LITTLE RIVER
LAMPREY RIVER WATERSHED
NEW HAMPSHIRE

MENDUMS POND DAM-BREAK FLOOD ANALYSIS

SEPTEMBER 1984

US Army Corps
of Engineers
New England Division

MENDUMS POND DAM

DAM-BREAK FLOOD

ANALYSIS

SUBMITTED TO:

DEPARTMENT OF THE ARMY

NEW ENGLAND DIVISION

WALTHAM, MASSACHUSETTS

SUBMITTED BY:

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MENDUMS POND DAM

DAM-BREAK FLOOD ANALYSIS

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MENDUMS POND DAM

DAM-BREAK FLOOD ANALYSIS

1. INTRODUCTION AND PURPOSE

This report presents the findings of a dam-break flood analysis performed for Mendums Pond Dam. The dam is owned, operated, and maintained by the New Hampshire Water Resource Board. Included in the report are a description of pertinent features of the dam, the procedure used for the analysis, the assumed dam-break conditions, and the resulting effect on downstream flooded areas. This study was not performed because of any known likelihood of a dam-break at Mendums Pond Dam. Its purpose is to provide quantitative information for emergency planning use.

2. DAM DESCRIPTION

Identification No:	NH00133
Name of Dam:	Mendums Pond Dam
Town:	Nottingham
County and State:	Rockingham, New Hampshire
Stream:	Little River

Mendums Pond Dam is 31 feet high, averages about 36 feet wide, and is 440 feet long. It is an earthen embankment placed between vertical dry masonry walls, spans the upper reach of the Little River, and is located in east central New Hampshire.

3. PERTINENT DATA

Data is taken from "Phase I Inspection Report" for Mendums Pond Dam dated August 1978.

a. Drainage Area The drainage area consists of 5.4 square miles (3,456 acres) of gently to steeply sloping wooded terrain.

b. Discharge at Damsite

(1) Outlet works (ports) - One lower gate, 2' H x 4' W and Invert Elevation 195' MSL; 2 upper gates, 1.8' H x 1.5' W and Invert Elevation 209' MSL. Total gate capacity at spillway crest - 300 cfs @ 219' MSL.

(2) Spillway capacity at maximum pool elevation - 1010 cfs @ 224.3' MSL.

c. Elevation (ft. above MSL) (Elevations are relative to assumed spillway elevation; see (5) below).

(1) Top of dam - the crest varies from 224.3 to 226.4

(2) Test flood pool - 226.3

(3) Recreation pool - 219

(4) Spillway crest - 219

(5) Upstream invert low-level port - 195

(6) Streambed at centerline of main dam - 195

d. Reservoir (miles)

(1) Length of maximum pool - 1.5

(2) Length of recreational pool - 1.5

e. Storage (acre-feet)

(1) Recreational pool - 1,960 (spillway crest)

(2) Top of dam - 3,300

f. Reservoir Surface (acres)

(1) Top of dam (embankment) - 310

(2) Recreation pool - 209

(3) Spillway crest - 209

g. Dam

(1) Type - earthen embankment placed between upstream and downstream vertical dry masonry walls.

(2) Length - 440'

(3) Height - 31' (structural height)

(4) Top width - ranges from 24' to 49'

(5) Side slopes - vertical

h. Spillway

(1) Type - Overflow concrete weir, 2 ' high, with a crest width of 1-1/2'

(2) Length of weir - 25'

(3) Crest elevation - 219' MSL

(4) Gates - None

(5) U/S Channel - Mendums Pond

(6) D/S Channel - The downstream channel is cut in bedrock with a shallow depth of sand, gravel, and boulders on the bottom.

j. Regulating Outlets - Three wooden gates are located over ports in the upstream face of the wall of the control shaft.

4. VALLEY DESCRIPTION

Mendums Pond Dam spans the headwaters of Little River which flows southeasterly for a distance of 7.8 miles to its confluence with the Lamprey River. The river valley is heavily wooded and has a moderate to steep slope of 13 feet/mile. No significant population center is located in the study search.

5. MODEL DESCRIPTION

Mendums Pond dam-break analysis was made using the HEC version, dated November 1981, of the "National Weather Service Dam-Break Flood Forecasting Computer Model", developed by D.L. Fread, Research Hydrologist, Office of Hydrology, National Weather Service, NOAA, Silver Spring, MD 20910. Input for the model consisted of: (a) storage characteristics of the reservoir, (b) selected geometry and duration of the breach development, (c) hydraulic inflows, (d) hydraulic roughness coefficients, and (e) active and inactive flow regions. Based on the input data, the model computes the dam-break outlow hydrograph and routes it downstream. The analysis provides output on the attenuation of the flood stages, and timing of the

flood wave as it progresses downstream.

6. ASSUMED DAM BREAK CONDITIONS

General: The magnitude of a flood resulting from the hypothetical failure of Mendums Pond Dam is a function of many different parameters, including size of breach, initial pool level and storage, rate of breach formation, channel and over bank roughness, and antecedent flow conditions. Engineering assumptions of conditions which could be reasonably expected to exist prior to a failure of Goose Pond Dam and used in the analysis are presented below:

a. Initial Pool Level 223 feet NGVD, 4.0 feet above top of flashboards

b. Reservoir Inflow Estimated flood of record = 675 cfs

c. Breach Invert 195.0 feet NGVD

d. Breach Base Width 90 feet, trapezoidal side slopes 1V: 0.5H

e. Time to Complete Formation of Breach 1 hour

f. Downstream Channel Roughness Manning's "n" = .040 to .140

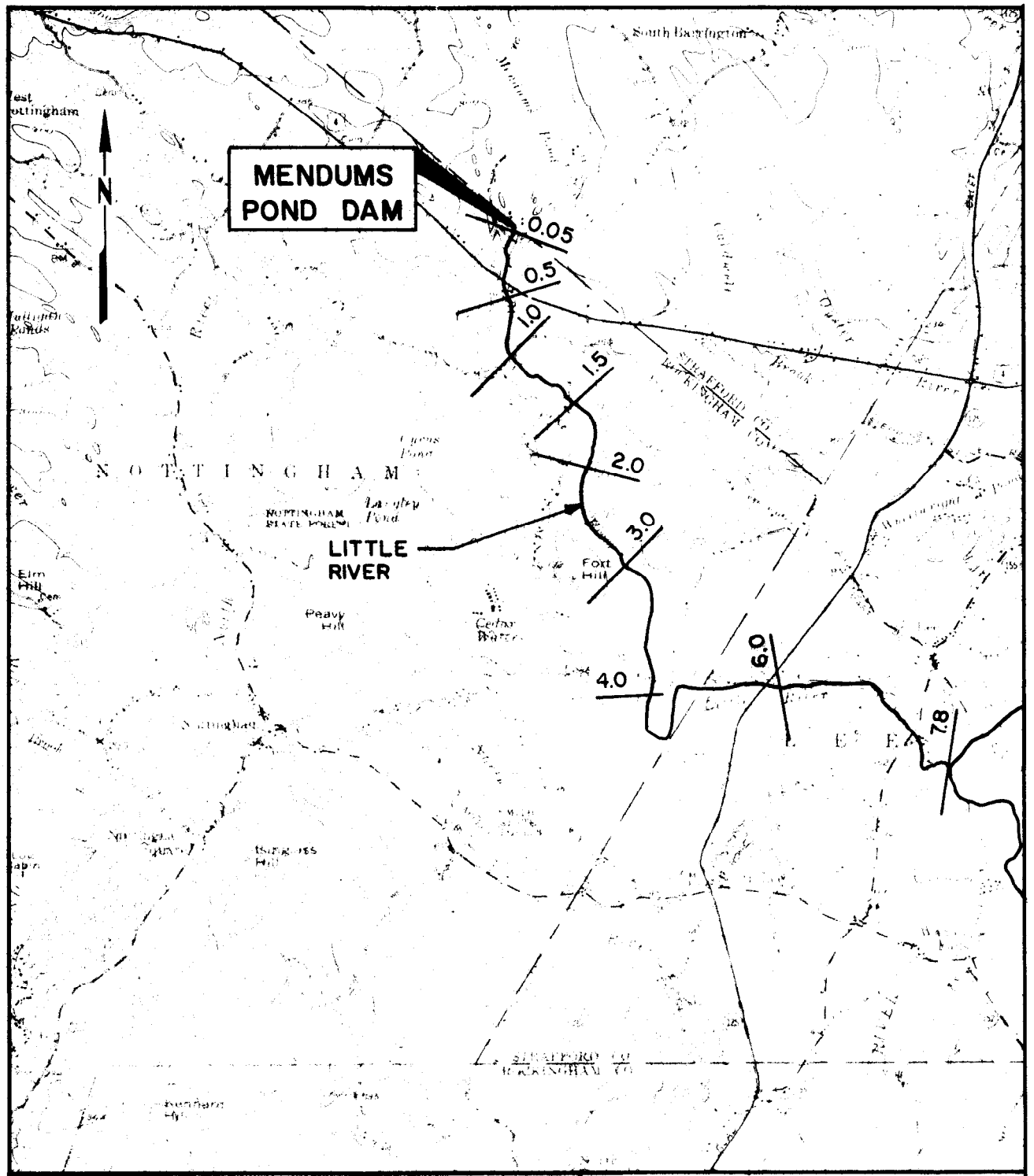
g. Pre-Breach River Flows The pre-breach river flow was assumed equal to the flood of record which was estimated by using a cfs/square miles value based upon similar drainage area. Inflow to Mendums Pond was 675 cfs.

7. RESULTS

The resulting peak stage flood profiles are shown on plate 2 and 3. Because of the scarcity of good topographic mapping in the area, profiles are shown in feet above normal summertime (July-August) low water (NLW). Users of the information can establish depth of flooding at particular properties by establishing its relative elevation with respect to the adjacent stream level. Variations in depth above NLW progressing downstream is attributable to changes in natural stream hydraulic capacity, as well as changes in peak discharge.

The peak dam-break discharge from Mendums Pond Dam is 35,650 cfs producing a rise of approximately 20.0 feet above the NLW river depth at a point .05 miles downstream from the dam. At a distance of 6.0 miles below the dam, peak discharge is 21,950 cfs and the rise over NLW stage would be about 14.3 feet. Peak discharge, stage, and timing for three stations downstream from Mendums Pond Dam are shown on plate 4. The stations are located .05, 1.5, and 6.0 miles downstream of the dam.

The input data file is in Appendix A, while Appendix B contains the output file.



