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THE INFLUENCE OF CHANNEL EXCAVATION AND LOW FLOW CHANNEL ENCROACHMENT ON THE WATER SURFACE ELEVATIONS IN THE SALT RIVER AT TEMPE, ARIZONA

•• A COMPUTER STUDY ••

COLLEGE OF ENGINEERING SCIENCES
ARIZONA STATE UNIVERSITY
TEMPE, ARIZONA

1975

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TEMPE, ARIZONA 85281

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February 26, 1975

Mr. Adelmeyer
County Flood Control
3325 West Durango
Phoenix, Arizona 85009

Dear Mr. Adelmeyer:

In response to our telephone conversation this day, I am enclosing the computer study of the Salt River channel excavation and low flow channel encroachment. We trust this will aid you in your study.

Yours very truly

John R. Ellingson

John R. Ellingson, Director
Physical Plant, Planning and Construction

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THE INFLUENCE OF CHANNEL EXCAVATION AND LOW FLOW CHANNEL ENCROACHMENT ON THE WATER SURFACE ELEVATIONS IN THE SALT RIVER AT TEMPE, ARIZONA

•• A COMPUTER STUDY ••

by

Paul F. Ruff
Professor of Engineering

1975

ACKNOWLEDGMENTS

This study was sponsored by the Office of the Vice President for Business Affairs, Arizona State University, Tempe, Arizona. Numerous organizations and individuals were consulted during the course of the study. Special acknowledgment is given to Col. Herbert P. Donald, Chief Engineer and General Manager, Maricopa County Flood Control District, and his assistants, Mr. Les Bond and Mr. Nick Adelmeyer. I am indebted to Mrs. Carolyn Brown and her staff for their capable secretarial and editorial assistance.

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INTRODUCTION

Urban, industrial and agricultural areas that lie south of the Salt River have been practically isolated on a myriad of occasions from services found in the City of Phoenix and Maricopa County by water flowing in the river. This isolation is more than an inconvenience; on the north side of the river are located: hospitals with specialized equipment, industrial and commercial businesses of employment, entertainment, schools, and so forth. Prior to 1974, three bridges spanned the Salt River: at Tempe, at Central Avenue, and the Interstate bridge. In 1965, the Central Avenue and Interstate bridges were damaged and all transportation over the river was directed through the City of Tempe and to the Tempe bridge. Lines of traffic two and three miles long were not uncommon. The Maricopa County Highway Department, in 1974, constructed a bridge over the Salt River at Hayden Road and started construction of a bridge at Scottsdale Road. These bridges are designed to pass a flow of 35,000 cubic feet/second.

The location of the Scottsdale Road bridge has required the excavation of a 600-ft channel under the bridge. The channel extends from approximately 1000 feet east of Scottsdale Road to the Tempe bridges. The location of this bridge lies in approximately the center of the historic Salt River flood plain, and is in alignment with the Corps of Engineers proposed flood control channel for Tempe. Society has traditionally been attracted to the lands that border streams. In addition to irrigation, industry and urban developments, and commerce now occupy the Salt River flood plain. Arizona State University, growing from a teachers college in the last century to a major educational institution of over 30,000 students, has also found the river's flood plain attractive for development. At present the University's stadium and athletic activities center lie immediately south of the river channel, and a part of the parking area for these facilities lies in the flood plain. The Salt River flood plain is an attractive area for development because of its proximity to major urban, industrial, and educational services. Flood plains are one of our natural resources. Fortunately, with competent engineering design, a major part of practically all river flood plains are being developed without increasing the flood damage potential of the river.

OBJECTIVE

The purpose of this study was to determine the influence of the Scottsdale Road bridge excavation and the Arizona State University parking facility on the water surface elevations in the Salt River.

SOURCES OF INFORMATION

Water surface elevations, and the resulting water surface profiles, were determined by utilizing a backwater computer program formulated by the Corps of Engineers.

Topographic data was obtained from maps supplied by the Maricopa County Highway Department. Elevations were determined from these maps along the axis of the river at approximately 500-ft intervals. Cross sections were plotted from this information and are included in the Appendix of the report.

Information pertaining to the Scottsdale Road bridge and the 600-ft channel was obtained from Hoffman-Miller Engineers, Inc. Physical Plant, Arizona State University, submitted parking facilities location and topographic information. The maximum flowrate analyzed in this study is 183,000 cfs and, as determined by the Corps of Engineers, has a frequency of 100 years.

See Location Map, page 2A.

RESULTS

The water surface elevations on the pages that follow were referenced from a base elevation obtained from a Manning equation calculation. Therefore, these water surface elevations are not to be interpreted as absolute values, but have been used to determine the differences in water surface elevation that are of importance to this study.

CHANNEL
ASU EXCAV
510,000 cy.
ASU Fill PHASE #2
EL. 1152
El. 1153
El. 1154
ASU Fill PHASE #1
El. 1158
El. 1160
El. 1159
FILL PHASE I
430,000cy.
TEMPE BUTTE
LOCATION MAP
12
13
14
15
16
17
18
19
20
21
22

DISCHARGE = 68,000 CUBIC FEET/SECOND

Water Surface Elevations
for Various Salt River Channel Configurations

Station No.	Run #2	Run #4	Run #5
12	1154.36	1151.97	1151.96
13	1155.22	1152.99	1152.99
14	1156.18	1153.45	1153.45
15	1157.22	1153.80	1153.72
16	1157.38	1153.97	1154.15
17	1157.62	1154.50	1155.14
18	1158.02	1155.34	1156.16
19	1158.40	1156.48	1157.35
20	1159.68	1157.68	1159.27
21	1160.98	1158.94	1160.64
22	1161.36	1159.35	1160.87

Run #2: Water surface elevations for the original (1972) topography.

Run #4: Water surface elevations for the original topography, the 600-ft excavated channel, and the ASU fill--Phase #1.

Run #5: Water surface elevations for the original topography, the 600-ft excavated channel, and the ASU fill--Phases #1 and #2.

DISCHARGE = 120,000 CUBIC FEET/SECOND

Water Surface Elevations
for Various Salt River Channel Configurations

Station No.	Run #2	Run #4	Run #5
12	1157.80	1155.44	1155.61
13	1158.64	1156.62	1156.82
14	1159.52	1157.12	1157.28
15	1161.02	1157.50	1157.46
16	1161.18	1157.70	1157.71
17	1161.38	1158.00	1158.84
18	1161.72	1158.62	1160.01
19	1161.96	1159.62	1161.18
20	1162.94	1160.81	1162.58
21	1164.08	1162.57	1163.85
22	1164.32	1162.84	1164.02

Run #2: Water surface elevations for the original (1972) topography.

Run #4: Water surface elevations for the original topography, the 600-ft excavated channel, and the ASU fill--Phase #1.

Run #5: Water surface elevations for the original topography, the 600-ft excavated channel, and the ASU fill-Phases #1 and #2.

DISCHARGE = 183,000 CUBIC FEET/SECOND

Water Surface Elevations
for Various Salt River Channel Configurations

Station No.	Run #2	Run #4	Run #5
12	1160.71	1158.68	1158.87
13	1161.30	1160.00	1160.26
14	1162.26	1160.52	1160.70
15	1164.27	1161.03	1160.89
16	1164.46	1161.24	1161.08
17	1164.67	1161.49	1162.17
18	1164.99	1162.09	1163.05
19	1165.18	1162.98	1164.16
20	1165.92	1163.78	1165.20
21	1166.97	1165.21	1166.59
22	1167.12	1165.44	1166.70

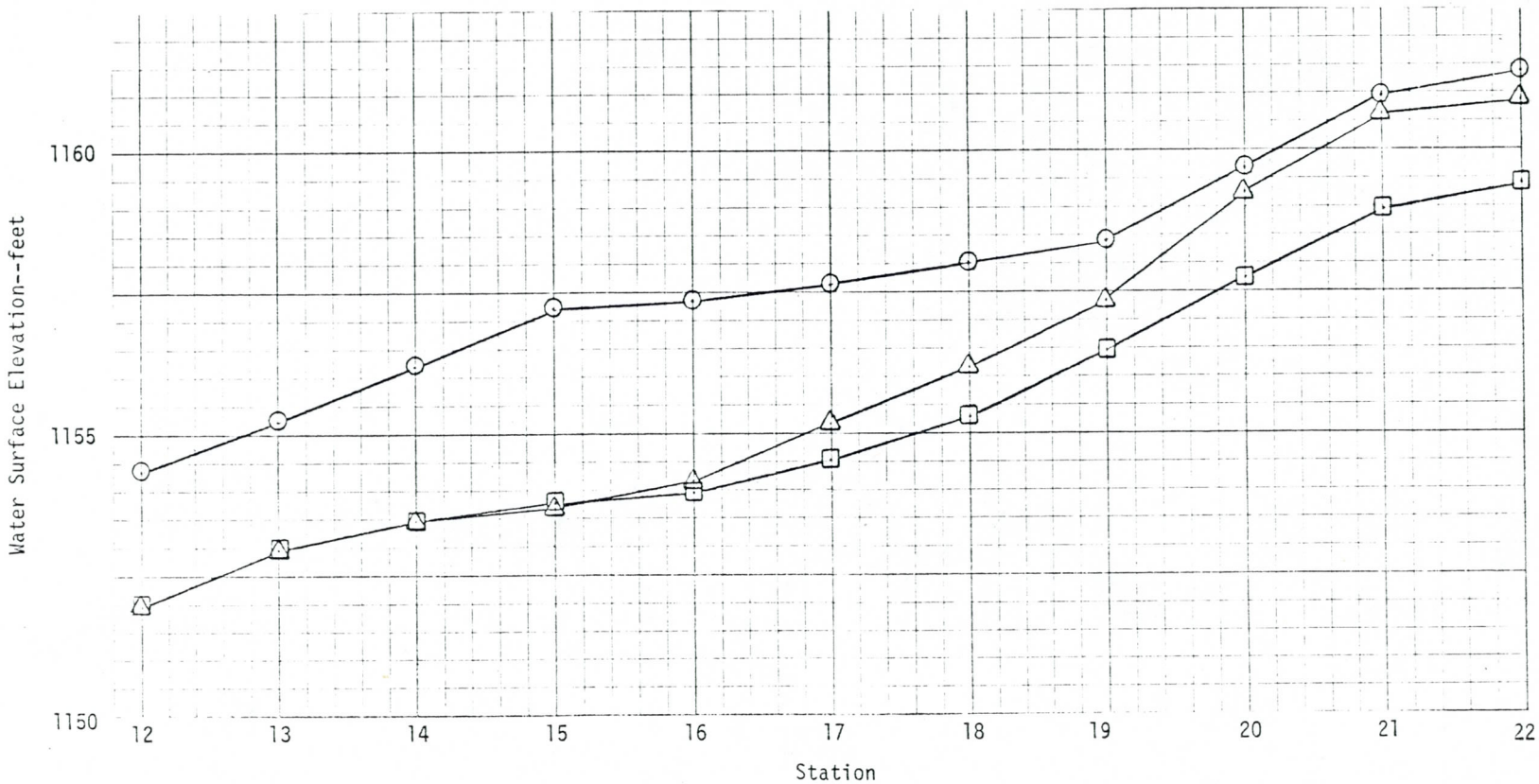
Run #2: Water surface elevations for the original (1972) topography.

Run #4: Water surface elevations for the original topography, the 600-ft excavated channel, and the ASU fill--Phase #1.

Run #5: Water surface elevations for the original topography, the 600-ft excavated channel, and the ASU fill--Phases #1 and #2.

WATER SURFACE PROFILES

Discharge = 68,000 cubic feet/second



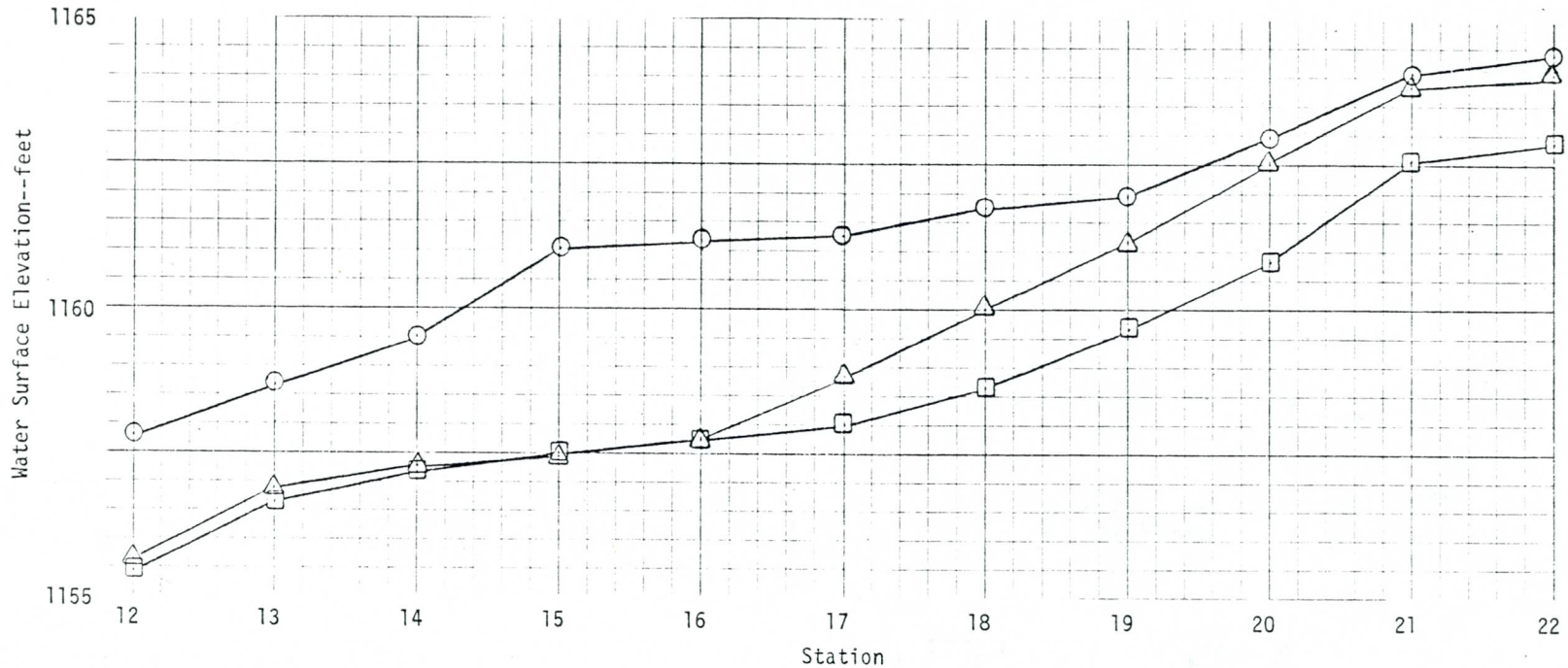
○ Run #2: Water surface elevations for the original (1972) topography.

□ Run #4: Water surface elevations for the original topography, the 600-ft excavated channel, and the ASU fill--Phase #1.

△ Run #5: Water surface elevations for the original topography, the 600-ft excavated channel, and the ASU fill--Phases #1 and #2.

WATER SURFACE PROFILES

Discharge = 120,000 cubic feet/second



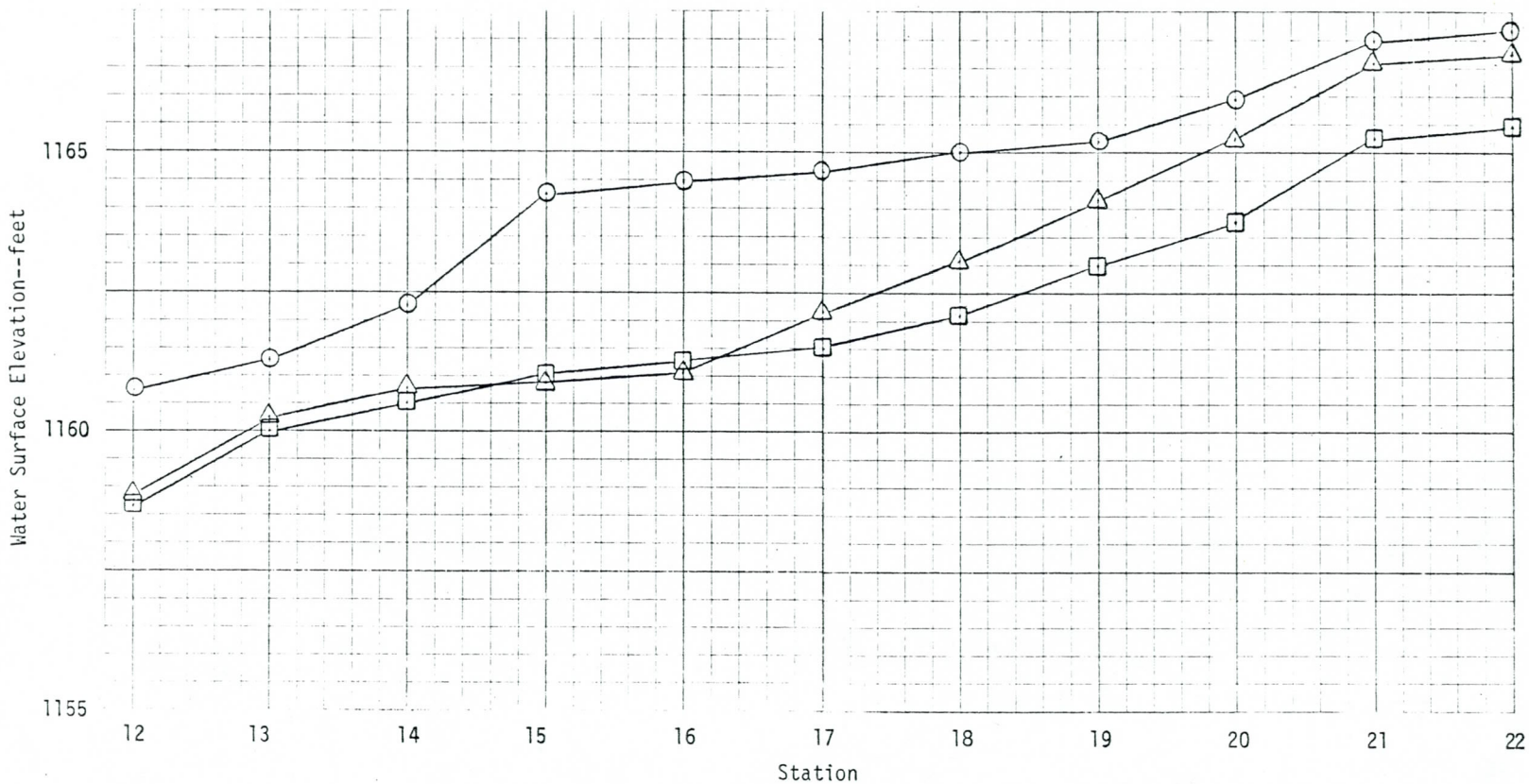
○ Run #2: Water surface elevations for the original (1972) topography.

