

Fink

U.S. Department of the Interior
U.S. Geological Survey

In cooperation with the
Louisville and Jefferson County
Metropolitan Sewer District

Continuous Hydrologic Simulation of Runoff for the Middle Fork and South Fork of the Beargrass Creek Basin in Jefferson County, Kentucky

Water-Resources Investigations Report 98-4182



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APPENDIX A

Beargrass Creek—Middle Fork
user control input (UCI)

```

RUN
GLOBAL
BEARGRASS CREEK--Middle Fork
  START      1991  6  1  0  0  END      1994  5  31  24  0
  RUN INTERP OUTPUT LEVEL      5
  RESUME     0 RUN      1 TSSFL      0 WDMSFL      0 UNITS      1

```

END GLOBAL

FILES

```

<type>  <fun>***<-----fname----->
INFO      21   hspinf.da
ERROR     22   hsperr.da
WARN      23   hspwrn.da
MESSU     25   mf5ram.ech
WDM       26   mf5ram.wdm
          90   mf5ram.out

```

END FILES

OPN SEQUENCE

INGRP INDELT 0: 5

```

  PERLND      416
  IMPLND      616
  RCHRES       20
  PERLND      316
  PERLND      326
  PERLND      426
  PERLND      436
  PERLND      516
  PERLND      526
  IMPLND      626
  IMPLND      636
  RCHRES       30
  PERLND      417
  PERLND      517
  IMPLND      617
  RCHRES       21
  PERLND      317
  PERLND      327
  PERLND      337
  PERLND      427
  PERLND      527
  PERLND      537
  IMPLND      627
  IMPLND      637
  RCHRES       31
  RCHRES       10
  PERLND      412
  IMPLND      612
  RCHRES       22
  PERLND      311
  PERLND      411
  PERLND      422
  PERLND      437
  PERLND      511
  PERLND      512
  IMPLND      611
  IMPLND      622

```

```

RCHRES      32
RCHRES      23
PERLND      312
PERLND      432
PERLND      522
IMPLND      632
RCHRES      33
PERLND      321
PERLND      331
PERLND      421
PERLND      521
IMPLND      621
IMPLND      631
RCHRES      34

```

```

***
*** The network of PERLNDs, IMPLNDs, and RCHRESs listed
*** above describes the watershed above the Middle Fork
*** Beargrass Creek at Louisville, Kentucky, streamflow
*** gage (no. 03293000). The network of PERLNDs, IMPLNDs,
*** and RCHRESs listed below describes the Middle Fork
*** Beargrass Creek below the streamflow gage to the outlet.
*** The UCI currently is configured to simulate the watershed
*** up to the streamflow gage. To simulate the entire
*** watershed delete the *** in the lines below and line up
*** the unit names and numbers with the previous lines. The
*** External Targets Block also should be modified when
*** simulating the entire watershed.
***

```

```

*** PERLND      313
*** PERLND      323
*** PERLND      333
*** IMPLND      613
*** IMPLND      623
*** IMPLND      633
*** RCHRES      35
*** RCHRES      26
*** RCHRES      36
COPY        100

```

```

END INGRP
END OPN SEQUENCE
PERLND

```

ACTIVITY

```

<PLS > Active Sections ***
x - x ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC ***
311 537 0 0 1 0 0 0 0 0 0 0 0 0

```

END ACTIVITY

PRINT-INFO

```

<PLS> ***** Print-flags ***** PIVL PYR
x - x ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC *****
311 537 4 1 5

```

END PRINT-INFO

GEN-INFO

```

<PLS > Name NBLKS Unit-systems Printer***
x - x t-series Engl Metr***
in out ***

```

311	337	LAWN	1	1	1	90	0
411	437	RIPARIAN	1	1	1	90	0
511	537	WOODED	1	1	1	90	0

END GEN-INFO

PWAT-PARM1

```
*** <PLS >           Flags
*** x - x CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE
311 537 0 1 1 1 1 0 0 0 1
END PWAT-PARM1
```

PWAT-PARM2

```
*** <PLS>   FOREST   LZSN   INFILT   LSUR   SLSUR   KVARY   AGWRC
*** x - x           (in)   (in/hr)   (ft)           (1/in)   (1/day)
311 317           0.0     2.6     0.05    100.0    0.04     0.4     0.96
321 327           0.0     2.5     0.04     75.0    0.08     0.7     0.95
331 337           0.0     2.6     0.04     50.0    0.15     0.9     0.94
411 417           0.0    10.5     0.42    100.0    0.04     0.4     0.96
421 427           0.0    11.9     0.25     75.0    0.08     0.7     0.95
432 437           0.0    10.6     0.12     50.0    0.15     0.9     0.94
511 517           0.0     7.9     0.29    100.0    0.04     0.4     0.96
521 527           0.0     6.9     0.15     75.0    0.08     0.7     0.95
537              0.0     6.5     0.13     50.0    0.15     0.9     0.94
```

END PWAT-PARM2

PWAT-PARM3

```
*** <PLS>   PETMAX   PETMIN   INFEXP   INFILD   DEEPFR   BASETP   AGWETP
*** x - x   (deg F)   (deg F)
311 317     40.0     35.0     2.5     2.0     0.01     0.05     0.005
321 327     40.0     35.0     1.0     2.0     0.01     0.05     0.005
331 337     40.0     35.0     0.5     2.0     0.01     0.05     0.005
411 417     40.0     35.0     2.5     2.0     0.01     0.05     0.005
421 427     40.0     35.0     1.0     2.0     0.01     0.05     0.005
432 437     40.0     35.0     0.5     2.0     0.01     0.05     0.005
511 517     40.0     35.0     2.5     2.0     0.01     0.05     0.005
521 527     40.0     35.0     1.0     2.0     0.01     0.05     0.005
537         40.0     35.0     0.5     2.0     0.01     0.05     0.005
```

END PWAT-PARM3

PWAT-PARM4

```
*** <PLS >   CEPSC   UZSN   NSUR   INTFW   IRC   LZETP
*** x - x   (in)   (in)           (1/day)
311 317     0.2     0.83   0.25   10.0   0.17   0.47
321 327     0.2     0.65   0.25   10.0   0.27   0.49
331 337     0.2     0.52   0.25   10.0   0.37   0.49
411 417     0.2     0.54   0.25   10.0   0.17   0.31
421 427     0.2     0.5    0.25   10.0   0.27   0.37
432         0.2     0.39   0.25   10.0   0.27   0.36
436 437     0.2     0.39   0.25   10.0   0.37   0.36
511 517     0.2     0.78   0.25   10.0   0.17   0.44
521 527     0.2     0.44   0.25   10.0   0.27   0.33
537         0.2     0.38   0.25   10.0   0.37   0.36
```

END PWAT-PARM4

MON-INTERCEP

```
*** <PLS >   Interception storage capacity at start of each month (in)
*** x - x   JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC
311 317   0.1 0.11 0.12 0.13 0.14 0.16 0.16 0.16 0.15 0.14 0.12 0.1
321 327 0.09 0.1 0.09 0.11 0.11 0.13 0.14 0.14 0.13 0.11 0.11 0.09
331 427 0.07 0.09 0.09 0.11 0.11 0.12 0.12 0.12 0.11 0.09 0.08 0.07
```

432 437 0.04 0.05 0.05 0.08 0.09 0.09 0.11 0.11 0.09 0.07 0.05 0.04
 511 517 0.09 0.1 0.13 0.13 0.14 0.16 0.16 0.16 0.15 0.14 0.12 0.08
 521 537 0.04 0.05 0.07 0.08 0.09 0.09 0.11 0.11 0.09 0.07 0.06 0.04