MAP BASED UPON U.S.G.S
MT. PAWTUCKAWAY, N.H. QUADRANGLE
1957

CROSS-SECTION LOCATION IN
MILES BELOW DAM

SCALE IN MILES

1 0 1

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MENDUMS POND DAM

DAM BREAK FLOOD ANALYSIS

INDEX MAP

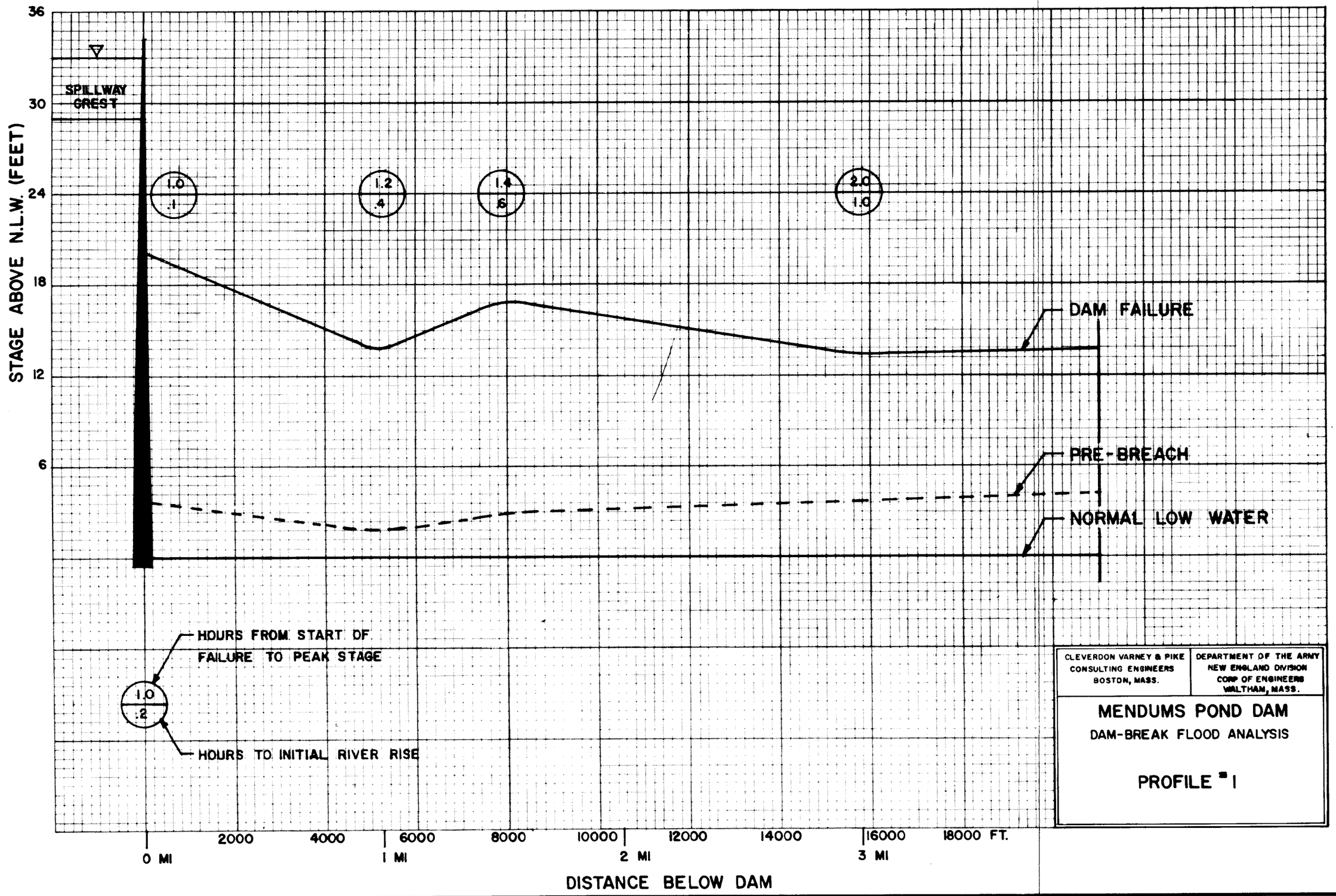
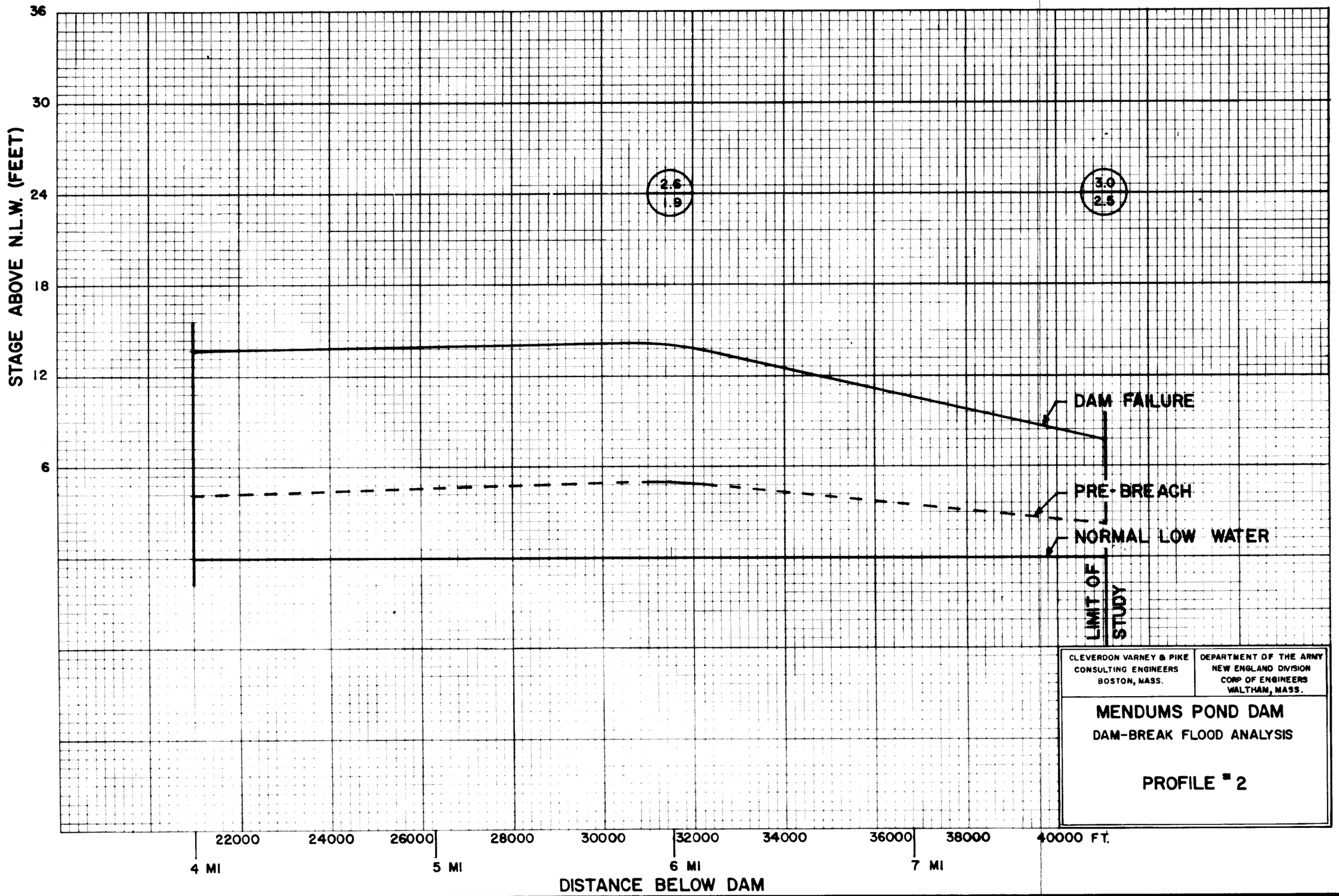

36
30
24
18
12
6
STAGE ABOVE N.L.W. (FEET)
SPILLWAY CREST
1.0
.1
1.2
.4
1.4
.6
2.0
1.0
DAM FAILURE
PRE-BREACH
NORMAL LOW WATER
HOURS FROM START OF FAILURE TO PEAK STAGE
1.0
.2
HOURS TO INITIAL RIVER RISE
2000
4000
6000
8000
10000
12000
14000
16000
18000 FT.
0 MI
1 MI
2 MI
3 MI
DISTANCE BELOW DAM
CLEVERDON VARNEY & PIKE
CONSULTING ENGINEERS
BOSTON, MASS.
DEPARTMENT OF THE ARMY
NEW ENGLAND DIVISION
CORP OF ENGINEERS
WALTHAM, MASS.
MENDUMS POND DAM
DAM-BREAK FLOOD ANALYSIS
PROFILE # 1

PLATE 2



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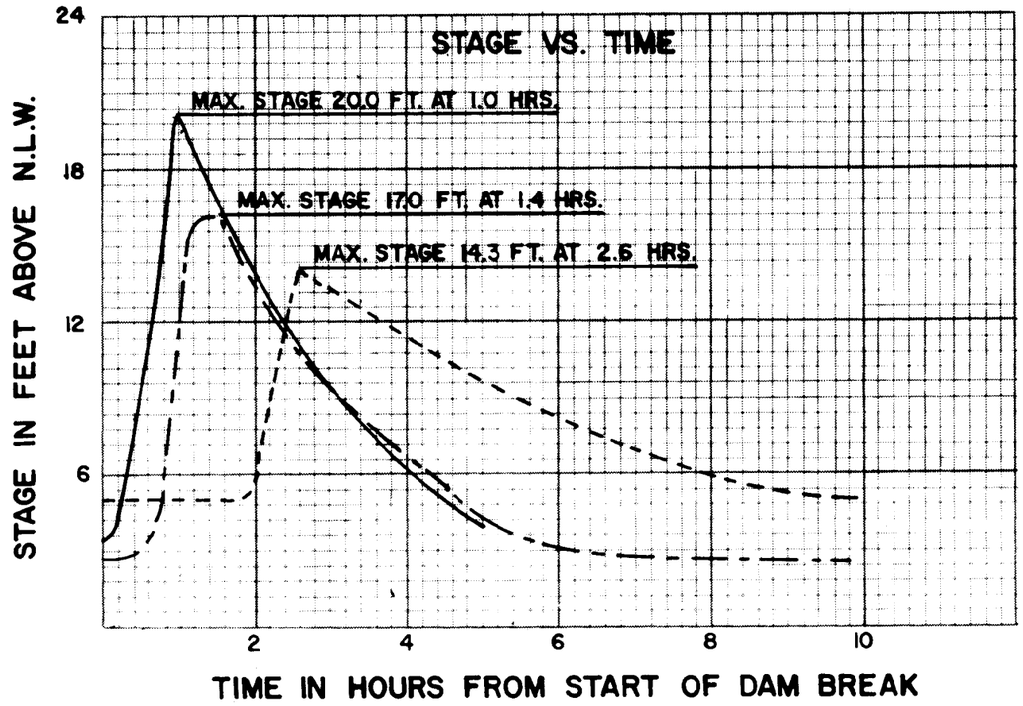
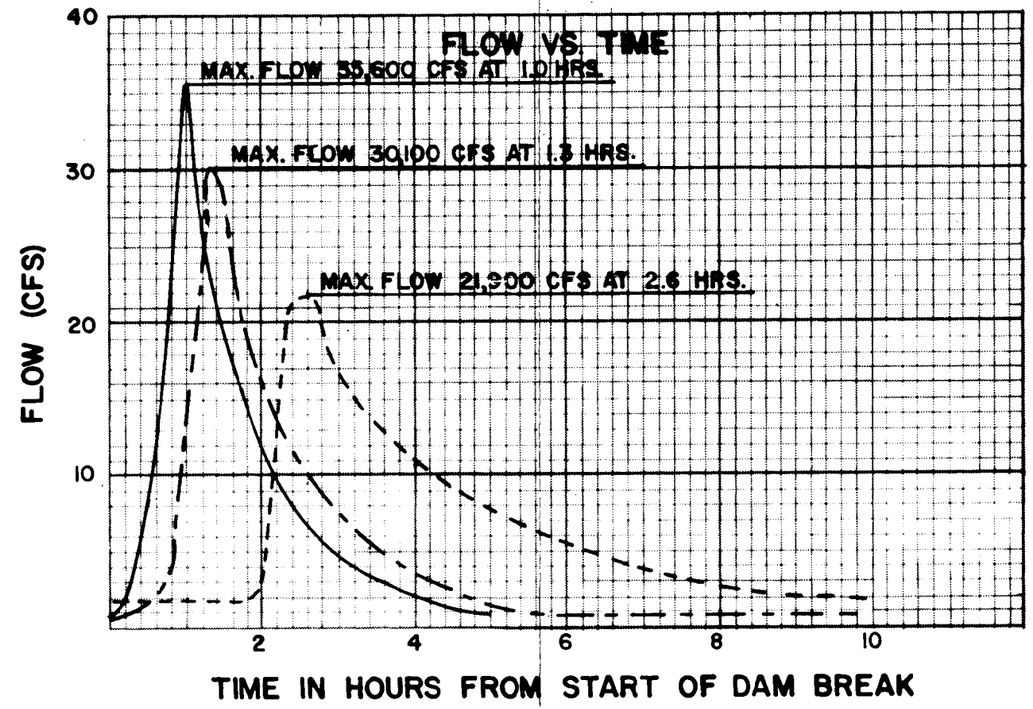
WALTHAM, MASS.

