned to the St. Johns Marsh, an average daily flow of about 100 cfs would be added to the St. Johns River between Fellsmere Grade and US 192 during the 14-month period in which the average flow at US 192 was 97.5 cfs. This comparison indicates that a flow recapture system for return of interbasin diversion in MTWCD C-1 and Fellsmere Main Canal could increase flow in the St. Johns River significantly during extended drought periods.

REFERENCES

1. Clawson, James P. and Telfair, John S., Jr. A Preliminary Engineering Study of Flood and Water Control Problems in the Upper St. Johns River Basin, Florida. West Palm Beach, Florida: C&SFFCD 1956.

2. U. S. Army Corps of Engineers. Flood Hazard Information, Brevard County, St. Johns River. Jacksonville, Florida, 1976.

3. St. Johns River Water Management District (SJRWMD), Upper St. Johns River Basin Surface Water Management Plan: Phase I Report (Volumes 1 and 2). Palatka, Florida, 1979.

4. St. Johns River Water Management District (SJRWMD), A Study of Water Resources Management System (Flow Recapture System) for Interbasin Diversion Canal: Part I and II. Palatka, Florida, October 1981.

APPENDICES

BACKGROUND AND JUSTIFICATION

During the drought of 1980-81, the City of Melbourne expressed a concern to the SJRWMD about the extremely low water storage in Lake Washington. As a result of this concern, the District has studied alternatives for returning a portion of the interbasin diversion flow from C-1 and Fellsmere Main canals to the St. Johns River during periods of low flow conditions.

Based on the data presented in this report, it was concluded that substantial quantities of water were diverted from the Upper St. Johns Basin by Fellsmere Main and C-1 canals. Returning a portion of this water into the St. Johns River Basin during the dry season can augment low flows in the St. Johns River from Fellsmere Grade to Lake Washington. This would increase the water supply available to the City of Melbourne during drought periods.

Minimum mean monthly flows in C-1 and Fellsmere Main canals from June 1980 to July 1981 were 65 cfs and 44 cfs, respectively. The average flow from C-1 and Fellsmere canals during this period was 85 cfs and 71 cfs, respectively. Assuming that 35% of the flow in these canals is needed to maintain environmental benefits downstream of the canals, approximately 55 cfs from C-1 Canal and 45 cfs from Fellsmere Canal can be returned to the St. Johns River Basin on average over this 14-month period.

The historical minimum mean monthly flow from C-1 and Fellsmere Main canals was 19 cfs and 27 cfs, respectively. This indicates that during severe dry periods the amount of water available for recapture from C-1 and Fellsmere Main canals could

fall to 30 cfs or lower based on the assumption that 35% of the flow is needed for downstream uses.

The St. Johns River at US 192 had minimum mean monthly flow of 10.9 cfs and an average flow of 97 cfs for the period from June 1980 through July 1981. The amount of water available in these diversion canals for recapture is significant in comparison with the flows in the St. Johns River at US 192 during this period. The minimum monthly flow for the St. Johns River at US 192 was 10.9 cfs while the combined minimum monthly flow being diverted through Fellsmere and C-1 canals was 109 cfs. Based on the assumption given above, the average flow of 100 cfs which could be returned to the marsh would be as great as the average flow in the St. Johns River at US 192 during the drought period.

DESCRIPTION OF FLOW RECAPTURE SYSTEM

Fellsmere Water Control District

According to an agreement with FWCD (Appendix K), the diversion flows will be returned to the St. Johns River from Fellsmere Main Canal by building an extension onto the existing fixed crest weir at the eastern terminus of Fellsmere Canal as detailed in Exhibit E. This extension will have a crest elevation of 5 feet above msl. A 20,000 gpm pump station will be built immediately east of I-95 (located as shown in Exhibit A) to pump water from Fellsmere Canal into C-54. Another 20,000 gpm pump station will also be built at the S-96 Structure (located as shown in Exhibit A) to pump water from C-54 back into the St. Johns River. Designs for these pump stations are shown on Exhibit F and Exhibit G, respectively.

Melbourne Tillman Water Control District

According to an agreement with MTWCD (Appendix K), water will be returned to the St. Johns River from C-1 Canal by excavating a short canal to the MTWCD levee, as shown in Exhibit H. A 20,000 gpm pump station will be built at the end of this canal to pump water over the MTWCD levee into C-40 Canal where it will be released into the St. Johns River (detailed in Exhibit H).

IMPLEMENTATION PROCEDURES

According to agreements between the SJRWMD and FWCD, MTWCD and the City of Melbourne (Appendix K), the process to implement the temporary flow recapture system will begin when surface water levels in Lake Washington fall below 12 feet above msl. At this time, the SJRWMD will implement the following procedures to construct the temporary flow recapture system:

1) SJRWMD Governing Board authorization for construction of project.
2) After authorization by Governing Board, SJRWMD will receive and award bids for construction of pump stations.
3) Pump stations will be constructed after awarding of bid.
4) Also immediately after Governing Board authorization of project, the SJRWMD Field Service Division will begin construction of weir extension in the FWCD and dredging of canal in MTWCD.
5) Upon completion of project works (approximately 50 days) FWCD and MTWCD will inspect appropriate project construction.
6) FWCD and MTWCD will give final approval of the project.
7) SJRWMD will evaluate water quality of water to be pumped into St. Johns River Marsh.
8) SJRWMD Governing Board give approval for operation of flow recapture system when water level in Lake Washington falls below 11 feet above msl.

EVALUATION OF BENEFITS

During the 1980-81 drought, minimum mean monthly discharges from C-1, C-54 and Fellsmere main canals were 65 cfs, 0 cfs and 44 cfs, respectively. During this same period, the minimum monthly mean flow for the St. Johns River at US 192 was 11 cfs and the minimum stage for Lake Washington was 11.48 feet above msl.

Since the current agreement with FWCD, MTWCD and the City of Melbourne states that water will only be pumped when the surface water level in Lake Washington falls below 11 feet above msl, no water would have been pumped from interbasin diversion canals during the 1980-81 drought. Since a more severe drought would be needed to implement this temporary flow recapture system, flows in C-1 and Fellsmere main canals would be expected to be less than the 1980-81 flows when this recapture system would be implemented. However, even during a more severe drought than occurred in 1980-81, the amount of water available for recapture could still be significant compared to flow in the St. Johns River. For example, the historic low daily mean flow from C-1 and Fellsmere main canals are 19 cfs and 27 cfs, respectively. These diversion flows would be significantly greater than the flows that would be expected to occur in the St. Johns River when Lake Washington stage falls as low as 11.0 ft. msl - a historical return frequency of approximately every 10 years. The 30-day average low for a 10-yr return frequency at US 192 is 1.5 cfs. In addition, water storage and flow in C-1 under existing conditions is expected to increase over historic conditions during

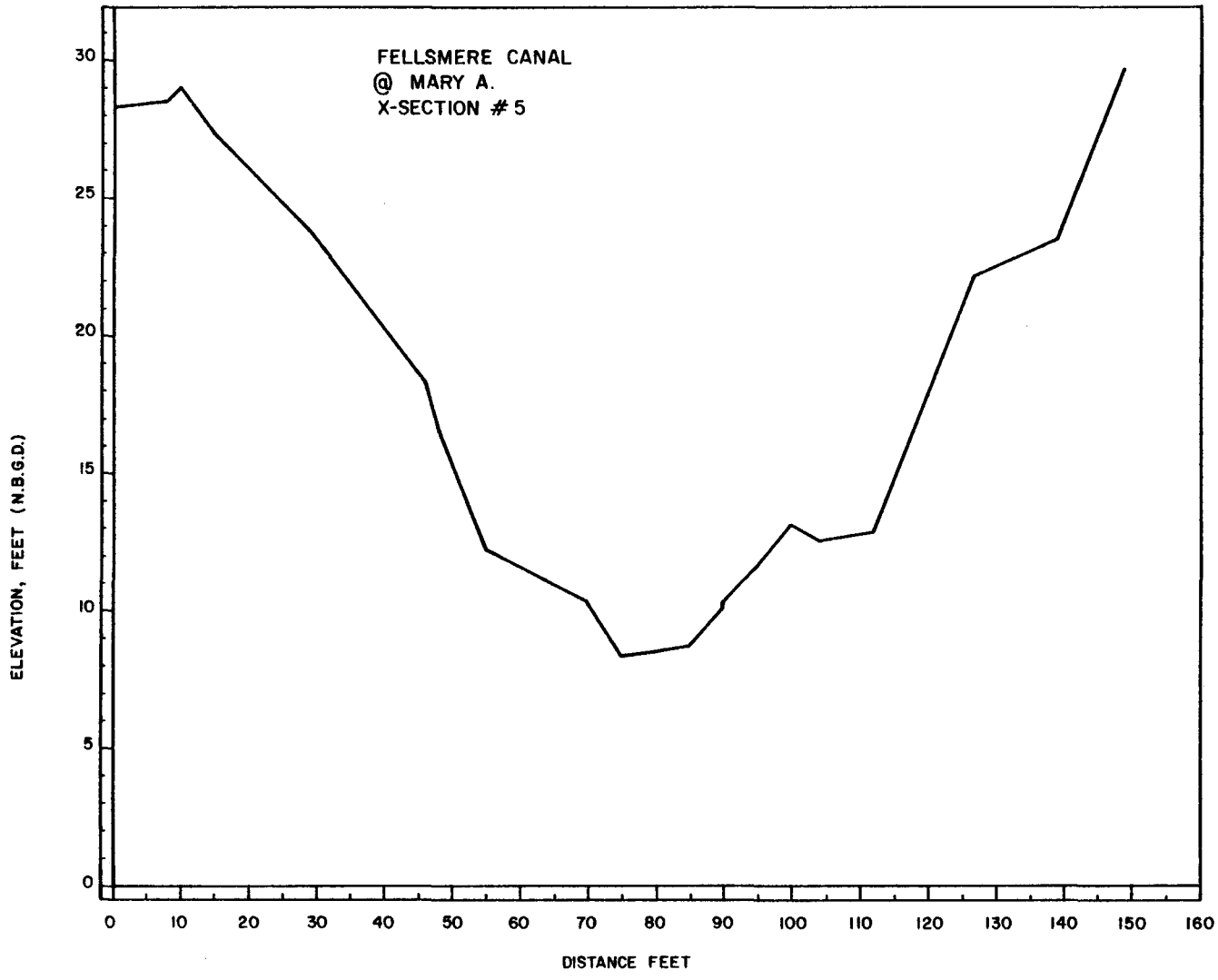
extreme drought conditions as a result of the construction and operation of MS-1.

APPENDIX A

CROSS-SECTIONS

FOR

FELLSMERE CANAL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@ MARY A.
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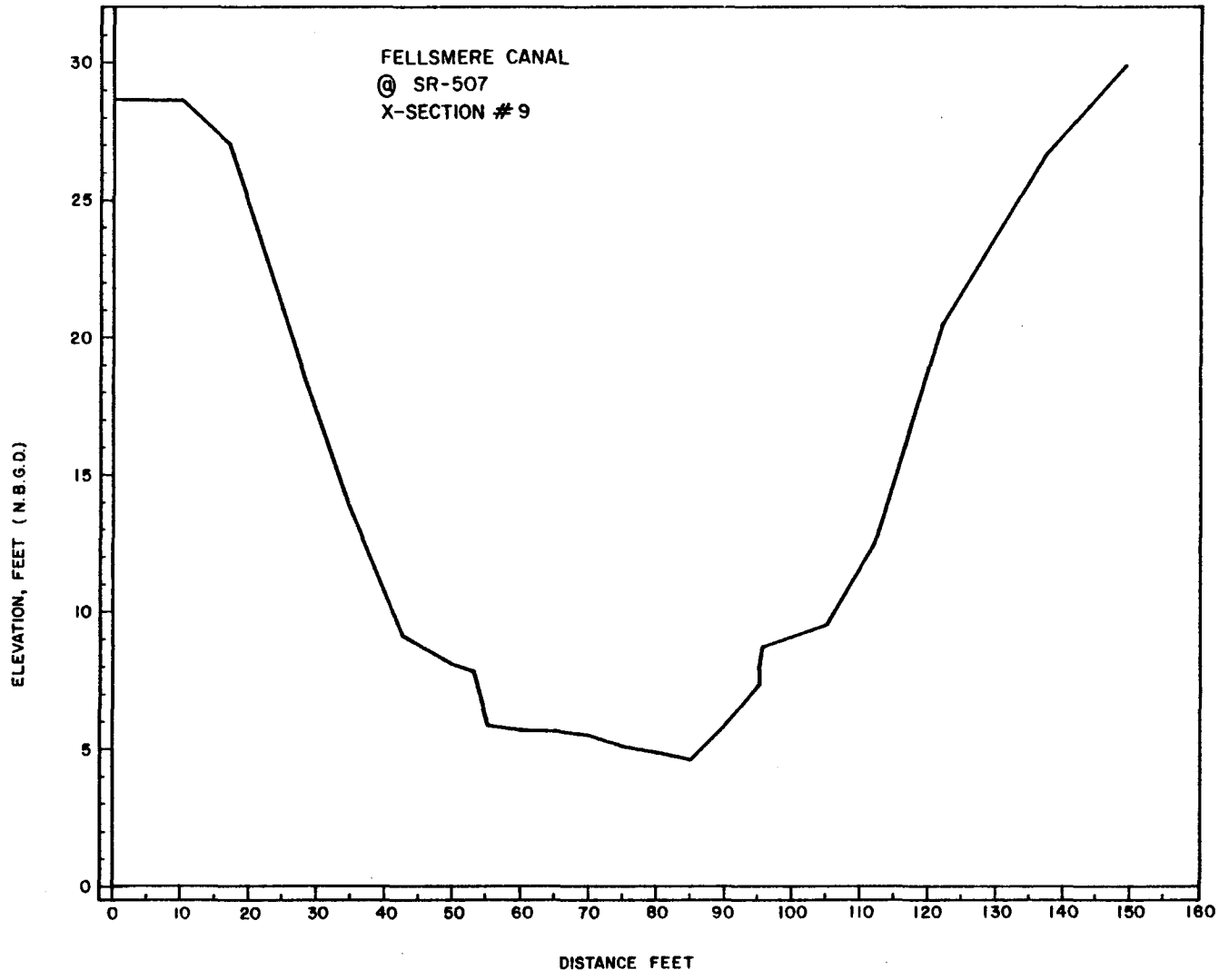
DISTANCE FEET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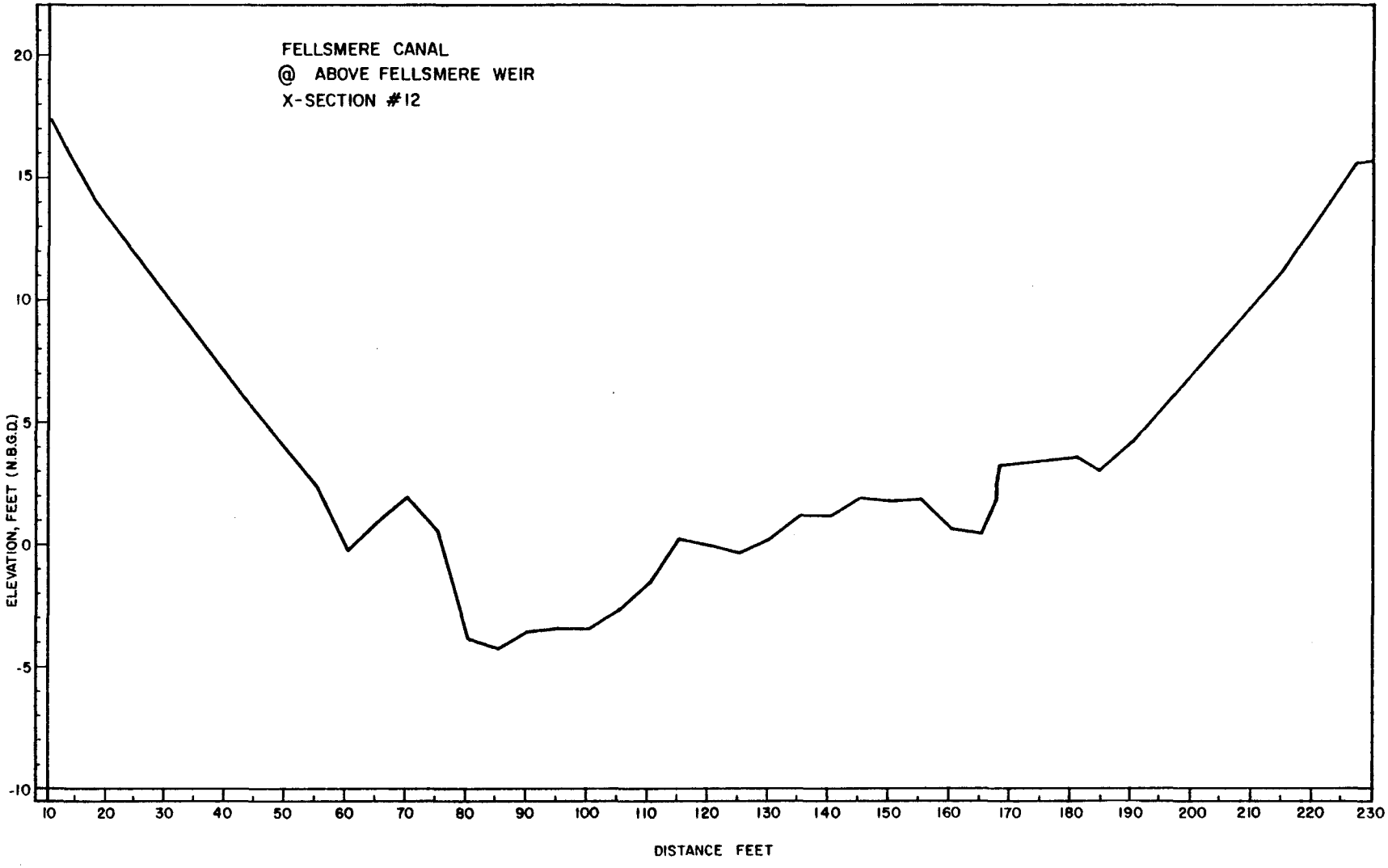
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@ ABOVE FELLSMERE WEIR
X-SECTION #12
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40
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70
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90
100
110
120
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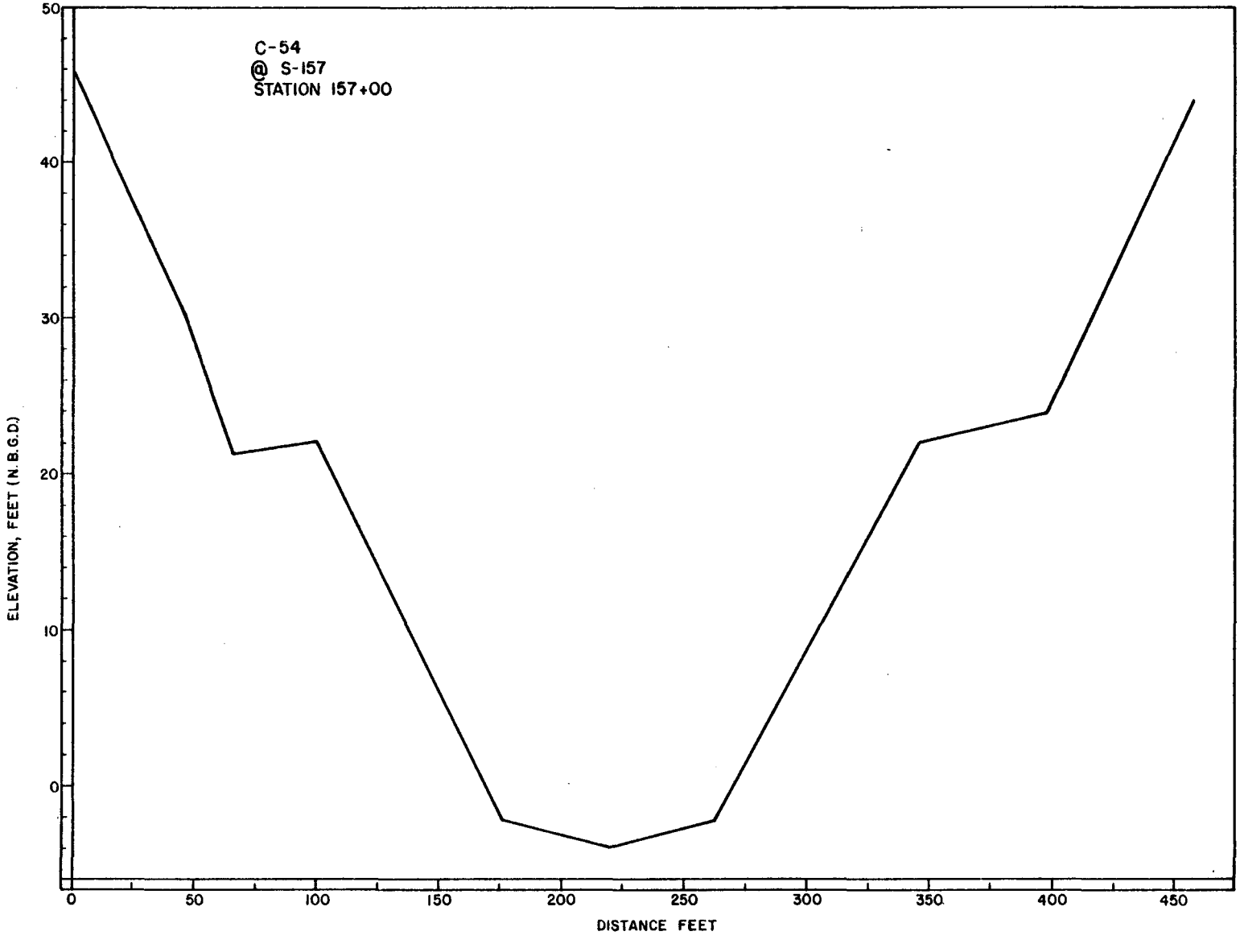
DISTANCE FEET

APPENDIX B

CROSS-SECTIONS

FOR

CANAL 54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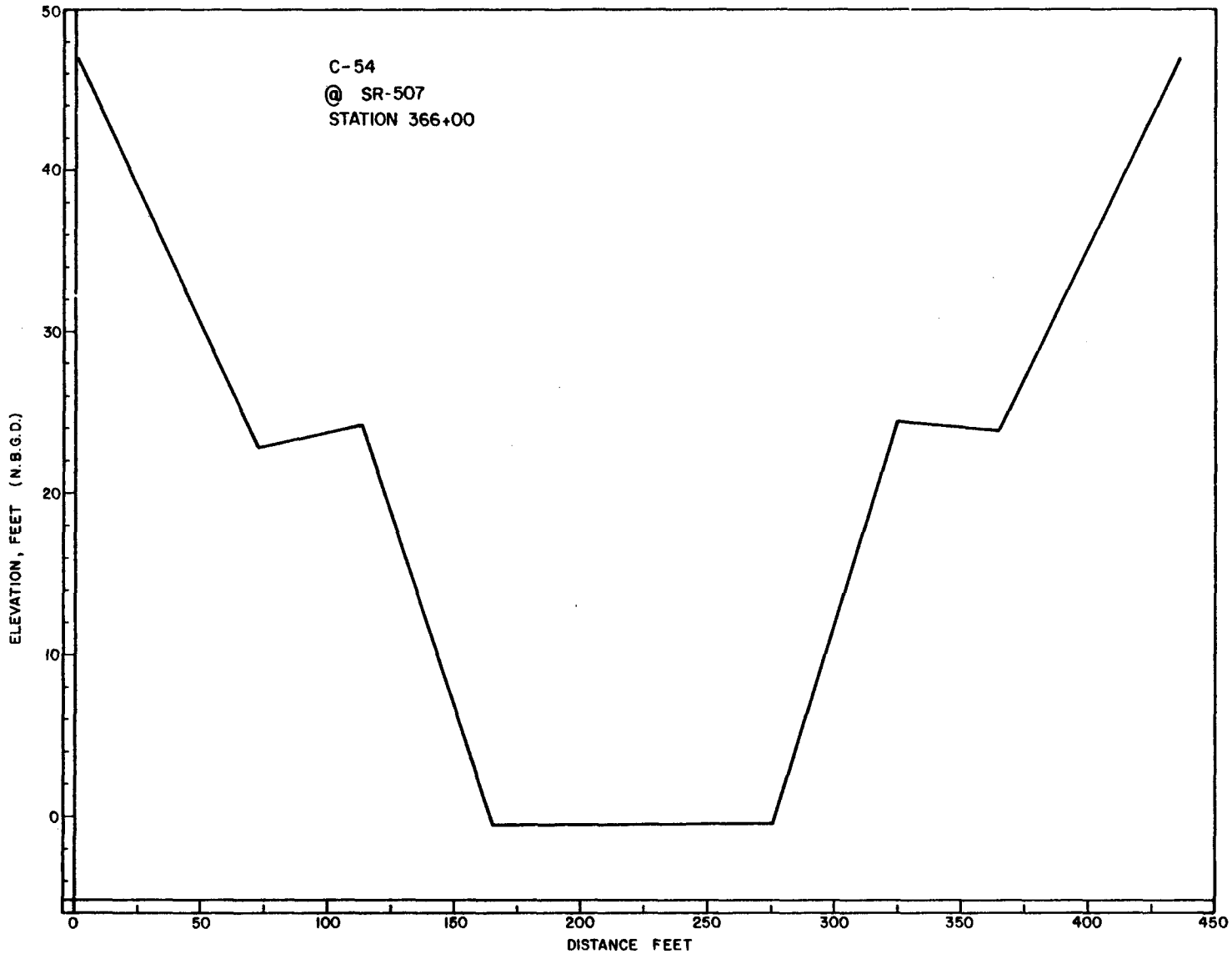
DISTANCE FEET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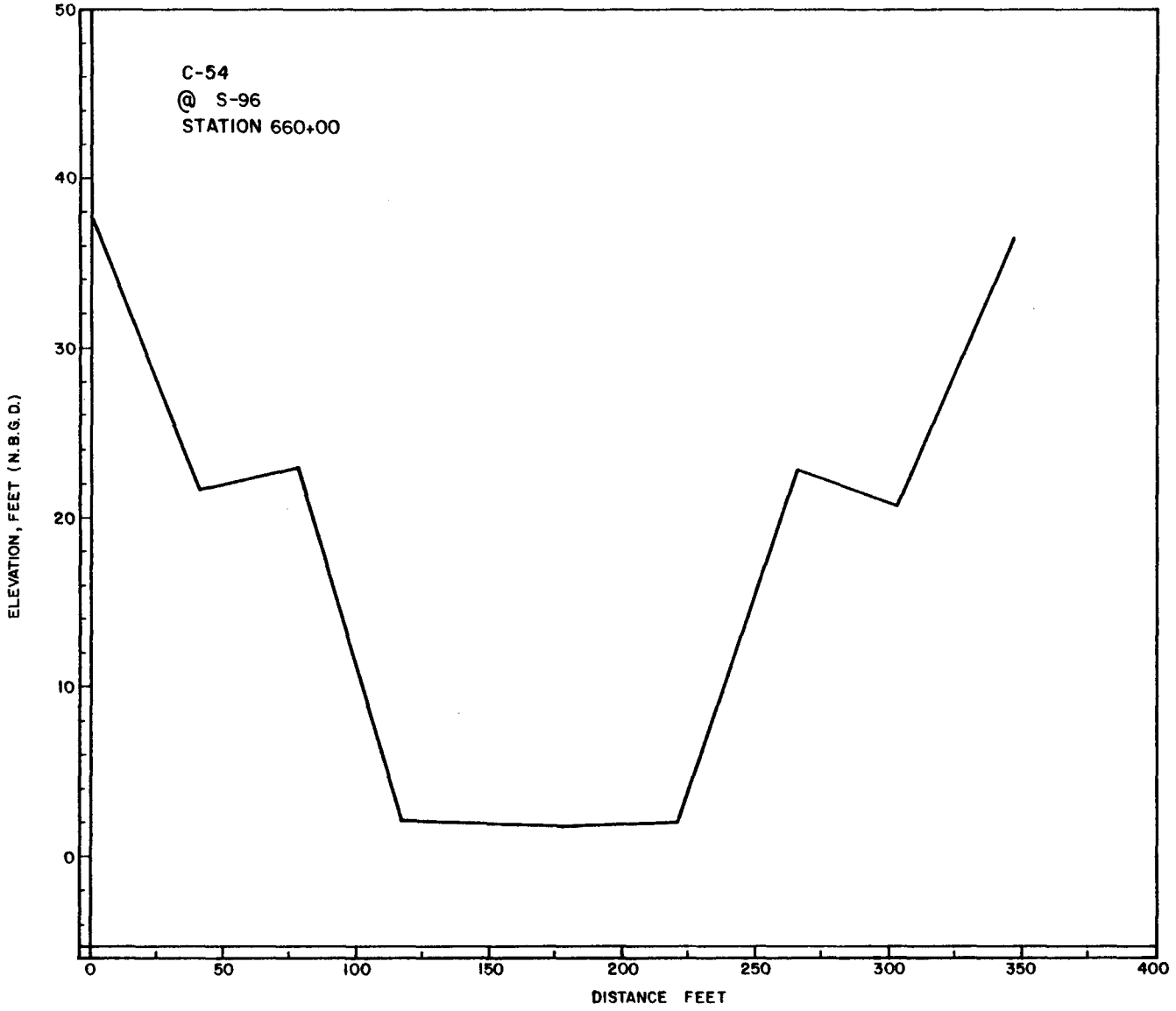
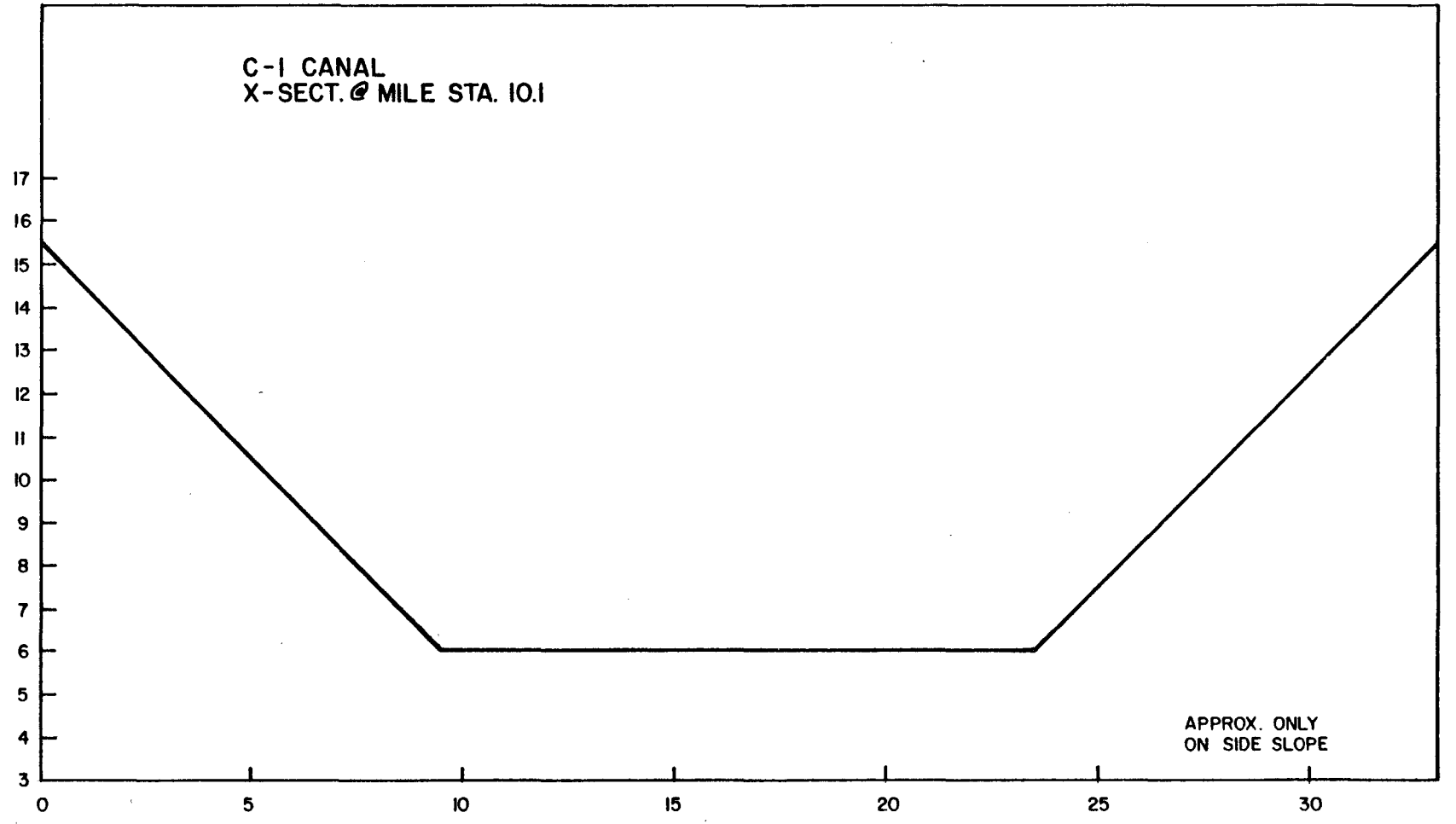

C-54
@ S-96
STATION 660+00
ELEVATION, FEET (N.B.G.D.)
50
40
30
20
10
0
0
50
100
150
200
250
300
350
400
DISTANCE FEET

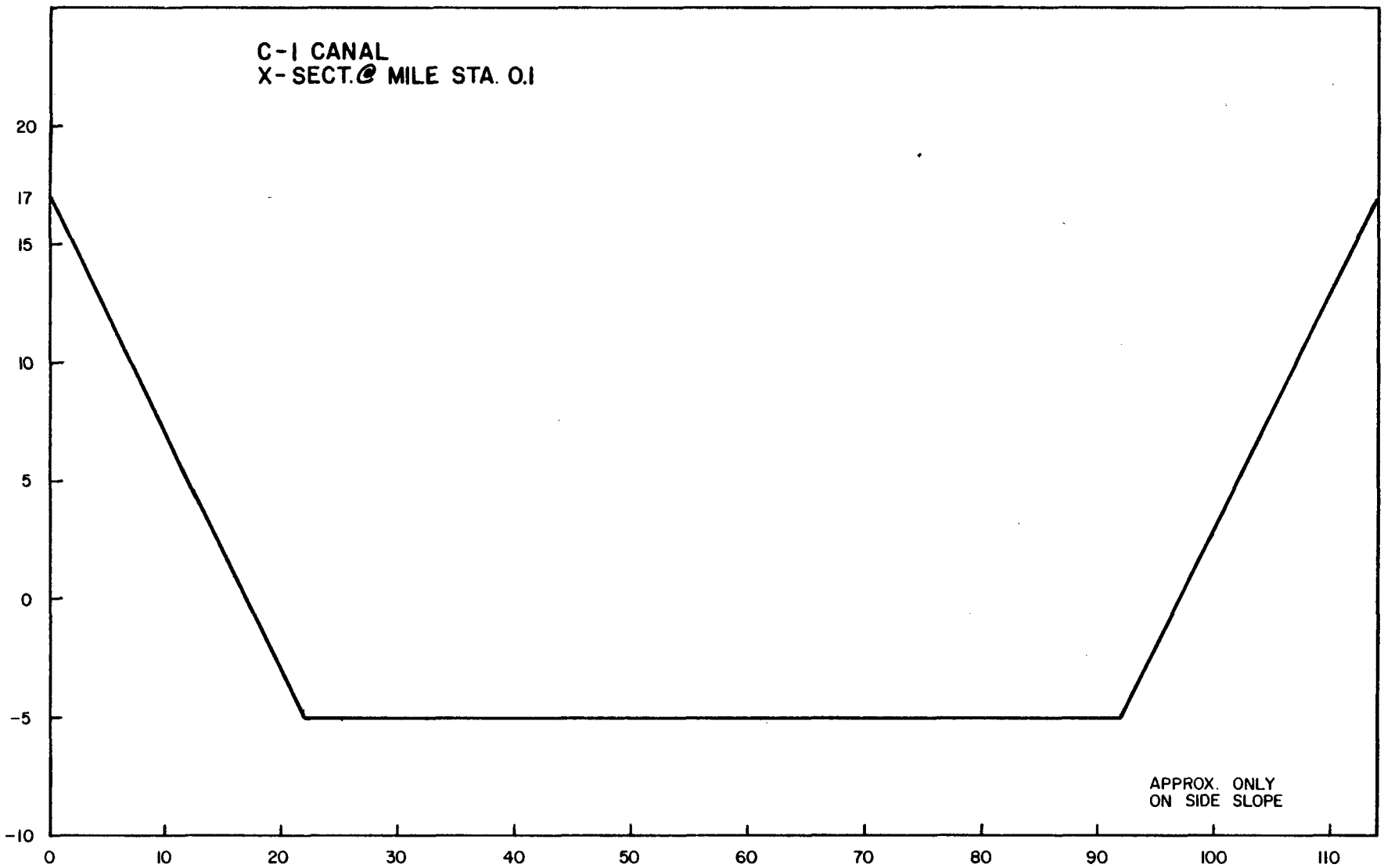
APPENDIX C

CROSS-SECTIONS

FOR

MTWCD C-1 CANAL


C-1 CANAL
X-SECT. @ MILE STA. 10.1
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
0
5
10
15
20
25
30
APPROX. ONLY
ON SIDE SLOPE


C-1 CANAL
X-SECT.@ MILE STA. 0.1
20
17
15
10
5
0
-5
-10
0
10
20
30
40
50
60
70
80
90
100
110
APPROX. ONLY
ON SIDE SLOPE

APPENDIX D

DAILY DISCHARGE DATA

FOR

FELLSMERE CANAL

DISCHARGE COMPUTATIONS (CFS) FOR FELLSMERE CANAL FOR 1969

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	93.4	354.2	1214.8	1098.4	176.2
2	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	78.6	328.7	1175.7	806.3	165.4
3	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	76.5	297.8	1962.6	668.3	151.5
4	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	112.7	203.0	2030.7	538.8	148.1
5	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	172.6	151.5	1770.2P	405.1	144.8
6	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	181.9	138.3	0.0M	302.1	135.1
7	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	475.3	161.5	0.0M	248.4	131.9
8	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	421.3	403.8	0.0M	217.9	131.9
9	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	641.8	415.2	739.1P	214.3	131.9
10	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	462.0	331.8	628.1	203.0	239.4
11	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	758.6	225.4	533.9	191.3	519.2
12	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	753.0	179.9	495.1	183.7	410.1
13	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	545.9	144.8	439.1	179.9	315.3
14	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	500.6	125.7	375.5	305.1	248.4
15	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	489.4	112.7	310.9	420.3	214.3
16	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	546.4	106.0	264.4	324.2	207.0
17	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	421.3	96.5	232.9	276.7	191.3
18	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	241.2	93.4	217.9	252.4	172.6
19	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	224.8	90.4	221.6	225.4	161.8
20	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	195.1	96.5	217.9	199.1	151.5
21	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	148.1	183.0	214.3	183.7	151.5
22	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	138.3	255.4	214.5	179.9	158.4
23	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	321.7	437.7	493.2	176.2	165.4
24	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	302.1	557.9	659.1	169.0	165.4
25	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	390.1	416.4	443.7	165.4	151.5
26	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	412.7	272.6	425.5	161.8	148.1
27	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	241.3	203.0	519.2	161.8	148.1
28	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	169.0	169.0	400.1	179.9	138.3
29	0.0M		0.0M	0.0M	0.0M	0.0M	0.0M	135.1	685.9	1266.5	210.6	135.1
30	0.0M		0.0M	0.0M	0.0M	0.0M	87.4P	122.6	1469.0	1576.1	195.1	131.9
31	0.0M		0.0M		0.0M		106.0	224.0		1100.5		138.3
MEAN	0.0P	0.0P	0.0P	0.0P	0.0P	0.0P	96.7P	322.5	290.2	719.4P	301.5	186.4

M=MISSING DATA
P=PARTIAL MEAN

DISCHARGE COMPUTATIONS (CFS) FOR FELLSMERE CANAL FOR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	138.3	148.1	125.7	187.4	122.6	158.4	131.9	102.8	116.1	542.6	85.2	78.6
2	138.3	151.5	122.6	169.0	135.1	179.9	122.6	93.4	96.5	324.4	78.6	116.1
3	191.0	204.9P	119.6	151.5	131.9	165.4	109.3	85.2	85.2	297.8	74.4	83.0
4	310.9	0.0M	119.6	158.4	128.8	148.1	115.9	70.3	80.8	356.4	68.3	80.8
5	252.4	356.4	125.7	172.6	135.1	158.4	373.8	76.5	76.5	310.9	62.4	76.5
6	260.9	276.7	135.1	172.6	125.7	165.4	390.2	93.4	96.5	252.4	56.7	76.5
7	533.3	240.6	131.9	158.4	109.3	165.4	361.1	102.8	99.6	232.9	56.7	66.3
8	416.4	221.6	144.8	138.3	106.0	154.9	260.3	102.8	83.0	214.3	56.7	56.7
9	293.5	199.1	148.1	135.1	112.5	141.5	187.4	112.1	74.4	176.2	53.0	58.5
10	236.7	183.7	151.5	128.8	135.1	138.3	187.4	380.4	66.3	141.5	53.0	54.8
11	225.4	172.6	154.9	125.7	135.1	135.1	212.4	435.1	64.3	119.6	46.0	60.4
12	207.0	165.4	187.4	122.6	99.6	131.9	557.8	263.7	60.4	90.4	56.7	62.4
13	191.3	158.4	195.1	122.6	93.4	128.8	586.2	163.3	58.5	85.2	62.4	62.4
14	198.6	154.9	176.2	125.7	93.4	125.7	460.1	131.9	73.8	76.5	64.3	72.3
15	425.1P	148.1	151.5	135.1	93.4	119.6	347.0	99.6	150.3	68.3	62.4	64.3
16	0.0M	148.1	138.3	122.6	90.4	163.3	289.3	87.4	183.7	70.3	60.4	62.4
17	0.0M	148.1	138.3	90.4	93.4	116.1	280.8	78.6	144.8	82.3	60.4	60.4
18	0.0M	169.0	138.3	87.4	102.8	102.8	248.4	72.3	116.1	106.0	60 4	53.0
19	324.1	165.4	125.7	85.2	106.0	96.5	195.1	56.7	116.1	93.4	60.4	47.7
20	430.0	154.9	119.6	143.6	102.8	78.6	232.9	56.7	128.8	85.2	70.3	47.7
21	347.0	144.8	122.6	165.4	106.0	83.0	347.0	63.7	112.7	78.6	76.5	49.5
22	293.5	138.3	138.3	141.5	109.3	85.2	370.7	78.6	96.5	78.6	80.8	47.7
23	256.3	131.9	154.9	116.1	106.0	98.3	405.1	76.5	85.2	78.6	83.0	53.0
24	229.1	131.9	141.5	109.3	227.7	212.9	315.3	160.9	76.5	78.6	70.3	80.8
25	229.1	126.8	142.1	109.3	615.3	179.4	236.7	488.6	74.4	72.3	80.8	93.4
26	203.0	128.8	531.6	112.7	571.4	650.6	179.9	537.2	96.5	68.3	106.0	93.4
27	187.4	135.1	651.4	119.6	443.6	482.5	151.5	370.3	106.0	64.3	131.9	83.0
28	179.9	131.9	466.7	119.6	380.3	293.5	138.3	252.3	99.6	60.4	128.8	74.4
29	169.0		347.0	119.6	319.7	199.1	125.7	214.3	151.6	58.5	93.4	64.3
30	165.4		264.4	122.6	248.4	148.1	116.1	183.7	550.2	62.4	85.2	53.0
31	154.9		217.9		183.7		109.3	141.5		78.6		47.7
MEAN	263.8P	171.8P	194.5	132.3	179.5	173.6	262.8	168.8	114.0	145.4	72.8	67.1

M=MISSING DATA
P=PARTIAL MEAN

DISCHARGE COMPUTATIONS (CFS) FOR FELLSMERE CANAL FOR 1971

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	47.7	109.3	0.0M	47.7	112.6	47.7	122.6	85.2	93.4	42.7	172.6	64.3
2	46.0	102.8	0.0M	47.7	74.4	47.7	116.1	85.2	85.2	42.7	154.9	60.4
3	46.0	85.2P	0.0M	47.7	70.3	49.5	102.8	83.0	78.6	42.7	169.0	60.4
4	46.0	0.0M	0.0M	47.7	78.6	51.2	90.4	80.8	76.5	44.4	199.1	64.3
5	46.0	0.0M	0.0M	56.8	83.0	53.0	87.4	83.9	78.6	46.0	183.7	64.3
6	46.0	0.0M	0.0M	111.1	85.2	53.0	90.4	288.8	78.6	46.0	169.0	64.3
7	46.0	0.0M	0.0M	99.9	72.3	54.8	87.4	224.2	91.8	46.0	144.8	64.3
8	47.7	0.0M	0.0M	83.0	68.3	90.1	83.0	132.2	141.7	47.7	122.6	72.3
9	47.7	0.0M	0.0M	76.5	64.3	193.9	87.4	135.1	125.7	52.9	119.6	72.3
10	49.5	0.0M	0.0M	74.4	66.3	238.0	87.4	109.3	106.0	234.9	119.6	72.3
11	49.5	0.0M	46.0P	74.4	62.4	151.6	90.4	93.4	90.4	333.2	116.1	70.3
12	46.0	0.0M	46.0	74.4	60.4	109.3	109.3	90.4	93.4	280.8	116.1	66.3
13	46.0	0.0M	46.0	72.3	64.3	96.5	122.6	80.8	210.5	214.3	93.4	64.3
14	47.7	0.0M	53.0	74.4	64.3	83.0	112.7	85.2	358.9	141.5	96.5	60.4
15	47.7	0.0M	54.8	76.5	76.5	78.6	99.6	93.4	283.8	151.5	99.6	60.4
16	44.4	0.0M	51.2	70.3	223.7	78.6	102.8	93.4	199.1	148.1	99.6	54.8
17	44.4	0.0M	47.7	72.3	153.0	68.3	116.1	83.0	144.8	125.7	96.5	46.0
18	42.7	0.0M	44.4	74.4	116.1	70.3	122.6	72.3	109.3	154.9	87.4	44.4
19	42.7	0.0M	44.4	72.3	93.4	80.8	122.6	66.3	99.6	208.2	76.5	46.0
20	41.1	0.0M	44.4	70.3	74.4	74.4	116.1	64.3	87.6	232.9	72.3	51.2
21	44.4	0.0M	42.7	68.3	62.4	70.3	125.7	62.4	58.6	229.1	70.3	53.0
22	49.5	0.0M	42.7	64.3	56.7	62.4	148.1	62.4	56.7	210.6	66.3	54.8
23	47.7	0.0M	42.7	64.3	54.8	56.7	144.8	62.4	60.4	203.0	62.4	72.8
24	47.7	0.0M	42.7	66.3	53.0	56.7	131.9	62.4	58.5	207.0	72.3	206.1
25	46.0	0.0M	46.0	70.3	51.2	58.5	122.6	64.3	56.7	195.1	83.0	148.1
26	44.4	0.0M	49.5	72.3P	47.7	60.4	125.7	64.3	53.0	169.0	80.8	87.4
27	49.5	0.0M	49.5	80.8P	47.7	66.9	131.9	67.7	44.4	125.7	78.6	76.5
28	49.5	0.0M	51.2	87.4	47.7	129.9	167.7	210.3	41.1	119.6	72.3	76.5
29	47.7		58.5	80.8	51.2	151.3	185.2	223.7	41.1	122.6	70.3	76.5
30	74.9		54.8	92.9	49.5	135.1	119.6	141.5	41.1	119.6	66.3	70.3
31	112.7		51.2		47.7		93.4	106.0		154.9		64.3
MEAN	49.5	99.1P	48.1P	72.4	75.3	87.3	115.1	105.1	104.8	145.0	107.7	71.3

M=MISSING DATA
P=PARTIAL MEAN

DISCHARGE COMPUTATIONS (CFS) FOR FELLSMERE CANAL FOR 1972

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	60.4	65.0	116.1	373.7	0.0M	0.0M	125.7	0.0M	145.3	114.4	49.5	64.3
2	58.5	154.7	116.1	311.0	0.0M	0.0M	116.1	0.0M	308.0	264.8	46.0	56.7
3	64.3	422.4	116.1	154.4	0.0M	0.0M	102.8	0.0M	223.7	352.1	44.4	51.2
4	60.4	296.1	125.7	90.4	0.0M	0.0M	93.4	0.0M	151.5	208.7	44.4	51.2
5	56.7	225.4	125.7	72.3	0.0M	0.0M	74.4	0.0M	116.1	125.7	42.7	49.5
6	54.8	176.2	119.6	66.3	0.0M	0.0M	68.3	0.0M	96.5	102.8	44.4	47.7
7	49.5	154.9	109.3	64.3	0.0M	0.0M	95.2	0.0M	83.0	80.8	58.4	47.7
8	47.7	158.4	106.0	58.5	0.0M	0.0M	413.8	0.0M	76.5	70.3	142.0	47.7
9	49.5	165.4	102.8	60.4	0.0M	0.0M	931.9	0.0M	72.3	62.4	79.8	46.0
10	53.0	229.1	106.0	68.3	0.0M	0.0M	627.7	0.0M	70.3	46.0	53.0	44.4
11	51.2	327.6	102.8	68.3	0.0M	0.0M	381.0	0.0M	64.3	44.4	46.0	44.4
12	46.0	410.1	99.6	64.3	0.0M	0.0M	250.8	0.0M	64.3	49.5	46.0	42.7
13	46.0	315.3	93.4	58.5	0.0M	0.0M	207.5	0.0M	62.4	53.0	47.7	41.1
14	47.7	236.7	90.4	54.8	0.0M	0.0M	371.4	0.0M	62.4	51.2	49.5	41.1
15	49.5	183.7	87.4	53.0	0.0M	0.0M	0.0M	0.0M	64.3	51.2	64.3	42.7
16	51.2	165.4	83.0	53.0	0.0M	0.0M	0.0M	0.0M	53.0	51.2	56.7	47.7
17	54.8	165.4	85.2	62.4	0.0M	0.0M	0.0M	0.0M	58.5	51.2	47.7	53.0
18	56.7	172.6	85.2	68.3	0.0M	0.0M	0.0M	0.0M	68.3	49.5	44.4	72.0
19	99.0	158.4	85.2	64.3	0.0M	0.0M	0.0M	0.0M	72.3	49.5	44.4	112.7
20	99.6	131.9	85.2	54.8	0.0M	0.0M	0.0M	0.0M	62.4	51.2	44.4	87.4
21	70.3	112.7	85.2	53.0	0.0M	1024.6P	0.0M	0.0M	56.7	64.5	44.4	74.4
22	58.5	112.7	93.4	54.8	0.0M	812.0	0.0M	0.0M	56.7	79.4	41.1	99.2
23	53.0	96.5	83.0	53.0	0.0M	652.8	0.0M	0.0M	56.7	74.4	39.5	144.8
24	53.0	93.4	80.8	66.3	0.0M	615.8	0.0M	0.0M	60.4	70.3	41.1	128.8
25	53.0	87.4	74.4	85.2	0.0M	446.2	0.0M	0.0M	71.8	62.4	42.7	102.8
26	53.0	85.2	76.5	83.0	0.0M	305.5	0.0M	0.0M	99.6	51.2	44.4	87.4
27	51.2	85.2	78.6	116.1	0.0M	220.4	0.0M	0.0M	80.8	49.5	54.8	83.0
28	49.5	93.4	85.2	187.4	0.0M	220.9	0.0M	0.0M	74.4	51.2	55.8	80.8
29	47.7	119.6	130.2	0.0M	0.0M	199.1	0.0M	0.0M	72.3	51.2	76.5	72.3
30	49.5		131.9	0.0M	0.0M	151.5	0.0M	0.0M	93.4	53.0	70.3	70.3
31	51.2		122.1		0.0M		0.0M	172.6P		51.2		70.3
MEAN	56.4	179.3	99.4	93.6P	0.0P	464.9P	275.7P	172.6P	89.9	83.5	53.5	67.9

M=MISSING DATA
P=PARTIAL MEAN

DISCHARGE COMPUTATIONS (CFS) FOR FELLSMERE CANAL FOR 1973

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	70.3	141.5	78.6	125.7	128.8	207.0	148.1	684.4	172.8	272.6	115.4	93.4
2	70.3	122.6	76.5	216.4	131.9	203.0	128.8	910.2	154.9	210.6	154.9	87.4
3	70.3	119.6	76.5	272.6	135.1	195.1	122.6	695.6	148.1	169.0	128.8	76.5
4	70.3	128.8	76.5	244.5	151.5	179.9	125.7	532.0	178.9	148.1	112.7	78.6
5	68.3	116.1	76.5	277.8	158.4	169.0	212.9	465.3	158.4	135.1	102.8	74.4
6	68.3	102.8	76.5	242.9	144.8	161.8	294.8	426.7	141.5	116.1	96.5	72.3
7	68.3	90.4	78.6	195.1	128.8	161.8	237.5	352.6	119.6	112.7	83.0	74.4
8	68.3	85.2	78.6	214.2	119.6	325.8	183.7	324.6	109.3	171.1	78.6	85.2
9	66.3	80.8	80.8	303.4	128.2	468.2	221.9	368.4	106.0	442.6	74.4	90.4
10	64.3	165.8	83.0	268.5	255.3	717.6	252.8	296.9	109.3	308.3	70.3	85.2
11	66.3	214.3	85.2	217.9	318.2	580.3	221.6	292.4	112.7	302.1	72.3	80.8
12	90.9	199.1	85.2	195.1	227.7	434.5	217.9	740.2	112.7	236.7	72.3	78.6
13	144.8	161.8	85.2	176.2	176.2	347.0	183.7	677.3	85.2	183.7	62.4	68.3
14	125.7	154.9	87.4	158.4	154.9	315.3	191.3	467.5	85.2	151.5	60.4	62.4
15	109.3	125.7	106.0	148.1	144.8	409.2	225.4	342.8	96.5	138.3	60.4	58.5
16	93.4	131.9	138.3	135.1	131.9	680.0	256.3	792.0	100.5	119.6	62.4	60.8
17	83.0	122.6	138.3	131.9	122.6	823.6	256.3	689.1	316.6	109.3	64.3	91.6
18	78.6	112.7	106.0	128.8	112.7	938.7	207.0	433.1	467.5	131.6	66.3	60.4
19	74.4	116.1	116.1	119.6	102.8	933.4	207.0	297.8	273.1	284.4	72.3	64.3
20	72.3	109.3	116.1	106.0	99.6	942.2	272.6	232.9	187.4	685.9	78.6	83.6
21	72.3	109.3	96.5	99.6	99.6	831.9	231.5	221.6	161.8	763.0	83.0	183.7
22	72.3	106.0	93.4	99.6	102.8	622.3	245.4	214.3	141.5	431.9	85.2	132.1
23	97.6	99.6	87.4	96.5	109.3	778.6	612.9	230.8	138.3	348.8	85.2	96.5
24	192.4	96.5	87.4	109.3	112.7	749.9	490.5	281.2	169.0	270.1	76.5	87.4
25	169.0	93.4	85.2	137.0	123.2	605.3	574.2	230.0	240.6	194.1	74.4	83.0
26	141.5	90.4	117.1	169.0	270.1	442.5	244.6	410.4	244.5	148.1	76.5	74.4
27	141.5	85.2	225.5	154.9	324.2	315.6	284.6	467.1	481.1	122.6	76.5	62.4
28	122.6	80.8	148.1	144.8	252.4	256.3	846.2	326.8	550.6	116.1	72.3	64.3
29	196.4		144.8	135.1	214.3	210.6	683.0	236.7	457.4	112.7	76.5	68.3
30	221.6		138.3	131.9	203.0	183.7	751.5	217.9	351.7	106.0	87.4	66.3
31	187.4		125.7		210.6		644.4	214.3		96.5		68.3
MEAN	104.5	120.1	103.1	171.9	164.4	473.0	315.4	421.7	205.8	230.3	82.8	81.1

M=MISSING DATA
P=PARTIAL MEAN

DISCHARGE COMPUTATIONS (CFS) FOR FELLSMERE CANAL FOR 1974

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	64.3	62.4	58.5	96.5	0.0M	76.5	351.9	395.3	144.8	170.2	96.5	112.7
2	62.4	64.3	54.8	56.7	72.3	74.4	325.6	218.0	122.6	158.4	99.6	112.7
3	60.4	64.3	53.0	51.2	64.3	78.0	774.2	135.1	112.7	131.9	106.0	102.8
4	58.5	62.4	51.2	58.5	62.4	187.2	565.6	144.8	128.8	119.6	116.1	102.8
5	56.7	62.4	51.2	74.4	60.4	176.2	403.2	236.6	144.8	112.7	125.7	99.6
6	54.8	62.4	51.2	132.4	58.5	122.6	297.8	454.9	165.4	154.6	116.1	96.5
7	54.8	62.4	51.2	91.8	64.3	96.5	280.8	867.6	169.0	148.7	106.0	99.6
8	56.7	64.3	53.0	68.3	68.3	83.0	195.1	700.6	151.5	148.1	102.8	102.8
9	56.7	62.4	56.7	66.3	62.4	72.3	151.5	421.0	151.5	122.6	106.0	102.8
10	56.7	58.5	56.7	58.5	58.5	68.3	311.6	276.7	151.5	116.1	112.7	93.4
11	54.8	53.0	54.8	54.8	58.5	64.3	379.2	203.0	151.5	109.3	112.7	85.2
12	56.7	68.3	54.8	53.0	56.7	66.3	255.2	200.3	151.5	102.8	109.3	85.2
13	56.7	68.3	60.4	47.7	54.8	64.3	179.9	416.3	151.5	102.8	116.1	85.2
14	66.3	53.0	66.3	47.7	56.7	60.4	135.1	345.6	144.8	99.6	112.7	85.2
15	93.4	51.2	68.3	47.7	77.3	60.4	102.8	297.8	138.3	87.4	96.5	96.5
16	80.8	56.7	78.6	51.2	136.4	64.3	99.6	236.7	131.9	83.0	87.4	142.2
17	64.3	70.3	76.5	51.2	293.5	70.3	96.5	203.0	128.8	96.7	87.4	292.7
18	56.7	66.3	68.3	58.5	243.8	72.3	106.0	328.1	122.6	135.1	93.4	220.0
19	53.0	62.4	87.4	70.3	111.1	93.4	165.4	285.0	99.6	109.3	99.6	128.8
20	51.2	79.3	87.4	70.3	83.0	106.0	176.2	225.4	102.8	99.6	122.6	112.7
21	51.2	99.6	70.3	60.4	72.3	85.2	131.9	172.6	116.1	96.5	131.9	99.6
22	49.5	76.5	66.3	72.3	83.0	83.0	192.8	232.3	122.6	93.4	116.1	99.6
23	53.0	64.3	60.4	87.4	80.8	112.7	210.6	536.7	138.3	93.4	102.9	102.8
24	60.4	60.4	58.5	78.6	93.4	131.9	203.0	499.9	148.1	90.4	99.6	163.9
25	60.4	60.4	70.3	70.3	125.7	344.7	225.4	402.1	172.6	80.8	109.3	151.5
26	56.7	56.7	87.4	60.4	131.9	620.4	207.0	289.3	169.0	78.6	119.6	131.9
27	54.8	54.8	68.3	60.4	109.3	538.9	214.3	210.6	183.1	83.0	125.7	119.6
28	53.0	56.7	60.4	56.7	96.5	824.8	203.0	165.4	239.2	87.4	138.3	119.6
29	54.8		56.7	68.3	87.4	677.3	351.4	207.0	302.1	93.4	141.5	116.1
30	58.5		54.8	83.0	80.8	568.7	620.0	187.4	232.9	96.5	128.8	112.7
31	58.5		60.4		78.6		552.1	154.9		99.6		106.0
MEAN	58.9	63.7	63.1	66.8	92.8	191.5	273.1	311.3	153.0	109.7	111.3	118.8