□ Run #4: Water surface elevations for the original topography, the 600-ft excavated channel, and the ASU fill--Phase #1.

△ Run #5: Water surface elevations for the original topography, the 600-ft excavated channel, and the ASU fill--Phases #1 and #2.

WATER SURFACE PROFILES

Discharge = 183,000 cubic feet/second



○ Run #2: Water surface elevations for the original (1972) topography.

□ Run #4: Water surface elevations for the original topography, the 600-ft excavated channel, and the ASU fill--Phase #1.

△ Run #5: Water surface elevations for the original topography, the 600-ft excavated channel, and the ASU fill--Phases #1 and #2.

DISCUSSION AND CONCLUSIONS

The 600-ft bridge channel is a waterway of major dimensions and, therefore, expected to greatly augment the hydraulic capacity of the Salt River between Scottsdale Road and the Tempe bridges. The results of this study indicate the hydraulic capacity of the bridge channel is indeed very large. In addition to the major dimensions of the channel, an increased hydraulic efficiency of the river will also result from the channel's straight alignment.

Observation of the present low flow channel in the field, or on the Location Map and cross sections contained in this report, indicate a small channel of tortuous alignment and varying cross section. The capacity of this channel is relatively small. During flood flows this low flow channel becomes somewhat of an overflow area. Photographs taken during the 1965 flood of approximately 65,000 cfs show the main stream flow to be several hundreds of feet north of the low flow channel. Flood waters will more effectively flow in the river when the low flow channel is filled, thus forcing the flows to assume a less tortuous alignment.

The RESULTS of this study indicate that upon completion of the 600-ft bridge channel, the ASU Fill Phases #1 and #2 may be accomplished without increasing the water surface elevations in the channel and flood plain area between Scottsdale Road and the Tempe bridges.

APPENDIX

BACKWATER--COMPUTER CODING

Card

1-2 FORTRAN Control Cards

3 Project Description

4 First Cross Section Control Card

Card columns 2-3 Cross Section Number--Consecutive 1-49 (49 max)

cc 5-10 Section Designation

cc 12-19 Initial Elevation--Approximate

cc 21-29 Initial Slope

cc 31-38 Discharge--Total

5 Manning "n" Values

cc 2-8 n--Channel

cc 10-16 n--Overbank 1

cc 18-24 n--Overbank 2

cc 26-32 n--Overbank 3

cc 34-40 n--Overbank 4

6 Number of Cross Section Points

cc 2-3 Channel Points, 50 max

cc 5-6 Overbank 1 Points, 50 max

cc 8-9 Overbank 2 Points, 50 max

cc 11-12 Overbank 3 Points, 50 max

cc 14-15 Overbank 4 Points, 50 max

7 Cross Section Points

cc 1-8 Elevation

cc 9-16 Distance from starting point, say Ø the 1Ø, etc. Cards must be in sequence as dictated by Card 6. Read first channel points, etc.

8 Second Cross Section Control Card

cc 2-3 Section Number

cc 5-10 Section Designation

cc 11-19 Approximate Elevation

cc 21-27 Distance between this section and previous section.

9 Discharge cc 1-10

10 Same as 6, except for next section

11 Same as 7, except for next section

Repeat 8-11 for sections up to 49

12 cc 2-3 50 states job over print tables of data

13 cc 2-3 99 gets job off machine

COMPUTER PROGRAM

```
*DELETE                BCKW2      02E1
CART ID 02E1    DB ADDR  3299    DB CNT    00CA
*LIST ALL
*IOCS(CARD,1403 PRINTER)
*ONE WORD INTEGERS
      DIMENSION E1(50),D1(50)
      DIMENSION E2(50),D2(50)
      DIMENSION E3(50),D3(50)
      DIMENSION E4(50),D4(50)
      DIMENSION E5(50),D5(50)
      DIMENSION AC(50),WPC(50),R(50),R23(50),R43(50),R1(50)
      DIMENSION AO1(50),WPO1(50),RO1(50),RO123(50),R2(50)
      DIMENSION AO2(50),WPO2(50),RO2(50),RO223(50),R3(50)
      DIMENSION AO3(50),WPO3(50),RO3(50),RO323(50),R4(50)
      DIMENSION AO4(50),WPO4(50),RO4(50),RO423(50),R5(50)
      DIMENSION QO1(50),QO2(50),QO3(50),QO4(50)
      DIMENSION VO1(50),VO2(50),VO3(50),VO4(50)
      DIMENSION VC(50),QC(50)
   25 READ(2,1)
    1 FORMAT('
      WRITE(5,1)
 9999 READ(2,2)I,STA1,STA2,E,S,Q
    2 FORMAT(1X,I2,1X,2A3,1X,F8.2,1X,F9.6,1X,F8.0)
      IF(I-60)56,6,6
   56 READ(2,3)C1,C2,C3,C4,C5
    3 FORMAT(5(1X,F7.4))
      GO TO 444
   23 READ(2,24)I,STA1,STA2,E,TL
   24 FORMAT(1X,I2,1X,2A3,1X,F8.2,1X,F7.0)
      IF(I-50)39,40,6
   39 READ(2,7000)Q
 7000 FORMAT(F10.2)
  444 II=I
      READ(2,4)N1,N2,N3,N4,N5
    4 FORMAT(5(1X,I2))
      IF(N1-50)5,5,6
    5 CONTINUE
      IF(N1)6,60,61
   61 READ(2,7)(E1(K),D1(K),K=1,N1)
    7 FORMAT(2F8.2)
   60 IF(N2)6,62,63
   63 READ(2,57)(E2(K),D2(K),K=1,N2)
   57 FORMAT(2F8.2)
   62 IF(N3)6,64,65
   65 READ(2,58)(E3(K),D3(K),K=1,N3)
   58 FORMAT(2F8.2)
   64 IF(N4)6,66,67
   67 READ(2,59)(E4(K),D4(K),K=1,N4)
   59 FORMAT(2F8.2)
   66 IF(N5)6,68,69
   69 READ(2,70)(E5(K),D5(K),K=1,N5)
   70 FORMAT(2F8.2)
   68 CONTINUE
      J1=N1-1
      AC(I)=0.0
```



```
      WPC(I)=0.0
      DO 8 J=1,J1
      AC(I)=AC(I)+.5*(2.*E-E1(J)-E1(J+1))*(D1(J+1)-D1(J))
    8 WPC(I)=WPC(I)+SQRT((ABS(E1(J+1)-E1(J)))**2.+(D1(J+1)-D1(J))**2.)
      R(I)=AC(I)/WPC(I)
      R23(I)=R(I)**.667
      R43(I)=R(I)**1.333
      R1(I)=R23(I)*AC(I)/C1
      IF(N2)6,71,72
   71 AO1(I)=0.
      WPO1(I)=0.
      RO1(I)=0.
      RO123(I)=0.
      R2(I)=0.
      GO TO 171
   72 J2=N2-1
      AO1(I)=0.0
      WPO1(I)=0.0
      DO 9 J=1,J2
      AO1(I)=AO1(I)+.5*(2.*E-E2(J)-E2(J+1))*(D2(J+1)-D2(J))
    9 WPO1(I)=WPO1(I)+SQRT((ABS(E2(J+1)-E2(J)))**2.+(D2(J+1)-D2(J))**2.)
      RO1(I)=AO1(I)/WPO1(I)
      RO123(I)=RO1(I)**.667
      R2(I)=RO123(I)*AO1(I)/C2
  171 IF(N3)6,74,75
   74 AO2(I)=0.
      WPO2(I)=0.
      RO2(I)=0.
      RO223(I)=0.
      R3(I)=0.
      GO TO 174
   75 J3=N3-1
      AO2(I)=0.0
      WPO2(I)=0.0
      DO 10 J=1,J3
      AO2(I)=AO2(I)+.5*(2.*E-E3(J)-E3(J+1))*(D3(J+1)-D3(J))
   10 WPO2(I)=WPO2(I)+SQRT((ABS(E3(J+1)-E3(J)))**2.+(D3(J+1)-D3(J))**2.)
      RO2(I)=AO2(I)/WPO2(I)
      RO223(I)=RO2(I)**.667
      R3(I)=RO223(I)*AO2(I)/C3
  174 IF(N4)6,76,77
   76 AO3(I)=0.
      WPO3(I)=0.
      RO3(I)=0.
      RO323(I)=0.
      R4(I)=0.
      GO TO 176
   77 J4=N4-1
      AO3(I)=0.0
      WPO3(I)=0.0
      DO 11 J=1,J4
      AO3(I)=AO3(I)+.5*(2.*E-E4(J)-E4(J+1))*(D4(J+1)-D4(J))
   11 WPO3(I)=WPO3(I)+SQRT((ABS(E4(J+1)-E4(J)))**2.+(D4(J+1)-D4(J))**2.)
      RO3(I)=AO3(I)/WPO3(I)
```

```
      RO323(I)=RO3(I)**.667
      R4(I)=RO323(I)*AO3(I)/C4
  176 IF(N5)6,78,79
   78 AO4(I)=0.
      WPO4(I)=0.
      RO4(I)=0.
      RO423(I)=0.
      R5(I)=0.
      GO TO 178
   79 J5=N5-1
      AO4(I)=0.0
      WPO4(I)=0.0
      DO 12 J=1,J5
      AO4(I)=AO4(I)+.5*(2.*E-E5(J)-E5(J+1))*(D5(J+1)-D5(J))
   12 WPO4(I)=WPO4(I)+SQRT((ABS(E5(J+1)-E5(J)))**2.+(D5(J+1)-D5(J))**2.)
      RO4(I)=AO4(I)/WPO4(I)
      RO423(I)=RO4(I)**.667
      R5(I)=RO423(I)*AO4(I)/C5
  178 CONTINUE
      QO1(I)=R2(I)*Q/(R1(I)+R2(I)+R3(I)+R4(I)+R5(I))
      VO1(I)=QO1(I)/AO1(I)
      QO2(I)=R3(I)*Q/(R1(I)+R2(I)+R3(I)+R4(I)+R5(I))
      VO2(I)=QO2(I)/AO2(I)
      QO3(I)=R4(I)*Q/(R1(I)+R2(I)+R3(I)+R4(I)+R5(I))
      VO3(I)=QO3(I)/AO3(I)
      QO4(I)=R5(I)*Q/(R1(I)+R2(I)+R3(I)+R4(I)+R5(I))
      VO4(I)=QO4(I)/AO4(I)
      Q1=R1(I)*Q/(R1(I)+R2(I)+R3(I)+R4(I)+R5(I))
      IF(I-1)6,26,27
   26 CONTINUE
      S12=SQRT(S)
      Q2=(1.486*AC(I)*R23(I)*S12)/C1
      V=Q2/AC(I)
      QC(I)=Q2
      VC(I)=V
      G=32.2
      HO=V**2./(2.*G)
      CK=((C1**2.)*2.*G)/2.208
      EE=E+HO
      EB=E+HO
      IF(Q2-Q1)13,14,15
   13 IF(Q2-Q1+.02*Q)16,14,14
   16 E=E+.02
      E2(1)=E
      E2(N2)=E
      GO TO 68
   15 IF(Q2-Q1-.02*Q)14,14,18
   18 E=E-.02
      IF(N2)6,200,201
  200 D1(1)=D1(1)+.02*(D1(2)-D1(1))/(E1(1)-E1(2))
      D1(N1)=D1(N1)-.02*(D1(N1)-D1(N1-1))/(E1(N1)-E1(N1-1))
      E1(1)=E
      E1(N1)=E
      GO TO 68
```



```
  201 CONTINUE
      D2(1)=D2(1)+.02*(D2(2)-D2(1))/(E2(1)-E2(2))
      D2(N2)=D2(N2)-.02*(D2(N2)-D2(N2-1))/(E2(N2)-E2(N2-1))
      E2(1)=E
      E2(N2)=E
      GO TO 68
   14 WRITE(5,19)Q,C1,CK,S
   19 FORMAT(1X,'Q=',F8.0,2X,'NC=',F6.2,2X,'K=',F8.6,2X,'SO=',F8.6)
      WRITE(5,20)
   20 FORMAT(2X,'STA',3X,'ID',2X,'W.S.EL.',3X,'L',8X,'QC',6X,'VC',3X,' V
     1C2/2G',4X,'S',8X,'SAV',5X,'HF',5X,'HT',4X,'HSUM',3X,'ENERGY',3X,'E
     2N.BAL.')
      E=E+.005
      WRITE(5,21)STA1,STA2,I,E,Q2,V,HO,S,EE,EB
   21 FORMAT(1X,2A3,1X,I2,1X,F8.2,9X,F8.0,1X,F6.2,1X,F6.2,1X,F8.6,31X,F8
     1.2,1X,F8.2)
      GO TO 23
   27 VV=Q1/AC(I)
      QC(I)=Q1
      VC(I)=VV
      G=32.2
      HI=VV**2./(2.*G)
      DH=HO-HI
      IF(DH)28,29,30
   28 HT=.3*(ABS(DH))
      GO TO 31
   29 HT=0.0
      GO TO 31
   30 HT=.1*DH
   31 SS=(HI*CK)/R43(I)
      SAV=(SS+S)/2.
      HF=TL*SAV
      HS=HF+HT
      EN=E+HI
      ENB=EB+HS
      IF(EN-ENB)32,33,34
   32 IF(EN-ENB+.1)16,33,33
   34 IF(EN-ENB-.1)33,33,18
   33 E=E+.005
      WRITE(5,37)STA1,STA2,I,E,TL,Q1,VV,HI,SS,SAV,HF,HT,HS,EN,ENB
   37 FORMAT(1X,2A3,I3,F9.2,F8.0,F9.0,2F7.2,2F9.6,3F7.2,2F9.2)
      HO=HI
      S=SS
      EB=ENB
      GO TO 23
   40 WRITE(5,41)C1,CK
   41 FORMAT(' CHANNEL',4X,'NC=',F7.4,4X,'K=',F8.6)
      WRITE(5,42)
   42 FORMAT(2X,'I',3X,'AC',7X,'WPC',5X,'RC',5X,'RC23',3X,'RC43',2X,'R23
     1A/NC',6X,'QC',6X,'VC')
      WRITE(5,43)(I,AC(I),WPC(I),R(I),R23(I),R43(I),R1(I),QC(I),VC(I),I=
     11,II)
   43 FORMAT(1X,I2,2F9.0,3F7.2,F9.0,F9.0,F7.2)
      WRITE(5,44)C2
```

```
   44 FORMAT(' OVERBANK(1)',4X,'NO(1)=',F7.4)
      WRITE(5,45)
   45 FORMAT(2X,'I',5X,'AO',7X,'WPO',5X,'RO',3X,'RO23',2X,'R23A/NO',6X,'
     1QO',6X,'VO')
      WRITE(5,46)(I,AO1(I),WPO1(I),RO1(I),RO123(I),R2(I),QO1(I),VO1(I),I
     1=1,II)
   46 FORMAT(1X,I2,2F9.0,2F7.2,F9.0,F9.0,F7.2)
      WRITE(5,47)C3
   47 FORMAT(' OVERBANK(2)',4X,'NO(2)=',F7.4)
      WRITE(5,48)
   48 FORMAT(2X,'I',5X,'AO',7X,'WPO',5X,'RO',3X,'RO23',2X,'R23A/NO',6X,'
     1QO',6X,'VO')
      WRITE(5,49)(I,AO2(I),WPO2(I),RO2(I),RO223(I),R3(I),QO2(I),VO2(I),I
     1=1,II)
   49 FORMAT(1X,I2,2F9.0,2F7.2,F9.0,F9.0,F7.2)
      WRITE(5,50)C4
   50 FORMAT(' OVERBANK(3)',4X,'NO(3)=',F7.4)
      WRITE(5,51)
   51 FORMAT(2X,'I',5X,'AO',7X,'WPO',5X,'RO',3X,'RO23',2X,'R23A/NO',6X,'
     1QO',6X,'VO')
      WRITE(5,52)(I,AO3(I),WPO3(I),RO3(I),RO323(I),R4(I),QO3(I),VO3(I),I
     1=1,II)
   52 FORMAT(1X,I2,2F9.0,2F7.2,F9.0,F9.0,F7.2)
      WRITE(5,53)C5
   53 FORMAT(' OVERBANK(4)',4X,'NO(4)=',F7.4)
      WRITE(5,54)
   54 FORMAT(2X,'I',5X,'AO',7X,'WPO',5X,'RO',3X,'RO23',2X,'R23A/NO',6X,'
     1QO',6X,'VO')
      WRITE(5,55)(I,AO4(I),WPO4(I),RO4(I),RO423(I),R5(I),QO4(I),VO4(I),I
     1=1,II)
   55 FORMAT(1X,I2,2F9.0,2F7.2,F9.0,F9.0,F7.2)
      GO TO 9999
    6 WRITE(5,1000)
 1000 FORMAT('1')
      CALL EXIT
      END
```