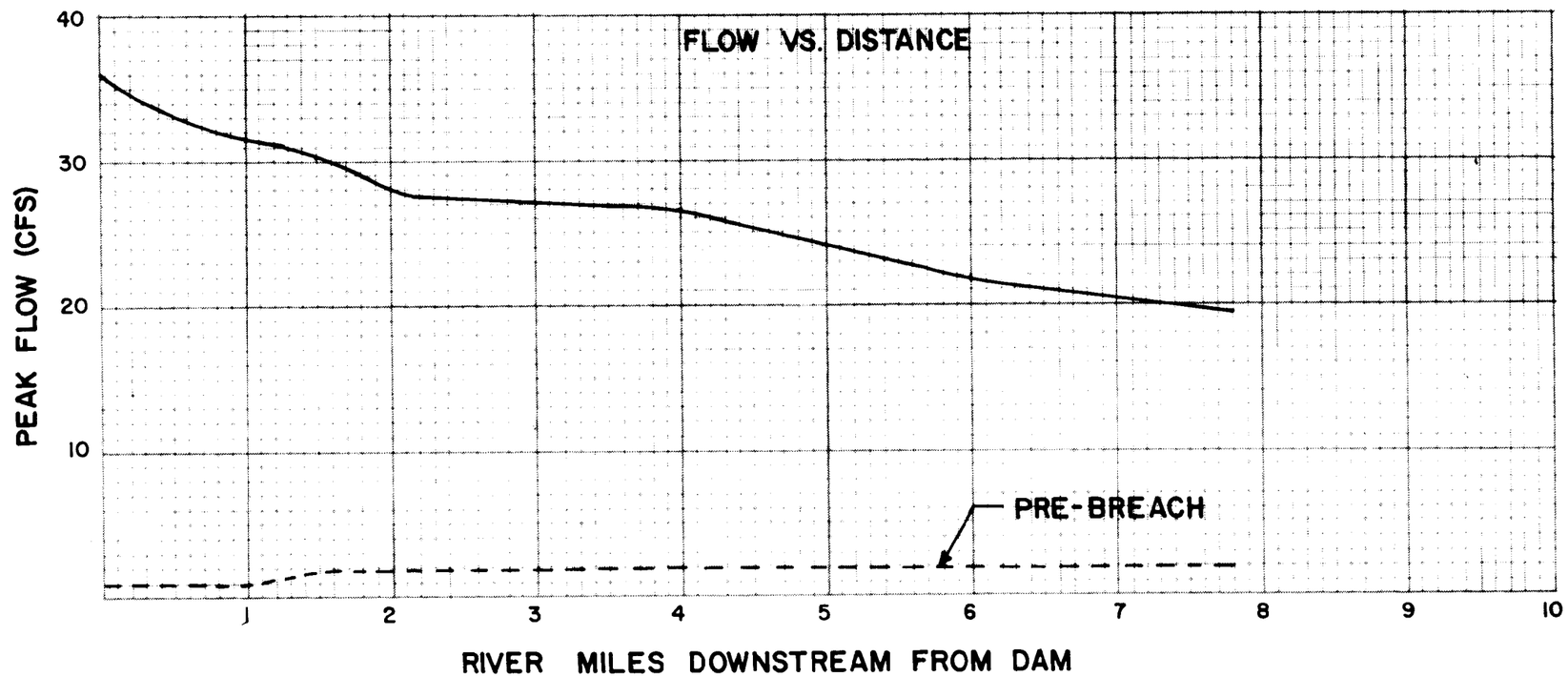
MENDUMS POND DAM

DAM-BREAK FLOOD ANALYSIS

PROFILE # 2







NLW DATUM (FT. NGVD)