M=MISSING DATA
P=PARTIAL MEAN

DISCHARGE COMPUTATIONS (CFS) FOR FELLSMERE CANAL FOR 1975

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	99.6	85.2	90.4	119.6	122.6	203.0	0.0M	0.0M	80.8	242.8	148.1	72.3
2	102.8	99.6	87.4	122.6	125.7	241.4P	0.0M	0.0M	105.4	171.0	131.9	70.3
3	96.5	122.6	87.4	125.7	131.9	0.0M	0.0M	0.0M	168.9	161.8	125.7	70.3
4	85.2	138.3	87.4	125.7	128.8	0.0M	0.0M	0.0M	257.8	158.4	131.9	70.3
5	83.0	125.7	87.4	119.6	131.9	0.0M	0.0M	0.0M	232.9	151.5	122.6	74.4
6	83.0	99.6	87.4	122.6	165.4	0.0M	0.0M	0.0M	152.2	151.5	116.1	74.4
7	87.4	87.4	87.4	122.6	161.8	0.0M	0.0M	0.0M	93.4	144.8	109.3	72.3
8	87.4	90.4	87.4	125.7	141.5	0.0M	0.0M	0.0M	83.0	119.6	106.0	74.4
9	87.4	90.4	87.4	128.8	135.1	0.0M	0.0M	0.0M	120.5	131.9	102.8	93.5
10	83.0	105.7	90.4	135.1	141.5	0.0M	0.0M	0.0M	133.7	125.7	102.8	106.0
11	90.4	172.6	90.4	161.8	148.1	0.0M	0.0M	0.0M	96.5	119.6	93.4	76.5
12	99.6	122.6	87.4	191.3	158.4	0.0M	0.0M	0.0M	90.4	119.6	83.0	62.4
13	99.6	87.4	87.4	191.3	154.9	0.0M	0.0M	0.0M	90.4	128.8	78.6	66.3
14	102.8	87.4	96.5	158.4	217.9	0.0M	0.0M	0.0M	87.4	138.3	74.4	72.3
15	106.0	85.2	106.0	165.4	236.7	0.0M	0.0M	0.0M	90.4	169.0	74.4	78.6
16	96.5	78.6	106.0	176.2	183.7	0.0M	0.0M	0.0M	179.4	165.4	74.4	127.1
17	99.6	76.5	116.1	138.3	148.1	0.0M	0.0M	0.0M	240.6	144.8	72.3	106.0
18	106.0	80.8	122.6	116.1	138.3	0.0M	0.0M	138.3P	193.5	167.3	70.3	83.0
19	106.0	85.2	122.6	112.7	138.3	0.0M	0.0M	131.9	150.0	240.6	74.4	74.4
20	109.3	93.4	141.5	122.6	141.5	0.0M	0.0M	195.0	122.6	207.0	87.4	72.3
21	119.6	93.4	122.6	125.7	138.3	0.0M	0.0M	276.7	99.6	144.8	109.3	76.5
22	116.1	87.4	106.0	125.7	135.1	0.0M	0.0M	195.1	85.2	116.1	96.5	80.8
23	99.6	87.4	99.6	122.6	131.9	0.0M	0.0M	151.5	80.8	102.8	87.4	112.7
24	90.4	102.8	99.6	112.7	131.9	0.0M	0.0M	131.9	115.9	96.5	83.0	122.4
25	85.2	151.5	96.5	106.0	135.1	0.0M	0.0M	116.1	130.3	125.7	78.6	191.3
26	87.4	158.4	96.5	106.0	135.1	0.0M	0.0M	106.0	244.0	90.4	76.5	141.5
27	93.4	122.6	99.6	112.7	138.3	0.0M	0.0M	99.6	319.7	85.2	74.4	112.7
28	99.6	96.5	102.8	112.7	128.8	0.0M	0.0M	83.0	252.4	80.8	74.4	93.4
29	93.4		102.8	122.6	148.1	0.0M	0.0M	74.4	191.3	91.3	72.3	90.4
30	85.2		109.3	119.6	165.4	0.0M	0.0M	72.3	256.1	138.3	72.3	93.4
31	83.0		116.1		172.6		0.0M	76.5		148.1		93.4
MEAN	95.6	104.1	100.3	131.6	148.8	222.2P	0.0P	132.0P	151.5	141.3	93.5	90.5

M=MISSING DATA
P=PARTIAL MEAN

DISCHARGE COMPUTATIONS (CFS) FOR FELLSMERE CANAL FOR 1976

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	87.4	66.3	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	395.1P	53.0P	0.0M
2	83.0	68.3	0.0M	32.1P	0.0M	0.0M	68.3P	90.4P	0.0M	0.0M	0.0M	0.0M
3	80.8	64.3	0.0M	0.0M	39.5P	0.0M	0.0M	0.0M	68.3P	0.0M	0.0M	128.8P
4	78.6	62.4	0.0M	0.0M	0.0M	533.9P	0.0M	0.0M	0.0M	176.2P	0.0M	0.0M
5	76.5	64.3	0.0M	39.5P	0.0M	0.0M	0.0M	183.7P	0.0M	0.0M	310.9P	0.0M
6	78.6	66.3	0.0M	0.0M	0.0M	0.0M	60.4P	0.0M	0.0M	0.0M	0.0M	0.0M
7	68.3	68.3	0.0M	0.0M	471.4P	306.5P	0.0M	0.0M	268.5P	0.0M	0.0M	0.0M
8	62.4	70.3	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	72.3P	93.4P	0.0M
9	64.3	75.6	0.0M	0.0M	0.0M	0.0M	176.2P	102.8P	0.0M	0.0M	0.0M	0.0M
10	70.3	106.0	0.0M	0.0M	169.0P	0.0M	0.0M	0.0M	131.9P	0.0M	0.0M	85.2P
11	72.3	109.3	0.0M	0.0M	0.0M	141.5P	0.0M	0.0M	0.0M	64.3P	0.0M	0.0M
12	72.3	80.8	32.1P	22.7P	0.0M	0.0M	90.4P	0.0M	0.0M	0.0M	53.0P	0.0M
13	70.3	68.3	0.0M	0.0M	0.0M	0.0M	0.0M	68.3P	252.4P	0.0M	0.0M	60.4P
14	66.3	64.3	0.0M	0.0M	207.0P	90.4P	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M
15	91.0	68.3	0.0M	22.7P	0.0M	0.0M	0.0M	0.0M	0.0M	60.4P	56.7P	0.0M
16	88.3	68.3	0.0M	0.0M	0.0M	0.0M	76.5P	72.3P	0.0M	0.0M	0.0M	0.0M
17	76.6	68.3	0.0M	0.0M	425.5P	0.0M	0.0M	0.0M	199.1P	0.0M	0.0M	60.4P
18	70.3	72.3	0.0M	0.0M	0.0M	76.5P	0.0M	0.0M	0.0M	68.3P	0.0M	0.0M
19	109.5	68.3	39.5P	22.7P	0.0M	0.0M	109.3P	0.0M	0.0M	0.0M	46.0P	0.0M
20	128.8	80.8	0.0M	0.0M	0.0M	0.0M	0.0M	519.2P	85.2P	0.0M	0.0M	47.7P
21	135.1	82.0	0.0M	0.0M	119.6P	102.8P	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M
22	106.3	106.5	27.9P	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	64.3P	0.0M	44.4P
23	131.4	122.6	0.0M	25.2P	0.0M	0.0M	102.8P	236.7P	0.0M	0.0M	0.0M	0.0M
24	81.2	125.7P	0.0M	0.0M	395.1P	0.0M	0.0M	0.0M	56.7P	0.0M	0.0M	0.0M
25	70.3	0.0M	0.0M	0.0M	0.0M	462.1P	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M
26	80.8	0.0M	36.4P	25.2P	0.0M	0.0M	169.0P	0.0M	0.0M	0.0M	0.0M	0.0M
27	122.6	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	90.4P	0.0M	0.0M	0.0M	49.5P
28	90.4	0.0M	0.0M	0.0M	122.6P	76.5P	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M
29	80.8	0.0M	27.9P	0.0M	0.0M	0.0M	0.0M	0.0M	56.7P	39.5P	62.4P	49.5P
30	72.3		0.0M	22.7P	0.0M	0.0M	128.8P	64.3P	0.0M	0.0M	0.0M	0.0M
31	68.3		0.0M		0.0M		0.0M	0.0M		0.0M		0.0M
MEAN	85.0	79.1P	32.7P	26.6P	243.7P	223.8P	109.1P	158.7P	139.8P	117.6P	96.5P	65.7P

M=MISSING DATA
P=PARTIAL MEAN

DISCHARGE COMPUTATIONS (CFS) FOR FELLSMERE CANAL FOR 1977

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.0M	0.0M	56.7	53.0	30.6	161.8	46.0	60.4	109.3	60.4	34.9	161.8
2	0.0M	0.0M	60.4	54.8	37.9	148.1	51.2	72.3	119.6	56.7	34.9	128.8
3	53.0P	0.0M	58.5	54.8	37.9	179.9	54.8	85.2P	264.4	54.8	36.4	144.8
4	0.0M	68.3P	53.0	51.2	34.9	169.0	56.7	78.6	630.9	51.2	37.9	122.6
5	0.0M	0.0M	46.0	47.7	34.9	154.9	62.4	53.0	858.4	49.5	39.5	99.6
6	0.0M	0.0M	41.1	41.1	34.9	125.7	60.4	42.7	485.5	47.7	39.5	76.5
7	74.4P	54.8P	41.1	39.5	36.4	99.6	53.0	36.4	310.9	46.0	39.5	68.3
8	0.0M	58.5P	42.7	36.4	37.9	68.3	51.2	34.9	225.4	41.1	37.9	60.4
9	0.0M	0.0M	42.7	34.9	33.5	122.6	44.4	33.5	161.8	41.1	36.4	54.8
10	36.7P	0.0M	46.0	37.9	33.5	106.0	41.1	30.6	116.1	39.5	53.0	72.3
11	0.0M	56.7	116.1	42.7	34.9	64.3	39.5	29.3	85.2	58.5	33.5	93.4
12	0.0M	90.4P	96.5	49.5	33.5	60.4	32.1	30.6	102.8	58.5	33.5	66.3
13	0.0M	99.6	70.3	49.5	32.1	49.5	32.1	42.7	125.7	46.0	34.9	56.7
14	56.7P	85.2	60.4	44.4	30.6	41.1	37.9	47.7	78.6	47.7	37.9	85.2
15	0.0M	58.5	64.3	39.5	29.3	37.9	37.9	51.2	125.7	56.7	39.5	135.1
16	0.0M	54.8	51.2	44.4	27.9	36.4	36.4	47.7	106.0	60.4	47.7	179.9
17	0.0M	49.5	47.7	47.7	27.9	36.4	39.5	39.5	78.6	49.5	85.2	390.2
18	0.0M	54.8	46.0	53.0	29.3	36.4	44.4	33.5	70.3	44.4	70.3	375.5
19	0.0M	131.9	46.0	56.7	34.9	64.3	66.3	29.3	221.6	42.7	58.5	268.5
20	0.0M	172.6	49.5	54.8	36.4	425.5	53.0	32.1	229.1	39.5	54.8	179.9
21	0.0M	49.5	54.8	47.7	37.9	466.7	46.0	33.5	172.6	39.5	53.0	144.8
22	0.0M	39.5	46.0	41.1	39.5	395.1	37.9	34.9	315.3	46.0	54.8	109.3
23	0.0M	41.1	44.4	39.5	36.4	232.9	33.5	37.9	324.2	62.4	56.7	87.4
24	0.0M	44.4	49.5	41.1	36.4	138.3	34.9	36.4	199.1	72.3	112.7	80.8
25	0.0M	53.0	99.6	78.6	41.1	102.8	33.5	36.4	135.1	116.1	141.5	78.6
26	0.0M	54.8	99.6	183.7	46.0	76.5	36.4	34.9	99.6	128.8	74.4	76.5
27	0.0M	54.8	106.0	122.6	90.4	62.4	93.4	34.9	99.6	74.4	49.5	74.4
28	0.0M	54.8	78.6	70.3	260.3	56.7	195.1	39.5	96.5	47.7	42.7	62.4
29	0.0M		49.5	47.7	563.8	54.8	172.6	42.7	78.6	39.5	46.0	60.4
30	0.0M		46.0	29.3	439.1	51.2	68.3	62.4	68.3	36.4	191.3	70.3
31	90.4P		51.2		264.4		58.5	125.7		36.4		76.5
MEAN	66.2P	68.0P	60.1	54.5	81.4	127.5	56.5	46.2	203.2	54.6	57.0	120.7

M=MISSING DATA
P=PARTIAL MEAN

NOTE: DISCHARGE WAS CALCULATED BY MEAN DAILY STAGE

DISCHARGE COMPUTATIONS (CFS) FOR FELLSMERE CANAL FOR 1978

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	125.7	54.8	106.0	42.7	32.1	99.6	148.1	700.6	131.9	138.3	47.7	47.7
2	116.1	54.8	83.0	44.4	33.5	87.4	135.1	727.8	144.8	135.1	46.0	56.7
3	148.1	76.5	90.4	46.0	32.1	85.2	169.0	744.4	161.8	148.1	42.7	66.3
4	221.6	116.1	169.0	51.2	54.8	76.5	430.0	673.7	199.1	176.2	51.2	56.7
5	80.8	66.3	169.0	53.0	452.8	76.5	361.1	529.0	306.5	128.8	80.8	51.2
6	60.4	58.5	148.1	54.8	457.4	96.5	260.3	744.4	347.0	176.2	60.4	47.7
7	58.5	56.7	119.6	51.2	264.4	106.0	573.9	673.7	285.0	148.1	56.7	44.4
8	58.5	56.7	96.5	39.5	199.1	83.0	439.1	480.8	191.3	80.8	116.1	49.5
9	60.4	128.8	244.5	34.9	172.6	90.4	385.2	293.5	131.9	60.4	116.1	66.3
10	90.4	236.7	529.0	36.4	148.1	116.1	425.5	248.4	141.5	46.0	90.4	62.4
11	112.7	169.0	405.1	39.5	85.2	99.6	573.9	297.8	252.4	49.5	78.6	56.7
12	78.6	141.5	285.0	41.1	66.3	83.0	361.1	351.7P	272.6	46.0	68.3	78.6
13	64.3	122.6	225.4	53.0	58.5	76.5	236.7	0.0M	187.4	53.0	64.3	210.6
14	62.4	106.0	221.6	54.8	76.5	70.3	191.3	0.0M	138.3	60.4	74.4	96.5
15	58.5	183.7	161.8	47.7	83.0	64.3	141.5	0.0M	119.6	93.4	68.3	85.2
16	154.9	217.9	128.8	44.4	76.5	62.4	165.4	0.0M	131.9	70.3	74.4	60.4
17	452.8	203.0	99.6	41.1	44.4	60.4	207.0	0.0M	131.9	80.8	70.3	56.7
18	280.8	169.0	102.8	39.5	46.0	58.5	390.2	0.0M	138.3	60.4	64.3	54.8
19	93.4	179.9	96.5	42.7	62.4	58.5	452.8	0.0M	131.9	54.8	58.5	53.0
20	119.6	165.4	96.5	41.1	83.0	58.5	954.4	0.0M	122.6	96.5	56.7	62.4
21	85.2	112.7	106.0	39.5	116.1	64.3	679.1	0.0M	99.6	74.4	60.4	58.5
22	74.4	85.2	99.6	36.4	109.3	125.7	443.6	0.0M	96.5	47.7	60.4	60.4
23	68.3	141.5	83.0	34.9	56.7	172.6	356.4	0.0M	131.9	41.1	58.5	83.0
24	60.4	415.2	49.5	33.5	39.5	415.2	297.8	0.0M	141.5	41.1	60.4	80.8
25	60.4	264.4	33.5	33.5	36.4	380.3	232.9	268.5P	148.1	47.7	64.3	112.7
26	58.5	125.7	33.5	29.3	39.5	260.3	214.3	248.4	138.3	64.3	62.4	93.4
27	56.7	122.6	46.0	27.9	46.0	310.9	232.9	232.9	135.1	47.7	62.4	135.1
28	60.4	131.9	76.5	30.6	64.3	315.3	276.7	221.6	119.6	41.1	58.5	210.6
29	47.7		76.5	32.1	293.5	236.7	319.7	158.4	128.8	44.4	64.3	485.5
30	46.0		49.5	33.5	225.4	172.6	400.1	109.3	131.9	90.4	54.8	236.7
31	46.0		42.7		144.8		410.1	112.7		148.1		116.1
MEAN	102.0	141.5	137.9	41.0	119.4	135.4	350.5	411.5P	164.6	83.6	66.4	98.0

N=MISSING DATA
P=PARTIAL MEAN

NOTE: DISCHARGE WAS CALCULATED BY MEAN DAILY STAGE

DISCHARGE COMPUTATIONS (CFS) FOR FELLSMERE CANAL FOR 1979

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	96.5	112.7	83.0	47.7	56.7	76.5	225.4	96.5	109.3	876.1	240.6	56.7
2	99.6	165.4	78.6	47.7	64.3	83.0	148.1	138.3	256.3	529.0	285.0	49.5
3	96.5	333.2	80.8	49.5	58.5	85.2	112.7	172.6	256.3	229.1	99.6	51.2
4	93.4	210.6	80.8	51.2	51.2	229.1	112.7	225.4	1410.6	128.8	74.4	47.7
5	83.0	119.6	90.4	72.3	54.8	244.5	87.4	125.7	1510.0	154.9	74.4	47.7
6	54.8	99.6	148.1	68.3	53.0	172.6	80.8	109.3	1206.3	141.5	70.3	51.2
7	54.8	96.5	210.6	99.6	49.5	125.7	76.5	169.0	733.3	116.1	66.3	76.5
8	56.7	102.8	176.2	102.8	46.0	106.0	112.7	138.3	306.5	99.6	64.3	72.3
9	46.0	96.5	122.6	47.7	49.5	87.4	148.1	109.3	225.4	76.5	66.3	62.4
10	47.7	99.6	102.8	41.1	375.5	74.4	244.5	109.3	328.7	74.4	60.4	56.7
11	46.0	131.9	90.4	36.4	615.1	68.3	217.9	154.9	248.4	68.3	54.8	37.9
12	225.4	119.6	83.0	36.4	289.3	72.3	154.9	116.1	252.4	68.3	60.4	34.9
13	1048.3	106.0	85.2	37.9	207.0	56.7	122.6	112.7	604.7	66.3	62.4	36.4
14	930.0	102.8	93.4	46.0	232.9	76.5	131.9	80.8	529.0	64.3	74.4	37.9
15	553.8	106.0	80.8	54.8	679.1	248.4	122.6	66.3	448.2	68.3	68.3	39.5
16	415.2	148.1	76.5	53.0	420.3	347.0	122.6	87.4	415.2	68.3	51.2	37.9
17	319.7	165.4	76.5	49.5	272.6	217.9	122.6	74.4	229.1	62.4	60.4	42.7
18	236.7	179.9	74.4	41.1	195.1	131.9	125.7	68.3	183.7	64.3	72.3	42.7
19	176.2	158.4	76.5	36.4	144.8	112.7	99.6	72.3	122.6	68.3	76.5	44.4
20	165.4	179.9	76.5	34.9	112.7	99.6	90.4	68.3	109.3	70.3	78.6	68.3
21	187.4	169.0	76.5	33.5	109.3	102.8	87.4	64.3	122.6	64.3	42.7	72.3
22	207.0	244.5	74.4	36.4	106.0	85.2	62.4	64.3	264.4	62.4	46.0	56.7
23	144.8	240.6	78.6	36.4	90.4	58.5	62.4	72.3	302.1	109.3	47.7	42.7
24	248.4	128.8	109.3	36.4	154.9	131.9	72.3	78.6	462.1	138.3	47.7	41.1
25	347.0	93.4	109.3	34.9	217.9	131.9	62.4	72.3	529.0	154.9	135.1	37.9
26	214.3	119.6	74.4	34.9	148.1	128.8	39.5	68.3	361.1	172.6	240.6	37.9
27	154.9	109.3	106.0	41.1	96.5	128.8	62.4	66.3	217.9	154.9	264.4	42.7
28	144.8	87.4	70.3	76.5	96.5	268.5	83.0	83.0	203.0	148.1	109.3	80.8
29	148.1		49.5	195.1	106.0	229.1	62.4	112.7	214.3	131.9	68.3	58.5
30	128.8		42.7	96.5	96.5	207.0	72.3	64.3	727.8	151.5	72.3	54.8
31	122.6		42.7		78.6		68.3	87.4		96.5		44.4
MEAN	222.4	143.8	91.0	55.9	171.9	139.6	109.5	100.9	429.7	144.5	94.5	50.5

M=MISSING DATA
P=PARTIAL MEAN

NOTE: DISCHARGE WAS CALCULATED BY MEAN DAILY STAGE

DISCHARGE COMPUTATIONS (CFS) FOR FELLSMERE CANAL FOR 1980

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	80.8	72.3	58.5	370.7	46.0	46.0	138.3	51.2	109.3	62.4	119.6	49.5
2	56.7	83.0	112.7	410.1	44.4	44.4	122.6	72.3	93.4	64.3	158.4	44.4
3	87.4	90.4	122.6	225.4	54.8	42.7	90.4	74.4	109.3	60.4	131.9	42.7
4	53.0	83.0	260.3	158.4	80.8	44.4	74.4	70.3	135.1	60.4	93.4	42.7
5	39.5	85.2	319.7	99.6	90.4	51.2	66.3	66.3	125.7	60.4	83.0	41.1
6	36.4	62.4	99.6	76.5	85.2	41.1	60.4	60.4	154.9	56.7	64.3	41.1
7	42.7	56.7	78.6	76.5	60.4	41.1	58.5	56.7	122.6	60.4	53.0	37.9
8	49.5	54.8	60.4	85.2	60.4	39.5	58.5	49.5	93.4	66.3	62.4	37.9
9	39.5	53.0	54.8	76.5	62.4	37.9	54.8	49.5	76.5	116.1	60.4	41.1
10	36.4	53.0	53.0	66.3	280.8	37.9	44.4	53.0	66.3	161.8	53.0	42.7
11	36.4	53.0	60.4	62.4	207.0	41.1	46.0	42.7	64.3	116.1	44.4	44.4
12	36.4	53.0	62.4	60.4	128.8	47.7	37.9	46.0	60.4	78.6	44.4	49.5
13	44.4	49.5	56.7	56.7	106.0	44.4	36.4	53.0	58.5	72.3	39.5	60.4
14	297.8	49.5	60.4	62.4	76.5	42.7	41.1	56.7	56.7	76.5	39.5	66.3
15	415.2	47.7	60.4	56.7	42.7	41.1	49.5	54.8	64.3	109.3	41.1	64.3
16	122.6	51.2	58.5	51.2	41.1	49.5	60.4	47.7	96.5	80.8	72.3	64.3
17	80.8	49.5	54.8	49.5	56.7	49.5	64.3	51.2	112.7	76.5	128.8	66.3
18	83.0	49.5	58.5	62.4	119.6	47.7	109.3	56.7	102.8	93.4	141.5	116.1
19	76.5	276.7	47.7	60.4	135.1	44.4	106.0	51.2	78.6	60.4	74.4	64.3
20	64.3	439.1	85.2	53.0	99.6	49.5	83.0	56.7	60.4	54.8	54.8	41.1
21	66.3	244.5	80.8	49.5	78.6	195.1	64.3	66.3	49.5	56.7	47.7	37.9
22	62.4	125.7	33.5	47.7	74.4	448.2	54.8	62.4	44.4	62.4	41.1	64.3
23	64.3	99.6	30.6	39.5	78.6	293.5	60.4	54.8	42.7	66.3	39.5	102.8
24	83.0	90.4	30.6	51.2	109.3	293.5	72.3	58.5	41.1	80.8	41.1	119.6
25	85.2	87.4	30.6	47.7	85.2	256.3	96.5	64.3	39.5	99.6	41.1	106.0
26	125.7	87.4	62.4	42.7	80.8	169.0	138.3	119.6	49.5	176.2	42.7	85.2
27	144.8	74.4	54.8	78.6	72.3	109.3	93.4	138.3	53.0	148.1	46.0	76.5
28	161.8	76.5	49.5	141.5	74.4	83.0	74.4	141.5	56.7	93.4	49.5	70.3
29	112.7	66.3	49.5	119.6	60.4	78.6	58.5	66.3	66.3	66.3	54.8	0.0M
30	96.5		54.8	76.5	54.8	125.7	58.5	47.7	66.3	62.4	53.0	0.0M
31	76.5		80.8		49.5		54.8	62.4		96.5		0.0M
MEAN	92.2	95.3	76.9	97.2	87.0	97.9	71.9	64.6	78.4	83.8	67.2	61.5P

M=MISSING DATA
P=PARTIAL MEAN

NOTE: DISCHARGE WAS CALCULATED BY MEAN DAILY STAGE

DISCHARGE COMPUTATIONS (CFS) FOR FELLSMERE CANAL FOR 1981

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	39.7	53.9	55.6	46.0	0.0M	56.4	53.1	35.9	336.6	58.4	42.9	49.6
2	39.5	59.2	57.8	45.9	0.0M	58.1	53.3	34.8	208.2	64.6	41.8	53.3
3	41.1	63.3	54.9	42.0	0.0M	62.6	51.3	43.7	124.0	58.9	39.5	50.9
4	43.4	60.9	46.3	41.1	0.0M	66.8	37.2	44.1	85.8	55.5	44.9	47.6
5	42.0	65.1	42.7	41.3	64.2P	69.9	30.8	47.1	82.5	53.0	62.0	45.7
6	41.8	47.1	45.4	73.1	67.3	69.2	30.2	44.9	94.4	51.2	96.6	44.1
7	41.5	36.7	50.0	54.0	65.3	89.8	38.6	44.7	82.8	51.2	63.8	43.6
8	40.9	40.5	50.2	55.6	57.6	76.4	48.1	44.7	130.3	51.2	53.4	43.3
9	38.6	73.2	64.1	60.5	74.3	78.2	47.9	42.6	187.7	49.7	53.0	43.4
10	37.6	84.5	102.5	58.9	76.0	80.2	55.2	41.2	584.9	48.6	53.1	43.2
11	36.1	79.3	81.4	64.1	77.3	81.6	60.8	43.7	753.9	47.7	52.7	39.0
12	42.7	60.1	73.7	67.2	73.6	95.2	55.8	45.7	661.3	46.2	52.7	37.0
13	45.3	60.1	95.0	69.1	66.7	92.8	49.6	43.6	326.3	46.1	49.5	37.2
14	44.8	72.9	86.6	63.3	66.1	90.1	45.4	42.8	181.9	56.8	46.0	39.6
15	56.6	89.3	93.9	80.4	60.6	72.9	42.6	40.4	156.6	61.1	44.4	43.0
16	47.1	91.7	102.6	79.3	53.1	63.2	45.2	37.8	101.3	53.0	44.4	38.5
17	39.8	71.2	102.4	79.6	72.7	56.8	46.1	50.7	91.0	50.3	45.3	37.6
18	70.5	64.9	91.5	81.1	71.4	56.4	47.9	63.7	105.1	47.0	51.2	38.3
19	103.3	61.8	68.1	74.7	56.7	55.3	49.2	63.3	140.3	44.9	48.8	38.8
20	115.0	53.3	113.1	69.4	61.9	54.9	39.2	63.5	132.5	43.4	47.7	39.1
21	91.7	47.9	139.0	96.9	130.2	55.8	38.2	57.6	107.9	42.7	48.8	53.5
22	115.3	45.0	117.0	109.0	111.6	69.5	41.6	53.7	130.8	42.7	47.7	95.9
23	140.7	42.2	261.3	97.2	90.3	99.1	43.9	49.2	164.7	42.7	48.2	79.9
24	156.6	40.3	281.4	70.6	67.3	105.5	45.3	43.2	82.9	42.8	49.2	60.6
25	74.2	39.5	128.3	62.9	55.6	84.6	43.1	38.7	70.3	42.4	48.9	53.3
26	57.3	39.5	81.6	61.2	55.3	65.3	40.9	36.3	65.7	38.1	50.4	50.7
27	53.9	40.2	65.6	65.3	32.6	58.3	41.7	50.1	61.0	40.2	50.7	49.5
28	52.7	44.6	60.1	74.1	94.4	55.3	40.3	75.5	57.9	40.9	50.1	49.0
29	56.1		57.3	62.2	105.0	54.2	33.6	68.2	56.3	40.4	52.1	48.0
30	56.1		55.3	59.9P	82.5	54.1	35.2	155.9	54.8	41.1	49.5	47.2
31	49.2		48.5		60.6		37.5	565.5		42.1		51.2
MEAN	61.7	58.1	89.5	66.9	72.2P	71.0	44.2	68.2	180.7	48.2	51.0	48.1

M=MISSING DATA
P=PARTIAL MEAN

DISCHARGE COMPUTATIONS (CFS) FOR FELLSMERE CANAL FOR 1982

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	49.4	42.5	50.1	80.4	62.3	240.5	76.5	100.6	169.2	131.6	122.2	78.0P
2	47.2	42.8	49.6	66.8	58.5	177.7	75.4	96.5	204.5	174.8	104.6	73.5P
3	46.5	42.9	50.0	59.7	58.3	172.0	79.8	99.6	174.2	204.7	233.9	74.9
4	46.5	70.0	51.1	55.5	58.5	126.8	78.5	84.4	133.1	194.9	506.3	78.3
5	44.7	62.4	54.0	52.9	56.1	90.0	94.8	73.9	122.6	163.9	509.9	76.4
6	43.5	71.0	88.0	51.2	53.7	86.6	166.9	81.3	127.5	149.0	326.1	78.9
7	42.3	82.6	113.4	49.6,	51.9	84.6	195.2	90.1	128.8	141.1	189.4	180.6
8	42.2	78.2	108.6	48.3	50.0	71.9	168.6	88.6	113.2	132.0	171.6	235.8
9	39.9	99.6	83.3	47.2	49.9	68.6	197.8	82.0	99.9	111.6	211.2	363.5
10	39.3	82.4	104.1	57.0	49.5	68.3	173.4	77.9	113.8	94.8	196.4	197.0
11	39.9	107.2	95.1	96.8	50.1	68.3	150.7	82.4	284.7	84.2	164.4	130.9
12	41.0	86.3	81.6	103.2	50.1	67.4	140.7	88.4	320.9	79.8	134.6	109.0
13	47.2	74.8	76.1	78.4	50.1	69.6	157.8	108.4	240.5	77.5	123.4	91.7
14	59.2	69.4	72.8	91.3	50.7	69.7	153.7	121.6	186.1	75.9	131.7	75.8
15	56.9	66.0	69.6	70.2	54.0	72.7	132.2	123.0	179.0	74.4	131.9	65.7
16	55.2	61.6	67.1	67.2	59.1	78.7	113.6	222.7	126.5	74.4	137.9	64.9
17	84.7	68.0	63.8	63.7	55.5	82.8	104.8	224.7	91.0	76.2	209.5	84.7
18	78.6	84.0	62.0	59.8	56.0	304.9	100.4	168.3	82.0	76.3	224.6	109.5
19	65.4	76.0	62.2	57.8	59.8	640.7	113.8	230.4	80.2	79.7	218.9	114.9
20	60.1	69.9	63.3	55.8	58.1	687.2	160.0	249.1	86.3	82.2	210.3	101.0
21	59.2	65.1	63.0	54.3	63.1	767.4	140.6	202.0	107.0	159.8	190.2	86.4
22	54.9	61.0	61.1	54.9	74.4	414.9	253.0	172.0	156.0	149.5	167.1	76.7
23	53.3	58.2	61.5	57.9	78.3	267.6	343.0	159.9	397.2	113.4	151.8	64.6
24	50.8	57.4	71.6	58.2	86.0	197.8	296.1	132.1	293.6	232.5	135.3	60.7
25	48.6	56.1	71.6	59.9	89.7	205.0	284.4	131.7	218.7	242.1	121.9	58.6
26	47.3	56.1	70.7	63.3	189.7	186.4	454.9	122.9	188.0	127.6	112.2	55.5
27	46.2	54.9	68.7	83.6	289.2	137.1	269.1	106.1	233.1	76.8	92.9	53.4
28	44.7	51.7	64.1	88.5	299.7	118.9	167.0	98.2	172.7	62.5	92.9	52.1
29	42.9		148.6	74.3	159.8	100.5	135.4	93.9	139.5	57.6	81.9	51.3
30	41.5		149.5	66.3	122.0	84.2	141.0	90.6	134.8	56.7	76.0	51.5
31	41.8		117.5		118.3		123.4	89.3		56.9		47.4
MEAN	50.4	67.8	77.9	65.8	85.9	193.6	169.1	125.6	170.2	116.6	182.7	98.2

M=MISSING DATA
P=PARTIAL MEAN

FELLSMERE MAIN CANAL
MEAN DAILY DISCHARGE (CFS) FOR 1983

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	47.5	83.3	534.2	74.6	31.5	99.7	65.3	173.0	75.4	68.5	82.7	57.7
2	51.8	74.5	301.4	67.1	29.6	261.9	55.4	120.9	77.2	64.0	82.1	54.9
3	52.9	255.5	216.3	69.0	28.9	231.2	56.4	90.2	71.5	59.4	81.2	52.1
4	49.7	232.1	158.0	77.2	30.1	97.8	54.9	74.4	63.2	39.5	79.3	52.1
5	50.6	117.5	123.2	73.5	48.0	65.4	50.2	79.4	60.4	36.4	74.7	51.0
6	61.3	81.4	102.4	67.2	42.8	56.3	42.6	66.2	62.1	36.4	71.5	53.6
7	60.8	282.4	108.6	57.4	37.1	94.0	41.6	68.1	57.2	39.4	65.8	52.9
8	59.7	420.7	335.7	47.9	36.4	123.0	85.8	73.0	48.8	38.0	71.8	55.5
9	53.0	270.1	278.0	46.1	37.1	102.6	93.3	134.8	43.5	43.6	72.2	45.6
10	49.6	173.5	173.7	64.9	38.7	195.7	60.9	163.0	44.8	42.9	80.0	42.4
11	72.8	178.5	144.3	65.6	38.4	325.5	43.1	194.1	55.2	44.4	71.9	42.3
12	109.0	136.4	95.4	65.0	34.8	178.1	36.8	546.6	47.2	82.2	66.4	146.0
13	69.2	526.1	82.4	69.5	40.2	105.7	33.7	633.1	36.8	103.3	65.9	138.9
14	56.1	979.8	96.7	59.2	94.2	80.0	31.5	386.4	35.9	148.7	65.5	216.0
15	109.1	485.6	91.8	55.7	42.6	79.5	27.5	525.0	36.1	230.1	77.4	254.3
16	241.4	347.4	120.4	50.0	33.6	74.8	25.2	531.0	37.0	338.6	84.9	217.0
17	0.0M	1025.5	163.8	44.4	29.7	66.4	26.1	487.7	47.8	849.3	75.5	188.1
18	0.0M	569.3	183.0	42.6	29.3	60.6	27.5	373.8	71.0	1189.9	68.0	271.3
19	171.0	330.4	112.5	38.3	29.4	47.7	29.3	291.9	62.2	1026.6	70.6	320.3
20	88.9	237.0	83.6	37.9	28.7	37.2	29.7	253.7	394.2	479.9	69.0	332.8
21	596.6	165.6	110.4	36.5	33.1	37.4	111.1	157.9	409.3	284.2	127.0	252.0
22	406.3	167.3	92.9	36.4	31.0	41.7	118.6	103.0	189.5	262.2	106.4	146.9
23	271.6	135.6	74.2	38.4	31.2	66.7	66.0	117.1	401.9	779.4	84.8	102.4
24	289.7	125.1	173.9	92.4	32.6	62.7	46.1	150.7	379.6	889.8	77.6	92.6
25	281.8	109.8	331.8	158.3	32.5	243.8	47.3	163.1	149.0	462.8	71.5	77.9
26	182.0	92.8	160.6	69.8	33.7	287.4	37.2	131.4	93.2	204.0	67.2	67.1
27	141.1	109.6	111.3	42.0	33.1	101.2	30.4	85.0	95.2	130.4	64.3	169.0
28	129.8	596.1	190.4	39.0	35.3	64.5	30.1	73.3	74.0	101.6	69.5	161.5
29	124.6		192.5	34.9	34.9	67.8	30.6P	100.7	66.2	90.0	79.9	80.7
30	93.5		126.7	32.9	45.1	65.1	352.7P	113.1	65.8	77.6	64.4	186.2
31	85.7		90.3		59.8		307.5	75.8		78.5		714.8
MEAN	139.9P	296.8	166.5	58.5	37.5	114.1	67.6	210.9	111.7	268.4	76.3	151.5

M=MISSING DATA
P=PARTIAL MEAN

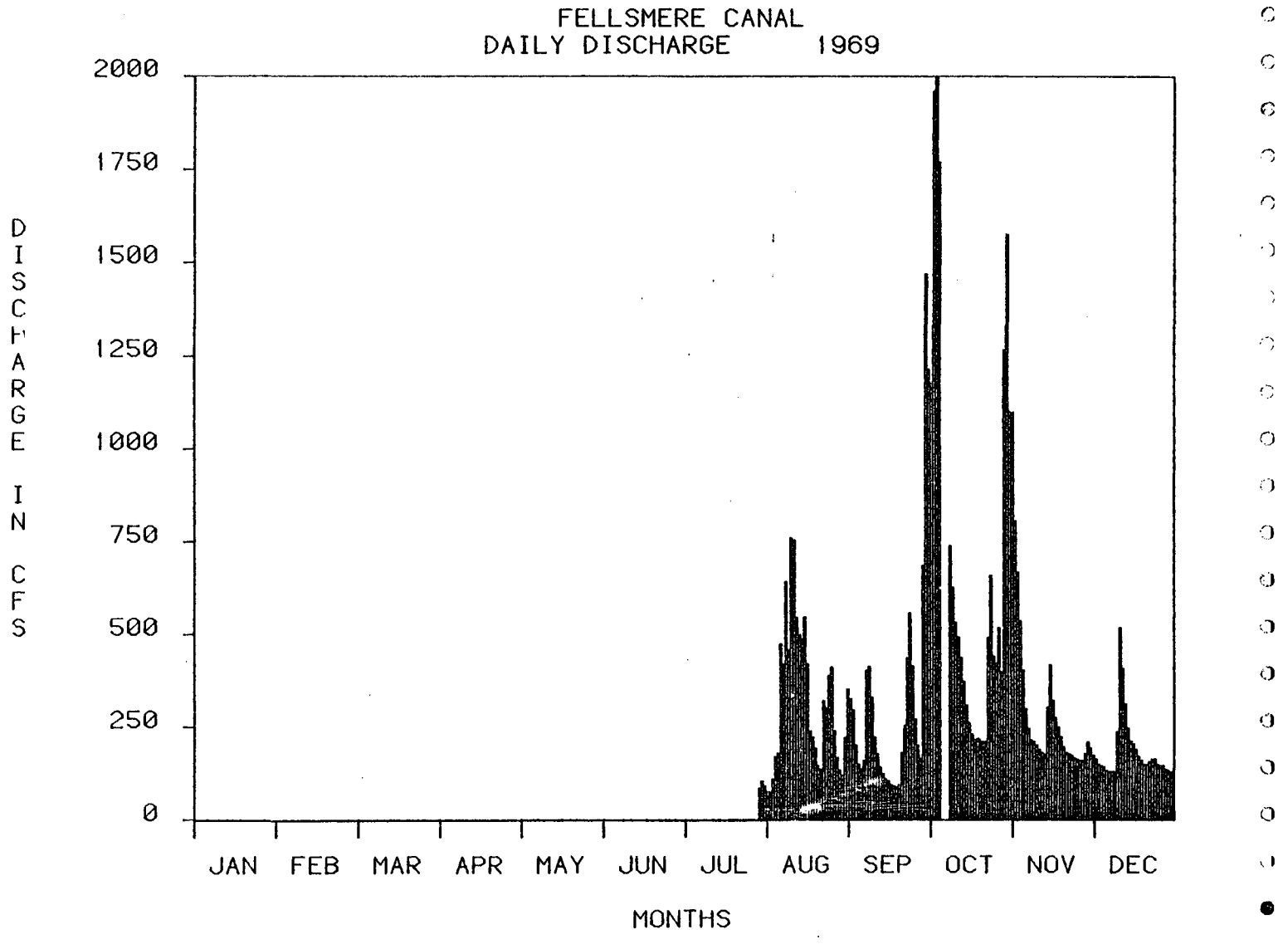
APPENDIX E

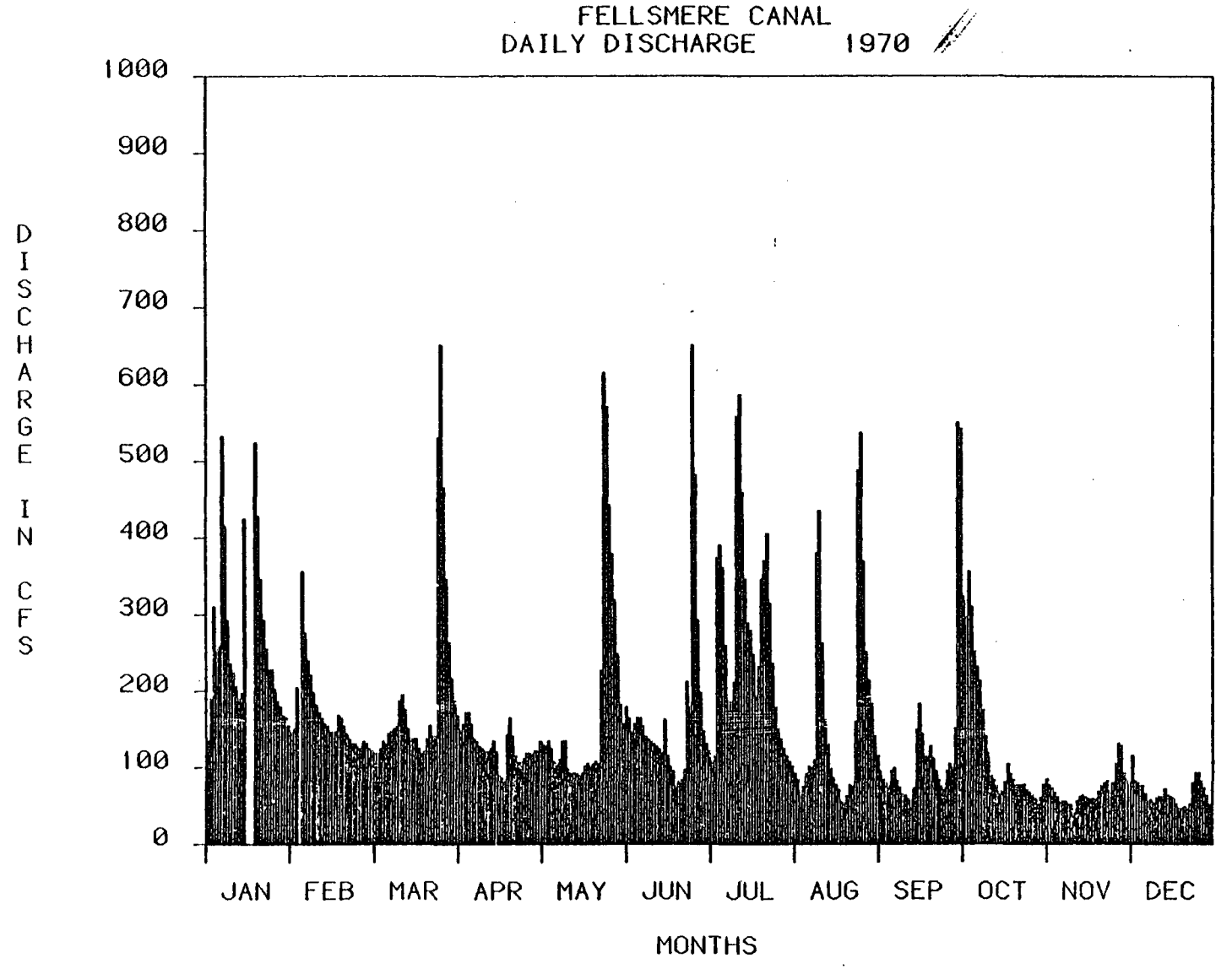
DAILY DISCHARGE HYDROGRAPH

FOR

FELLSMERE CANAL

Note: A break in hydrograph indicates that data was missing.


FELLSMERE CANAL
DAILY DISCHARGE 1969
DISCHARGE IN CFS
2000
1750
1500
1250
1000
750
500
250
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS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DAILY DISCHARGE 1970
DISCHARGE IN CFS
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900
800
700
600
500
400
300
200
100
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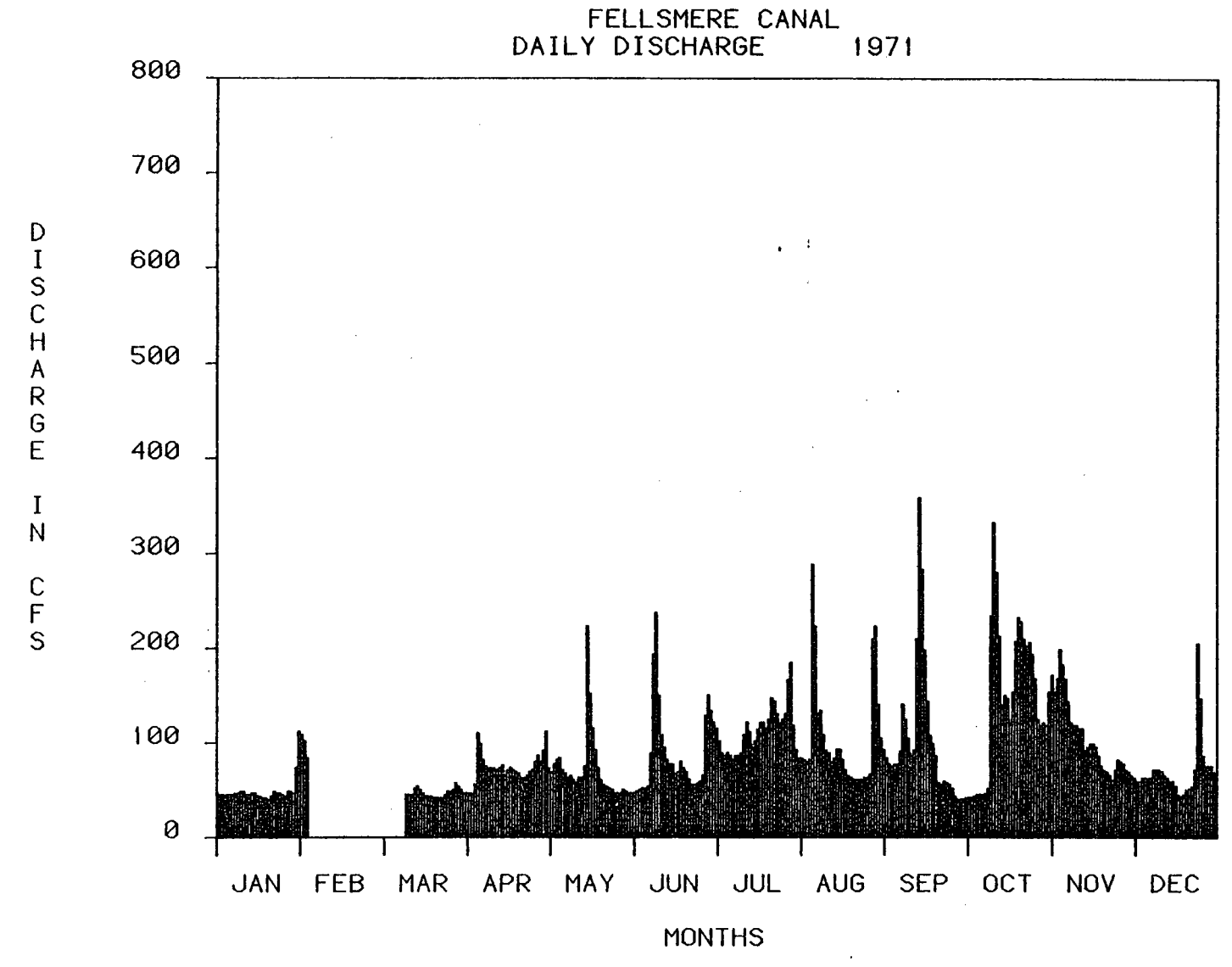
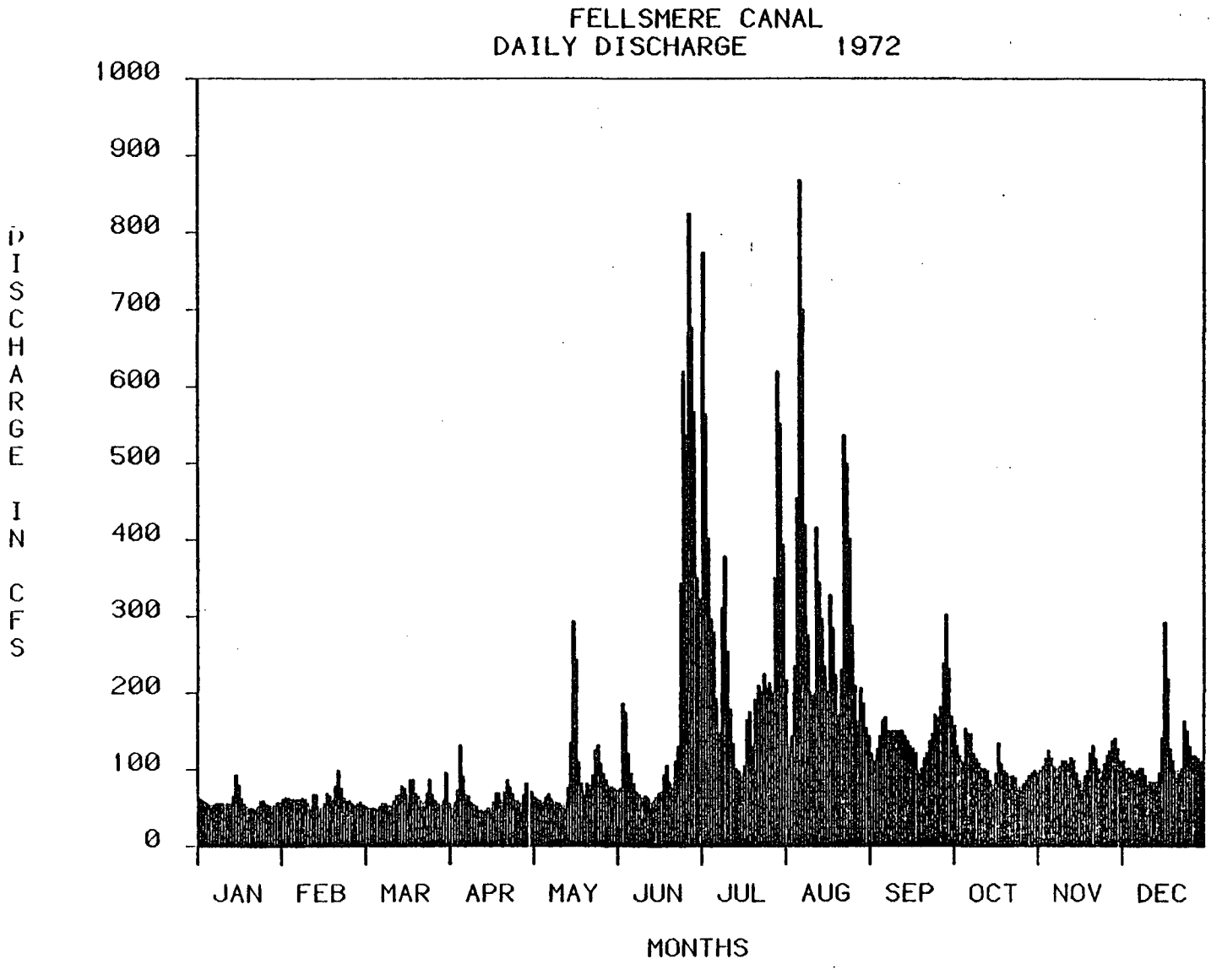
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS


FELLSMERE CANAL
DAILY DISCHARGE 1971
DISCHARGE IN CFS
800
700
600
500
400
300
200
100
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS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700
600
500
400
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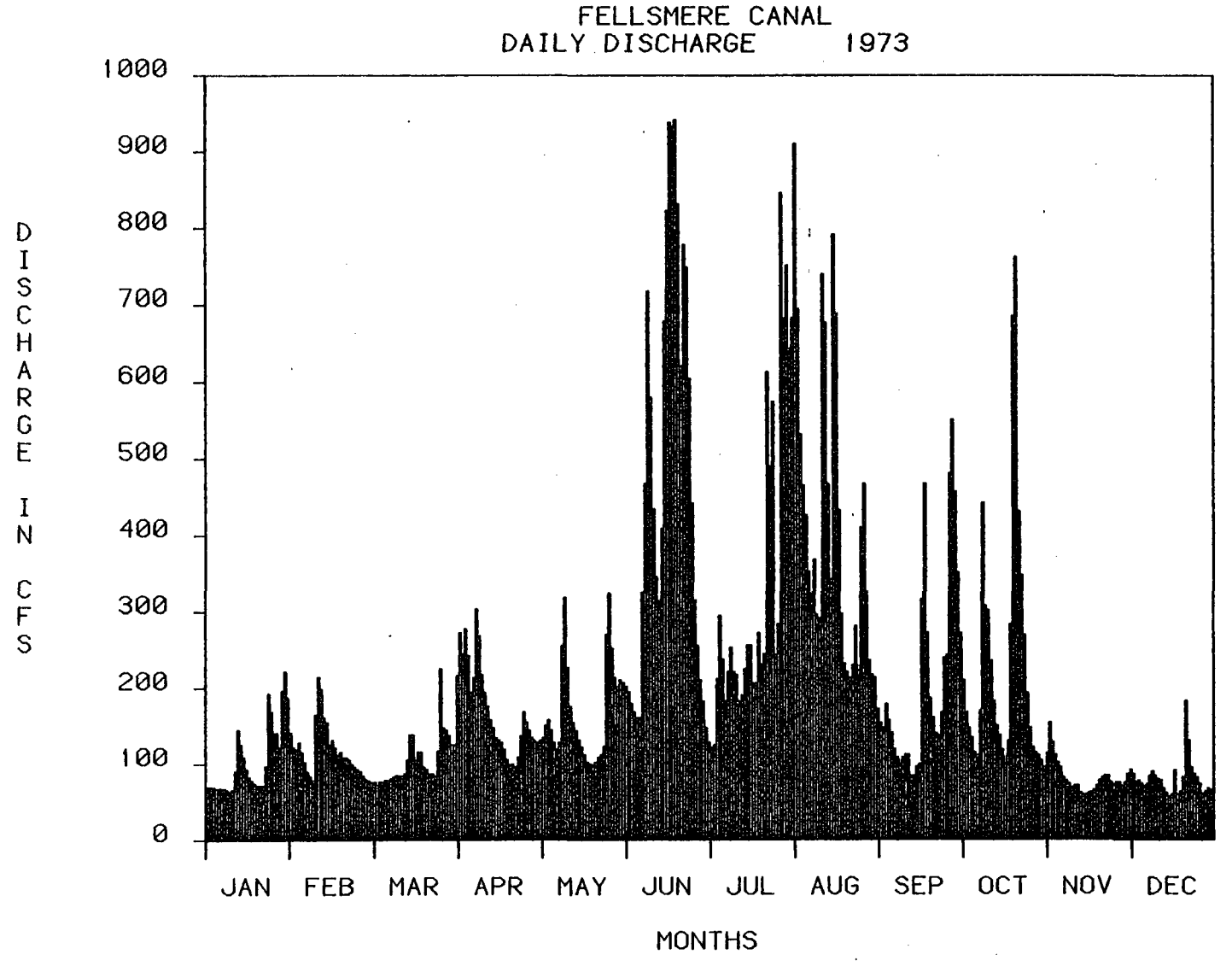
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS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DAILY DISCHARGE 1973
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900
800
700
600
500
400
300
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100
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FEB
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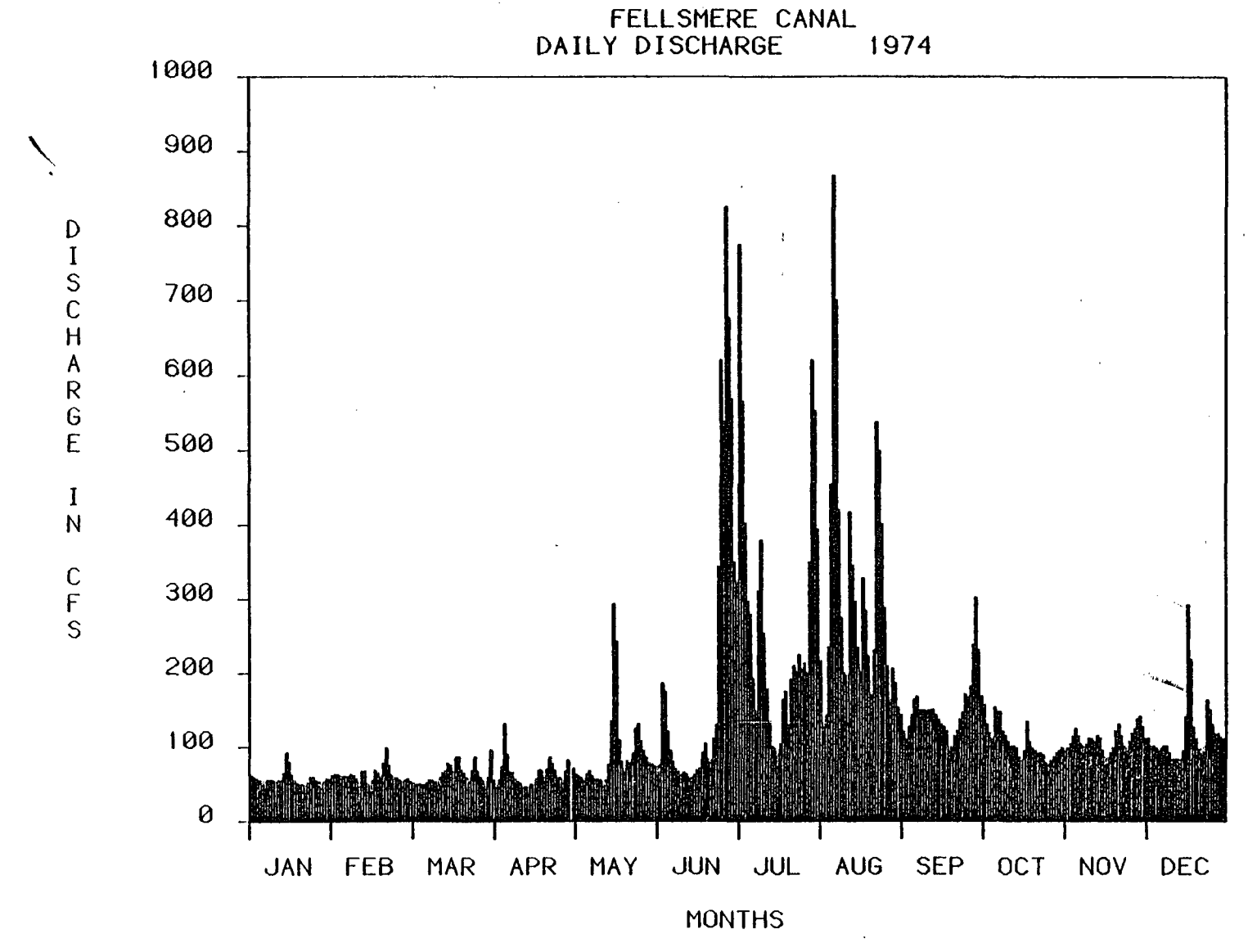
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS


FELLSMERE CANAL
DAILY DISCHARGE 1974
DISCHARGE IN CFS
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900
800
700
600
500
400
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FEB
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APR
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JUN
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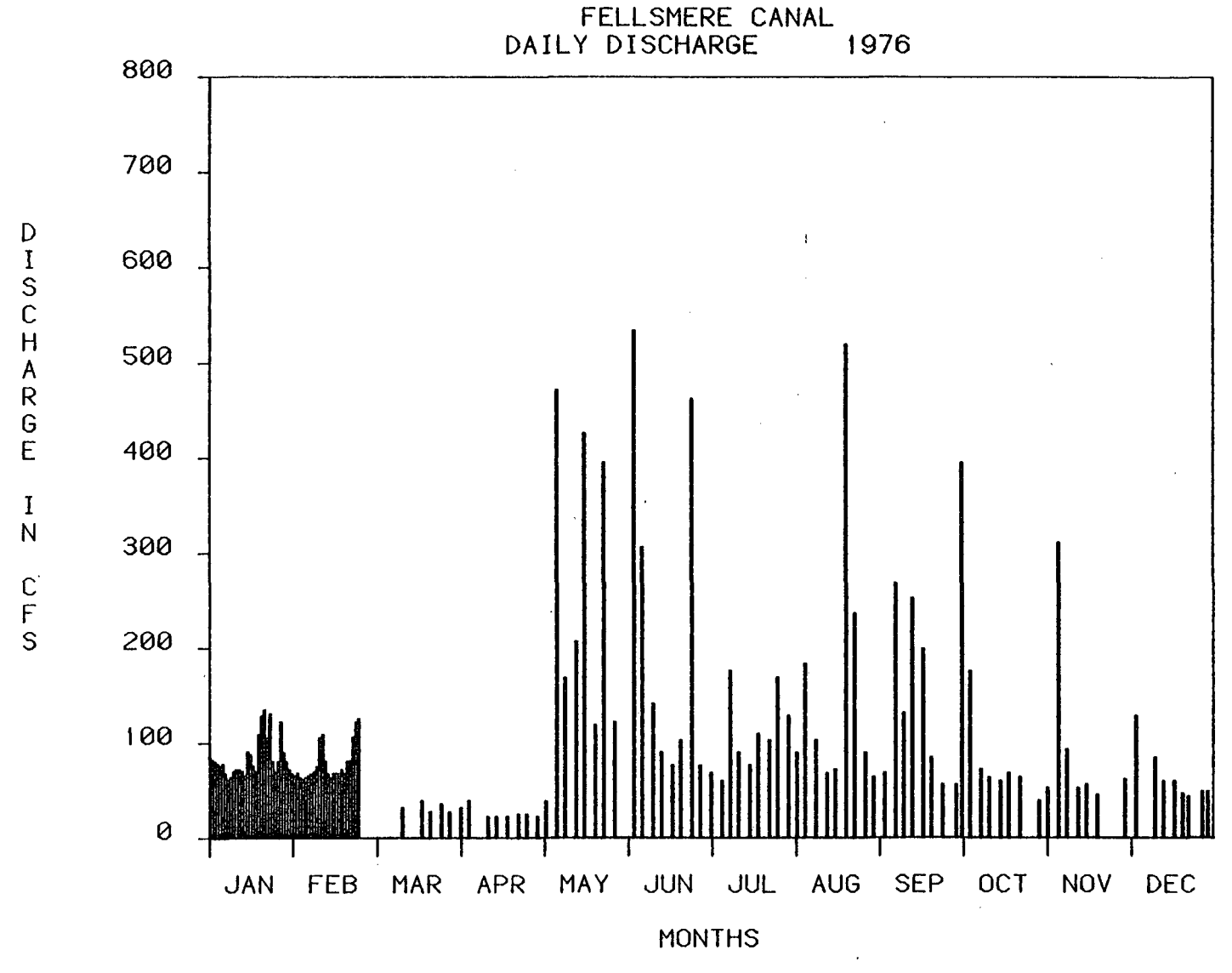
AUG
SEP
OCT
NOV
DEC
MONTHS


FELLSMERE CANAL
DAILY DISCHARGE 1976
DISCHARGE IN CFS
800
700
600
500
400
300
200
100
0
JAN
FEB
MAR
APR
MAY
JUN
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AUG
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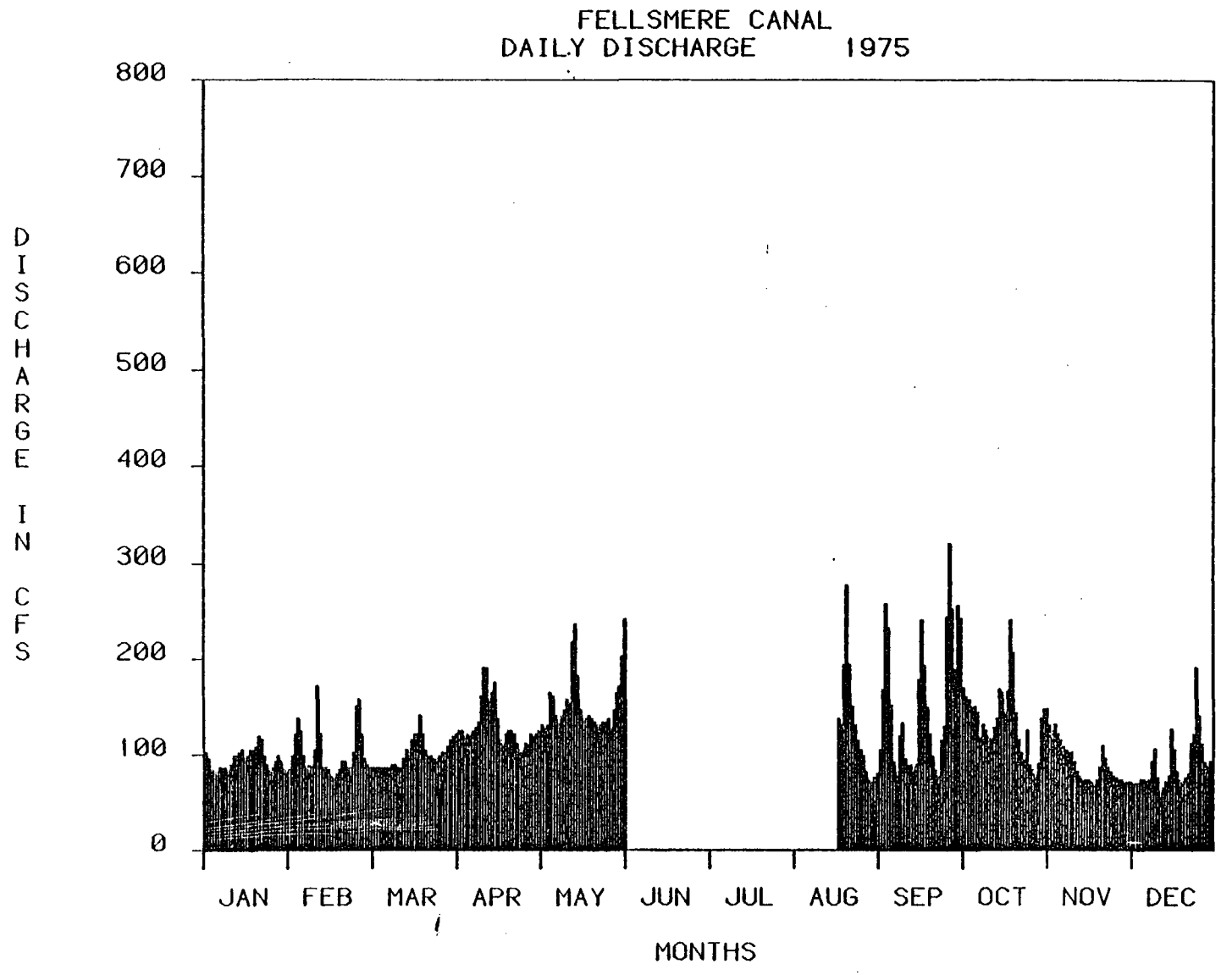
OCT
NOV
DEC
MONTHS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DAILY DISCHARGE 1975
DISCHARGE IN CFS
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700
600
500
400
300
200
100
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
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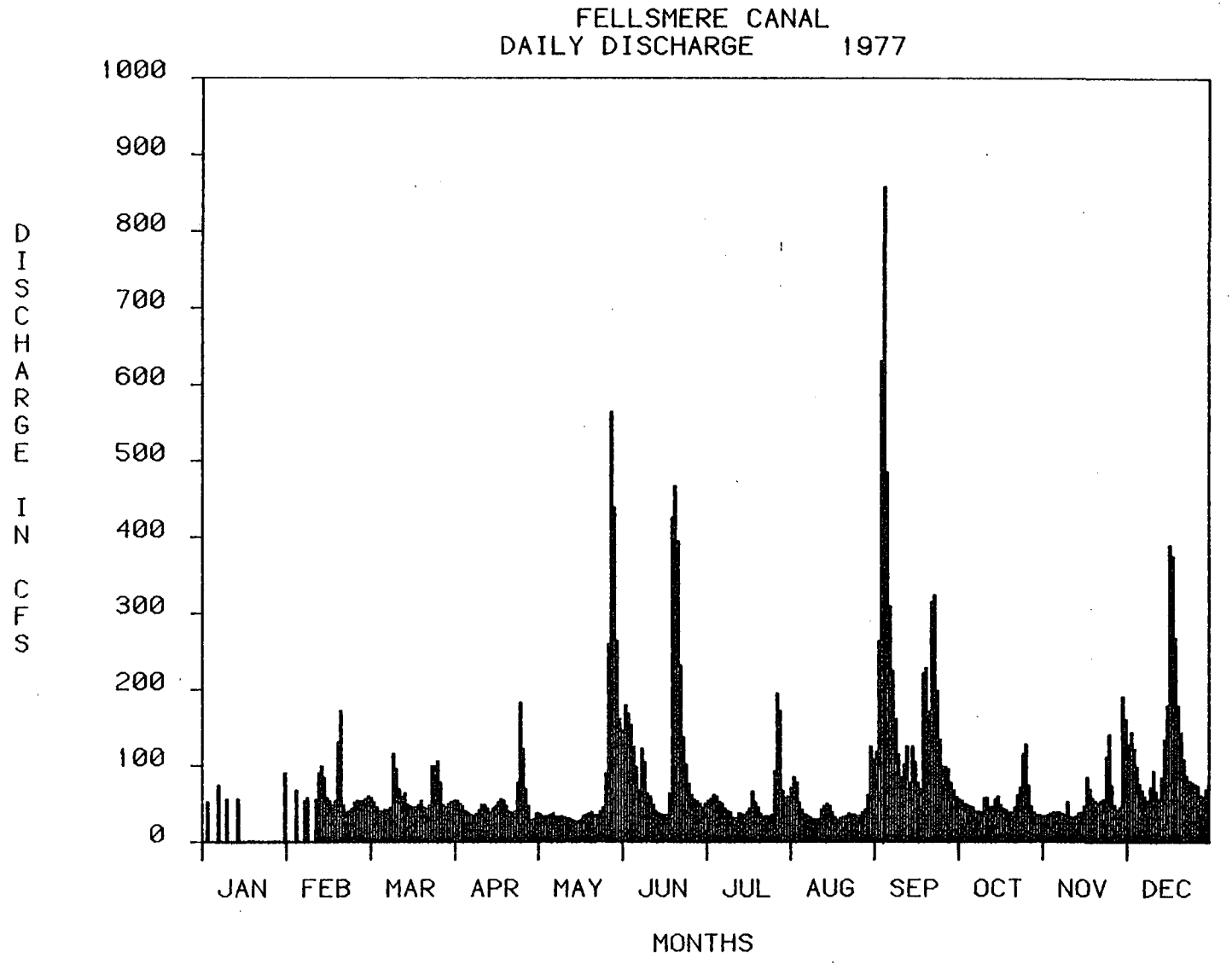
NOV
DEC
MONTHS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DAILY DISCHARGE 1977
DISCHARGE IN CFS
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600
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JAN
FEB
MAR
APR
MAY
JUN
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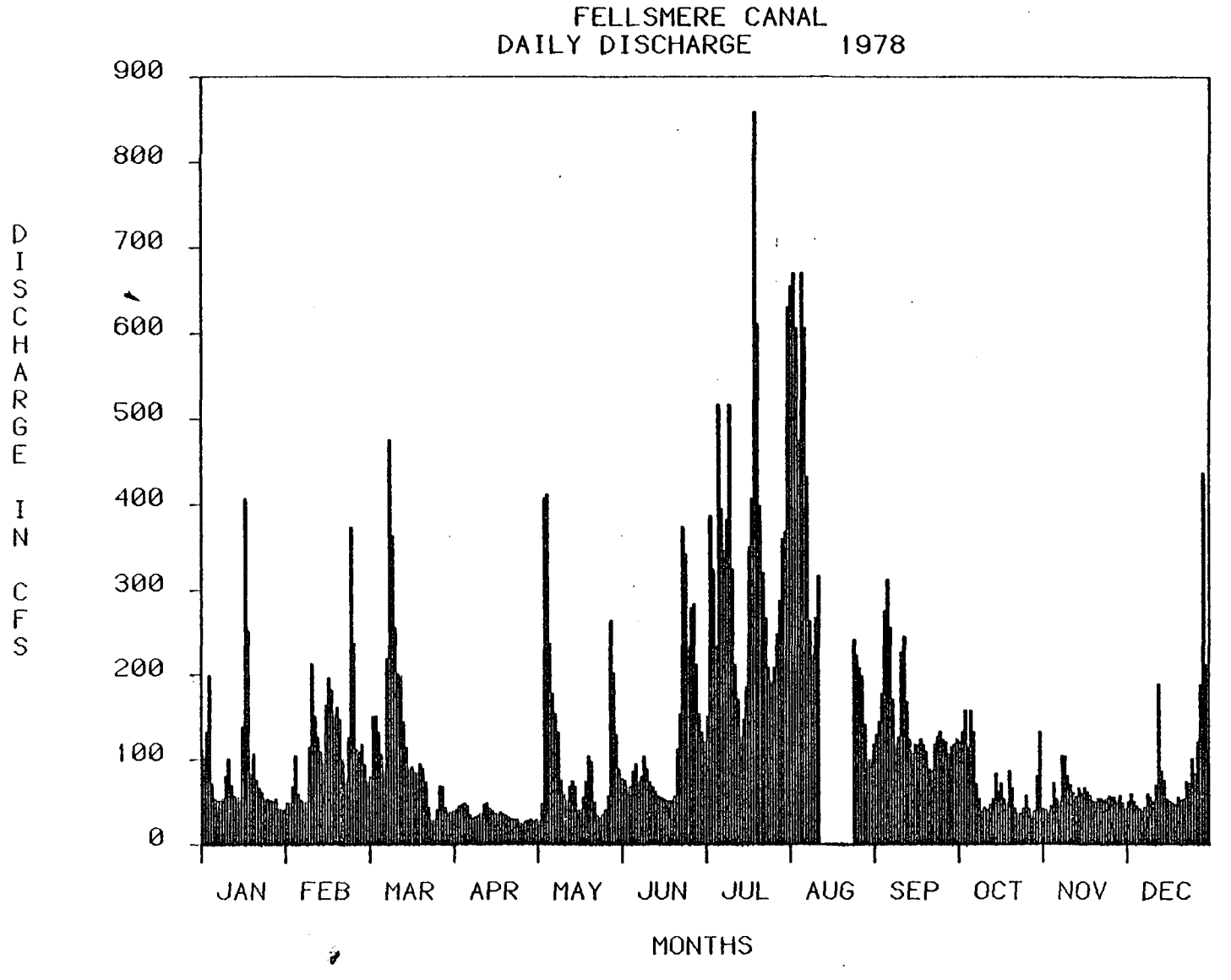
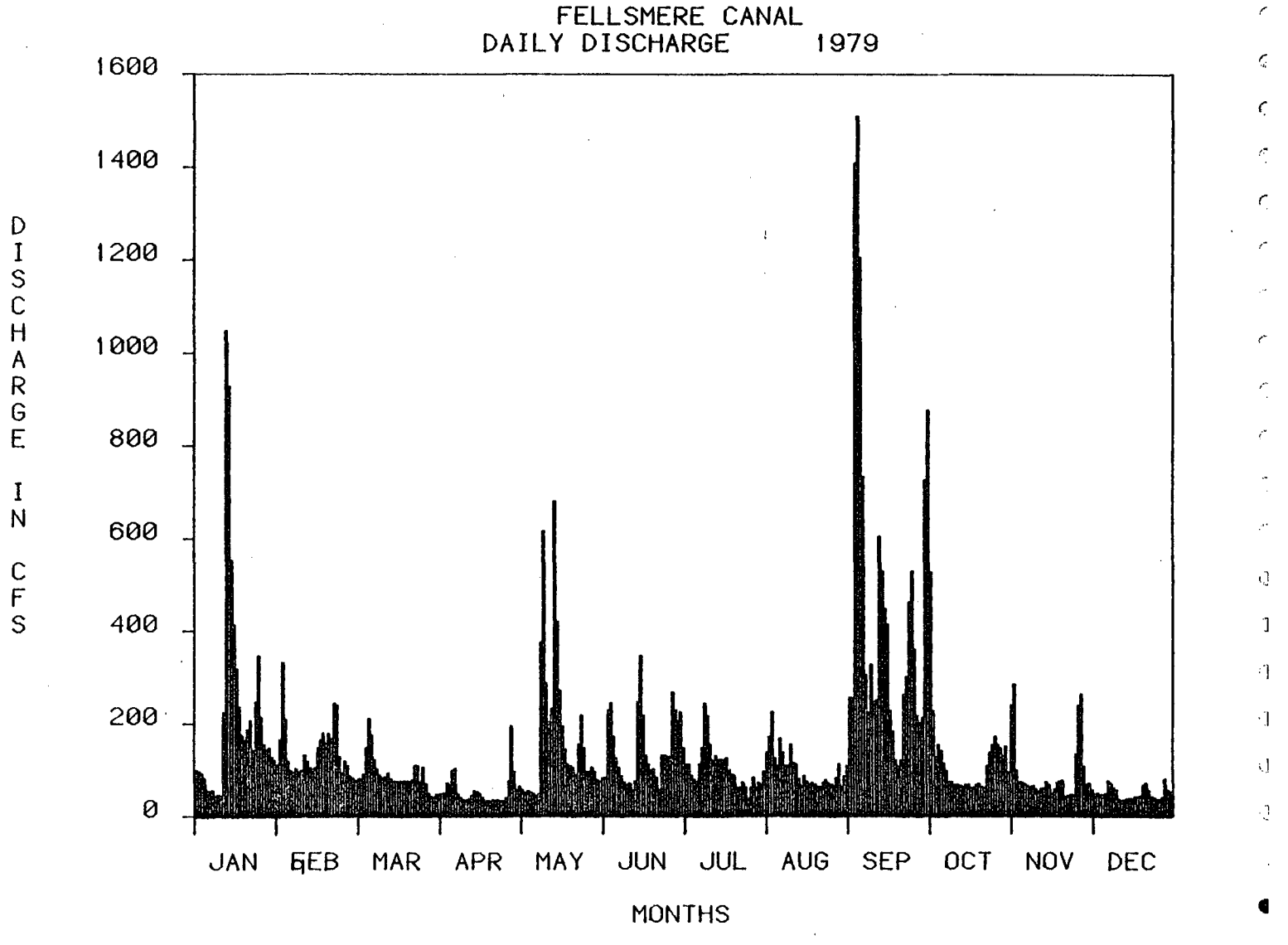
AUG
SEP
OCT
NOV
DEC
MONTHS


FELLSMERE CANAL
DAILY DISCHARGE 1978
DISCHARGE IN CFS
900
800
700
600
500
400
300
200
100
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS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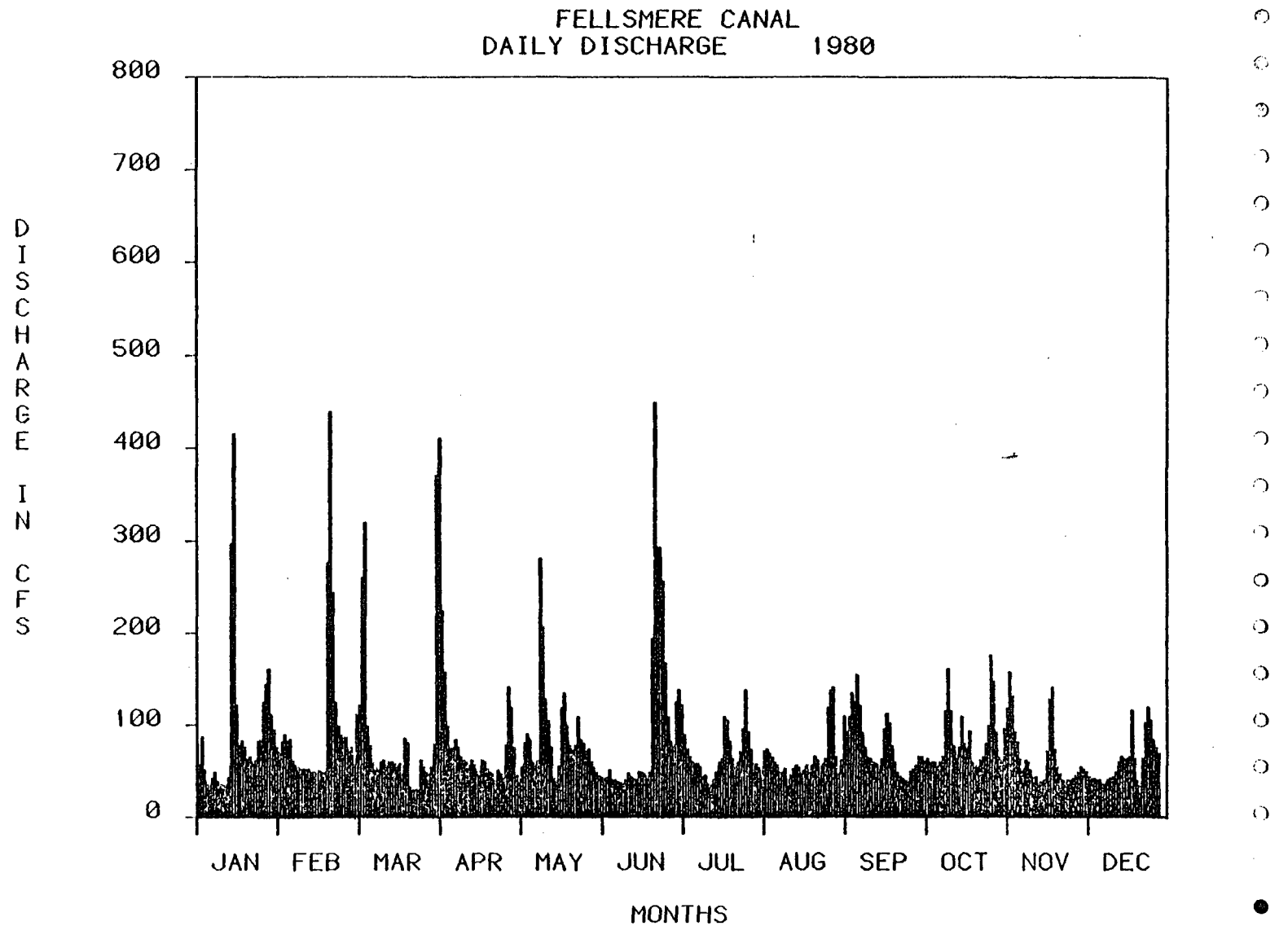
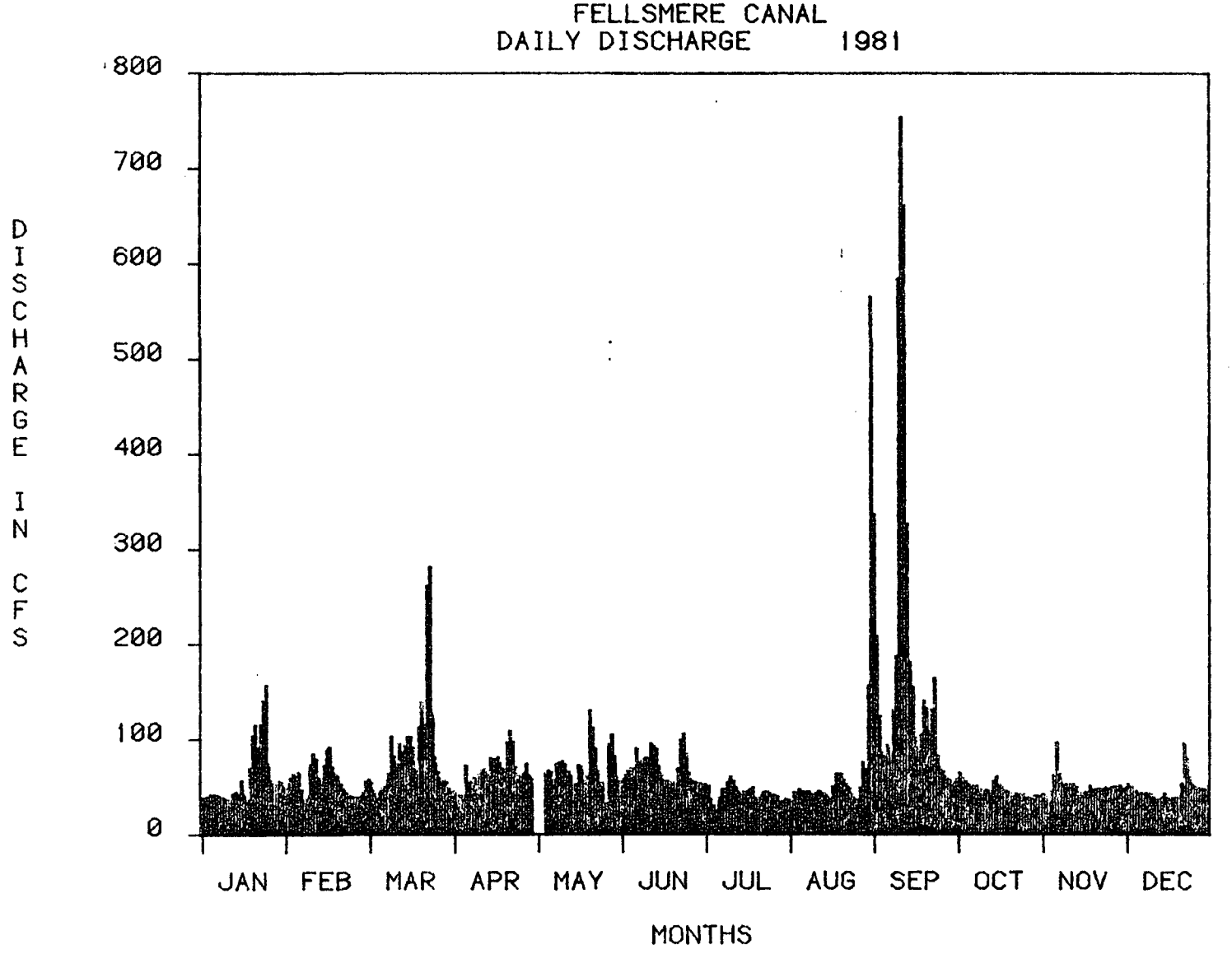
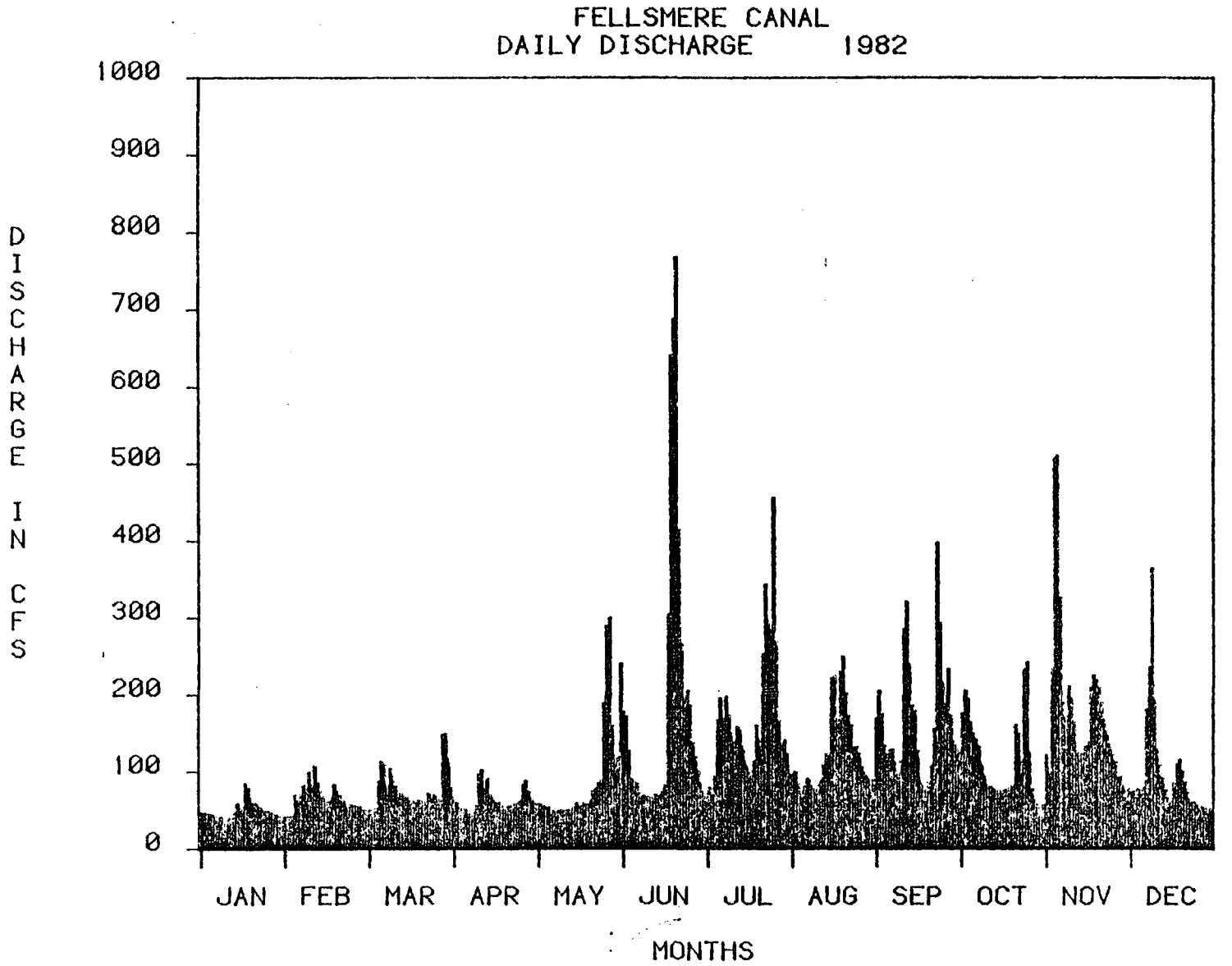
DAILY DISCHARGE 1979
DISCHARGE IN CFS
1600
1400
1200
1000
800
600
400
200
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS


FELLSMERE CANAL
DAILY DISCHARGE 1980
DISCHARGE IN CFS
800
700
600
500
400
300
200
100
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS


FELLSMERE CANAL
DAILY DISCHARGE 1981
DISCHARGE IN CFS
800
700
600
500
400
300
200
100
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS


FELLSMERE CANAL
DAILY DISCHARGE 1982
DISCHARGE IN CFS
1000
900
800
700
600
500
400
300
200
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JAN
FEB
MAR
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MAY
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AUG
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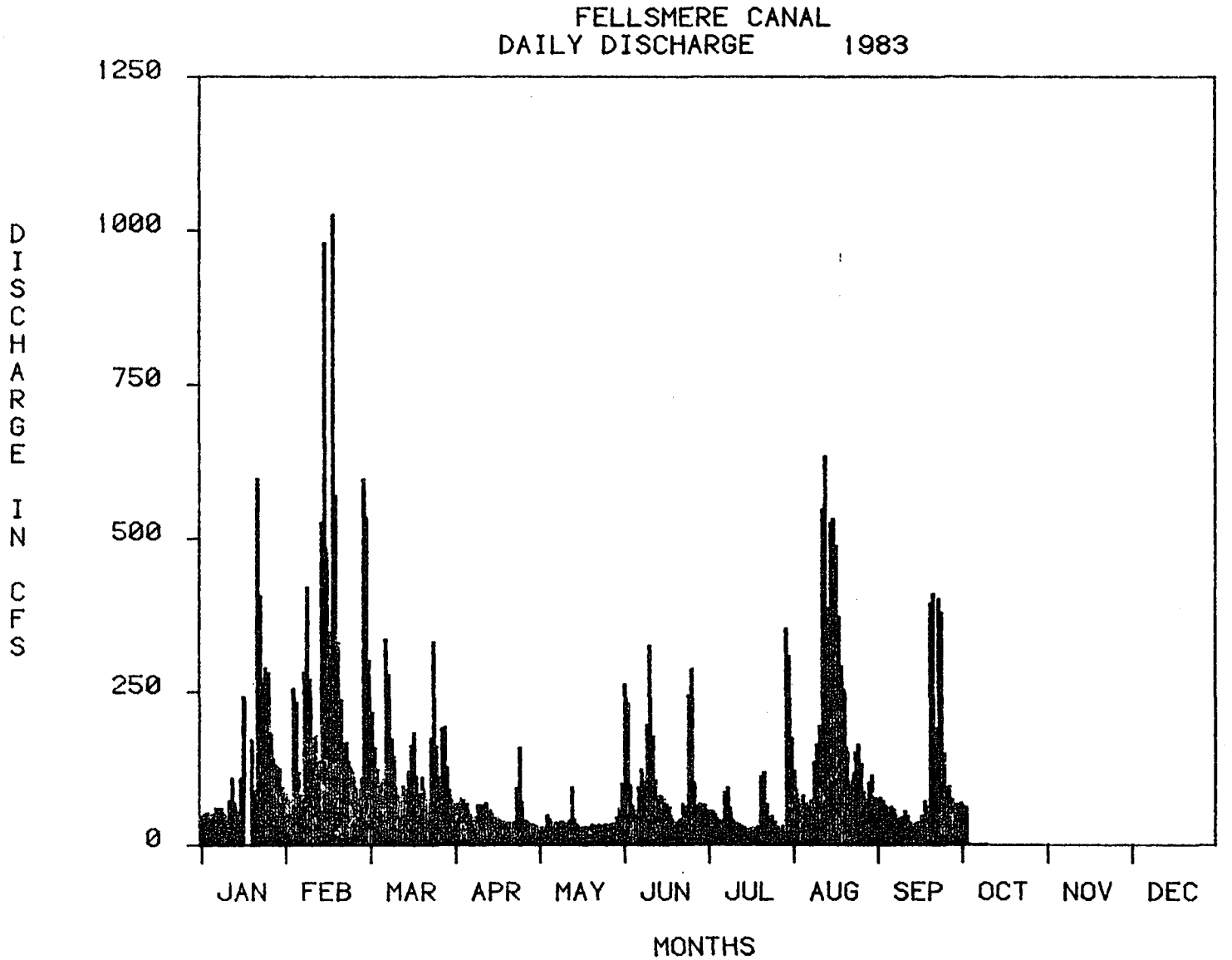
OCT
NOV
DEC
MONTHS


FELLSMERE CANAL
DAILY DISCHARGE 1983
1250
1000
750
500
250
0
DISCHARGE IN CFS
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS

APPENDIX F

DAILY DISCHARGE DATA

FOR

C-54 CANAL

DISCHARGE COMPUTATIONS (CFS) FOR STRUCTURE S-157 ON C-54 FOR 1969

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	9.0	84.3	5.6	1638.7	3554.3
2	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	10.8	745.6	6.4	943.5	2133.3
3	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	10.8	1396.6	1592.7	945.4	1189.0
4	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	5.6	13.8	1402.6	1297.8	595.2	1701.8
5	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	7.2	13.8	580.3	905.4	559.1	1711.4
6	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	7.2	10.8	34.2	561.5	1013.6	1721.3
7	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	9.0	23.3	6.4	2.9	1701.8	1671.9
8	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	10.8	37.6	19.5	845.9	1242.0	1689.5
9	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	13.8	84.3	20.7	893.3	1228.2	1709.7
10	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	11.8	168.4	22.0	1340.7	1492.1	1694.0
11	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	10.8	1032.9	23.3	1698.6	1338.2	1171.1
12	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	9.0	1357.1	20.7	1019.6	1694.0	950.3
13	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	7.2	996.2	10.8	1628.2	627.1	945.4
14	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	5.6	511.0	1.2	953.3	472.3	956.5
15	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	5.6	642.1	17.1	595.2	1696.6	948.3
16	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	4.9	254.3	24.6	746.0	2099.8	941.6
17	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	4.9	1269.5	23.3	963.0	1292.6	944.4
18	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	4.9	171.0	22.0	897.6	2948.2	1708.1
19	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	7.2	0.0	4.2	553.4	3559.1	1714.7
20	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	14.9	531.7	0.0	600.4	3570.8	1714.7
21	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	13.8	0.0	4.9	1044.6	3551.4	1718.0
22	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	16.0	1107.7	1010.7	715.4	3570.8	1719.6
23	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	20.7	2527.8	1415.5	0.0M	3578.6	1147.0
24	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	16.0	1800.6	840.1	0.0M	3582.5	16.0
25	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	13.8	250.7	74.5	0.0M	3574.7	18.3
26	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	11.8	1376.0	1409.6	0.0M	3570.8	566.8
27	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	11.8	177.4	1690.7	2384.0	3574.7	846.1
28	0.0M	0.0M	0.0M	0.0M	0.0M	0.0M	10.8	0.0M	2409.4	2390.7	3566.9	841.1
29	0.0M		0.0M	0.0M	0.0M	0.0M	13.8	0.0M	1127.3	2413.8	3570.8	853.2
30	0.0M		0.0M	0.0M	0.0M	0.0M	11.8	0.0M	467.7	2395.3	3590.4	916.8
31	0.0M		0.0M		0.0M		11.8	663.6		1016.1		9.0
MEAN	0.0P	0.0P	0.0P	0.0P	0.0P	0.0P	10.4P	537.6P	497.1	1091.4P	2213.0	1273.0

M=MISSING DATA
P=PARTIAL RECORD

DISCHARGE COMPUTATIONS (CFS) FOR STRUCTURE S-157 ON C-54 FOR 1970

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	12.8	0.8	10.8	0.0M	6.4	0.0	0.8	16.0	23.3	112.7	76.6	8.1
2	13.9	10.8	0.0M	0.0M	8.1	0.8	2.3	16.0	20.7	2.6	103.6	8.1
3	63.2	69.8	0.0M	0.0M	8.1	4.2	3.5	14.9	148.6	121.5	1.7	7.2
4	46.5	0.0	0.0M	0.0M	9.0	5.6	41.6	13.8	48.5	176.0	17.1	8.1
5	98.6	10.8	56.2P	0.0M	9.0	8.1	101.7	17.1	6.4	7.4	19.5	6.4
6	81.1	25.9	9.9	0.0M	7.2	8.1	64.9	16.0	14.9	96.2	20.7	6.4
7	42.6	63.5	11.8	0.0M	7.2	7.2	27.3	16.0	16.0	5.2	19.5	6.4
8	8.5	7.2	99.7	0.0M	14.3	5.6	28.7	16.0	16.0	24.6	18.3	5.6
9	65.7	18.3	0.0	20.7P	7.2	6.4	0.0M	37.5	16.0	31.5	18.3	7.2
10	1.7	4.9	0.2	18.3	6.4	4.9	0.0M	10.8	16.0	78.1	18.3	6.4
11	39.0	9.0	3.5P	17.1	6.4	6.4	0.0M	14.9	16.0	11.8	17.1	7.2
12	3.5	14.9	0.0M	18.3	6.4	20.5	0.0M	89.9	16.0	19.5	16.0	9.9
13	14.9	59.0	0.0M	14.9	7.2	0.0	0.0M	0.0	16.0	20.7	88.6	8.1
14	75.0	2.9	0.0M	16.0	6.4	0.0	0.0M	1.5	89.0	20.7	0.0	9.0
15	141.6	11.8	0.0M	11.8	5.6	0.0	0.0M	7.2	2.9	22.0	0.0	8.1
16	159.0	16.0	0.0M	11.8	5.6	0.2	0.0M	10.8	14.9	73.4	2.3	7.2
17	85.3	30.6	11.8	10.8	6.4	61.9	0.0M	10.8	48.1	4.9	7.2	9.0
18	72.9	9.9	13.8	12.8	5.6	0.0	118.6	13.8	4.2	9.9	10.8	7.2
19	69.7	12.8	10.8	10.8	3.5	0.0	57.1	11.8	11.8	18.3	9.9	6.4
20	85.1	13.8	11.8	10.8	4.2	0.0	56.1	11.8	12.8	22.0	10.8	67.3
21	7.2	12.8	11.8	9.9	4.9	0.1	119.2	36.5	14.9	24.6	11.8	0.0
22	25.9	53.6	14.9	9.0	4.9	3.5	203.5	6.4	16.0	19.6	11.8	0.0
23	87.7	0.1	12.8	9.0	5.6	6.4	75.7	28.8	16.0	0.2	12.8	0.0
24	1.5	240.3	11.8	9.9	13.8P	8.1	138.8	65.9	16.0	7.2	9.9	1.7
25	12.8	352.8	84.4	9.0	0.0M	29.8	127.9	220.8	18.3	14.9	5.6	3.5
26	22.0	333.5	115.0	9.0	0.0M	9.0	2.6	113.5	20.7	17.1	8.1	5.6
27	25.9	178.0	82.5	9.0	4.2P	10.8	222.0	93.6	19.5	18.3	8.1	5.6
28	64.2	8.1	85.0	9.0	7.2	76.0	14.9	88.5	45.2	17.1	9.0	4.9
29	6.4		83.8	9.0	9.0	0.0	16.0	3.2	121.9	18.3	9.0	4.2
30	76.2		19.5	8.1	10.8	0.0	16.0	22.0	95.7	175.4	8.1	4.2
31	0.0		24.6		51.4		17.1	25.9		147.1		5.6
MEAN	48.7	56.1	34.2P	12.0P	8.7P	9.5	66.2P	33.9	31.4	43.2	19.0	7.9

M=MISSING DATA
P=PARTIAL RECORD

DISCHARGE COMPUTATIONS (CFS) FOR STRUCTURE S-157 ON C-54 FOR 1971

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	5.6	3.5	29.9	0.0	0.0	0.0	17.1	4.9	8.1	0.0	18.3	20.7
2	4.2	2.9	0.8	0.2	0.0	0.0	10.8	4.2	9.9	0.0	18.3	18.3
3	59.3	3.5	5.6	0.3	0.0	0.0	9.0	4.9	6.4	0.0	18.3	22.0
4	0.0	4.2	2.3	0.0	0.0	0.0	7.2	3.5	7.2	0.0	16.0	20.7
5	0.0	4.2	0.8	0.0	0.0	0.0	9.9	6.4	9.0	0.0	11.8	18.3
6	0.1	109.5	1.2	0.0	0.0	0.0	7.2	11.8	32.4	0.0	13.8	14.9
7	2.3	0.0	4.9	0.0	0.0	0.0	6.4	9.0	7.2	0.0	12.8	18.3
8	4.2	34.6	2.9	0.0	0.0	0.0	8.1	9.0	0.0M	0.2	12.8	17.1
9	4.2	27.9	3.5	0.0	0.0	0.0	5.6	8.1	0.0M	3.5	11.8	16.0
10	47.2	18.3	4.2	0.0	0.0	0.0	4.9	1.7	0.0M	14.9	17.1	12.8
11	0.0	17.1	4.9	0.0	0.0	0.0	6.4	0.8	0.0M	54.6	14.9	10.8
12	0.0	13.8	4.9	0.0	0.0	0.0	36.6	2.9	0.0M	51.1	13.8	9.9
13	0.0	61.4	6.4	0.0	0.0	0.0	8.1	1.2	0.0M	0.0	13.8	9.9
14	0.0	0.3	9.0	0.0	0.0	0.0	11.8	3.5	0.0M	0.0	12.8	9.0
15	0.4	3.5	10.8	0.0	0.0	0.1	10.8	4.2	0.0M	0.0	12.8	9.9
16	0.0	4.9	10.8	0.0	0.0	3.5	8.1	3.5	0.0P	0.2	10.8	8.1
17	0.0	49.7	16.9	0.0	0.0	4.9	7.2	1.7	2.9	29.9	9.9	7.2
18	0.2	0.0	4.2	0.0	0.0	5.6	4.9	1.7	7.2	17.1	9.0	7.2
19	1.2	0.0	6.4	0.0	0.0	5.6	5.6	2.3	79.7	76.2	10.8	4.9
20	0.0	0.0	4.9	0.0	0.0	4.2	6.4	2.3	0.0	79.8	12.8	6.4
21	0.0	0.1	1.2	12.6	0.0	4.9	8.1	1.7	0.0	9.9	11.8	7.2
22	0.2	4.9	2.3	0.0	0.0	4.9	4.9	2.9	0.0	62.9	9.0	6.4
23	0.4	10.8	4.2	0.0	0.0	2.9	7.2	2.9	0.0	9.9	7.2	6.4
24	0.8	8.1	1.2	0.0	0.0	1.7	7.2	1.2	0.0	17.1	12.8	10.8
25	1.7	12.8	2.9	0.0	0.0	1.7	6.4	0.8	0.0	16.0	10.8	9.0
26	4.9	16.0	4.9	0.0	0.0	4.2	6.4	1.7	0.0	12.8	10.8	9.9
27	1.2	16.0	2.3	0.0	0.0	6.5	7.2	33.7	0.0	9.0	9.9	9.9
28	1.2	11.8	1.7	0.0	0.0	134.5	9.0	4.9	0.0	10.8	9.0	9.9
29	1.2		0.0	0.0	0.0	126.6	5.6	7.2	0.0	10.8	16.0	9.0
30	1.2		0.0	0.0	0.0	18.3	4.2	7.2	0.0	12.8	17.1	8.1
31	2.9		0.0		0.0		5.6	4.2		16.0		9.0
MEAN	4.7	15.7	5.0	0.4	0.0	11.0	8.5	5.0	7.7P	16.6	12.9	11.5

M=MISSING DATA
P=PARTIAL RECORD

DISCHARGE COMPUTATIONS (CFS) FOR STRUCTURE S-157 ON C-54 FOR 1979

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	6.4	10.8	10.8	10.8	11.8	83.5	88.5	8.1	27.3	3.6	4.9	22.0
2	6.4	11.8	9.9	12.8	9.9	2.0	80.2	8.1	100.9	0.1	5.6	27.3
3	6.4	88.5	12.8	9.0	9.9	19.5	17.1	8.1	2.5	3.5	4.2	24.6
4	8.1	0.9	9.0	7.2	9.0	92.5	108.6	7.2	19.5	8.1	4.9	20.7
5	7.2	3.5	11.8	6.4	6.4	19.5	11.8	7.2	25.9	6.4	4.2	20.7
6	6.4	6.4	5.6	4.2	2.3	27.3	101.1	9.9	25.9	6.4	6.4	23.3
7	5.6	9.9	6.4	4.2	14.6	24.6	51.9	8.1	25.9	5.6	17.1	20.7
8	5.6	5.6	6.4	5.6	22.0	19.5	52.7	10.8	23.3	3.5	14.9	18.3
9	5.6	9.9	4.9	1.7	23.3	19.5	86.8	12.8	18.3	2.3	12.8	18.3
10	7.2	14.9	4.9	2.3	19.5	98.7	14.9	11.8	16.0	0.8	10.8	18.3
11	6.4	18.3	2.9	2.3	17.1	96.3	104.7	12.8	13.8	1.7	9.0	17.1
12	5.6	17.1	2.3	5.6	16.0	90.6	4.9	11.8	12.8	3.5	8.1	9.9
13	6.4	18.3	5.6	6.4	18.3	252.1	96.2	16.0	17.1	8.1	9.0	6.4
14	8.1	9.0	6.4	5.6	18.3	286.9	1.8	16.0	17.1	9.0	11.8	4.9
15	4.9	13.8	4.9	4.9	19.5	184.5	17.1	13.8	10.8	9.9	9.9	12.8
16	5.6	12.8	3.5	6.4	17.1	195.6	24.6	22.0	12.8	6.4	8.1	13.8
17	3.5	11.8	5.6	6.4	61.2	77.8	20.7	17.1	9.0	7.2	5.6	11.8
18	4.2	16.0	0.2	2.9	8.1	167.7	65.5	14.9	7.2	4.9	6.4	10.8
19	5.6	113.4	1.7	5.6	18.3	882.9	13.8	14.9	8.1	8.1	8.1	17.1
20	6.4	0.0	1.2	7.2	107.7	501.5	14.9	11.8	7.2	9.9	9.9	16.0
21	9.0	0.0	2.9	6.4	0.0	360.5	18.3	10.8	5.6	8.1	6.4	17.1
22	7.2	0.0	6.4	7.2	2.3	314.7	18.3	9.9	5.6	7.2	7.2	35.0
23	6.4	0.0	14.9	7.2	64.4	315.7	18.3	14.9	4.2	9.9	5.6	20.7
24	5.6	0.0	27.3	9.0	16.0	399.9	16.0	17.1	6.4	7.2	4.9	19.5
25	5.6	0.0	92.0	9.0	30.1	261.0	13.8	17.1	6.4	9.9	7.2	25.9
26	4.2	1.2	17.1	7.2	25.9	201.5	89.8	18.3	4.9	9.9	10.8	24.6
27	3.5	2.9	27.3	8.1	23.3	196.0	0.0	18.3	4.9	9.0	7.2	19.5
28	4.2	7.2	25.9	3.5	22.0	184.8	0.0	14.9	5.6	8.1	83.3	19.5
29	4.9	9.0	17.1	6.4	23.3	190.2	2.9	0.0M	5.6	5.6	16.0	17.1
30	2.9		17.1	7.2	22.0	138.4	4.9	0.0M	6.4	4.9	68.2	16.0
31	5.6		30.0		24.6		9.9	0.0M		4.2		17.1
MEAN	5.8	14.2	12.7	6.3	22.1	190.2	37.7	13.0F	15.2	6.2	12.9	18.3

M=MISSING DATA
F=PARTIAL RECORD

DISCHARGE COMPUTATIONS (CFS) FOR STRUCTURE S-157 ON C-54 FOR 1973

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	14.9	30.1	14.9	15.3	1.2	6.4	20.7	174.7	16.0	105.1	66.9	9.9
2	14.9	30.1	14.9	20.7	0.8	6.4	18.3	144.9	57.9	88.6	27.3	9.9
3	14.9	95.7	13.8	20.7	1.7	4.9	16.0	152.1	20.7	84.7	31.5	9.0
4	14.9	4.2	13.8	74.7	2.9	3.5	14.9	76.5	30.1	138.0	30.1	9.9
5	12.8	16.0	14.9	91.2	1.7	4.9	18.3	85.7	30.1	25.9	31.5	10.8
6	14.9	19.5	16.0	87.6	1.2	4.2	17.1	103.7	81.1P	94.3	27.3	9.9
7	12.8	19.5	13.8	96.3	0.2	8.4	13.8	93.5	0.0M	22.0	24.6	9.0
8	13.8	19.5	12.8	148.1	0.2	93.7	16.0	81.1	0.0M	380.4	24.6	10.8
9	11.8	18.3	13.8	85.2	25.0	177.4	78.4	95.7	0.0M	439.0	23.3	9.0
10	10.8	99.2	12.8	86.1	0.8	200.1	102.5	11.8	0.0M	496.7	22.0	7.2
11	13.8	101.4	10.8	18.3	1.2	17.6	58.4	122.7	0.0M	481.1	22.0	8.1
12	27.3	11.8	12.8	24.6	2.3	64.5	70.6	18.0	72.9P	326.8	187.2	7.2
13	25.9	86.7	11.8	20.7	1.2	20.7	10.4	103.8	16.0	269.9	0.0	8.1
14	25.9	11.8	10.8	16.0	1.7	64.5	20.7	25.9	51.2	234.7	2.3	8.1
15	24.6	79.8	11.8	12.8	1.2	191.3	23.3	121.1	22.0	168.7	9.9	7.2
16	22.0	22.0	10.8	10.8	0.4	173.4	18.3	253.5	82.0	87.5	16.0	10.8
17	22.0	33.0	12.8	9.9	0.2	141.3	25.9	170.8	96.1	145.4	16.0	9.9
18	23.3	34.5	7.2	0.0	0.0	122.9	11.8	135.8	88.6	161.4	16.0	5.6
19	23.3	34.5	6.4	7.2	0.0M	102.5	13.8	87.6	15.0	394.6	17.1	6.4
20	19.5	93.1	7.2	4.2	0.0M	133.7	13.8	88.8	103.5	523.3	16.0	7.2P
21	18.3	20.7	10.8	3.5	0.0M	108.5	13.8	107.4	19.5	461.9	17.1	0.0M
22	19.5	27.3	6.4	4.2	0.0M	66.6	68.0	7.1	33.0	337.7	16.0	0.0M
23	25.9	23.3	8.1	4.9	0.0M	250.5P	109.2	30.1	71.0	291.6	14.9	0.0M
24	36.0	23.3	5.6	2.9	0.0M	0.0M	65.6	90.6	103.4	264.6	16.0	0.0M
25	37.6	20.7	8.1	3.5	0.0M	0.0M	22.0	8.9	13.8	133.3	14.9	0.0M
26	34.5	19.5	16.0	2.9	0.0M	71.6	91.9	169.8	96.4	119.5	12.8	0.0M
27	33.0	18.3	9.0	3.5	0.0M	65.7	152.3	89.5	257.9	151.5	16.0	0.0M
28	92.2	16.0	8.1	0.8	0.0M	9.9	220.2	88.8	205.8	107.0	16.0	0.0M
29	19.5		10.8	1.2	0.0M	23.3	182.1	17.1	160.0	22.9	12.8	0.0M
30	30.1		9.0	1.2	0.0M	23.3	89.5	68.1	218.1	90.1	9.9	0.0M
31	31.5		10.8		6.4		101.5	100.9		36.0		0.0M
MEAN	23.9	36.8	11.2	29.3	2.7P	77.2P	54.8	94.4	78.5P	215.6	25.9	8.7P