END MON-INTERCEP

MON-UZSN

*** <PLS > Upper zone storage at start of each month (inches)

*** x - x JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
 311 317 0.63 0.63 0.63 0.63 0.6 0.55 0.52 0.52 0.63 0.68 0.73 0.66
 321 327 0.5 0.55 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.55
 331 337 0.42 0.42 0.42 0.42 0.42 0.42 0.43 0.43 0.43 0.43 0.43 0.42
 411 417 0.44 0.44 0.44 0.44 0.34 0.34 0.35 0.35 0.35 0.35 0.45 0.44
 421 427 0.4 0.4 0.4 0.4 0.4 0.4 0.42 0.42 0.42 0.42 0.42 0.4
 432 437 0.29 0.29 0.29 0.29 0.29 0.29 0.31 0.31 0.31 0.31 0.31 0.29
 511 517 0.68 0.68 0.68 0.68 0.58 0.6 0.6 0.6 0.6 0.6 0.7 0.68
 521 527 0.34 0.34 0.34 0.34 0.34 0.34 0.35 0.35 0.35 0.35 0.35 0.34
 537 0.28 0.28 0.28 0.28 0.28 0.28 0.3 0.3 0.3 0.3 0.3 0.28

END MON-UZSN

MON-LZETPARM

*** <PLS > Lower zone evapotransp parm at start of each month

*** x - x JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
 311 317 0.31 0.31 0.37 0.4 0.56 0.65 0.72 0.73 0.64 0.52 0.49 0.33
 321 337 0.32 0.32 0.39 0.42 0.59 0.66 0.75 0.76 0.66 0.54 0.5 0.34
 411 417 0.19 0.19 0.24 0.26 0.33 0.4 0.5 0.51 0.4 0.38 0.35 0.21
 421 427 0.22 0.22 0.28 0.31 0.42 0.5 0.59 0.6 0.5 0.43 0.4 0.24
 432 437 0.21 0.21 0.28 0.31 0.4 0.49 0.58 0.59 0.49 0.42 0.4 0.23
 511 517 0.27 0.27 0.35 0.37 0.52 0.6 0.7 0.71 0.6 0.52 0.46 0.29
 521 527 0.2 0.2 0.26 0.28 0.36 0.44 0.53 0.54 0.44 0.4 0.37 0.22
 537 0.22 0.22 0.28 0.31 0.4 0.47 0.57 0.58 0.47 0.42 0.4 0.24

END MON-LZETPARM

PWAT-STATE1

*** <PLS> PWATER state variables (in)

*** x - x CEPS SURS UZS IFWS LZS AGWS GWVS
 311 537 0.0 0.0 0.94 0.08 9.9 0.2 0.0

END PWAT-STATE1

END PERLND

IMPLND

ACTIVITY

*** <ILS > Active Sections

*** x - x ATMP SNOW IWAT SLD IWG IQAL
 611 637 0 0 1 0 0 0

END ACTIVITY

PRINT-INFO

<ILS > ***** Print-flags ***** PIVL PYR

x - x ATMP SNOW IWAT SLD IWG IQAL *****

611 637 4 1 5

END PRINT-INFO

GEN-INFO

*** <ILS > Name Unit-systems Printer

*** <ILS > t-series Engl Metr

*** x - x in out

611 637ROADS/URBAN 1 1 90 0

END GEN-INFO

IWAT-PARM1

*** <ILS > Flags

*** x - x CSNO RTOP VRS VNN RTLI

```

611 637 0 1 0 0 0
END IWAT-PARM1
IWAT-PARM2
*** <ILS >      LSUR      SLSUR      NSUR      RETSC
*** x - x      (ft)
611 617      100.0      0.04      0.025      0.07
621 627      100.0      0.09      0.025      0.05
631 637      100.0      0.15      0.025      0.03
END IWAT-PARM2
IWAT-PARM3
*** <ILS >      PETMAX      PETMIN
*** x - x      (deg F)      (deg F)
611 637      40.0      35.0
END IWAT-PARM3
IWAT-STATE1
*** <ILS > IWATER state variables (inches)
*** x - x      RETS      SURS
611 637      0.001      0.001
END IWAT-STATE1
END IMPLND
RCHRES
ACTIVITY
*** RCHRES Active sections
*** x - x HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG
10 36 1 0 0 0 0 0 0 0 0 0 0
END ACTIVITY
PRINT-INFO
*** RCHRES Printout level flags
*** x - x HYDR ADCA CONS HEAT SED GQL OXRX NUTR PLNK PHCB PIVL PYR
10 36 5 1 5
END PRINT-INFO
GEN-INFO
***
Name Nexits Unit Systems Printer
*** RCHRES t-series Engl Metr LKFG
*** x - x in out
10 SPILLWAYS 1 1 1 90 0 0
20 26LAKES & POND 1 1 1 90 0 1
30 BEARGRASS CK 1 1 1 90 0 0
31 BEARGRASS CK 2 1 1 90 0 0
32 36BEARGRASS CK 1 1 1 90 0 0
END GEN-INFO
HYDR-PARM1
***
Flags for HYDR section
RCHRES VC A1 A2 A3 ODFVFG for each *** ODGTFG for each FUNCT for each
x - x FG FG FG FG possible exit *** possible exit possible exit
10 30 0 1 1 1 4 0 0 0 0 0 0 0 0 0 1 1 1 1 1
31 0 1 1 1 4 5 0 0 0 0 0 0 0 0 0 1 1 1 1 1
32 36 0 1 1 1 4 0 0 0 0 0 0 0 0 0 1 1 1 1 1
END HYDR-PARM1
HYDR-PARM2
*** RCHRES FTBW FTBU LEN DELTH STCOR KS DB50
*** x - x (miles) (ft) (ft) (in)
10 0.0 10.0 0.5 1.0 0.0 0.5 0.01
20 0.0 20.0 0.5 1.0 0.0 0.5 0.01
21 0.0 21.0 0.5 1.0 0.0 0.5 0.01

```

22	0.0	22.0	0.5	1.0	0.0	0.5	0.01
23	0.0	23.0	0.5	1.0	0.0	0.5	0.01
26	0.0	26.0	0.5	1.0	0.0	0.5	0.01
30	0.0	30.0	4.2	33.6	0.0	0.5	0.01
31	0.0	31.0	3.1	20.9	0.0	0.5	0.07
32	0.0	32.0	3.9	17.3	0.0	0.5	0.05
33	0.0	33.0	3.1	18.9	0.0	0.5	0.04
34	0.0	34.0	1.8	10.7	0.0	0.5	0.05
35	0.0	35.0	3.5	11.9	0.0	0.5	0.04
36	0.0	36.0	1.3	2.9	0.0	0.5	0.01

END HYDR-PARM2

HYDR-INIT

*** Initial conditions for HYDR section

*** RCHRES	VOL	CAT	Initial value	of COLIND	initial value	of OUTDGT
*** x - x	ac-ft		for each possible	exit	for each possible	exit,ft3
10 26	0.88	0.0	4.0	4.0 4.0 4.0 4.0	0.0	0.0 0.0 0.0 0.0 0.0
30 36	1.09	0.0	4.0	4.0 4.0 4.0 4.0	0.0	0.0 0.0 0.0 0.0 0.0