STA. 1 RM. 0.05 = 190 ———
STA. 2 RM. 1.50 = 157 —·—
STA. 3 RM. 6.00 = 111 - - - - -

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MENDUMS POND DAM

DAM-BREAK FLOOD ANALYSIS

BASE FLOOD DISCHARGES STAGES & TIMING

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*HECFORMAT
*ECHO
*FORMATTED
*10FIELDS
*COMPOSITE
ID MENDUMS POND DAM
ID MENDUMS POND
ID G. MERCER
ID C.V.&P ENGS.
ID BOSTON,MA
IO      1       10       10
IP      3        1
QI    675
SN MENDUMS POND
SE 224.3      219      195
SA    310      209       50
DN MENDUMS DAM
DD 224.3      219        0      223       10      .06      195
DB      1      223       90      195       .5
DO      0      100        0       10
RN REACH 1
RG      1        3        4        6        8        9
RC    0.0        0      0.0      0.0
XI   0.05                                                  .20
XE    189      197      205      212      219      226      233      240
XC     20      200      515      614      742      806      869      933
XO      0      174        0        0        0        0        0        0
NC   .045     .060     .070     .080     .090     .100     .110     .120
XI    0.5                                                 0.20
XE    183      192      200      208      216      224      232      240
XC     30      200      680     1032     1384     1872     1800     2400
XO      0      174        0        0        0        0      696      720
NC   .045     .060     .070     .080     .090     .100     .110     .120
XI    1.0                                                 0.30
XE    175      181      188      194      201      207      214      220
XC     30      282      429      577      725      883     1041     1200
NC   .045     .060     .070     .080     .090     .100     .110     .120
XI    1.5                                                 0.20
XE    156      163      170      176      182      188      194      200
XC     28      295      680     1037     1323     1449     1527     1571
NC   .045     .060     .070     .080     .090     .100     .110     .120
XI    2.0                                                 0.15
XE    151      158      165      172      179      186      193      200
XC     50      333      610      885     1160     1260     1330     1400
NC   .045     .060     .070     .080     .090     .100     .110     .120
QN    2.0              LOCAL  INFLOW
QL   1125
XI    3.0                                                 0.15
XE    143      152      160      168      176      184      192      200
XC     30      510      937     1186     1435     1664     1872     2080
NC   .035     .045     .050     .060     .070     .080     .090     .100
XI    4.0                                                 0.20
XE    135      141      148      154      161      167      174      180
XC     30      237      702      878     1081     1621     2160     2700
XO      0      300        0        0        0        0        0        0
```

NC	.035	.045	.050	.060	.070	.080	.090	.100
XI	6.0						0.25	
XE	111	118	125	132	139	146	153	160
XC	10	135	443	567	616	756	780	804
NC	.035	.045	.050	.060	.070	.080	.090	.100
XI	7.8							
XE	75	81	88	94	101	107	114	120
XC	50	500	900	1200	1300	1500	1600	1700
XO	0	588	577	512	612	728	940	900
NC	.035	.045	.050	.060	.070	.080	.090	.100
ZZ								

CM	...	.035	.045	.050	.060	.070	.080	.090	.100

SECT NO.	XS(I)	RIVRMI	FSTG(I)	XSL(I)	XSR(I)	YD(I)	DXM(I)	FKC(I)
9	7.8						1000000	
HS	...	75	81	88	94	101	107	114	120
BS	...	50	500	900	1200	1300	1500	1600	1700
BSS	...	0	588	577	512	612	726	940	900

PROGRAM DAMBRK---VERSION-A-01/30/82

ANALYSIS OF THE DOWNSTREAM FLOOD HYDROGRAPH

PRODUCED BY THE DAM BREAK OF

MENDUMS POND DAM

ON

MENDUMS POND

ANALYSIS BY

G. MERCER
C.V.&F ENGS.
BOSTON,MA

BASED ON PROCEDURE DEVELOPED BY

DANNY L. FREAD, PH.D., RESEARCH HYDROLOGIST
HYDROLOGIC RESEARCH LABORATORY
W23, OFFICE OF HYDROLOGY
NOAA, NATIONAL WEATHER SERVICE
SILVER SPRING, MARYLAND 20910

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***                       ***
***  SUMMARY OF INPUT DATA  ***
***                       ***
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```

INPUT CONTROL PARAMETERS FOR MENDUMS POND DAM

PARAMETER	VARIABLE	VALUE
NUMBER OF DYNAMIC ROUTING REACHES	KKN	1
TYPE OF RESERVOIR ROUTING	KUI	0
MULTIPLE DAM INDICATOR	MULDAM	0
PRINTING INSTRUCTIONS FOR INPUT SUMMARY	KDMP	3
NO. OF RESERVOIR INFLOW HYDROGRAPH POINTS	ITEH	1
INTERVAL OF CROSS-SECTION INFO PRINTED OUT WHEN JN.LE.5	NPRT	0
FLOOD-PLAIN MODEL PARAMETER	KFLP	0
LANDSLIDE PARAMETER	KSL	0

MENDUMS POND DAM RESERVOIR

TABLE OF ELEVATION VS SURFACE AREA

SURFACE AREA (ACRES) SA(K),	ELEVATION (FT) HSA(K)
310.0	224.30
170.0	219.00
50.0	195.00
0.0	0.00
0.0	0.00
0.0	0.00

0.0 0.00

MENDUMS POND DAM RESERVOIR AND BREACH PARAMETERS

PARAMETER	UNITS	VARIABLE	VALUE
LENGTH OF RESERVOIR	MI	RLM	0.00
ELEVATION OF WATER SURFACE	FT	YO	223.00
SIDE SLOPE OF BREACH		Z	.50
ELEVATION OF BOTTOM OF BREACH	FT	YBMIN	195.00
WIDTH OF BASE OF BREACH	FT	BB	90.00
TIME TO MAXIMUM BREACH SIZE	HR	TFH	1.00
ELEVATION (MSL) OF BOTTOM OF DAM	FT	DATUM	195.00
VOLUME-SURFACE AREA PARAMETER		VOL	0.00
ELEVATION OF WATER WHEN BREACHED	FT	HF	223.00
ELEVATION OF TOP OF DAM	FT	HD	224.30
ELEVATION OF UNCONTROLLED SPILLWAY CREST	FT	HSP	219.00
ELEVATION OF CENTER OF GATE OPENINGS	FT	HGT	0.00
DISCHARGE COEF. FOR UNCONTROLLED SPILLWAY		CS	100.00
DISCHARGE COEF. FOR GATE FLOW		CG	0.00
DISCHARGE COEF. FOR UNCONTROLLED WEIR FLOW		CDW	0.00
DISCHARGE THRU TURBINES	CFS	QT	0.00

DHF(INTERVAL BETWEEN INPUT HYDROGRAPH ORDINATES) = 10.00 HRS.

TEH(TIME AT WHICH COMPUTATIONS TERMINATE) = 10.0000 HRS.

INFLOW HYDROGRAPH TO MENDUMS POND DAM

675.00

TIME OF INFLOW HYDROGRAPH ORDINATES

0.0000

1

CROSS-SECTIONAL PARAMETERS FOR MENDUMS POND
BELOW MENDUMS POND DAM

PARAMETER	VARIABLE	VALUE
NUMBER OF CROSS-SECTIONS	NS	9
MAXIMUM NUMBER OF TOP WIDTHS	NCS	8
NUMBER OF CROSS-SECTIONAL HYDROGRAPHS TO PLOT	NTT	6
TYPE OF OUTPUT OTHER THAN HYDROGRAPH PLOTS	JNK	1
CROSS-SECTIONAL SMOOTHING PARAMETER	KSA	0
DOWNSTREAM SUPERCRITICAL OR NOT	KSUPC	0
NO. OF LATERAL INFLOW HYDROGRAPHS	LQ	1
NO. OF POINTS IN GATE CONTROL CURVE	KCG	0

NUMBER OF CROSS-SECTION WHERE HYDROGRAPH DESIRED
(MAX NUMBER OF HYDROGRAPHS = 6)

1 3 4 6 8 9

CROSS-SECTIONAL VARIABLES FOR MENDUMS POND
BELOW MENDUMS POND DAM

PARAMETER	UNITS	VARIABLE
LOCATION OF CROSS-SECTION	MI	XS(I)
ELEVATION (MSL) OF FLOODING AT CROSS-SECTION	FT	FSTG(I)
ELEV CORRESPONDING TO EACH TOP WIDTH	FT	HS(K,I)

(ACTIVE FLOW PORTION)
TOP WIDTH CORRESPONDING TO EACH ELEV FT BSS(K,I)
(OFF-CHANNEL PORTION)

SURFACE AREA CORRESPONDING TO EACH ELEV ACRES DSA(K,I)
(ACTIVE FLOW PORTION)
SURFACE AREA CORRESPONDING TO EACH ELEV ACRES SSA(K,I)
(OFF-CHANNEL PORTION)

NUMBER OF CROSS-SECTION I
NUMBER OF ELEVATION LEVEL K

CROSS-SECTION NUMBER 1
****

XS(I) = .050 FSTG(I) = 0.00 XSL(I) = 0.0 XSR(I) = 0.0

HS ...	189.0	197.0	205.0	212.0	219.0	226.0	233.0	240.0
BS ...	20.0	200.0	515.0	614.0	741.0	806.0	869.0	933.0
BSS ...	0.0	174.0	0.0	0.0	0.0	0.0	0.0	0.0

CROSS-SECTION NUMBER 2
****

XS(I) = .500 FSTG(I) = 0.00 XSL(I) = 0.0 XSR(I) = 0.0

HS ...	183.0	191.0	200.0	208.0	216.0	224.0	232.0	240.0
BS ...	30.0	200.0	680.0	1031.0	1384.0	1872.0	1800.0	2400.0
BSS ...	0.0	174.0	0.0	0.0	0.0	0.0	696.0	720.0

CROSS-SECTION NUMBER 3
****

XS(I) = 1.000 FSTG(I) = 0.00 XSL(I) = 0.0 XSR(I) = 0.0

HS ...	175.0	181.0	188.0	194.0	201.0	207.0	214.0	220.0
BS ...	30.0	282.0	429.0	577.0	725.0	883.0	1041.0	1200.0

CROSS-SECTION NUMBER 4
****

XS(I) = 1.500 FSTG(I) = 0.00 XSL(I) = 0.0 XSR(I) = 0.0

HS ...	156.0	163.0	170.0	176.0	182.0	188.0	194.0	200.0
BS ...	28.0	295.0	680.0	1037.0	1323.0	1449.0	1527.0	1571.0
BSS ...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CROSS-SECTION NUMBER 5
****

XS(I) = 2.000 FSTG(I) = 0.00 XSL(I) = 0.0 XSR(I) = 0.0

HS ...	151.0	158.0	165.0	172.0	179.0	186.0	193.0	200.0
BS ...	50.0	333.0	610.0	885.0	1160.0	1260.0	1330.0	1400.0
BSS ...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CROSS-SECTION NUMBER 6
****

XS(I) = 3.000 FSTG(I) = 0.00 XSL(I) = 0.0 XSR(I) = 0.0

HS ...	143.0	152.0	160.0	168.0	176.0	184.0	192.0	200.0
BS ...	30.0	510.0	937.0	1186.0	1435.0	1664.0	1872.0	2080.0
BSS ...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CROSS-SECTION NUMBER 7
****

XS(I) = 4.000 FSTG(I) = 0.00 XSL(I) = 0.0 XSR(I) = 0.0

HS ...	135.0	141.0	148.0	154.0	161.0	167.0	174.0	180.0
BS ...	30.0	237.0	702.0	876.0	1081.0	1621.0	2160.0	2700.0
BSS ...	0.0	300.0	0.0	0.0	0.0	0.0	0.0	0.0

CROSS-SECTION NUMBER 8
****

XS(I) = 6.000 FSTG(I) = 0.00 XSL(I) = 0.0 XSR(I) = 0.0

HS ...	111.0	118.0	125.0	132.0	139.0	146.0	153.0	160.0
BS ...	10.0	135.0	443.0	567.0	616.0	756.0	780.0	804.0
BSS ...	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

CROSS-SECTION NUMBER 9
****

XS(I) = 7.800 FSTG(I) = 0.00 XSL(I) = 0.0 XSR(I) = 0.0

HS ...	75.0	81.0	88.0	94.0	101.0	107.0	114.0	120.0
BS ...	50.0	500.0	900.0	1200.0	1300.0	1500.0	1600.0	1700.0
BSS ...	0.0	588.0	577.0	512.0	612.0	728.0	940.0	900.0

MANNING N ROUGHNESS COEFFICIENTS FOR THE GIVEN REACHES
(CM(K,I),K=1,NCS) WHERE I = REACH NUMBER
****

REACH 1 ...	.045	.060	.070	.080	.090	.100	.110	.120
REACH 2 ...	.045	.060	.070	.080	.090	.100	.110	.120
REACH 3 ...	.045	.060	.070	.080	.090	.100	.110	.120

REACH 4 ...	.045	.060	.070	.080	.090	.100	.110	.120
REACH 5 ...	.045	.060	.070	.080	.090	.100	.110	.120
REACH 6 ...	.035	.045	.050	.060	.070	.080	.090	.100
REACH 7 ...	.035	.045	.050	.060	.070	.080	.090	.100
REACH 8 ...	.035	.045	.050	.060	.070	.080	.090	.100

CROSS-SECTIONAL VARIABLES FOR MENDUMS POND
BELOW MENDUMS POND DAM

PARAMETER	UNITS	VARIABLE
MINIMUM COMPUTATIONAL DISTANCE USED BETWEEN CROSS-SECTIONS	MI	DXM(I)
CONTRACTION - EXPANSION COEFFICIENTS BETWEEN CROSS-SECTIONS		FKC(I)

REACH NUMBER	DXM(I)	FKC(I)
1	.100	0.000
2	.100	0.000
3	.100	0.000
4	.100	0.000
5	.100	0.000
6	.150	0.000
7	.200	0.000
8	.250	0.000

DOWNSTREAM FLOW PARAMETERS FOR MENDUMS POND
BELOW MENDUMS POND DAM

PARAMETER	UNITS	VARIABLE	VALUE
MAX DISCHARGE AT DOWNSTREAM EXTREMITY	CFS	QMAXD	0.0
MAX LATERAL OUTFLOW PRODUCING LOSSES	CFS/FT	QLL	0.000
INITIAL SIZE OF TIME STEP	HR	DTHM	0.0000
INITIAL WATER SURFACE ELEVATION DOWNSTREAM	FT	YDN	0.00
SLOPE OF CHANNEL DOWNSTREAM OF DAM	FT/MI	SOM	10.00
THETA WEIGHTING FACTOR		THETA	0.00
CONVERGENCE CRITERION FOR STAGE	FT	EPSY	0.000
TIME AT WHICH DAM STARTS TO FAIL	HR	TFI	0.00

LATERAL INFLOW REACH NUMBER

LQX(I)

5

(QL(L, I),L=1,ITER)
1125.

1

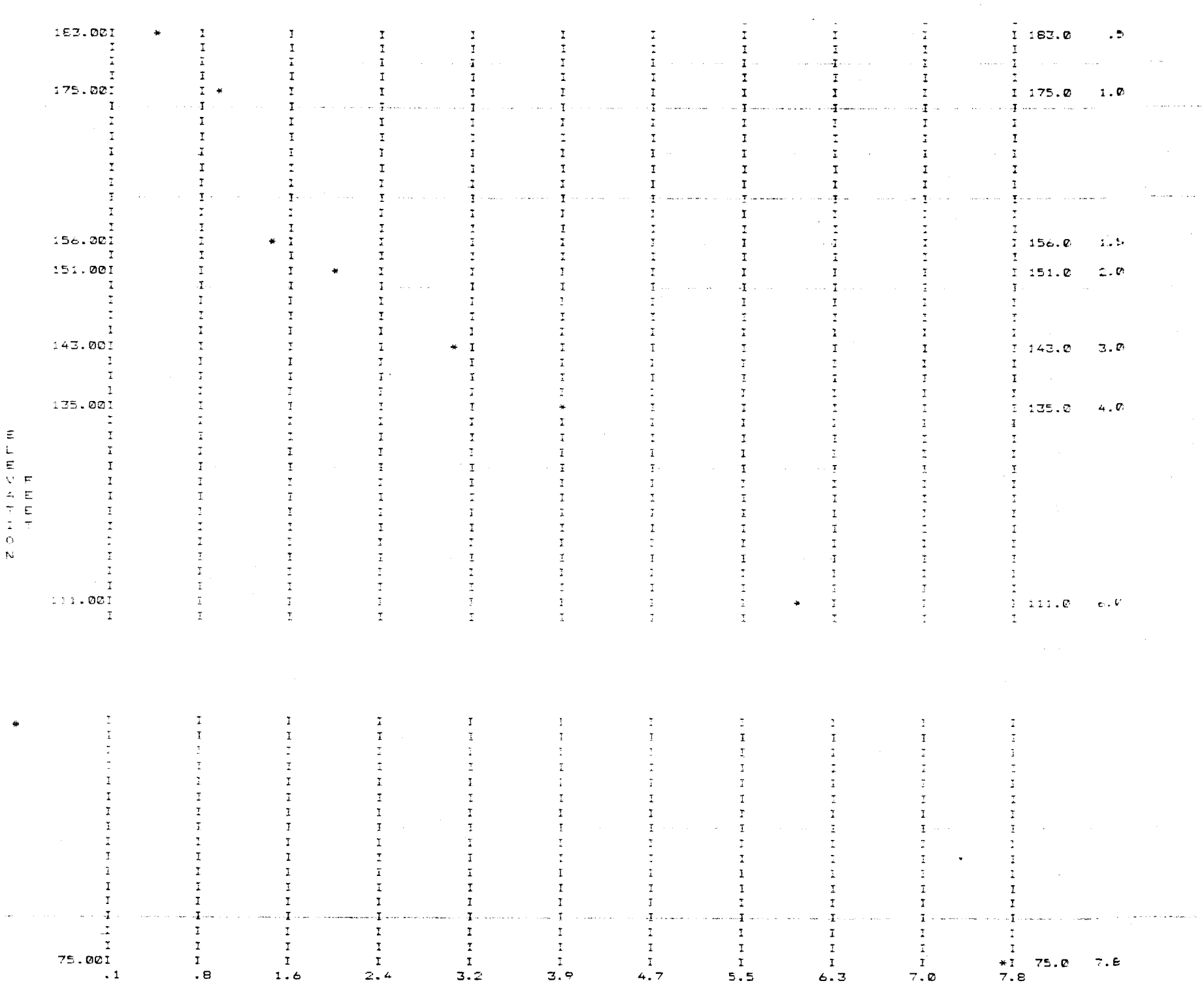
SUMMARY OF OUTPUT DATA

1

SLOPE PROFILE

	MILES											ELEV FEET	MILE
	.1	.8	1.6	2.4	3.2	3.9	4.7	5.5	6.3	7.0	7.8		
0													
189.00	*	I	I	I	I	I	I	I	I	I	I	189.0	.1
	I	I	I	I	I	I	I	I	I	I	I		

C104728


183.00
175.00
156.00
151.00
143.00
135.00
111.00
75.00
.1
.8
1.6
2.4
3.2
3.9
4.7
5.5
6.3
7.0
7.8
183.0 .5
175.0 1.0
156.0 1.5
151.0 2.0
143.0 3.0
135.0 4.0
111.0 6.0
75.0 7.8

CROSS-SECTION NO.	MILE	BOTTOM ELEVATION FEET	REACH NO.	REACH LENGTH MILES	SLOPE FT/MI	MESAGE
1	.05	189.00				
2	.50	183.00	1	.45	13.33	
3	1.00	175.00	2	.50	16.00	
4	1.50	156.00	3	.50	38.00	
5	2.00	151.00	4	.50	10.00	
6	3.00	143.00	5	1.00	8.00	
7	4.00	135.00	6	1.00	8.00	
8	6.00	111.00	7	2.00	12.00	
9	7.80	75.00	8	1.80	20.00	

TOTAL NUMBER OF CROSS SECTIONS (ORIGINAL+INTERPOLATED) (N) = 53 (MAXIMUM ALLOWABLE = 200

TOTAL VOLUME IN RESERVOIR BEHIND
MENDUMS POND DAM = 3531.3 ACRE-FEET

DEFINITION OF VARIABLES IN RESERVOIR DEPLETION TABLE

PARAMETER	UNITS	VARIABLE
TIME STEP FROM START OF ANALYSIS		I
ITERATIONS NECESSARY TO SOLVE FLOW EQUATIONS		K
ELAPSED TIME FROM START OF ANALYSIS	HRS	TTP(I)