Q = 68,000 cfs

```
// JOB     0001 02E1                                                    BCKW2
// XEQ BCKW2
 ASU-SALT RIVER STUDY 1972 TOPO RUN 2 Q=68000
   1 12      1154.36   0.0016     68000.
  0.040    0.050    0.070    0.095
  11  5
 1154.    1030.
 1150.    1150.
 1140.    1180.
 1140.    1230.
 1142.    1300.
 1142.    1550.
 1144.    1580.
 1144.    1810.
 1146.    1910.
 1148.    2020.
 1150.    2030.
 1156.     170.
 1152.     200.
 1152.     650.
 1154.     770.
 1154.    1030.
   2 13      1155.22   500.
 68000.
  14  8
 1154.    1460.
 1152.    1480.
 1142.    1510.
 1140.    1550.
 1140.    1730.
 1142.    1810.
 1144.    1870.
 1144.    2050.
 1146.    2110.
 1150.    2170.
 1152.    2270.
 1156.    2300.
 1158.    2350.
 1160.    2360.
 1154.     420.
 1152.     600.
 1152.     790.
 1154.     840.
 1156.     860.
 1156.     910.
 1154.    1150.
 1154.    1460.
   3 14      1156.22   500.
 68000.
  13  6
 1154.    1440.
 1152.    1590.
 1150.    1610.
 1148.    1620.
 1146.    1650.
 1144.    1890.
 1142.    1930.
 1142.    2070.
 1142.    2290.
 1144.    2300.
 1146.    2320.
 1150.    2330.
 1160.    2350.
 1154.     420.
 1154.     460.
 1158.     990.
 1158.    1030.
 1156.    1060.
 1154.    1440.
   4 15      1157.26   500.
 68000.
  13  9
 1154.    1640.
 1150.    1680.
 1148.    1730.
 1146.    1740.
 1146.    1750.
 1144.    1830.
 1144.    1930.
 1142.    2370.
 1140.    2420.
 1140.    2730.
 1150.    2770.
 1160.    2840.
 1170.    2870.
 1160.       0.
 1158.      40.
 1154.     100.
 1154.     890.
 1156.     970.
 1156.    1090.
 1152.    1450.
 1152.    1590.
 1154.    1640.
   5 16      1157.42   400.
 68000.
  27  6
 1154.    1560.
 1150.    1590.
 1148.    1650.
 1148.    1750.
 1150.    1750.
 1156.    1800.
 1152.    1850.
 1154.    1870.
 1152.    1880.
 1150.    1900.
 1148.    1900.
 1148.    1940.
 1146.    1970.
 1146.    2040.
 1144.    2050.
 1144.    2170.
 1146.    2580.
 1146.    2650.
 1144.    2700.
 1142.    2710.
 1142.    2810.
 1144.    2820.
 1144.    2850.
 1142.    2950.
 1142.    3030.
 1150.    3050.
 1160.    3060.
 1160.       0.
 1158.      10.
 1156.      90.
 1156.     100.
 1156.    1310.
 1154.    1560.
   6 17      1157.66   500.
 68000.
  30
 1158.    1480.
 1156.    1500.
 1152.    1520.
 1152.    1630.
 1150.    1650.
 1150.    1740.
 1152.    1750.
 1152.    1770.
 1154.    1810.
 1154.    1910.
 1150.    1930.
 1148.    2050.
 1144.    2080.
 1144.    2110.
 1146.    2200.
 1146.    2280.
 1148.    2350.
 1148.    2610.
 1146.    2630.
 1144.    2660.
 1144.    2710.
 1146.    2760.
 1148.    2800.
 1148.    2860.
 1146.    2870.
 1144.    3000.
 1144.    3080.
 1150.    3090.
 1160.    3100.
 1170.    3110.
   7 18      1158.06   500.
 68000.
  40  3
 1158.    2050.
 1156.    2060.
 1150.    2090.
 1150.    2250.
 1152.    2280.
 1150.    2350.
 1150.    2480.
 1152.    2500.
 1154.    2520.
 1156.    2500.
 1156.    2640.
 1154.    2700.
 1152.    2720.
 1150.    2730.
 1150.    2760.
 1146.    2780.
 1146.    2860.
 1148.    2890.
 1148.    2970.
 1146.    2980.
 1146.    3010.
 1148.    3030.
 1148.    3080.
 1146.    3120.
 1146.    3160.
 1150.    3170.
 1152.    3180.
 1150.    3200.
 1148.    3220.
 1148.    3260.
 1146.    3270.
 1148.    3290.
 1150.    3300.
 1150.    3360.
 1148.    3400.
 1146.    3470.
 1146.    3680.
 1148.    3700.
 1150.    3710.
 1160.    3730.
1158.06   1626.
 1158.    1630.
 1158.    2050.
   8 19      1158.4    500.
 68000.
  09 13  6
 1152.    3210.
 1150.    3300.
 1148.    3310.
 1146.    3390.
 1146.    3440.
 1148.    3590.
 1148.    3820.
 1150.    3890.
 1160.    3970.
 1156.    1880.
 1158.    1910.
 1156.    2130.
 1156.    2450.
 1154.    2470.
 1152.    2480.
 1152.    2550.
 1150.    2570.
 1148.    2580.
 1150.    2600.
 1154.    2670.
 1154.    2850.
 1152.    3210.
 1160.      30.
 1160.     410.
 1158.     930.
 1158.    1500.
 1156.    1600.
 1156.    1880.
   9 20      1159.94   550.
 68000.
  11  3
 1156.    2620.
 1156.    2680.
 1154.    3180.
 1152.    3280.
 1150.    3400.
 1150.    3780.
 1152.    3870.
 1154.    3940.
 1156.    3990.
 1158.    4050.
 1160.    4100.
 1160.    1270.
 1158.    2000.
 1156.    2620.
  10 21      1161.18   450.
 68000.
  24  5  0  9
 1160.    2290.
 1158.    2320.
 1156.    2410.
 1156.    2650.
 1154.    2690.
 1154.    2760.
 1152.    3000.
 1150.    3100.
 1150.    3150.
 1156.    3170.
 1158.    3180.
 1156.    3220.
 1150.    3290.
 1146.    3220.
 1146.    3390.
 1148.    3400.
 1148.    3490.
 1150.    3620.
 1152.    3680.
 1148.    3690.
```

1152.	3710.
1152.	3760.
1154.	3790.
1156.	3800.
1156.	3800.
1156.	3880.
1158.	4170.
1160.	4180.
1160.	4190.
1160.	40.
1160.	1820.
1158.	1830.
1156.	1840.
1156.	1860.
1158.	1870.
1158.	2010.
1160.	2210.
1160.	2290.

11 22 1161.52 500.
68000.
8 8 18 7

1160.	2650.
1150.	2740.
1150.	2880.
1148.	3100.
1148.	3240.
1150.	3300.
1152.	3370.
1160.	3410.
1160.	3410.
1162.	3420.
1160.	3460.
1160.	3640.
1158.	3680.
1158.	3710.
1160.	3720.
1160.	3910.
1160.	1420.
1158.	1740.
1156.	1790.
1152.	1820.
1156.	1860.
1156.	1910.
1156.	1930.
1158.	1940.
1158.	2060.
1160.	2080.
1160.	2110.
1158.	2120.
1158.	2340.
1156.	2570.
1154.	2590.
1156.	2600.
1158.	2610.
1160.	2650.
1162.	60.

ASU-SALT RIVER STUDY 1972 TCPO RUN 2 Q=68000
Q= 68000. NC= 0.04 K=0.046666 SO=0.001600

STA	ID	W.S.EL.	L	QC	VC	VC2/2G	S	SAV	HF	HT	HSUM	ENERGY	EN.BAL.
√12	1	1154.36		66990.	6.81	0.72	0.001600					1155.08	1155.08
√13	2	1155.22	500.	65484.	7.38	0.84	0.001878	0.001739	0.86	0.03	0.90	1156.06	1155.98
√14 -.04	3	1156.18	500.	67985.	7.00	0.76	0.001525	0.001702	0.85	0.00	0.85	1156.94	1156.84
√15 -.04	4	1157.22	500.	62164.	3.89	0.23	0.000363	0.000944	0.47	0.05	0.52	1157.45	1157.37
√16 -.04	5	1157.38	400.	66679.	3.89	0.23	0.000434	0.000398	0.15	0.00	0.15	1157.61	1157.53
√17 -.04	6	1157.62	500.	68000.	4.43	0.30	0.000723	0.000579	0.28	0.02	0.31	1157.92	1157.84
√18 -.04	7	1158.02	500.	67999.	4.69	0.34	0.000940	0.000832	0.41	0.01	0.42	1158.36	1158.26
√19	8	1158.40	500.	51442.	7.02	0.76	0.001747	0.001343	0.67	0.12	0.79	1159.16	1159.06
√20 -.26	9	1159.68	550.	66599.	6.91	0.74	0.002859	0.002303	1.26	0.00	1.26	1160.42	1160.33
√21 -.20	10	1160.98	450.	63104.	4.89	0.37	0.001121	0.001990	0.89	0.03	0.93	1161.35	1161.26
√22 -.16	11	1161.36	500.	58492.	6.93	0.74	0.001413	0.001267	0.63	0.11	0.74	1162.10	1162.01

1162.	730.
1160.	740.
1158.	750.
1158.	840.
1160.	860.
1160.	1420.
50.	
99	

345 CARDS LISTED

CHANNEL NC= 0.0400 K=0.046666

I	AC	WPC	RC	RC23	RC43	R23A/NC	QC	VC
I	9829.	1002.	9.81	4.58	20.98	1127020.	66990.	6.81
2	8867.	902.	9.82	4.59	21.02	1017824.	65484.	7.38
3	9703.	913.	10.61	4.83	23.32	1172894.	67985.	7.00
4	15950.	1234.	12.92	5.51	30.30	2198013.	62164.	3.89
5	17099.	1511.	11.31	5.04	25.37	2155998.	66679.	3.89
6	15325.	1637.	9.35	4.44	19.70	1702694.	68000.	4.43
7	14473.	1726.	8.38	4.12	17.01	1494079.	67999.	4.69
8	7323.	760.	9.62	4.52	20.45	829123.	51442.	7.02
9	9625.	1480.	6.50	3.48	12.13	838948.	66599.	6.91
10	12899.	1653.	7.80	3.93	15.46	1269436.	63104.	4.89
11	8433.	761.	11.07	4.97	24.66	1048423.	58492.	6.93

OVERBANK(1) NO(1)= 0.0500

I	AC	WPO	RO	RO23	R23A/NO	QO	VO
1	1329.	860.	1.54	1.33	35547.	2079.	1.56
2	1518.	1040.	1.46	1.28	39099.	2515.	1.65
3	71.	984.	0.07	0.17	247.	14.	0.20
4	4943.	1640.	3.01	2.08	206347.	5835.	1.18
5	1882.	1559.	1.20	1.13	42688.	1320.	0.70
6	0.	0.	0.00	0.00	0.	0.	0.00
7	2.	206.	0.00	0.04	1.	0.	0.04
8	5301.	1330.	3.98	2.51	266594.	16540.	3.11
9	991.	1180.	0.83	0.89	17646.	1400.	1.41
10	1366.	384.	3.55	2.33	63679.	3165.	2.31
11	588.	482.	1.22	1.14	13445.	750.	1.27

OVERBANK(2) NO(2)= 0.0700

I	AC	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	119.	1850.	0.06	0.16	275.	17.	0.14
9	0.	0.	0.00	0.00	0.	0.	0.00
10	0.	0.	0.00	0.00	0.	0.	0.00
11	4492.	1231.	3.64	2.37	152138.	8487.	1.88