END HYDR-INIT

END RCHRES

COPY

TIMESERIES

Copy-opn***

*** x - x	NPT	NMN
100	0	7

END TIMESERIES

END COPY

EXT SOURCES

<-Volume->	<Member>	SsysSgap<--Mult-->	Tran	<-Target vols>	<-Grp>	<-Member->	***			
<Name>	x	<Name>	x	tem	strg<-factor->	strg	<Name>	x	x	***
WDM	1006	PREC	10	ENGL		SAME PERLND 311	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL		DIV PERLND 311	EXTNL	PETINP	1	1
WDM	1006	PREC	10	ENGL		SAME PERLND 321	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL		DIV PERLND 321	EXTNL	PETINP	1	1
WDM	1006	PREC	10	ENGL		SAME PERLND 331	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL		DIV PERLND 331	EXTNL	PETINP	1	1
WDM	1006	PREC	10	ENGL		SAME PERLND 411	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL		DIV PERLND 411	EXTNL	PETINP	1	1
WDM	1006	PREC	10	ENGL		SAME PERLND 421	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL		DIV PERLND 421	EXTNL	PETINP	1	1
WDM	1006	PREC	10	ENGL		SAME PERLND 511	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL		DIV PERLND 511	EXTNL	PETINP	1	1
WDM	1006	PREC	10	ENGL		SAME PERLND 521	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL		DIV PERLND 521	EXTNL	PETINP	1	1
WDM	1006	PREC	10	ENGL		SAME IMPLND 611	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL		DIV IMPLND 611	EXTNL	PETINP	1	1
WDM	1006	PREC	10	ENGL		SAME IMPLND 621	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL		DIV IMPLND 621	EXTNL	PETINP	1	1
WDM	1006	PREC	10	ENGL		SAME IMPLND 631	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL		DIV IMPLND 631	EXTNL	PETINP	1	1
WDM	1008	PREC	10	ENGL		SAME PERLND 312	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL		DIV PERLND 312	EXTNL	PETINP	1	1
WDM	1008	PREC	10	ENGL		SAME PERLND 412	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL		DIV PERLND 412	EXTNL	PETINP	1	1
WDM	1008	PREC	10	ENGL		SAME PERLND 422	EXTNL	PREC	1	1


```

WDM 1027 PREC 10 ENGL SAME PERLND 437 EXTNL PREC 1 1
WDM 2251 PET 10 ENGL DIV PERLND 437 EXTNL PETINP 1 1
WDM 1027 PREC 10 ENGL SAME PERLND 517 EXTNL PREC 1 1
WDM 2251 PET 10 ENGL DIV PERLND 517 EXTNL PETINP 1 1
WDM 1027 PREC 10 ENGL SAME PERLND 527 EXTNL PREC 1 1
WDM 2251 PET 10 ENGL DIV PERLND 527 EXTNL PETINP 1 1
WDM 1027 PREC 10 ENGL SAME PERLND 537 EXTNL PREC 1 1
WDM 2251 PET 10 ENGL DIV PERLND 537 EXTNL PETINP 1 1
WDM 1027 PREC 10 ENGL SAME IMPLND 617 EXTNL PREC 1 1
WDM 2251 PET 10 ENGL DIV IMPLND 617 EXTNL PETINP 1 1
WDM 1027 PREC 10 ENGL SAME IMPLND 627 EXTNL PREC 1 1
WDM 2251 PET 10 ENGL DIV IMPLND 627 EXTNL PETINP 1 1
WDM 1027 PREC 10 ENGL SAME IMPLND 637 EXTNL PREC 1 1
WDM 2251 PET 10 ENGL DIV IMPLND 637 EXTNL PETINP 1 1
WDM 1027 PREC 10 ENGL SAME RCHRES 10 36 EXTNL PREC 1 1
WDM 2251 PET 10 ENGL DIV RCHRES 10 36 EXTNL POTEV 1 1
END EXT SOURCES

```

EXT TARGETS

```

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Aggr Amd ***
<Name> x <Name> x x<-factor->strg <Name> x <Name>qf tem strg strg***
***

```

```

*** The first two lines below specify that the discharge and average depth at
*** the streamflow gage Middlefork Beargrass Creek at Louisville, Kentucky,
*** (no. 03293000) are loaded into WDM files 340 and 341, respectively. If
*** the entire watershed is to be simulated similar lines need to be added for
*** RCHRES 36. New WDM files (numbers different than 340 and 341) should be
*** generated in ANNIE and specified as the external targets for simulation
*** results for RCHRES 36.
***

```

```

RCHRES 34 HYDR RO 1 1 WDM 340 DISC 1 ENGL AGGR REPL
RCHRES 34 HYDR AVDEP 1 1 WDM 341 AVDE 1 ENGL AGGR REPL
RCHRES 34 ROFLOW ROVOL 1 1 0.001038 WDM 320 SIMQ 1 ENGL AGGR REPL
COPY 100 OUTPUT MEAN 1 1 0.000086 WDM 321 SURO 1 ENGL AGGR REPL
COPY 100 OUTPUT MEAN 2 1 0.000086 WDM 322 IFWO 1 ENGL AGGR REPL
COPY 100 OUTPUT MEAN 3 1 0.000086 WDM 323 AGWO 1 ENGL AGGR REPL
COPY 100 OUTPUT MEAN 4 1 0.000086 WDM 325 PETX 1 ENGL AGGR REPL
COPY 100 OUTPUT MEAN 5 1 0.000086 WDM 326 SAET 1 ENGL AGGR REPL
COPY 100 OUTPUT MEAN 6 1 0.000086 WDM 327 UZSX 1 ENGL AGGR REPL
COPY 100 OUTPUT MEAN 7 1 0.000086 WDM 328 LZSX 1 ENGL AGGR REPL

```

END EXT TARGETS

SCHEMATIC

```

<-Volume-> <--Area--> <-Volume-> <ML#> ***
<Name> x <-factor-> <Name> x ***
PERLND 416 54.8 RCHRES 20 1
IMPLND 616 14.4 RCHRES 20 2
PERLND 316 5.6 RCHRES 30 1
PERLND 326 6.5 RCHRES 30 1
PERLND 416 586.0 RCHRES 30 1
PERLND 426 126.6 RCHRES 30 1
PERLND 436 9.5 RCHRES 30 1
PERLND 516 25.3 RCHRES 30 1
PERLND 526 14.0 RCHRES 30 1
IMPLND 616 161.6 RCHRES 30 2
IMPLND 626 43.7 RCHRES 30 2

```

IMPLND 636	3.9	RCHRES 30	2
PERLND 416	265.7	RCHRES 21	1
PERLND 417	6.9	RCHRES 21	1
PERLND 426	15.2	RCHRES 21	1
PERLND 517	54.2	RCHRES 21	1
IMPLND 616	70.6	RCHRES 21	2
IMPLND 617	16.4	RCHRES 21	2
IMPLND 626	4.6	RCHRES 21	2
PERLND 317	45.5	RCHRES 31	1
PERLND 327	8.6	RCHRES 31	1
PERLND 337	6.9	RCHRES 31	1
PERLND 416	582.2	RCHRES 31	1
PERLND 417	453.6	RCHRES 31	1
PERLND 426	252.8	RCHRES 31	1
PERLND 427	61.7	RCHRES 31	1
PERLND 436	61.3	RCHRES 31	1
PERLND 517	373.8	RCHRES 31	1
PERLND 527	7.1	RCHRES 31	1
PERLND 537	11.3	RCHRES 31	1
IMPLND 616	154.6	RCHRES 31	2
IMPLND 617	241.8	RCHRES 31	2
IMPLND 626	74.9	RCHRES 31	2
IMPLND 627	27.3	RCHRES 31	2
IMPLND 636	22.0	RCHRES 31	2
IMPLND 637	8.0	RCHRES 31	2
PERLND 412	38.8	RCHRES 22	1
PERLND 416	287.7	RCHRES 22	1
PERLND 417	28.3	RCHRES 22	1
PERLND 517	362.3	RCHRES 22	1
IMPLND 612	9.7	RCHRES 22	2
IMPLND 616	61.3	RCHRES 22	2
IMPLND 617	106.0	RCHRES 22	2
PERLND 311	55.5	RCHRES 32	1
PERLND 411	23.9	RCHRES 32	1
PERLND 412	492.1	RCHRES 32	1
PERLND 416	3.6	RCHRES 32	1
PERLND 417	510.3	RCHRES 32	1
PERLND 422	25.7	RCHRES 32	1
PERLND 427	137.3	RCHRES 32	1
PERLND 437	10.1	RCHRES 32	1
PERLND 511	20.3	RCHRES 32	1
PERLND 512	8.3	RCHRES 32	1
PERLND 517	2120.2	RCHRES 32	1
PERLND 527	39.9	RCHRES 32	1
PERLND 537	26.6	RCHRES 32	1
IMPLND 611	32.0	RCHRES 32	2
IMPLND 612	126.4	RCHRES 32	2
IMPLND 616	0.8	RCHRES 32	2
IMPLND 617	736.8	RCHRES 32	2
IMPLND 622	5.0	RCHRES 32	2
IMPLND 627	49.5	RCHRES 32	2
IMPLND 637	10.5	RCHRES 32	2
PERLND 412	15.8	RCHRES 23	1
PERLND 512	254.6	RCHRES 23	1
IMPLND 612	67.1	RCHRES 23	2