TOTAL OUTFLOW FROM DAM	CFS	Q(I)
ELEVATION OF WATER SURFACE AT DAM	FT	H2
ELEVATION OF BOTTOM OF BREACH	FT	YB
EST DEPTH OF FLOW IMMEDIATELY DOWNSTREAM	FT	D
SUBMERGENCE COEFFICIENT		SUB
VELOCITY CORRECTION		VCOR
TOTAL VOLUME DISCHARGED FROM TIME OF BREACH	AC-FT	OUTVOL

C104/26

RECTANGULAR BREACH DISCHARGE COEFFICIENT COFR

INFLOW TO RESERVOIR CFS QI(I)

BREACH OUTFLOW CFS QBRECH

SPILLWAY OUTFLOW CFS QSPIL

RESERVOIR DEPLETION TABLE

I	K	TTP(I)	Q(I)	H2	YB	D	SUB	VCOR	OUTVOL	BB	COFR	QI(I)	QBRECH	QSPIL
***	**	******	********	*******	*******	*******	****	****	*********	****	****	*****	******	*****
1	0	0.000	800	223.00	223.00	193.74	1.00	1.00	0.0	0.0	3.10	675.	0.	800.
2	1	.020	802	223.00	222.44	193.74	1.00	1.00	1.3	1.8	3.10	675.	3.	800.
3	1	.040	814	223.00	221.88	193.78	1.00	1.00	2.7	3.6	3.10	675.	15.	800.
4	1	.060	840	223.00	221.32	193.84	1.00	1.00	4.0	5.4	3.10	675.	41.	799.
5	1	.080	882	223.00	220.76	193.96	1.00	1.00	5.5	7.2	3.10	675.	84.	799.
6	1	.100	944	222.99	220.20	194.12	1.00	1.00	7.0	9.0	3.10	675.	146.	798.
7	1	.120	1028	222.99	219.64	194.32	1.00	1.00	8.6	10.8	3.10	675.	231.	798.
8	1	.140	1136	222.99	219.08	194.57	1.00	1.00	10.4	12.6	3.10	675.	339.	797.
9	1	.160	1269	222.99	218.52	194.86	1.00	1.00	12.4	14.4	3.10	675.	473.	796.
10	1	.180	1429	222.98	217.96	195.19	1.00	1.00	14.6	16.2	3.10	675.	635.	795.
11	1	.200	1618	222.98	217.40	195.55	1.00	1.00	17.1	18.0	3.10	675.	825.	794.
12	1	.220	1837	222.97	216.84	195.94	1.00	1.00	20.0	19.8	3.10	675.	1046.	792.
13	1	.240	2088	222.96	216.28	196.36	1.00	1.00	23.2	21.6	3.10	675.	1295.	789.
14	1	.260	2370	222.95	215.72	196.79	1.00	1.00	26.9	23.4	3.10	675.	1584.	787.
15	1	.280	2686	222.94	215.16	197.28	1.00	1.00	31.1	25.2	3.10	675.	1904.	783.
16	1	.300	3037	222.93	214.60	197.81	1.00	1.00	35.8	27.0	3.10	675.	2258.	779.
17	1	.320	3423	222.92	214.04	198.32	1.00	1.00	41.2	28.8	3.10	675.	2649.	775.
18	1	.340	3844	222.90	213.48	198.82	1.00	1.00	47.2	30.6	3.10	675.	3076.	769.
19	1	.360	4303	222.88	212.92	199.32	1.00	1.00	53.9	32.4	3.10	675.	3540.	763.
20	1	.380	4798	222.85	212.36	199.81	1.00	1.00	61.4	34.2	3.10	675.	4042.	756.
21	1	.400	5331	222.83	211.80	200.29	1.00	1.00	69.5	36.0	3.10	675.	4583.	748.
22	1	.420	5901	222.80	211.24	200.77	1.00	1.00	79.1	37.8	3.10	675.	5162.	740.
23	1	.440	6510	222.76	210.68	201.25	1.00	1.00	89.3	39.6	3.10	675.	5781.	730.
24	1	.460	7157	222.72	210.12	201.72	1.00	1.00	100.6	41.4	3.10	675.	6438.	719.
25	1	.480	7842	222.68	209.56	202.19	1.00	1.00	113.0	43.2	3.10	675.	7136.	707.
26	1	.500	8565	222.64	209.00	202.66	1.00	1.00	126.6	45.0	3.10	675.	7872.	693.
27	1	.520	9326	222.58	208.44	203.12	1.00	1.00	141.4	46.8	3.10	675.	8648.	679.
28	1	.540	10125	222.53	207.88	203.58	1.00	1.00	157.4	48.6	3.10	675.	9463.	662.
29	1	.560	10962	222.47	207.32	204.04	1.00	1.00	174.9	50.4	3.10	675.	10317.	645.
30	1	.580	11835	222.40	206.76	204.50	1.00	1.00	193.7	52.2	3.10	675.	11209.	626.
31	1	.600	12744	222.32	206.20	204.96	1.00	1.00	214.0	54.0	3.10	675.	12138.	606.
32	1	.620	13688	222.24	205.64	205.35	1.00	1.00	235.9	55.8	3.10	675.	13105.	584.
33	1	.640	14667	222.15	205.08	205.73	1.00	1.00	259.3	57.6	3.10	675.	14107.	560.
34	1	.660	15680	222.06	204.52	206.12	1.00	1.00	284.4	59.4	3.10	675.	15145.	535.
35	1	.680	16724	221.96	203.96	206.52	1.00	1.00	311.2	61.2	3.10	675.	16216.	508.
36	1	.700	17800	221.85	203.40	206.91	1.00	1.00	339.7	63.0	3.10	675.	17320.	480.
37	1	.720	18905	221.73	202.84	207.31	1.00	1.00	370.0	64.8	3.10	675.	18455.	450.
38	1	.740	20037	221.60	202.28	207.71	1.00	1.00	402.2	66.6	3.10	675.	19620.	418.
39	1	.760	21196	221.46	201.72	208.12	1.00	1.01	436.3	68.4	3.10	675.	20811.	385.
40	2	.780	22378	221.31	201.16	208.52	1.00	1.01	472.3	70.2	3.10	675.	[illegible]	[illegible]
41	2	.800	23582	221.15	[illegible]	[illegible]	[illegible]	[illegible]						

[illegible]	2	[illegible]	[illegible]	[illegible]	198.92	210.13	1.00	1.01	636.4	77.4	3.10	675.	27094.	200.
45	2	.880	28553	220.37	198.36	210.53	1.00	1.01	682.5	79.2	3.10	675.	28393.	161.
46	2	.900	29818	220.14	197.80	210.92	1.00	1.01	730.8	81.0	3.10	675.	29697.	122.
47	2	.920	31084	219.89	197.24	211.31	1.00	1.01	781.1	82.8	3.10	675.	31000.	84.
48	2	.940	32345	219.62	196.68	211.69	1.00	1.01	833.5	84.6	3.10	675.	32296.	49.
49	2	.960	33592	219.33	196.12	212.07	1.00	1.02	888.0	86.4	3.10	675.	33573.	19.
50	2	.980	34732	219.01	195.56	212.42	1.00	1.02	944.5	88.2	3.10	675.	34733.	0.

RESERVOIR DEPLETION TABLE

I	K	TTP(I)	Q(I)	H2	YB	D	SUB	VCOR	OUTVOL	BB	COFB	QI(I)	QBRECH	QSPIL
***	**	******	********	*******	*******	*******	****	****	*********	****	****	*****	******	*****
51	2	1.000	35655	218.67	195.00	212.70	.99	1.02	1002.7	90.0	3.10	675.	35656.	0.
52	1	1.020	34879	218.33	195.00	212.46	.99	1.02	1061.0	90.0	3.10	675.	34879.	0.
53	1	1.040	34087	217.99	195.00	212.21	.99	1.02	1118.0	90.0	3.10	675.	34088.	0.
54	1	1.060	33314	217.66	195.00	211.97	.99	1.02	1173.7	90.0	3.10	675.	33315.	0.
55	1	1.080	32552	217.33	195.00	211.74	.99	1.02	1228.1	90.0	3.10	675.	32552.	0.
56	1	1.100	31806	217.01	195.00	211.52	.99	1.02	1281.3	90.0	3.10	675.	31807.	0.
57	1	1.120	31077	216.69	195.00	211.30	.98	1.02	1333.3	90.0	3.10	675.	31078.	0.
58	1	1.140	30365	216.37	195.00	211.08	.98	1.02	1384.0	90.0	3.10	675.	30365.	0.
59	1	1.160	29668	216.06	195.00	210.86	.98	1.02	1433.7	90.0	3.10	675.	29669.	0.
60	1	1.180	28987	215.76	195.00	210.65	.98	1.02	1482.1	90.0	3.10	675.	28988.	0.
61	1	1.200	28321	215.46	195.00	210.44	.98	1.02	1529.5	90.0	3.10	675.	28322.	0.
62	1	1.220	27671	215.16	195.00	210.24	.98	1.02	1575.8	90.0	3.10	675.	27671.	0.
63	1	1.240	27035	214.86	195.00	210.03	.98	1.02	1621.0	90.0	3.10	675.	27035.	0.
64	1	1.260	26413	214.57	195.00	209.83	.98	1.02	1665.2	90.0	3.10	675.	26414.	0.
65	1	1.280	25806	214.29	195.00	209.64	.98	1.03	1708.3	90.0	3.10	675.	25806.	0.
66	1	1.300	25212	214.01	195.00	209.45	.98	1.03	1750.5	90.0	3.10	675.	25213.	0.
67	1	1.320	24632	213.73	195.00	209.25	.98	1.03	1791.7	90.0	3.10	675.	24633.	0.
68	1	1.340	24065	213.45	195.00	209.07	.98	1.03	1831.9	90.0	3.10	675.	24066.	0.
69	1	1.360	23511	213.18	195.00	208.88	.98	1.03	1871.2	90.0	3.10	675.	23512.	0.
70	1	1.380	22970	212.92	195.00	208.70	.98	1.03	1909.7	90.0	3.10	675.	22971.	0.
71	1	1.400	22441	212.66	195.00	208.52	.98	1.03	1947.2	90.0	3.10	675.	22442.	0.
72	1	1.420	21925	212.40	195.00	208.35	.97	1.03	1983.9	90.0	3.10	675.	21925.	0.
73	1	1.440	21420	212.14	195.00	208.17	.97	1.03	2019.7	90.0	3.10	675.	21421.	0.
74	1	1.460	20927	211.89	195.00	208.00	.97	1.03	2054.7	90.0	3.10	675.	20928.	0.
75	1	1.480	20446	211.65	195.00	207.84	.97	1.03	2088.9	90.0	3.10	675.	20446.	0.
76	1	1.500	19975	211.40	195.00	207.67	.97	1.04	2122.3	90.0	3.10	675.	19976.	0.
77	1	1.520	19516	211.16	195.00	207.51	.97	1.04	2154.9	90.0	3.10	675.	19517.	0.
78	1	1.540	19068	210.93	195.00	207.35	.97	1.04	2186.8	90.0	3.10	675.	19068.	0.
79	1	1.560	18629	210.69	195.00	207.19	.97	1.04	2218.0	90.0	3.10	675.	18630.	0.
80	1	1.580	18201	210.46	195.00	207.04	.96	1.04	2248.4	90.0	3.10	675.	18202.	0.
81	1	1.600	17783	210.24	195.00	206.89	.96	1.04	2278.1	90.0	3.10	675.	17784.	0.
82	1	1.620	17374	210.02	195.00	206.74	.96	1.04	2307.2	90.0	3.10	675.	17375.	0.
83	1	1.640	16975	209.80	195.00	206.59	.96	1.05	2335.6	90.0	3.10	675.	16975.	0.
84	1	1.660	16585	209.58	195.00	206.44	.96	1.05	2363.3	90.0	3.10	675.	16585.	0.
85	1	1.680	16203	209.37	195.00	206.30	.96	1.05	2390.4	90.0	3.10	675.	16204.	0.
86	1	1.700	15830	209.16	195.00	206.16	.95	1.05	2416.9	90.0	3.10	675.	15831.	0.
87	1	1.720	15466	208.95	195.00	206.02	.95	1.05	2442.8	90.0	3.10	675.	15466.	0.
88	1	1.740	15110	208.75	195.00	205.88	.95	1.05	2468.0	90.0	3.10	675.	15110.	0.
89	1	1.760	14762	208.55	195.00	205.75	.95	1.05	2492.7	90.0	3.10	675.	14763.	0.
90	1	1.780	14422	208.36	195.00	205.61	.95	1.06	2516.8	90.0	3.10	675.	14423.	0.
91	1	1.800	14090	208.16	195.00	205.48	.94	1.06	2540.4	90.0	3.10	675.	14090.	0.

93	1	1.840	13448	207.79	195.00	205.23	.94	1.06	2585.9	90.0	3.10	675.	13449.	0.
94	1	1.860	13138	207.60	195.00	205.10	.94	1.06	2607.9	90.0	3.10	675.	13139.	0.
95	1	1.880	12836	207.42	195.00	204.98	.93	1.07	2629.4	90.0	3.10	675.	12836.	0.
96	1	1.900	12562	207.24	195.00	204.84	.93	1.07	2650.3	90.0	3.10	675.	12562.	0.
97	1	1.920	12296	207.07	195.00	204.71	.93	1.07	2670.9	90.0	3.10	675.	12297.	0.
98	1	1.940	12038	206.89	195.00	204.58	.93	1.07	2691.0	90.0	3.10	675.	12038.	0.
99	1	1.960	11785	206.72	195.00	204.45	.93	1.08	2710.7	90.0	3.10	675.	11786.	0.
100	1	1.980	11539	206.56	195.00	204.32	.93	1.08	2730.0	90.0	3.10	675.	11540.	0.

RESERVOIR DEPLETION TABLE

I	K	TTP(I)	Q(I)	H2	YB	D	SUB	VCOR	OUTVOL	BB	COFB	QI(I)	QBRECH	QSPIL
***	**	******	********	*******	*******	*******	****	****	*********	****	****	*****	******	*****
101	1	2.000	11298	206.39	195.00	204.20	.93	1.08	2743.8	90.0	3.10	675.	11299.	0.
102	1	2.020	11063	206.23	195.00	204.07	.93	1.08	2767.3	90.0	3.10	675.	11064.	0.
103	2	2.042	10819	206.05	195.00	203.94	.93	1.09	2787.2	90.0	3.10	675.	10820.	0.
104	2	2.066	10549	205.86	195.00	203.79	.92	1.09	2808.6	90.0	3.10	675.	10550.	0.
105	2	2.093	10261	205.65	195.00	203.63	.92	1.09	2831.5	90.0	3.10	675.	10262.	0.
106	2	2.122	9955	205.43	195.00	203.46	.92	1.10	2855.9	90.0	3.10	675.	9956.	0.
107	2	2.154	9632	205.19	195.00	203.28	.92	1.10	2882.0	90.0	3.10	675.	9633.	0.
108	2	2.190	9291	204.94	195.00	203.08	.92	1.11	2909.7	90.0	3.10	675.	9292.	0.
109	2	2.229	8934	204.68	195.00	202.86	.92	1.12	2939.1	90.0	3.10	675.	8935.	0.
110	2	2.272	8561	204.37	195.00	202.63	.92	1.13	2970.1	90.0	3.10	675.	8562.	0.
111	2	2.319	8174	204.06	195.00	202.39	.91	1.14	3002.7	90.0	3.10	675.	8174.	0.
112	2	2.371	7773	203.73	195.00	202.12	.91	1.15	3036.9	90.0	3.10	675.	7774.	0.
113	2	2.428	7362	203.38	195.00	201.85	.91	1.16	3072.6	90.0	3.10	675.	7362.	0.
114	2	2.490	6941	203.01	195.00	201.55	.91	1.18	3109.7	90.0	3.10	675.	6942.	0.
115	2	2.559	6515	202.62	195.00	201.23	.91	1.20	3148.1	90.0	3.10	675.	6515.	0.
116	2	2.635	6086	202.21	195.00	200.90	.91	1.22	3187.6	90.0	3.10	675.	6087.	0.
117	2	2.719	5661	201.79	195.00	200.56	.91	1.25	3228.2	90.0	3.10	675.	5661.	0.
118	2	2.811	5243	201.35	195.00	200.20	.91	1.29	3269.6	90.0	3.10	675.	5243.	0.
119	2	2.912	4836	200.90	195.00	199.83	.91	1.35	3311.7	90.0	3.10	675.	4837.	0.
120	2	3.023	4446	200.43	195.00	199.45	.91	1.43	3354.3	90.0	3.10	675.	4447.	0.
121	2	3.145	4078	199.96	195.00	199.07	.90	1.55	3397.4	90.0	3.10	675.	4076.	0.
122	1	3.280	3732	199.47	195.00	198.70	.90	1.73	3440.9	90.0	3.10	675.	3733.	0.
123	2	3.428	3420	198.97	195.00	198.31	.88	2.00	3484.6	90.0	3.10	675.	3421.	0.
124	1	3.591	3123	198.46	195.00	197.93	.85	2.00	3528.6	90.0	3.10	675.	3123.	0.
125	1	3.770	2732	197.96	195.00	197.34	.95	2.00	3572.0	90.0	3.10	675.	2733.	0.
126	2	3.967	2226	197.50	195.00	196.57	1.00	2.00	3612.3	90.0	3.10	675.	2226.	0.
127	2	4.184	1735	197.12	195.00	195.76	1.00	2.00	3647.8	90.0	3.10	675.	1735.	0.
128	2	4.422	1387	196.83	195.00	195.10	1.00	2.00	3678.6	90.0	3.10	675.	1388.	0.
129	2	4.684	1144	196.61	195.00	194.59	1.00	2.00	3706.0	90.0	3.10	675.	1145.	0.
130	2	4.973	977	196.45	195.00	194.20	1.00	2.00	3731.3	90.0	3.10	675.	976.	0.
131	2	5.290	864	196.33	195.00	193.91	1.00	2.00	3755.5	90.0	3.10	675.	865.	0.
132	2	5.639	789	196.26	195.00	193.71	1.00	2.00	3779.3	90.0	3.10	675.	790.	0.
133	2	6.023	741	196.20	195.00	193.57	1.00	2.00	3803.6	90.0	3.10	675.	742.	0.
134	2	6.445	712	196.17	195.00	193.49	1.00	2.00	3829.0	90.0	3.10	675.	712.	0.
135	2	6.910	694	196.15	195.00	193.43	1.00	2.00	3856.0	90.0	3.10	675.	694.	0.
136	1	7.420	684	196.14	195.00	193.38	1.00	2.00	3885.1	90.0	3.10	675.	684.	0.
137	1	7.983	679	196.14	195.00	193.38	1.00	2.00	3916.8	90.0	3.10	675.	679.	0.