OVERBANK(3) NO(3)= 0.0950

I	AC	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	0.	0.	0.00	0.00	0.	0.	0.00
9	0.	0.	0.00	0.00	0.	0.	0.00
10	2834.	2250.	1.25	1.16	34797.	1729.	0.61
11	709.	1360.	0.52	0.64	4832.	269.	0.38

```
// JOB     0001 02E1                                    BCKW2
// XEQ BCKW2
 ASU-SALT RIVER STUDY 1972 TOPO RUN 4 Q=68000
  1 12      1151.97   0.0016      68000.
 0.040    0.050    0.050    0.070    0.095
 11
1154.      885.
1140.      910.
1140.     1180.
1140.     1230.
1142.     1300.
1142.     1550.
1144.     1590.
1144.     1810.
1146.     1910.
1148.     2020.
1150.     2039.
  2 13      1152.99   500.
68000.
 16
1156.      905.
1140.      930.
1140.     1530.
1152.8    1555.
1152.8    1570.
1140.     1600.
1140.     1730.
1142.     1810.
1144.     1870.
1144.     2050.
1146.     2110.
1150.     2170.
1152.     2270.
1156.     2300.
1158.     2350.
1160.     2360.
  3 14      1153.45   500.
68000.
 16
1157.      835.
1140.      880.
1140.     1480.
1153.     1505.
1152.     1590.
1150.     1610.
1148.     1620.
1146.     1650.
1144.     1890.
1142.     1930.
1142.     2070.
1142.     2290.
1144.     2300.
1146.     2320.
1150.     2330.
1160.     2350.
  4 15      1153.80   500.
68000.
 17  0  2
1154.      870.
1141.      890.
1141.     1510.
1153.3    1535.
1153.3    1548.
1152.     1550.
1152.     1590.
1154.     1640.
1150.     1680.
1148.     1730.
1146.     1740.
1146.     1750.
1144.     1830.
1144.     1930.
1142.     2370.
1140.     2420.
1140.     2550.
1140.     2550.
1158.     2560.
  5 16      1153.97   400.
68000.
 20  0  2
1155.      955.
1142.      980.
1142.     1600.
1154.     1625.
1154.     1635.
1148.     1650.
1148.     1700.
1150.     1750.
1156.     1800.
1152.     1850.
1154.     1870.
1152.     1880.
1150.     1900.
1148.     1910.
1148.     1940.
1146.     1970.
1146.     2040.
1144.     2050.
1144.     2170.
1145.5    2510.
1145.5    2510.
1158.4    2520.
  6 17      1154.50   500.
68000.
 19  0  2
1156.      975.
1143.     1000.
1143.     1600.
1154.4    1620.
1154.4    1635.
1150.     1650.
1150.     1740.
1152.     1750.
1152.     1770.
1154.     1810.
1154.     1910.
1150.     1930.
1148.     2050.
1144.     2080.
1144.     2110.
1146.     2200.
1146.     2280.
1148.     2350.
1148.     2430.
1148.     2430.
1158.     2439.
  7 18      1155.36   500.
68000.
 24  0  2
1158.5    1560.
1144.5    1590.
1144.5    2190.
1155.     2210.
1155.     2225.
1150.     2235.
1150.     2250.
1152.     2280.
1150.     2350.
1150.     2480.
1152.     2500.
1154.     2520.
1156.     2560.
1156.     2640.
1154.     2700.
1152.     2720.
1150.     2730.
1150.     2760.
1146.     2780.
1146.     2860.
1148.     2890.
1148.     2970.
1146.     2980.
1146.     3010.
1146.     3010.
1159.     3020.
  8 19      1156.48   500.
68000.
 13  0  2
1156.5    2080.
1146.     2100.
1146.     2700.
1155.5    2720.
1155.5    2735.
1154.     2740.
1154.     2850.
1152.     3210.
1150.     3300.
1148.     3310.
1146.     3390.
1146.     3440.
1147.     3520.
1147.     3520.
1160.     3530.
  9 20      1157.42   550.
68000.
  5  5  2
1155.     2890.
1154.     3180.
1152.     3280.
1150.     3400.
1150.     3690.
1158.     2000.
1157.     2250.
1147.     2270.
1147.     2880.
1155.     2890.
1150.     3690.
1160.     3700.
 10 21      1159.06   450.
68000.
 23  0  4  0  8
1160.     2290.
1158.     2320.
1157.     2360.
1148.     2380.
1148.     3090.
1158.     3110.
1158.     3120.
1150.     3140.
1150.     3150.
1156.     3170.
1158.     3180.
1156.     3220.
1150.     3290.
1146.     3390.
1148.     3400.
1148.     3490.
1150.     3620.
1152.     3680.
1148.     3690.
1152.     3710.
1152.     3760.
1154.     3790.
1156.     3800.
1156.     3800.
1156.     3880.
1158.     4170.
1160.     4180.
1160.     1820.
1158.     1830.
1156.     1840.
1156.     1860.
1158.     1870.
1158.     2010.
1160.     2210.
1160.     2290.
 11 22      1159.45   500.
68000.
  8  0  0 14
1158.     2350.
1149.5    2380.
1149.5    3290.
1158.     3310.
1158.     3325.
1151.     3340.
1152.     3370.
1160.     3410.
1160.     1420.
1158.     1740.
1156.     1790.
1152.     1820.
1156.     1800.
1156.     1910.
1156.     1930.
1158.     1940.
1158.     2060.
1160.     2080.
1160.     2110.
1158.     2120.
1158.     2340.
1158.     2350.
 50
 99
                                   253 CARDS LISTED
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ASU-SALT RIVER STUDY 1972 TOPO RUN 4 Q=68000

Q= 68000. NC= 0.04 K=0.046666 SO=0.001600

STA	ID	W.S.EL.	L	QC	VC	VC2/2G	S	SAV	HF	HT	HSUM	ENERGY	EN.BAL.
12	1	1151.97		69279.	6.51	0.65	0.001600					1152.62	1152.62
13	2	1152.99	500.	68000.	4.91	0.37	0.000878	0.001239	0.61	0.02	0.64	1153.36	1153.27
14	3	1153.45	500.	68000.	4.33	0.29	0.000607	0.000742	0.37	0.00	0.37	1153.74	1153.65
15	4	1153.80	500.	67945.	3.84	0.22	0.000467	0.000537	0.26	0.00	0.27	1154.02	1153.93
16	5	1153.97	400.	67978.	4.90	0.37	0.000952	0.000710	0.28	0.04	0.32	1154.34	1154.25
17	6	1154.50	500.	67984.	5.84	0.52	0.001558	0.001255	0.62	0.04	0.67	1155.03	1154.93
18	7	1155.34	500.	67941.	6.57	0.67	0.002299	0.001928	0.96	0.04	1.00	1156.01	1155.94
19	8	1156.48	500.	67940.	6.34	0.62	0.002022	0.002161	1.08	0.00	1.08	1157.10	1157.02
20	9	1157.68	550.	27080.	6.13	0.58	0.002793	0.002408	1.32	0.00	1.32	1158.26	1158.35
21	10	1158.94	450.	66799.	4.87	0.36	0.000916	0.001855	0.83	0.02	0.85	1159.30	1159.21
22	11	1159.35	500.	66744.	6.88	0.73	0.001807	0.001362	0.68	0.11	0.79	1160.08	1160.00

CHANNEL NC= 0.0400 K=0.046666

I	AC	WPC	RC	RC23	RC43	R23A/NC	QC	VC
1	10627.	1157.	9.17	4.38	19.20	1165541.	69279.	6.51
2	13836.	1466.	9.43	4.46	19.92	1545930.	68000.	4.91
3	15699.	1525.	10.29	4.73	22.37	1858655.	68000.	4.33
4	17676.	1687.	10.47	4.79	22.89	2117201.	67945.	3.84
5	13850.	1563.	8.85	4.28	18.31	1483603.	67978.	4.90
6	11637.	1462.	7.95	3.98	15.86	1160159.	67984.	5.84
7	10337.	1457.	7.09	3.69	13.61	954443.	67941.	6.57
8	10704.	1445.	7.40	3.80	14.42	1017612.	67940.	6.34
9	4416.	800.	5.52	3.12	9.75	345086.	27080.	6.13
10	13697.	1516.	9.03	4.34	18.79	1486326.	66799.	4.87
11	9695.	1064.	9.10	4.36	19.00	1057682.	66744.	6.88

OVERBANK(1) NO(1)= 0.0500

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	0.	0.	0.00	0.00	0.	0.	0.00
9	6764.	896.	7.54	3.84	520626.	40855.	6.03
10	0.	0.	0.00	0.00	0.	0.	0.00
11	0.	0.	0.00	0.00	0.	0.	0.00

OVERBANK(2) NO(2)= 0.0500

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	47.	20.	2.33	1.75	1688.	54.	1.12
5	20.	16.	1.23	1.15	465.	21.	1.05
6	13.	13.	1.00	1.00	270.	15.	1.17
7	28.	16.	1.73	1.44	819.	58.	2.05
8	29.	16.	1.81	1.48	887.	59.	1.98
9	26.	14.	1.89	1.53	819.	64.	2.40
10	797.	380.	2.09	1.63	26119.	1173.	1.47
11	0.	0.	0.00	0.00	0.	0.	0.00

OVERBANK(3) NO(3)= 0.0700

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	0.	0.	0.00	0.00	0.	0.	0.00
9	0.	0.	0.00	0.00	0.	0.	0.00
10	0.	0.	0.00	0.00	0.	0.	0.00
11	1205.	971.	1.24	1.15	19887.	1255.	1.04

OVERBANK(4) NO(4)= 0.0950

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	0.	0.	0.00	0.00	0.	0.	0.00
9	0.	0.	0.00	0.00	0.	0.	0.00
10	131.	470.	0.27	0.42	592.	26.	0.20
11	0.	0.	0.00	0.00	0.	0.	0.00

ASU-SALT RIVER STUDY 1972 TOPO RUN 5 Q=68000

Q= 68000. NC= 0.04 K=0.046666 SO=0.001600

STA	ID	W.S.EL.	L	QC	VC	VC2/2G	S	SAV	HF	HT	HSUM	ENERGY	EN.BAL.
12	1	1151.96		69154.	6.51	0.65	0.001600					1152.61	1152.61
13	2	1152.99	500.	68000.	4.91	0.37	0.000878	0.001239	0.61	0.02	0.64	1153.36	1153.26
14	3	1153.45	500.	68000.	4.40	0.30	0.000643	0.000760	0.38	0.00	0.38	1153.75	1153.65
15	4	1153.72	500.	66187.	6.54	0.66	0.001491	0.001067	0.53	0.10	0.64	1154.38	1154.29
16	5	1154.15	400.	63018.	8.05	1.00	0.001793	0.001642	0.65	0.10	0.75	1155.15	1155.05
17	6	1155.14	500.	64977.	7.89	0.96	0.002096	0.001945	0.97	0.00	0.97	1156.10	1156.03
18	7	1156.16	500.	62265.	7.71	0.92	0.002074	0.002085	1.04	0.00	1.04	1157.08	1157.07
19	8	1157.35	500.	56151.	7.42	0.85	0.002020	0.002047	1.02	0.00	1.03	1158.20	1158.10
20	9	1159.27	550.	4144.	6.06	0.57	0.003852	0.002936	1.61	0.02	1.64	1159.84	1159.75
21	10	1160.64	450.	64631.	4.07	0.25	0.000678	0.002265	1.01	0.03	1.05	1160.89	1160.80
22	11	1160.87	500.	67409.	5.98	0.55	0.001123	0.000900	0.45	0.08	0.54	1161.42	1161.34

CHANNEL NC= 0.0400 K=0.046666

I	AC	WPC	RC	RC23	RC43	R23A/NC	QC	VC
1	10615.	1157.	9.16	4.38	19.17	1163431.	69154.	6.51
2	13836.	1466.	9.43	4.46	19.92	1545930.	68000.	4.91
3	15436.	1526.	10.11	4.68	21.85	1806207.	68000.	4.40
4	10114.	1037.	9.74	4.56	20.80	1154777.	66187.	6.54
5	7827.	675.	11.58	5.12	26.18	1002569.	63018.	8.05
6	8228.	822.	10.00	4.64	21.55	956186.	64977.	7.89
7	8066.	827.	9.75	4.56	20.81	921155.	62265.	7.71
8	7558.	804.	9.39	4.45	19.79	841687.	56151.	7.42
9	683.	159.	4.26	2.63	6.92	44968.	4144.	6.06
10	15859.	1833.	8.65	4.21	17.74	1671977.	64631.	4.07
11	11253.	1065.	10.55	4.81	23.14	1355170.	67409.	5.98

OVERBANK(3) NO(3)= 0.0700

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	0.	0.	0.00	0.00	0.	0.	0.00
9	0.	0.	0.00	0.00	0.	0.	0.00
10	0.	0.	0.00	0.00	0.	0.	0.00
11	676.	4954.	0.13	0.26	2563.	127.	0.18

OVERBANK(4) NO(4)= 0.0950

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	0.	0.	0.00	0.00	0.	0.	0.00
9	0.	0.	0.00	0.00	0.	0.	0.00
10	1895.	2291.	0.82	0.88	17576.	679.	0.35
11	800.	690.	1.15	1.10	9293.	462.	0.57

Q = 120,000 cfs

```
// JCB     0001 02E1                                   BCKW2
// XEC BCKW2
 ASL-SALT RIVER STUDY 1972 TCPO RLN 7 Q=120000
  1 12      1157.9     0.0016     120000.
 0.040    0.050    0.070    0.095
 11  65
1154.    1030.
1150.    1150.
1140.    1180.
1140.    1230.
1142.    1300.
1142.    1550.
1144.    1580.
1144.    1810.
1146.    1910.
1148.    2020.
1150.    2030.                    1157.8
1160.     160.
1156.     170.
1152.     200.
1152.     650.
1154.     770.
1154.    1030.
  2 13      1159.3    500.
120000.
 14  58
1154.    1460.
1152.    1480.
1142.    1510.
1140.    1550.
1140.    1730.
1142.    1810.
1144.    1870.
1144.    2050.
1146.    2110.
1150.    2170.                    1158.64
1152.    2270.
1156.    2300.
1158.    2350.
1160.    2360.
1160.     410.
1154.     420.
1152.     600.
1152.     790.
1154.     840.
1156.     860.
1156.     910.
1154.    1150.
1154.    1460.
  3 14      1160.6    500.
120000.
 13  8 6
1154.    1440.
1152.    1590.
1150.    1610.
1148.    1620.
1146.    1650.
1144.    1890.
1142.    1930.
1142.    2070.
1142.    2290.
1144.    2300.
1146.    2320.
1150.    2330.
1160.    2350.
1162.     340.
1160.     410.
1154.     420.
1154.     460.                     1159.52
1158.     990.
1158.    1030.
1156.    1060.
1154.    1440.
  4 15      1161.7    500.
120000.
 13  9
1154.    1640.
1150.    1680.
1148.    1730.
1146.    1740.
1146.    1750.
1144.    1830.
1144.    1930.
1142.    2370.
1140.    2420.
1140.    2730.
1150.    2770.
1160.    2840.
1170.    2870.
1160.       0.                    1161.02
1158.      40.
1154.     100.
1154.     890.
1156.     970.
1156.    1090.
1152.    1450.
1152.    1590.
1154.    1640.
  5 16      1161.3    400.
120000.
 27  6
1154.    1560.
1150.    1590.
1148.    1650.
1148.    1750.
1150.    1750.
1156.    1800.
1152.    1850.
1154.    1870.
1152.    1880.
1150.    1900.
1148.    1900.
1148.    1940.
1146.    1970.
1146.    2040.
1144.    2050.
1144.    2170.
1146.    2580.
1146.    2650.
1144.    2700.
1142.    2710.
1142.    2810.
1144.    2820.
1144.    2850.
1142.    2950.
1142.    3030.
1150.    3050.
1160.    3060.
1160.       0.
1158.      10.                    1161.18
1156.      90.
1156.     100.
1156.    1310.
1154.    1560.
  6 17      1162.0    500.
120000.
 30 11
1158.    1480.
1156.    1500.
1152.    1520.
1152.    1630.
1150.    1650.
1150.    1740.
1152.    1750.
1152.    1770.
1154.    1810.
1154.    1910.
1150.    1930.
1148.    2050.
1144.    2080.
1144.    2110.
1146.    2200.
1146.    2280.
1148.    2350.
1148.    2610.
1146.    2630.
1144.    2660.
1144.    2710.
1146.    2760.
1148.    2800.
1148.    2860.
1146.    2870.
1144.    3000.
1144.    3080.
1150.    3090.
1160.    3100.
1170.    3110.
1160.       0.
1158.      10.
1158.     630.
1160.     750.
1160.     780.
1158.     800.
1158.     850.
1156.     920.
1156.    1100.
1158.    1120.
1158.    1480.
  7 18      1162.7    500.
120000.
 40  65
1158.    2050.
1156.    2060.
1150.    2090.
1150.    2250.
1152.    2280.
1150.    2350.
1150.    2480.
1152.    2500.
1154.    2520.
1156.    2500.
1156.    2640.
1154.    2700.
1152.    2720.
1150.    2730.
1150.    2760.
1146.    2780.
1146.    2860.
1148.    2890.
1148.    2970.
1146.    2980.
1146.    3010.
1148.    3030.
1148.    3080.
1146.    3120.
1146.    3160.
1150.    3170.
1152.    3180.
1150.    3200.
1148.    3220.
1148.    3260.
1146.    3270.
1148.    3290.
1150.    3300.
1150.    3360.
1148.    3400.
1146.    3470.
1146.    3680.
1148.    3700.
1150.    3710.
1160.    3730.
1162.     170.
1160.     370.
1160.     980.
1160.    1330.
1158.    1630.
1158.    2050.
  8 19      1163.3    500.
120000.
 09 13  X6
1152.    3210.
1150.    3300.
1148.    3310.
1146.    3390.
1146.    3440.
1148.    3590.
1148.    3820.
1150.    3890.
1160.    3970.
1156.    1880.
1158.    1910.
1156.    2130.
1156.    2450.
1154.    2470.
1152.    2480.
1152.    2550.
1150.    2570.
1148.    2580.
1150.    2600.
1154.    2670.
1154.    2850.
1152.    3210.
1170.       0.
1160.      30.
1160.     410.
1158.     930.
1158.    1500.
1156.    1600.
1156.    1880.
  9 20      1163.8    550.
120000.
 11  3  0  32
1156.    2620.
1156.    2680.
1154.    3180.
1152.    3280.
1150.    3400.
1150.    3780.
1152.    3870.
1154.    3940.
1156.    3990.
1158.    4050.
1160.    4100.
1160.    1270.
1158.    2000.
1156.    2620.
1170.       0.
1152.      70.
1160.    1270.
  10 21     1164.3    450.
```

```
120000.
 24  5  0 19
1160.   2290.
1158.   2320.
1156.   2410.
1156.   2650.
1154.   2690.
1154.   2760.
1152.   3000.
1150.   3100.
1150.   3150.
1156.   3170.
1158.   3180.
1156.   3220.
1150.   3290.
1146.   3220.
1146.   3390.
1148.   3400.
1148.   3490.
1150.   3620.
1152.   3680.
1148.   3690.
1152.   3710.
1152.   3760.
1154.   3790.
1156.   3800.
1156.   3800.
1156.   3880.
1158.   4170.
1160.   4180.
1160.   4190.
1170.      0.
1160.     40.
1160.   1820.
1158.   1830.
1156.   1840.
1156.   1860.
1158.   1870.
1158.   2010.
1160.   2210.
1160.   2290.
 11 22     1165.0   500.
120000.
  8  8 18  27
1160.   2650.
1150.   2740.
1150.   2880.
1148.   3100.
1148.   3240.
1150.   3300.
1152.   3370.
1160.   3410.
1160.   3410.
1162.   3420.
1160.   3460.
1160.   3640.
```

```
1158.   3680.
1158.   3710.
1160.   3720.
1160.   3910.
1160.   1420.
1158.   1740.
1156.   1790.
1152.   1820.
1156.   1860.
1156.   1910.
1156.   1930.
1158.   1940.
1158.   2060.
1160.   2080.
1160.   2110.
1158.   2120.
1158.   2340.
1156.   2570.
1154.   2590.
1156.   2600.
1158.   2610.
1160.   2650.
1170.      0.
1168.     50.
1162.     60.
1162.    730.
1160.    740.
1158.    750.
1158.    840.
1160.    860.
1160.   1420.
 50
 99
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370 CARDS LISTED

3

ASU-SALT RIVER STUDY 1972 TOPO RUN 2 Q=120000
Q= 120000. NC= 0.04 K=0.046666 SO=0.001600

STA	ID	W.S.EL.	L	QC	VC	VC2/2G	S	SAV	HF	HT	HSUM	ENERGY	EN.BAL.
12	1	1157.80		110471.	8.32	1.07	0.001600					1158.87	1158.87
13	2	1158.64	500.	105805.	8.85	1.21	0.001817	0.001708	0.85	0.04	0.89	1159.85	1159.77
14	3	1159.52	500.	113269.	8.88	1.22	0.001707	0.001762	0.88	0.00	0.88	1160.74	1160.65
15	4	1161.02	500.	97383.	4.72	0.34	0.000378	0.001043	0.52	0.08	0.60	1161.36	1161.26
16	5	1161.18	400.	107360.	4.70	0.34	0.000431	0.000405	0.16	0.00	0.16	1161.52	1161.42
17	6	1161.38	500.	112557.	5.26	0.43	0.000655	0.000543	0.27	0.02	0.29	1161.80	1161.72
18	7	1161.72	500.	115886.	5.60	0.48	0.000830	0.000742	0.37	0.01	0.38	1162.20	1162.11
19	8	1161.96	500.	77894.	7.76	0.93	0.001405	0.001117	0.55	0.13	0.69	1162.89	1162.80
20	9	1162.94	550.	110914.	7.67	0.91	0.002047	0.001726	0.94	0.00	0.95	1163.85	1163.76
21	10	1164.08	450.	99575.	5.66	0.49	0.000995	0.001521	0.68	0.04	0.72	1164.57	1164.48
22	11	1164.32	500.	86866.	8.13	1.02	0.001417	0.001206	0.60	0.15	0.76	1165.34	1165.24

CHANNEL NC= 0.0400 K=0.046666

I	AC	WPC	RC	RC23	RC43	R23A/NC	QC	VC
1	13269.	1002.	13.24	5.60	31.30	1858533.	110471.	8.32
2	11945.	902.	13.23	5.60	31.28	1672376.	105805.	8.85
3	12742.	913.	13.94	5.79	33.52	1847008.	113269.	8.88
4	20623.	1234.	16.71	6.54	42.68	3373384.	97383.	4.72
5	22799.	1511.	15.08	6.11	37.23	3482684.	107360.	4.70
6	21388.	1641.	13.02	5.54	30.62	2962756.	112557.	5.26
7	20687.	1726.	11.98	5.24	27.39	2710260.	115886.	5.60
8	10028.	760.	13.17	5.58	31.10	1400064.	77894.	7.76
9	14449.	1480.	9.76	4.57	20.84	1651271.	110914.	7.67
10	17580.	1653.	10.63	4.83	23.36	2126891.	99575.	5.66
11	10682.	761.	14.03	5.82	33.80	1554923.	86866.	8.13

OVERBANK(1) NO(1)= 0.0500

I	AC	WPO	RO	RO23	R23A/NO	QO	VO
1	3782.	859.	4.40	2.68	203255.	11829.	3.12
2	4276.	1007.	4.24	2.62	224364.	14194.	3.31
3	2779.	1002.	2.77	1.97	109742.	6730.	2.42
4	10976.	1629.	6.73	3.56	783460.	22616.	2.06
5	7310.	1557.	4.69	2.80	410010.	12639.	1.72
6	4521.	1418.	3.18	2.16	195902.	7442.	1.64
7	3183.	1714.	1.85	1.51	96214.	4113.	1.29
8	7946.	1275.	6.22	3.38	538387.	29953.	3.76
9	2846.	1152.	2.46	1.82	104054.	6989.	2.45
10	2432.	387.	6.27	3.40	165647.	7755.	3.18
11	1723.	470.	3.66	2.37	82015.	4581.	2.65