M=MISSING DATA
P=PARTIAL RECORD

DISCHARGE COMPUTATIONS (CFS) FOR STRUCTURE S-157 ON C-54 FOR 1974

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	9.9	1.7	0.0	0.0	0.0	0.0	95.7	61.9	14.9	4.9	1.2	1.2
2	9.9	1.2	0.0	0.0	0.0	0.0	114.9	81.5	11.8	5.6	0.8	0.0
3	61.3	0.8	0.0	0.0	0.0	31.7	383.9	8.1	10.8	4.2	0.8	0.0
4	0.0	0.2	0.0	0.0	0.0	0.0	0.0	72.6	30.4	3.5	0.8	0.0
5	0.8	0.0	0.0	0.0	0.0	0.0	1.0	116.1	66.1	1.2	1.2	0.0
6	4.2	0.0	0.0	0.0	0.0	0.0	100.3	226.9	44.3	5.6	0.8	0.0
7	54.3	0.0	0.0	0.0	0.0	0.0	152.1	293.3	16.0	12.8	0.8	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	97.8	170.8	16.0	9.0	0.4	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	222.0	124.7	46.0	8.1	0.8	0.0
10	1.2	0.0	0.0	0.0	0.0	0.0	140.5	9.9	9.0	7.2	0.4	0.0
11	4.2	0.0	0.0	0.0	0.0	0.0	96.5	226.6	10.8	5.6	0.4	0.0
12	6.4	0.0	0.0	0.0	0.0	0.0	101.2	89.1	12.8	5.6	0.8	0.0
13	7.2	0.0	0.0	0.0	0.0	0.0	18.3	88.7	42.7	4.2	0.0	0.0
14	9.9	0.0	0.0	0.0	0.0	0.0	24.6	18.3	2.3	5.6	0.0	0.0
15	10.8	0.0	0.0	0.0	0.0	0.6	20.7	25.9	6.4	4.9	0.0	0.0
16	12.8	0.0	0.0	0.0	0.0	8.1	42.4	118.1	7.2	5.6	0.0	0.0
17	10.8	0.0	0.0	0.0	0.0	6.4	8.1	53.4	9.0	5.6	0.0	2.9
18	9.9	0.0	0.0	0.0	0.0	6.4	11.8	18.3	9.0	53.5	0.2	4.9
19	9.0	0.0	0.0	0.0	0.0	5.6	13.8	102.9	8.1	0.0	0.8	8.1
20	9.0	0.0	0.0	0.0	0.0	6.4	17.1	3.4	9.9P	0.0	1.7	8.1
21	9.0	0.0	0.0	0.0	0.0	0.0	14.9	19.7	0.0M	0.0	1.2	9.9
22	7.2	0.0	0.0	0.0	0.0	5.3	18.3	135.5	0.0M	0.0	0.2	9.9
23	6.4	0.0	0.0	0.0	0.0	14.9	22.0	124.7	0.0M	0.1	0.1	9.9
24	7.2	0.0	0.0	0.0	0.0	10.8	87.2	100.7	0.0M	0.2	0.0	10.8
25	7.2	0.0	0.0	0.0	0.0	149.2	72.4	81.9	0.0M	0.2	0.0	11.8
26	5.6	0.0	0.0	0.0	0.0	95.5	10.8	24.4	9.9P	0.2	0.0	10.8
27	5.6	0.0	0.0	0.0	0.0	155.6	23.3	74.5	9.0	0.8	0.0	10.8
28	4.9	0.0	0.0	0.0	0.0	205.3	101.6	78.4	9.9	0.8	0.0	10.8
29	3.5		0.0	0.0	0.0	226.5	177.8	70.7	9.9	0.8	0.0	9.9
30	4.2		0.0	0.0	0.0	199.1	143.9	25.9	6.4	0.8	0.0	9.9
31	3.5		0.0		0.0		114.6	20.7		0.8		8.1
MEAN	9.5	0.1	0.0	0.0	0.0	37.6	79.0	86.0	17.1P	5.1	0.5	4.4

M=MISSING DATA
P=PARTIAL RECORD

DISCHARGE COMPUTATIONS (CFS) FOR STRUCTURE S-157 ON C-54 FOR 1975

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	9.9	0.0	1.2	0.0	0.0	0.4	9.0	4.9	2.9	10.8	9.9	4.2
2	8.1	0.0	1.7	0.0	0.0	65.5	12.8	4.9	54.6	18.3	6.4	3.5
3	7.2	0.0	0.4	0.0	0.0	27.3	11.8	4.9	39.9	44.3	10.8	3.5
4	7.2	0.0	0.0	0.0	0.0	25.9	11.8	4.2	18.3	17.1	10.8	2.3
5	4.9	0.0	0.8	0.0	0.0	18.3	10.8	3.5	18.3	18.3	11.8	3.5
6	4.9	0.0	1.2	0.0	0.0	14.9	9.0	2.9	13.8	17.1	11.8	3.5
7	2.9	0.0	2.3	0.0	0.0	9.9	6.4	0.8	8.1	13.8	9.0	2.9
8	2.9	0.0	2.3	0.0	0.0	7.2	7.2	0.4	7.2	12.8	9.0	3.5
9	2.9	0.0	0.4	0.0	0.0	4.9	16.1	0.4	7.2	11.8	8.1	4.2
10	2.3	0.0	0.4	0.0	0.0	5.6	4.9	0.2	9.9	9.9	7.2	2.3
11	1.7	0.0	0.2	0.0	0.0	7.2	5.6	0.2	10.8	8.1	6.4	0.4
12	1.2	0.0	0.0	0.0	0.0	7.2	6.4	0.8	10.8	9.0	7.2	0.8
13	1.7	0.0	0.0	0.0	0.0	4.9	6.4	5.6	9.0	7.2	2.3	0.2
14	0.4	0.0	0.8	0.0	0.0	4.9	5.6	11.8	8.1	10.8	2.9	0.0
15	0.0	0.0	0.0	0.0	0.0	7.2	5.6	10.8	6.4	10.8	3.5	0.8
16	0.0	0.0	0.0	0.0	0.0	13.8	5.6	8.1	8.1	9.0	4.2	1.7
17	0.0	0.0	0.0	0.0	0.0	11.8	5.6	6.4	9.0	9.9	4.2	2.3
18	0.0	0.0	0.0	0.0	0.0	13.8	7.2	6.4	8.1	16.0	2.9	1.7
19	0.0	0.0	1.4	0.0	0.0	12.8	6.4	6.4	7.2	16.0	5.6	0.8
20	0.0	0.0	0.0	0.0	0.0	11.8	6.4	17.1	5.6	12.8	8.1	0.2
21	0.0	0.0	0.0	0.0	0.0	11.8	5.6	17.1	5.6	10.8	9.0	1.7
22	0.0	0.0	0.0	0.0	0.0	10.8	4.2	16.0	4.9	9.9	6.4	1.2
23	0.0	0.0	0.0	0.0	0.0	9.9	4.2	11.8	5.6	9.0	6.4	0.8
24	0.0	0.2	0.0	0.0	0.0	13.5	4.2	9.0	6.4	10.8	6.4	0.8
25	0.0	1.7	0.0	0.0	0.0	89.7	2.9	6.4	6.4	6.4	4.2	0.8
26	0.0	2.9	0.0	0.0	0.0	28.2	5.6	4.2	11.8	0.0	4.9	0.2
27	0.0	2.9	0.0	0.0	0.0	25.5	8.1	4.2	11.8	5.6	4.9	1.7
28	0.0	2.3	0.0	0.0	0.0	14.9	7.2	4.2	10.8	5.6	4.9	0.4
29	0.0		0.0	0.0	0.0	14.9	5.6	2.9	12.0	9.0	3.5	1.7
30	0.0		0.0	0.0	0.0	13.8	5.6	2.9	31.5P	12.8	4.9	2.3
31	0.0		0.0		0.0		4.2	2.3		11.8		2.3
MEAN	1.9	0.4	0.4	0.0	0.0	16.9	7.0	5.8	12.3	12.1	6.6	1.8

M=MISSING DATA
P=PARTIAL RECORD

DISCHARGE COMPUTATIONS (CFS) FOR STRUCTURE S-157 ON C-54 FOR 1976

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	1.7	19.5	0.0	0.0	0.0	201.0	10.8	4.9	2.9	112.2	8.1	11.8
2	0.8	9.0	0.0	0.0	0.0	121.3	9.9	91.1	2.9	3.7	7.2	18.3
3	0.8	9.0	0.0	0.0	0.0	0.0M	10.8	34.0	3.5	19.5	16.7	16.0
4	0.8	8.1	0.0	0.0	0.0	0.0M	10.8	0.0	3.5	25.9	19.5	13.8
5	0.2	8.1	0.0	0.0	0.0	0.0M	8.1	0.0	4.9	25.9	17.1	10.8
6	0.0	9.0	0.0	0.0	0.0	0.0M	8.1	0.0	13.8	54.9	14.9	79.6
7	0.0	6.4	0.0	0.0	0.0	226.0	10.8	0.0	16.0	13.8	11.8	14.9
8	0.2	3.5	0.0	0.0	0.0	89.2	15.6	0.0	16.0	9.9	9.0	14.9
9	0.2	1.7	0.0	0.0	0.0	9.0	34.5	0.0	13.8	10.8	7.2	9.0
10	0.0	0.8	0.0	0.0	0.0	144.1	25.9	1.7	16.0	9.0	6.4	9.0
11	0.0	1.2	0.0	0.0	0.0	10.8	19.5	2.9	14.2	9.0	7.2	9.9
12	0.0	1.2	0.0	0.0	0.0	22.0	10.8	4.2	67.0	8.1	7.2	9.0
13	0.0	0.8	0.0	0.0	0.0	22.0	11.8	4.9	79.1	8.1	7.2	9.0
14	0.3	0.4	0.0	0.0	0.0	17.1	13.8	6.4	86.8	4.9	5.6	77.9
15	1.7	0.1	0.0	0.0	0.0	13.8	10.8	6.4	97.0	2.9	5.6	6.4
16	2.9	0.0	0.0	0.0	0.0	11.8	54.3	8.1	4.9	2.3	4.2	9.9
17	3.1	0.0	0.0	0.0	0.0	10.8	3.5	8.1	16.0	4.9	4.2	9.9
18	0.0	0.0	0.0	0.0	0.0	9.0	11.8	6.4	25.9	6.4	4.9	9.9
19	0.0	0.0	0.0	0.0	0.0	9.0	14.9	3.5	31.5	5.6	4.9	9.0
20	0.0	0.0	0.0	0.0	0.0	9.9	11.8	17.1	33.0	8.1	4.9	10.8
21	0.0	0.0	0.0	0.0	0.0	11.8	29.3	20.7	28.7	8.1	5.6	69.7
22	0.0	0.0	0.0	0.0	0.0	13.8	9.0	18.3	30.1	6.4	4.2	0.0
23	0.0	0.0	0.0	0.0	0.0	11.8	11.8	18.3	28.7	4.2	2.9	0.0
24	0.0	0.0	0.0	0.0	2.0	25.9	12.8	17.1	25.9	4.9	1.7	0.4
25	1.2	0.0	0.0	0.0	6.4	109.7	10.8	14.9	30.1	5.6	1.2	1.7
26	3.5	0.0	0.0	0.0	10.8	6.4	8.1	13.8	93.9	5.6	1.2	4.9
27	9.0	0.0	0.0	0.0	9.0	16.0	6.4	9.9	2.9	4.9	1.2	4.9
28	17.1	0.0	0.0	0.0	11.8	17.1	6.4	9.0	6.4	3.5	1.7	4.9
29	18.3	0.0	0.0	0.0	207.6	12.8	6.4	7.2	7.2	4.9	1.7	7.2
30	19.5		0.0	0.0	509.6	10.8	4.9	6.4	55.0	6.4	3.5	6.4
31	19.5		0.0		382.1		4.9	4.2		8.1		9.0
MEAN	3.3	2.7	0.0	0.0	36.8	44.7P	13.5	10.9	28.6	13.2	6.6	15.1

M=MISSING DATA
P=PARTIAL RECORD

DISCHARGE COMPUTATIONS (CFS) FOR STRUCTURE S-157 ON C-54 FOR 1977

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	10.8	10.8	0.0	0.0	0.0	0.0	2.9	0.0	0.0	19.5	30.3	196.5
2	10.8	10.8	0.0	0.0	0.0	0.0	2.3	0.3	31.3	18.3	9.0	93.0
3	85.8	12.8	0.0	0.0	0.0	0.0	1.7	1.7	108.8	18.3	6.4	58.7
4	0.5	19.5	0.0	0.0	0.0	0.0	1.2	2.3	161.5	13.8	18.3	55.3
5	4.9	20.7	0.0	0.0	0.0	0.0	2.3	4.9	179.7	11.8	19.5	43.9
6	11.8	17.1	0.0	0.0	0.0	0.0	3.5	3.5	100.7	11.8	19.5	43.9
7	20.7	17.1	0.0	0.0	0.0	0.0	4.2	2.9	66.3	11.8	19.5	37.9
8	20.7	17.1	0.0	0.0	0.0	0.0	2.9	2.9	86.6	11.8	19.5	13.8
9	22.0	17.1	0.0	0.0	0.0	0.0	2.9	1.7	64.4	13.8	20.7	34.0
10	175.2	13.8	0.0	0.0	0.0	0.0	2.3	0.4	4.9	11.8	20.7	17.1
11	0.0	13.8	0.0	0.0	0.0	0.0	0.4	0.0	19.5	11.8	16.0	23.3
12	0.0	12.8	0.0	0.0	0.0	0.0	0.0	0.2	15.0	23.3	14.9	52.2
13	0.0	13.8	2.3	0.0	0.0	0.0	0.0	2.3	0.0	23.3	14.9	11.8
14	0.1	12.8	2.3	0.0	0.0	0.0	0.0	2.3	4.9	18.3	16.0	33.0
15	1.7	9.0	2.9	0.0	0.0	0.0	0.0	3.5	13.8	18.3	13.8	56.9
16	3.5	9.9	3.5	0.0	0.0	0.0	0.0	1.7	13.8	19.5	11.8	258.5
17	4.9	8.1	3.5	0.0	0.0	0.0	0.0	1.7	11.8	19.5	11.8	55.6
18	6.4	7.2	2.9	0.0	0.0	0.0	0.0	1.7	11.8	18.3	13.8	145.3
19	9.0	6.4	1.7	0.0	0.0	0.0	0.0	1.2	38.2	19.5	11.8	114.9
20	7.2	73.7	1.2	0.0	0.0	0.0	0.0	0.1	103.2	19.5	11.8	118.2
21	7.2	36.1	134.6	0.0	0.0	0.5	0.0	0.0	231.3	17.1	11.8	86.4
22	7.2	0.0	0.0	0.0	0.0	0.5	0.0	0.0	351.0	18.3	38.7	43.9
23	7.2	0.0	0.0	0.0	0.0	3.5	0.0	0.0	292.7	18.3	9.0	57.8
24	7.2	0.0	0.0	0.0	0.0	7.2	0.0	0.0	167.7	8.1	16.0	13.8
25	9.9	0.0	0.0	0.0	0.0	7.2	0.0	0.0	56.2	122.9	16.0	58.7
26	6.4	0.0	0.0	0.0	0.0	7.2	0.0	0.0	102.6	25.4	13.8	19.5
27	6.4	0.0	0.0	0.0	0.0	4.9	0.0	0.0	17.1	13.8	10.8	48.7
28	7.2	0.0	0.0	0.0	0.0	3.5	0.0	0.0	58.5	15.7	10.8	35.9
29	8.1		0.0	0.0	0.0	3.5	0.0	0.0	9.0	1.7	20.2	9.0
30	9.0		0.0	0.0	0.0	2.9	0.0	0.0	18.3	11.8	123.6	16.0
31	10.8		0.0		0.0		0.0	0.0		58.4		25.6
MEAN	15.6	12.9	5.0	0.0	0.0	1.4	0.9	1.1	78.0	20.8	19.7	60.6

M=MISSING DATA
P=PARTIAL RECORD

DISCHARGE COMPUTATIONS (CFS) FOR STRUCTURE S-157 ON C-54 FOR 1978

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	11.8	0.0	16.0	4.2	0.0	0.0	45.4	325.1	2.9	19.5	7.2	0.0
2	20.7	0.0	11.8	4.2	0.0	0.8	42.3	179.6	4.2	22.0	7.2	0.0
3	6.4	0.0	19.5	3.5	0.0	1.2	48.6	330.4	5.6	37.6	5.6	0.0
4	9.0	0.0	33.0	3.5	1.9	1.2	82.4	462.5	13.8	134.1	4.2	0.0
5	11.8	0.8	30.1	3.5	17.1	2.9	76.7	1589.3	22.2	2023.6	2.3	0.0
6	17.1	2.9	27.3	0.0M	19.5	5.6	88.5	1612.4	56.9	705.0	1.7	0.0
7	17.1	3.5	23.3	0.0M	17.1	6.4	206.6	1592.8	34.5	0.0	4.2	0.0
8	23.3	105.4	22.0	2.3	16.0	9.9	209.0	1304.7	19.5	0.0	9.9	0.0
9	20.7	37.8	103.4	1.7	14.9	19.5	190.5	1251.4	10.8	0.0	9.0	0.0
10	13.8	69.3	193.3	1.2	14.9	30.1	155.2	52.3	10.8	0.0	8.1	0.0
11	11.8	56.9	138.0	0.8	9.0	28.7	145.3	108.5	13.8	0.0	8.1	0.0
12	10.8	43.9	94.2	0.4	7.2	22.0	173.7	135.4	10.8	0.0	7.2	0.0
13	16.0	30.1	63.9	0.4	8.1	18.3	225.8	203.6	9.0	1.9	6.4	0.0
14	20.7	25.9	48.6	0.4	7.2	12.8	263.5	297.2	8.1	9.0	5.6	0.0
15	18.3	19.5	36.0	0.4	3.5	9.0	292.4	178.9	13.8	11.8	5.6	0.0
16	14.9	25.9	30.1	0.4	1.2	8.1	312.7	126.3	14.9	10.8	7.2	0.0
17	18.3	36.0	22.0	0.1	0.8	6.4	306.0	119.4	13.8	9.9	6.4	0.0
18	20.7	40.8	17.1	0.0	0.8	3.5	275.9	108.5	14.9	9.0	5.6	0.0
19	24.6	48.6	13.8	0.4	0.8	4.2	256.2	106.4	13.8	9.9	4.9	0.0
20	37.6	43.9	13.8	0.1	0.8	3.5	585.2	104.4	17.1	9.9	4.9	0.0
21	34.5	47.0	12.8	0.0	0.4	8.8	251.9	104.4	14.9	9.0	6.4	0.0
22	33.0	36.0	13.8	0.0	0.3	23.0	292.9	100.2	14.9	8.1	5 6	0.0
23	28.7	31.5	10.8	0.0	0.1	36.7	154.8	98.2	33.0	7.2	4.9	0.0
24	23.3	25.9	9.9	0.0	0.0	118.5	94.2	100.2	60.4	6.4	4.2	0.0
25	24.6	20.7	9.0	0.0	0.0	177.7	74.8	94.2	53.6	3.5	2.9	0.0
26	25.9	16.0	9.9	0.0	0.0	157.7	56.9	92.1	40.8	4.2	2.3	0.0
27	7.6	13.8	9.0	0.0	0.0	135.7	47.0	88.2	33.0	4.2	1.7	0.0
28	0.0	14.9	5.6	0.0	0.0	108.5	51.9	86.2	27.3	2.9	29.2	0.0
29	0.0		6.4	0.0	0.0	88.2	78.5	69.4	23.3	5.6	0.0	4.9
30	0.0		5.6	0.0	0.0	65.7	96.2	28.7	19.5	7.2	0.0	14.9
31	0.0		4.2		0.0		106.4	7.2		8.1		17.1
MEAN	16.9	28.5	34.0	1.0P	4.6	37.1	170.6	356.7	21.1	99.4	5.9	1.2

M=MISSING DATA
P=PARTIAL RECORD

DISCHARGE COMPUTATIONS (CFS) FOR STRUCTURE S-157 ON C-51 FOR 1979

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	14.9	22.0	12.8	1.7	0.0	25.9	12.8	2.9	0.0	2492.6	18.3	6.4
2	19.5	19.5	12.8	1.2	0.0	25.9	9.9	4.5	109.4	2424.1	16.0	4.9
3	17.1	19.5	11.8	1.2	0.0	30.1	9.0	11.8	1633.8	2281.1	13.8	2.9
4	17.1	19.5	12.8	1.7	0.0	50.3	8.1	9.0	739.8	2181.8	10.8	7.2
5	16.0	17.1	17.1	2.3	0.0	47.0	7.2	7.2	446.0	2125.6	9.0	7.2
6	14.9	16.0	19.5	1.2	0.0	33.0	5.6	6.4	302.4	2065.8	9.9	6.4
7	13.8	17.1	22.0	0.8	0.0	24.6	7.2	9.0	177.7	2026.1	9.0	9.9
8	12.8	14.9	20.7	0.2	0.0	16.0	13.8	9.0	130.9	1912.4	8.1	9.0
9	11.8	13.8	16.0	0.2	1.0	11.8	25.9	8.1	104.4	1928.7	7.2	7.2
10	10.8	9.9	13.8	0.0	13.8	10.8	19.5	9.9	114.9	1989.7	6.4	6.4
11	9.9	10.8	12.8	0.0	19.5	9.9	13.8	14.9	511.8	1917.5	6.4	6.4
12	76.2	10.8	10.8	0.0	19.5	9.0	13.8	13.8	1255.5	1883.1	7.2	6.4
13	359.9	10.8	9.0	0.0	20.7	8.1	14.9	12.8	2344.8	1896.3	7.2	5.6
14	228.4	10.8	10.8	0.0	34.1	10.8	17.1	11.8	2391.2	1861.7	5.6	5.6
15	203.6	9.9	9.9	0.0	65.7	18.3	19.5	11.8	2447.9	1119.1	4.9	5.6
16	152.7	11.8	6.4	0.0	74.8	17.1	20.7	9.9	2321.4	48.6	4.2	4.9
17	114.9	9.9	7.2	0.0	65.7	14.9	18.3	9.0	2214.3	24.6	3.5	5.6
18	96.2	10.8	7.2	0.0	56.9	10.8	16.0	8.1	2273.1	16.0	2.9	4.2
19	94.2	10.8	8.1	0.0	42.3	9.0	13.8	8.1	2240.7	12.8	2.9	2.9
20	76.7	9.0	8.1	0.0	33.0	8.1	11.8	7.2	2223.3	11.8	2.9	2.3
21	69.3	9.9	7.2	0.0	25.9	7.2	9.9	6.4	2126.3	10.8	2.3	1.7
22	56.9	11.8	7.2	0.0	19.5	5.6	9.0	5.6	2181.5	9.9	1.7	1.7
23	48.6	12.8	8.1	0.0	17.1	7.2	9.0	4.9	2142.8	10.8	2.3	1.2
24	72.9	11.8	9.9	0.0	20.7	9.0	8.1	2.9	2150.3	10.8	1.7	0.8
25	69.3	13.8	9.0	0.0	31.5	9.0	7.2	2.3	2138.0	16.0	4.2	1.2
26	58.7	18.3	5.6	0.0	31.5	9.9	5.6	1.7	2035.9	33.0	9.0	0.0
27	48.6	12.8	4.2	0.0	27.3	13.8	4.9	0.8	2117.5	34.5	8.1	0.0
28	40.8	12.8	2.9	0.0	30.1	16.0	4.2	0.4	2147.2	25.9	8.1	0.0
29	33.0		2.3	0.0	33.0	14.9	3.5	0.2	2304.8	19.5	7.2	0.0
30	28.7		1.7	0.0	33.0	13.8	4.2	0.0	2498.1	13.8	7.2	0.0
31	27.3		1.7		28.7		3.5	0.0		16.0		0.0
MEAN	68.2	13.5	10.0	0.4	24.0	16.6	11.2	6.8	1527.5	981.3	6.9	4.0

N=MISSING DATA
P=PARTIAL RECORD

DISCHARGE COMPUTATIONS (CFS) FOR STRUCTURE S-157 ON C-54 FOR 1980

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.0	23.3	31.5	9.9	0.0	8.1	13.8	6.4	5.6	0.0	0.0	0.0
2	0.0	16.0	58.7	13.8	0.0	7.2	11.8	7.2	8.1	0.0	0.0	0.0
3	0.0	13.8	62.1	13.8	0.0	5.6	9.0	6.4	9.0	0.0	0.0	0.0
4	0.0	9.0	56.9	11.8	0.0	4.9	8.1	4.9	9.0	0.0	0.0	0.0
5	0.0	5.6	48.6	9.0	0.0	4.9	6.4	4.2	8.1	0.0	0.0	0.0
6	0.0	8.1	30.1	8.1	0.0	2.9	5.6	2.3	7.2	0.0	0.0	0.0
7	0.0	2.3	20.7	8.1	0.0	1.7	4.9	1.2	5.6	0.0	0.0	0.0
8	0.0	1.2	19.5	9.0	13.6	1.7	4.2	1.2	5.6	0.0	0.0	0.0
9	0.0	1.7	18.3	9.9	0.0	1.2	2.9	0.8	4.9	0.0	0.0	0.0
10	0.0	5.6	16.0	9.0	0.0	0.1	2.3	0.3	4.2	0.0	0.0	0.0
11	0.0	5.6	12.8	8.1	0.0	0.0	2.3	0.0	4.9	0.0	0.0	0.0
12	0.0	5.6	11.8	8.1	0.0	0.0	1.7	0.0	4.9	0.0	0.0	0.0
13	0.0	6.4	12.8	7.2	0.0	0.0	1.2	0.1	7.2	0.0	0.0	0.0
14	1.5	7.2	10.8	8.1	0.0	0.0	0.1	10.8	12.8	0.0	0.0	0.0
15	7.2	9.0	8.1	5.6	0.0	0.0	1.7	9.9	12.8	0.0	0.0	0.0
16	9.9	9.9	7.2	2.3	0.0	0.0	1.2	7.2	10.8	0.0	0.0	0.0
17	10.8	10.8	9.0	1.7	0.0	0.0	2.3	6.4	9.0	0.0	0.0	0.0
18	11.8	9.9	9.0	1.2	0.0	0.0	4.9	5.6	7.2	0.0	0.0	0.0
19	9.9	110.6	7.2	1.2	0.0	0.0	4.9	4.9	6.4	0.0	0.0	0.0
20	9.0	190.5	8.1	1.7	0.1	0.0	4.2	4.2	5.6	0.0	0.0	0.0
21	9.0	147.7	9.0	1.2	0.1	0.0	2.3	2.9	4.9	0.0	0.0	0.0
22	8.1	104.4	4.9	0.8	0.2	0.0	1.2	3.5	4.2	0.0	0.0	0.0
23	10.8	78.5	4.2	0.4	4.0	0.3	2.3	6.4	2.9	0.0	0.0	0.0
24	9.0	62.1	4.9	0.2	13.8	13.3	5.6	5.6	2.3	0.0	0.0	0.0
25	8.1	55.3	4.9	0.0	14.9	0.0	7.2	4.2	1.7	0.0	0.0	0.0
26	9.0	50.3	4.2	1.2	13.8	0.0	8.1	4.2	0.8	0.0	0.0	0.0
27	17.1	43.9	2.9	13.8	9.9	0.0	9.0	4.2	0.8	0.0	0.0	0.0
28	17.1	36.0	3.5	11.8	8.1	0.0	8.1	2.3	0.8	0.0	0.0	0.0
29	25.9	30.1	5.6	9.9	8.1	0.0	25.8	0.8	12.9	0.0	0.0	0.0
30	33.0		6.4	4.2	7.2	9.0	6.4	1.2	0.0	0.0	0.0	0.0
31	28.7		6.4		8.1		7.2	3.5		0.0		0.0
MEAN	7.6	36.6	16.6	6.4	3.3	2.0	5.7	4.0	6.0	0.0	0.0	0.0

M=MISSING DATA
P=PARTIAL RECORD

DISCHARGE COMPUTATIONS (CFS) FOR STRUCTURE S-157 ON C-54 FOR 1981

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.0M	0.0	1.7	9.0	0.0	0.0	0.0P	0.0	43.9	33.0	4.2	4.9
2	0.0	0.0	1.7	7.2	0.0	0.0	0.0M	0.0	36.0	31.5	4.2	5.6
3	0.0	0.0	0.4	6.4	0.0	0.0	0.0M	0.0	30.1	28.7	4.2	6.4
4	0.0	0.0	0.2	4.9	0.0	0.0	0.0M	0.0	22.0	25.9	9.9	5.6
5	0.0	0.0	1.7	4.9	0.0	0.0	0.0M	0.0	24.6	24.6	22.2	4.2
6	0.0	0.0	0.0	5.6	0.0	0.0	0.0M	0.0	33.0	22.0	27.3	2.9
7	0.0	0.0	0.0	6.4	0.0	0.0	0.0M	0.0	33.0	19.5	22.0	3.5
8	0.0	0.4	0.0	8.1	0.0	0.0	0.0M	0.0	40.8	17.1	17.1	4.9
9	0.0	2.9	0.0	9.0	0.0	0.0	0.0M	0.0	53.2	16.0	14.9	4.9
10	0.0	4.9	0.0	7.2	0.0	0.0	0.0P	0.0	87.9P	14.9	14.9	4.9P
11	0.0	9.9	0.0	8.1	41.7	0.0	0.0	0.0	361.4	13.8	17.1	0.0M
12	0.0	7.2	0.0	6.4	0.0	0.0	0.0	0.0	345.8	13.8	14.9	0.0M
13	0.0	7.2	0.0	5.6	0.0	0.0	0.0	0.0	177.7	14.9	13.8	0.0M
14	0.0	8.1	0.0	4.9	0.0	0.0	0.0	0.0	114.9	16.0	11.8	1.7P
15	0.0	10.8	0.0	4.9	0.0	0.0	0.0	0.0	84.3	17.1	10.8	4.0
16	0.0	11.8	0.0	1.7	0.0	0.0	0.0	0.0	62.1	16.0	9.9	1.7
17	0.0	13.8	0.0	1.2	0.0	0.0	0.0	0.0	58.7	13.8	9.9	0.8
18	0.0	14.9	0.0	0.6	0.0	0.0	0.0	0.0	58.4	12.8	9.0	1.2
19	0.0	14.9	0.0	0.3	0.0	0.0	0.0	0.0	98.2	11.8	11.8	0.4
20	0.0	17.1	0.1	0.1	0.0	0.0	0.0	0.0	86.2	10.8	13.8	0.0
21	0.0	11.8	0.0	0.0	0.0	0.0	0.0	0.0	80.7	9.9	10.8	0.0
22	0.0	9.0	1.8	0.0	0.0	0.0	0.0	0.0	177.7	9.0	9.0	0.0
23	0.0	8.1	17.1	0.0	0.0	0.0	0.0	0.0	133.3	8.1	8.1	0.0
24	0.0	6.4	16.0	0.0	0.0	0.0	0.0	0.0	86.2	6.4	8.1	0.0
25	0.0	4.2	13.8	0.0	0.0	0.0	0.0	0.0	58.7	5.6	6.4	0.0
26	0.0	2.9	11.8	0.0	0.0	0.0	0.0	0.0	45.4	5.6	5.6	0.1
27	0.0	2.3	11.8	0.0	0.0	0.0	0.0	0.0	37.6	5.6	5.6	0.2
28	0.0	1.7	12.8	0.0	0.0	0.0	0.0	0.0	33.0	4.9	6.4	0.0
29	0.0		10.8	0.0	0.0	4.9	0.0	0.0	27.3	4.9	5.6	0.0
30	0.0		10.8	0.0	0.0	0.0	0.0	19.9	27.3	4.9	5.6	0.1
31	0.0		9.0		0.0		0.0	45.4		4.9		4.0
MEAN	0.0P	6.1	3.9	3.4	1.3	0.2	0.0P	2.1	85.3	14.3	11.1	2.2P

M=MISSING DATA
P=PARTIAL RECORD

DISCHARGE COMPUTATIONS (CFS) FOR STRUCTURE S-157 ON C-54 FOR 1982

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	7.2	0.3	14.9	39.2	31.5	84.3	27.3	40.8	28.7	25.9	10.8	11.8
2	5.6	0.8	14.9	34.5	30.1	65.7	30.1	37.6	34.5	27.3	25.3	13.8
3	4.9	1.7	14.9	30.1	25.9	55.3	31.5	34.5	28.7	25.9	68.6	11.8
4	5.6	0.8	16.0	25.9	23.3	51.9	33.4	31.5	24.6	22.0	63.9	11.8
5	5.6	3.0	17.1	28.7	22.0	51.9	44.4	30.1	22.0	22.0	51.9	11.8
6	4.2	7.6	31.9	26.7	18.3	58.7	62.1	34.5	20.7	20.7	36.0	12.8
7	3.5	9.9	36.6	20.7	19.5	56.9	63.9	31.5	19.5	18.3	24.6	13.8
8	2.3	8.1	33.0	22.0	19.5	51.9	75.0	30.1	22.0	17.1	20.7	16.4
9	2.3	9.9	31.5	23.3	17.1	43.9	102.3	27.3	24.6	16.0	19.5	20.7
10	0.6	13.1	28.7	22.0	16.0	40.8	96.1	28.7	28.7	14.9	17.1	23.3
11	0.0	25.9	27.3	37.4	13.8	39.2	114.9	42.3	30.1	11.8	17.1	23.3
12	0.0	22.0	27.3	34.5	12.8	37.6	98.2	48.6	31.5	11.8	14.9	22.0
13	0.0	18.3	25.9	34.5	10.8	37.6	100.2	43.9	31.5	12.8	13.8	18.3
14	3.9	14.9	25.9	34.5	10.8	37.6	84.3	40.8	30.1	12.8	12.8	17.1
15	1.2	13.8	24.6	33.0	9.9	36.0	63.9	37.6	27.3	12.8	13.8	16.0
16	1.7	13.8	23.3	37.6	9.9	33.0	51.9	43.9	24.6	11.8	19.5	19.3
17	1.7	19.7	23.3	40.8	9.0	23.3	48.6	45.4	23.3	9.9	40.8	25.9
18	2.3	24.6	20.7	39.2	7.2	68.1	45.4	42.3	20.7	8.1	34.5	22.0
19	1.7	27.3	20.7	34.5	8.1	84.3	47.0	50.3	19.5	9.0	28.7	19.5
20	2.3	25.9	20.7	33.0	7.2	90.2	45.5	45.4	23.3	9.9	23.3	18.3
21	2.9	23.3	19.5	33.0	9.0	88.2	78.5	39.2	27.3	9.9	20.7	18.3
22	2.9	18.3	18.3	34.5	9.9	71.1	131.6	34.5	28.7	9.9	19.5	16.0
23	2.9	17.1	17.1	33.0	10.8	55.3	162.8	30.1	27.3	13.2	17.1	14.9
24	3.5	17.1	18.3	31.5	9.9	52.1	135.7	27.3	25.9	13.8	14.9	12.8
25	4.2	17.1	14.9	33.0	10.8	65.7	126.3	25.9	23.3	10.8	13.8	12.8
26	4.2	14.9	12.8	35.0	21.9	56.9	133.3	23.3	28.7	9.9	13.8	13.8
27	1.7	16.0	10.8	44.4	48.6	47.0	96.2	22.0	33.0	9.0	12.8	12.8
28	0.8	14.9	9.9	55.3	36.0	42.3	67.5	19.5	31.5	8.1	12.8	13.8
29	0.2		36.6	42.7	31.5	37.6	53.6	19.5	30.1	9.0	12.8	13.8
30	0.1		47.0	36.0	34.5	33.0	53.6	20.7	27.3	8.1	11.8	12.8
31	0.1		48.6		61.2		47.0	23.3		9.9		11.8
MEAN	2.6	14.3	23.6	33.7	19.6	53.2	75.9	33.9	26.6	13.9	23.6	16.2

M=MISSING DATA
P=PARTIAL RECORD

C-54 CANAL AT S-157
MEAN DAILY DISCHARGE (CFS) FOR 1983

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	12.8	23.3	144.5	37.6	12.8	14.9	3.5	23.3	14.3	7.2	23.3	9.0
2	12.8	35.5	96.2	34.5	10.8	17.1	4.9	18.3	19.5	6.4	23.3	8.1
3	14.9	56.7	69.3	31.5	10.8	16.0	4.2	18.3	16.0	5.6	20.7	9.0
4	17.1	47.0	51.9	24.6	9.9	18.8	4.2	16.0	11.8	5.6	17.1	9.0
5	17.1	42.3	42.3	23.3	9.0	17.1	3.5	12.8	10.8	5.6	14.9	9.0
6	18.3	41.1	34.5	22.0	8.1	14.9	4.9	11.8	9.9	5.6	12.8	10.8
7	17.1	64.8	35.7	19.5	6.4	10.8	5.6	11.8	9.0	5.8	12.8	11.8
8	16.0	63.9	60.4	18.3	6.4	11.8	4.9	11.8	8.1	6.4	12.8	10.8
9	16.0	51.9	50.7	17.1	5.6	19.5	4.9	11.8	7.2	4.9	13.9	9.9
10	18.5	46.9	42.1	24.6	4.9	16.0	4.9	10.8	6.4	6.8	16.0	10.8
11	22.0	50.3	32.0	25.9	3.5	11.8	4.2	18.8	5.6	8.1	13.8	14.9
12	19.5	45.4	23.3	23.3	4.3	9.0	3.5	50.1	6.4	9.0	11.8	79.7
13	18.3	155.0	19.5	20.7	5.7	8.1	2.9	67.5	8.1	9.9	11.8	92.1
14	17.1	197.0	19.5	18.3	7.2	8.1	2.9	60.4	7.2	12.8	9.9	76.7
15	18.3	142.2	20.0	18.3	6.4	7.2	2.9	51.9	5.6	11.8	9.0	76.6
16	16.0	141.4	31.5	17.1	6.4	6.4	2.9	48.6	5.6	29.4	10.8	84.3
17	16.0	226.7	43.9	13.8	4.9	5.6	2.9	43.9	5.6	50.3	9.0	109.4
18	18.3	195.7	49.2	12.8	3.4	4.9	3.5	48.1	4.9	101.8	8.1	152.7
19	16.0	138.0	36.0	11.8	3.5	4.9	4.9	56.9	6.4	118.7	8.1	150.2
20	45.1	98.2	28.7	12.8	3.5	4.9	4.9	40.8	8.1	87.9	12.5	124.0
21	136.6	69.9	30.1	12.8	4.2	5.6	4.9	30.1	10.5	60.4	18.3	90.2
22	121.7	55.2	20.7	12.8	4.2	7.2	5.6	22.0	13.8	64.6	16.0	67.5
23	100.2	47.1	19.5	14.8	3.5	7.2	4.9	18.3	14.9	145.1	12.8	51.9
24	88.2	37.6	55.5	27.6	3.5	9.0	4.2	17.1	13.8	144.2	11.8	42.0
25	74.8	32.6	60.4	16.0	2.9	9.0	2.9	16.0	11.8	104.5	9.9	31.5P
26	60.4	24.6	50.3	13.8	2.3	8.1	2.3	13.8	10.8	69.4	7.2	0.0M
27	51.9	31.4	46.3	16.0	1.0	6.4	1.7	12.8	9.0	48.6	7.2	19.5P
28	43.9	140.1	76.7	16.0	0.8	4.9	7.3	13.8	8.1	33.8	8.1	0.0M
29	36.0		67.5	16.0	1.7	4.2	29.8	13.8	8.1	28.7	8.1	27.3P
30	31.5		51.9	13.8	5.1	3.5	55.3	12.8	7.2	22.0	9.9	45.4
31	25.9		45.4		9.9		37.6	11.8		21.5		0.0M
MEAN	36.7	82.2	47.0	19.6	5.6	9.8	7.6	26.3	9.5	40.1	12.7	51.2P

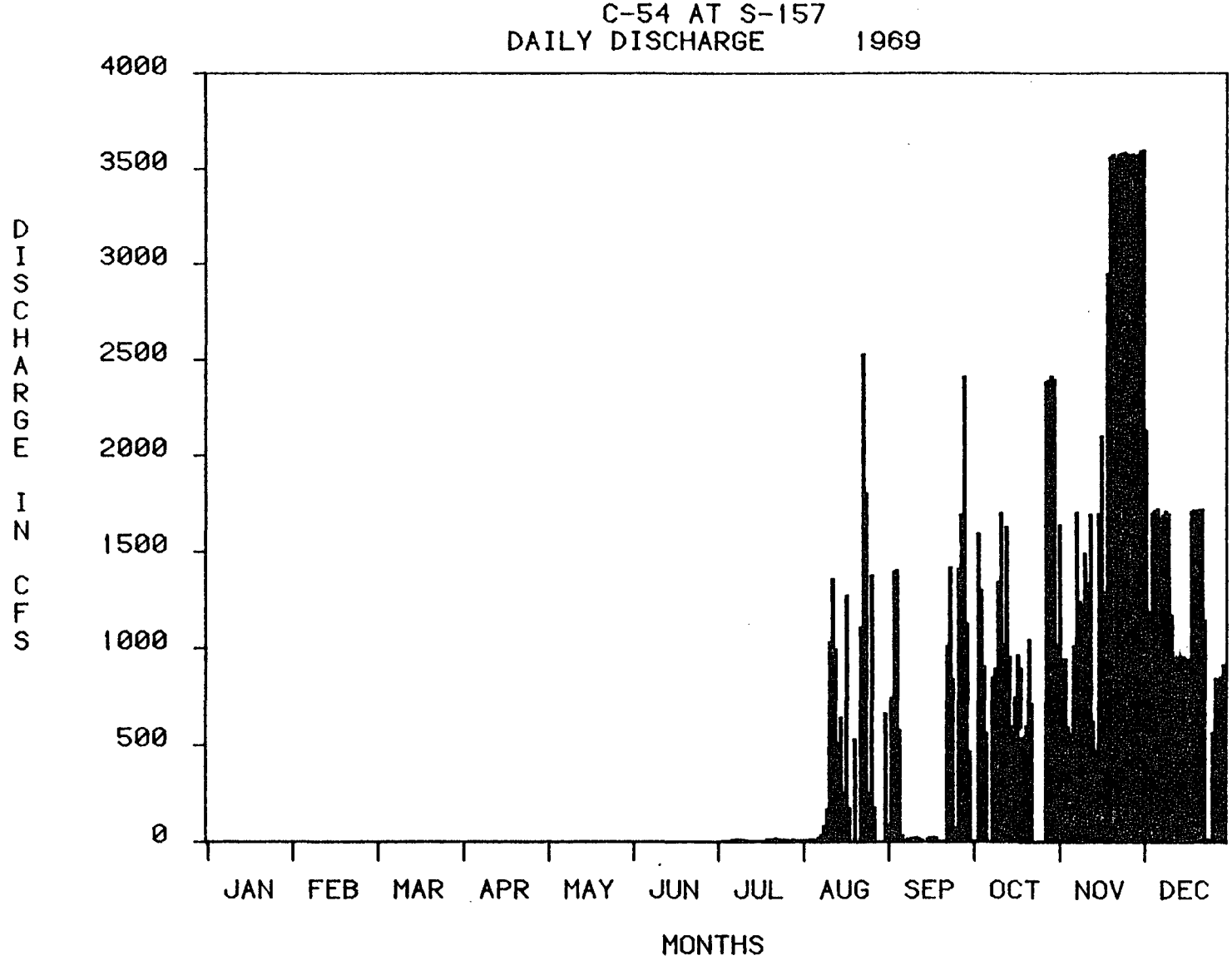
M=MISSING DATA
P=PARTIAL RECORD

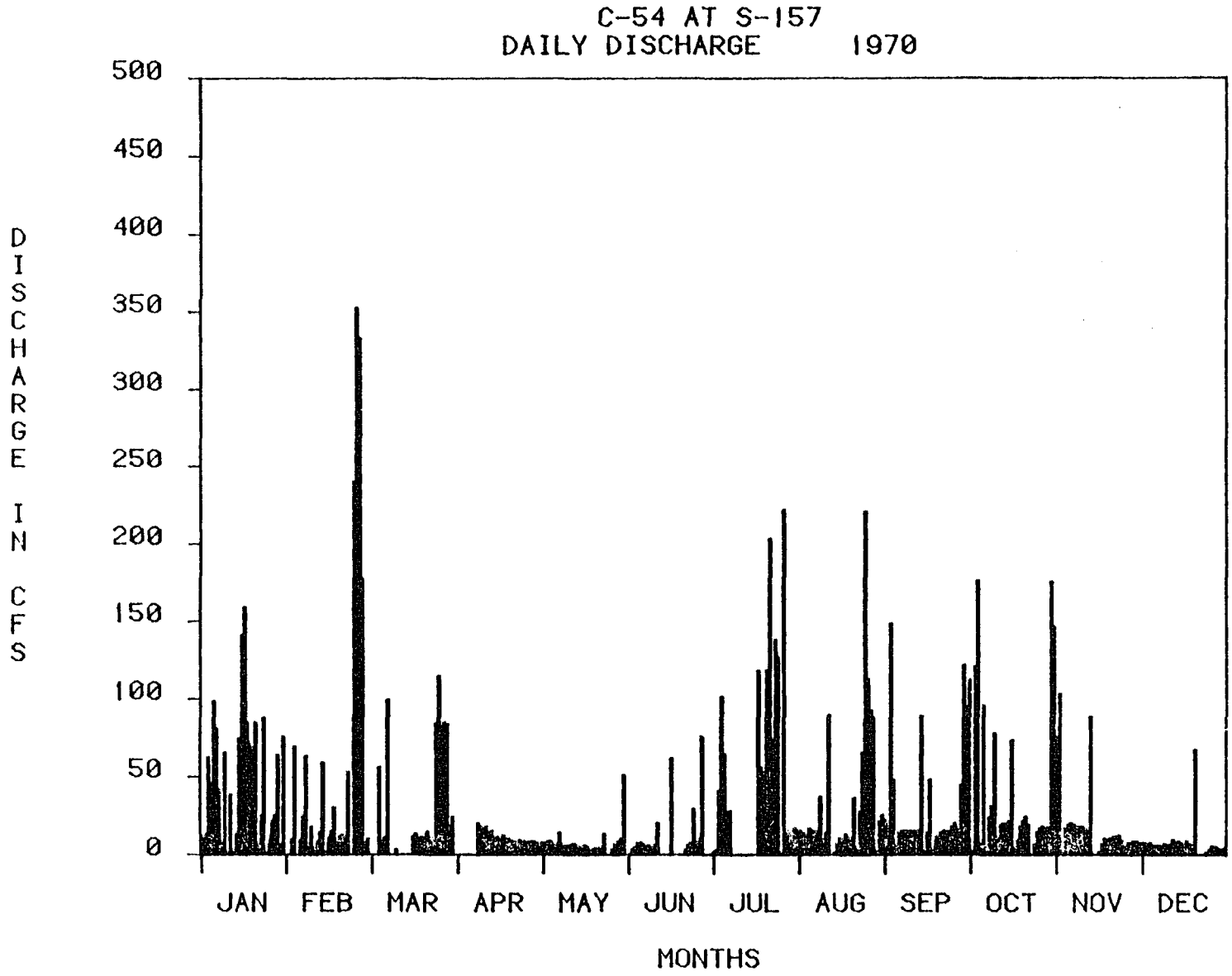
APPENDIX G

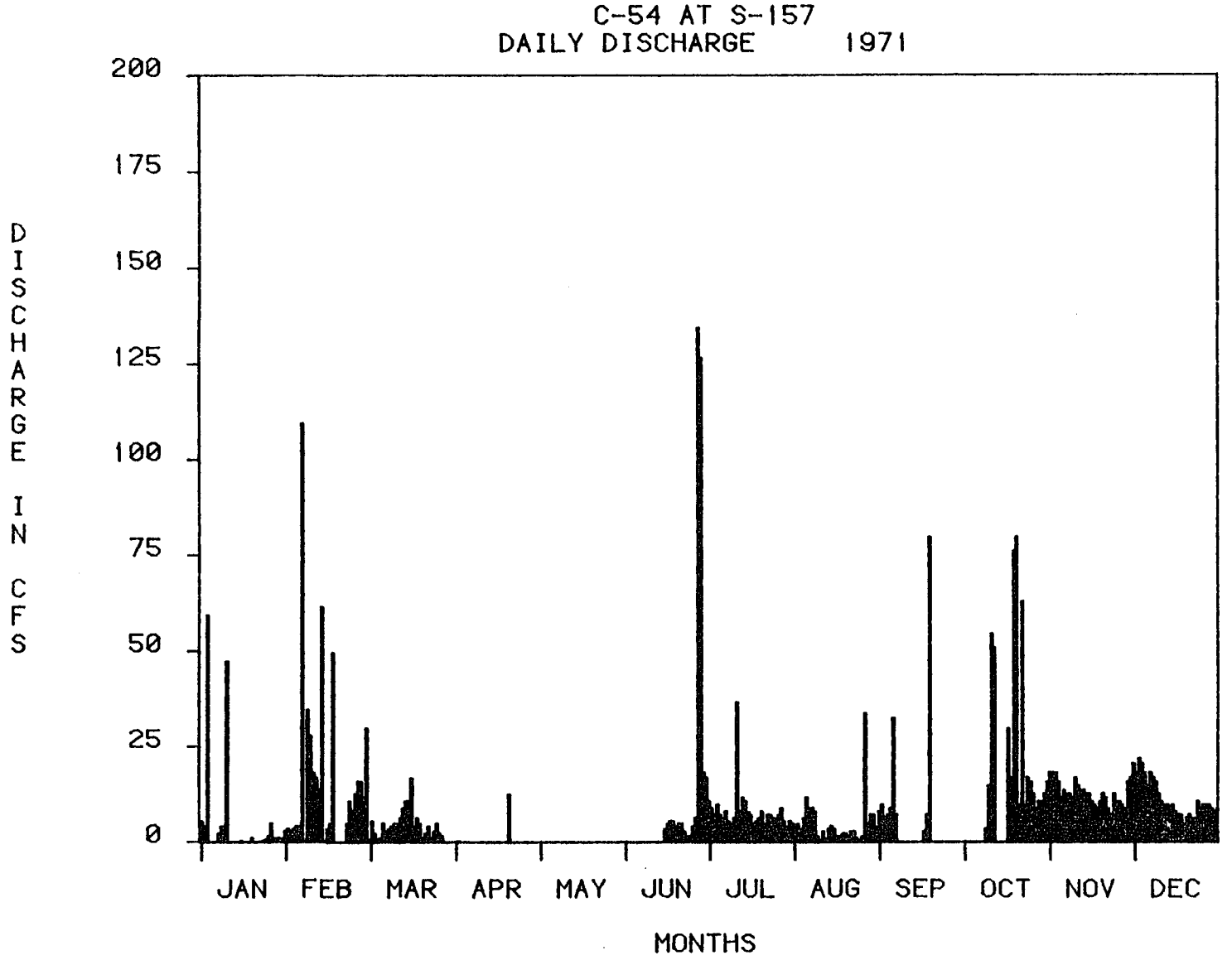
DAILY DISCHARGE HYDROGRAPH

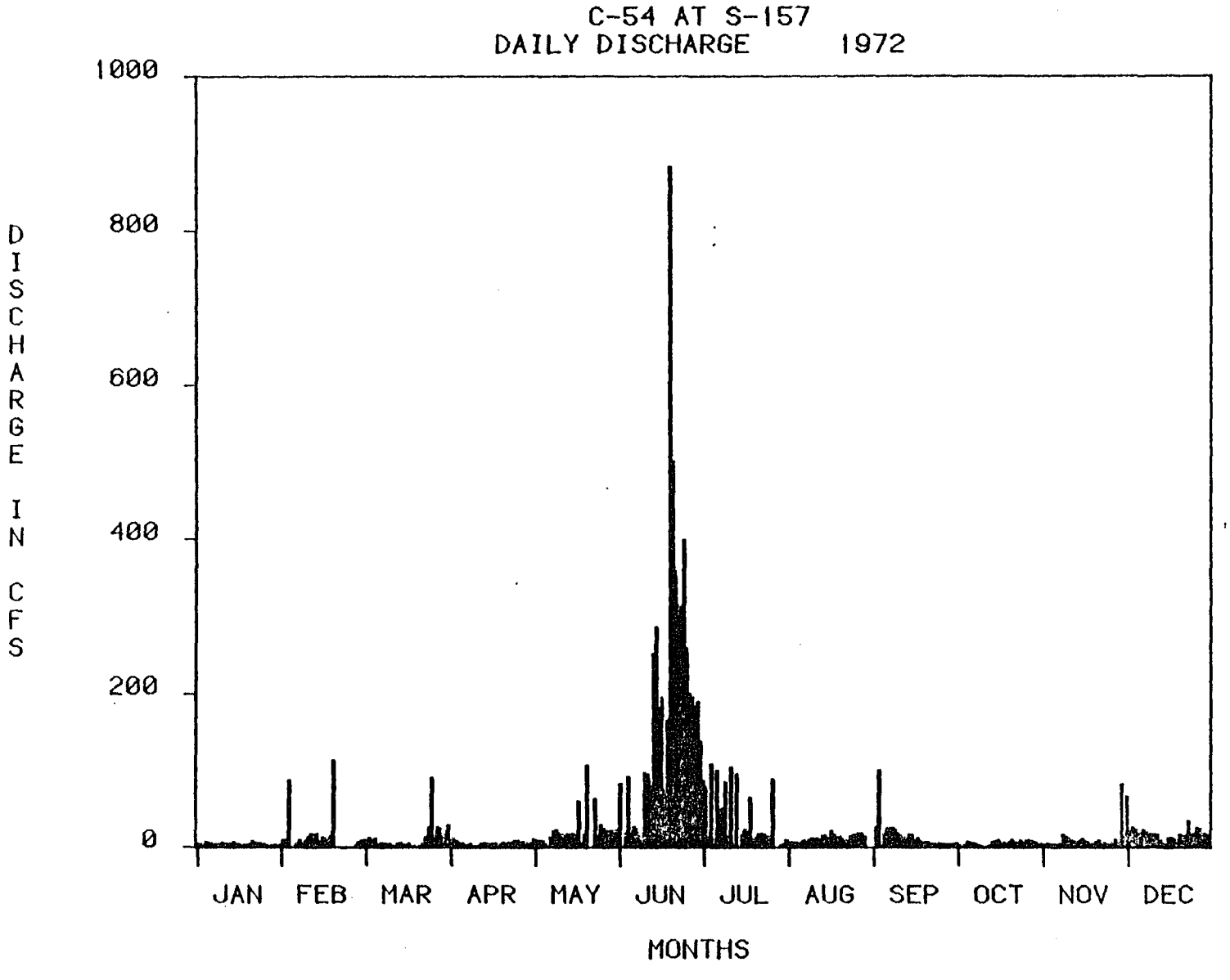
FOR

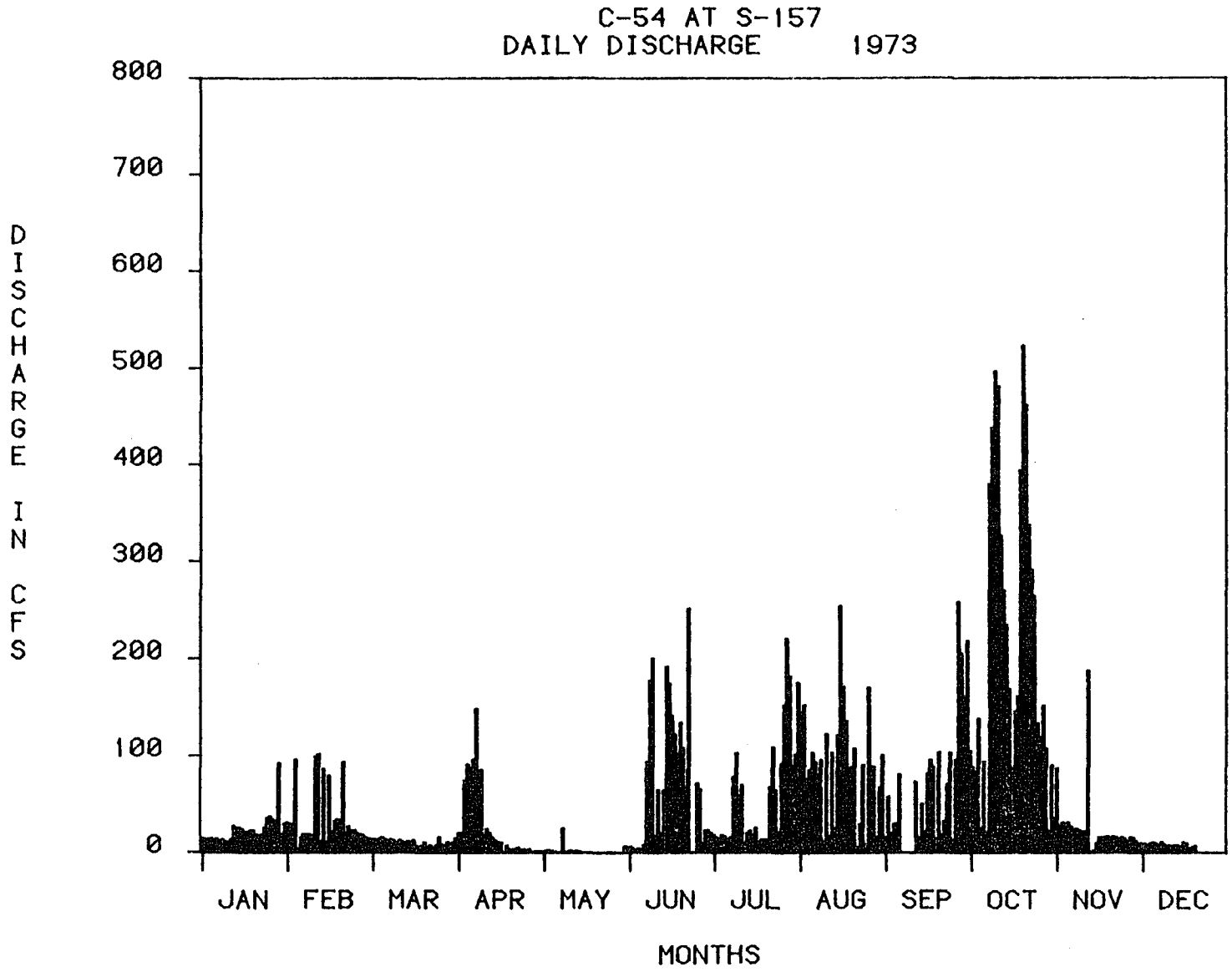
C-54 CANAL

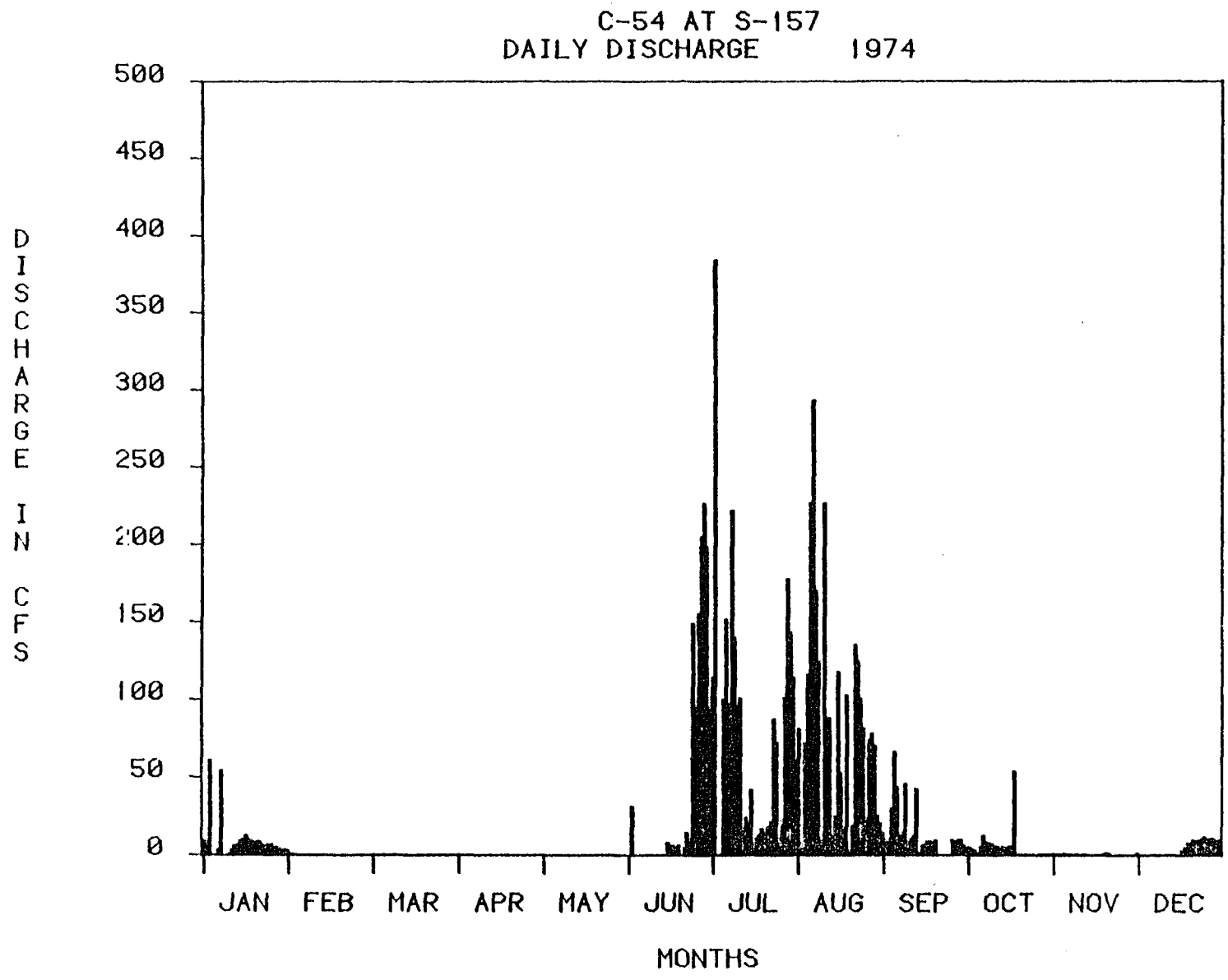

C-54 AT S-157
DAILY DISCHARGE 1969
DISCHARGE IN CFS
4000
3500
3000
2500
2000
1500
1000
500
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS

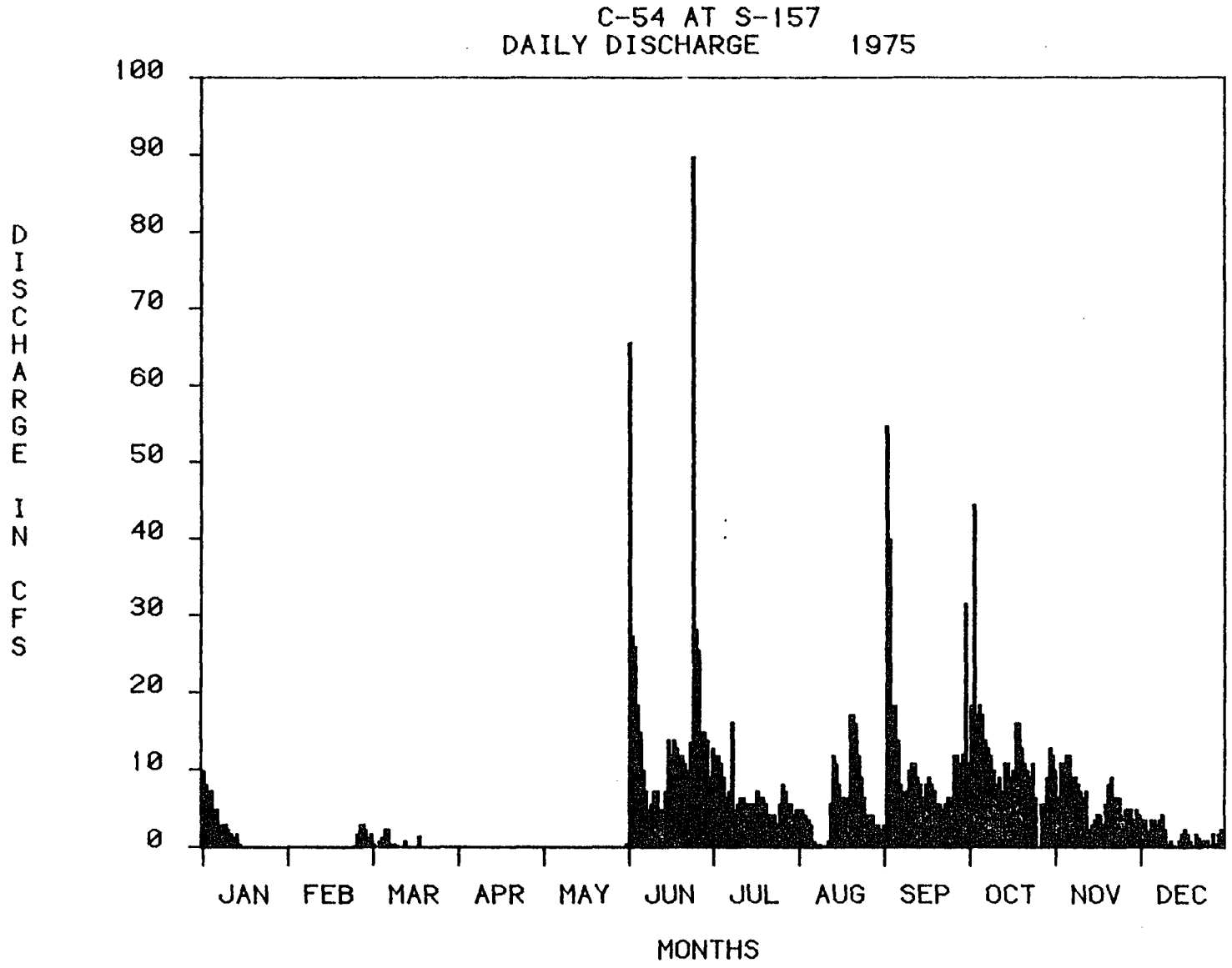

C-54 AT S-157
DAILY DISCHARGE 1970
DISCHARGE IN CFS
500
450
400
350
300
250
200
150
100
50
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS

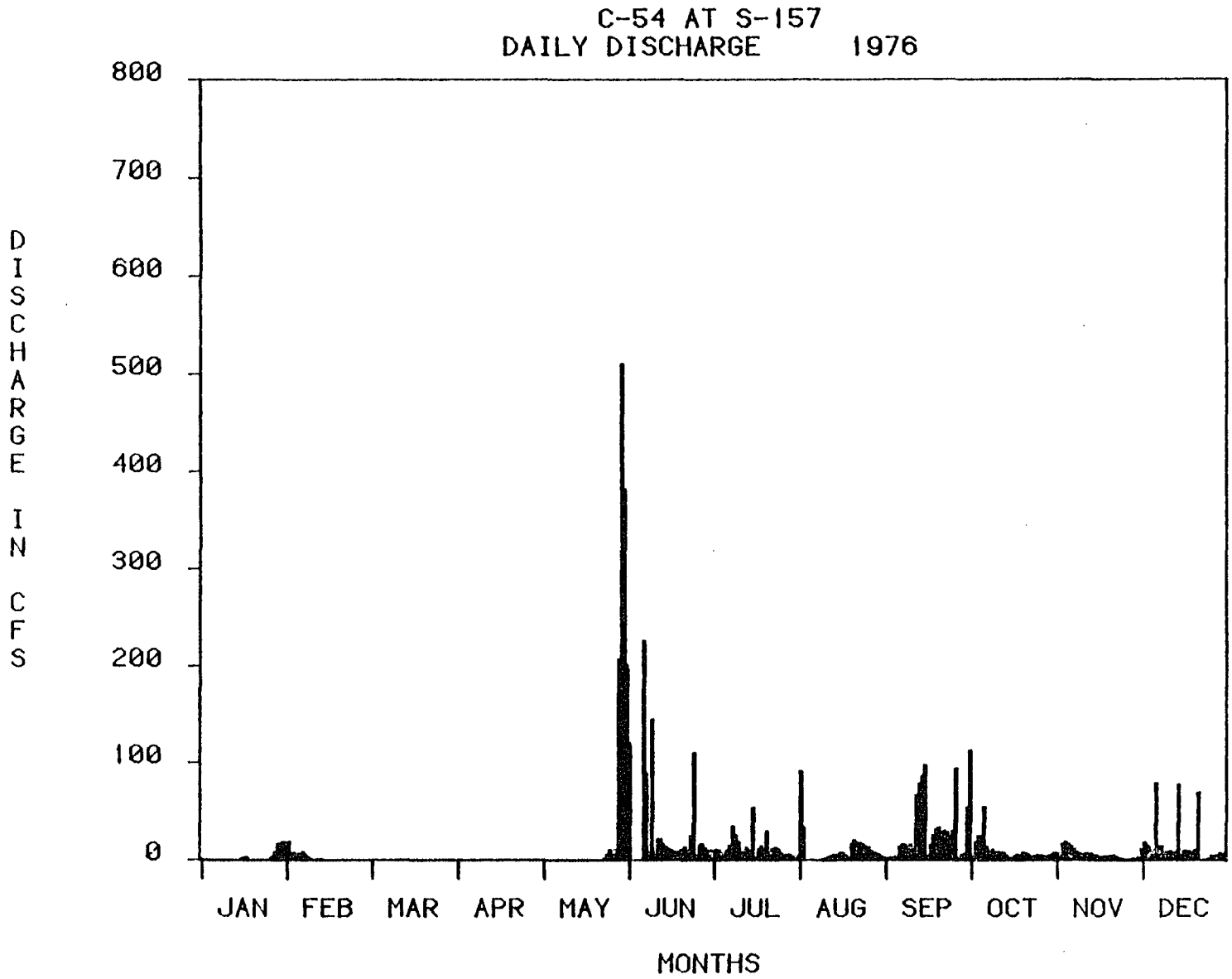

C-54 AT S-157
DAILY DISCHARGE 1971
DISCHARGE IN CFS
200
175
150
125
100
75
50
25
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS

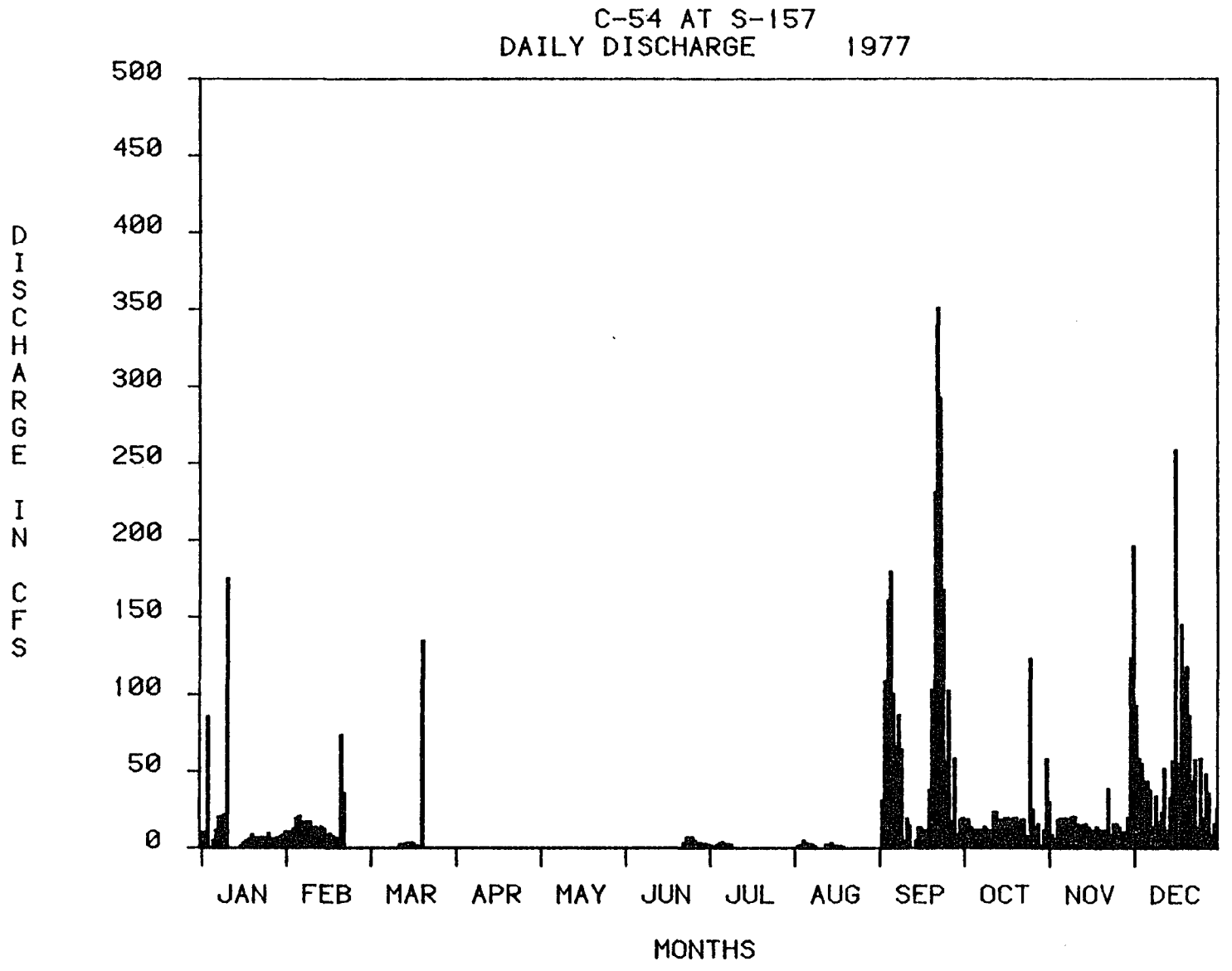

C-54 AT S-157
DAILY DISCHARGE 1972
DISCHARGE IN CFS
1000
800
600
400
200
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS

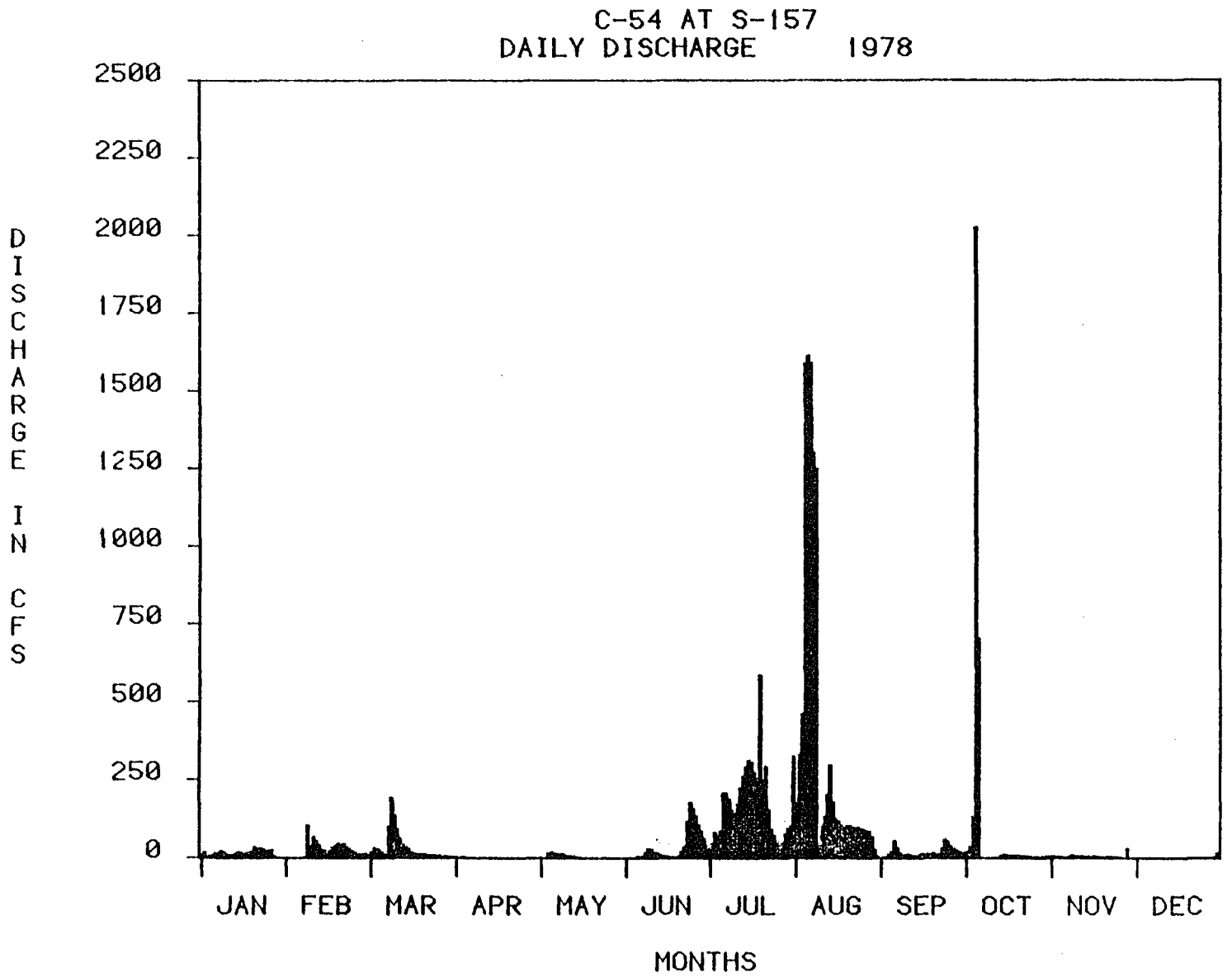

C-54 AT S-157
DAILY DISCHARGE 1973
DISCHARGE IN CFS
800
700
600
500
400
300
200
100
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS

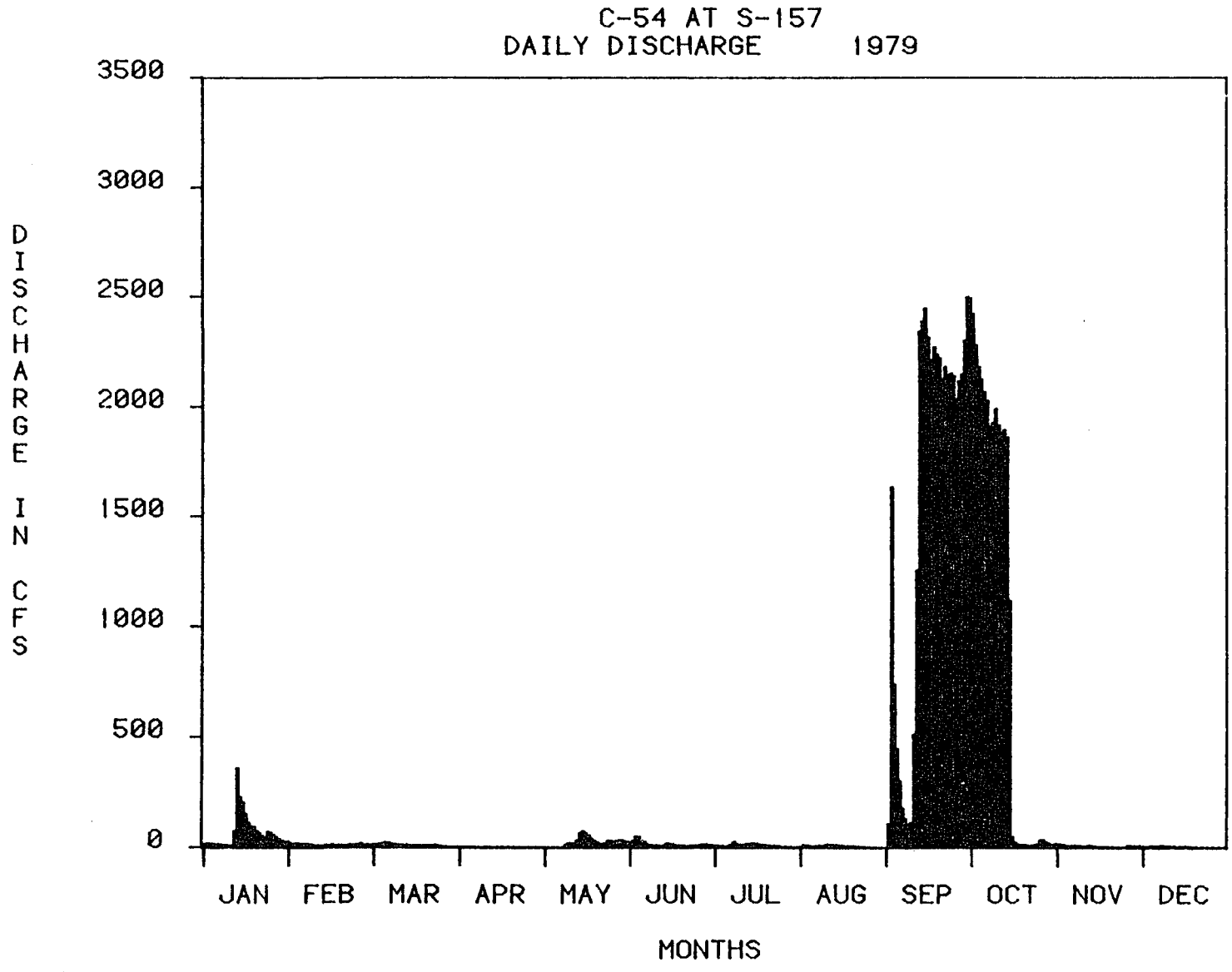

C-54 AT S-157
DAILY DISCHARGE 1974
DISCHARGE IN CFS
500
450
400
350
300
250
200
150
100
50
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS

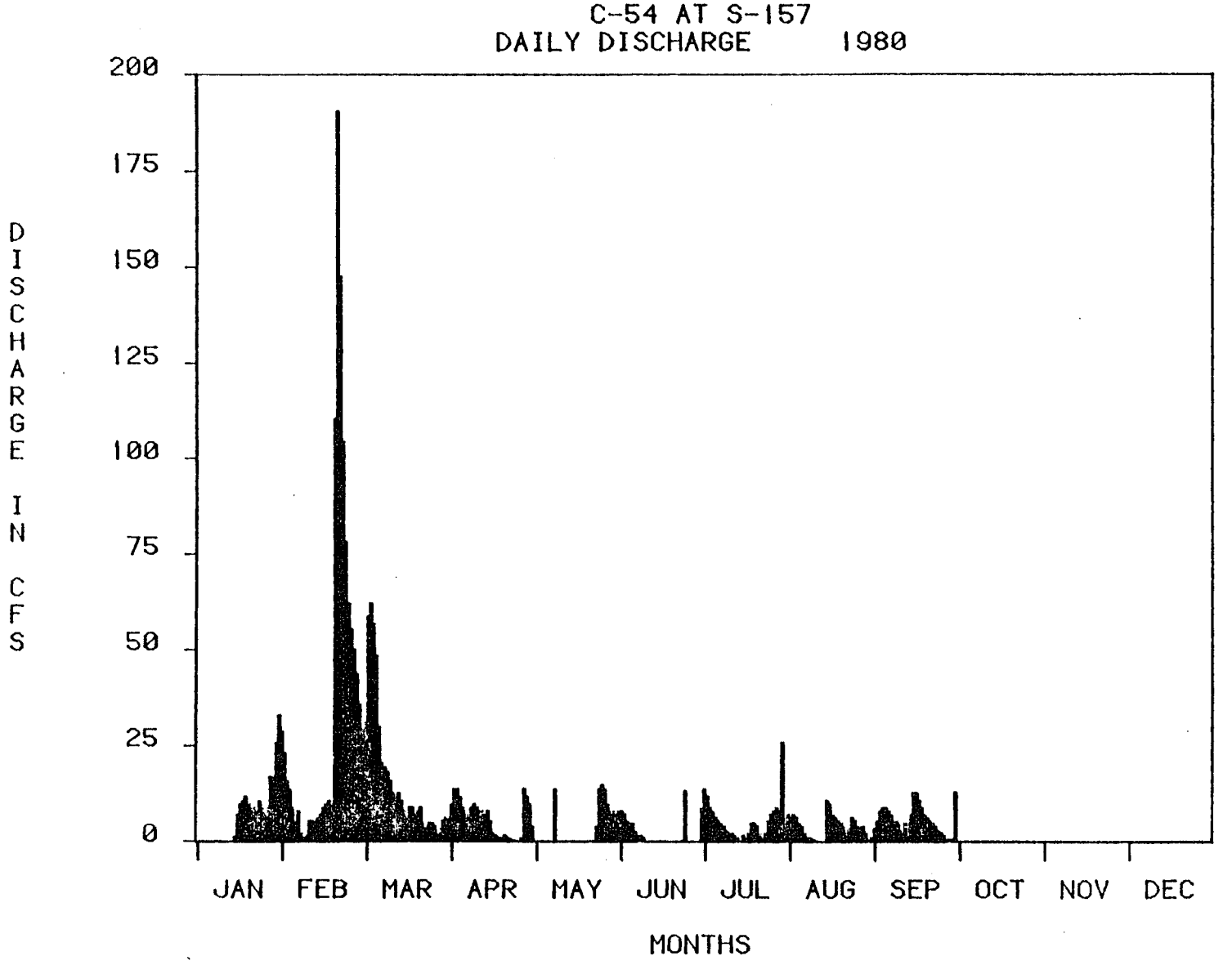

C-54 AT S-157
DAILY DISCHARGE 1975
DISCHARGE IN CFS
100
90
80
70
60
50
40
30
20
10
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS

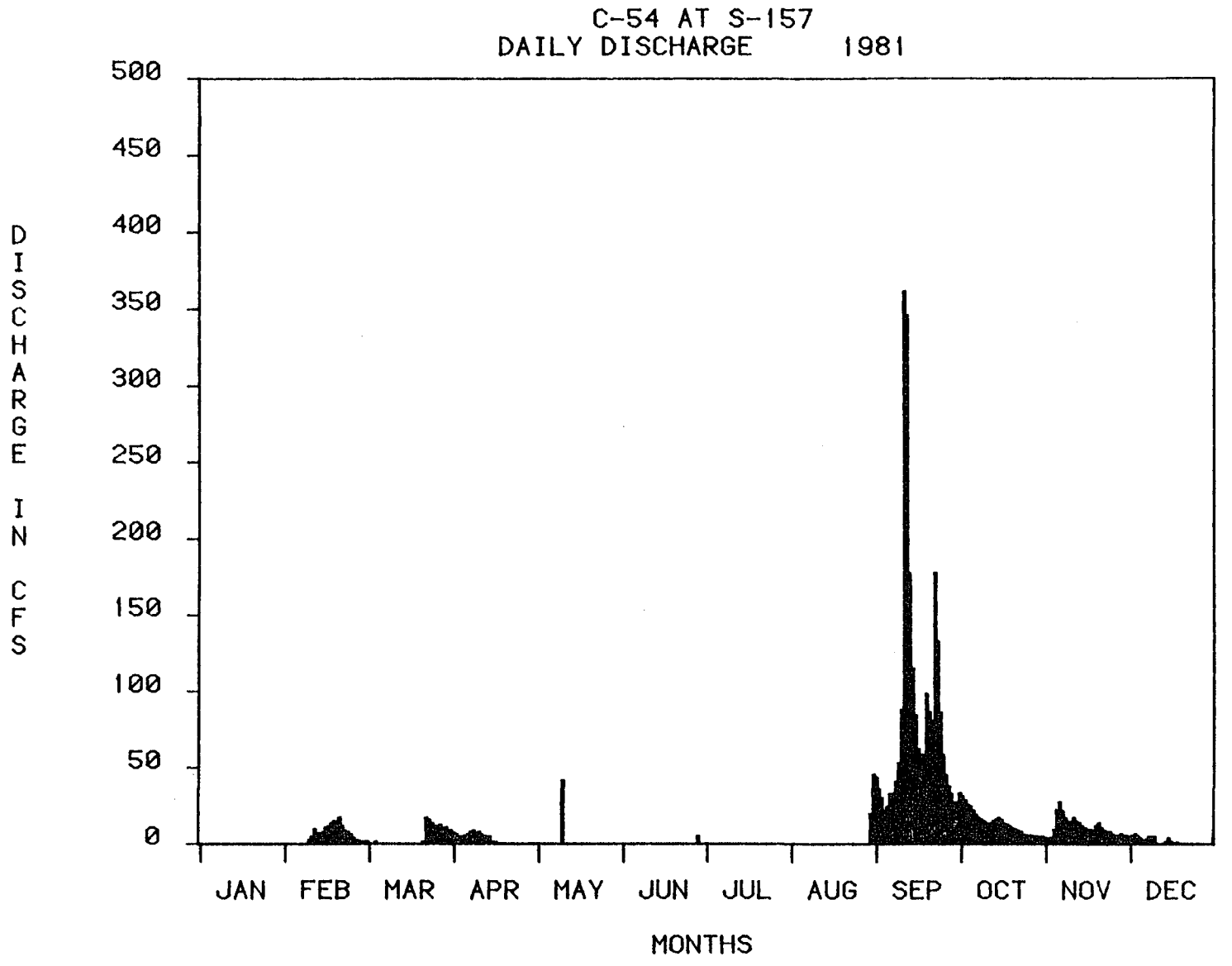

C-54 AT S-157
DAILY DISCHARGE 1976
DISCHARGE IN CFS
800
700
600
500
400
300
200
100
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS

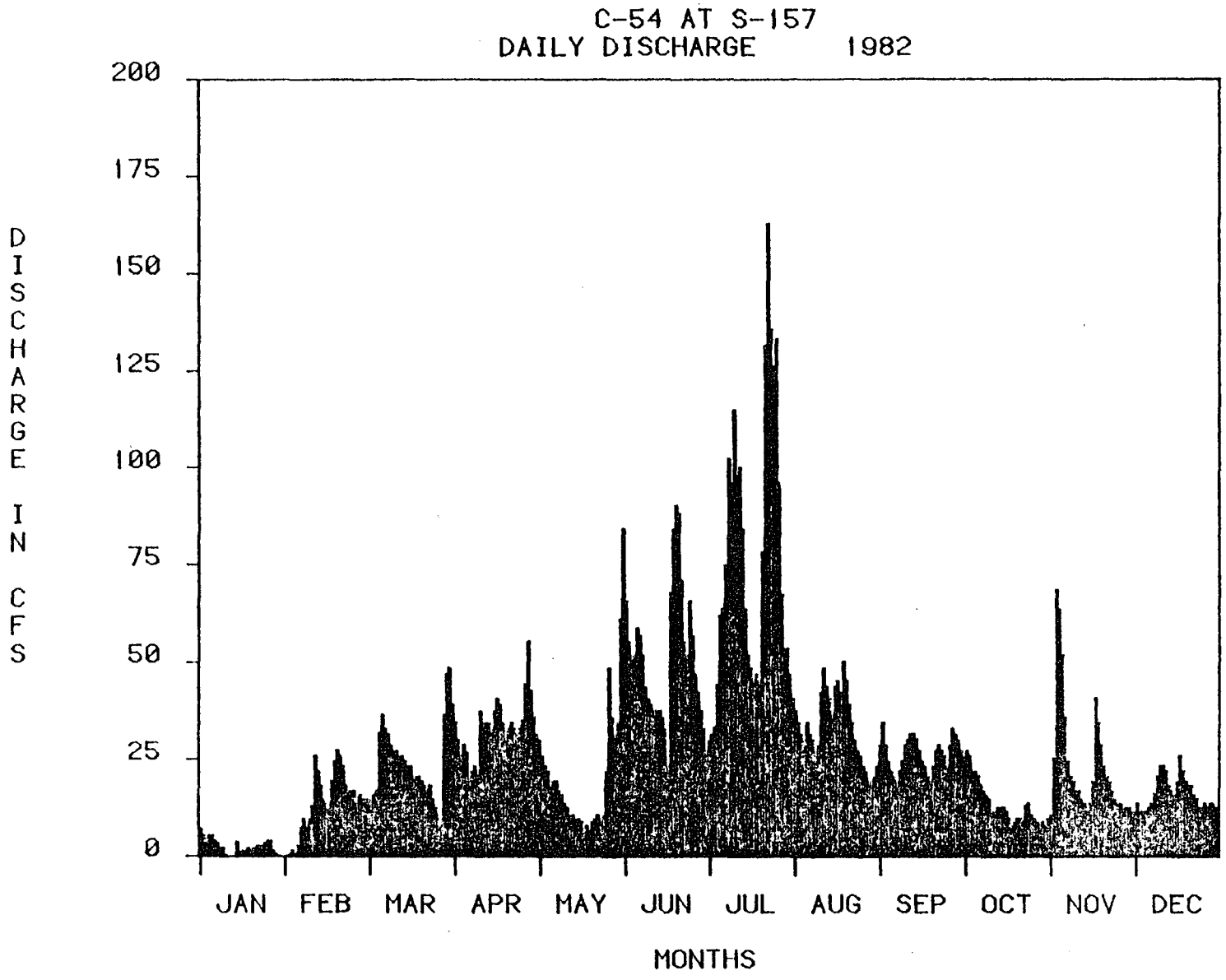

C-54 AT S-157
DAILY DISCHARGE 1977
DISCHARGE IN CFS
500
450
400
350
300
250
200
150
100
50
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS

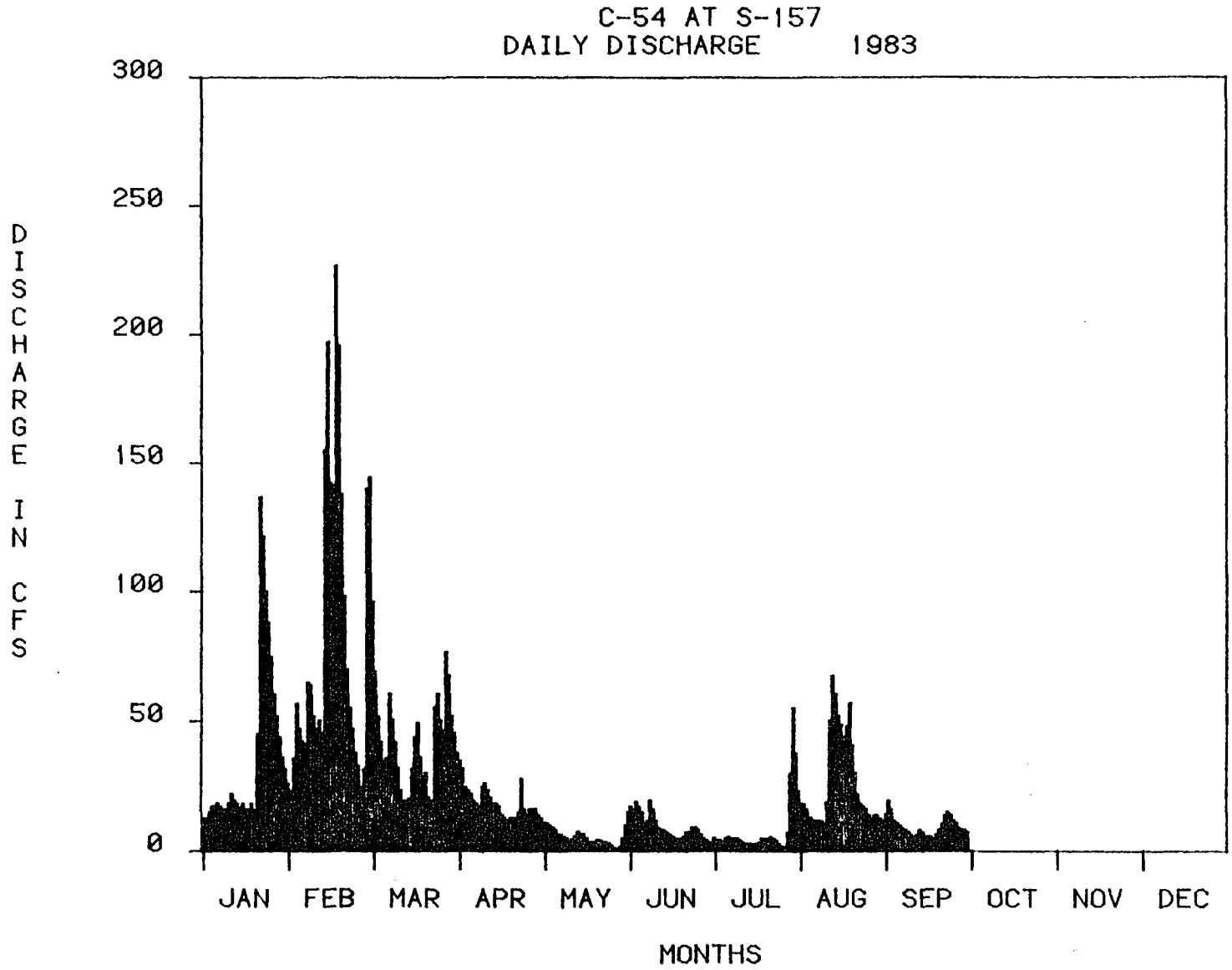

C-54 AT S-157
DAILY DISCHARGE 1978
DISCHARGE IN CFS
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS


C-54 AT S-157
DAILY DISCHARGE 1979
DISCHARGE IN CFS
3500
3000
2500
2000
1500
1000
500
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS


C-54 AT S-157
DAILY DISCHARGE 1980
DISCHARGE IN CFS
200
175
150
125
100
75
50
25
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS


C-54 AT S-157
DAILY DISCHARGE 1981
DISCHARGE IN CFS
500
450
400
350
300
250
200
150
100
50
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS


C-54 AT S-157
DAILY DISCHARGE 1982
DISCHARGE IN CFS
200
175
150
125
100
75
50
25
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS


C-54 AT S-157
DAILY DISCHARGE 1983
DISCHARGE IN CFS
300
250
200
150
100
50
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
MONTHS

APPENDIX H

DAILY DISCHARGE DATA

FOR

MTWCD C-1 CANAL

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1956

DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	51.0	39.0	32.0	29.0	48.0	37.0	48.0	40.0	69.0	237.0	918.0	167.0
2	51.0	38.0	31.0	27.0	47.0	38.0	51.0	39.0	62.0	189.0	857.0	163.0
3	51.0	39.0	31.0	28.0	46.0	37.0	53.0	36.0	60.0	146.0	796.0	159.0
4	51.0	38.0	31.0	32.0	44.0	37.0	55.0	34.0	69.0	160.0	732.0	158.0
5	51.0	37.0	30.0	31.0	45.0	37.0	58.0	32.0	88.0	622.0	688.0	156.0
6	47.0	37.0	30.0	30.0	51.0	40.0	75.0	31.0	90.0	701.0	632.0	154.0
7	47.0	37.0	31.0	32.0	49.0	46.0	96.0	32.0	84.0	779.0	570.0	150.0
8	47.0	36.0	30.0	30.0	48.0	47.0	83.0	32.0	80.0	668.0	50 .0	146.0
9	47.0	35.0	31.0	28.0	54.0	44.0	66.0	41.0	164.0	545.0	430.0	144.0
10	47.0	35.0	32.0	32.0	57.0	41.0	76.0	45.0	555.0	435.0	355.0	143.0
11	40.0	35.0	30.0	45.0	57.0	44.0	92.0	42.0	447.0	326.0	326.0	140.0
12	40.0	38.0	29.0	43.0	53.0	45.0	88.0	41.0	316.0	242.0	305.0	138.0
13	40.0	38.0	29.0	38.0	49.0	44.0	80.0	39.0	233.0	198.0	287.0	135.0
14	40.0	39.0	29.0	36.0	46.0	43.0	74.0	37.0	178.0	171.0	272.0	135.0
15	40.0	36.0	29.0	34.0	42.0	42.0	64.0	36.0	135.0	1070.0	258.0	135.0
16	39.0	35.0	28.0	32.0	40.0	42.0	55.0	40.0	111.0	2500.0	250.0	135.0
17	41.0	34.0	28.0	34.0	40.0	42.0	47.0	55.0	94.0	1970.0	242.0	142.0
18	40.0	34.0	28.0	33.0	39.0	42.0	40.0	77.0	96.0	1740.0	233.0	141.0
19	38.0	34.0	27.0	33.0	37.0	41.0	37.0	100.0	179.0	1550.0	224.0	136.0
20	38.0	34.0	28.0	33.0	37.0	40.0	34.0	94.0	173.0	1440.0	218.0	133.0
21	39.0	40.0	29.0	32.0	37.0	42.0	39.0	74.0	130.0	1380.0	211.0	130.0
22	38.0	39.0	28.0	32.0	37.0	46.0	53.0	70.0	105.0	1370.0	204.0	128.0
23	39.0	35.0	28.0	32.0	37.0	47.0	50.0	113.0	89.0	1310.0	197.0	131.0
24	46.0	33.0	29.0	32.0	37.0	46.0	44.0	124.0	79.0	1280.0	192.0	132.0
25	52.0	32.0	34.0	36.0	37.0	44.0	40.0	98.0	70.0	1240.0	189.0	125.0
26	49.0	33.0	30.0	62.0	36.0	42.0	37.0	78.0	66.0	1210.0	187.0	117.0
27	46.0	33.0	28.0	73.0	37.0	42.0	37.0	69.0	62.0	1170.0	184.0	112.0
28	44.0	34.0	26.0	65.0	39.0	44.0	37.0	62.0	62.0	1120.0	178.0	110.0
29	41.0	36.0	26.0	57.0	39.0	46.0	45.0	59.0	160.0	1080.0	174.0	109.0
30	39.0		27.0	51.0	39.0	48.0	45.0	64.0	253.0	1030.0	171.0	106.0
31	39.0		31.0		38.0		43.0	77.0		981.0		104.0
MAX	52.0	40.0	34.0	73.0	57.0	48.0	96.0	124.0	555.0	250 .0	918.0	167.0
MIN	38.0	32.0	26.0	27.0	36.0	37.0	34.0	31.0	60.0	146.0	171.0	104.0
MEAN	43.8	36.0	29.4	37.7	43.3	42.5	56.2	58.4	145.3	931.0	366.0	135.9

YEARLY MAXIMUM: 2500.00 YEARLY MINIMUM: 26.00 YEARLY MEAN: 161.3

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1957

DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	102.0	59.0	127.0	68.0	42.0	64.0	123.0	139.0	236.0	144.0	52.0	43.0
2	100.0	55.0	107.0	215.0	43.0	61.0	100.0	134.0	182.0	316.0	50.0	44.0
3	98.0	53.0	95.0	251.0	48.0	56.0	94.0	143.0	149.0	373.0	48.0	47.0
4	98.0	52.0	83.0	185.0	45.0	56.0	126.0	148.0	130.0	310.0	45.0	43.0
5	97.0	51.0	84.0	148.0	42.0	79.0	136.0	135.0	122.0	214.0	42.0	38.0
6	96.0	48.0	119.0	122.0	41.0	82.0	127.0	135.0	134.0	166.0	41.0	43.0
7	95.0	45.0	176.0	98.0	39.0	72.0	110.0	204.0	154.0	145.0	41.0	42.0
8	94.0	44.0	156.0	83.0	38.0	69.0	92.0	219.0	171.0	125.0	43.0	42.0
9	92.0	42.0	138.0	74.0	37.0	130.0	86.0	187.0	249.0	108.0	41.0	39.0
10	91.0	40.0	119.0	66.0	35.0	143.0	78.0	161.0	307.0	97.0	40.0	40.0
11	91.0	39.0	104.0	65.0	36.0	129.0	69.0	141.0	278.0	90.0	44.0	41.0
12	90.0	38.0	91.0	88.0	51.0	114.0	66.0	137.0	233.0	84.0	44.0	36.0
13	89.0	36.0	80.0	93.0	84.0	95.0	73.0	129.0	205.0	78.0	42.0	39.0
14	87.0	35.0	72.0	82.0	93.0	79.0	112.0	116.0	187.0	102.0	42.0	44.0
15	86.0	34.0	67.0	73.0	94.0	68.0	113.0	106.0	191.0	157.0	42.0	41.0
16	87.0	33.0	76.0	64.0	132.0	60.0	102.0	95.0	197.0	140.0	42.0	40.0
17	117.0	32.0	87.0	57.0	137.0	54.0	112.0	80.0	228.0	116.0	42.0	38.0
18	124.0	32.0	85.0	54.0	261.0	49.0	107.0	74.0	345.0	100.0	42.0	40.0
19	120.0	34.0	94.0	56.0	266.0	46.0	100.0	79.0	343.0	116.0	37.0	39.0
20	119.0	39.0	97.0	62.0	359.0	42.0	186.0	84.0	349.0	159.0	36.0	39.0
21	134.0	58.0	86.0	57.0	279.0	41.0	192.0	89.0	279.0	151.0	38.0	35.0
22	160.0	65.0	126.0	52.0	192.0	42.0	156.0	108.0	196.0	138.0	41.0	37.0
23	159.0	61.0	180.0	48.0	154.0	40.0	157.0	120.0	163.0	119.0	43.0	38.0
24	148.0	56.0	149.0	46.0	125.0	38.0	135.0	204.0	141.0	106.0	40.0	56.0
25	138.0	66.0	129.0	42.0	106.0	37.0	102.0	336.0	125.0	99.0	38.0	80.0
26	130.0	97.0	130.0	40.0	92.0	51.0	142.0	228.0	115.0	89.0	36.0	87.0
27	122.0	94.0	127.0	40.0	80.0	165.0	153.0	164.0	107.0	78.0	38.0	162.0
28	110.0	127.0	109.0	40.0	71.0	245.0	118.0	139.0	102.0	68.0	38.0	176.0
29	74.0		94.0	41.0	66.0	208.0	112.0	176.0	100.0	70.0	36.0	180.0
30	66.0		83.0	44.0	62.0	158.0	161.0	290.0	129.0	60.0	37.0	164.0
31	64.0		72.0		63.0		156.0	284.0		57.0		142.0
MAX	160.0	127.0	180.0	251.0	359.0	245.0	192.0	336.0	349.0	373.0	52.0	180.0
MIN	64.0	32.0	67.0	40.0	35.0	37.0	66.0	74.0	100.0	57.0	36.0	35.0
MEAN	105.7	52.3	107.8	81.8	103.7	85.8	119.2	154.3	194.9	134.7	41.4	63.7

YEARLY MAXIMUM: 373.0 YEARLY MINIMUM: 32.0 YEARLY MEAN: 104.2

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1958

DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	123.0	200.0	519.0	191.0	47.0	36.0	42.0	55.0	44.0	39.0	76.0	36.0
2	118.0	170.0	377.0	152.0	45.0	37.0	41.0	45.0	42.0	38.0	81.0	35.0
3	427.0	145.0	307.0	133.0	43.0	40.0	43.0	40.0	41.0	40.0	75.0	36.0
4	709.0	129.0	312.0	124.0	42.0	37.0	52.0	36.0	42.0	40.0	69.0	36.0
5	545.0	120.0	266.0	113.0	42.0	36.0	49.0	34.0	40.0	42.0	65.0	39.0
6	399.0	118.0	226.0	104.0	46.0	34.0	43.0	31.0	39.0	54.0	60.0	37.0
7	454.0	112.0	390.0	93.0	45.0	33.0	40.0	33.0	38.0	106.0	61.0	35.0
8	582.0	114.0	367.0	86.0	41.0	33.0	36.0	36.0	37.0	116.0	67.0	33.0
9	440.0	108.0	239.0	86.0	37.0	32.0	33.0	49.0	42.0	97.0	64.0	33.0
10	326.0	101.0	196.0	131.0	34.0	31.0	30.0	55.0	46.0	79.0	61.0	34.0
11	236.0	93.0	168.0	146.0	36.0	30.0	29.0	59.0	43.0	69.0	57.0	31.0
12	206.0	92.0	151.0	130.0	41.0	29.0	27.0	57.0	42.0	64.0	54.0	27.0
13	184.0	88.0	526.0	116.0	43.0	34.0	27.0	63.0	41.0	59.0	52.0	27.0
14	182.0	85.0	514.0	100.0	45.0	34.0	26.0	59.0	70.0	54.0	51.0	33.0
15	175.0	96.0	326.0	103.0	43.0	31.0	24.0	54.0	113.0	50.0	50.0	29.0
16	161.0	104.0	223.0	188.0	40.0	28.0	23.0	66.0	112.0	46.0	47.0	30.0
17	145.0	96.0	188.0	163.0	37.0	28.0	34.0	63.0	99.0	45.0	46.0	29.0
18	126.0	90.0	156.0	124.0	36.0	27.0	29.0	54.0	83.0	43.0	44.0	28.0
19	115.0	86.0	162.0	108.0	34.0	27.0	27.0	51.0	71.0	110.0	42.0	30.0
20	108.0	81.0	190.0	95.0	32.0	26.0	40.0	91.0	63.0	292.0	40.0	32.0
21	116.0	77.0	167.0	86.0	33.0	29.0	41.0	101.0	56.0	240.0	38.0	34.0
22	325.0	73.0	140.0	78.0	34.0	29.0	42.0	87.0	53.0	193.0	38.0	33.0
23	312.0	70.0	122.0	75.0	33.0	29.0	37.0	78.0	55.0	153.0	42.0	35.0
24	973.0	68.0	126.0	70.0	35.0	28.0	34.0	81.0	63.0	123.0	42.0	35.0
25	949.0	67.0	267.0	66.0	37.0	28.0	37.0	74.0	63.0	102.0	39.0	32.0
26	727.0	181.0	245.0	63.0	51.0	28.0	78.0	68.0	56.0	85.0	36.0	36.0
27	580.0	1000.0	221.0	58.0	51.0	29.0	82.0	63.0	49.0	74.0	36.0	63.0
28	430.0	770.0	166.0	55.0	46.0	35.0	91.0	59.0	47.0	66.0	38.0	100.0
29	300.0		143.0	52.0	42.0	50.0	95.0	54.0	43.0	60.0	36.0	96.0
30	252.0		133.0	50.0	39.0	46.0	88.0	49.0	42.0	58.0	32.0	86.0
31	216.0		210.0		37.0		70.0	45.0		60.0		78.0
MAX	973.0	1000.0	526.0	191.0	51.0	50.0	95.0	101.0	113.0	292.0	81.0	100.0
MIN	108.0	67.0	122.0	50.0	32.0	26.0	23.0	31.0	37.0	38.0	32.0	27.0
MEAN	352.9	161.9	249.8	104.6	40.2	32.5	44.8	57.7	55.8	87.0	51.3	41.2

YEARLY MAXIMUM: 1000.0 YEARLY MINIMUM: 23.0 YEARLY MEAN: 106.7

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1959

DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	73.0	72.0	98.0	170.0	54.0	43.0	216.0	110.0	49.0	98.0	148.0	84.0
2	72.0	65.0	160.0	172.0	52.0	40.0	216.0	129.0	53.0	92.0	136.0	83.0
3	84.0	61.0	143.0	226.0	50.0	37.0	216.0	148.0	70.0	82.0	122.0	79.0
4	83.0	56.0	118.0	196.0	49.0	72.0	216.0	135.0	80.0	72.0	111.0	72.0
5	74.0	60.0	98.0	153.0	48.0	72.0	216.0	114.0	81.0	67.0	98.0	70.0
6	65.0	86.0	86.0	129.0	46.0	72.0	154.0	100.0	80.0	65.0	91.0	71.0
7	61.0	88.0	80.0	114.0	43.0	72.0	154.0	147.0	76.0	72.0	84.0	69.0
8	57.0	82.0	76.0	101.0	42.0	72.0	154.0	160.0	73.0	81.0	82.0	67.0
9	55.0	143.0	76.0	92.0	40.0	72.0	154.0	133.0	70.0	101.0	80.0	66.0
10	50.0	194.0	76.0	84.0	39.0	72.0	154.0	166.0	75.0	104.0	68.0	65.0
11	49.0	161.0	69.0	78.0	40.0	52.0	158.0	228.0	68.0	101.0	64.0	63.0
12	52.0	131.0	65.0	74.0	43.0	52.0	158.0	205.0	62.0	123.0	64.0	61.0
13	53.0	116.0	64.0	73.0	40.0	52.0	158.0	223.0	83.0	120.0	64.0	61.0
14	50.0	104.0	59.0	68.0	41.0	52.0	158.0	170.0	109.0	98.0	64.0	59.0
15	47.0	92.0	56.0	67.0	42.0	91.0	158.0	168.0	134.0	85.0	64.0	57.0
16	47.0	82.0	57.0	63.0	45.0	160.0	136.0	192.0	154.0	79.0	64.0	56.0
17	50.0	76.0	127.0	62.0	61.0	350.0	136.0	173.0	254.0	84.0	64.0	55.0
18	50.0	86.0	419.0	60.0	71.0	1090.0	136.0	133.0	295.0	364.0	63.0	54.0
19	49.0	93.0	754.0	59.0	78.0	1000.0	136.0	116.0	340.0	763.0	72.0	54.0
20	46.0	82.0	1060.0	63.0	78.0	883.0	136.0	100.0	405.0	682.0	74.0	53.0
21	44.0	74.0	946.0	65.0	74.0	820.0	131.0	87.0	505.0	713.0	170.0	48.0
22	45.0	65.0	819.0	74.0	72.0	760.0	131.0	78.0	417.0	940.0	328.0	48.0
23	50.0	59.0	692.0	82.0	66.0	633.0	131.0	72.0	347.0	987.0	225.0	54.0
24	51.0	55.0	572.0	79.0	59.0	633.0	131.0	67.0	314.0	948.0	186.0	59.0
25	59.0	52.0	452.0	75.0	54.0	633.0	131.0	63.0	243.0	765.0	171.0	74.0
26	125.0	51.0	319.0	71.0	50.0	380.0	118.0	58.0	194.0	596.0	156.0	75.0
27	136.0	50.0	236.0	67.0	49.0	380.0	112.0	54.0	159.0	447.0	137.0	71.0
28	119.0	54.0	199.0	62.0	44.0	380.0	102.0	52.0	133.0	300.0	121.0	70.0
29	102.0		184.0	59.0	47.0	380.0	95.0	50.0	122.0	235.0	105.0	65.0
30	88.0		181.0	56.0	50.0	380.0	85.0	48.0	108.0	201.0	90.0	63.0
31	78.0		168.0		46.0		74.0	48.0		173.0		61.0
MAX	136.0	194.0	1060.0	226.0	78.0	1090.0	216.0	228.0	505.0	987.0	328.0	84.0
MIN	44.0	50.0	56.0	56.0	39.0	37.0	74.0	48.0	49.0	65.0	63.0	48.0
MEAN	66.6	85.4	274.5	93.1	52.0	326.2	147.1	120.2	171.8	310.9	112.2	64.1

YEARLY MAXIMUM: 1090.0 YEARLY MINIMUM: 37.0 YEARLY MEAN: 152.3

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1960

DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	58.0	29.0	93.0	216.0	440.0	95.0	604.0	784.0	76.0	1520.0	179.0	39.0
2	59.0	28.0	84.0	295.0	440.0	95.0	481.0	726.0	72.0	1420.0	168.0	38.0
3	60.0	34.0	78.0	242.0	440.0	95.0	398.0	612.0	69.0	1340.0	136.0	40.0
4	57.0	45.0	83.0	200.0	440.0	95.0	357.0	498.0	92.0	1250.0	122.0	42.0
5	56.0	116.0	80.0	206.0	404.0	95.0	328.0	400.0	151.0	1180.0	112.0	44.0
6	46.0	249.0	70.0	193.0	230.0	95.0	599.0	338.0	252.0	1130.0	104.0	42.0
7	46.0	221.0	63.0	149.0	168.0	95.0	573.0	306.0	251.0	1170.0	96.0	41.0
8	46.0	161.0	58.0	126.0	136.0	95.0	433.0	267.0	243.0	1170.0	90.0	42.0
9	46.0	128.0	56.0	110.0	116.0	95.0	334.0	258.0	204.0	1120.0	84.0	41.0
10	46.0	106.0	53.0	94.0	99.0	153.0	261.0	218.0	402.0	1100.0	80.0	42.0
11	46.0	90.0	52.0	86.0	87.0	127.0	217.0	168.0	1240.0	1030.0	75.0	44.0
12	46.0	89.0	47.0	82.0	76.0	110.0	261.0	144.0	1170.0	945.0	72.0	41.0
13	46.0	89.0	45.0	78.0	67.0	95.0	534.0	129.0	1070.0	853.0	72.0	37.0
14	39.0	89.0	46.0	68.0	62.0	83.0	507.0	124.0	956.0	742.0	70.0	39.0
15	41.0	84.0	64.0	68.0	60.0	78.0	591.0	116.0	822.0	625.0	70.0	45.0
16	37.0	77.0	773.0	61.0	59.0	79.0	526.0	99.0	693.0	507.0	70.0	46.0
17	38.0	71.0	1190.0	55.0	59.0	101.0	695.0	93.0	576.0	428.0	72.0	46.0
18	39.0	69.0	1540.0	55.0	59.0	164.0	765.0	78.0	519.0	372.0	70.0	47.0
19	35.0	69.0	1440.0	55.0	59.0	423.0	700.0	73.0	517.0	328.0	68.0	47.0
20	31.0	66.0	1300.0	55.0	59.0	1020.0	512.0	70.0	438.0	286.0	65.0	47.0
21	30.0	63.0	1180.0	55.0	59.0	1150.0	345.0	67.0	355.0	252.0	62.0	47.0
22	29.0	61.0	1100.0	55.0	59.0	987.0	251.0	69.0	1020.0	249.0	62.0	47.0
23	31.0	67.0	1000.0	55.0	59.0	993.0	251.0	78.0	1530.0	210.0	59.0	46.0
24	30.0	80.0	889.0	55.0	59.0	926.0	215.0	87.0	1580.0	192.0	55.0	46.0
25	36.0	129.0	768.0	55.0	59.0	867.0	240.0	86.0	1560.0	166.0	54.0	46.0
26	37.0	157.0	672.0	55.0	59.0	758.0	635.0	108.0	1510.0	138.0	52.0	46.0
27	38.0	144.0	573.0	55.0	59.0	734.0	729.0	116.0	1450.0	136.0	55.0	45.0
28	37.0	120.0	486.0	55.0	59.0	752.0	973.0	101.0	1420.0	123.0	53.0	45.0
29	37.0	109.0	393.0	55.0	59.0	687.0	942.0	88.0	1430.0	110.0	55.0	45.0
30	38.0		304.0	55.0	59.0	729.0	937.0	82.0	1430.0	106.0	49.0	45.0
31	35.0		247.0		59.0		819.0	79.0		116.0		43.0
MAX	60.0	249.0	1540.0	295.0	440.0	1150.0	973.0	784.0	1580.0	1520.0	179.0	47.0
MIN	29.0	28.0	45.0	55.0	59.0	78.0	215.0	67.0	69.0	106.0	49.0	37.0
MEAN	41.8	97.9	478.3	101.5	135.8	395.7	516.6	208.5	769.9	655.3	81.03	43.6