138	1	8.601	676	196.13	195.00	193.37	1.00	2.00	3951.4	90.0	3.10	675.	677.	0.
139	1	9.281	675	196.13	195.00	193.37	1.00	2.00	3989.4	90.0	3.10	675.	676.	0.
140	1	10.029	675	196.13	195.00	193.38	1.00	2.00	4031.2	90.0	3.10	675.	675.	0.

PARAMETER	UNITS	VARIABLE	VALUE
INITIAL FLOW	CFS	Q(1)	802.
MAX FLOW	CFS	QM	35656.
FINAL FLOW	CFS	Q(NU)	675.
TIME TO MAX FLOW	HRS	TP	1.00
NUMBER OF TIME STEPS		NNU	140
TOTAL VOLUME DISCHARGED FROM RESERVOIR	AC-FT	DISVOL	4031.
NUMBER OF INTERMEDIATE STATIONS		NN(NS)	50
NUMBER OF TIME STEPS		NNU	140

TIME PARAMETERS OF OUTFLOW HYDROGRAPH IMMEDIATELY DOWNSTREAM OF DAM

PARAMETER	UNITS	VARIABLE	VALUE
TIME TO FAILURE	HR	TFH	1.000
TIME TO START OF RISING LIMB OF HYDROGRAPH	HR	TFO	0.000
TIME TO PEAK	HR	TP	1.000
TIME STEP SIZE	HR	DTHI	.050

NONCONVERGENCE OCCURRED AT CROSS-SECTION NO. 35 36 37 38 39 40 41 42 43
TT= 0.890 DT-= .028 ITERR= 9

ROUTING COMPLETED.

KTIME=141 ALLOWABLE KTIME= 698 TT= 10.0

PROFILE OF CRESTS AND TIMES FOR MENDUMS POND
BELOW MENDUMS POND DAM

RVR MILE FROM DAM	MAX ELEV (FT)	MAX FLOW (CFS)	TIME MAX ELEV(HR)	MAX VEL (FT/SEC)	MAX VEL (MI/HR)	FLOOD ELEV (FT)	TIME FLOOD ELEV (HR)
.050	210.03	35655	1.000	5.48	3.73	0.00	0.00
.163	208.33	34713	1.050	5.29	3.60	0.00	0.00
.275	206.46	33996	1.050	5.04	3.43	0.00	0.00
.388	204.56	33416	1.100	5.08	3.46	0.00	0.00
.500	202.29	32753	1.100	5.26	3.58	0.00	0.00
.600	200.16	32479	1.150	5.39	3.68	0.00	0.00
.700	197.98	31958	1.150	5.45	3.71	0.00	0.00
.800	195.70	31827	1.200	5.75	3.92	0.00	0.00
.900	193.12	31493	1.200	6.21	4.24	0.00	0.00
1.000	189.59	31458	1.200	7.60	5.18	0.00	0.00
1.100	185.72	31296	1.250	7.30	4.98	0.00	0.00
1.200	181.87	31221	1.250	7.00	4.77	0.00	0.00
1.300	178.20	31063	1.300	6.67	4.55	0.00	0.00
1.400	175.39	30695	1.350	5.62	3.83	0.00	0.00
1.500	173.96	30175	1.400	4.04	2.76	0.00	0.00
1.600	172.79	29558	1.450	4.04	2.76	0.00	0.00
1.700	171.64	28948	1.500	4.03	2.75	0.00	0.00
1.800	170.51	28456	1.550	4.11	2.80	0.00	0.00
1.900	169.43	27993	1.550	4.07	2.78	0.00	0.00
2.000	168.38	27547	1.600	4.03	2.75	0.00	0.00
2.100	167.28	28296	1.600	4.20	2.86	0.00	0.00
2.200	166.20	27935	1.650	4.13	2.82	0.00	0.00
2.300	165.13	27556	1.650	4.07	2.77	0.00	0.00
2.400	164.08	27236	1.700	4.08	2.78	0.00	0.00
2.500	163.01	26919	1.700	4.04	2.75	0.00	0.00
2.600	161.94	26580	1.750	4.08	2.78	0.00	0.00
2.700	160.82	26314	1.800	4.09	2.79	0.00	0.00
2.800	159.67	25998	1.800	4.13	2.82	0.00	0.00
2.900	158.44	25737	1.850	4.30	2.93	0.00	0.00
3.000	157.15	25394	2.000	4.50	3.07	0.00	0.00
3.167	156.21	24787	2.000	4.43	3.02	0.00	0.00
3.333	155.30	25179	1.950	4.40	3.00	0.00	0.00
3.500	154.35	23936	1.950	4.34	2.96	0.00	0.00
3.667	152.94	25868	1.950	4.27	2.91	0.00	0.00
3.833	151.80	25156	1.900	4.34	2.96	0.00	0.00
4.000	150.18	26618	1.900	5.02	3.42	0.00	0.00
4.200	147.72	26986	2.000	5.42	3.70	0.00	0.00
4.400	145.77	26139	1.950	4.84	3.30	0.00	0.00
4.600	143.18	27201	2.150	6.06	4.13	0.00	0.00
4.800	141.05	25067	2.301	5.33	3.63	0.00	0.00

5.200	136.87	22788	2.403	4.91	3.35	0.00	0.00
5.400	134.77	22432	2.455	4.96	3.38	0.00	0.00
5.600	132.58	22203	2.508	5.03	3.43	0.00	0.00
5.800	130.13	22069	2.508	5.39	3.68	0.00	0.00
6.000	126.27	21953	2.561	7.07	4.82	0.00	0.00
6.257	119.79	21840	2.614	6.92	4.72	0.00	0.00
6.514	113.46	21655	2.668	6.79	4.63	0.00	0.00

PROFILE OF CRESTS AND TIMES FOR MENDUMS POND
BELOW MENDUMS POND DAM

RVR MILE FROM DAM	MAX ELEV (FT)	MAX FLOW (CFS)	TIME MAX ELEV(HR)	MAX VEL (FT/SEC)	MAX VEL (MI/HR)	FLOOD ELEV (FT)	TIME FLOOD ELEV (HR)
**********	*********	**********	********	**********	*********	*********	*********
6.771	107.30	21409	2.723	6.68	4.55	0.00	0.00
7.029	101.27	21040	2.834	6.57	4.48	0.00	0.00
7.286	95.36	20598	2.919	6.36	4.34	0.00	0.00
7.543	89.49	19982	2.976	6.19	4.22	0.00	0.00
7.800	83.73	19386	3.093	6.04	4.12	0.00	0.00

PEAK ELEVATION PROFILE

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                                   MILES                                                                   ELEV
                                                                                                           FEET   MILE
        .1        .8       1.6       2.4       3.1       3.9       4.7       5.5       6.2       7.0       7.8
210.03*           I         I         I         I         I         I         I         I         I         I  210.0    .1
      I*          I         I         I         I         I         I         I         I         I         I  208.3    .2
      I           I         I         I         I         I         I         I         I         I         I
      I *         I         I         I         I         I         I         I         I         I         I  206.5    .3
      I           I         I         I         I         I         I         I         I         I         I
      I   *       I         I         I         I         I         I         I         I         I         I  204.6    .4
      I           I         I         I         I         I         I         I         I         I         I
      I    *      I         I         I         I         I         I         I         I         I         I  202.3    .5
      I           I         I         I         I         I         I         I         I         I         I
200.16I      *    I         I         I         I         I         I         I         I         I         I  200.2    .6

      I           I         I         I         I         I         I         I         I         I         I
      I      *    I         I         I         I         I         I         I         I         I         I  198.0    .7
      I           I         I         I         I         I         I         I         I         I         I
      I     *     I         I         I         I         I         I         I         I         I         I  195.7    .8
      I           I         I         I         I         I         I         I         I         I         I
      I           I         I         I         I         I         I         I         I         I         I
      I           *         I         I         I         I         I         I         I         I         I  193.1    .9
      I           I         I         I         I         I         I         I         I         I         I
      I           I         I         I         I         I         I         I         I         I         I
      I           I *       I         I         I         I         I         I         I         I         I  189.6   1.0
      I           I         I         I         I         I         I         I         I         I         I
      I           I         I         I         I         I         I         I         I         I         I
      I           I         I         I         I         I         I         I         I         I         I
185.72I           I  *      I         I         I         I         I         I         I         I         I  185.7   1.1
      I           I         I         I         I         I         I         I         I         I         I
      I           I         I         I         I         I         I         I         I         I         I
      I           I    *    I         I         I         I         I         I         I         I         I  181.9   1.2
      I           I         I         I         I         I         I         I         I         I         I
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CD04-20

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        I         I         I         I         I         I         I         I         I         I         I
        I         I         I         I         I         I   1.0    .1
+
0
      .1        .8       1.6       2.4       3.1       3  5.5       6.2       7.0       7.8

                                        MILES

1

DISCHARGE HYDROGRAPH FOR  MENDUMS POND          ... STATION NUMBER   1
                BELOW  MENDUMS POND DAM     AT MILE       .05

GAGE ZERO =  189.00      MAX ELEVATION REACHED BY FLOOD WAVE =  210.03
                        FLOOD STAGE NOT AVAILABLE
                MAX STAGE =    21.03      AT TIME =     1.000 HOURS
                MAX FLOW =     35656     AT TIME =     1.000 HOURS

HR    STAGE      FLOW  0      10000      20000      30000      40000      50000
0.0     4.4       800  I*         I          I          I          I          I
 .1     4.6       945  I*         I          I          I          I          I
 .2     5.5      1619  I *        I          I          I          I          I
 .3     7.1      3038  I  *       I          I          I          I          I
 .4     9.2      5331  I    *     I          I          I          I          I
 .5    11.5      8566  I         *I          I          I          I          I
 .6    13.8     12744  I          I  *       I          I          I          I
 .7    15.9     17800  I          I       * I          I          I          I
 .8    18.0     23582  I          I          I   *      I          I          I
 .9    19.6     29819  I          I          I          *          I          I
1.0    21.0     35656  I          I          I          I     *    I          I
1.1    20.8     31807  I          I          I          I *        I          I
1.2    20.1     28322  I          I          I       * I          I          I
1.3    19.4     25213  I          I          I    *     I          I          I
1.4    18.7     22442  I          I          I *        I          I          I
1.5    17.9     19976  I          I          *          I          I          I
1.6    17.2     17784  I          I       * I          I          I          I
1.7    14.8     15831  I          I     *   I          I          I          I
1.8    16.6     14090  I          I   *     I          I          I          I
1.9    14.8     12562  I          I  *      I          I          I          I

2.0    14.6     11299  I          I*         I          I          I          I
2.1    14.1     10187  I          *          I          I          I          I
2.2    13.6      9198  I         *I          I          I          I          I
2.3    13.2      8329  I        * I          I          I          I          I
2.4    12.7      7562  I        * I          I          I          I          I
2.5    12.2      6886  I       *  I          I          I          I          I
2.6    11.8      6287  I      *   I          I          I          I          I
2.7    11.4      5759  I      *   I          I          I          I          I
2.8    11.0      5297  I     *    I          I          I          I          I
2.9    10.7      4886  I     *    I          I          I          I          I
3.0    10.3      4530  I     *    I          I          I          I          I
3.1    10.0      4216  I    *     I          I          I          I          I
3.2     9.7      3938  I    *     I          I          I          I          I
3.3     9.4      3693  I    *     I          I          I          I          I
3.4     9.1      3481  I   *      I          I          I          I          I
3.5     8.8      3289  I   *      I          I          I          I          I
3.6     8.5      3101  I   *      I          I          I          I          I
3.7     8.2      2985  I   *      I          I          I          I          I
3.8     7.9      2655  I   *      I          I          I          I          I
5.4     4.6      1210  I*         I          I          I          I          I
```