PERLND 312	11.3	RCHRES 33	1
PERLND 412	151.3	RCHRES 33	1
PERLND 422	39.1	RCHRES 33	1
PERLND 432	6.0	RCHRES 33	1
PERLND 512	362.8	RCHRES 33	1
PERLND 522	6.3	RCHRES 33	1
IMPLND 612	142.4	RCHRES 33	2
IMPLND 622	13.0	RCHRES 33	2
IMPLND 632	4.4	RCHRES 33	2
PERLND 311	718.4	RCHRES 34	1
PERLND 317	36.4	RCHRES 34	1
PERLND 321	89.6	RCHRES 34	1
PERLND 331	42.4	RCHRES 34	1
PERLND 411	39.3	RCHRES 34	1
PERLND 412	13.5	RCHRES 34	1
PERLND 421	7.8	RCHRES 34	1
PERLND 511	102.5	RCHRES 34	1
PERLND 521	28.0	RCHRES 34	1
IMPLND 611	160.2	RCHRES 34	2
IMPLND 612	2.1	RCHRES 34	2
IMPLND 617	7.9	RCHRES 34	2
IMPLND 621	24.3	RCHRES 34	2
IMPLND 631	9.5	RCHRES 34	2
PERLND 311	1279.7	RCHRES 35	1
PERLND 313	210.1	RCHRES 35	1
PERLND 321	333.1	RCHRES 35	1
PERLND 323	65.8	RCHRES 35	1
PERLND 331	285.7	RCHRES 35	1
PERLND 333	50.3	RCHRES 35	1
IMPLND 611	289.8	RCHRES 35	2
IMPLND 613	42.5	RCHRES 35	2
IMPLND 621	67.5	RCHRES 35	2
IMPLND 623	13.6	RCHRES 35	2
IMPLND 631	73.1	RCHRES 35	2
IMPLND 633	11.3	RCHRES 35	2
PERLND 311	131.1	RCHRES 26	1
PERLND 313	109.6	RCHRES 26	1
PERLND 321	11.0	RCHRES 26	1
PERLND 323	29.8	RCHRES 26	1
PERLND 331	5.0	RCHRES 26	1
PERLND 333	18.5	RCHRES 26	1
IMPLND 611	29.1	RCHRES 26	2
IMPLND 613	22.9	RCHRES 26	2
IMPLND 621	2.4	RCHRES 26	2
IMPLND 623	5.7	RCHRES 26	2
IMPLND 631	1.2	RCHRES 26	2
IMPLND 633	4.1	RCHRES 26	2
PERLND 311	64.7	RCHRES 36	1
PERLND 313	363.9	RCHRES 36	1
PERLND 321	47.7	RCHRES 36	1
PERLND 323	196.3	RCHRES 36	1
PERLND 331	33.3	RCHRES 36	1
PERLND 333	152.1	RCHRES 36	1
IMPLND 611	14.4	RCHRES 36	2
IMPLND 613	76.0	RCHRES 36	2

IMPLND 621	10.4	RCHRES 36	2
IMPLND 623	37.8	RCHRES 36	2
IMPLND 631	8.4	RCHRES 36	2
IMPLND 633	33.8	RCHRES 36	2
RCHRES 20		RCHRES 30	4
RCHRES 30		RCHRES 31	4
RCHRES 21		RCHRES 31	4
RCHRES 31		RCHRES 33	3
RCHRES 31		RCHRES 10	3
RCHRES 22		RCHRES 32	4
RCHRES 32		RCHRES 33	4
RCHRES 23		RCHRES 33	4
RCHRES 33		RCHRES 34	4
RCHRES 34		RCHRES 35	4
RCHRES 35		RCHRES 36	4
RCHRES 26		RCHRES 36	4
PERLND 311	2249.4	COPY 100	90
PERLND 312	11.3	COPY 100	90
PERLND 313	683.6	COPY 100	90
PERLND 316	5.6	COPY 100	90
PERLND 317	81.9	COPY 100	90
PERLND 321	481.4	COPY 100	90
PERLND 323	291.9	COPY 100	90
PERLND 326	6.5	COPY 100	90
PERLND 327	8.6	COPY 100	90
PERLND 331	366.4	COPY 100	90
PERLND 333	220.9	COPY 100	90
PERLND 337	6.9	COPY 100	90
PERLND 411	63.2	COPY 100	90
PERLND 412	711.5	COPY 100	90
PERLND 416	1780.3	COPY 100	90
PERLND 417	999.1	COPY 100	90
PERLND 421	7.8	COPY 100	90
PERLND 422	64.8	COPY 100	90
PERLND 426	394.6	COPY 100	90
PERLND 427	199.0	COPY 100	90
PERLND 432	6.0	COPY 100	90
PERLND 436	70.8	COPY 100	90
PERLND 437	10.1	COPY 100	90
PERLND 511	122.8	COPY 100	90
PERLND 512	625.7	COPY 100	90
PERLND 516	25.3	COPY 100	90
PERLND 517	2910.5	COPY 100	90
PERLND 521	28.0	COPY 100	90
PERLND 522	6.3	COPY 100	90
PERLND 526	14.0	COPY 100	90
PERLND 527	47.0	COPY 100	90
PERLND 537	37.9	COPY 100	90
IMPLND 611	525.5	COPY 100	91
IMPLND 612	347.7	COPY 100	91
IMPLND 613	141.4	COPY 100	91
IMPLND 616	463.3	COPY 100	91
IMPLND 617	1108.9	COPY 100	91
IMPLND 621	104.6	COPY 100	91
IMPLND 622	18.0	COPY 100	91

IMPLND 623	57.1	COPY	100	91
IMPLND 626	123.2	COPY	100	91
IMPLND 627	76.8	COPY	100	91
IMPLND 631	92.2	COPY	100	91
IMPLND 632	4.4	COPY	100	91
IMPLND 633	49.3	COPY	100	91
IMPLND 636	25.9	COPY	100	91
IMPLND 637	18.5	COPY	100	91

END SCHEMATIC

MASS-LINK

```

MASS-LINK      1
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name>          <Name> x x<-factor->strg <Name>          <Name> x x ***
PERLND    PWATER PERO      0.0833333    RCHRES          INFLOW IVOL
END MASS-LINK      1

```

```

MASS-LINK      2
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name>          <Name> x x<-factor->strg <Name>          <Name> x x ***
IMPLND    IWATER SURO      0.0833333    RCHRES          INFLOW IVOL
END MASS-LINK      2

```

```

MASS-LINK      3
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name>          <Name> x x<-factor->strg <Name>          <Name> x x ***
RCHRES    ROFLOW ROVOL    1          RCHRES          INFLOW IVOL
RCHRES    OFLOW  OVOL     2          RCHRES          INFLOW IVOL
END MASS-LINK      3

```

```

MASS-LINK      4
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name>          <Name> x x<-factor->strg <Name>          <Name> x x ***
RCHRES    HYDR  ROVOL    1          RCHRES          INFLOW IVOL
END MASS-LINK      4

```

```

MASS-LINK      90
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name>          <Name> x x<-factor->strg <Name>          <Name> x x ***
PERLND    PWATER SURO          COPY          INPUT  MEAN    1
PERLND    PWATER IFWO          COPY          INPUT  MEAN    2
PERLND    PWATER AGWO          COPY          INPUT  MEAN    3
PERLND    PWATER PET           COPY          INPUT  MEAN    4
PERLND    PWATER TAET          COPY          INPUT  MEAN    5
PERLND    PWATER UZS           COPY          INPUT  MEAN    6
PERLND    PWATER LZS           COPY          INPUT  MEAN    7
END MASS-LINK      90

```

```

MASS-LINK      91
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name>          <Name> x x<-factor->strg <Name>          <Name> x x ***
IMPLND    IWATER SURO          COPY          INPUT  MEAN    1
IMPLND    IWATER PET           COPY          INPUT  MEAN    4
IMPLND    IWATER IMPEV        COPY          INPUT  MEAN    5
END MASS-LINK      91