YEARLY MAXIMUM: 1580.0 YEARLY MINIMUM: 28.0 YEARLY MEAN: 294.4

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1961

DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	43.0	52.0	39.0	34.0	35.0	32.0	93.0	40.0	85.0	35.0	42.0	32.0
2	43.0	49.0	39.0	36.0	32.0	28.0	77.0	41.0	72.0	35.0	40.0	32.0
3	43.0	50.0	39.0	31.0	36.0	26.0	70.0	41.0	64.0	33.0	39.0	29.0
4	41.0	50.0	38.0	26.0	42.0	25.0	104.0	46.0	51.0	31.0	37.0	32.0
5	41.0	55.0	38.0	23.0	32.0	24.0	116.0	44.0	43.0	28.0	38.0	31.0
6	41.0	57.0	38.0	25.0	29.0	22.0	102.0	41.0	38.0	37.0	49.0	33.0
7	40.0	57.0	38.0	28.0	29.0	25.0	91.0	40.0	36.0	46.0	55.0	29.0
8	40.0	65.0	37.0	47.0	28.0	28.0	86.0	41.0	34.0	42.0	52.0	27.0
9	40.0	65.0	37.0	61.0	27.0	27.0	83.0	36.0	31.0	35.0	43.0	31.0
10	45.0	58.0	36.0	152.0	30.0	26.0	78.0	33.0	27.0	30.0	43.0	30.0
11	45.0	55.0	36.0	150.0	35.0	30.0	154.0	32.0	28.0	35.0	40.0	30.0
12	47.0	53.0	36.0	109.0	29.0	30.0	213.0	27.0	25.0	42.0	40.0	31.0
13	50.0	50.0	40.0	97.0	27.0	30.0	185.0	25.0	23.0	41.0	39.0	32.0
14	110.0	47.0	45.0	78.0	25.0	30.0	156.0	26.0	24.0	46.0	39.0	32.0
15	220.0	44.0	48.0	67.0	25.0	29.0	132.0	35.0	25.0	60.0	37.0	30.0
16	190.0	42.0	45.0	57.0	26.0	27.0	112.0	39.0	30.0	70.0	35.0	31.0
17	130.0	44.0	38.0	53.0	26.0	22.0	99.0	44.0	66.0	66.0	32.0	31.0
18	96.0	46.0	41.0	49.0	25.0	16.0	86.0	42.0	124.0	54.0	29.0	31.0
19	82.0	44.0	50.0	43.0	26.0	17.0	98.0	48.0	136.0	42.0	28.0	33.0
20	70.0	44.0	64.0	36.0	23.0	18.0	156.0	49.0	126.0	42.0	25.0	34.0
21	62.0	44.0	68.0	34.0	22.0	25.0	161.0	44.0	108.0	35.0	19.0	33.0
22	56.0	42.0	65.0	35.0	20.0	20.0	139.0	38.0	91.0	35.0	28.0	33.0
23	56.0	42.0	56.0	36.0	19.0	20.0	121.0	37.0	77.0	31.0	31.0	32.0
24	56.0	40.0	47.0	46.0	16.0	25.0	102.0	34.0	67.0	31.0	30.0	29.0
25	56.0	39.0	40.0	43.0	20.0	30.0	89.0	33.0	59.0	28.0	30.0	27.0
26	55.0	37.0	36.0	35.0	37.0	62.0	74.0	41.0	52.0	27.0	32.0	29.0
27	54.0	39.0	36.0	37.0	83.0	86.0	65.0	41.0	47.0	31.0	29.0	33.0
28	54.0	39.0	35.0	33.0	66.0	118.0	66.0	44.0	43.0	37.0	30.0	35.0
29	54.0		34.0	32.0	45.0	128.0	62.0	76.0	40.0	44.0	27.0	33.0
30	54.0		32.0	31.0	40.0	114.0	53.0	98.0	40.0	48.0	25.0	31.0
31	53.0		32.0		34.0		45.0	104.0		43.0		30.0
MAX	220.0	65.0	68.0	152.0	83.0	128.0	213.0	104.0	136.0	70.0	55.0	35.0
MIN	40.0	37.0	32.0	23.0	16.0	16.0	45.0	25.0	23.0	27.0	19.0	27.0
MEAN	66.7	48.2	42.0	52.1	31.9	38.0	105.4	43.9	57.1	40.0	35.4	31.2

YEARLY MAXIMUM: 220.0 YEARLY MINIMUM: 16.0 YEARLY MEAN: 49.4

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1962

DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	30.0	27.0	26.0	27.0	20.0	16.0	54.0	94.0	326.0	267.0	34.0	38.0
2	31.0	26.0	30.0	34.0	19.0	18.0	55.0	114.0	297.0	250.0	36.0	25.0
3	29.0	26.0	32.0	33.0	20.0	23.0	49.0	112.0	283.0	220.0	36.0	25.0
4	29.0	26.0	30.0	31.0	20.0	25.0	40.0	96.0	253.0	224.0	36.0	30.0
5	30.0	27.0	32.0	27.0	20.0	27.0	33.0	144.0	232.0	216.0	35.0	32.0
6	30.0	28.0	32.0	27.0	23.0	24.0	29.0	363.0	215.0	194.0	33.0	24.0
7	33.0	25.0	31.0	27.0	24.0	23.0	25.0	369.0	277.0	173.0	36.0	30.0
8	33.0	27.0	30.0	31.0	21.0	22.0	24.0	328.0	375.0	156.0	38.0	38.0
9	32.0	28.0	30.0	34.0	20.0	22.0	45.0	272.0	323.0	140.0	82.0	34.0
10	32.0	32.0	32.0	32.0	19.0	26.0	150.0	218.0	243.0	127.0	114.0	28.0
11	31.0	20.0	33.0	28.0	20.0	28.0	194.0	194.0	194.0	112.0	107.0	39.0
12	31.0	28.0	32.0	25.0	20.0	29.0	196.0	180.0	152.0	100.0	98.0	41.0
13	33.0	28.0	36.0	24.0	20.0	28.0	157.0	142.0	155.0	90.0	90.0	35.0
14	34.0	28.0	35.0	25.0	18.0	30.0	122.0	123.0	177.0	83.0	76.0	43.0
15	34.0	27.0	33.0	21.0	18.0	33.0	103.0	168.0	245.0	76.0	75.0	44.0
16	35.0	27.0	41.0	22.0	18.0	34.0	87.0	314.0	198.0	68.0	68.0	42.0
17	33.0	27.0	42.0	19.0	19.0	33.0	72.0	260.0	151.0	57.0	63.0	41.0
18	32.0	28.0	38.0	17.0	21.0	32.0	74.0	297.0	127.0	59.0	59.0	40.0
19	31.0	28.0	30.0	17.0	21.0	30.0	146.0	483.0	126.0	49.0	56.0	38.0
20	30.0	29.0	27.0	17.0	18.0	26.0	330.0	698.0	816.0	50.0	53.0	37.0
21	31.0	27.0	25.0	17.0	17.0	26.0	289.0	588.0	990.0	51.0	51.0	37.0
22	30.0	26.0	27.0	17.0	18.0	30.0	208.0	461.0	883.0	54.0	49.0	36.0
23	29.0	26.0	47.0	17.0	18.0	44.0	155.0	375.0	999.0	58.0	54.0	36.0
24	28.0	26.0	58.0	17.0	18.0	43.0	129.0	321.0	1180.0	50.0	56.0	36.0
25	29.0	29.0	50.0	18.0	16.0	39.0	109.0	298.0	999.0	48.0	55.0	37.0
26	28.0	28.0	51.0	19.0	16.0	38.0	94.0	343.0	842.0	43.0	43.0	37.0
27	28.0	27.0	52.0	23.0	15.0	38.0	80.0	412.0	706.0	44.0	39.0	37.0
28	28.0	26.0	43.0	23.0	15.0	44.0	84.0	424.0	572.0	45.0	37.0	36.0
29	25.0		35.0	22.0	17.0	53.0	82.0	375.0	424.0	43.0	43.0	37.0
30	26.0		32.0	21.0	17.0	53.0	74.0	321.0	316.0	42.0	43.0	31.0
31	27.0		30.0		17.0		76.0	321.0		41.0		29.0
MAX	35.0	32.0	58.0	34.0	24.0	53.0	330.0	698.0	1180.0	267.0	114.0	44.0
MIN	25.0	20.0	25.0	17.0	15.0	16.0	24.0	94.0	126.0	41.0	33.0	24.0
MEAN	30.4	27.0	35.6	23.7	18.8	31.2	108.6	297.0	435.9	104.2	56.5	35.3

YEARLY MAXIMUM: 1180.0 YEARLY MINIMUM: 15.0 YEARLY MEAN: 100.6

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1962

DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	30.0	27.0	26.0	27.0	20.0	16.0	54.0	94.0	326.0	267.0	34.0	38.0
2	31.0	26.0	30.0	34.0	19.0	18.0	55.0	114.0	297.0	250.0	36.0	25.0
3	29.0	26.0	32.0	33.0	20.0	23.0	49.0	112.0	283.0	220.0	36.0	25.0
4	29.0	26.0	30.0	31.0	20.0	25.0	40.0	96.0	253.0	224.0	36.0	30.0
5	30.0	27.0	32.0	27.0	20.0	27.0	33.0	144.0	232.0	216.0	35.0	32.0
6	30.0	28.0	32.0	27.0	23.0	24.0	29.0	363.0	215.0	194.0	33.0	24.0
7	33.0	25.0	31.0	27.0	24.0	23.0	25.0	369.0	277.0	173.0	36.0	30.0
8	33.0	27.0	30.0	31.0	21.0	22.0	24.0	328.0	375.0	156.0	38.0	38.0
9	32.0	28.0	30.0	34.0	20.0	22.0	45.0	272.0	323.0	140.0	82.0	34.0
10	32.0	32.0	32.0	32.0	19.0	26.0	150.0	218.0	243.0	127.0	114.0	28.0
11	31.0	20.0	33.0	28.0	20.0	28.0	194.0	194.0	194.0	112.0	107.0	39.0
12	31.0	28.0	32.0	25.0	20.0	29.0	196.0	180.0	152.0	100.0	98.0	41.0
13	33.0	28.0	36.0	24.0	20.0	28.0	157.0	142.0	155.0	90.0	90.0	35.0
14	34.0	28.0	35.0	25.0	18.0	30.0	122.0	123.0	177.0	83.0	76.0	43.0
15	34.0	27.0	33.0	21.0	18.0	33.0	103.0	168.0	245.0	76.0	75.0	44.0
16	35.0	27.0	41.0	22.0	18.0	34.0	87.0	314.0	198.0	68.0	68.0	42.0
17	33.0	27.0	42.0	19.0	19.0	33.0	72.0	260.0	151.0	57.0	63.0	41.0
18	32.0	28.0	38.0	17.0	21.0	32.0	74.0	297.0	127.0	59.0	59.0	40.0
19	31.0	28.0	30.0	17.0	21.0	30.0	146.0	483.0	126.0	49.0	56.0	38.0
20	30.0	29.0	27.0	17.0	18.0	26.0	330.0	698.0	816.0	50.0	53.0	37.0
21	31.0	27.0	25.0	17.0	17.0	26.0	289.0	588.0	990.0	51.0	51.0	37.0
22	30.0	26.0	27.0	17.0	18.0	30.0	208.0	461.0	883.0	54.0	49.0	36.0
23	29.0	26.0	47.0	17.0	18.0	44.0	155.0	375.0	999.0	58.0	54.0	36.0
24	28.0	26.0	58.0	17.0	18.0	43.0	129.0	321.0	1180.0	50.0	56.0	36.0
25	29.0	29.0	50.0	18.0	16.0	39.0	109.0	298.0	999.0	48.0	55.0	37.0
26	28.0	28.0	51.0	19.0	16.0	38.0	94.0	343.0	842.0	43.0	43.0	37.0
27	28.0	27.0	52.0	23.0	15.0	38.0	80.0	412.0	706.0	44.0	39.0	37.0
28	28.0	26.0	43.0	23.0	15.0	44.0	84.0	424.0	572.0	45.0	37.0	36.0
29	25.0		35.0	22.0	17.0	53.0	82.0	375.0	424.0	43.0	43.0	37.0
30	26.0		32.0	21.0	17.0	53.0	74.0	321.0	316.0	42.0	43.0	31.0
31	27.0		30.0		17.0		76.0	321.0		41.0		29.0
MAX	35.0	32.0	58.0	34.0	24.0	53.0	330.0	698.0	1180.0	267.0	114.0	44.0
MIN	25.0	20.0	25.0	17.0	15.0	16.0	24.0	94.0	126.0	41.0	33.0	24.0
MEAN	30.4	27.0	35.6	23.7	18.8	31.2	108.6	297.0	435.9	104.2	56.5	35.3

YEARLY MAXIMUM: 1180.0 YEARLY MINIMUM: 15.0 YEARLY MEAN: 100.6

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1965

DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	43.0	32.0	58.0	107.0	29.0	19.0	62.0	65.0	34.0	78.0	305.0	48.0
2	42.0	40.0	52.0	93.0	30.0	19.0	55.0	62.0	35.0	90.0	278.0	44.0
3	42.0	46.0	56.0	79.0	28.0	19.0	56.0	70.0	33.0	91.0	202.0	42.0
4	45.0	44.0	57.0	68.0	26.0	19.0	53.0	82.0	32.0	82.0	155.0	44.0
5	44.0	41.0	53.0	61.0	26.0	23.0	49.0	94.0	28.0	71.0	125.0	42.0
6	43.0	42.0	48.0	54.0	26.0	26.0	64.0	94.0	25.0	62.0	123.0	40.0
7	42.0	50.0	44.0	50.0	26.0	26.0	74.0	83.0	25.0	70.0	216.0	41.0
8	41.0	56.0	40.0	48.0	24.0	37.0	60.0	75.0	42.0	93.0	238.0	38.0
9	41.0	54.0	37.0	44.0	25.0	58.0	58.0	85.0	37.0	80.0	184.0	40.0
10	40.0	50.0	36.0	42.0	26.0	98.0	59.0	133.0	33.0	63.0	136.0	38.0
11	41.0	46.0	35.0	40.0	24.0	114.0	62.0	139.0	31.0	56.0	109.0	36.0
12	42.0	42.0	34.0	38.0	24.0	167.0	62.0	122.0	30.0	56.0	96.0	38.0
13	39.0	39.0	35.0	38.0	25.0	207.0	76.0	104.0	29.0	49.0	86.0	42.0
14	38.0	36.0	40.0	39.0	26.0	203.0	137.0	87.0	28.0	54.0	80.0	42.0
15	38.0	36.0	40.0	34.0	24.0	164.0	273.0	75.0	29.0	68.0	71.0	41.0
16	39.0	36.0	38.0	32.0	21.0	188.0	270.0	71.0	29.0	109.0	66.0	41.0
17	34.0	34.0	39.0	36.0	19.0	221.0	220.0	61.0	42.0	111.0	63.0	41.0
18	37.0	35.0	36.0	34.0	19.0	240.0	207.0	55.0	48.0	93.0	58.0	40.0
19	40.0	35.0	35.0	31.0	19.0	277.0	225.0	52.0	49.0	81.0	56.0	41.0
20	39.0	35.0	33.0	29.0	19.0	209.0	246.0	60.0	42.0	81.0	54.0	52.0
21	38.0	35.0	31.0	30.0	20.0	147.0	267.0	91.0	41.0	74.0	54.0	66.0
22	36.0	37.0	33.0	32.0	21.0	111.0	245.0	82.0	40.0	71.0	52.0	64.0
23	35.0	47.0	31.0	33.0	20.0	95.0	196.0	68.0	37.0	92.0	50.0	54.0
24	35.0	82.0	31.0	29.0	20.0	137.0	151.0	58.0	34.0	98.0	50.0	49.0
25	36.0	96.0	30.0	27.0	21.0	121.0	116.0	52.0	33.0	84.0	50.0	48.0
26	34.0	96.0	29.0	27.0	19.0	124.0	100.0	46.0	33.0	72.0	50.0	46.0
27	36.0	82.0	30.0	32.0	19.0	116.0	94.0	42.0	33.0	65.0	52.0	43.0
28	34.0	70.0	95.0	33.0	19.0	96.0	78.0	40.0	36.0	60.0	50.0	42.0
29	32.0		174.0	35.0	18.0	83.0	70.0	38.0	41.0	56.0	52.0	41.0
30	30.0		150.0	34.0	20.0	72.0	66.0	37.0	49.0	53.0	50.0	41.0
31	31.0		122.0		21.0		66.0	34.0		100.0		40.0
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MAX	45.0	96.0	174.0	107.0	30.0	277.0	273.0	139.0	49.0	111.0	305.0	66.0
MIN	30.0	32.0	29.0	27.0	18.0	19.0	49.0	34.0	25.0	49.0	50.0	36.0
MEAN	38.3	49.1	51.7	43.6	22.7	114.5	123.1	72.8	35.3	76.2	107.0	44.0

YEARLY MAXIMUM: 305.0 YEARLY MINIMUM: 18.0 YEARLY MEAN: 64.9

DISCHARGE COMPUTATUIONS (CFS) FOR C1 CANAL FOR 1964

DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	191.0	88.0	94.0	48.0	38.0	26.0	36.0	30.0	900.0	118.0	75.0	70.0
2	175.0	85.0	94.0	41.0	58.0	30.0	36.0	29.0	858.0	113.0	73.0	64.0
3	149.0	80.0	86.0	38.0	62.0	54.0	35.0	28.0	844.0	125.0	65.0	57.0
4	131.0	142.0	76.0	37.0	51.0	205.0	34.0	26.0	814.0	128.0	67.0	60.0
5	116.0	438.0	62.0	33.0	41.0	156.0	37.0	25.0	760.0	117.0	66.0	88.0
6	105.0	700.0	70.0	36.0	44.0	145.0	37.0	28.0	643.0	117.0	64.0	105.0
7	122.0	573.0	70.0	32.0	40.0	125.0	37.0	34.0	541.0	97.0	59.0	96.0
8	211.0	486.0	66.0	31.0	37.0	97.0	36.0	36.0	464.0	113.0	56.0	84.0
9	195.0	435.0	62.0	32.0	35.0	80.0	33.0	40.0	416.0	117.0	52.0	74.0
10	163.0	343.0	58.0	32.0	34.0	69.0	31.0	56.0	573.0	112.0	48.0	66.0
11	140.0	280.0	54.0	31.0	32.0	60.0	30.0	72.0	643.0	104.0	49.0	61.0
12	239.0	245.0	52.0	33.0	30.0	52.0	32.0	104.0	502.0	133.0	49.0	58.0
13	471.0	199.0	50.0	31.0	32.0	47.0	32.0	104.0	602.0	385.0	48.0	55.0
14	348.0	171.0	47.0	28.0	44.0	44.0	30.0	88.0	693.0	345.0	47.0	54.0
15	250.0	153.0	45.0	31.0	67.0	40.0	27.0	72.0	680.0	274.0	49.0	49.0
16	230.0	141.0	44.0	29.0	66.0	36.0	26.0	62.0	726.0	228.0	50.0	51.0
17	180.0	135.0	46.0	26.0	57.0	34.0	26.0	56.0	646.0	189.0	50.0	51.0
18	191.0	124.0	45.0	24.0	47.0	34.0	30.0	50.0	541.0	154.0	50.0	51.0
19	169.0	137.0	41.0	24.0	42.0	34.0	28.0	47.0	438.0	131.0	48.0	56.0
20	156.0	137.0	38.0	19.0	38.0	33.0	27.0	45.0	362.0	119.0	46.0	55.0
21	145.0	116.0	39.0	19.0	35.0	31.0	27.0	47.0	281.0	113.0	47.0	54.0
22	133.0	105.0	38.0	32.0	34.0	30.0	26.0	49.0	256.0	105.0	45.0	50.0
23	127.0	102.0	38.0	25.0	33.0	29.0	28.0	47.0	227.0	93.0	44.0	49.0
24	118.0	96.0	35.0	24.0	31.0	38.0	38.0	45.0	198.0	85.0	49.0	47.0
25	111.0	86.0	33.0	24.0	30.0	44.0	48.0	44.0	177.0	80.0	54.0	46.0
26	115.0	88.0	32.0	29.0	28.0	45.0	53.0	42.0	161.0	80.0	53.0	45.0
27	115.0	79.0	34.0	26.0	25.0	41.0	54.0	132.0	151.0	78.0	51.0	44.0
28	111.0	87.0	42.0	29.0	24.0	38.0	48.0	1040.0	143.0	78.0	53.0	47.0
29	106.0	101.0	64.0	30.0	24.0	36.0	41.0	970.0	135.0	95.0	82.0	46.0
30	99.0		75.0	28.0	24.0	35.0	36.0	1120.0	128.0	87.0	86.0	46.0
31	92.0		58.0		26.0		33.0	1000.0		83.0		44.0
MAX	471.0	700.0	94.0	48.0	67.0	205.0	54.0	1120.0	900.0	385.0	86.0	105.0
MIN	92.0	79.0	32.0	19.0	24.0	26.0	26.0	25.0	128.0	78.0	44.0	44.0
MEAN	167.9	205.2	54.5	30.1	39.0	50.9	34.6	179.6	483.4	135.4	55.8	58.8

YEARLY MAXIMUM: 1120.0 YEARLY MINIMUM: 19.0 YEARLY MEAN: 124.5

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1967

DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	42.0	41.0	57.0	44.0	32.0	22.0	654.0	273.0	58.0	163.0	39.0	37.0
2	42.0	41.0	53.0	43.0	28.0	22.0	719.0	379.0	53.0	197.0	38.0	36.0
3	42.0	41.0	51.0	40.0	27.0	35.0	617.0	321.0	50.0	168.0	41.0	33.0
4	45.0	42.0	50.0	39.0	28.0	38.0	661.0	334.0	55.0	128.0	41.0	32.0
5	47.0	42.0	49.0	38.0	27.0	34.0	732.0	656.0	64.0	102.0	41.0	33.0
6	48.0	41.0	46.0	37.0	29.0	31.0	680.0	677.0	62.0	92.0	34.0	34.0
7	46.0	39.0	46.0	37.0	28.0	28.0	643.0	641.0	67.0	91.0	26.0	33.0
8	45.0	42.0	46.0	37.0	27.0	27.0	550.0	615.0	58.0	86.0	33.0	34.0
9	45.0	68.0	45.0	38.0	29.0	28.0	450.0	573.0	57.0	79.0	36.0	31.0
10	44.0	110.0	44.0	36.0	31.0	37.0	656.0	457.0	80.0	76.0	39.0	32.0
11	42.0	100.0	44.0	35.0	30.0	41.0	478.0	354.0	80.0	76.0	37.0	33.0
12	44.0	92.0	42.0	36.0	32.0	37.0	379.0	339.0	86.0	70.0	38.0	40.0
13	42.0	100.0	41.0	35.0	30.0	40.0	308.0	385.0	99.0	58.0	37.0	47.0
14	42.0	98.0	42.0	35.0	29.0	56.0	311.0	338.0	116.0	52.0	37.0	82.0
15	43.0	84.0	40.0	35.0	28.0	60.0	278.0	364.0	125.0	53.0	37.0	75.0
16	43.0	76.0	40.0	35.0	27.0	54.0	228.0	306.0	120.0	53.0	36.0	58.0
17	42.0	70.0	39.0	34.0	28.0	62.0	201.0	246.0	101.0	53.0	38.0	54.0
18	42.0	62.0	39.0	34.0	27.0	86.0	237.0	207.0	83.0	51.0	37.0	50.0
19	48.0	58.0	41.0	33.0	27.0	143.0	218.0	188.0	77.0	43.0	34.0	58.0
20	49.0	54.0	40.0	32.0	26.0	336.0	188.0	161.0	64.0	43.0	35.0	55.0
21	49.0	55.0	39.0	31.0	26.0	232.0	157.0	144.0	59.0	42.0	36.0	46.0
22	47.0	81.0	39.0	30.0	26.0	172.0	140.0	128.0	54.0	41.0	36.0	44.0
23	47.0	96.0	39.0	30.0	32.0	168.0	139.0	110.0	52.0	41.0	34.0	43.0
24	46.0	88.0	38.0	30.0	33.0	270.0	162.0	102.0	49.0	41.0	37.0	37.0
25	45.0	78.0	37.0	29.0	30.0	200.0	214.0	97.0	47.0	42.0	34.0	45.0
26	45.0	71.0	37.0	29.0	29.0	155.0	217.0	83.0	45.0	43.0	34.0	44.0
27	44.0	62.0	37.0	29.0	26.0	220.0	196.0	80.0	93.0	39.0	34.0	42.0
28	47.0	60.0	39.0	25.0	26.0	227.0	227.0	75.0	201.0	35.0	35.0	42.0
29	44.0		41.0	28.0	26.0	430.0	286.0	70.0	220.0	36.0	39.0	44.0
30	41.0		44.0	30.0	25.0	680.0	379.0	66.0	203.0	38.0	38.0	44.0
31	42.0		45.0		22.0		347.0	63.0		38.0		44.0
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MAX	49.0	110.0	57.0	44.0	33.0	680.0	732.0	677.0	220.0	197.0	41.0	82.0
MIN	41.0	39.0	37.0	25.0	22.0	22.0	139.0	63.0	45.0	35.0	26.0	31.0
MEAN	44.5	67.6	42.9	34.1	28.1	132.4	375.9	284.9	85.9	70.0	36.4	43.9

YEARLY MAXIMUM: 732.0 YEARLY MINIMUM: 22.0 YEARLY MEAN: 104.5

DISCHARGE COMPUTATIONS (CFS)FOR C1 CANAL FOR 1966

DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	40.0	200.0	531.0	54.0	40.0	97.0	926.0	130.0	78.0	207.0	87.0	44.0
2	39.0	163.0	440.0	44.0	40.0	114.0	781.0	182.0	76.0	615.0	80.0	42.0
3	38.0	135.0	354.0	41.0	37.0	98.0	609.0	193.0	64.0	558.0	74.0	40.0
4	39.0	108.0	262.0	41.0	36.0	89.0	464.0	179.0	66.0	398.0	68.0	42.0
5	40.0	95.0	240.0	54.0	34.0	252.0	364.0	171.0	62.0	313.0	66.0	54.0
6	44.0	84.0	249.0	54.0	34.0	839.0	306.0	225.0	61.0	255.0	67.0	58.0
7	47.0	74.0	191.0	53.0	34.0	685.0	255.0	560.0	60.0	277.0	66.0	58.0
8	45.0	67.0	156.0	48.0	36.0	507.0	219.0	870.0	60.0	514.0	56.0	57.0
9	44.0	62.0	132.0	45.0	48.0	1140.0	196.0	789.0	67.0	558.0	56.0	54.0
10	42.0	58.0	121.0	46.0	54.0	1030.0	175.0	682.0	75.0	591.0	57.0	53.0
11	45.0	58.0	108.0	41.0	50.0	791.0	154.0	573.0	87.0	481.0	54.0	52.0
12	58.0	54.0	100.0	40.0	49.0	583.0	144.0	466.0	101.0	362.0	52.0	52.0
13	92.0	50.0	100.0	37.0	47.0	438.0	136.0	379.0	133.0	306.0	51.0	51.0
14	94.0	50.0	122.0	35.0	46.0	372.0	142.0	348.0	132.0	617.0	54.0	50.0
15	80.0	49.0	128.0	35.0	43.0	648.0	130.0	334.0	116.0	667.0	60.0	48.0
16	73.0	45.0	103.0	36.0	40.0	538.0	114.0	327.0	113.0	543.0	68.0	48.0
17	65.0	45.0	94.0	32.0	37.0	401.0	104.0	266.0	149.0	414.0	64.0	47.0
18	60.0	44.0	84.0	32.0	37.0	394.0	96.0	227.0	178.0	347.0	58.0	50.0
19	53.0	47.0	74.0	32.0	37.0	630.0	89.0	206.0	204.0	284.0	55.0	50.0
20	54.0	48.0	68.0	33.0	36.0	669.0	83.0	182.0	213.0	248.0	56.0	50.0
21	84.0	47.0	64.0	32.0	39.0	512.0	79.0	159.0	348.0	224.0	49.0	48.0
22	148.0	51.0	64.0	32.0	80.0	586.0	78.0	152.0	362.0	204.0	31.0	47.0
23	394.0	446.0	57.0	31.0	95.0	609.0	80.0	167.0	325.0	191.0	45.0	46.0
24	356.0	1250.0	51.0	30.0	70.0	514.0	76.0	156.0	274.0	177.0	50.0	46.0
25	249.0	1040.0	48.0	31.0	58.0	390.0	68.0	140.0	228.0	163.0	50.0	44.0
26	250.0	856.0	45.0	30.0	55.0	311.0	88.0	150.0	200.0	148.0	51.0	44.0
27	405.0	703.0	45.0	31.0	62.0	256.0	127.0	143.0	179.0	141.0	50.0	43.0
28	323.0	576.0	43.0	31.0	84.0	226.0	111.0	117.0	167.0	127.0	46.0	43.0
29	240.0		43.0	32.0	86.0	208.0	92.0	102.0	173.0	116.0	46.0	42.0
30	312.0		53.0	31.0	86.0	394.0	81.0	95.0	186.0	101.0	50.0	43.0
31	276.0		58.0		80.0		76.0	85.0		98.0		42.0
MAX	405.0	1250.0	531.0	54.0	95.0	1140.0	926.0	870.0	362.0	667.0	87.0	58.0
MIN	38.0	44.0	43.0	30.0	34.0	89.0	68.0	85.0	60.0	98.0	31.0	40.0
MEAN	133.2	232.3	136.4	38.1	51.9	477.4	207.8	282.4	151.2	330.5	57.0	48.0

YEARLY MAXIMUM: 1250.0 YEARLY MINIMUM: 30.0 YEARLY MEAN: 178.4

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1977

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	0.0M	0.0M	0.0M	53.0	22.9	110.6	109.6	190.9	139.4	0.0M	396.8	496.5
2	0.0M	0.0M	0.0M	47.3	24.4	111.5	115.3	178.8	176.6	0.0M	378.8	593.8
3	0.0M	0.0M	0.0M	45.7	23.6	124.0	124.9	174.4	380.0	0.0M	346.7	503.5
4	0.0M	0.0M	0.0M	49.7	24.4	175.5	118.2	166.8	576.9	0.0M	319.6	425.7
5	0.0M	0.0M	0.0M	0.0M	27.5	312.2	132.6	150.1	660.0	0.0M	315.3	363.1
6	0.0M	0.0M	0.0M	0.0M	30.0	290.8	170.1	134.6	629.2	0.0M	305.8	333.2
7	0.0M	0.0M	0.0M	52.2P	32.6	283.2	159.3	124.9	547.6	0.0M	284.3	323.8
8	0.0M	0.0M	0.0M	44.9	33.5	251.8	140.4	110.6	462.9	0.0M	261.6	284.3
9	0.0M	0.0M	0.0M	38.1	37.1	233.6	129.7	101.1	398.0	0.0M	234.8	254.2
10	0.0M	0.0M	90.0P	51.4	45.7	211.1	124.0	92.7	346.7	0.0M	217.0	254.2
11	0.0M	0.0M	117.2	46.5	51.4	190.9	112.5	87.2	304.7	0.0M	215.8	236.0
12	0.0M	0.0M	105.8	42.5	56.4	176.6	110.6	91.8	270.2	0.0M	194.2	218.1
13	0.0M	0.0M	102.1	41.0	55.5	161.4	107.7	114.4	239.6	291.8P	183.2	207.6
14	0.0M	0.0M	101.1	37.1	43.3	149.2	100.2	126.8	218.1	273.5	169.0	280.0
15	0.0M	0.0M	92.7	39.0	28.4	138.5	91.8	118.2	200.9	230.0	158.2	358.0
16	0.0M	0.0M	84.5	38.1	23.6	131.6	84.5	157.1	193.1	199.8	153.0	406.4
17	0.0M	0.0M	77.2	37.1	28.4	133.6	81.7	163.6	190.9	178.8	150.1	652.1
18	0.0M	0.0M	72.8	34.4	25.9	137.5	83.5	163.6	189.8	156.1	152.1	666.3
19	0.0M	0.0M	71.9	31.7	23.6	134.6	80.8	147.2	188.7	143.3	144.3	585.3
20	0.0M	0.0M	69.2	32.6	21.5	166.8	74.5	125.9	203.2	133.6	137.5	496.7
21	0.0M	0.0M	70.1	30.0	21.5	179.9	67.5	114.4	211.1	125.9	133.6	435.3
22	0.0M	0.0M	63.2	26.7	24.4	167.9	62.3	107.7	220.5	122.0	130.7	390.8
23	0.0M	0.0M	76.3	26.7	36.2	153.0	62.3	103.9	232.4P	134.6	139.4	350.9
24	0.0M	0.0M	69.2	26.7	31.7	139.4	68.4	101.1	0.0M	214.6	202.0	314.3
25	0.0M	0.0M	60.6	33.5	36.2	135.5	59.7	102.1	0.0M	347.8	240.9	291.8
26	0.0M	0.0M	58.0	34.4	45.7	125.9	58.0	98.3	0.0M	382.4P	234.8	298.3
27	0.0M	0.0M	53.9	38.1	61.4	117.2	56.4	96.4	0.0M	328.0	203.2	288.6
28	0.0M	0.0M	48.9	28.4	75.4	109.6	56.4	99.2	0.0M	283.2	177.7	265.3
29	0.0M		50.6	22.9	84.5	104.9	58.9	103.9	0.0M	242.1	228.8	240.9
30	0.0M		49.7	22.2	94.6	103.9	66.6	119.2	0.0M	230.0	732.4	225.3
31	0.0M		53.0		102.1		109.6	134.6		359.1		217.0
MEAN	0.0P	0.0P	74.5P	37.6P	41.1	165.5	96.1	125.9	312.2P	230.3P	238.1	369.6

M=MISSING DATA
P=PARTIAL RECORD

NOTE: DISCHARGE WAS CALCULATED BY MEAN DAILY STAGE

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1960

DAY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	43.0	41.0	39.0	36.0	30.0	156.0						
2	45.0	41.0	39.0	37.0	28.0	127.0						
3	47.0	41.0	37.0	35.0	26.0	117.0						
4	44.0	38.0	36.0	34.0	26.0	1110.0						
5	42.0	39.0	35.0	36.0	31.0	1940.0						
6	44.0	38.0	35.0	35.0	36.0	1730.0						
7	42.0	37.0	39.0	36.0	33.0	1440.0						
8	43.0	36.0	42.0	36.0	31.0	1290.0						
9	41.0	36.0	40.0	36.0	28.0	1550.0						
10	42.0	36.0	39.0	36.0	27.0	1510.0						
11	44.0	39.0	37.0	37.0	32.0	1210.0						
12	42.0	39.0	36.0	38.0	146.0	1120.0						
13	40.0	37.0	45.0	38.0	286.0	1060.0						
14	44.0	40.0	48.0	38.0	185.0	1360.0						
15	50.0	47.0	45.0	38.0	132.0	1050.0						
16	48.0	39.0	44.0	40.0	110.0	870.0						
17	43.0	37.0	45.0	42.0	96.0	763.0						
18	41.0	36.0	42.0	44.0	83.0	706.0						
19	40.0	48.0	48.0	45.0	78.0	786.0						
20	40.0	67.0	50.0	44.0	76.0	1090.0						
21	39.0	56.0	42.0	49.0	70.0	928.0						
22	38.0	50.0	34.0	45.0	64.0	724.0						
23	39.0	46.0	35.0	40.0	60.0	578.0						
24	40.0	54.0	40.0	39.0	58.0	445.0						
25	43.0	52.0	38.0	31.0	62.0	497.0						
26	40.0	47.0	38.0	33.0	70.0	1440.0						
27	40.0	44.0	38.0	34.0	127.0	1320.0						
28	40.0	42.0	38.0	34.0	143.0	1440.0						
29	40.0	38.0	38.0	32.0	221.0	1190.0						
30	42.0		39.0	32.0	246.0	912.0						
31	42.0		37.0		198.0							
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MAX	50.0	67.0	50.0	49.0	286.0	1940.0						
MIN	38.0	36.0	34.0	31.0	26.0	117.0						
MEAN	42.2	42.8	39.9	37.7	91.6	1015.3						

YEARLY MAXIMUM: 1940.0 YEARLY MINIMUM: 26.0 YEARLY MEAN: 210.0

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1979

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	179.9	170.1	105.8	38.1	69.2	102.1	108.7	163.6	98.3	602.3	134.6	88.1
2	228.8	154.0	103.0	36.2	70.1	91.8	94.6	233.6	124.0	526.8	141.4	82.6
3	413.6	140.4	91.8	32.6	56.4	91.8	86.3	192.0	320.6	454.5	151.1	79.0
4	330.1	133.6	81.7	34.4	48.1	120.1	95.5	203.2	1357.0	393.2	164.7	77.2
5	270.2	133.6	90.0	41.0	44.9	99.2	88.1	155.0	1145.2	337.4	149.2	76.3
6	209.9	126.8	93.7	51.4	58.0	90.0	82.6	120.1	957.5	305.8	140.4	70.1
7	172.2	124.0	123.0	38.1	83.5	84.5	83.5	106.8	831.2	280.0	144.3	103.9
8	154.0	130.7	111.5	24.4	98.3	81.7	104.9	109.6	740.6	255.4	136.5	127.8
9	157.1	124.0	104.9	22.4	233.6	80.8	186.5	104.9	685.4	230.0	124.9	132.6
10	137.5	118.2	90.9	22.2	442.5	79.9	159.3	103.9	688.5	211.1	114.4	108.7
11	123.0	106.8	83.5	20.1	444.9	73.7	136.5	283.2	641.1	194.2	105.8	95.5
12	382.4	103.9	80.8	18.0	400.4	72.8	142.3	301.5	599.4	181.0	121.1	91.8
13	913.6	98.3	71.0	19.1	337.4	118.2	220.5	347.8	649.0	166.8	133.6	85.4
14	779.9	94.6	65.7	25.2	322.7	148.2	184.3	299.3	712.6	164.7	138.5	82.6
15	649.0	88.1	70.1	34.4	394.4	250.6	202.0	257.9	831.2	163.6	124.0	85.4
16	575.5	84.5	64.0	36.2	341.6	192.0	209.9	217.0	895.4	153.0	108.7	90.9
17	499.4	86.3	56.4	30.0	277.8	158.2	181.0	176.6	742.6	160.3	96.4	111.5
18	430.5	86.3	54.7	22.9	226.5	135.5	159.3	155.0	644.3	158.2	90.0	121.1
19	377.6	107.7	52.2	27.5	172.2	114.4	142.3	141.4	576.9	150.1	89.0	97.4
20	341.6	88.1	48.1	27.5	140.4	103.0	128.8	130.7	519.9	152.1	84.5	91.8
21	347.8	83.5	48.1	22.2	120.1	97.4	113.4	119.2	477.3	157.1	79.0	90.9
22	341.6	90.9	48.9	20.1	105.8	90.0	97.4	111.5	488.1	153.0	76.3	90.0
23	303.6	96.4	44.1	22.9	90.0	84.5	90.9	135.5	477.3	150.1	75.4	93.7
24	331.1	90.0	48.1	23.6	96.4	87.2	82.6	140.4	472.5	143.3	76.3	90.9
25	386.0	95.5	54.7	39.0	163.6	77.2	79.0	130.7	498.0	146.2	90.0	90.9
26	339.5	128.8	53.9	64.0	153.0	73.7	73.7	114.4	455.7	150.1	115.3	90.0
27	295.1	134.6	53.0	58.9	125.9	90.0	68.4	101.1	417.3	141.4	107.7	79.9
28	264.0	119.2	49.7	58.9	102.1	108.7	62.3	92.7	443.7	129.7	101.1	79.0
29	226.5		45.7	56.4	102.1	124.9	59.7	88.1	495.3	126.8	108.7	80.8
30	187.6		44.1	58.0	165.7	127.8	71.9	83.5	645.8	123.0	98.3	80.8
31	177.7		41.0		122.0		71.9	84.5		124.9		88.1
MEAN	339.6	112.1	70.1	34.2	181.0	108.3	118.3	161.4	621.1	218.9	114.0	92.1

M=MISSING DATA
P=PARTIAL RECORD

NOTE: DISCHARGE WAS CALCULATED BY MEAN DAILY STAGE

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1978

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	212.2	109.6	152.1	103.9	63.2	54.7	167.9	796.8	123.0	133.6	200.9	87.2
2	206.5	113.4	149.2	101.1	74.5	60.6	189.8	712.6	111.5	158.2	186.5	94.6
3	202.0	144.3	171.2	96.4	76.3	63.2	172.2	647.4	108.7	182.1	167.9	79.0
4	194.2	166.8	316.4	90.0	94.6	83.5	156.1	525.4	119.2	187.6	153.0	58.9
5	179.9	157.1	319.6	88.1	198.7	100.2	157.1	432.9	139.4	193.1	146.2	58.0
6	172.2	139.4	278.9	86.3	173.3	294.0	237.2	435.3	136.5	184.3	139.4	61.4
7	163.6	131.7	234.8	86.3	155.0	251.8	574.1	426.9	103.9	182.1	129.7	76.3
8	157.1	124.0	206.5	90.0	130.7	203.2	572.7	376.4	149.2	171.2	135.5	79.9
9	165.7	254.2	350.9	88.1	117.2	299.3	472.5	337.4	119.2	150.1	138.5	57.2
10	165.7	366.2	535.1	84.5	115.3	290.8	393.2	306.8	113.4	148.2	140.4	69.2
11	157.1	332.2	484.5	77.2	106.8	230.0	330.1	301.5	117.2	145.3	141.4	54.7
12	147.2	283.2	410.0	75.4	93.7	179.9	274.5	319.6	162.5	141.3	133.6	61.4
13	152.1	236.0	352.9	69.2	83.5	147.2	233.6	486.9	147.2	138.5	122.0	49.7
14	194.2	202.0	306.8	78.1	76.3	123.0	202.0	704.6	124.0	135.5	123.0	56.4
15	182.1	176.6	270.2	76.3	66.6	109.6	167.9	667.9	122.0	156.1	124.9	47.3
16	157.1	167.9	240.9	76.3	58.9	105.8	152.1	582.5	118.2	138.5	126.8	44.9
17	145.3	231.2	220.5	68.4	56.4	120.1	154.0	499.4	115.3	141.4	123.0	58.0
18	146.2	272.4	197.6	60.6	63.2	108.7	170.1	430.5	116.3	139.4	124.9	53.9
19	149.2	329.1	178.8	65.7	99.2	93.7	183.2	392.0	114.4	138.5	120.1	47.3
20	261.6	317.5	162.5	72.8	93.7	86.3	317.5	363.1	110.6	147.2	121.1	45.7
21	292.9	310.0	154.0	72.8	81.7	93.7	334.3	310.0	102.1	142.3	131.7	34.4
22	255.4	300.4	150.1	78.1	69.2	126.8	283.2	272.4	101.1	139.4	126.8	46.5
23	217.0	261.6	143.3	71.9	63.2	303.6	218.1	243.3	119.2	139.4	118.2	41.0
24	190.9	226.5	137.5	71.0	59.7	472.5	175.5	221.7	141.4	138.5	117.2	21.5
25	172.2	198.7	132.6	75.4	58.0	466.5	151.1	208.8	150.1	124.0	123.0	43.3
26	159.3	178.8	126.8	75.4	56.4	384.8	134.6	195.4	155.0	122.0	110.6	58.9
27	143.3	164.7	131.7	79.9	56.4	342.6	135.5	173.3	150.1	125.9	103.0	66.6
28	131.7	155.0	126.8	71.0	58.9	294.0	237.2	152.1	146.2	122.0	101.1	259.1
29	123.0		125.9	69.2	65.7	233.6	349.8	138.5	140.4	147.2	97.4	404.0
30	116.3		120.1	63.2	62.3	185.4	539.3	131.7	134.6	208.8	92.7	317.5
31	121.5		114.4		58.0		535.1	124.0		204.3		236.0
MEAN	175.0	216.1	225.9	78.8	86.7	197.0	270.1	384.4	127.1	152.5	130.7	89.4

M=MISSING DATA
P=PARTIAL RECORD

NOTE: DISCHARGE WAS CALCULATED BY MEAN DAILY STAGE

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1981

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	77.4	77.4	0.0M	95.1	117.2	75.4	111.2	143.2	475.0P	331.6	306.0P	197.1
2	77.6	77.4	75.2P	79.9	140.4P	77.1	110.1	145.4	409.2P	327.6	396.5P	0.0M
3	78.0	76.9	76.0P	80.2	140.4P	109.2	110.6	144.5	411.4	348.0	384.7	196.2P
4	78.2	76.0	76.4P	80.7	141.8P	109.2	111.8	144.6	413.2	348.0P	191.2	197.3
5	78.2	75.3	77.4P	80.8	140.4P	109.4	111.1P	115.0	414.0	358.0P	192.4	190.8
6	78.0	75.4	76.8P	79.5	141.1P	110.5P	109.7	78.6	415.6	294.2P	193.0	186.6
7	77.2	75.5	0.0M	78.7	111.0	0.0M	108.9	77.5	427.2	306.0P	188.4	189.2P
8	76.8	77.1	0.0M	78.4	113.1	113.0P	109.1	76.3	439.8	390.0P	197.4	200.8
9	76.0	79.2	72.8P	78.1	110.0	114.0P	109.1	75.0	416.0	0.0M	194.6	203.2
10	75.8	79.6	76.8P	77.4	302.4P	113.0P	109.7	75.2	426.1	0.0M	194.7	197.6
11	75.2	78.4	76.0P	78.2	298.2P	113.5	111.7	109.0	418.3	0.0M	196.2	198.9
12	75.6	76.3	75.0	78.8	76.0	114.0P	111.6	109.6P	418.4P	294.2P	196.2	198.7
13	78.4	74.7	74.7	77.8	0.0M	115.0P	110.0	109.0P	418.0P	306.0P	193.7	198.7
14	78.0	77.0	75.5	75.4	76.0	116.0P	108.9	111.0P	418.0P	320.8P	194.0	199.2
15	78.4	79.0	75.9	75.7	76.0	209.5	108.1	110.0P	495.5	367.3	194.6	198.8
16	77.5	78.9	76.2	76.0	75.9	203.6	108.8	109.0P	519.9	364.3	193.7	196.3
17	76.7	78.6	76.1	76.2	75.8	111.2	109.7	140.4P	523.5	317.2	193.6	197.3
18	75.8	77.5	76.0	76.2	75.8	112.0	108.7	170.5P	480.3	316.7	195.6	196.2
19	75.5	75.7	76.5	76.1	75.9	111.5	108.2	166.0P	386.0	311.9	196.1	181.8
20	76.1P	75.6	109.0	75.8	76.3	112.1	108.6	161.8	280.5	313.1	197.1	178.4
21	77.6P	74.5	108.5	75.4	77.0	115.7	197.6	342.7	287.1P	312.5	195.1	181.5
22	77.4	72.3	108.4	76.5P	76.4P	203.2	198.9	412.8	288.2P	310.1	194.0	197.5
23	76.2	73.7	111.9P	77.8	76.0P	202.5	199.1	411.6	258.6P	309.0	193.8	198.9
24	75.2	78.2P	112.2	76.6	76.0P	111.5	200.1	410.0	167.6	311.9	196.0	198.3
25	148.8	76.0P	111.5	76.2	75.2P	111.0	201.1	409.5	125.6	0.0M	196.6	198.2
26	165.3	76.0	110.5	76.1	78.4P	111.1	202.0	410.8	117.9	0.0M	198.9	198.2
27	0.0	76.0	110.9	76.0	77.1P	112.3	200.8	454.0	110.5	315.5P	198.4	198.0
28	79.2	76.0	110.3	76.8	78.1	113.1	151.4	485.2	124.4	323.2P	193.5	196.9
29	78.1		109.3	78.3P	77.5	111.9	107.8	484.1	273.4	306.0P	190.2	195.1
30	77.5		106.1	75.8	76.4	111.0	107.7	471.9	254.5	306.0P	192.2	196.2
31	77.4		102.1		75.6		141.1	487.6P		306.0P		200.9
MEAN	79.8	76.6	90.1P	78.0	106.9P	122.5P	132.4	230.7	353.8	323.7P	211.3	195.4P

M=MISSING DATA
P=PARTIAL RECORD

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1980

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	87.2	124.0	140.4	103.5	74.7	70.7	73.3	81.4	47.3	73.3	72.0	81.8
2	83.5	117.2	243.3	115.7	73.3	70.7	74.7	77.3	55.5	73.3	72.0	450.1
3	79.0	105.8	242.1	113.9	73.3	68.0	74.7	74.7	91.8	73.3	66.7	49.2
4	73.7	99.2	206.5	86.7	74.7	65.3	70.7	69.3	83.5	72.0	65.3	76.3
5	85.4	90.0	179.9	84.0	73.3	62.7	62.7	65.3	79.9	72.0	62.7	76.3
6	86.3	93.5P	155.0	84.0	69.3	61.4	61.4	64.0	76.3	72.0	60.0	76.2
7	77.2	91.8	134.6	85.4	65.3	61.4	61.4	61.4	69.2	70.7	57.6	76.0
8	71.0	91.8	119.2	86.7	66.7	62.7	61.4	61.4	65.7	69.3P	55.2	76.1
9	69.2	92.1	107.7	88.1	81.4	64.0	61.4	60.0	69.2	99.2	52.8	76.0
10	69.2	92.1	97.4	89.4	112.1	68.0	60.0	60.0	67.5	92.7	50.3	76.2
11	65.7	90.7	93.7	89.4	100.1	70.7	60.0	58.8	90.0	76.3	50.3	76.3
12	71.0	89.4	82.6	88.1	95.1	70.7	60.0	58.8	85.4	69.2	49.1	76.0
13	91.8	88.1P	74.5	88.1	91.8	66.7	60.0	61.4	81.7	70.1	47.9	77.3
14	275.6	77.2	87.2	88.1	92.1	61.4	58.8	62.7	78.1	64.0	24.4	77.5
15	311.1	76.3	83.5	88.1	86.7	61.4	60.0	61.4	84.5	62.7P	0.0	78.3
16	267.7	75.4	72.8	88.1	92.1	60.0	61.4	60.0	96.4	65.3	39.3	77.8
17	215.8	90.9	63.2	85.4	96.8	61.4	60.0	60.0	132.6	77.3	81.6	77.9
18	177.7	109.6	64.9	82.7	98.5	64.0	61.4	58.8	101.1	73.3	81.5	77.2
19	161.4	413.6	91.8P	88.1	91.8	64.0	68.0	57.6	90.9	70.7	81.2P	76.8
20	148.2	557.3	74.7	96.8	86.7	64.0	76.0	56.4	84.5	69.3	80.6P	77.2
21	136.5	464.1	77.3	92.1	81.4	65.3	70.7	57.6	82.6	68.0	80.0P	78.0
22	125.9	380.0	80.0	84.0	77.3	66.7	69.3	55.2	83.5	68.0P	81.2P	78.2
23	124.0	312.2	82.7	78.7	113.9	69.3	86.7	54.0	90.0	63.2	81.2P	79.1
24	142.3	259.1	84.0	74.7	211.3	72.0	124.6	54.0	73.3P	75.4	80.6P	78.4
25	123.0	217.0	86.7	73.3	160.2	68.0	132.0	56.4	73.3	85.4	72.8P	78.0
26	112.5	217.0	88.1	72.0	135.7	62.7	117.4	58.8	73.3	88.1	81.8P	77.4
27	133.6	202.0	88.1	78.7	108.7	60.0	110.4	60.0P	73.3	68.4	80.6P	77.2
28	148.2	176.6	88.1	82.7	93.5	58.8	98.5	51.4	73.3	58.0	80.7	77.0
29	139.4	152.1	90.7	78.7	84.0	60.0	90.7	53.9	73.3	62.7P	82.1	76.8P
30	121.1		92.1	76.0	74.7	68.0	86.7	48.1	73.3	65.3	82.3	76.0P
31	103.9		90.7		72.0		84.0	49.7		69.3		77.4P
MEAN	128.3	174.0	108.5	87.0	93.8	65.0	76.1	60.3	80.0	72.2	65.1	88.4

M=MISSING DATA
P=PARTIAL RECORD

NOTE: DISCHARGE WAS CALCULATED BY MEAN DAILY STAGE

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1983

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	138.0	163.1	692.8	236.9	126.5	125.8	174.9	134.4	158.0	0.0M	0.0M	0.0M
2	136.8	166.3	461.5	119.8	116.4	116.8	137.4	123.2	227.7	0.0M	0.0M	0.0M
3	115.8	264.3	444.0	114.5	122.9	104.7	140.0	121.6	211.3	0.0M	0.0M	0.0M
4	126.2	306.6	373.2	118.1	127.3	106.5	161.1	123.8	182.4	0.0M	0.0M	0.0M
5	141.5	296.4	372.7	136.1	153.5	107.2	152.1	130.7	167.8	0.0M	0.0M	0.0M
6	141.9	592.8	358.0	192.5	127.9	131.6	142.0	142.1	162.6	0.0M	0.0M	0.0M
7	120.8	476.8	303.9	190.7	122.8	204.7	137.7	227.8	172.0	0.0M	0.0M	0.0M
8	110.7	309.9	484.4	179.9	119.2	197.1	135.5	189.1	167.2	0.0M	0.0M	0.0M
9	111.2	304.2	400.1	87.9	106.2	524.1	130.8	225.4	149.5	0.0M	0.0M	0.0M
10	128.9	266.2	335.5	241.3	118.8	348.5	124.7	268.2	144.2	0.0M	0.0M	0.0M
11	140.5	295.7	310.8	205.6	116.8	273.0	117.2	187.8	138.8	0.0M	0.0M	0.0M
12	140.7	309.0	257.8	188.2	116.6	176.0	111.2	185.9	136.9	0.0M	0.0M	0.0M
13	141.3	664.2	239.7	174.1	115.6	156.4	95.2	244.4	138.0	0.0M	0.0M	0.0M
14	141.3	779.4	260.2	289.4	113.7	199.2	104.0	316.1	143.0	0.0M	0.0M	0.0M
15	144.2	1112.3	293.3	169.1	111.6	186.6	106.9	468.5	145.0	0.0M	0.0M	0.0M
16	144.5	1019.2P	270.2	364.3	108.5	169.4	107.8	409.8	175.9	0.0M	0.0M	0.0M
17	122.6	1438.5	301.8	347.9	106.5	152.0	106.2	326.1	645.7	0.0M	0.0M	0.0M
18	111.2	981.7	344.4	229.7	105.6	139.4	102.3	347.8	491.9	0.0M	0.0M	0.0M
19	107.5	629.7P	291.0	224.0	104.8	129.2	98.0	342.3	409.4	0.0M	0.0M	0.0M
20	110.5	449.7	232.0	206.9	93.3	116.1	95.8	263.9	314.1	0.0M	0.0M	0.0M
21	283.9	424.0	353.8	170.0	92.5	123.8	98.2	220.7	288.4	0.0M	0.0M	0.0M
22	662.5	340.7	252.1	165.8	91.8	176.1	103.3	184.7	300.0	0.0M	0.0M	0.0M
23	691.9	496.3P	250.8	166.5	89.6	246.0	105.0	200.4	288.4	0.0M	0.0M	0.0M
24	686.9	277.9	262.5	163.8	87.9	155.0	105.0	260.4	263.9	0.0M	0.0M	0.0M
25	356.9	302.0	203.3	145.4	88.4	115.1	101.8	191.6	239.2	0.0M	0.0M	0.0M
26	229.5	284.1	171.7	147.2	89.1	117.6	96.8	179.6	219.1	0.0M	0.0M	0.0M
27	221.8	288.4	141.6	142.4	87.2	122.4	95.4	155.8	176.7	0.0M	0.0M	0.0M
28	227.7	679.6	390.2	136.4	84.3	124.3	92.5	136.6	173.3	0.0M	0.0M	0.0M
29	226.5		338.2	128.9	82.1	125.6	104.9	159.2	167.8	0.0M	0.0M	0.0M
30	221.7		277.5	129.0	81.5	129.2	168.0	158.2	169.2	0.0M	0.0M	0.0M
31	162.3		181.3		103.4		148.2	155.0		0.0M		0.0M
MEAN	211.2	497.1	317.7	183.7	106.9	170.0	119.4	218.8	225.6	0.0P	0.0P	0.0P