4.0	7.2	2151	I *
4.1	6.8	1925	I *
4.2	6.5	1711	I *
4.3	6.2	1566	I *
4.4	5.9	1421	I*
4.5	5.7	1315	I*
4.6	5.5	1223	I*
4.7	5.3	1136	I*
4.8	5.1	1078	I*
4.9	5.0	1020	I*
5.0	4.9	968	I*

DISCHARGE HYDROGRAPH FOR MENDUMS POND ... STATION NUMBER 10
BELOW MENDUMS POND DAM AT MILE 1.00

GAGE ZERO = 175.00 MAX ELEVATION REACHED BY FLOOD WAVE = 189.59
FLOOD STAGE NOT AVAILABLE
MAX STAGE = 14.59 AT TIME = 1.200 HOURS
MAX FLOW = 31458 AT TIME = 1.200 HOURS

HR	STAGE	FLOW	0 10000 20000 30000 40000 50000
0.0	2.7	800	I*
.2	2.7	800	I*
.4	2.7	830	I*
.6	3.7	1664	I *
.8	7.3	7563	I *
1.0	13.1	25545	I *
1.2	14.6	31459	I *
1.4	14.0	29253	I *
1.6	11.1	20661	I*
1.8	10.5	15409	I *
2.0	9.9	13634	I *
2.2	9.3	11893	I *
2.4	8.6	10190	I *
2.6	8.0	8625	I *
2.8	7.5	7330	I *
3.0	7.0	6294	I *
3.2	6.6	5478	I *
3.4	6.3	4837	I *
3.6	6.0	4279	I *
3.8	5.[illegible]	3783	I *
4.0	5.3	3325	I *
4.2	5.0	2866	I *
4.4	4.6	2415	I *
4.6	4.2	2011	I *
4.8	3.9	1681	I *
5.0	3.6	1425	I*
5.2	3.3	1235	I*
5.4	3.1	1092	I*
5.6	3.0	987	I*
5.8	2.8	909	I*
6.0	2.8	853	I*
6.2	2.7	819	I*
6.4	2.7	804	I*
6.6	2.7	801	I*
6.8	2.7	800	I*