```

```

END MASS-LINK
FTABLES
FTABLE      10
18      4

```

```

DEPTH      AREA      VOLUME      DISCH      FLO-THRU ***
(FT)      (ACRES)    (AC-FT)    (CFS)      (MIN) ***

```

0.0	0.0	0.0	0.0
0.119	9.429998	1.12	1.0
0.165	9.660002	1.6	2.0
0.202	9.87	1.99	3.0
0.232	10.02	2.32	4.0
0.285	10.23	2.91	6.0
0.33	10.37	3.42	8.0
0.372	10.5	3.9	10.0
0.445	11.29	5.02	15.0
0.618	12.54	7.75	30.0
0.908	13.31	12.08	60.0
1.311	14.41	18.88	120.0
1.916	16.04	30.74	250.0
2.63	19.12	50.28	500.0
2.785	32.12	89.47	1000.0
2.899	60.38	175.03	3000.0
4.016	76.28999	306.35	5000.0
5.446	78.98	430.08	7000.0

END FTABLE 10

FTABLE 20

18 5

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	BY-PASS (CFS) ***
0.0	0.0	0.0	0.0	0.0
0.3	0.003	0.001	0.0	0.0
0.6	0.012	0.006999999	0.1	0.0
0.9	0.026	0.024	0.2	0.0
1.2	0.047	0.056	0.3	0.0
1.5	0.073	0.11	0.4	0.0
1.8	0.105	0.189	0.5	0.0
2.1	0.143	0.301	0.6	0.0
2.4	0.187	0.449	0.7	0.0
2.7	0.237	0.639	0.8	0.0
3.0	0.292	0.876	0.9	0.0
3.3	0.353	1.166	1.0	0.0
3.6	0.421	1.514	2.0	1.1
3.9	0.494	1.925	3.0	2.1
4.2	0.572	2.404	4.0	3.1
4.5	0.657	2.957	6.0	4.0
4.8	0.748	3.589	9.0	5.0
5.1	0.844	4.304	12.0	6.0

END FTABLE 20

FTABLE 30

18 4

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	FLO-THRU (MIN) ***
0.0	0.0	0.0	0.0	
0.119	9.429999	1.12	1.0	
0.165	9.660001	1.6	2.0	
0.202	9.87	1.99	3.0	
0.232	10.02	2.32	4.0	
0.285	10.23	2.91	6.0	
0.33	10.37	3.42	8.0	
0.372	10.5	3.9	10.0	
0.445	11.29	5.02	15.0	

0.618	12.54	7.75	30.0
0.908	13.31	12.08	60.0
1.311	14.41	18.88	120.0
1.916	16.04	30.74	250.0
2.63	19.12	50.28	500.0
2.785	32.12	89.47	1000.0
2.899	60.38	175.03	2000.0
4.016	76.28999	306.35	4000.0
5.446	78.98	430.08	6000.0

END FTABLE 30

FTABLE 21

14 5

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	FLO-THRU (CFS) ***
0.0	0.0	0.0	0.0	0.0
1.0	0.611	0.617	0.6	0.6
2.0	1.223	2.467	5.0	5.0
3.0	1.834	5.551	17.0	17.0
4.0	2.445	9.868001	54.0	54.0
5.0	3.057	15.422	98.2	98.0
6.0	3.669	22.206	150.0	150.0
7.0	4.28	30.225	300.0	300.0
8.0	4.891	39.477	325.0	325.0
9.0	5.503	49.962	500.0	500.0
10.0	6.114	61.681	630.0	630.0
10.6	6.42	68.003	650.0	650.0
11.1	6.725	74.634	800.0	800.0
11.6	7.031	81.573	1000.0	1000.0

END FTABLE 21

FTABLE 31

18 5

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	FLO-THRU (MIN) ***
0.0	0.0	0.0	0.0	0.0
0.333	4.21	1.4	1.0	0.0
0.37	4.68	1.73	2.0	0.0
0.405	5.01	2.03	3.0	0.0
0.432	5.32	2.3	4.0	0.0
0.488	5.72	2.79	6.0	0.0
0.542	6.01	3.26	8.0	0.0
0.593	6.22	3.7	10.0	0.0
0.698	6.63	4.63	15.0	0.0
0.945	7.51	7.1	30.0	0.0
1.263	8.94	11.29	60.0	0.0
1.293	13.8	17.84	120.0	0.0
1.355	24.4	33.07	250.0	0.0
1.586	37.38	59.28	500.0	0.0
1.895	58.57	110.98	1000.0	0.0
2.969	76.6	227.45	1800.0	200.0
4.283	97.24	403.64	3500.0	500.0
5.164	104.49	539.58	4500.0	1500.0

END FTABLE 31

FTABLE 22

14 5

DEPTH	AREA	VOLUME	DISCH	FLO-THRU ***
-------	------	--------	-------	--------------

(FT)	(ACRES)	(AC-FT)	(CFS)	(CFS) ***
0.0	0.0	0.0	0.0	0.0
1.2	0.725	0.867	0.8	0.8
2.4	1.45	3.467	8.0	8.0
3.6	2.174	7.801	30.0	30.0
4.8	2.899	13.869	70.0	70.0
6.0	3.624	21.674	180.0	180.0
7.2	4.349	31.21	265.0	265.0
8.4	5.074	42.48	350.0	350.0
9.6	5.799	55.483	600.0	600.0
10.8	6.524	70.21999	700.0	700.0
12.0	7.248	86.68999	990.0	990.0
12.6	7.611	95.576	1100.0	1100.0
13.2	7.973	104.895	1200.0	1200.0
13.8	8.335999	114.647	1400.0	1400.0

END FTABLE 22

FTABLE 32

18 4

DEPTH	AREA	VOLUME	DISCH	FLO-THRU ***
(FT)	(ACRES)	(AC-FT)	(CFS)	(MIN) ***
0.0	0.0	0.0	0.0	
0.119	9.429999	1.12	1.0	
0.165	9.660001	1.6	2.0	
0.202	9.87	1.99	3.0	
0.232	10.02	2.32	4.0	
0.285	10.23	2.91	6.0	
0.33	10.37	3.42	8.0	
0.372	10.5	3.9	10.0	
0.445	11.29	5.02	15.0	
0.618	12.54	7.75	30.0	
0.908	13.31	12.08	60.0	
1.311	14.41	18.88	120.0	
1.916	16.04	30.74	250.0	
2.63	19.12	50.28	500.0	
2.785	32.12	89.47	1000.0	
2.899	60.38	175.03	2000.0	
4.016	76.28999	306.35	4000.0	
5.446	78.98	430.08	6000.0	

END FTABLE 32

FTABLE 23

14 5

DEPTH	AREA	VOLUME	DISCH	FLO-THRU ***
(FT)	(ACRES)	(AC-FT)	(CFS)	(CFS) ***
0.0	0.0	0.0	0.0	0.0
0.5	0.288	0.137	0.0	0.0
1.0	0.577	0.549	0.3	0.3
1.4	0.865	1.236	0.6	0.6
1.9	1.154	2.197	1.0	1.0
2.4	1.443	3.433	5.0	5.0
2.9	1.731	4.944	12.0	12.0
3.3	2.019	6.729	23.0	23.0
3.8	2.308	8.788	38.0	38.0
4.3	2.596	11.123	60.0	60.0
4.8	2.885	13.732	82.0	82.0
5.0	3.029	15.139	94.0	94.0

5.2	3.173	16.615	102.0	102.0
5.5	3.317	18.16	120.0	120.0

END FTABLE 23

FTABLE 33

18 4

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	FLO-THRU (MIN) ***
0.0	0.0	0.0	0.0	
0.366	5.77	2.11	1.0	
0.395	6.3	2.49	2.0	
0.419	6.69	2.8	3.0	
0.444	6.98	3.1	4.0	
0.483	7.45	3.6	6.0	
0.528	7.79	4.11	8.0	
0.568	8.04	4.57	10.0	
0.654	8.55	5.59	15.0	
0.854	9.42	8.04	30.0	
1.139	10.44	11.89	60.0	
1.51	11.98	18.09	120.0	
1.694	17.25	29.23	250.0	
1.97	18.75	36.93	500.0	
2.096	46.64	97.78	1000.0	
2.445	73.22	179.04	2000.0	
3.882	93.62	363.43	4000.0	
5.042	105.39	531.36	6000.0	