M=MISSING DATA
P=PARTIAL RECORD

DISCHARGE COMPUTATIONS (CFS) FOR C1 CANAL FOR 1982

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	201.8	196.0	194.7	273.9	0.0M	0.0M	189.5	214.7	167.8P	168.0	72.1	106.2
2	199.8	197.4	193.8	241.2	0.0M	0.0P	241.2	173.5	161.1	227.6	0.0M	77.0
3	197.3	197.4	194.7	204.5	0.0M	0.0M	346.6	140.4	155.8	169.4	167.0	78.6
4	195.3	194.6	196.4	190.1	0.0M	0.0M	333.0	129.3	148.0	140.5	212.6	78.9
5	196.2	191.5	197.4	188.4	0.0M	0.0M	322.2P	117.5	153.2	153.2	137.6	79.4
6	195.3	191.7	202.4	189.0	0.0M	0.0M	0.0M	111.7	149.3	129.3	137.9	79.2P
7	194.2	192.0	201.3	0.0M	0.0M	455.1	436.6P	110.0M	418.9	127.7	136.6	76.0P
8	195.3	192.4	197.1	190.1	0.0M	844.9	641.4	103.9	190.2	151.9	163.0P	77.2P
9	194.0	192.4	215.1	193.8	0.0M	659.3	621.2	135.6P	174.7	139.2	217.4	79.2P
10	195.1	193.6	219.2	195.7	0.0M	577.4P	511.9	188.7	269.0	121.0	220.0M	76.4P
11	195.5	193.8	207.4	196.1	0.0M	593.4P	377.5	195.5	384.7	114.0	154.3	0.0M
12	137.0	193.7	193.1	199.1	0.0M	593.4P	306.4	194.2	181.6	123.8	109.8	0.0M
13	166.6	193.7	194.6	196.9	0.0M	1005.6P	417.9P	190.5	146.8	148.0	109.7P	78.0P
14	196.3	193.1	194.0	193.3	0.0M	406.6P	321.1P	149.3	139.2	144.2	0.0M	75.2P
15	197.6	192.9	192.9	0.0M	0.0M	377.5P	330.3P	136.3	134.2	72.1	109.5P	76.4P
16	193.3	194.4	192.8	0.0M	0.0M	349.4P	391.9P	174.7	136.7	78.7P	109.2	75.3P
17	190.4	196.5	193.1	0.0M	0.0M	377.5P	366.1	171.0	137.9	0.0M	150.7	78.0
18	223.0	200.1	193.1	0.0M	0.0M	866.6P	586.0P	176.8	130.5	108.1P	170.5	75.1
19	244.0	199.1	193.1	0.0M	0.0M	974.1P	360.5P	183.8	137.9	72.1	168.8	73.8
20	195.8P	197.1	195.1	0.0M	0.0M	892.1P	461.4P	182.5	146.7	144.2	166.0	74.0
21	110.0P	195.1	195.8	0.0M	0.0M	830.6P	610.3	162.4	155.8	216.3	166.2	77.6P
22	192.8P	193.1	195.3	0.0M	0.0M	530.3P	577.4	155.8	204.1	72.1	170.6	78.2P
23	192.6	192.2	194.4	0.0M	0.0M	542.7P	412.5	171.9	195.4	72.1	168.6	78.7
24	146.0	193.1	194.7	0.0M	0.0M	968.6	363.3P	171.4	147.5	72.1	190.4	79.0
25	108.4	194.7	197.3	0.0M	0.0M	848.7	0.0M	168.7P	140.4	72.1	200.3	78.6
26	153.8	196.4	199.4	0.0M	0.0M	839.0	593.4P	0.0M	215.9	144.2	199.9	78.7
27	195.6	197.3	197.8	0.0M	0.0M	639.3	474.0	181.6P	507.0	72.1	192.9	78.8
28	194.2	196.9	195.5	0.0M	0.0M	464.6	386.1	209.5	253.9	72.1	175.6	78.6
29	193.1		262.7	0.0M	0.0M	333.0	303.8	117.8P	176.7	72.1	168.5	78.0
30	194.2		310.8	0.0M	0.0M	262.3	261.1	0.0M	167.8	72.1	169.3	103.5
31	195.1		305.4		0.0M		237.2	0.0M		72.1		139.4
MEAN	186.4	194.7	206.8	204.0P	0.0M	634.7P	406.3P	161.4P	194.3	118.1P	155.7P	81.5P

M=MISSING DATA
P=PARTIAL RECORD

NTWCD C-1 CANAL
MEAN DAILY DISCHARGE (CFS) FOR 1983

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1	138.0	163.1	692.8	236.9	126.5	125.8	174.9	134.4	158.0	150.6	198.9	116.1
2	136.8	166.3	461.5	119.8	116.4	116.8	137.4	123.2	227.7	131.7	194.3	129.5
3	115.8	264.3	444.0	114.5	122.9	104.7	140.0	121.6	211.3	139.4	240.2	133.5
4	126.2	306.6	373.2	118.1	127.3	106.5	141.1	123.8	182.4	140.4	189.2	0.0M
5	141.5	296.4	372.7	136.1	153.5	107.2	152.1	130.7	167.8	138.3	158.5	139.5
6	141.9	592.8	358.0	192.5	127.9	131.6	142.0	142.1	162.6	144.5	150.6	140.3
7	120.8	476.8	303.9	190.7	122.8	204.7	137.7	227.8	172.0	152.0	153.5	140.3
8	110.7	309.9	484.4	179.9	119.2	197.1	135.5	189.1	167.2	157.0	169.3	139.6
9	111.2	304.2	400.1	87.9	106.2	524.1	130.8	225.4	149.5	150.0	183.4	138.2
10	128.9	266.2	335.5	241.3	118.8	348.5	124.7	268.2	144.2	149.0	190.2	137.0
11	140.5	295.7	310.8	205.6	116.8	273.0	117.2	187.8	138.8	160.5	162.4	136.5
12	140.7	309.0	257.8	188.2	116.6	176.0	111.2	185.9	136.9	193.9	140.4	188.5
13	141.3	664.2	239.7	174.1	115.6	156.4	95.2	244.4	138.0	173.2	117.5	273.5
14	141.3	779.4	260.2	289.4	113.7	199.2	104.0	316.1	143.0	162.1	108.0	247.0
15	144.2	1112.3	293.3	169.1	111.6	186.6	106.9	462.3	145.0	172.6	119.7	248.9
16	144.5	1019.2P	270.2	364.3	108.5	169.4	107.8	406.0	175.9	188.2	124.5	286.7
17	122.6	1438.5	301.8	347.9	106.5	152.0	106.2	326.1	645.7	235.9	126.0	364.6
18	111.2	981.7	344.4	229.7	105.6	139.4	102.3	347.8	491.9	255.7	133.1	441.4
19	107.5	629.7P	291.0	224.0	104.8	129.2	98.0	342.3	409.4	282.6	138.2	523.5
20	110.5	449.7	232.0	206.9	93.3	116.1	95.8	263.9	314.1	240.0	142.4	583.8
21	456.3	424.0	353.8	170.0	92.5	123.8	98.2	220.7	288.4	215.3	176.2	516.8
22	662.5	340.7	252.1	165.8	91.8	176.1	103.3	184.7	300.0	213.8	162.8	332.8
23	691.9	496.3P	250.8	166.5	89.6	246.0	105.0	200.4	288.4	279.5	153.2	136.8
24	686.9	277.9	262.5	163.8	87.9	155.0	105.0	260.4	263.9	378.8	139.2	0.0
25	356.9	302.0	203.3	145.4	88.4	115.1	101.8	191.6	239.2	431.7	124.5	0.0
26	229.5	284.1	171.7	147.2	89.1	117.6	96.8	179.6	219.1	377.9	109.1	0.0
27	221.8	288.4	141.6	142.4	87.2	122.4	95.4	155.8	176.7	300.4	103.9	130.1
28	227.7	679.6	390.2	136.4	84.3	124.3	92.5	136.6	173.3	249.9	106.8	225.9
29	226.5		338.2	128.9	82.1	125.6	104.9	159.2	167.8	192.4	114.3	331.0
30	221.7		277.5	129.0	81.5	129.2	168.0	158.2	169.2	169.2	104.9	723.7
31	162.3		181.3		103.4		148.2	155.0		177.9		886.8
MEAN	216.8	497.1	317.7	183.7	106.9	170.0	119.4	218.4	225.6	209.8	147.8	259.7P

M=MISSING DATA
P=PARTIAL RECORD

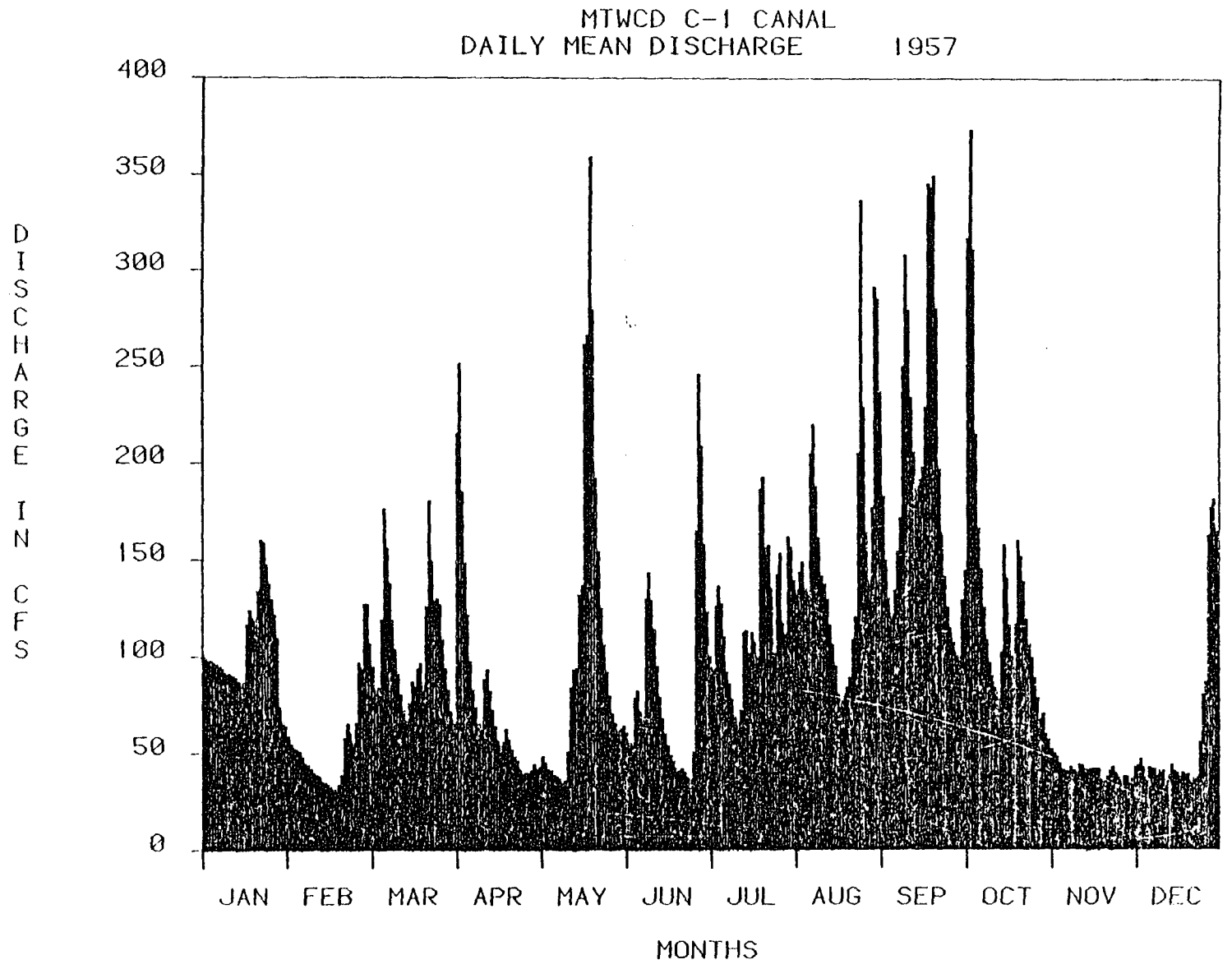
APPENDIX I

DAILY DISCHARGE HYDROGRAPH

FOR

MTWCD C-1 CANAL

Note: A break in data indicates that data was missing.


MTWCD C-1 CANAL
DAILY MEAN DISCHARGE 1957
DISCHARGE IN CFS
400
350
300
250
200
150
100
50
0
JAN
FEB
MAR
APR
MAY
JUN
JUL
AUG
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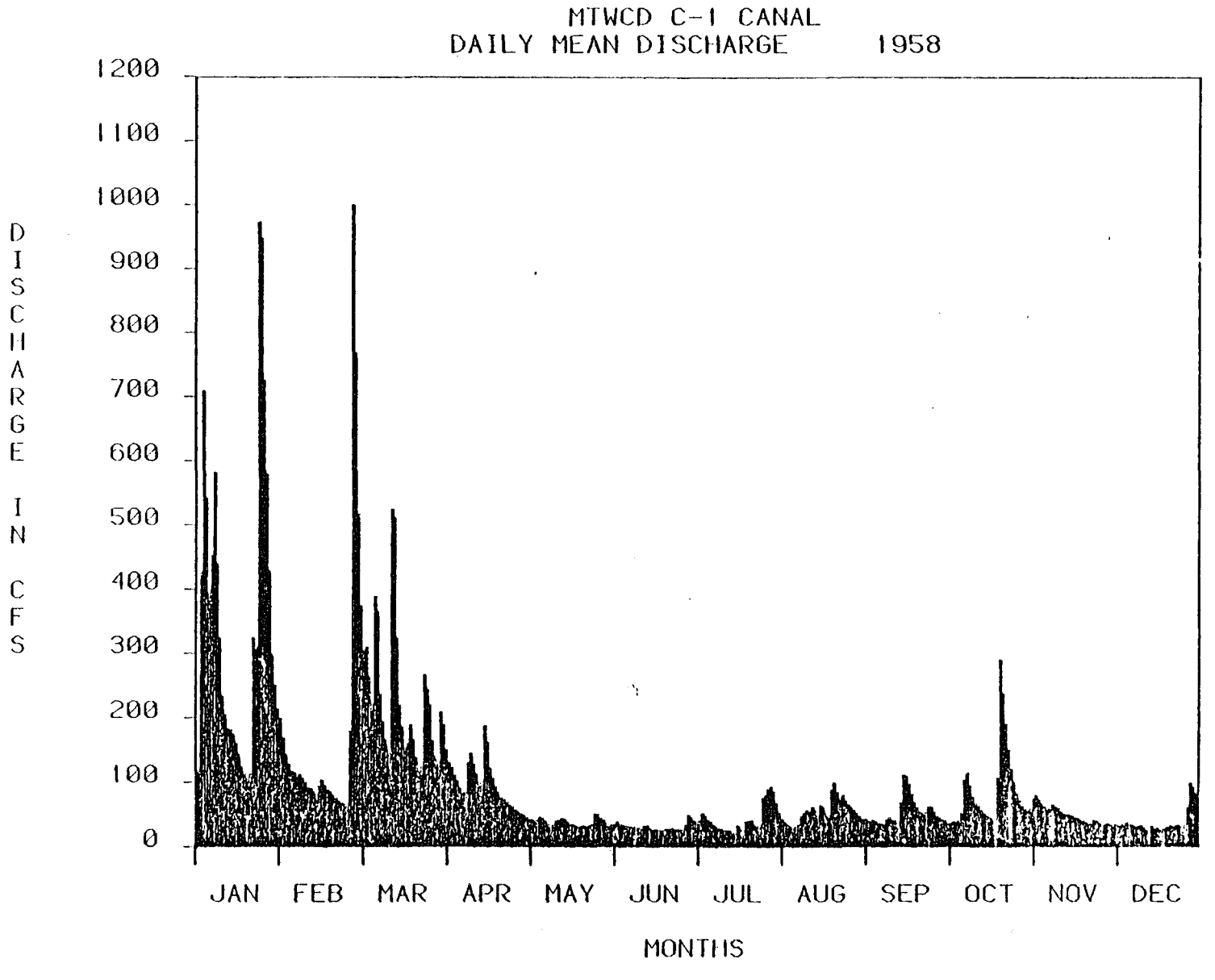
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DAILY MEAN DISCHARGE 1958
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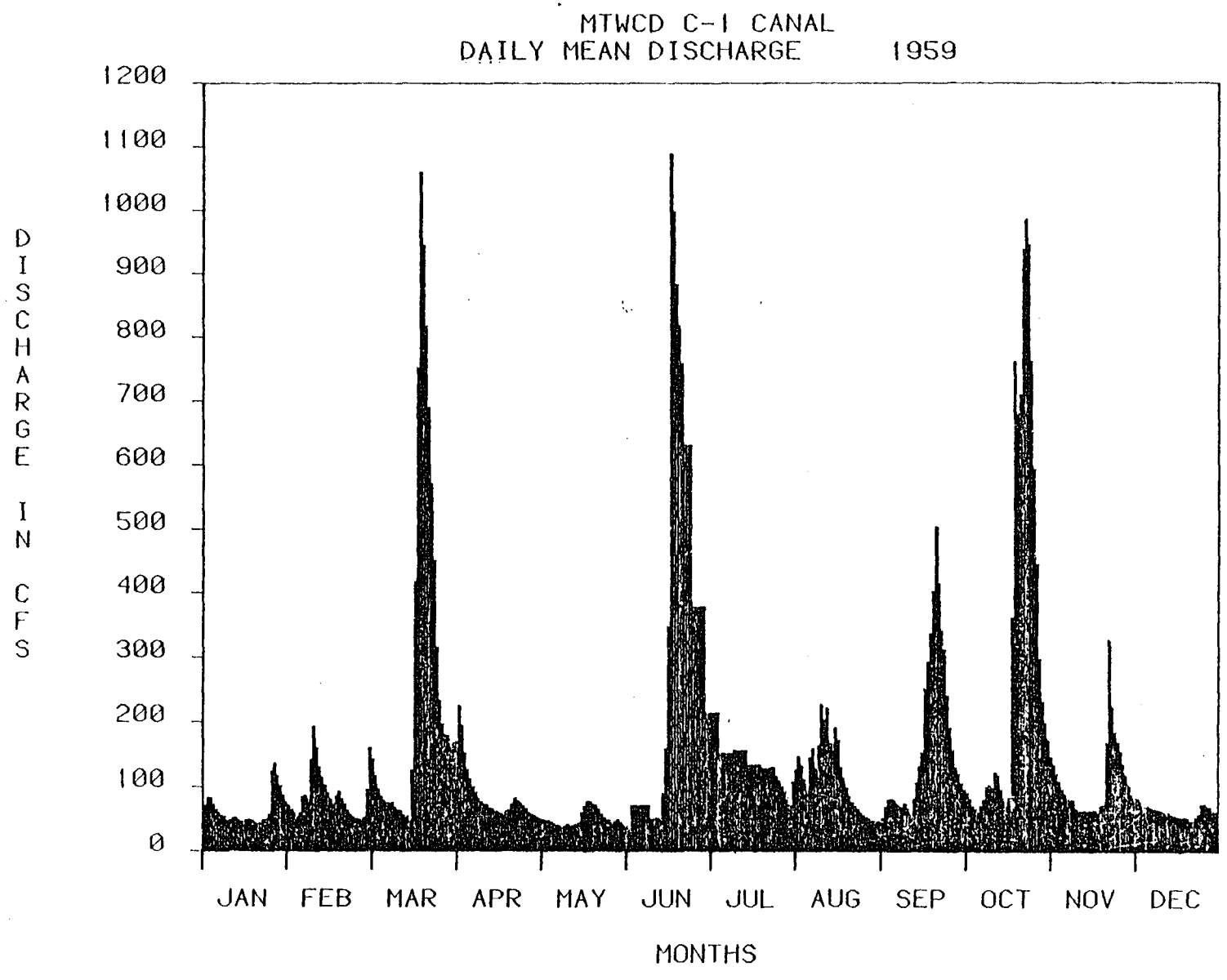
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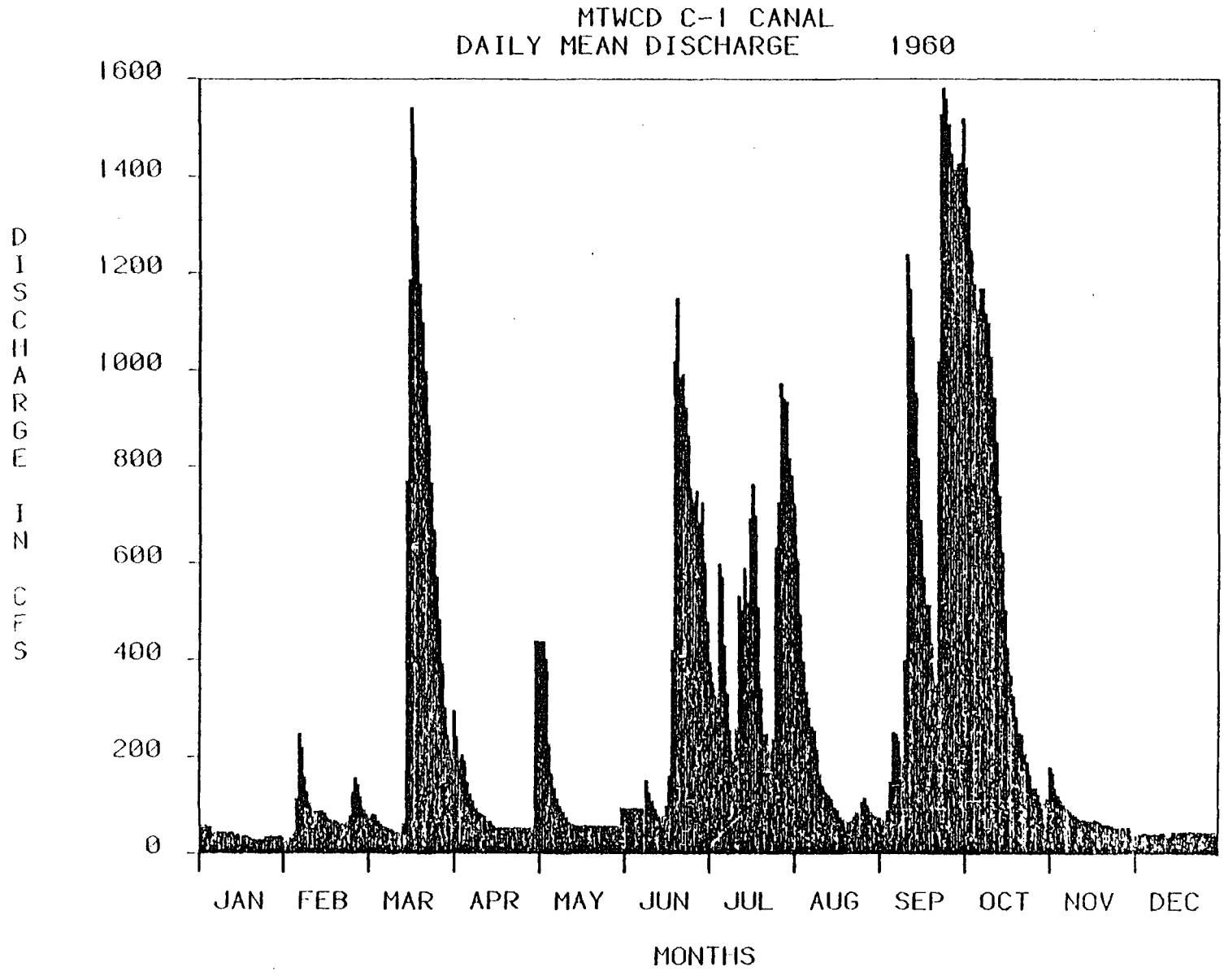
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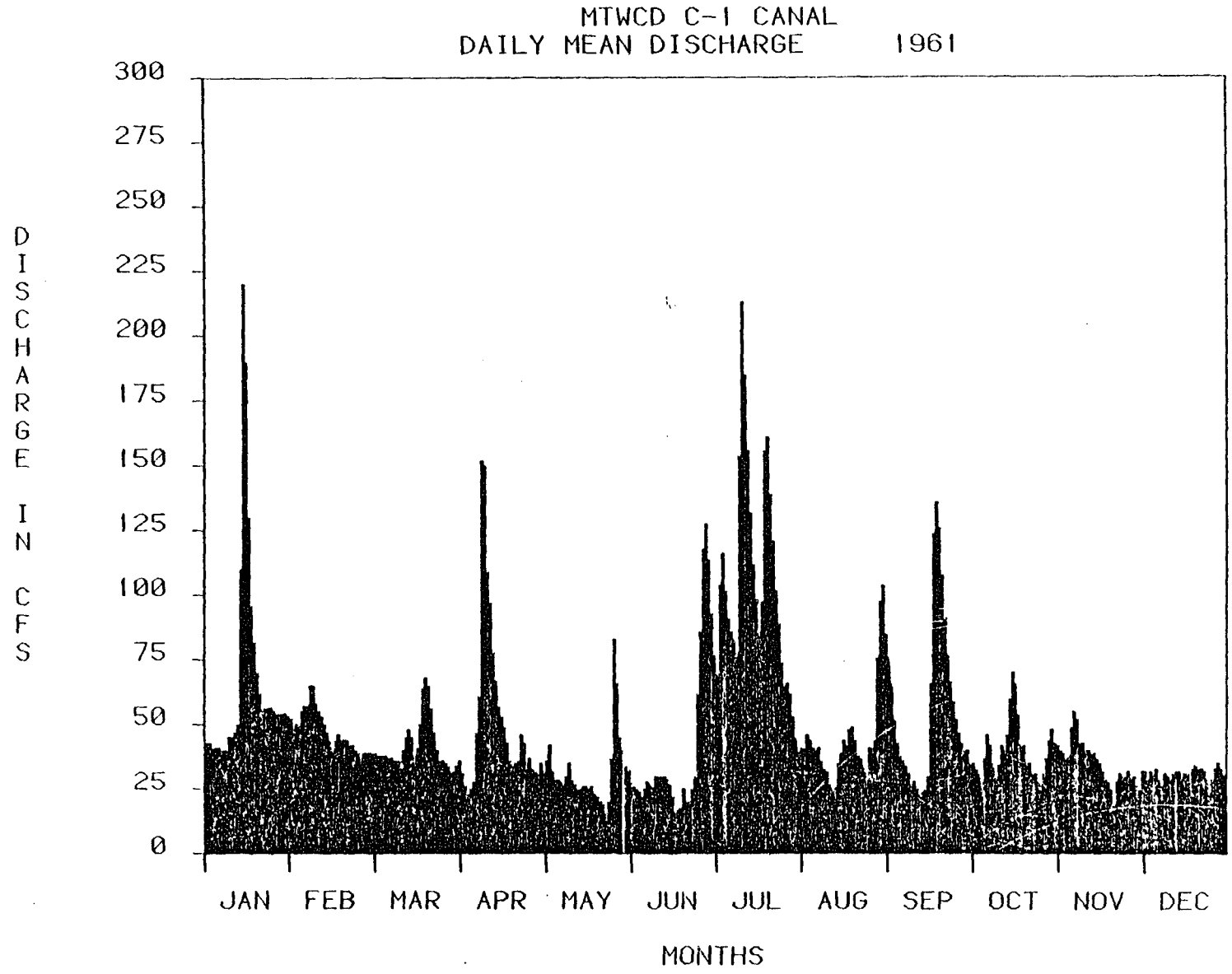
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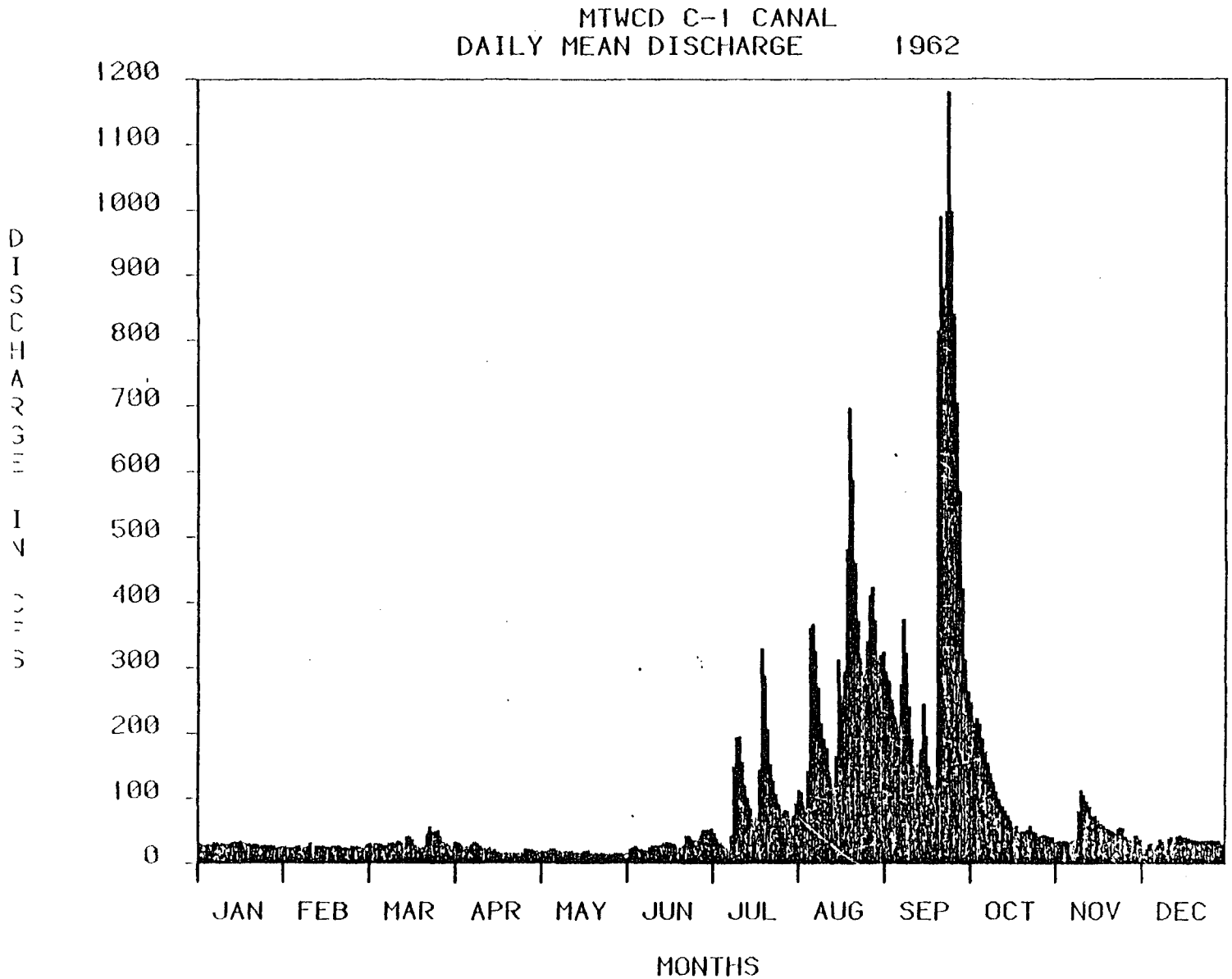
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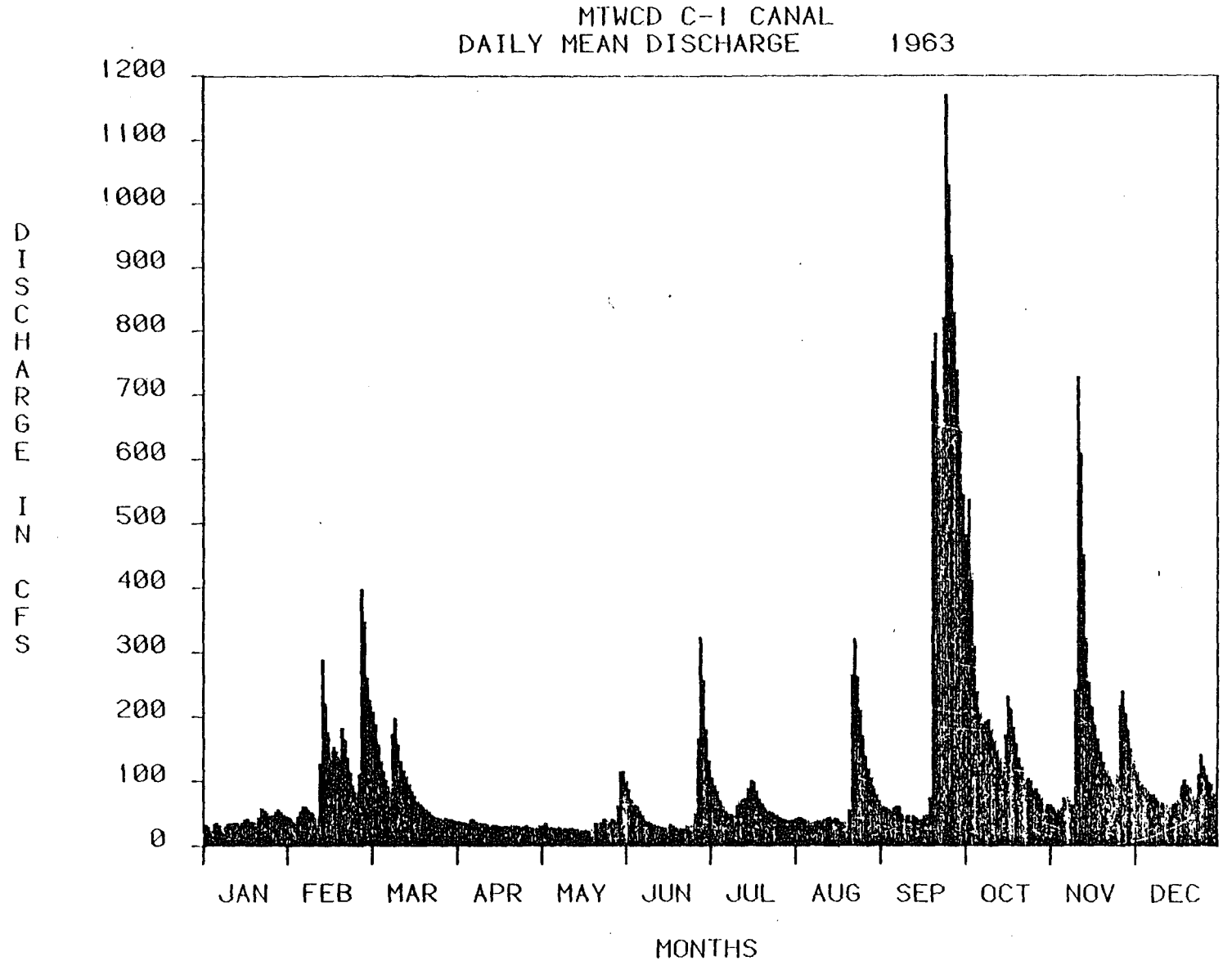
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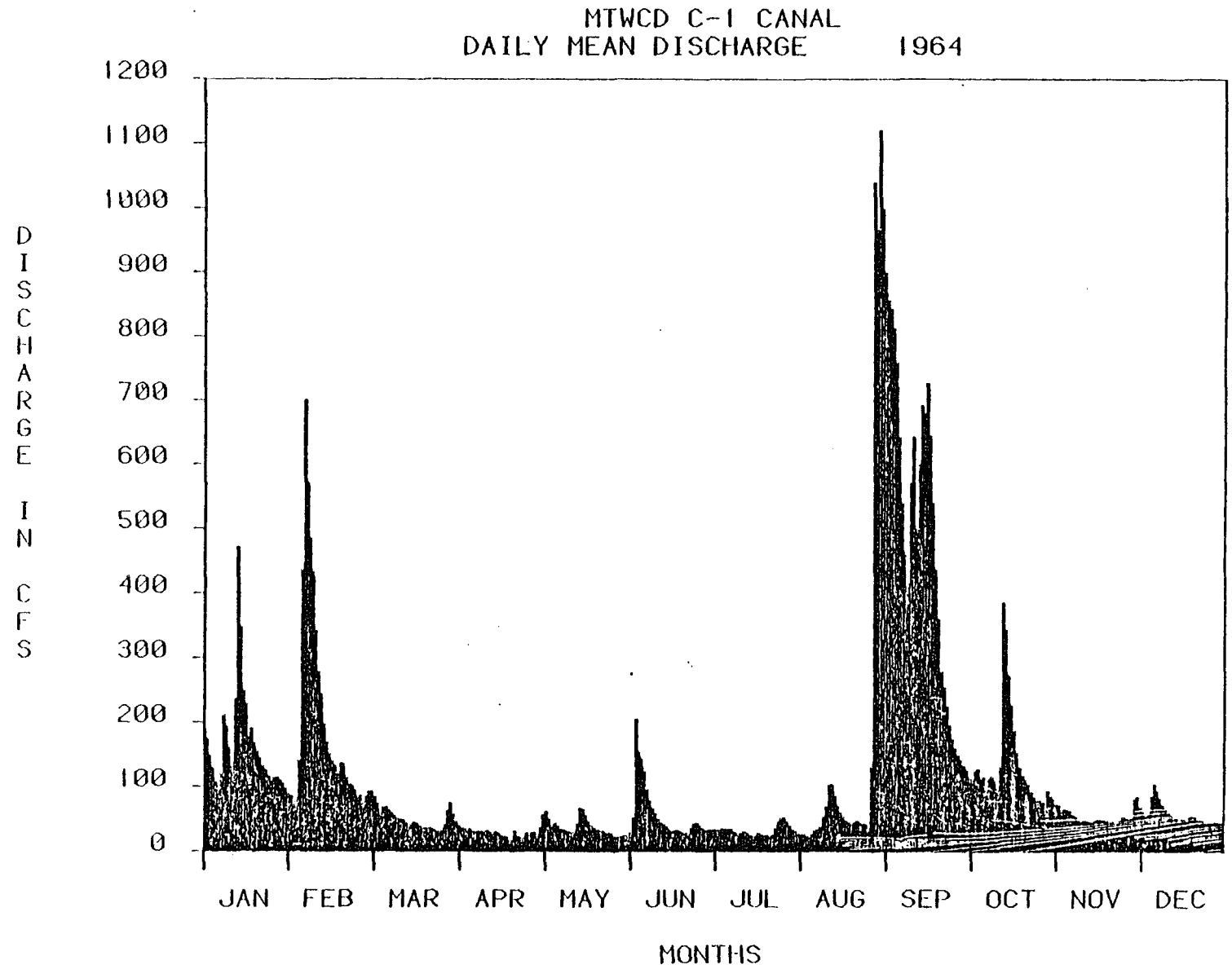
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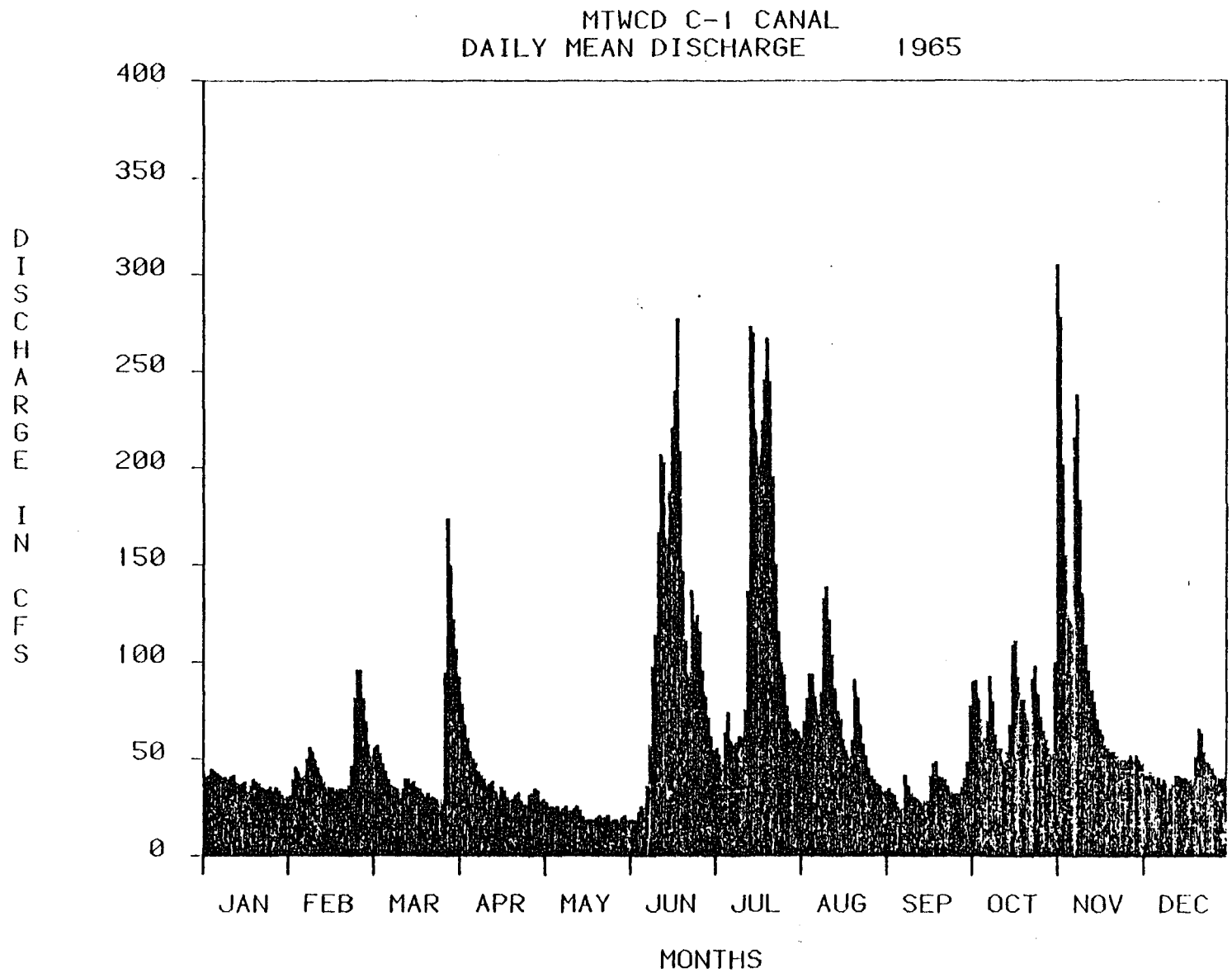
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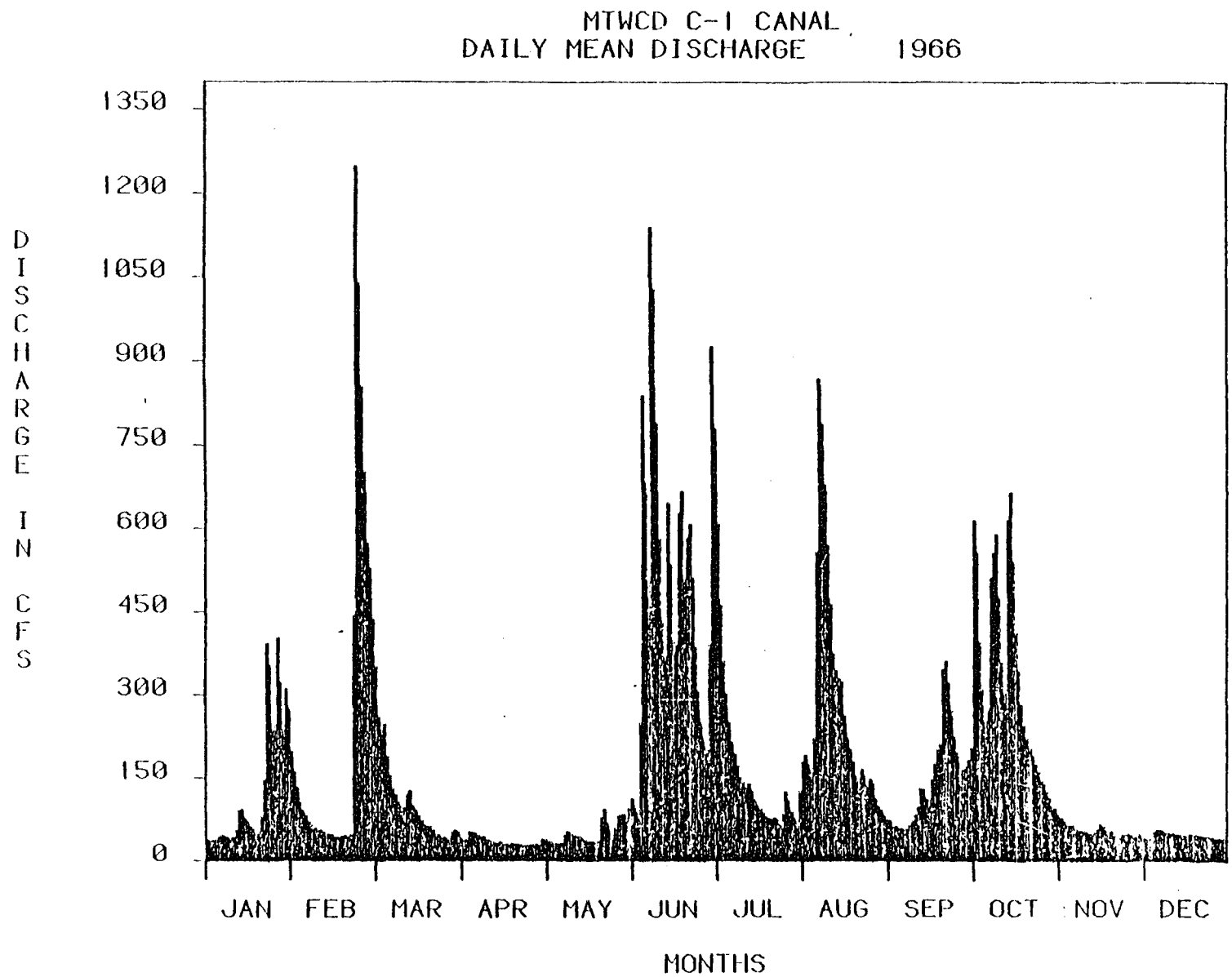
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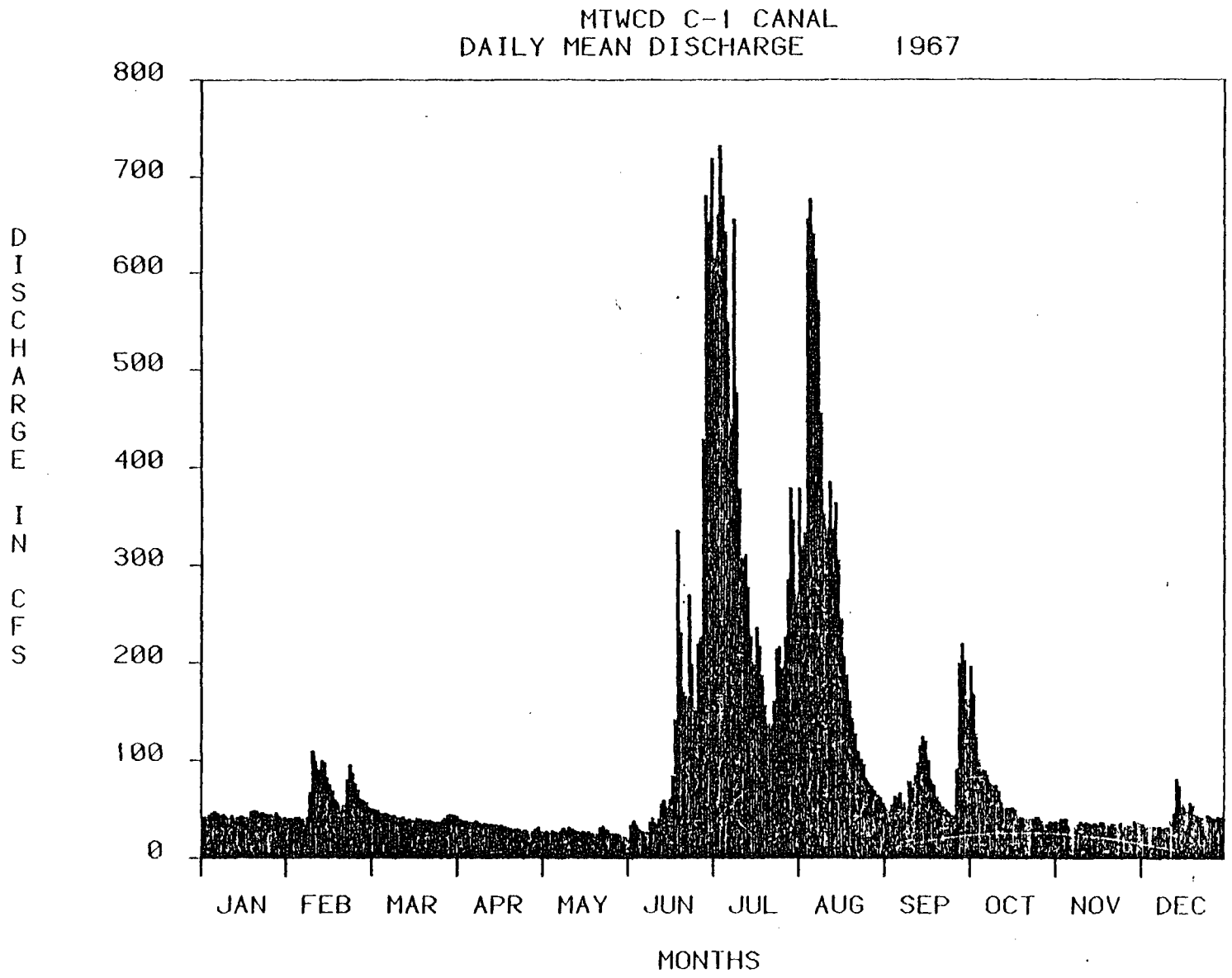
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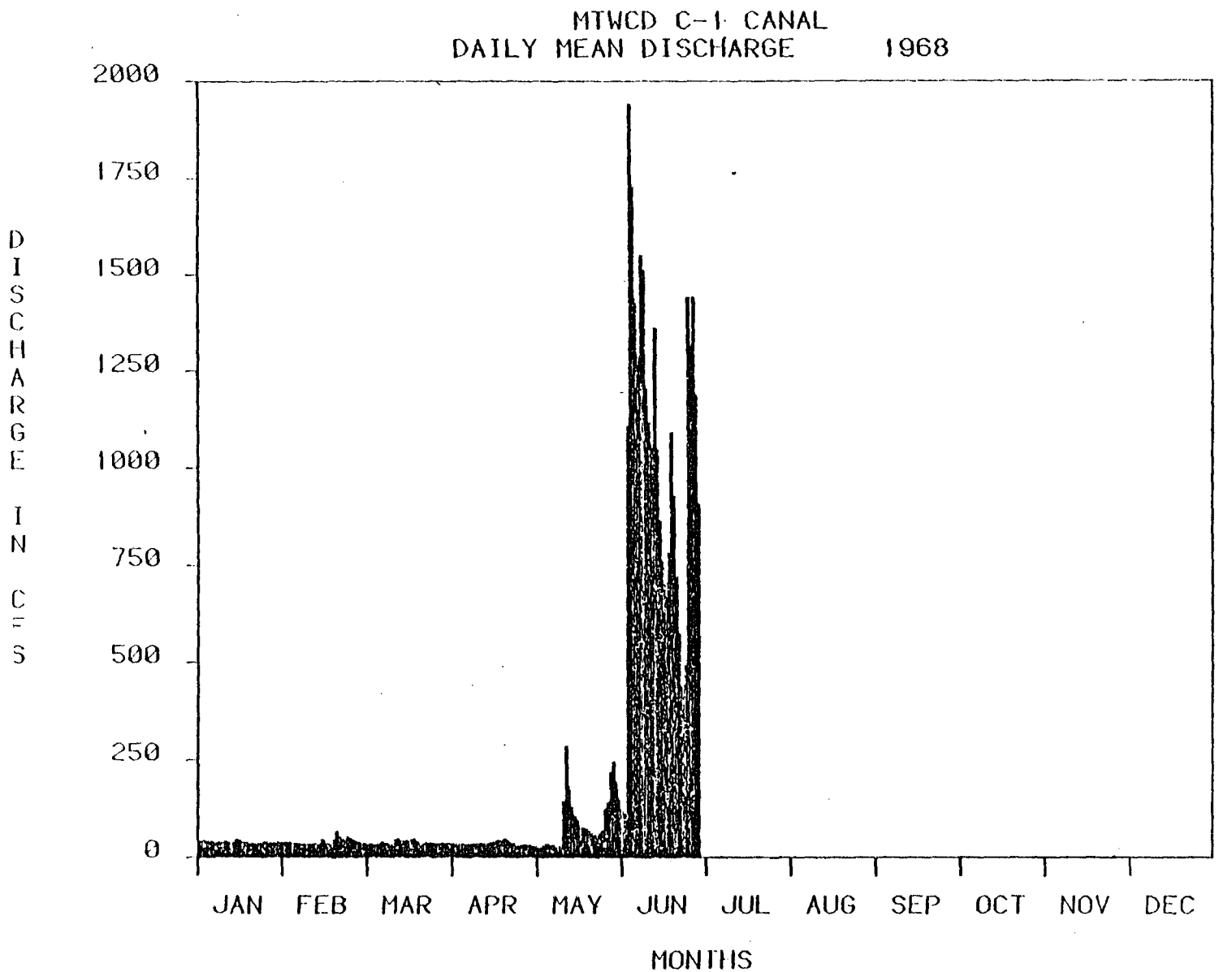
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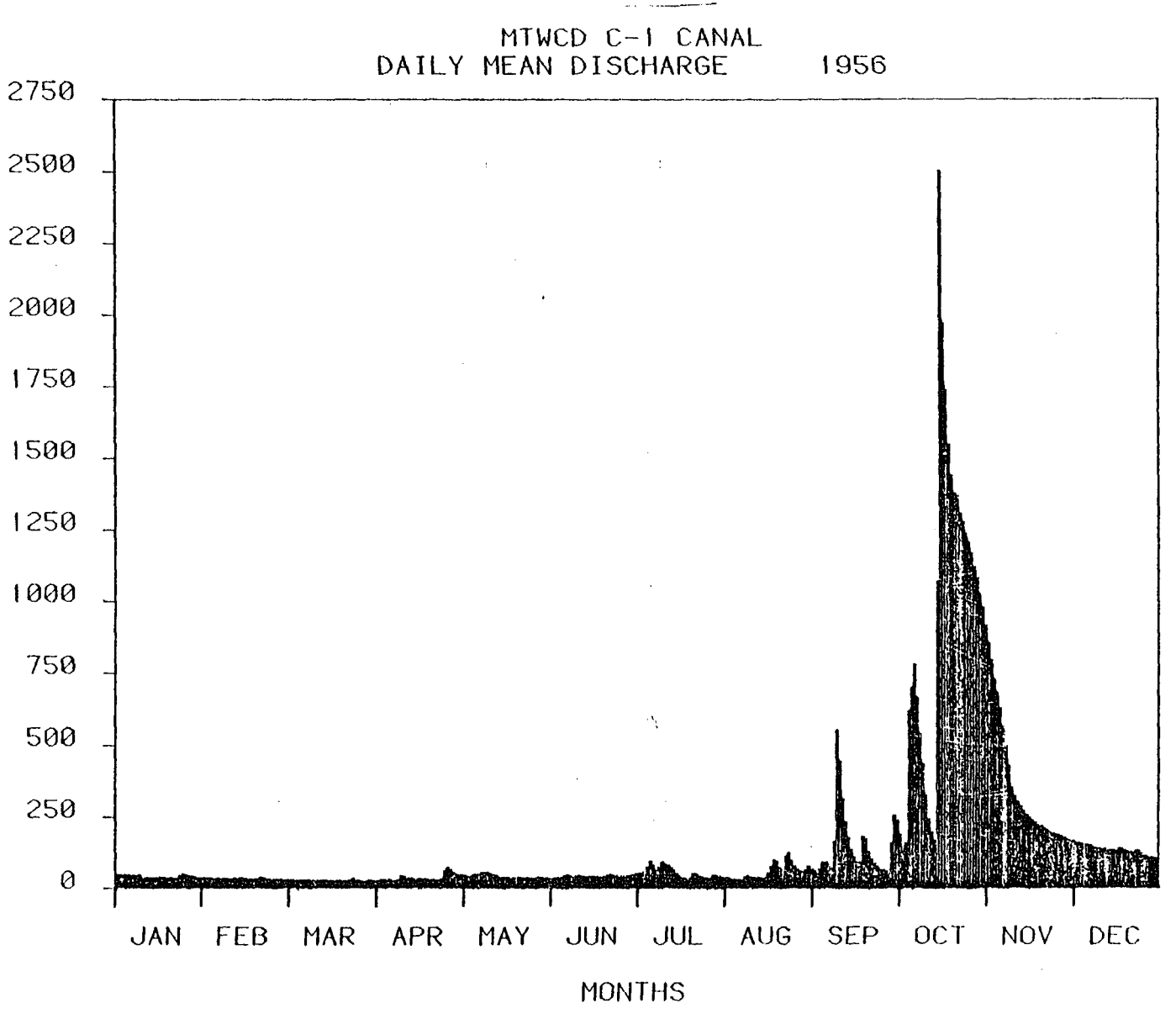
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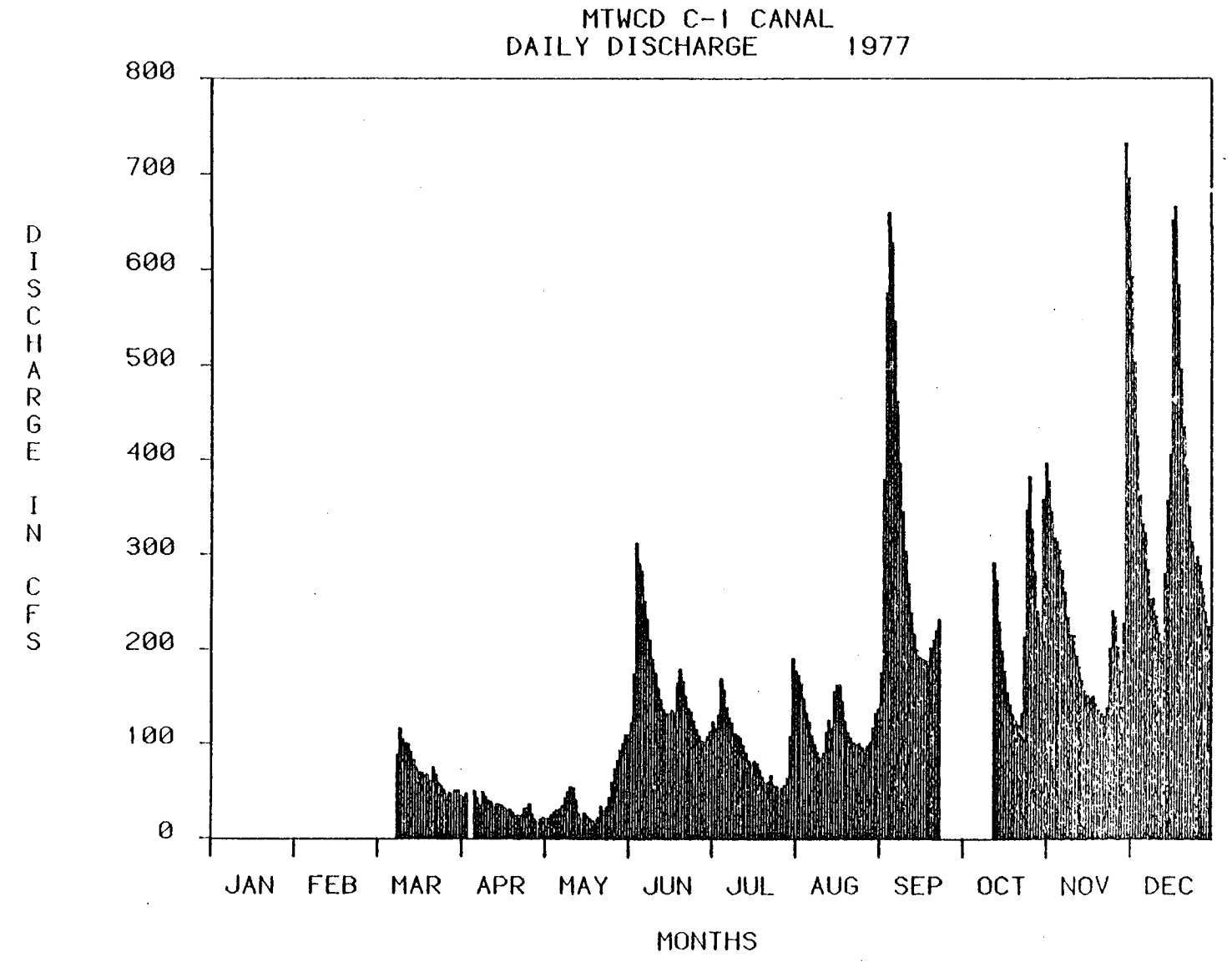
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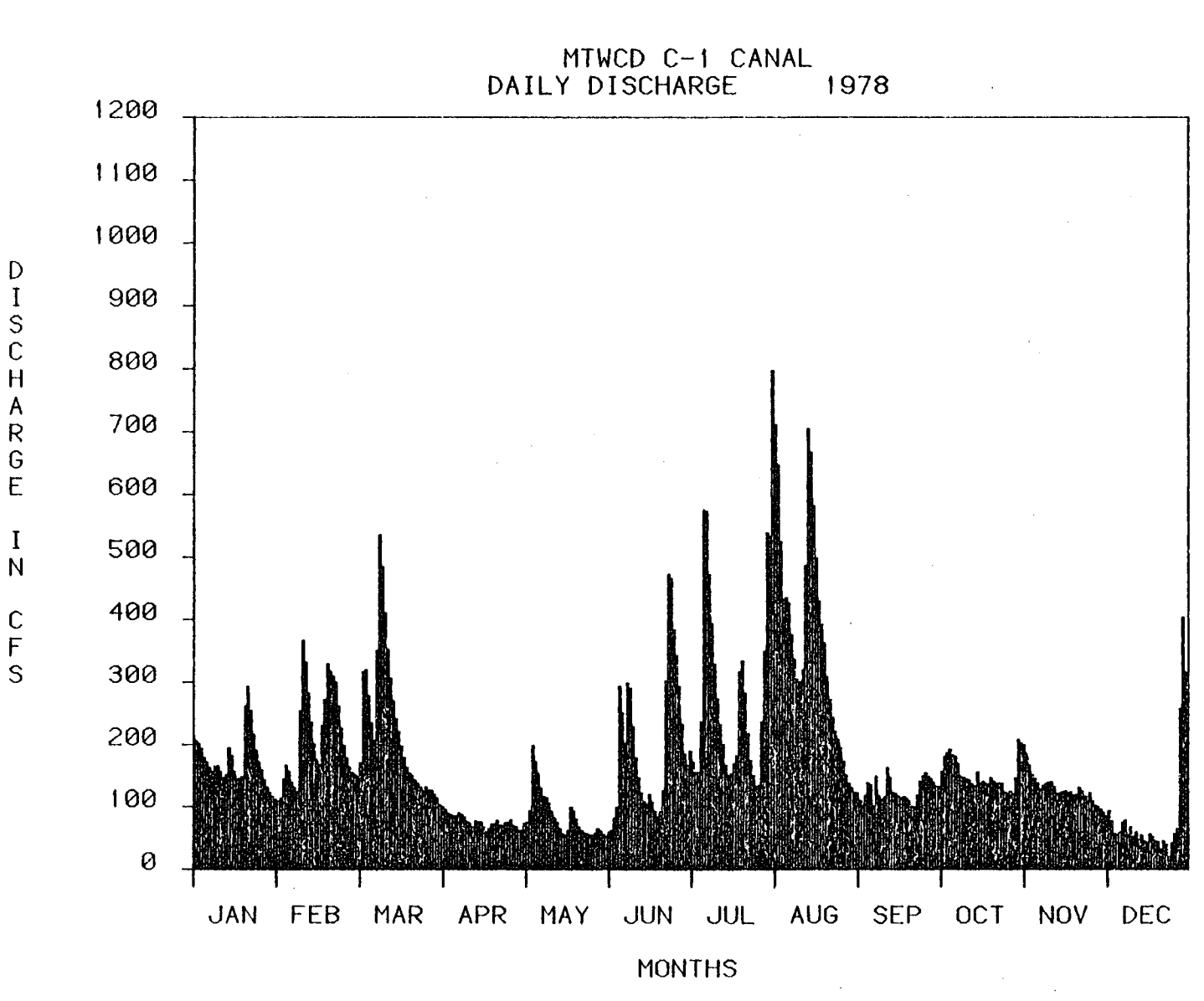
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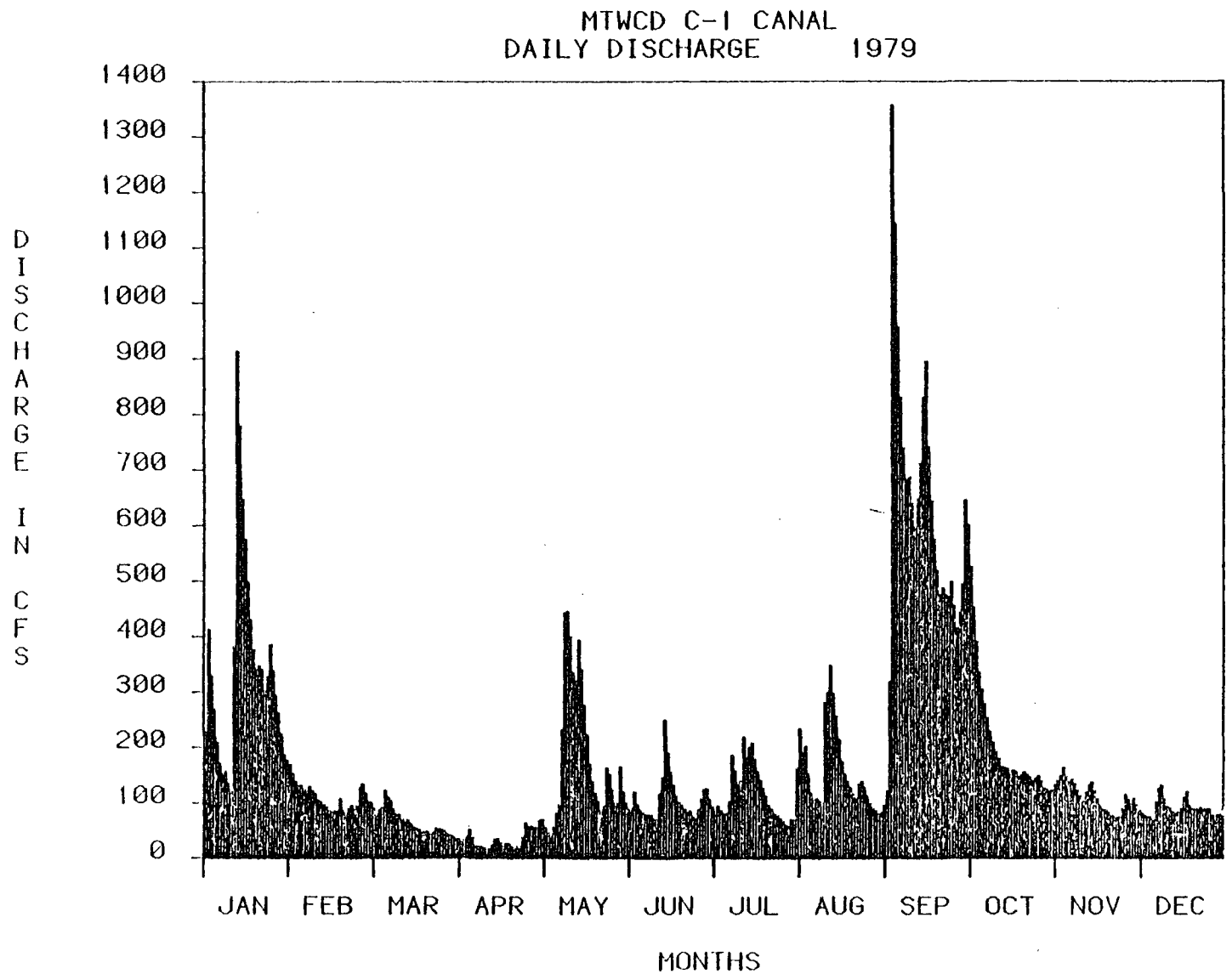
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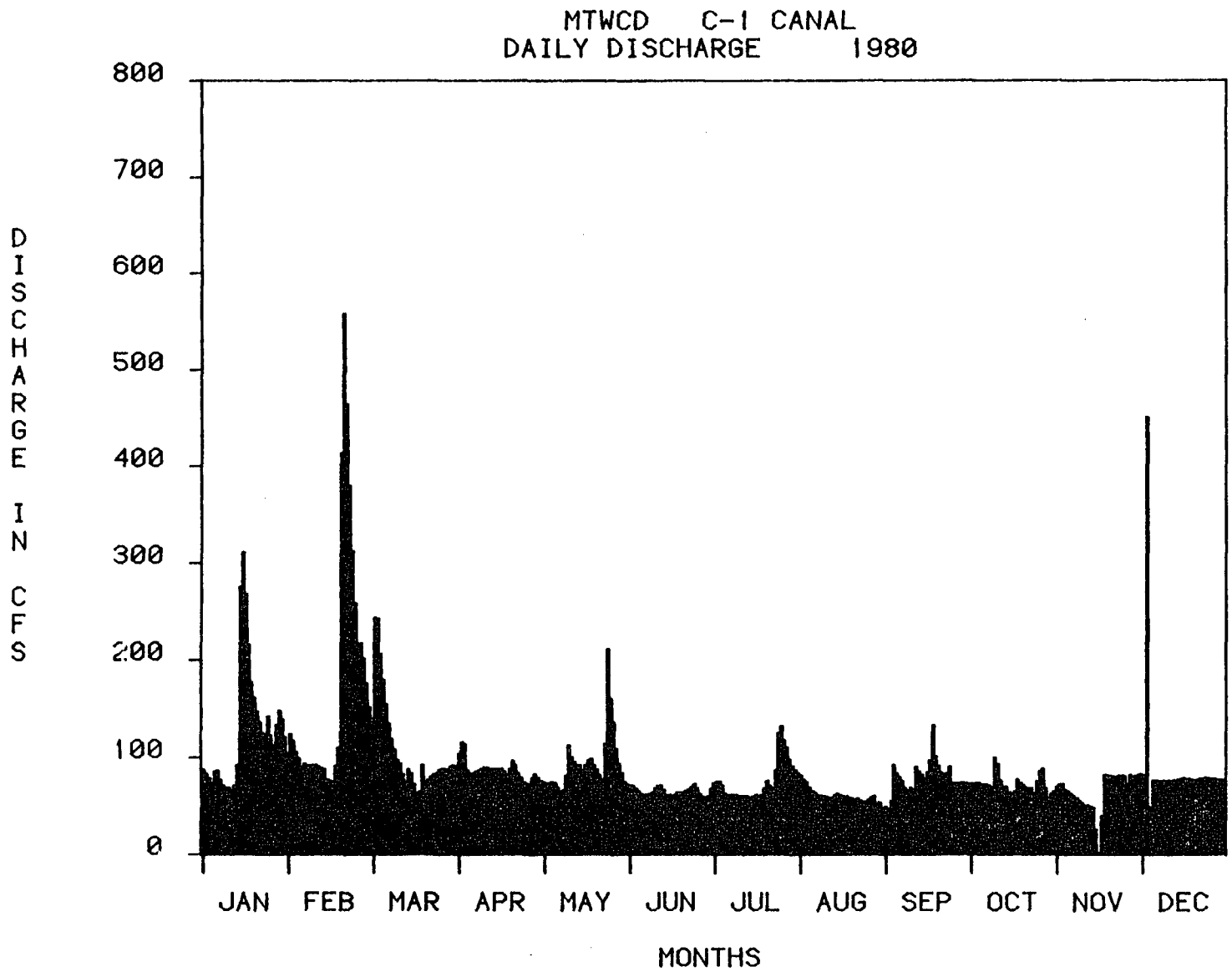
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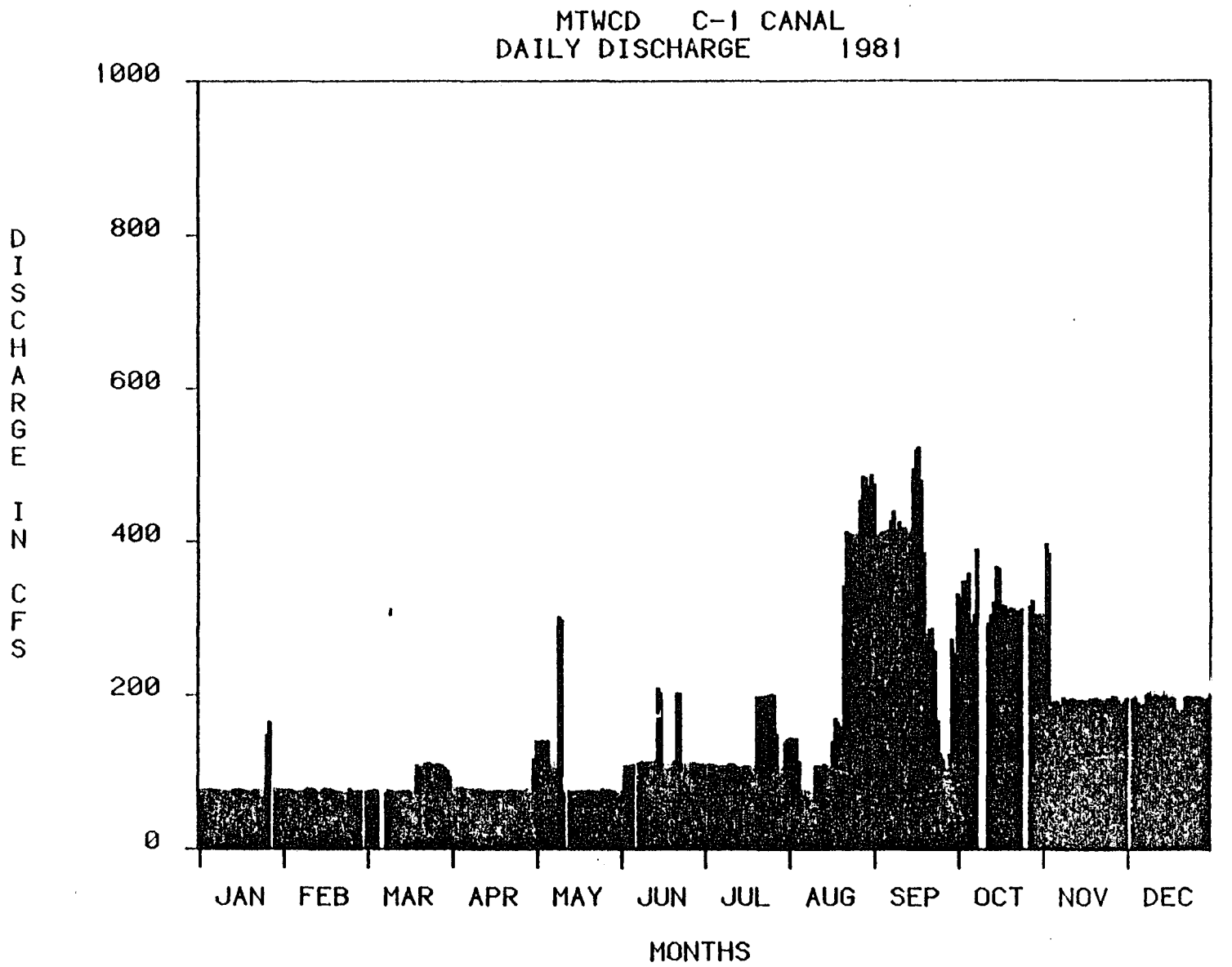
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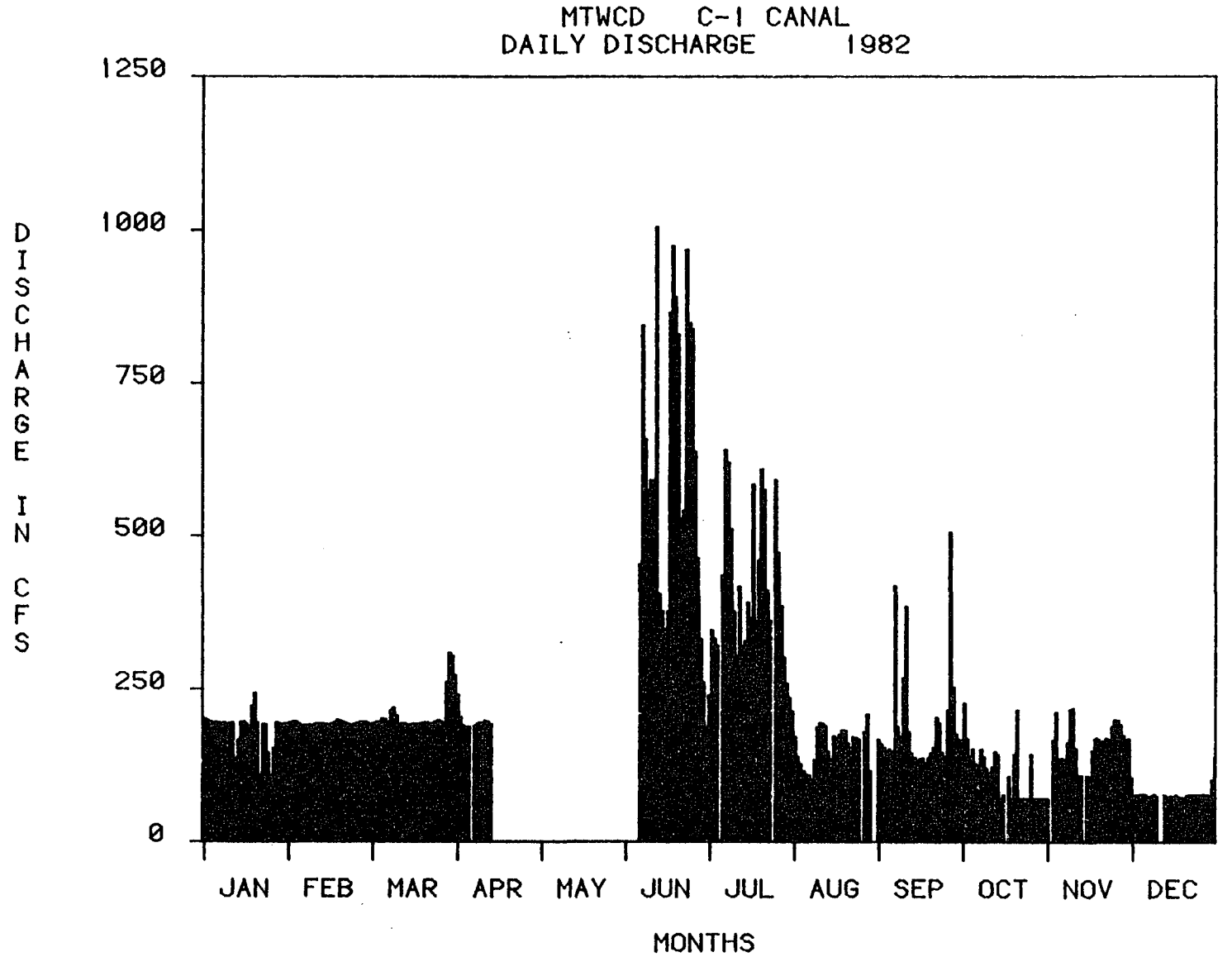
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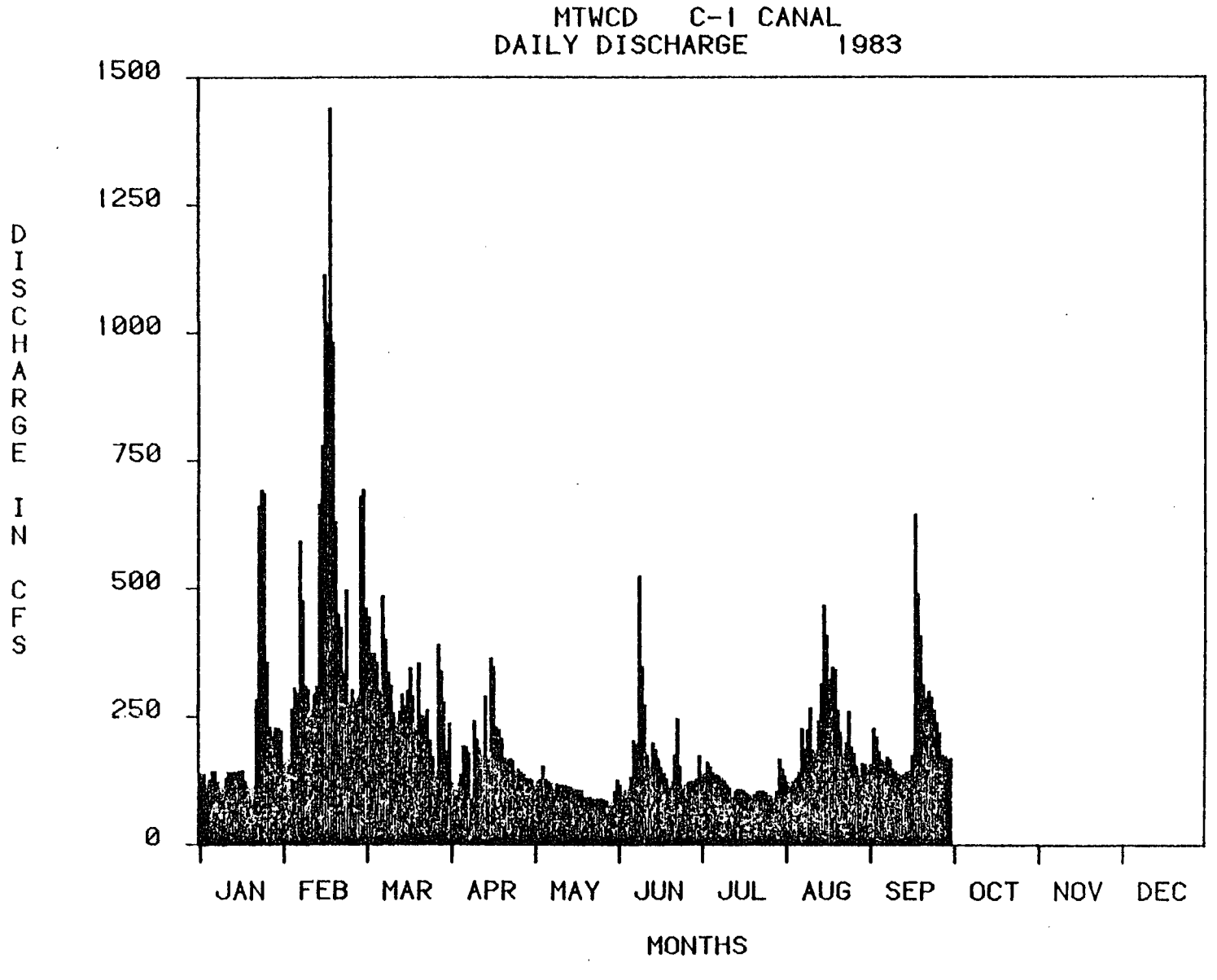
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DAILY DISCHARGE 1983
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750
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250
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DISCHARGE IN CFS
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APPENDIX J