OVERBANK(2) NO(2)= 0.0700

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	6611.	1881.	3.51	2.31	218412.	12151.	1.83
9	0.	0.	0.00	0.00	0.	0.	0.00
10	0.	0.	0.00	0.00	0.	0.	0.00
11	8132.	1231.	6.60	3.52	409201.	22860.	2.81

OVERBANK(3) NO(3)= 0.0950

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	0.	0.	0.00	0.00	0.	0.	0.00
9	2112.	1270.	1.66	1.40	31215.	2096.	0.99
10	9772.	2291.	4.26	2.63	270617.	12669.	1.29
11	4493.	1422.	3.15	2.15	101883.	5691.	1.26

```
// JOB     0001 02E1                                  BCKW2
// XEC BCKW2
 ASU-SALT RIVER STUDY 1972 TOPO RUN 4 Q=120000
  1 12      1159.      0.0016      120000.
 0.040    0.050    0.050    0.070    0.095
  11  5
1154.     885.
1140.     910.
1140.    1180.
1140.    1230.
1142.    1300.
1142.    1550.
1144.    1590.
1144.    1810.
1146.    1910.
1148.    2020.
1150.    2039.
1160.     160.
1156.     170.
1152.     200.
1152.     650.
1154.     885.
  2 13      1160.     500.
120000.
 16
1156.     905.
1140.     930.
1140.    1530.
1152.8   1555.
1152.8   1570.
1140.    1600.
1140.    1730.
1142.    1810.
1144.    1870.
1144.    2050.
1146.    2110.
1150.    2170.
1152.    2270.
1156.    2300.
1158.    2350.
1160.    2360.
1160.     410.
1154.     420.
1152.     600.
1152.     790.
1154.     840.
1156.     860.
1156.     905.
  3 14      1161.     500.
120000.
 16
1157.     835.
1140.     880.
1140.    1480.
1153.    1505.
1152.    1590.
1150.    1610.
1148.    1620.
1146.    1650.
1144.    1890.
1142.    1930.
1142.    2070.
1142.    2290.
1144.    2300.
1146.    2320.
1150.    2330.
1160.    2350.
1162.     340.
1160.     410.
1154.     420.
1154.     460.
1157.     835.
  4 15      1157.50   500.
120000.
 17  2
1154.     870.
1141.     890.
1141.    1510.
1153.3   1535.
1153.3   1548.
1152.    1550.
1152.    1590.
1154.    1640.
1150.    1680.
1148.    1730.
1146.    1740.
1146.    1750.
1144.    1830.
1144.    1930.
1142.    2370.
1140.    2420.
1140.    2550.
1158.     40.
1154.     100.
1154.     870.
1140.    2550.
1158.    2560.
  5 16      1162.46   400.
120000.
 20
1155.    2955.
1142.     980.
1142.    1600.
1154.    1625.
1154.    1635.
1148.    1650.
1148.    1700.
1150.    1750.
1156.    1800.
1152.    1850.
1154.    1870.
1152.    1880.
1150.    1900.
1148.    1910.
1148.    1940.
1146.    1970.
1146.    2040.
1144.    2050.
1144.    2170.
1145.5   2510.
1160.       0.
1158.      10.
1156.      90.
1156.     100.
1155.     955.
1145.5   2510.
1158.4   2520.
1145.5   2550.
1158.    3060.
  6 17      1158.00   500.
120000.
 19  3  2
1156.     975.
1143.    1000.
1143.    1600.
1154.4   1620.
1154.4   1635.
1150.    1650.
1150.    1740.
1152.    1750.
1152.    1770.
1154.    1810.
1154.    1910.
1150.    1930.
1148.    2050.
1144.    2080.
1144.    2110.
1146.    2200.
1146.    2280.
1148.    2350.
1148.    2430.
1158.     850.
1156.     920.
1156.     975.
1148.    2430.
1158.    2439.
  7 18      1158.50   500.
120000.
 24  0  2
1158.5   1560.
1144.5   1590.
1144.5   2190.
1155.    2210.
1155.    2225.
1150.    2235.
1150.    2250.
1152.    2280.
1150.    2350.
1150.    2480.
1152.    2500.
1154.    2520.
1156.    2560.
1156.    2640.
1154.    2700.
1152.    2720.
1150.    2730.
1150.    2760.
1146.    2780.
1146.    2860.
1148.    2890.
1148.    2970.
1146.    2980.
1146.    3010.
1146.    3010.
1159.    3020.
  8 19      1159.50   500.
120000.
 13  3  2
1156.5   2080.
1146.    2100.
1146.    2700.
1155.5   2720.
1155.5   2735.
1154.    2740.
1154.    2850.
1152.    3210.
1150.    3300.
1148.    3310.
1146.    3390.
1146.    3440.
1147.    3520.
1156.    1880.
1158.    1910.
1156.5   2080.
1147.    3520.
1160.    3530.
1170.       0.
1160.      30.
1160.     410.
1158.     930.
1158.    1500.
1156.    1600.
1156.    1880.
  9 20      1159.50   550.
120000.
  5  6  6  0  2
1155.    2890.
1154.    3180.
1152.    3280.
1150.    3400.
1150.    3690.
1160.    1270.
1158.    2000.
1157.    2250.
1147.    2270.
1147.    2880.
1155.    2690.
1150.    3690.
1160.    3700.
1160.    4100.
1156.    3990.
1158.    4050.
1160.    4100.
1161.     670.
1160.    1270.
  10 21      1166.97   450.
120000.
 23  0  5  0 10
1160.    2290.
1158.    2320.
1157.    2360.
1148.    2380.
1148.    3090.
1158.    3110.
1158.    3120.
1150.    3140.
1150.    3150.
1156.    3170.
1158.    3180.
1156.    3220.
1150.    3290.
1146.    3390.
1148.    3400.
1148.    3490.
1150.    3620.
1152.    3680.
1148.    3690.
1152.    3710.
1152.    3760.
1154.    3790.
1156.    3800.
1156.    3800.
1156.    3880.
1158.    4170.
1160.    4180.
1160.    4190.
1170.       0.
1160.      40.
1160.    1820.
1158.    1830.
1156.    1840.
1156.    1860.
1158.    1870.
1158.    2010.
1160.    2210.
1160.    2290.
  11 22      1167.12   500.
120000.
  8  0  8 14
1158.    2350.
1149.5   2380.
1149.5   3290.
1158.    3310.
1158.    3325.
1151.    3340.
1152.    3370.
1160.    3410.
1160.    3410.
1162.    3420.
1160.    3460.
1160.    3640.
1158.    3680.
1158.    3710.
1160.    3720.
1160.    3910.
1160.    1420.
1158.    1740.
1156.    1790.
1152.    1820.
1156.    1800.
1156.    1910.
1156.    1930.
1158.    1940.
1158.    2060.
1160.    2080.
1160.    2110.
1158.    2120.
1158.    2340.
1158.    2350.
1170.       0.
1168.      50.
1162.      60.
1162.     730.
1160.     740.
1158.     750.
1158.     840.
1160.     860.
1160.    1420.
  50
  99
320 CARDS LISTED
```

6

ASU-SALT RIVER STUDY 1972 TOPO RUN 4 Q=120000

Q= 120000. NC= 0.04 K=0.046666 SO=0.001600

STA	ID	W.S.EL.	L	QC	VC	VC2/2G	S	SAV	HF	HT	HSUM	ENERGY	EN.BAL.
× 12	1	1155.44		118006.	8.06	1.01	0.001600					1156.44	1156.44
× 13	2	1156.62	500.	116215.	6.08	0.57	0.000873	0.001236	0.61	0.04	0.66	1157.19	1157.10
× 14	3	1157.12	500.	119283.	5.61	0.48	0.000681	0.000777	0.38	0.00	0.39	1157.60	1157.50
× 15	4	1157.50	500.	115724.	4.84	0.36	0.000496	0.000589	0.29	0.01	0.30	1157.86	1157.81
× 16	5	1157.70	400.	110964.	5.64	0.49	0.000792	0.000644	0.25	0.03	0.29	1158.19	1158.11
× 17	6	1158.00	500.	119628.	7.15	0.79	0.001439	0.001115	0.55	0.08	0.64	1158.79	1158.75
× 18	7	1158.62	500.	119805.	7.88	0.96	0.001984	0.001711	0.85	0.05	0.90	1159.58	1159.66
× 19	8	1159.62	500.	117372.	7.70	0.92	0.001866	0.001925	0.96	0.00	0.96	1160.54	1160.63
× 20	9	1160.81	550.	59724.	8.63	1.15	0.003043	0.002454	1.35	0.07	1.42	1161.96	1162.05
× 21	10	1162.57	450.	108672.	5.70	0.50	0.000799	0.001921	0.86	0.06	0.92	1163.07	1162.98
× 22	11	1162.84	500.	104087.	7.90	0.97	0.001558	0.001179	0.58	0.13	0.72	1163.80	1163.71

CHANNEL NC= 0.0400 K=0.046666

I	AC	WPC	RC	RC23	RC43	R23A/NC	QC	VC
1	14627.	1157.	12.63	5.42	29.39	1985311.	118006.	8.06
2	19113.	1466.	13.03	5.54	30.65	2649042.	116215.	6.08
3	21253.	1525.	13.93	5.79	33.50	3079648.	119283.	5.61
4	23893.	1687.	14.15	5.85	34.21	3498823.	115724.	4.84
5	19643.	1563.	12.56	5.40	29.18	2656337.	110964.	5.64
6	16729.	1462.	11.43	5.08	25.74	2124744.	119628.	7.15
7	15187.	1458.	10.41	4.77	22.72	1812123.	119805.	7.88
8	15224.	1445.	10.53	4.80	23.07	1830505.	117372.	7.70
9	6919.	800.	8.64	4.21	17.73	729343.	59724.	8.63
10	19053.	1505.	12.65	5.43	29.47	2589315.	108672.	5.70
11	13161.	1050.	12.53	5.39	29.08	1776710.	104087.	7.90

OVERBANK(1) NO(1)= 0.0500

I	AC	WPO	RO	RO23	R23A/NO	QO	VO
1	1786.	596.	2.99	2.07	74267.	4327.	2.42
2	1749.	452.	3.86	2.46	86254.	3784.	2.16
3	672.	417.	1.61	1.37	18493.	716.	1.06
4	2785.	830.	3.35	2.24	124876.	4130.	1.48
5	267.	320.	0.83	0.88	4741.	198.	0.74
6	180.	125.	1.43	1.27	4590.	258.	1.43
7	0.	0.	0.00	0.00	0.	0.	0.00
8	161.	200.	0.80	0.86	2810.	180.	1.11
9	10516.	1629.	6.45	3.46	729562.	59742.	5.68
10	0.	0.	0.00	0.00	0.	0.	0.00
11	0.	0.	0.00	0.00	0.	0.	0.00

OVERBANK(2) NO(2)= 0.0500

I	AC	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	85.	20.	4.12	2.57	4376.	144.	1.70
5	3261.	559.	5.83	3.24	211543.	8836.	2.70
6	45.	13.	3.34	2.23	2013.	113.	2.51
7	61.	16.	3.73	2.40	2944.	194.	3.18
8	61.	16.	3.73	2.40	2944.	188.	3.08
9	390.	634.	0.61	0.72	5642.	462.	1.18
10	2200.	390.	5.63	3.17	139526.	5855.	2.66
11	1477.	500.	2.95	2.05	60855.	3565.	2.41

OVERBANK(3) NO(3)= 0.0700

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	2213.	1881.	1.17	1.11	35228.	2258.	1.02
9	0.	0.	0.00	0.00	0.	0.	0.00
10	0.	0.	0.00	0.00	0.	0.	0.00
11	4447.	971.	4.57	2.75	175277.	10268.	2.30

OVERBANK(4) NO(4)= 0.0950

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	0.	0.	0.00	0.00	0.	0.	0.00
9	183.	600.	0.30	0.45	873.	71.	0.39
10	6305.	2291.	2.75	1.96	130363.	5471.	0.86
11	2386.	1422.	1.67	1.41	35484.	2078.	0.87

```
// JOB    0001 02E1                                                    BCKW2
// XEQ BCKW2
 ASU-SALT RIVER STUDY  1972 TOPO RUN 5 Q=120000
  1 12      1160.71   0.0016   120000.
 0.040   0.050   0.050   0.070   0.095
 11
1154.      885.
1140.      910.
1140.        1180.
1140.        1230.
1142.        1300.
1142.        1550.
1144.        1590.
1144.        1810.
1146.        1910.
1148.        2020.
1150.        2039.
1160.         160.
1156.         170.
1156.         200.
1152.         650.
1154.         770.
1154.      885.
  2 13      1161.30   500.
120000.
 16
1156.        905.
1140.        930.
1140.       1530.
1152.8      1555.
1152.8      1570.
1140.       1600.
1140.       1730.
1142.       1810.
1144.       1870.
1144.       2050.
1146.       2110.
1150.       2170.
1152.       2270.
1156.       2300.
1158.       2350.
1160.       2360.
1160.        410.
1154.        420.
1152.        600.
1152.        790.
1154.        840.
1156.        860.
1156.        905.
  3 14      1162.26   500.
120000.
 16  5
1157.        835.
1140.        880.
1140.       1480.
1153.       1505.
```

```
1157.       1590.
1150.       1610.
1148.       1620.
1146.       1650.
1144.       1890.
1142.       1930.
1142.       2070.
1142.       2290.
1144.       2300.
1146.       2320.
1150.       2330.
1160.       2350.
1162.        340.
1160.        410.
1154.        420.
1154.        460.
1157.        835.
  4 15      1164.27   500.
120000.
(14)
1154.2  3    870.
1141.        890.
1141.       1510.
1153.3      1535.
1153.3      1548.
1152.       1550.
1152.       1590.
1154.       1640.
1150.       1680.
1148.       1730.
1146.       1740.
1146.       1750.
1144.       1830.
1144.       1900.
1160.          0.
1158.         40.
1154.        100.
1154.        870.
1154.       1900.
1152.       1910.
1152.       2550.
1158.       2560.
1158.       2830.
  5 16      1164.46   400.
120000.
 4  7
1155.3      955.
1142.       980.
1142.       1600.
1154.       1625.
1160.          0.
1158.         10.
1156.         90.
1156.        100.
1155.        955.
1154.       1625.
```

```
1154.       1635.
1148.       1650.
1148.       1700.
1150.       1750.
1152.       1770.
1152.       2510.
1158.       2520.
1158.       3060.
(6) 17      1164.67   500.
120000.
 10
1156.4  2    975.
1143.       1000.
1143.       1600.
1154.4      1620.
1154.4      1635.
1150.       1650.
1150.       1740.
1152.       1750.
1152.       1770.
1153.       1790.
1160.          0.
1158.         10.
1158.        630.
1160.        750.
1160.        780.
1158.        800.
1158.        850.
1156.        920.
1156.        975.
1153.       1790.
1153.       2430.
1159.       2440.
1159.       3100.
(7) 18      1164.99   500.
120000.
 10  5  4
1158.5      1560.
1144.5      1590.
1144.5      2190.
1155.       2210.
1155.       2225.
1150.       2235.
1150.       2250.
1152.       2280.
1150.       2350.
1153.       2380.
1162.        170.
1160.        370.
1160.        980.
1160.       1330.
1158.5      1560.
1153.       2380.
1153.       3010.
1159.       3020.
1159.       3730.
```

```
(8) 19      1165.18   500.
120000.
 8  3  4
1156.5      2080.
1146.       2100.
1146.       2700.
1155.5      2720.
1155.5      2735.
1154.       2740.
1154.       2850.
1155.       2880.
1156.       1880.
1158.       1910.
1156.5      2080.
1155.       2880.
1150.       3520.
1160.       3530.
1160.       3970.
1170.          0.
1160.         30.
1160.        410.
1158.        930.
1158.       1500.
1156.       1600.
1156.       1880.
(9) 20      1165.92   550.
120000.
 2  6  4  0
1155.       2890.
1155.       3050.
1160.       1270.
1158.       2000.
1157.       2250.
1147.       2270.
1147.       2880.
1155.       2890.
1155.       3050.
1155.       3690.
1160.       3700.
1160.       4100.
1170.          0.
1162.         70.
1160.       1270.
 10 21      1166.97   450.
120000.
 23  0  5  0 10
1160.       2290.
1158.       2520.
1157.       2360.
1148.       2380.
1148.       3090.
1158.       3110.
1158.       3120.
1150.       3140.
1150.       3150.
1156.       3170.
```

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1158.       3180.
1156.       3220.
1150.       3290.
1146.       3390.
1148.       3400.
1148.       3490.
1150.       3620.
1152.       3680.
1148.       3690.
1152.       3710.
1152.       3760.
1154.       3790.
1156.       3800.
1156.       3800.
1156.       3880.
1158.       4170.
1160.       4180.
1160.       4190.
1170.          0.
1160.         40.
1160.       1820.
1158.       1830.
1156.       1840.
1156.       1860.
1158.       1870.
1158.       2010.
1160.       2210.
1160.       2290.
 11 22      1167.12   500.
120000.
  8  0  8 14  9
1158.       2350.
1149.5      2380.
1149.5      3290.
1158.       3310.
1158.       3325.
1151.       3340.
1152.       3370.
1160.       3410.
1160.       3410.
1162.       3420.
1160.       3460.
1160.       3640.
1158.       3680.
1158.       3710.
1160.       3720.
1160.       3910.
1160.       1420.
1158.       1740.
1156.       1780.
1152.       1870.
1156.       1800.
1156.       1910.
1156.       1930.
1158.       1840.
1158.       2060.
```