END FTABLE 33

FTABLE 34

18 4

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	FLO-THRU (MIN) ***
0.0	0.0	0.0	0.0	
0.211	3.13	0.66	1.0	
0.25	3.64	0.91	2.0	
0.284	4.02	1.14	3.0	
0.31	4.35	1.35	4.0	
0.36	4.86	1.75	6.0	
0.398	5.25	2.09	8.0	
0.433	5.56	2.41	10.0	
0.507	6.14	3.11	15.0	
0.698	7.02	4.84	30.0	
0.963	7.63	7.35	60.0	
1.349	8.4	11.33	120.0	
1.962	9.28	18.21	250.0	
2.764	10.6	29.3	500.0	
3.391	14.17	48.05	1000.0	
3.636	22.42	81.53	2000.0	
4.174	34.02	141.99	4000.0	
5.006	39.56	198.03	6000.0	

END FTABLE 34

FTABLE 35

18 4

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	FLO-THRU (MIN) ***
0.0	0.0	0.0	0.0	
0.578	10.05	5.81	1.0	

0.602	10.44	6.29	2.0
0.621	10.8	6.71	3.0
0.643	11.11	7.14	4.0
0.683	11.52	7.87	6.0
0.717	11.89	8.52	8.0
0.742	12.19	9.05	10.0
0.803	12.83	10.3	15.0
0.944	14.2	13.41	30.0
1.148	16.06	18.44	60.0
1.466	18.08	26.51	120.0
1.949	20.86	40.66	250.0
2.698	24.06	64.92	500.0
3.399	31.67	107.64	1000.0
3.582	65.75	235.51	2000.0
5.284	95.95	507.03	4000.0
7.896	116.87	922.77	6000.0

END FTABLE 35

FTABLE 26

14 5

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	FLO-THRU (CFS) ***
0.0	0.0	0.0	0.0	0.0
1.1	0.654	0.707	41.0	0.0
2.2	1.309	2.827	63.0	0.0
3.2	1.963	6.362	95.0	0.0
4.3	2.618	11.309	119.0	0.0
5.4	3.273	17.674	132.0	0.0
6.5	3.927	25.45	148.7	0.0
7.6	4.582	34.639	169.4	0.0
8.6	5.236	45.242	194.1	0.0
9.7	5.891	57.259	238.7	0.0
10.8	6.545	70.69	293.4	0.0
11.3	6.873	77.935	335.7	0.0
11.9	7.2	85.534	386.1	0.0
12.4	7.527	93.486	446.4	0.0

END FTABLE 26

FTABLE 36

18 4

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	FLO-THRU (MIN) ***
0.0	0.0	0.0	0.0	
0.227	4.15	0.94	1.0	
0.286	4.54	1.3	2.0	
0.335	4.86	1.63	3.0	
0.378	5.13	1.94	4.0	
0.455	5.52	2.51	6.0	
0.523	5.79	3.03	8.0	
0.586	5.96	3.49	10.0	
0.722	6.32	4.56	15.0	
1.045	6.84	7.15	30.0	
1.55	7.29	11.3	60.0	
2.291	7.95	18.21	120.0	
3.05	10.08	30.74	250.0	
3.982	13.64	54.31	500.0	
5.186	18.65	96.71	1000.0	

6.973	24.18	168.61	2000.0
9.365	32.12	300.81	4000.0
10.884	45.57	495.99	6000.0

END FTABLE 36

END FTABLES

END RUN

APPENDIX B

Beargrass Creek—South Fork
user control input (UCI)

```

RUN
GLOBAL
BEARGRASS CREEK--South Fork
  START      1991  6  1  0  0  END      1994  5  31  24  0
  RUN INTERP OUTPUT LEVEL      5
  RESUME     0 RUN      1 TSSFL      0 WDMSFL      0 UNITS      1

```

END GLOBAL

FILES

```

<type> <fun>***<-----fname----->
INFO      21   hspinf.da
ERROR     22   hsperr.da
WARN      23   hspwrn.da
MESSU     25   sf5.ech
WDM       26   sf5.wdm
          90   sf5.out

```

END FILES

OPN SEQUENCE

```

  INGRP          INDELT  0: 5
    IMPLND      612
    IMPLND      614
    IMPLND      622
    IMPLND      632
    PERLND      312
    PERLND      322
    PERLND      332
    PERLND      412
    PERLND      422
    PERLND      512
    PERLND      514
    PERLND      522
    RCHRES       21
    PERLND      314
    PERLND      315
    PERLND      324
    PERLND      511
    PERLND      521
    PERLND      524
    IMPLND      611
    IMPLND      615
    IMPLND      624
    RCHRES       31
    IMPLND      625
    IMPLND      635
    PERLND      325
    PERLND      415
    PERLND      515
    PERLND      525
    PERLND      535
    RCHRES       22
    PERLND      425
    RCHRES       32
    IMPLND      613
    IMPLND      621
    IMPLND      623
    IMPLND      633

```

```

PERLND 333
PERLND 334
PERLND 513
PERLND 523
RCHRES 23
PERLND 323
PERLND 331
PERLND 335
IMPLND 634
RCHRES 33

```

```

***
*** The network of PERLNDs, IMPLNDs, and RCHRESs listed above
*** describes the watershed above the South Fork Beargrass
*** Creek at Louisville, Kentucky, streamflow gage (no. 03292500).
*** The network of PERLNDs, IMPLNDs, and RCHRESs listed below
*** describes the South Fork of Beargrass Creek below the streamflow
*** gage to approximately Logan Street in Louisville. The UCI is
*** currently configured to simulate the watershed up to the
*** streamflow gage. To simulate the entire watershed delete
*** the *** in the lines below and line up the unit names and numbers
*** with the previous lines. The External Targets Block should also
*** be modified when simulating the entire watershed.
***

```

```

*** PERLND 313
*** IMPLND 631
*** RCHRES 34
COPY 100

```

END INGRP

END OPN SEQUENCE

PERLND

ACTIVITY

```

<PLS > Active Sections ***
x - x ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC ***
312 535 0 0 1 0 0 0 0 0 0 0 0 0

```

END ACTIVITY

PRINT-INFO

```

<PLS> ***** Print-flags ***** PIVL PYR
x - x ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC *****
312 535 4 1 5

```

END PRINT-INFO

GEN-INFO

```

<PLS > Name NBLKS Unit-systems Printer***
x - x t-series Engl Metr***
in out ***
312 335LAWN 1 1 1 90 0
412 425RIPARIAN 1 1 1 90 0
511 535WOODED 1 1 1 90 0

```

END GEN-INFO

PWAT-PARM1

```

*** <PLS > Flags
*** x - x CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE
312 535 0 1 1 1 1 0 0 0 1

```

END PWAT-PARM1

PWAT-PARM2

```

*** <PLS> FOREST LZSN INFILT LSUR SLSUR KVARY AGWRC

```

```

*** x - x          (in)      (in/hr)      (ft)          (1/in)      (1/day)
312 315          0.0        2.6         0.05        100.0       0.04        0.4         0.96
322 325          0.0        2.5         0.04         75.0       0.08        0.7         0.95
331 335          0.0        2.6         0.04         50.0       0.15        0.9         0.94
412 415          0.0       10.5         0.42        100.0       0.04        0.4         0.96
422 425          0.0       11.9         0.25         75.0       0.08        0.7         0.95
511 515          0.0        7.9         0.29        100.0       0.04        0.4         0.96
521 525          0.0        6.9         0.15         75.0       0.08        0.7         0.95
535             0.0        6.5         0.13         50.0       0.15        0.9         0.94