7.2	2.7	800	I* I I I I I
7.4	2.7	800	I* I I I I I
7.6	2.7	800	I* I I I I I
7.8	2.7	800	I* I I I I I
8.0	2.7	800	I* I I I I I
8.2	2.7	800	I* I I I I I
8.4	2.7	800	I* I I I I I
8.6	2.7	800	I* I I I I I
8.8	2.7	800	I* I I I I I
9.0	2.7	800	I* I I I I I
9.2	2.7	800	I* I I I I I
9.4	2.7	800	I* I I I I I
9.6	2.7	800	I* I I I I I
9.8	2.7	800	I* I I I I I

DISCHARGE HYDROGRAPH FOR MENDUMS POND ... STATION NUMBER 15
BELOW MENDUMS POND DAM AT MILE 1.50

GAGE ZERO = 156.00 MAX ELEVATION REACHED BY FLOOD WAVE = 173.96
FLOOD STAGE NOT AVAILABLE
MAX STAGE = 17.96 AT TIME = 1.400 HOURS
MAX FLOW = 30176 AT TIME = 1.300 HOURS

HR	STAGE	FLOW	0 10000 20000 30000 40000 50000
0.0	3.7	800	I* I I I I I
.2	3.7	800	I* I I I I I
.4	3.7	801	I* I I I I I
.6	3.9	902	I* I I I I I
.8	6.0	2826	I * I I I I I
1.0	13.2	19162	I I *I I I I
1.2	16.9	28735	I I I *I I I
1.4	19.0	29481	I I I *I I I
1.6	17.5	25252	I I I * I I I
1.8	15.8	17906	I I * I I I I
2.0	14.6	15540	I I * I I I I
2.2	13.6	13001	I I * I I I I
2.4	12.7	11268	I I* I I I I
2.6	11.9	9593	I * I I I I
2.8	11.1	8147	I * I I I I I
3.0	10.4	6963	I * I I I I I
3.2	9.7	6016	I * I I I I I
3.4	9.1	5269	I * I I I I I
3.6	8.6	4667	I * I I I I I
3.8	8.2	4139	I * I I I I I
4.0	7.7	3661	I * I I I I I
4.2	7.3	3207	I * I I I I I
4.4	6.8	2749	I * I I I I I
4.6	6.3	2315	I * I I I I I
4.8	5.8	1936	I * I I I I I
5.0	5.3	1627	I * I I I I I
5.2	4.9	1390	I* I I I I I
5.4	4.6	1210	I* I I I I I
5.6	4.4	1076	I* I I I I I
5.8	4.2	976	I* I I I I I
6.0	4.0	901	I* I I I I I

6.5	3.8	804	I*
6.8	3.7	801	I*
7.0	3.7	800	I*
7.2	3.7	800	I*
7.4	3.7	800	I*
7.6	3.7	800	I*
7.8	3.7	800	I*
8.0	3.7	800	I*
8.2	3.7	800	I*
8.4	3.7	800	I*
8.6	3.7	800	I*
8.8	3.7	800	I*
9.0	3.7	800	I*
9.2	3.7	800	I*
9.4	3.7	800	I*
9.6	3.7	800	I*
9.8	3.7	800	I*

DISCHARGE HYDROGRAPH FOR MENDUMS POND ... STATION NUMBER 30
BELOW MENDUMS POND DAM AT MILE 3.00

GAGE ZERO = 143.00 MAX ELEVATION REACHED BY FLOOD WAVE = 157.15
FLOOD STAGE NOT AVAILABLE
MAX STAGE = 14.15 AT TIME = 2.000 HOURS
MAX FLOW = 25395 AT TIME = 1.800 HOURS

HR	STAGE	FLOW	0 10000 20000 30000 40000 50000
0.0	4.7	1925	I *
.2	4.7	1925	I *
.4	4.7	1925	I *
.6	4.7	1925	I *
.8	4.7	1926	I *
1.0	4.7	1977	I *
1.2	5.7	3592	I *
1.4	10.0	14380	I *
1.6	12.9	23139	I *
1.8	14.0	25395	I *
2.0	14.2	22902	I *
2.2	13.6	20628	I *
2.4	13.0	18059	I *
2.6	12.3	15825	I *
2.8	11.6	13833	I *
3.0	11.0	12151	I *
3.2	10.5	10639	I *
3.4	9.9	9406	I *
3.6	9.4	8315	I *
3.8	8.9	7402	I *
4.0	8.5	6659	I *
4.2	8.1	6028	I *
4.4	7.8	5474	I *
4.6	7.4	4977	I *
4.8	7.1	4513	I *
5.0	6.8	4078	I *
5.2	6.5	3681	I *
5.4	6.2	3325	I *
5.6	5.9	3018	I *

6.0	5.4	2548	I	*	I	I	I	I	I
6.2	5.3	2379	I	*	I	I	I	I	I
6.4	5.1	2245	I	*	I	I	I	I	I
6.6	5.0	2141	I	*	I	I	I	I	I
6.8	4.9	2064	I	*	I	I	I	I	I
7.0	4.8	2009	I	*	I	I	I	I	I
7.2	4.8	1973	I	*	I	I	I	I	I
7.4	4.7	1951	I	*	I	I	I	I	I
7.6	4.7	1939	I	*	I	I	I	I	I
7.8	4.7	1932	I	*	I	I	I	I	I
8.0	4.7	1928	I	*	I	I	I	I	I
8.2	4.7	1927	I	*	I	I	I	I	I
8.4	4.7	1926	I	*	I	I	I	I	I
8.6	4.7	1925	I	*	I	I	I	I	I
8.8	4.7	1925	I	*	I	I	I	I	I
9.0	4.7	1925	I	*	I	I	I	I	I
9.2	4.7	1925	I	*	I	I	I	I	I
9.4	4.7	1925	I	*	I	I	I	I	I
9.6	4.7	1925	I	*	I	I	I	I	I
9.8	4.7	1925	I	*	I	I	I	I	I

DISCHARGE HYDROGRAPH FOR MENDUMS POND ... STATION NUMBER 46
BELOW MENDUMS POND DAM AT MILE 6.00

GAGE ZERO = 111.00 MAX ELEVATION REACHED BY FLOOD WAVE = 126.27
FLOOD STAGE NOT AVAILABLE
MAX STAGE = 15.27 AT TIME = 2.561 HOURS
MAX FLOW = 21952 AT TIME = 2.561 HOURS

HR	STAGE	FLOW	0		5000	10000	15000	20000	25000
.1	6.0	1925	I	*	I	I	I	I	I
.3	6.0	1925	I	*	I	I	I	I	I
.5	6.0	1925	I	*	I	I	I	I	I
.7	6.0	1925	I	*	I	I	I	I	I
.9	6.0	1925	I	*	I	I	I	I	I
1.1	6.0	1925	I	*	I	I	I	I	I
1.3	6.0	1925	I	*	I	I	I	I	I
1.5	6.0	1925	I	*	I	I	I	I	I
1.7	6.0	1925	I	*	I	I	I	I	I
1.9	6.0	1931	I	*	I	I	I	I	I
2.1	8.2	4699	I		*I	I	I	I	I
2.3	14.5	19756	I		I	I	I	*	I
2.5	15.2	21950	I		I	I	I	I *	I
2.7	15.0	20724	I		I	I	I	I*	I
~~2.9~~	~~12.6~~	~~11651~~	~~I~~		~~I~~	~~I~~ *	~~I~~	~~I~~	~~I~~
3.1	14.2	17863	I		I	I	I *	I	I
3.3	13.9	15921	I		I	I	I *	I	I
~~3.5~~	~~12.2~~	~~11169~~	~~I~~		~~I~~	~~I~~ *	~~I~~	~~I~~	~~I~~
~~3.7~~	~~12.3~~	~~11502~~	~~I~~		~~I~~	~~I~~ *	~~I~~	~~I~~	~~I~~
3.9	12.3	11373	I		I	I *	I	I	I
4.1	12.1	10770	I		I	I 9980	I	I	I
4.3	11.8	9980	I		I	*	I	I	I
4.5	11.4	9172	I		I	* I	I	I	I
4.7	11.1	8411	I		I	* I	I	I	I
4.9	10.8	7721	I		I	* I	I	I	I
5.1	10.5	7106	I		I	* I	I	I	I

5.5	6.9	6061
5.7	6.6	5614
5.9	6.3	5207
6.1	6.1	4836
6.3	5.8	4497
6.5	6.6	4185
6.7	6.3	3910
6.9	6.1	3657
7.1	7.8	3430
7.3	7.6	3227
7.5	7.4	3046
7.7	7.2	2884
7.9	7.0	2733
8.1	6.8	2596
8.3	6.7	2460
8.5	6.5	2349
8.7	6.4	2251
8.9	6.3	2171
9.1	6.2	2104
9.3	6.2	2051
9.5	6.1	2010
9.7	6.1	1981
9.9	6.0	1961

DISCHARGE HYDROGRAPH FOR MENDUMS POND ... STATION NUMBER 57
BELOW 5 POND DAM AT MILE 7.80

GAGE ZERO = 75.00 MAX ELEVATION REACHED BY FLOOD WAVE = 83.77
FLOOD STAGE NOT AVAILABLE
MAX STAGE = 8.77 AT TIME = 3.093 HOURS
MAX FLOW = 19386 AT TIME = 3.034 HOURS

HR	STAGE	FLOW
.1	3.2	1947
.3	3.2	1951
.5	3.2	1951
.7	3.2	1951
.9	3.2	1951
1.1	3.2	1951
1.3	3.2	1951
1.5	3.2	1951
1.7	3.2	1951
1.9	3.2	1951
2.1	3.2	1951
2.3	3.2	1944
2.5	3.3	2043
2.7	5.6	7657
2.9	8.2	17503
3.1	8.7	19105
3.3	8.5	18295
3.5	8.2	16563
3.7	8.1	15920
3.9	7.6	13609
4.1	7.3	12209
4.3	7.1	11641
4.5	7.0	11216

```
[illegible]
4.7    6.9    10666  I          I          I*         I          I          I
4.9    6.7    10005  I          I          *          I          I          I
5.1    6.5     9308  I          I         *I          I          I          I
5.3    6.3     8628  I          I       *  I          I          I          I
5.5    6.1     7996  I          I      *   I          I          I          I
5.7    5.9     7427  I          I     *    I          I          I          I
5.9    5.8     6928  I          I    *     I          I          I          I
6.1    5.6     6461  I          I   *      I          I          I          I
6.3    5.4     6025  I          I  *       I          I          I          I
6.5    5.2     5619  I          I*         I          I          I          I
6.7    5.1     5240  I          *          I          I          I          I
6.9    4.9     4890  I          *          I          I          I          I
7.1    4.8     4564  I         *I          I          I          I          I
7.3    4.6     4265  I         *I          I          I          I          I
7.5    4.5     3991  I        * I          I          I          I          I
7.7    4.4     3740  I       *  I          I          I          I          I
7.9    4.2     3511  I       *  I          I          I          I          I
8.1    4.1     3306  I       *  I          I          I          I          I
8.3    4.0     3122  I      *   I          I          I          I          I
8.5    3.9     2955  I      *   I          I          I          I          I
8.7    3.8     2800  I      *   I          I          I          I          I
8.9    3.7     2657  I     *    I          I          I          I          I
9.1    3.6     2528  I     *    I          I          I          I          I
9.3    3.6     2412  I     *    I          I          I          I          I
9.5    3.5     2312  I     *    I          I          I          I          I
9.7    3.4     2225  I    *     I          I          I          I          I
9.9    3.4     2152  I    *     I          I          I          I          I
;
 READY.
LOGOUT

B3846BB LOG OFF IO =  15951.
SBIAF      CME 00.26.LOGGED OUTIAF      CONNECT TIME 00.26.48.
LOGGED OUT.
**
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