```
1160.       2080
1160.       2110.
1158.       2120.
1158.       2340.
1158.       2350.
1170.          0.
1168.         50.
1162.         60.
1162.        730.
1160.        740.
1158.        750.
1158.        840.
1160.        860.
1160.       1420.
50
90
```

296 CARDS LISTED

9

OVERBANK(4) NO(4)= 0.0950

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	0.	0.	0.00	0.00	0.	0.	0.00
9	-457.	1270.	-0.36	0.50	-2440.	-185.	0.40
10	5480.	2291.	2.39	1.78	103182.	4587.	0.83
11	1931.	1422.	1.35	1.22	24944.	1546.	0.80

1160.92

ASU-SALT RIVER STUDY 1972 TOPO RUN 5 Q=120000

Q= 120000. NC= 0.04 K=0.046666 SO=0.001600

STA	ID	W.S.EL.	L	QC	VC	VC2/2G	S	SAV	HF	HT	HSUM	ENERGY	EN.BAL.
12	1	1155.61		120632.	8.13	1.02	0.001600					1156.63	1156.63
13	2	1156.82	500.	116000.	5.97	0.55	0.000828	0.001214	0.60	0.04	0.65	1157.37	1157.28
14	3	1157.28	500.	119450.	5.62	0.49	0.000686	0.000757	0.37	0.00	0.38	1157.76	1157.67
15	4	1157.46	500.	110105.	7.88	0.96	0.001406	0.001046	0.52	0.14	0.66	1158.42	1158.33
16	5	1157.71	400.	103074.	10.09	1.58	0.001976	0.001691	0.67	0.18	0.86	1159.29	1159.19
17	6	1158.84	500.	109391.	9.72	1.46	0.002096	0.002036	1.01	0.01	1.02	1160.31	1160.22
18	7	1160.01	500.	103599.	9.23	1.32	0.001911	0.002004	1.00	0.01	1.01	1161.32	1161.24
19	8	1161.18	500.	88212.	8.30	1.07	0.001605	0.001758	0.87	0.02	0.90	1162.24	1162.14
20	9	1162.58	550.	8991.	7.41	0.85	0.002680	0.002143	1.17	0.02	1.20	1163.43	1163.34
21	10	1163.85	450.	102221.	5.09	0.40	0.000732	0.001706	0.76	0.04	0.81	1164.24	1164.16
22	11	1164.02	500.	107716.	7.48	0.86	0.001247	0.000989	0.49	0.14	0.63	1164.88	1164.79

Ok

CHANNEL NC= 0.0400 K=0.046666

I	AC	WPC	RC	RC23	RC43	R23A/NC	QC	VC
1	14822.	1157.	12.80	5.47	29.92	2029488.	120632.	8.13
2	19402.	1466.	13.23	5.59	31.27	2716186.	116000.	5.97
3	21231.	1526.	13.91	5.78	33.42	3072730.	119450.	5.62
4	13970.	1037.	13.46	5.66	32.00	1978307.	110105.	7.88
5	10215.	675.	15.11	6.11	37.33	1562564.	103074.	10.09
6	11247.	822.	13.68	5.72	32.69	1609961.	109391.	9.72
7	11219.	827.	13.56	5.69	32.32	1596645.	103599.	9.23
8	10619.	804.	13.19	5.58	31.14	1483562.	88212.	8.30
9	1212.	159.	7.57	3.86	14.87	116990.	8991.	7.41
10	20077.	1760.	11.40	5.07	25.65	2545568.	102221.	5.09
11	14394.	1055.	13.63	5.71	32.53	2055355.	107716.	7.48

OVERBANK(1) NO(1)= 0.0500

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	1044.	628.	1.66	1.40	29345.	1710.	1.63
2	1837.	451.	4.06	2.54	93638.	3999.	2.17
3	490.	283.	1.72	1.44	14130.	549.	1.12
4	530.	318.	1.66	1.40	14906.	829.	1.56
5	226.	267.	0.84	0.89	4040.	266.	1.17
6	663.	929.	0.71	0.79	10610.	720.	1.08
7	4.	960.	0.00	0.02	2.	0.	0.03
8	142.	90.	1.58	1.35	3875.	230.	1.61
9	12004.	1318.	9.10	4.36	1047459.	80507.	6.70
10	0.	0.	0.00	0.00	0.	0.	0.00
11	0.	0.	0.00	0.00	0.	0.	0.00

OVERBANK(2) NO(2)= 0.0500

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	3420.	931.	3.67	2.38	162871.	9064.	2.64
5	5293.	1437.	3.68	2.38	252534.	16658.	3.14
6	3665.	1311.	2.79	1.98	145526.	9888.	2.69
7	5166.	1351.	3.82	2.44	252754.	16400.	3.17
8	6131.	1094.	5.60	3.15	387150.	23019.	3.75
9	5930.	1051.	5.64	3.17	376109.	28907.	4.87
10	2700.	390.	6.92	3.63	196246.	7880.	2.91
11	2068.	500.	4.13	2.57	106586.	5585.	2.70

OVERBANK(3) NO(3)= 0.0700

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	5140.	1881.	2.73	1.95	143579.	8537.	1.66
9	0.	0.	0.00	0.00	0.	0.	0.00
10	0.	0.	0.00	0.00	0.	0.	0.00
11	3603.	4954.	0.72	0.80	41632.	2181.	0.60

OVERBANK(4) NO(4)= 0.0950

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	0.	0.	0.00	0.00	0.	0.	0.00
9	1652.	1270.	1.30	1.19	20725.	1592.	0.96
10	9239.	2291.	4.03	2.53	246471.	9897.	1.07
11	4063.	1422.	2.85	2.01	86171.	4516.	1.11

Q = 183,000 cfs

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// JOB     0001 02E1                                   BCKW2
// XEQ BCKW2
ASU-SALT RIVER STUDY  1972 TOPO  RUN 1 Q=183000
  1 12      1157.9      0.0016.    183000.
 0.040    0.050    0.060    0.085
                   0.070    0.095
 11  6
1154.   1030.
1150.   1150.
1140.   1180.
1140.   1230.
1142.   1300.
1142.   1550.
1144.   1580.
1144.   1810.
1146.   1910.
1148.   2020.
1150.   2030.
1160.    160.
1156.    170.
1152.    200.
1152.    650.
1154.    770.
1154.   1030.
  2 13      1159.3    500.
183000.
 14  9
1154.   1460.
1152.   1480.
1142.   1510.
1140.   1550.
1140.   1730.
1142.   1810.
1144.   1870.
1144.   2050.
1146.   2110.
1150.   2170.
1152.   2270.
1156.   2300.
1158.   2350.
1160.   2360.
~~1160.   370.~~ remove
1160.    410.
1154.    420.
1152.    600.
1152.    790.
1154.    840.
1156.    860.
1156.    910.
1154.   1150.
1154.   1460.
  3 14      1160.6    500.
183000.
 13  8
1154.   1440.
1152.   1590.
1150.   1610.
1148.   1620.
1146.   1650.
1144.   1890.
1142.   1930.
1142.   2070.
1142.   2290.
1144.   2300.
1146.   2320.
1150.   2330.
1160.   2350.
1162.    340.
1160.    410.
1154.    420.
1154.    460.
1158.    990.
1158.   1030.
1156.   1060.
1154.   1440.
  4 15      1161.7    500.
183000.
 13  9
1154.   1640.
1150.   1680.
1148.   1730.
1146.   1740.
1146.   1750.
1144.   1830.
1144.   1930.
1142.   2370.
1140.   2420.
1140.   2730.
1150.   2770.
1160.   2840.
1170.   2870.
1160.      0.
1158.     40.
1154.    100.
1154.    890.
1156.    970.
1156.   1090.
1152.   1450.
1152.   1590.
1154.   1640.
  5 16      1161.3    400.
183000.
 27  6
1154.   1560.
1150.   1590.
1148.   1650.
1148.   1750.
1150.   1750.
1156.   1800.
1152.   1850.
1154.   1870.
1152.   1880.
1150.   1900.
1148.   1900.
1148.   1940.
1146.   1970.
1146.   2040.
1144.   2050.
1144.   2170.
1146.   2580.
1146.   2650.
1144.   2700.
1142.   2710.
1142.   2810.
1144.   2820.
1144.   2850.
1142.   2950.
1142.   3030.
1150.   3050.
1160.   3060.
1160.      0.
1158.     10.
1156.     90.
1156.    100.
1156.   1310.
1154.   1560.
  6 17      1162.0    500.
183000.
 30 11
1158.   1480.
1156.   1500.
1152.   1520.
1152.   1630.
1150.   1650.
1150.   1740.
1152.   1750.
1152.   1770.
1154.   1810.
1154.   1910.
1150.   1930.
1148.   2050.
1144.   2080.
1144.   2110.
1146.   2200.
1146.   2280.
1148.   2350.
1148.   2610.
1146.   2630.
1144.   2660.
1144.   2710.
1146.   2760.
1148.   2800.
1148.   2860.
1146.   2870.
1144.   3000.
1144.   3080.
1150.   3090.
1160.   3100.
1170.   3110.
1160.      0.
1158.     10.
1158.    630.
1160.    750.
1160.    780.
1158.    800.
1158.    850.
1156.    920.
1156.   1100.
1158.   1120.
1158.   1480.
  7 18      1162.7    500.
183000.
 40  6
1158.   2050.
1156.   2060.
1150.   2090.
1150.   2250.
1152.   2280.
1150.   2350.
1150.   2480.
1152.   2500.
1154.   2520.
1156.   2500.
1156.   2640.
1154.   2700.
1152.   2720.
1150.   2730.
1150.   2760.
1146.   2780.
1146.   2860.
1148.   2890.
1148.   2970.
1146.   2980.
1146.   3010.
1148.   3030.
1148.   3080.
1146.   3120.
1146.   3160.
1150.   3170.
1152.   3180.
1150.   3200.
1148.   3220.
1148.   3260.
1146.   3270.
1148.   3290.
1150.   3300.
1150.   3360.
1148.   3400.
1146.   3470.
1146.   3680.
1148.   3700.
1150.   3710.
1160.   3730.
1162.    170.
1160.    370.
1160.    980.
1160.   1330.
1158.   1630.
1158.   2050.
  8 19      1163.3    500.
183000.
 09 13  7
1152.   3210.
1150.   3300.
1148.   3310.
1146.   3390.
1146.   3440.
1148.   3590.
1148.   3820.
1150.   3890.
1160.   3970.
1156.   1880.
1158.   1910.
1156.   2130.
1156.   2450.
1154.   2470.
1152.   2480.
1152.   2550.
1150.   2570.
1148.   2580.
1150.   2600.
1154.   2670.
1154.   2850.
1152.   3210.
1170.      0.
1160.     30.
1160.    410.
1158.    930.
1158.   1500.
1156.   1600.
1156.   1880.
  9 20      1163.8    550.
183000.
 11  3  0  3
1156.   2620.
1156.   2680.
1154.   3180.
1152.   3280.
1150.   3400.
1150.   3780.
1152.   3870.
1154.   3940.
1156.   3990.
1158.   4050.
1160.   4100.
1160.   1270.
1158.   2000.
1156.   2620.
1170.      0.
1162.     70.
1160.   1270.
 10 21      1164.3    450.
183000.
 24  5  0 10
1160.   2290.
1158.   2320.
1156.   2410.
1156.   2650.
1154.   2690.
1154.   2760.
1152.   3000.
1150.   3100.
1150.   3150.
1156.   3170.
1158.   3180.
1156.   3220.
1150.   3290.
1146.   3220.
1146.   3390.
1148.   3400.
1148.   3490.
1150.   3620.
1152.   3680.
1148.   3690.
1152.   3710.
1152.   3760.
1154.   3790.
1156.   3800.
1156.   3800.
1156.   3880.
1158.   4170.
1160.   4180.
1160.   4190.
1170.      0.
1160.     40.
1160.   1820.
1158.   1830.
1156.   1840.
1156.   1860.
1158.   1870.   372 CARDS LISTED
1158.   2010.
1160.   2210.
1160.   2290.
 11 22      1165.0    500.
183000.
  8  8 18  9
1160.   2650.
1150.   2740.
1150.   2880.
1148.   3100.
1148.   3240.
1150.   3300.
1152.   3370.
1160.   3410.
1160.   3410.
1162.   3420.
1160.   3460.
1160.   3640.
1158.   3680.
1158.   3710.
1160.   3720.
1160.   3910.
1160.   1420.
1158.   1740.
1156.   1790.
1152.   1820.
1156.   1860.
1156.   1910.
1155.   1930.
1158.   1940.
1158.   2060.
1160.   2080.
1160.   2110.
1158.   2120.
1158.   2340.
1156.   2570.
1154.   2590.
1156.   2600.
1158.   2610.
1160.   2650.
1170.      0.
1168.     50.
1162.     60.
1162.    730.
1160.    740.
1158.    750.
1158.    840.
1160.    860.
1160.   1420.
50
99
```

ASU-SALT RIVER STUDY 1972 TOPO RUN 2 Q=183000

Q= 183000. NC= 0.04 K=0.046666 SO=0.001600

STA	ID	W.S.EL.	L	QC	VC	VC2/2G	S	SAU	HF	HT	HSUM	ENERGY	EN.BAL.
12	1	1160.71		153713.	9.50	1.40	0.001600				1162.10	1162.10	
13	2	1161.30	500.	151820.	10.58	1.74	0.002036	0.00	0.90	0.10	1.01	1163.03	1163.12
14	3	1162.26	500.	163192.	10.70	1.78	0.001953	0.00	0.99	0.01	1.00	1164.04	1164.12
15	4	1164.27	500.	137723.	5.59	0.48	0.000419	0.00	0.59	0.12	0.72	1164.75	1164.85
16	5	1164.46	400.	153249.	5.52	0.47	0.000458	0.00	0.17	0.00	0.17	1164.93	1165.02
17	6	1164.67	500.	161029.	6.01	0.56	0.000636	0.00	0.27	0.02	0.30	1165.23	1165.32
18	7	1164.99	500.	163804.	6.25	0.60	0.000755	0.00	0.34	0.01	0.36	1165.60	1165.69
19	8	1165.18	500.	100395.	8.04	1.00	0.001127	0.00	0.47	0.11	0.59	1166.18	1166.28
20	9	1165.92	550.	156272.	8.28	1.06	0.001674	0.00	0.77	0.01	0.78	1166.98	1167.06
21	10	1166.97	450.	140403.	6.39	0.63	0.000944	0.00	0.58	0.04	0.63	1167.60	1167.70
22	11	1167.12	500.	115936.	9.05	1.27	0.001378	0.00	0.58	0.19	0.77	1168.38	1168.47

CHANNEL NC= 0.0400 K=0.046666

I	AC	WPC	RC	RC23	RC43	R23A/NC	QC	VC
1	16178.	1002.	16.14	6.39	40.76	2586028.	153713.	9.50
2	14337.	902.	15.88	6.32	39.89	2267182.	151820.	10.58
3	15237.	913.	16.67	6.53	42.55	2438563.	163192.	10.70
4	24623.	1234.	19.95	7.36	54.06	4532962.	137723.	5.59
5	27725.	1511.	18.34	6.96	48.32	4825463.	153249.	5.52
6	26751.	1641.	16.29	6.43	41.26	4302087.	161029.	6.01
7	26189.	1726.	15.16	6.13	37.51	4015463.	163804.	6.25
8	12475.	760.	16.39	6.45	41.61	2014778.	100395.	8.04
9	18855.	1480.	12.73	5.45	29.72	2573264.	156272.	8.28
10	21943.	1653.	13.27	5.61	31.39	3077951.	140403.	6.39
11	12808.	761.	16.82	6.57	43.06	2104150.	115936.	9.05

OVERBANK(1) NO(1)= 0.0500

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	5940.	871.	6.81	3.59	427412.	25955.	4.36
2	6744.	1052.	6.40	3.45	465614.	31179.	4.62
3	5298.	1101.	4.80	2.85	302053.	19807.	3.73
4	16191.	1642.	9.86	4.60	1490206.	45276.	2.79
5	12013.	1562.	7.69	3.89	936763.	29750.	2.47
6	8887.	1482.	5.99	3.30	586954.	21970.	2.47
7	8560.	1880.	4.55	2.74	470561.	19195.	2.24
8	11807.	1331.	8.86	4.28	1012305.	50442.	4.27
9	5343.	1350.	3.95	2.50	267494.	16244.	3.04
10	3444.	393.	8.76	4.25	292987.	13364.	3.88
11	2906.	501.	5.79	3.22	187613.	10337.	3.55

OVERBANK(2) NO(2)= 0.0700

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	12665.	1881.	6.73	3.56	645442.	32162.	2.53
9	0.	0.	0.00	0.00	0.	0.	0.00
10	0.	0.	0.00	0.00	0.	0.	0.00
11	11572.	1231.	9.39	4.45	736731.	40593.	3.50