```

END PWAT-PARM2

PWAT-PARM3

```

*** <PLS>      PETMAX      PETMIN      INFEXP      INFILD      DEEPFR      BASETP      AGWETP
*** x - x      (deg F)      (deg F)
312 315        40.0        35.0         2.5         2.0         0.01        0.05        0.005
322 325        40.0        35.0         1.0         2.0         0.01        0.05        0.005
331 335        40.0        35.0         0.5         2.0         0.01        0.05        0.005
412 415        40.0        35.0         2.5         2.0         0.01        0.05        0.005
422 425        40.0        35.0         1.0         2.0         0.01        0.05        0.005
511 515        40.0        35.0         2.5         2.0         0.01        0.05        0.005
521 525        40.0        35.0         1.0         2.0         0.01        0.05        0.005
535             40.0        35.0         0.5         2.0         0.01        0.05        0.005

```

END PWAT-PARM3

PWAT-PARM4

```

*** <PLS >      CEPSC          UZSN          NSUR          INTFW          IRC          LZETP
*** x - x      (in)          (in)
312 315        0.2          0.83         0.25         10.0         0.17        0.47
322 325        0.2          0.65         0.25         10.0         0.27        0.49
331 335        0.2          0.52         0.25         10.0         0.37        0.49
412 415        0.2          0.54         0.25         10.0         0.17        0.31
422 425        0.2          0.5          0.25         10.0         0.27        0.37
511 515        0.2          0.78         0.25         10.0         0.17        0.44
521 525        0.2          0.44         0.25         10.0         0.27        0.33
535             0.2          0.38         0.25         10.0         0.37        0.36

```

END PWAT-PARM4

MON-INTERCEP

```

*** <PLS >      Interception storage capacity at start of each month (in)
*** x - x      JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC
312 315        0.1  0.11  0.12  0.13  0.14  0.16  0.16  0.16  0.15  0.14  0.12  0.1
322 325        0.09  0.1  0.09  0.11  0.11  0.13  0.14  0.14  0.13  0.11  0.11  0.09
331 425        0.07  0.09  0.09  0.11  0.11  0.12  0.12  0.12  0.11  0.09  0.08  0.07
511 515        0.09  0.1  0.13  0.13  0.14  0.16  0.16  0.16  0.15  0.14  0.12  0.08
521 535        0.04  0.05  0.07  0.08  0.09  0.09  0.11  0.11  0.09  0.07  0.06  0.04

```

END MON-INTERCEP

MON-UZSN

```

*** <PLS >      Upper zone storage at start of each month (inches)
*** x - x      JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC
312 315        0.63  0.63  0.63  0.63  0.6  0.55  0.52  0.52  0.63  0.68  0.73  0.66
322 325        0.5  0.55  0.5  0.5  0.5  0.5  0.5  0.5  0.5  0.5  0.5  0.55
331 335        0.42  0.42  0.42  0.42  0.42  0.42  0.43  0.43  0.43  0.43  0.43  0.42
412 415        0.44  0.44  0.44  0.44  0.34  0.34  0.35  0.35  0.35  0.35  0.45  0.44
422 425        0.4  0.4  0.4  0.4  0.4  0.4  0.42  0.42  0.42  0.42  0.42  0.4
511 515        0.68  0.68  0.68  0.68  0.58  0.6  0.6  0.6  0.6  0.6  0.7  0.68
521 525        0.34  0.34  0.34  0.34  0.34  0.34  0.35  0.35  0.35  0.35  0.35  0.34
535             0.28  0.28  0.28  0.28  0.28  0.28  0.3  0.3  0.3  0.3  0.3  0.28

```

END MON-UZSN


```

MON-LZETPARM
*** <PLS > Lower zone evapotransp  parm at start of each month
*** x - x  JAN  FEB  MAR  APR  MAY  JUN  JUL  AUG  SEP  OCT  NOV  DEC
  312  315  0.31  0.31  0.37  0.4  0.56  0.65  0.72  0.73  0.64  0.52  0.49  0.33
  322  335  0.32  0.32  0.39  0.42  0.59  0.66  0.75  0.76  0.66  0.54  0.5  0.34
  412  415  0.19  0.19  0.24  0.26  0.33  0.4  0.5  0.51  0.4  0.38  0.35  0.21
  422  425  0.22  0.22  0.28  0.31  0.42  0.5  0.59  0.6  0.5  0.43  0.4  0.24
  511  515  0.27  0.27  0.35  0.37  0.52  0.6  0.7  0.71  0.6  0.52  0.46  0.29
  521  525  0.2  0.2  0.26  0.28  0.36  0.44  0.53  0.54  0.44  0.4  0.37  0.22
  535      0.22  0.22  0.28  0.31  0.4  0.47  0.57  0.58  0.47  0.42  0.4  0.24
END MON-LZETPARM
PWAT-STATE1
*** <PLS> PWATER state variables (in)
*** x - x      CEPS      SURS      UZS      IFWS      LZS      AGWS      GWVS
  312  535      0.0      0.0      0.94      0.08      9.9      0.2      0.0
END PWAT-STATE1
END PERLND
IMPLND
ACTIVITY
*** <ILS >          Active Sections
*** x - x  ATMP  SNOW  IWAT  SLD  IWG  IQAL
  611  635    0    0    1    0    0    0
END ACTIVITY
PRINT-INFO
  <ILS > ***** Print-flags ***** PIVL  PYR
  x - x  ATMP  SNOW  IWAT  SLD  IWG  IQAL *****
  611  635          4          1    5
END PRINT-INFO
GEN-INFO
*** <ILS >      Name          Unit-systems  Printer
*** <ILS >          t-series  Engl  Metr
*** x - x          in  out
  611  635ROADS/URBAN          1    1    90    0
END GEN-INFO
IWAT-PARM1
*** <ILS >      Flags
*** x - x  CSNO  RTOP  VRS  VNN  RTLI
  611  635    0    1    0    0    0
END IWAT-PARM1
IWAT-PARM2
*** <ILS >      LSUR      SLSUR      NSUR      RETSC
*** x - x      (ft)          (ft)
  611  615    100.0      0.04      0.025      0.07
  621  625    100.0      0.09      0.025      0.05
  631  635    100.0      0.15      0.025      0.03
END IWAT-PARM2
IWAT-PARM3
*** <ILS >      PETMAX      PETMIN
*** x - x      (deg F)      (deg F)
  611  635      40.0      35.0
END IWAT-PARM3
IWAT-STATE1
*** <ILS > IWATER state variables (inches)
*** x - x      RETS      SURS
  611  635      0.001      0.001

```

```

END IWAT-STATE1
END IMPLND
RCHRES
ACTIVITY
*** RCHRES Active sections
*** x - x HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG
    21  34   1   0   0   0   0   0   0   0   0   0
END ACTIVITY
PRINT-INFO
*** RCHRES Printout level flags
*** x - x HYDR ADCA CONS HEAT SED  GOL OXRX NUTR PLNK PHCB PIVL  PYR
    21  34   5
END PRINT-INFO
GEN-INFO
***
          Name          Nexits   Unit Systems   Printer
*** RCHRES
          t-series   Engl Metr LKFG
*** x - x
          in out
    21  23PONDS LAKES BASINS      1      1  1  90  0  0
    31  34BEARGRASS CK            1      1  1  90  0  0
END GEN-INFO
HYDR-PARM1
***
          Flags for HYDR section
          RCHRES VC A1 A2 A3  ODFVFG for each *** ODGTFG for each  FUNCT for each
          x - x FG FG FG FG  possible exit *** possible exit  possible exit
    21  34  0  1  1  1   4  0  0  0  0      0  0  0  0  0      1  1  1  1  1
END HYDR-PARM1
HYDR-PARM2
*** RCHRES FTBW FTBU          LEN          DELTH          STCOR          KS          DB50
*** x - x
          (miles)          (ft)          (ft)
    21      0.0 21.0          0.5          43.6          0.0          0.5          0.01
    22      0.0 22.0          0.5          33.9          0.0          0.5          0.07
    23      0.0 23.0          0.5          20.9          0.0          0.5          0.05
    31      0.0 31.0          4.2          43.6          0.0          0.5          0.01
    32      0.0 32.0          3.1          33.9          0.0          0.5          0.07
    33      0.0 33.0          3.4          20.9          0.0          0.5          0.05
    34      0.0 34.0          3.2          13.3          0.0          0.5          0.04
END HYDR-PARM2
HYDR-INIT
***
          Initial conditions for HYDR section
*** RCHRES          VOL CAT Initial value of COLIND          initial value of OUTDGT
*** x - x          ac-ft          for each possible exit          for each possible exit,ft3
    21  34          1.09  0.0  4.0  4.0  4.0  4.0  4.0          0.0  0.0  0.0  0.0  0.0
END HYDR-INIT
END RCHRES
COPY
TIMESERIES
Copy-opn***
*** x - x NPT NMN
    100      0  7
END TIMESERIES
END COPY
EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> x <Name> x tem strg<-factor-->strg <Name> x x <Name> x x ***
WDM 1006 PREC 10 ENGL          SAME PERLND 331          EXTNL PREC 1 1