DESIGN OF TEMPORARY FLOW RECAPTURE SYSTEMS FOR FELLSMERE MAIN CANAL AND MTWCD C-1 CANAL

BACKGROUND AND JUSTIFICATION

During the drought of 1980-81, the City of Melbourne expressed a concern to the SJRWMD about the extremely low water storage in Lake Washington. As a result of this concern, the District has studied alternatives for returning a portion of the interbasin diversion flow from C-1 and Fellsmere Main canals to the St. Johns River during periods of low flow conditions.

Based on the data presented in this report, it was concluded that substantial quantities of water were diverted from the Upper St. Johns Basin by Fellsmere Main and C-1 canals. Returning a portion of this water into the St. Johns River Basin during the dry season can augment low flows in the St. Johns River from Fellsmere Grade to Lake Washington. This would increase the water supply available to the City of Melbourne during drought periods.

Minimum mean monthly flows in C-1 and Fellsmere Main canals from June 1980 to July 1981 were 65 cfs and 44 cfs, respectively. The average flow from C-1 and Fellsmere canals during this period was 85 cfs and 71 cfs, respectively. Assuming that 35% of the flow in these canals is needed to maintain environmental benefits downstream of the canals, approximately 55 cfs from C-1 Canal and 45 cfs from Fellsmere Canal can be returned to the St. Johns River Basin on average over this 14-month period.

The historical minimum mean monthly flow from C-1 and Fellsmere Main canals was 19 cfs and 27 cfs, respectively. This indicates that during severe dry periods the amount of water available for recapture from C-1 and Fellsmere Main canals could

fall to 30 cfs or lower based on the assumption that 35% of the flow is needed for downstream uses.

The St. Johns River at US 192 had minimum mean monthly flow of 10.9 cfs and an average flow of 97 cfs for the period from June 1980 through July 1981. The amount of water available in these diversion canals for recapture is significant in comparison with the flows in the St. Johns River at US 192 during this period. The minimum monthly flow for the St. Johns River at US 192 was 10.9 cfs while the combined minimum monthly flow being diverted through Fellsmere and C-1 canals was 109 cfs. Based on the assumption given above, the average flow of 100 cfs which could be returned to the marsh would be as great as the average flow in the St. Johns River at US 192 during the drought period.

DESCRIPTION OF FLOW RECAPTURE SYSTEM

Fellsmere Water Control District

According to an agreement with FWCD (Appendix K), the diversion flows will be returned to the St. Johns River from Fellsmere Main Canal by building an extension onto the existing fixed crest weir at the eastern terminus of Fellsmere Canal as detailed in Exhibit E. This extension will have a crest elevation of 5 feet above msl. A 20,000 gpm pump station will be built immediately east of I-95 (located as shown in Exhibit A) to pump water from Fellsmere Canal into C-54. Another 20,000 gpm pump station will also be built at the S-96 Structure (located as shown in Exhibit A) to pump water from C-54 back into the St. Johns River. Designs for these pump stations are shown on Exhibit F and Exhibit G, respectively.

Melbourne Tillman Water Control District

According to an agreement with MTWCD (Appendix K), water will be returned to the St. Johns River from C-1 Canal by excavating a short canal to the MTWCD levee, as shown in Exhibit H. A 20,000 gpm pump station will be built at the end of this canal to pump water over the MTWCD levee into C-40 Canal where it will be released into the St. Johns River (detailed in Exhibit H).

IMPLEMENTATION PROCEDURES

According to agreements between the SJRWMD and FWCD, MTWCD and the City of Melbourne (Appendix K), the process to implement the temporary flow recapture system will begin when surface water levels in Lake Washington fall below 12 feet above msl. At this time, the SJRWMD will implement the following procedures to construct the temporary flow recapture system:

1) SJRWMD Governing Board authorization for construction of project.
2) After authorization by Governing Board, SJRWMD will receive and award bids for construction of pump stations.
3) Pump stations will be constructed after awarding of bid.
4) Also immediately after Governing Board authorization of project, the SJRWMD Field Service Division will begin construction of weir extension in the FWCD and dredging of canal in MTWCD.
5) Upon completion of project works (approximately 50 days) FWCD and MTWCD will inspect appropriate project construction.
6) FWCD and MTWCD will give final approval of the project.
7) SJRWMD will evaluate water quality of water to be pumped into St. Johns River Marsh.
8) SJRWMD Governing Board give approval for operation of flow recapture system when water level in Lake Washington falls below 11 feet above msl.

EVALUATION OF BENEFITS

During the 1980-81 drought, minimum mean monthly discharges from C-1, C-54 and Fellsmere main canals were 65 cfs, 0 cfs and 44 cfs, respectively. During this same period, the minimum monthly mean flow for the St. Johns River at US 192 was 11 cfs and the minimum stage for Lake Washington was 11.48 feet above msl.

Since the current agreement with FWCD, MTWCD and the City of Melbourne states that water will only be pumped when the surface water level in Lake Washington falls below 11 feet above msl, no water would have been pumped from interbasin diversion canals during the 1980-81 drought. Since a more severe drought would be needed to implement this temporary flow recapture system, flows in C-1 and Fellsmere main canals would be expected to be less than the 1980-81 flows when this recapture system would be implemented. However, even during a more severe drought than occurred in 1980-81, the amount of water available for recapture could still be significant compared to flow in the St. Johns River. For example, the historic low daily mean flow from C-1 and Fellsmere main canals are 19 cfs and 27 cfs, respectively. These diversion flows would be significantly greater than the flows that would be expected to occur in the St. Johns River when Lake Washington stage falls as low as 11.0 ft. msl - a historical return frequency of approximately every 10 years. The 30-day average low for a 10-yr return frequency at US 192 is 1.5 cfs. In addition, water storage and flow in C-1 under existing conditions is expected to increase over historic conditions during

extreme drought conditions as a result of the construction and operation of MS-1.

APPENDIX K

TEMPORARY FLOW RECAPTURE SYSTEM

AGREEMENTS WITH

MELBOURNE, MTWCD, AND FWCD

A G R E E M E N T

Between The

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
And The
CITY OF MELBOURNE

ST JOHNS WMD-

31 JAN 83 11: 40

THIS AGREEMENT is made and entered into this 26th day of January, 1983 ~~March, 1982~~ by and between the St. Johns River Water Management District, a Chapter 373, F. S., Water Management District, hereinafter referred to as the "DISTRICT", and the City of Melbourne, and incorporated municipality, hereinafter referred to as "MELBOURNE".

WHEREAS THE DISTRICT and MELBOURNE have determined that the principal water supply source for Melbourne, namely Lake Washington, may be threatened by drought and that in the event of a water shortage emergency, it may be necessary to augment the flow of water into Lake Washington, and

WHEREAS THE DISTRICT had determined that waters of the St. Johns River Basin are being diverted through Fellsmere Water Control District's main canal and Melbourne-Tillman Water Control District's C-1 Canal into the Indian River in amount in excess of ninety (90) cubic feet per second and this water should be returned to the St. Johns River in times of severe drought, and

WHEREAS THE DISTRICT, based on its technical study had determined that a flow recapture system, including modification of the existing system and the installation of pump stations is needed in order to facilitate returning this water into the St. Johns River system, and

WHEREAS THE DISTRICT is authorized, pursuant to Chapter 373.086 (1) F. S., "to provide such canals, levees, dams, sluiceways, pumping stations, bridges, highways and other works and facilities which the Board may deem necessary" in order to effectuate the purposes of Chapter 373 F. S.

NOW, THEREFORE, in consideration of the mutual premises hereinafter set forth, it is agreed as follows:

1. THE DISTRICT agrees to construct, operate and maintain in any or all of the following project works subject to specific DISTRICT Governing Board approval at the time and to conditions spelled out below:

A. An extension of the Fellsmere Canal Erosion Control Structure, raising the crest elevation to five (5) feet above the National Geodetic Vertical Datum of 1929 (NGVD). The design of this extension is attached here as Exhibit A.

B. Excavate a channel from C-1 Canal to the Melbourne-Tillman outside levee, as shown on Exhibit C. This channel will have a bottom elevation of six (6) feet above NGVD, a bottom width of ten (10) feet, side slopes of three (3) horizontal to one (1) vertical, and a length of one hundred (100) feet.

C. Pump stations at the three locations shown on Exhibits B and C. Each pump station will have a capacity of twenty thousand (20,000) gallons per minute. Each pump station will have a small wooden structure for housing the pump station power plant.

2. THE DISTRICT and MELBOURNE each agree to pay fifty (50) percent of the cost of construction, with Melbourne's share of construction not to exceed $60,000. Melbourne would further have the option to pay all or part of its share by in-kind services as approved by the DISTRICT. MELBOURNE further agrees to pay fifty (50) percent of operation, maintenance and removal of the project works.

3. When the water level of Lake Washington drops below twelve (12) feet above NGVD, the DISTRICT will implement its plan to begin construction of the project. The two pumps shown on Exhibit B will be engaged as soon as practicable after the water surface of Lake Washington falls below eleven (11) feet above NGVD, subject to completion of the necessary project works.

4. CONSTRUCTION OF the project is subject to receiving permission from Melbourne-Tillman Water Control District and Fellsmere Flood Control District for the use of their lands.

5. When the DISTRICT and MELBOURNE mutually agree the project is no longer needed, the DISTRICT will remove all project work and return project lands to pre-project conditions. It is further agreed that proceeds from the

A. An extension of the Fellsmere Canal Erosion Control Structure, raising the crest elevation to five (5) feet above the National Geodetic Vertical Datum of 1929 (NGVD). The design of this extension is attached here as Exhibit A.

B. Excavate a channel from C-1 Canal to the Melbourne-Tillman outside levee, as shown on Exhibit C. This channel will have a bottom elevation of six (6) feet above NGVD, a bottom width of ten (10) feet, side slopes of three (3) horizontal to one (1) vertical, and a length of one hundred (100) feet.

C. Pump stations at the three locations shown on Exhibits B and C. Each pump station will have a capacity of twenty thousand (20,000) gallons per minute. Each pump station will have a small wooden structure for housing the pump station power plant.

2. THE DISTRICT and MELBOURNE each agree to pay fifty (50) percent of the cost of construction, with Melbourne's share of construction not to exceed $60,000. Melbourne would further have the option to pay all or part of its share by in-kind services as approved by the DISTRICT. MELBOURNE further agrees to pay fifty (50) percent of operation, maintenance and removal of the project works.

3. When the water level of Lake Washington drops below twelve (12) feet above NGVD, the DISTRICT will implement its plan to begin construction of the project. The two pumps shown on Exhibit B will be engaged as soon as practicable after the water surface of Lake Washington falls below eleven (11) feet above NGVD, subject to completion of the necessary project works.

4. CONSTRUCTION OF the project is subject to receiving permission from Melbourne-Tillman Water Control District and Fellsmere Flood Control District for the use of their lands.

5. When the DISTRICT and MELBOURNE mutually agree the project is no longer needed, the DISTRICT will remove all project work and return project lands to pre-project conditions. It is further agreed that proceeds from the

A. An extension of the Fellsmere Canal Erosion Control Structure, raising the crest elevation to five (5) feet above the National Geodetic Vertical Datum of 1929 (NGVD). The design of this extension is attached here as Exhibit A.

B. Excavate a channel from C-1 Canal to the Melbourne-Tillman outside levee, as shown on Exhibit C. This channel will have a bottom elevation of six (6) feet above NGVD, a bottom width of ten (10) feet, side slopes of three (3) horizontal to one (1) vertical, and a length of one hundred (100) feet.

C. Pump stations at the three locations shown on Exhibits B and C. Each pump station will have a capacity of twenty thousand (20,000) gallons per minute. Each pump station will have a small wooden structure for housing the pump station power plant.

2. THE DISTRICT and MELBOURNE each agree to pay fifty (50) percent of the cost of construction, with Melbourne's share of construction not to exceed $60,000. Melbourne would further have the option to pay all or part of its share by in-kind services as approved by the DISTRICT. MELBOURNE further agrees to pay fifty (50) percent of operation, maintenance and removal of the project works.

3. When the water level of Lake Washington drops below twelve (12) feet above NGVD, the DISTRICT will implement its plan to begin construction of the project. The two pumps shown on Exhibit B will be engaged as soon as practicable after the water surface of Lake Washington falls below eleven (11) feet above NGVD, subject to completion of the necessary project works.

4. CONSTRUCTION OF the project is subject to receiving permission from Melbourne-Tillman Water Control District and Fellsmere Flood Control District for the use of their lands.

5. When the DISTRICT and MELBOURNE mutually agree the project is no longer needed, the DISTRICT will remove all project work and return project lands to pre-project conditions. It is further agreed that proceeds from the

...le of equipment will be shared by the DISTRICT and MELBOURNE on a pro-portional basis.

IN WITNESS WHEREOF, the parties do hereby execute this agreement.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
BY GOVERNING BOARD

Witness

Witness

1-12-83
Date

CITY OF MELBOURNE

Witness -

Samuel H. Halter, City Manager

Witness

(SEAL)
Zella M. Gaston, CMC, City Clerk

Witness

1/26/83
Date

APPROVED AS TO FORM AND LEGALITY

Attorney
St. Johns River Water Management
District

AGREEMENT

BETWEEN

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

AND

MELBOURNE-TILLMAN WATER CONTROL DISTRICT

THIS AGREEMENT is made and entered into this 12th day of January, 1983, by and between the St. Johns River Water Management District, hereinafter referred to as the "DISTRICT", and Melbourne-Tillman Water Control District, a public corporation, hereinafter referred to as "MELBOURNE-TILLMAN".

WHEREAS the DISTRICT and the City of Melbourne have determined that the principal water supply source for the City of Melbourne, namely Lake Washington, may be threatened by drought and, in the event of a water shortage, it may be necessary to augment the flow of water in Lake Washington; and

WHEREAS the DISTRICT has determined that water of the St. Johns River Basin is being diverted through MELBOURNE-TILLMAN C-1 Canal to the Indian River in amounts in excess of forty-five (45) cubic feet per second and can be transmitted to the St. Johns River in times of severe drought; and

WHEREAS the DISTRICT, based on its technical study, has determined that a flow recapture system, including a channel modification and the installation of pump station is needed in order to facilitate returning this water to the St. Johns River System; and

WHEREAS MELBOURNE-TILLMAN has determined that a portion of these waters can be made available to the St. Johns River in times of drought conditions until such time as the City of Melbourne finds a more permanent solution to its water supply problems; and

WHEREAS MELBOURNE-TILLMAN has provided for potential returning of waters to the St. Johns River as part of its proposed Revised Plan of Reclamation; and

WHEREAS the DISTRICT is authorized, pursuant to Section 373.086(1), Florida Statutes, "to provide such canals, levees, dams, sluiceways, pumping stations, bridges, highways, and other works and facilities which the Board may deem necessary" in order to effectuate the purposes of Chapter 373, F.S.

NOW, THEREFORE, in consideration of the mutual premises hereinafter set forth, it is agreed as follows:

1. The DISTRICT may construct, operate, and maintain the following Project Works:

A. A pump station on the MELBOURNE-TILLMAN levee at the location shown on Exhibit 1. This pump station will pump water from C-1 Canal to C-40 Canal and will have a capacity of twenty thousand (20,000) gallons per minute. This pump station will also have a small wooden building for housing the pump power plant.

B. The DISTRICT will construct and maintain a dredged channel from C-1 Canal to the MELBOURNE-TILLMAN levee. The location of this channel is shown on Exhibit 1. This channel will have a bottom elevation of six (6) feet above the National Geodetic Vertical Datum of 1929 (NGVD), a bottom width of ten (10) feet, side slopes of three (3) horizontal to one (1) vertical and length of about one hundred (100) feet. In addition, the inlet to the pump intake will be designed in such a way that no water will flow into the intake below a crest elevation of 7 feet NGVD.

2. MELBOURNE-TILLMAN shall allow the DISTRICT to use MELBOURNE-TILLMAN lands to construct and operate the Project Works.

3. MELBOURNE-TILLMAN shall allow access to the Project Works by DISTRICT personnel and other persons authorized by the DISTRICT for the operation and maintenance of said Project Works and a Log be kept of same.

WHEREAS the DISTRICT is authorized, pursuant to Section 373.086(1), Florida Statutes, "to provide such canals, levees, dams, sluiceways, pumping stations, bridges, highways, and other works and facilities which the Board may deem necessary" in order to effectuate the purposes of Chapter 373, F.S.

NOW, THEREFORE, in consideration of the mutual premises hereinafter set forth, it is agreed as follows:

1. The DISTRICT may construct, operate, and maintain the following Project Works:

A. A pump station on the MELBOURNE-TILLMAN levee at the location shown on Exhibit 1. This pump station will pump water from C-1 Canal to C-40 Canal and will have a capacity of twenty thousand (20,000) gallons per minute. This pump station will also have a small wooden building for housing the pump power plant.

B. The DISTRICT will construct and maintain a dredged channel from C-1 Canal to the MELBOURNE-TILLMAN levee. The location of this channel is shown on Exhibit 1. This channel will have a bottom elevation of six (6) feet above the National Geodetic Vertical Datum of 1929 (NGVD), a bottom width of ten (10) feet, side slopes of three (3) horizontal to one (1) vertical and length of about one hundred (100) feet. In addition, the inlet to the pump intake will be designed in such a way that no water will flow into the intake below a crest elevation of 7 feet NGVD.

2. MELBOURNE-TILLMAN shall allow the DISTRICT to use MELBOURNE-TILLMAN lands to construct and operate the Project Works.

3. MELBOURNE-TILLMAN shall allow access to the Project Works by DISTRICT personnel and other persons authorized by the DISTRICT for the operation and maintenance of said Project Works and a Log be kept of same.

WHEREAS the DISTRICT is authorized, pursuant to Section 373.086(1), Florida Statutes, "to provide such canals, levees, dams, sluiceways, pumping stations, bridges, highways, and other works and facilities which the Board may deem necessary" in order to effectuate the purposes of Chapter 373, F.S.

NOW, THEREFORE, in consideration of the mutual premises hereinafter set forth, it is agreed as follows:

1. The DISTRICT may construct, operate, and maintain the following Project Works:

A. A pump station on the MELBOURNE-TILLMAN levee at the location shown on Exhibit 1. This pump station will pump water from C-1 Canal to C-40 Canal and will have a capacity of twenty thousand (20,000) gallons per minute. This pump station will also have a small wooden building for housing the pump power plant.

B. The DISTRICT will construct and maintain a dredged channel from C-1 Canal to the MELBOURNE-TILLMAN levee. The location of this channel is shown on Exhibit 1. This channel will have a bottom elevation of six (6) feet above the National Geodetic Vertical Datum of 1929 (NGVD), a bottom width of ten (10) feet, side slopes of three (3) horizontal to one (1) vertical and length of about one hundred (100) feet. In addition, the inlet to the pump intake will be designed in such a way that no water will flow into the intake below a crest elevation of 7 feet NGVD.

2. MELBOURNE-TILLMAN shall allow the DISTRICT to use MELBOURNE-TILLMAN lands to construct and operate the Project Works.

3. MELBOURNE-TILLMAN shall allow access to the Project Works by DISTRICT personnel and other persons authorized by the DISTRICT for the operation and maintenance of said Project Works and a log be kept of same.

4. MELBOURNE-TILLMAN shall not pay any monies to the DISTRICT for this project nor will the DISTRICT pay any monies to MELBOURNE-TILLMAN.

5. The DISTRICT may begin construction of the Project when the water surface of Lake Washington falls below twelve (12) feet above NGVD and pump may be engaged when the water surface of Lake Washington falls to eleven (11) feet above NGVD, both acts being subject to the DISTRICT's Governing Board approval.

6. This Agreement will continue in force for three years from the date of this Agreement, subject to repeated extensions by agreement of both parties, unless the Project Works are constructed in which case this Agreement will continue in force until the Project Works are removed for one of the following reasons:

A. The DISTRICT decides that the Project is no longer needed in which case the DISTRICT will remove the Project Works as expeditiously as possible and, on the request of MELBOURNE-TILLMAN, return MELBOURNE-TILLMAN land to pre-project condition.

B. The DISTRICT shall have 30 days after receiving written notice to correct any harm it is causing to lands or works of MELBOURNE-TILLMAN or a landowner within MELBOURNE-TILLMAN. If the DISTRICT is unable to correct the harm within 30 days, at the option of the MELBOURNE-TILLMAN, the DISTRICT shall remove its project works. For any event other than that referred to above, the DISTRICT shall remove its works after a 180-day written notice from MELBOURNE-TILLMAN, and MELBOURNE-TILLMAN will not unreasonably request removal of the DISTRICT works.

7. The DISTRICT agrees to indemnify and hold harmless MELBOURNE-TILLMAN and its agents and employees, from and against all claims, damages, losses, and expenses, including reasonable attorney's fees in the event MELBOURNE-TILLMAN incurs any such

damage, loss, expenses or attorney's fees for a claim arising out of work performed on this project by the DISTRICT, its contractors, sub-contractors, agents or employees.

IN WITNESS WHEREOF, the parties do hereby execute this Agreement on the date and year first above written.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
BY GOVERNING BOARD

FRANCES S. PIGNONE
CHAIRMAN

ATTEST

LYNNE C. CAPEHART
SECRETARY

MELBOURNE-TILLMAN WATER CONTROL DISTRICT

BY

ATTEST

LEGAL FORM APPROVED

E. LEE WORSHAM, STAFF ATTORNEY
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

damage, loss, expenses or attorney's fees for a claim arising out of work performed on this project by the DISTRICT, its contractors, sub-contractors, agents or employees.

IN WITNESS WHEREOF, the parties do hereby execute this Agreement on the date and year first above written.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
BY GOVERNING BOARD

FRANCES S. PIGNONE
CHAIRMAN

ATTEST

LYNNE C. CAPEHART
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MELBOURNE-TILLMAN WATER CONTROL DISTRICT

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ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

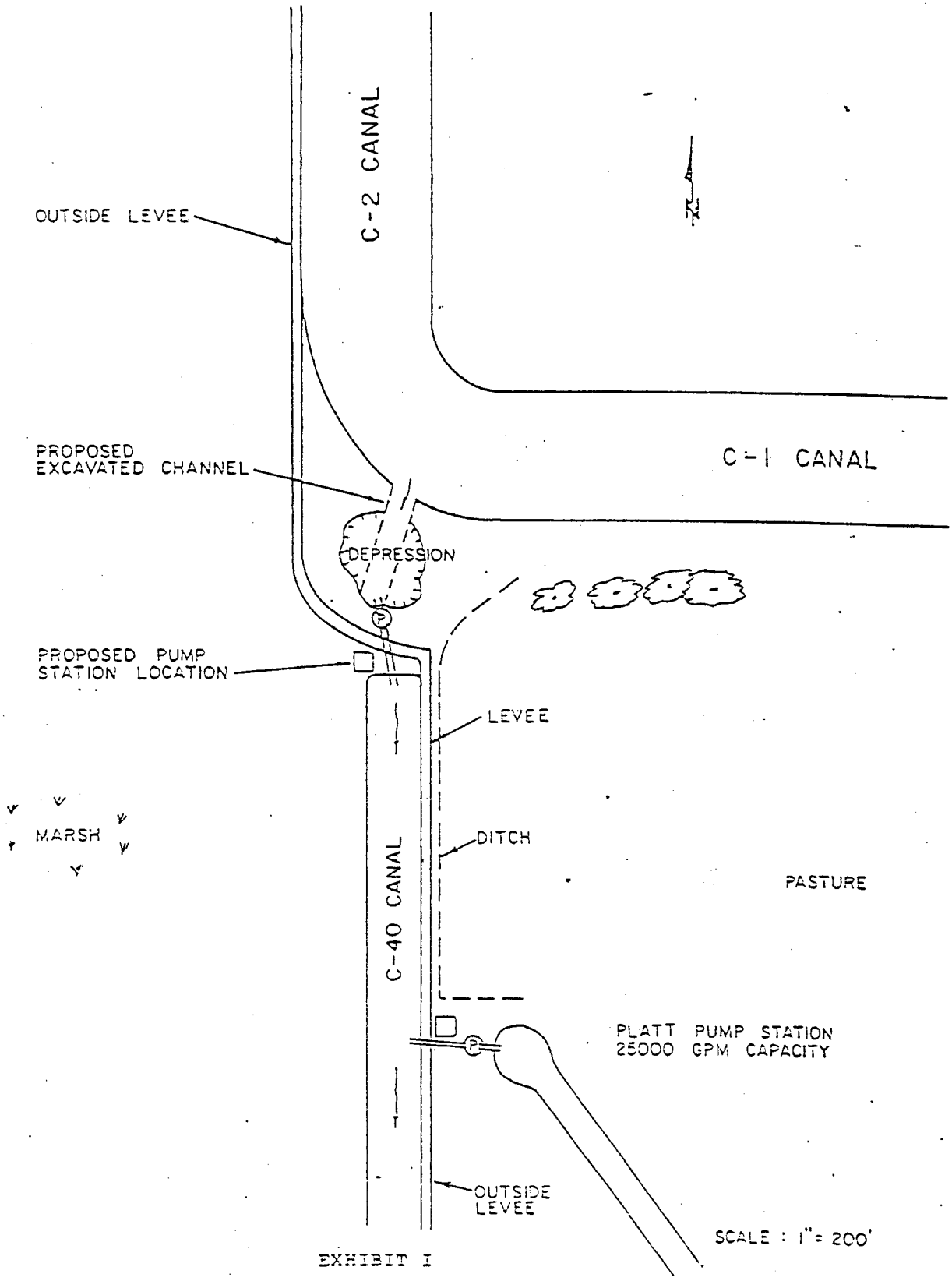
C-2 CANAL
OUTSIDE LEVEE
C-1 CANAL
PROPOSED
EXCAVATED CHANNEL
DEPRESSION
PROPOSED PUMP
STATION LOCATION
LEVEE
MARSH
DITCH
PASTURE
C-40 CANAL
PLATT PUMP STATION
25000 GPM CAPACITY
OUTSIDE
LEVEE
SCALE : 1"= 200'

EXHIBIT I

A G R E E M E N T

Between The

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
And The
FELLSMERE WATER CONTROL DISTRICT

THIS AGREEMENT is made and entered into this 17th day of May 1983, by and between the St. Johns River Water Management District, a Chapter 373, F.S., water management district, hereinafter referred to as the "DISTRICT", and the Fellsmere Water Control District, a public corporation, hereinafter referred to as "FELLSMERE".

WHEREAS FELLSMERE owns all right, title and interest in the Main Canal and the land immediately adjacent to and on the side of the canal, and

WHEREAS THE DISTRICT has determined that the waters from the St. Johns River Basin are now being diverted through Fellsmere's main canal into the Indian River in amounts in excess of forty five (45) cubic feet per second and that certain of this water should be returned to the St. Johns River in times of severe drought, and

WHEREAS THE DISTRICT, based on its technical study has determined that a flow recapture system, including a modification of the existing erosion control structure and the installation of pump stations is needed in order to facilitate returning this water into the St. Johns River system, and

WHEREAS THE DISTRICT is authorized, pursuant to Chapter 373.086(1), F.S., "to provide such canals, levees, dams, sluiceways, pumping stations, bridges, highways and other works and facilities which the Board may deem necessary", in order to effectuate the purposes of Chapter 373, F.S.

NOW THEREFORE, in consideration of FELLSMERE authorizing the DISTRICT to construct the below described works and the DISTRICT's agreement to construct said works, it is agreed as follows:

1. The DISTRICT may construct, operate and maintain the following Project Works:

A. A modification of the Pellsmere Canal Erosion Control Structure (Pellsmere Weir), subject to PELLSMERE's engineer approval as to detail design, approval for operation following construction, and operating schedule, which when so approved, shall be made a part of and incorporated into this agreement.

B. One pump station in PELLSMERE's main canal at a site (located) immediately east of Interstate Highway 95 together with necessary appurtenances, all subject to PELLSMERE's engineer approval as to detail design; approval for operation following construction, and operation schedule which when so approved, to be made a part of and incorporated into this agreement.

2. PELLSMERE agrees to allow the DISTRICT the use of those lands necessary for construction and operation of the above described Project Works.

3. PELLSMERE agrees to allow access to the above described Project Works by DISTRICT personnel or such other persons as authorized by the DISTRICT in connection with this project.

4. The DISTRICT agrees to hold PELLSMERE harmless from any and all liability, harm, damage, injury, or related claims resulting from any activity authorized in paragraphs 1, 2, and 3 above.

5. At such time that the DISTRICT decides the project is no longer needed, the DISTRICT will remove all Project Works constructed pursuant to this agreement and on the request of PELLSMERE within 180 days of the request, return PELLSMERE land to pre-project condition.

6. PELLSMERE will not pay the DISTRICT any monies for the project nor the DISTRICT any monies to PELLSMERE.

7. PELLSMERE by this agreement grants a license to the DISTRICT to this use of its lands only for the purposes stated in this agreement. PELLSMERE retains all right, title and interest in its land and this agreement in no way conveys interest in land to the DISTRICT.

A. A modification of the Fellsmere Canal Erosion Control Structure (Fellsmere Weir), subject to FELLSMERE's engineer approval as to detail design, approval for operation following construction, and operating schedule, which when so approved, shall be made a part of and incorporated into this agreement.

B. One pump station in FELLSMERE's main canal at a site (located) immediately east of Interstate Highway 95 together with necessary appurtenances, all subject to FELLSMERE's engineer approval as to detail design; approval for operation following construction, and operation schedule which when so approved, to be made a part of and incorporated into this agreement.

2. FELLSMERE agrees to allow the DISTRICT the use of those lands necessary for construction and operation of the above described Project Works.

3. FELLSMERE agrees to allow access to the above described Project Works by DISTRICT personnel or such other persons as authorized by the DISTRICT in connection with this project.

4. The DISTRICT agrees to hold FELLSMERE harmless from any and all liability, harm, damage, injury, or related claims resulting from any activity authorized in paragraphs 1, 2, and 3 above.

5. At such time that the DISTRICT decides the project is no longer needed, the DISTRICT will remove all Project Works constructed pursuant to this agreement and on the request of FELLSMERE within 180 days of the request, return FELLSMERE land to pre-project condition.

6. FELLSMERE will not pay the DISTRICT any monies for the project nor the DISTRICT any monies to FELLSMERE.

7. FELLSMERE by this agreement grants a license to the DISTRICT to this use of its lands only for the purposes stated in this agreement. FELLSMERE retains all right, title and interest in its land and this agreement in no way conveys interest in land to the DISTRICT.

A. A modification of the Pellsmere Canal Erosion Control Structure (Pellsmere Weir), subject to PELLSMERE's engineer approval as to detail design, approval for operation following construction, and operating schedule, which when so approved, shall be made a part of and incorporated into this agreement.

B. One pump station in PELLSMERE's main canal at a site (located) immediately east of Interstate Highway 95 together with necessary appurtenances, all subject to PELLSMERE's engineer approval as to detail design; approval for operation following construction, and operation schedule which when so approved, to be made a part of and incorporated into this agreement.

2. PELLSMERE agrees to allow the DISTRICT the use of those lands necessary for construction and operation of the above described Project Works.

3. PELLSMERE agrees to allow access to the above described Project Works by DISTRICT personnel or such other persons as authorized by the DISTRICT in connection with this project.

4. The DISTRICT agrees to hold PELLSMERE harmless from any and all liability, harm, damage, injury, or related claims resulting from any activity authorized in paragraphs 1, 2, and 3 above.

5. At such time that the DISTRICT decides the project is no longer needed, the DISTRICT will remove all Project Works constructed pursuant to this agreement and on the request of PELLSMERE within 180 days of the request, return PELLSMERE land to pre-project condition.

6. PELLSMERE will not pay the DISTRICT any monies for the project nor the DISTRICT any monies to PELLSMERE.

7. PELLSMERE by this agreement grants a license to the DISTRICT to this use of its lands only for the purposes stated in this agreement. PELLSMERE retains all right, title and interest in its land and this agreement in no way conveys interest in land to the DISTRICT.

8. The DISTRICT agrees to be solely responsible for obtaining any and all governmental authorization for permits that may be necessary for the construction and operation of the above described Project Works.

9. The DISTRICT shall have 30 days to correct any harm it is causing to lands or works of FELLSMERE or a landowner within FELLSMERE. If the DISTRICT is unable to correct the harm within 30 days, at the option of FELLSMERE, the DISTRICT shall remove its project works. If an amendment to the FELLSMERE plan of reclamation is necessitated by the project works installed by the DISTRICT, the DISTRICT shall have the option, with the concurrence of the Board of Supervisors of Fellsmere, to sponsor proceedings to amend the Plan of Reclamation. Notwithstanding any other provisions in this Agreement, the DISTRICT shall remove its works after a one (1) year written notice from FELLSMERE.

10. FELLSMERE shall have the authority to open the weir if the stage in the FELLSMERE canal upstream of the weir equals or exceeds a level which endangers life or property, and after notification of the DISTRICT. Thereafter, the DISTRICT will resume control of the weir.

IN WITNESS THEREOF, the parties do hereby execute this Agreement.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

FRANCES S. PIGNONE, CHAIRMAN

ATTEST

LYNNE C. CAPEHART, SECRETARY

FELLSMERE WATER CONTROL DISTRICT

RAYMOND E. JOHNS, CHAIRMAN
BOARD OF SUPERVISORS

DATE: May 17, 1983

ATTEST:

Inez C. Hale, Secretary

LEGAL FORM AND CONTENT APPROVED BY

E. LEE WORSHAM, STAFF ATTORNEY
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

IN WITNESS THEREOF, the parties do hereby execute this Agreement.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

FRANCES S. PIGNONE, CHAIRMAN

ATTEST

LYNNE C. CAPEHART, SECRETARY

FELLSMERE WATER CONTROL DISTRICT

RAYMOND E. JOHNS, CHAIRMAN
BOARD OF SUPERVISORS

DATE: May 17, 1983

ATTEST:

Inez C. Hale, Secretary

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ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

IN WITNESS THEREOF, the parties do hereby execute this Agreement.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

FRANCES S. PIGNONE, CHAIRMAN

ATTEST

LYNNE C. CAPEHART, SECRETARY

FELLSMERE WATER CONTROL DISTRICT

RAYMOND E. JOHNS, CHAIRMAN
BOARD OF SUPERVISORS

DATE: May 17, 1983

ATTEST:

Inez C. Hale, Secretary

LEGAL FORM AND CONTENT APPROVED BY

E. LEE WORSHAM, STAFF ATTORNEY
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

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