OVERBANK(3) NO(3)= 0.0950

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	0.	0.	0.00	0.00	0.	0.	0.00
9	5893.	1270.	4.63	2.78	172619.	10483.	1.77
10	16390.	2291.	7.15	3.71	640829.	29231.	1.78
11	8464.	1422.	5.95	3.28	292804.	16133.	1.90

```
// JOB     0001 02E1                                    BCKW2
// XEQ BCKW2
ASU-SALT RIVER STUDY 1972 TOPO RUN-4 Q 183000
  1 12      1160.71   0.0016     183000.
 0.040    0.050    0.050    0.070    0.095
 11  57
1154.     885.
1140.     910.
1140.    1180.
1140.    1230.
1142.    1300.
1142.    1550.
1144.    1590.
1144.    1810.
1146.    1910.
1148.    2020.
1150.    2039.
1160.     160.
1156.     170.
1152.     200.
1152.     650.
1154.     885.  0.
  2 13      1161.30   500.
183000.
13  16  12
1156.     905.
1140.     930.
1140.    1530.
1152.8   1555.
1152.8   1570.
1140.    1600.
1140.    1730.
1142.    1810.
1144.    1870.
1144.    2050.
1146.    2110.
1150.    2170.
1152.    2270.
1156.    2300.
1158.    2350.
1160.    2360.
1160.     410.
1154.     420.
1152.     600.
1152.     790.
1154.     840.
1156.     860.
1156.     905.
  3 14      1162.20   500.
183000.
 126 55
1157.     835.
1140.     880.
1140.    1480.
1153.    1505.
1152.    1590.
1150.    1610.
1148.    1620.
1146.    1650.
1144.    1890.
1142.    1930.
1142.    2070.
1142.    2290.
1144.    2300.
1146.    2320.
1150.    2330.
1160.    2350.
1162.     340.
1160.     410.
1154.     420.
1154.     460.
1157.     835.  61.
  4 15      1164.27   500.
183000.
 17  4  3
1154.     870.
1141.     890.
1141.    1510.
1153.3   1535.
1153.3   1548.
1152.    1550.
1152.    1590.
1154.    1640.
1150.    1680.
1148.    1730.
1146.    1740.
1146.    1750.
1144.    1830.
1144.    1930.
1142.    2370.
1140.    2420.
1140.    2550.
1160.       0.
1158.      40.
1154.     100.
1154.     870.
1140.    2550.
1158.    2560.
1160.    2840.  2.
  5 16      1164.46   400.
183000.
 20  5  4
1155.     955.
1142.     980.
1142.    1600.
1154.    1625.
1154.    1635.
1148.    1650.
1148.    1700.
1150.    1750.
1156.    1800.
1152.    1850.
1154.    1870.
1152.    1880.
1150.    1900.
1148.    1910.
1148.    1940.
1146.    1970.
1146.    2040.
1144.    2050.
1144.    2170.
1145.5   2510.
1160.       0.
1158.      10.
1156.      90.
1156.     100.
1155.     955.
1145.5   2510.
1158.4   2520.
1145.5   2550.
1158.    3060.
  6 17      1164.67   500.
183000.
 19  9  3
1156.     975.
1143.    1000.
1143.    1600.
1154.4   1620.
1154.4   1635.
1150.    1650.
1150.    1740.
1152.    1750.
1152.    1770.
1154.    1810.
1154.    1910.
1150.    1930.
1148.    2050.
1144.    2080.
1144.    2110.
1146.    2200.
1146.    2280.
1148.    2350.
1148.    2430.
1160.       0.
1158.      10.
1158.     630.
1160.     750.
1160.     780.
1158.     800.
1158.     850.
1156.     920.
1156.     975.
1148.    2430.
1159.    2440.
1159.    3110.
  7 18      1164.99   500.
183000.
 24  5  3
1158.5   1560.
1144.5   1590.
1144.5   2190.
1155.    2210.
1155.    2225.
1150.    2235.
1150.    2250.
1152.    2280.
1150.    2350.
1150.    2480.
1152.    2500.
1154.    2520.
1156.    2560.
1156.    2640.
1154.    2700.
1152.    2720.
1150.    2730.
1150.    2760.
1146.    2780.
1146.    2860.
1148.    2890.
1148.    2970.
1146.    2980.
1146.    3010.
1162.     170.
1160.     370.
1160.     980.
1160.    1330.
1158.5   1560.
1146.    3010.
1159.    3020.
1159.    3730.
  8 19      1165.18   500.
183000.
 13  3  3  7
1156.5   2080.
1146.    2100.
1146.    2700.
1155.5   2720.
1155.5   2735.
1154.    2740.
1154.    2850.
1152.    3210.
1150.    3300.
1148.    3310.
1146.    3390.
1146.    3440.
1147.    3520.
1156.    1880.
1158.    1910.
1156.5   2080.
1147.    3520.
1160.    3530.
1160.    3970.
1170.       0.
1160.      30.
1160.     410.
1158.     930.
1158.    1500.
1156.    1600.
1156.    1880.
  9 20      1165.92   550.
183000.
  5  6  6  0  3
1155.    2890.
1154.    3180.
1152.    3280.
1150.    3400.
1150.    3690.
1160.    1270.
1158.    2000.
1157.    2250.
1147.    2270.
1147.    2880.
1155.    2890.
1150.    3690.
1160.    3700.
1160.    4100.
1156.    3990.
1158.    4050.
1160.    4100.
1170.       0.
1162.      70.
1160.    1270.
 10 21      1166.97   450.
183000.
 23  0  5  0 10
1160.    2290.
1158.    2320.
1157.    2360.
1148.    2380.
1148.    3090.
1158.    3110.
1158.    3120.
1150.    3140.
1150.    3150.
1156.    3170.
1158.    3180.
1156.    3220.
1150.    3290.
1146.    3390.
1148.    3400.
1148.    3490.
1150.    3620.
1152.    3680.
1148.    3690.
1152.    3710.
1152.    3760.
1154.    3790.
1156.    3800.
1156.    3800.
1156.    3880.
```

337 CARDS LISTED

```
1158.   4170.
1160.   4180.
1160.   4190.
1170.      0.
1160.     40.
1160.   1820.
1158.   1830.
1156.   1840.
1156.   1860.
1158.   1870.
1158.   2010.
1160.   2210.
1160.   2290.
 11 22      1167.12  500.
183000.
  8  0  8 14  9
1158.   2350.
1149.5  2380.
1149.5  3290.
1158.   3310.
1158.   3325.
1151.   3340.
1152.   3370.
1160.   3410.
1160.   3410.
1162.   3420.
1160.   3460.
1160.   3640.
1158.   3680.
1158.   3710.
1160.   3720.
1160.   3910.
1160.   1420.
1158.   1740.
1156.   1790.
1152.   1820.
1156.   1800.
1156.   1910.
1156.   1930.
1158.   1940.
1158.   2060.
1160.   2080.
1160.   2110.
1158.   2120.
1158.   2340.
1158.   2350.
1170.      0.
1168.     50.
1162.     60.
1162.    730.
1160.    740.
1158.    750.
1158.    840.
1160.    860.
1160.   1420.
 50
```

ASU-SALT RIVER STUDY 1972 TOPO RUN 4 Q 183000

Q= 183000. NC= 0.04 K=0.046666 SO=0.001600

STA	ID	W.S.EL.	L	QC	VC	VC2/2G	S	SAV	HF	HT	HSUM	ENERGY	EN.BAL.
12	1	1158.68		172520.	9.39	1.36	0.001600					1160.04	1160.04
13	2	1160.00	500.	171922.	7.15	0.79	0.000891	0.001245	0.62	0.05	0.68	1160.79	1160.72
14	3	1160.52	500.	180396.	6.83	0.72	0.000755	0.000823	0.41	0.00	0.41	1161.24	1161.14
15	4	1161.03	500.	177396.	5.94	0.54	0.000557	0.000656	0.32	0.01	0.34	1161.57	1161.49
16	5	1161.24	400.	160870.	6.39	0.63	0.000730	0.000644	0.25	0.02	0.28	1161.87	1161.77
17	6	1161.49	500.	172313.	7.90	0.96	0.001235	0.000982	0.49	0.10	0.59	1162.45	1162.36
18	7	1162.09	500.	173146.	8.56	1.13	0.001597	0.001416	0.70	0.05	0.75	1163.22	1163.12
19	8	1162.98	500.	160514.	8.00	0.99	0.001391	0.001494	0.74	0.01	0.76	1163.97	1163.88
20	9	1163.78	550.	85885.	9.23	1.32	0.002351	0.001871	1.02	0.09	1.12	1165.10	1165.01
21	10	1165.21	450.	153972.	6.69	0.69	0.000865	0.001608	0.72	0.06	0.78	1165.90	1165.80
22	11	1165.44	500.	141619.	8.91	1.23	0.001565	0.001215	0.60	0.16	0.76	1166.67	1166.57

CHANNEL NC= 0.0400 K=0.046666

I	AC	WPC	RC	RC23	RC43	R23A/NC	QC	VC
1	18370.	1157.	15.86	6.31	39.82	2902431.	172520.	9.39
2	24036.	1466.	16.39	6.45	41.60	3881504.	171922.	7.15
3	26409.	1525.	17.31	6.69	44.75	4423332.	180396.	6.83
4	29822.	1687.	17.67	6.79	45.98	5063053.	177396.	5.94
5	25153.	1563.	16.08	6.37	40.57	4011297.	160870.	6.39
6	21802.	1462.	14.90	6.06	36.64	3304157.	172313.	7.90
7	20216.	1458.	13.86	5.77	33.27	2919302.	173146.	8.56
8	20061.	1445.	13.88	5.78	33.33	2899450.	160514.	8.00
9	9297.	800.	11.62	5.13	26.30	1193475.	85885.	9.23
10	23010.	1517.	15.15	6.13	37.48	3526772.	153972.	6.69
11	15885.	1062.	14.94	6.07	36.79	2412192.	141619.	8.91

OVERBANK(1) NO(1)= 0.0500

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	3901.	712.	5.47	3.10	242621.	14117.	3.61
2	3440.	496.	6.92	3.63	250099.	11077.	3.22
3	1439.	436.	3.29	2.21	63836.	2603.	1.80
4	2929.	828.	3.53	2.32	135993.	4764.	1.62
5	2261.	807.	2.80	1.98	89916.	3606.	1.59
6	3145.	951.	3.30	2.22	139735.	7287.	2.31
7	2192.	1141.	1.92	1.54	67793.	4020.	1.83
8	350.	141.	2.47	1.83	12841.	710.	2.02
9	13641.	1430.	9.53	4.50	1227991.	88369.	6.47
10	0.	0.	0.00	0.00	0.	0.	0.00
11	0.	0.	0.00	0.00	0.	0.	0.00

OVERBANK(2) NO(2)= 0.0500

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	688.	300.	2.29	1.73	23936.	838.	1.21
5	5210.	559.	9.31	4.43	461872.	18523.	3.55
6	1746.	684.	2.54	1.86	65190.	3399.	1.94
7	2287.	726.	3.14	2.14	98346.	5833.	2.54
8	1405.	456.	3.07	2.11	59487.	3293.	2.34
9	1608.	634.	2.53	1.86	59867.	4308.	2.67
10	3231.	390.	8.28	4.09	264698.	11556.	3.57
11	2779.	500.	5.55	3.13	174390.	10238.	3.68

OVERBANK(3) NO(3)= 0.0700

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	8528.	1881.	4.53	2.74	333831.	18481.	2.16
9	0.	0.	0.00	0.00	0.	0.	0.00
10	0.	0.	0.00	0.00	0.	0.	0.00
11	6867.	971.	7.07	3.68	361672.	21233.	3.09

OVERBANK(4) NO(4)= 0.0950

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	0.	0.	0.00	0.00	0.	0.	0.00
9	3177.	1270.	2.50	1.84	61658.	4437.	1.39
10	12356.	2291.	5.39	3.07	400172.	17470.	1.41
11	6082.	1422.	4.27	2.63	168768.	9908.	1.62

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// JOB    0001 02E1                                  BCKW2
// XEQ BCKW2
ASU-SALT RIVER STUDY  1972 TOPO RUB 5 Q 183000
  1 12      1160.71   0.0016    183000.
 0.040    0.050    0.050    0.070    0.095
 11  6
1154.     885.
1140.     910.
1140.       1180.
1140.       1230.
1142.       1300.
1142.       1550.
1144.       1590.
1144.       1810.
1146.       1910.
1148.       2020.
1150.       2039.
1160.        160.
1156.        170.
1156.        200.
1152.        650.
1154.        770.
1154.     885.
  2 13      1161.30   500.
183000.
 16  7
1156.        905.
1140.        930.
1140.       1530.
1152.8      1555.
1152.8      1570.
1140.       1600.
1140.       1730.
1142.       1810.
1144.       1870.
1144.       2050.
1146.       2110.
1150.       2170.
1152.       2270.
1156.       2300.
1158.       2350.
1160.       2360.
1160.        410.
1154.        420.
1152.        600.
1152.        790.
1154.        840.
1156.        860.
1156.        905.
  3 14      1162.26   500.
183000.
 16  5
1157.        835.
1140.        880.
1140.       1480.
1153.       1505.
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1157.       1590.
1150.       1610.
1148.       1620.
1146.       1650.
1144.       1890.
1142.       1930.
1142.       2070.
1142.       2290.
1144.       2300.
1146.       2320.
1150.       2330.
1160.       2350.
1162.        340.
1160.        410.
1154.        420.
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1157.        835.
  4 15      1164.27   500.
183000.
 14  4  5
1154.        870.
1141.        890.
1141.       1510.
1153.3      1535.
1153.3      1548.
1152.       1550.
1152.       1590.
1154.       1640.
1150.       1680.
1148.       1730.
1146.       1740.
1146.       1750.
1144.       1830.
1144.       1900.
1160.          0.
1158.         40.
1154.        100.
1154.        870.
1154.       1900.
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1152.       2550.
1158.       2560.
1158.       2830.
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183000.
  4  5  9
1155.        955.
1142.        980.
1142$       1600.
1154.       1625.
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1156.        100.
1155.        955.
1154.       1625.
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1148.       1650.
1148.       1700.
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1158.       2520.
1158.       3060.
  6 17      1164.67   500.
183000.
 10  9  4
1156.        975.
1143.       1000.
1143.       1600.
1154.4      1620.
1154.4      1635.
1150.       1650.
1150.       1740.
1152.       1750.
1152.       1770.
1153.       1790.
1160.          0.
1158.         10.
1158.        630.
1160.        750.
1160.        780.
1158.        800.
1158.        850.
1156.        920.
1156.        975.
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1153.       2430.
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1159.       3100.
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183000.
 10  5  4
1158.5      1560.
1144.5      1590.
1144.5      2190.
1155.       2210.
1155.       2225.
1150.       2235.
1150.       2250.
1152.       2280.
1150.       2350.
1153.       2380.
1162.        170.
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1159.       3730.
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183000.
  8  3  4  7
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1156.       1880.
  9 20      1165.92   550.
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  2  6  4  0  3
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1155.       3050.
1155.       3690.
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1160.       4100.
1170.          0.
1162.         70.
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 10 21      1166.97   450.
183000.
 23  0  5  0 10
1160.       2290.
1158.       2520.
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1148.       2380.
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1156.       3170.
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1152.       3680.
1148.       3690.
1152.       3710.
1152.       3760.
1154.       3790.
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1156.       3800.
1156.       3880.
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 11 22      1167.12   500.
183000.
  8  0  8 14  9
1158.       2350.
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1149.5      3290.
1158.       3310.
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1152.       3370.
1160.       3410.
1160.       3410.
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1156.       1930.
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1158.       2060.
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1160.       2110.
1158.       2120.
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1168.         50.
1162.         60.
1162.        730.
1160.        740.
1158.        750.
1158.        840.
1160.        860.
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 50
 90
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296 CARDS LISTED

6

SU-SALT RIVER STUDY 1972 TOPO RUB 5 Q 183000

Q= 183000. NC= 0.04 K=0.046666 SO=0.001600

STA	ID	W.S.EL.	L	QC	VC	VC2/2G	S	SAV	HF	HT	HSUM	ENERGY	EN.BAL.
12	1	1158.87		175938.	9.46	1.39	0.001600					1160.25	1160.25
13	2	1160.26	500.	172015.	7.04	0.77	0.000846	0.001223	0.61	0.06	0.67	1161.02	1160.93
14	3	1160.70	500.	180490.	6.83	0.72	0.000756	0.000801	0.40	0.00	0.40	1161.42	1161.33
15	4	1160.89	500.	152162.	8.69	1.17	0.001268	0.001012	0.50	0.13	0.64	1162.06	1161.97
16	5	1161.08	400.	133334.	10.69	1.77	0.001701	0.001485	0.59	0.18	0.77	1162.85	1162.75
17	6	1162.17	500.	139156.	9.97	1.54	0.001652	0.001677	0.83	0.02	0.86	1163.71	1163.61
18	7	1163.05	500.	134706.	9.82	1.49	0.001655	0.001653	0.82	0.00	0.83	1164.54	1164.44
19	8	1164.16	500.	112599.	8.65	1.16	0.001330	0.001492	0.74	0.03	0.77	1165.32	1165.22
20	9	1165.20	550.	14032.	8.59	1.14	0.002424	0.001877	1.03	0.00	1.03	1166.34	1166.26
21	10	1166.59	450.	143377.	5.95	0.55	0.000828	0.001626	0.73	0.05	0.79	1167.13	1167.05
22	11	1166.70	500.	149989.	8.71	1.17	0.001352	0.001090	0.54	0.18	0.73	1167.87	1167.78

CHANNEL NC= 0.0400 K=0.046666

I	AC	WPC	RC	RC23	RC43	R23A/NC	QC	VC
1	18587.	1157.	16.05	6.36	40.45	2959941.	175938.	9.46
2	24412.	1466.	16.65	6.52	42.47	3983394.	172015.	7.04
3	26417.	1526.	17.30	6.69	44.72	4423353.	180490.	6.83
4	17496.	1037.	16.86	6.58	43.19	2878929.	152162.	8.69
5	12468.	675.	18.44	6.98	48.69	2178452.	133334.	10.69
6	13955.	822.	16.97	6.61	43.59	2306843.	139156.	9.97
7	13714.	827.	16.58	6.50	42.24	2231503.	134706.	9.82
8	13005.	804.	16.15	6.39	40.80	2079973.	112599.	8.65
9	1631.	159.	10.19	4.70	22.10	192017.	14032.	8.59
10	24087.	1833.	13.13	5.57	30.97	3355962.	143377.	5.95
11	17216.	1068.	16.10	6.38	40.64	2748000.	149989.	8.71

OVERBANK(1) NO(1)= 0.0500

I.	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	3189.	688.	4.62	2.77	177265.	10340.	3.24
2	3446.	486.	7.08	3.69	254382.	10985.	3.18
3	1326.	376.	3.52	2.31	61505.	2509.	1.89
4	2065.	585.	3.52	2.31	95763.	5061.	2.44
5	1716.	620.	2.76	1.97	67663.	4141.	2.41
6	3793.	956.	3.96	2.50	190207.	11473.	3.02
7	3329.	1224.	2.71	1.94	129748.	7832.	2.35
8	536.	175.	3.06	2.11	22653.	1226.	2.28
9	15748.	1561.	10.08	4.67	1471340.	107523.	6.82
10	0.	0.	0.00	0.00	0.	0.	0.00
11	0.	0.	0.00	0.00	0.	0.	0.00

OVERBANK(2) NO(2)= 0.0500

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	6604.	931.	7.08	3.69	487683.	25775.	3.90
5	10120.	1437.	7.03	3.67	743789.	45524.	4.49
6	8019.	1311.	6.11	3.34	536596.	32369.	4.03
7	9274.	1351.	6.86	3.61	670267.	40461.	4.36
8	9383.	1094.	8.57	4.19	786819.	42594.	4.53
9	8684.	1051.	8.26	4.08	710284.	51906.	5.97
10	3769.	390.	9.66	4.53	342285.	14623.	3.87
11	3409.	500.	6.81	3.59	245230.	13384.	3.92

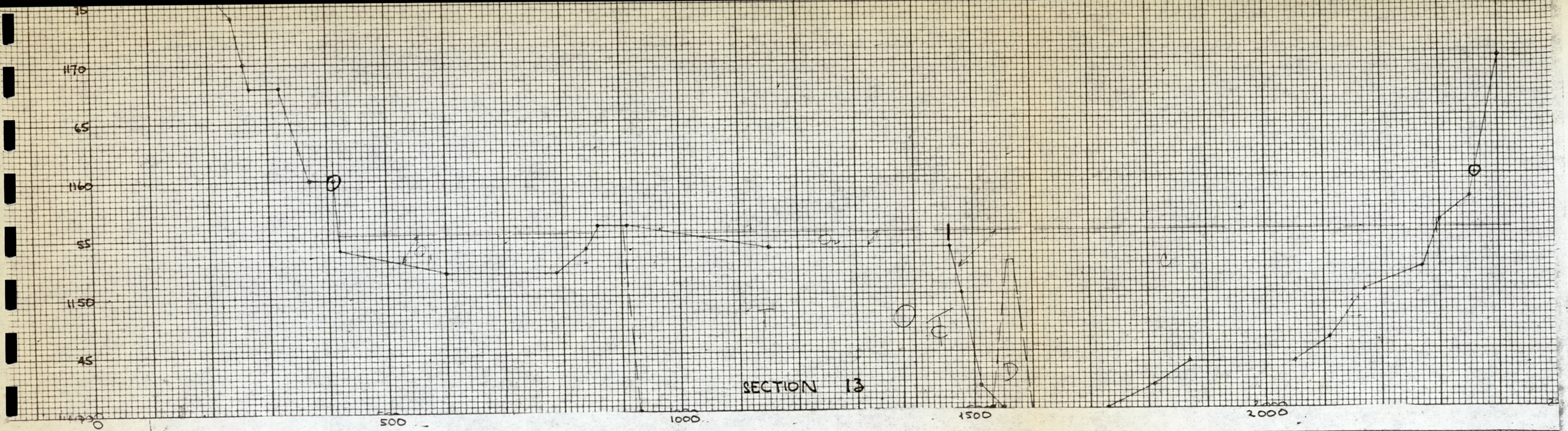
OVERBANK(3) NO(3)= 0.0700

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	10748.	1881.	5.71	3.19	490978.	26579.	2.47
9	0.	0.	0.00	0.00	0.	0.	0.00
10	0.	0.	0.00	0.00	0.	0.	0.00
11	6098.	4954.	1.23	1.14	100070.	5461.	0.89

OVERBANK(4) NO(4)= 0.0950

I	AO	WPO	RO	RO23	R23A/NO	QO	VO
1	0.	0.	0.00	0.00	0.	0.	0.00
2	0.	0.	0.00	0.00	0.	0.	0.00
3	0.	0.	0.00	0.00	0.	0.	0.00
4	0.	0.	0.00	0.00	0.	0.	0.00
5	0.	0.	0.00	0.00	0.	0.	0.00
6	0.	0.	0.00	0.00	0.	0.	0.00
7	0.	0.	0.00	0.00	0.	0.	0.00
8	0.	0.	0.00	0.00	0.	0.	0.00
9	4983.	1270.	3.92	2.48	130512.	9537.	1.91
10	15520.	2291.	6.77	3.58	585139.	24999.	1.61
11	7873.	1422.	5.53	3.13	259501.	14163.	1.79

Cross-Sections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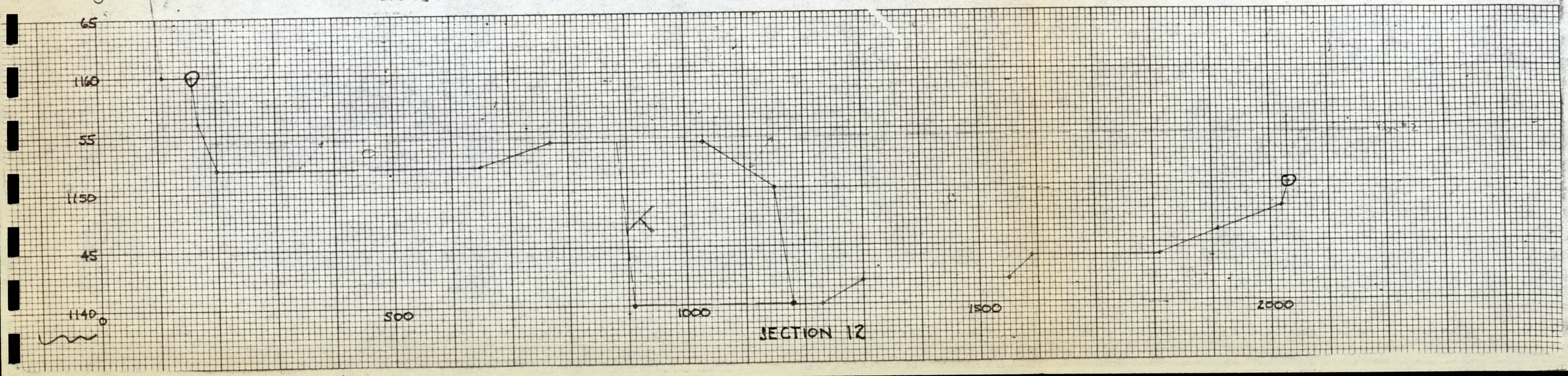
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2000
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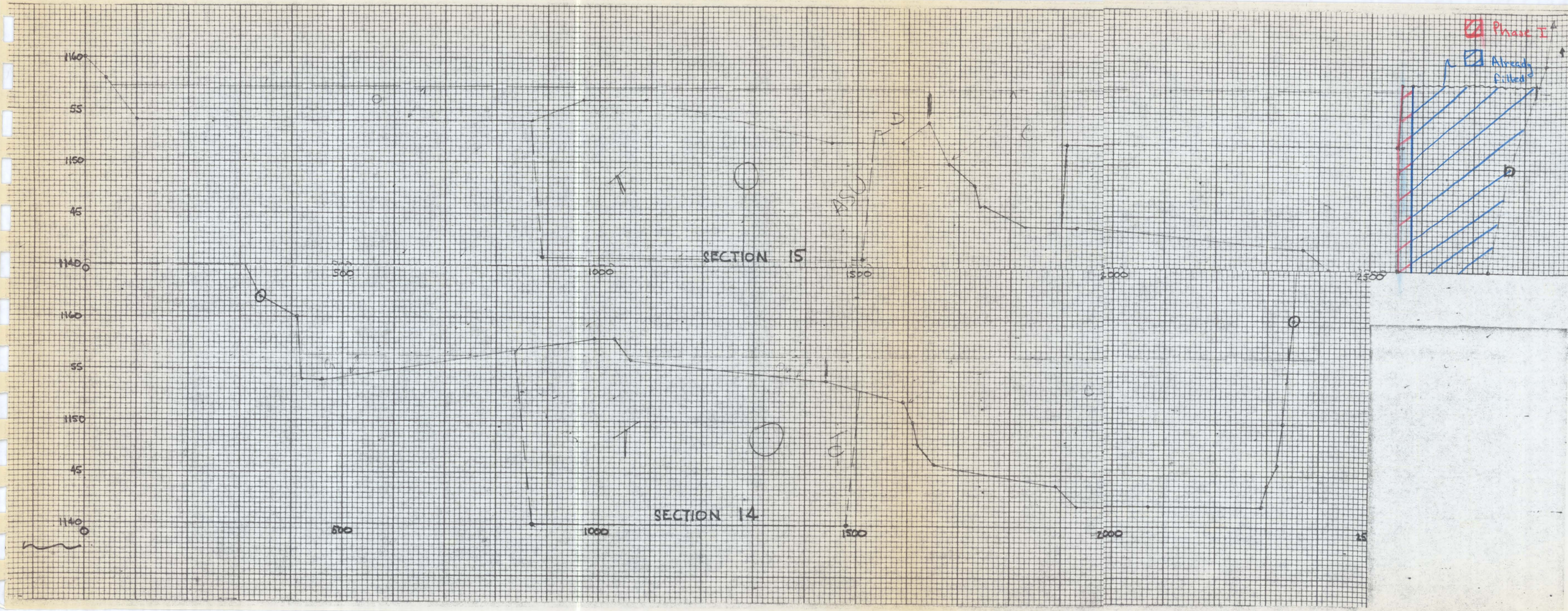
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1500
2000
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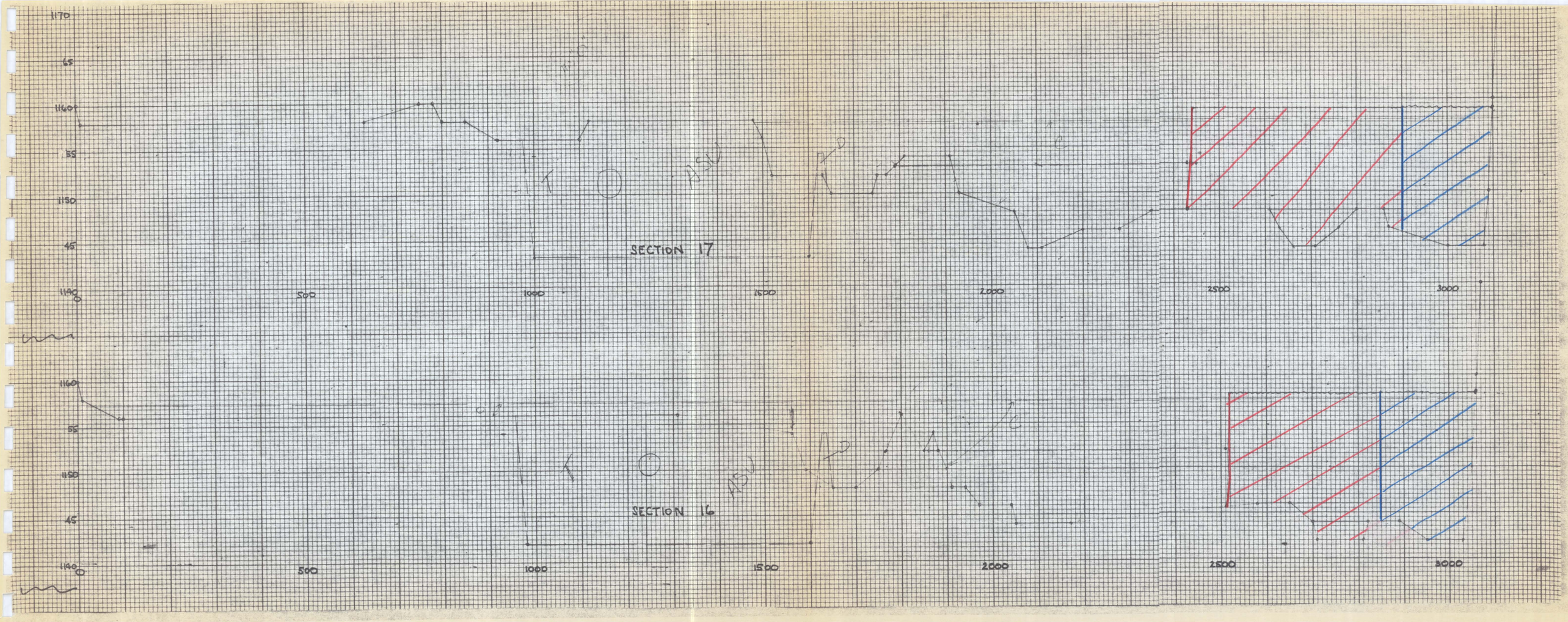
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1140
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2000
2500
3000
SECTION 17
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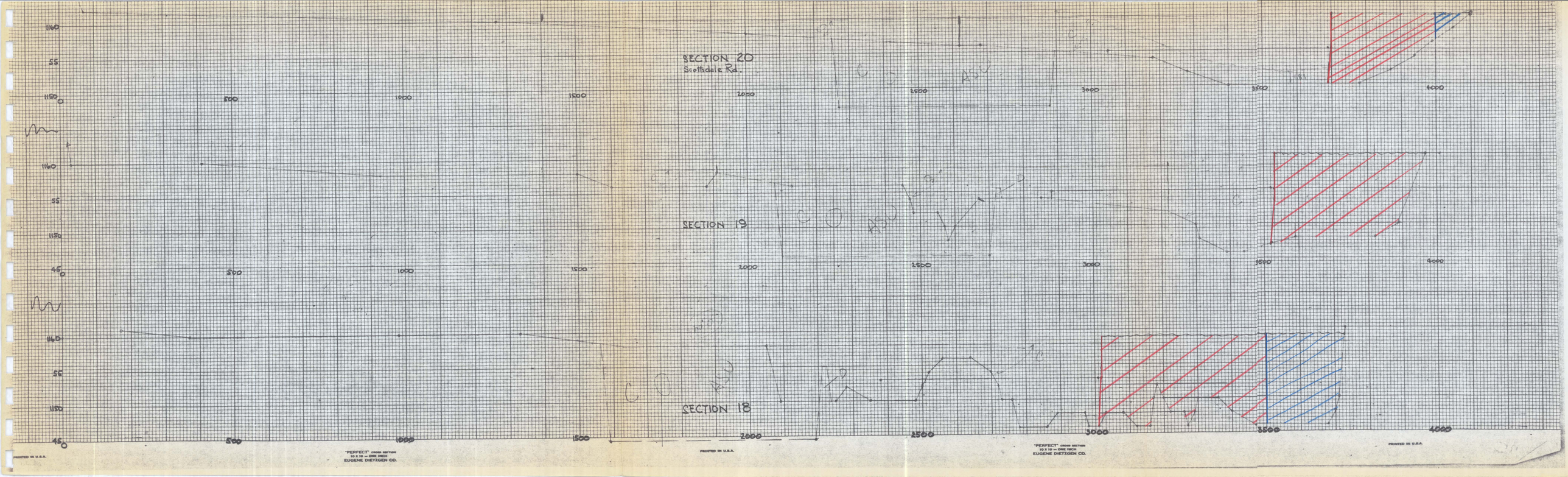
1000
1500
2000
2500
3000
SECTION 16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Scottsdale Rd.
SECTION 19
SECTION 18
1160
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1150
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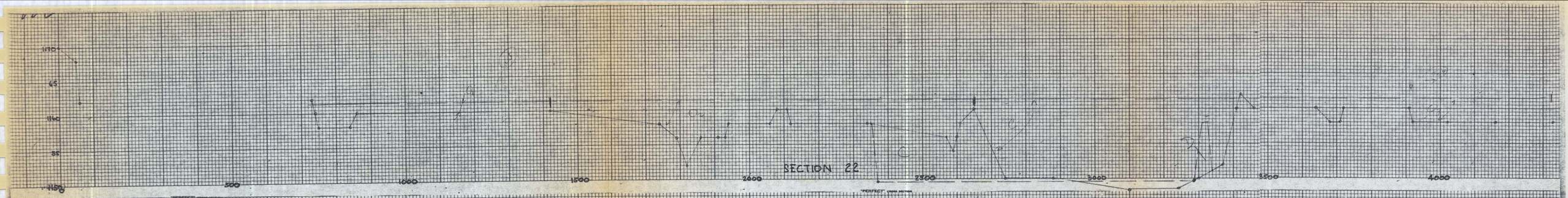
500
1000
1500
2000
2500
3000
3500
4000
45
46
56
PRINTED IN U.S.A.
"PERFECT" CROSS SECTION
10 X 10 — ONE INCH
EUGENE DIETZGEN CO.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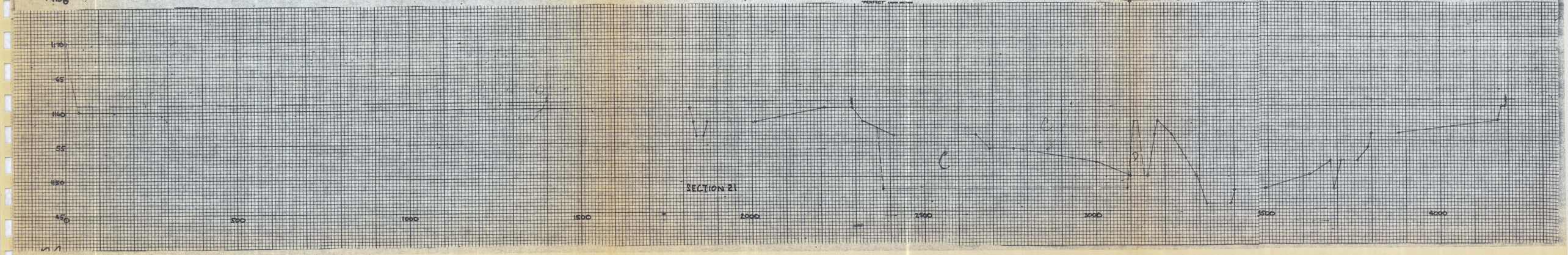
"PERFECT" CROSS SECTION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