```


WDM	1022	PREC	10	ENGL	SAME	PERLND	524	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	PERLND	524	EXTNL	PETINP	1	1
WDM	1022	PREC	10	ENGL	SAME	IMPLND	614	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	IMPLND	614	EXTNL	PETINP	1	1
WDM	1022	PREC	10	ENGL	SAME	IMPLND	624	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	IMPLND	624	EXTNL	PETINP	1	1
WDM	1022	PREC	10	ENGL	SAME	IMPLND	634	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	IMPLND	634	EXTNL	PETINP	1	1
WDM	1024	PREC	10	ENGL	SAME	PERLND	315	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	PERLND	315	EXTNL	PETINP	1	1
WDM	1024	PREC	10	ENGL	SAME	PERLND	325	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	PERLND	325	EXTNL	PETINP	1	1
WDM	1024	PREC	10	ENGL	SAME	PERLND	335	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	PERLND	335	EXTNL	PETINP	1	1
WDM	1024	PREC	10	ENGL	SAME	PERLND	415	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	PERLND	415	EXTNL	PETINP	1	1
WDM	1024	PREC	10	ENGL	SAME	PERLND	425	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	PERLND	425	EXTNL	PETINP	1	1
WDM	1024	PREC	10	ENGL	SAME	PERLND	515	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	PERLND	515	EXTNL	PETINP	1	1
WDM	1024	PREC	10	ENGL	SAME	PERLND	525	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	PERLND	525	EXTNL	PETINP	1	1
WDM	1024	PREC	10	ENGL	SAME	PERLND	535	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	PERLND	535	EXTNL	PETINP	1	1
WDM	1024	PREC	10	ENGL	SAME	IMPLND	615	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	IMPLND	615	EXTNL	PETINP	1	1
WDM	1024	PREC	10	ENGL	SAME	IMPLND	625	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	IMPLND	625	EXTNL	PETINP	1	1
WDM	1024	PREC	10	ENGL	SAME	IMPLND	635	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	IMPLND	635	EXTNL	PETINP	1	1
WDM	1024	PREC	10	ENGL	SAME	RCHRES	21 34	EXTNL	PREC	1	1
WDM	2251	PET	10	ENGL	DIV	RCHRES	21 34	EXTNL	POTEV	1	1

END EXT SOURCES

EXT TARGETS

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Aggr Amd ***
<Name> x <Name> x x<-factor->strg <Name> x <Name>qf tem strg strg***

*** The first two lines below specify that the average depth and discharge at
*** the streamflow gage South Fork Beargrass Creek at Louisville, Kentucky,
*** (no. 03292500) are loaded into WDM files 441 and 442, respectively. If
*** the entire watershed is to be simulated similar lines need to be added for
*** RCHRES 34. New WDM files (numbers different from 441 and 442) should be
*** generated in ANNIE and specified as the external targets for simulation
*** results for RCHRES 34.

RCHRES	33	HYDR	AVDEP	1	1	WDM	441	AVDE	1	ENGL	AGGR	REPL	
RCHRES	33	HYDR	RO	1	1	WDM	442	DISC	1	ENGL	AGGR	REPL	
RCHRES	33	ROFLOW	ROVOL	1	1	0.001152	WDM	420	SIMQ	1	ENGL	AGGR	REPL
COPY	100	OUTPUT	MEAN	1	1	0.000096	WDM	421	SURO	1	ENGL	AGGR	REPL
COPY	100	OUTPUT	MEAN	2	1	0.000096	WDM	422	IFWO	1	ENGL	AGGR	REPL
COPY	100	OUTPUT	MEAN	3	1	0.000096	WDM	423	AGWO	1	ENGL	AGGR	REPL
COPY	100	OUTPUT	MEAN	4	1	0.000096	WDM	425	PETX	1	ENGL	AGGR	REPL
COPY	100	OUTPUT	MEAN	5	1	0.000096	WDM	426	SAET	1	ENGL	AGGR	REPL
COPY	100	OUTPUT	MEAN	6	1	0.000096	WDM	427	UZSX	1	ENGL	AGGR	REPL
COPY	100	OUTPUT	MEAN	7	1	0.000096	WDM	428	LZSX	1	ENGL	AGGR	REPL

END EXT TARGETS

SCHEMATIC

<-Volume->	<--Area-->	<-Volume->	<ML#>	***
<Name> x	<-factor->	<Name> x		***
PERLND 312	2.7	RCHRES 21	1	
PERLND 322	4.6	RCHRES 21	1	
PERLND 332	76.6	RCHRES 21	1	
PERLND 412	499.1	RCHRES 21	1	
PERLND 422	2.6	RCHRES 21	1	
PERLND 512	42.7	RCHRES 21	1	
PERLND 514	0.3	RCHRES 21	1	
PERLND 522	93.9	RCHRES 21	1	
IMPLND 612	158.4	RCHRES 21	2	
IMPLND 614	0.2	RCHRES 21	2	
IMPLND 622	6.6	RCHRES 21	2	
IMPLND 632	3.3	RCHRES 21	2	
PERLND 312	19.6	RCHRES 31	1	
PERLND 314	49.7	RCHRES 31	1	
PERLND 315	23.2	RCHRES 31	1	
PERLND 322	6.1	RCHRES 31	1	
PERLND 324	4.8	RCHRES 31	1	
PERLND 332	80.3	RCHRES 31	1	
PERLND 412	1376.1	RCHRES 31	1	
PERLND 422	1.5	RCHRES 31	1	
PERLND 511	122.5	RCHRES 31	1	
PERLND 512	117.2	RCHRES 31	1	
PERLND 514	689.2	RCHRES 31	1	
PERLND 521	3.1	RCHRES 31	1	
PERLND 522	208.1	RCHRES 31	1	
PERLND 524	6.4	RCHRES 31	1	
IMPLND 611	56.8	RCHRES 31	2	
IMPLND 612	437.3	RCHRES 31	2	
IMPLND 614	563.4	RCHRES 31	2	
IMPLND 615	8.1	RCHRES 31	2	
IMPLND 622	15.5	RCHRES 31	2	
IMPLND 624	5.3	RCHRES 31	2	
IMPLND 632	3.6	RCHRES 31	2	
PERLND 315	6.0	RCHRES 22	1	
PERLND 325	0.1	RCHRES 22	1	
PERLND 412	91.9	RCHRES 22	1	
PERLND 415	2.0	RCHRES 22	1	
PERLND 422	2.6	RCHRES 22	1	
PERLND 515	36.9	RCHRES 22	1	
PERLND 525	9.4	RCHRES 22	1	
PERLND 535	2.7	RCHRES 22	1	
IMPLND 612	15.8	RCHRES 22	2	
IMPLND 615	11.0	RCHRES 22	2	
IMPLND 622	0.2	RCHRES 22	2	
IMPLND 625	2.0	RCHRES 22	2	
IMPLND 635	0.5	RCHRES 22	2	
PERLND 314	3.6	RCHRES 32	1	
PERLND 315	161.1	RCHRES 32	1	
PERLND 325	7.6	RCHRES 32	1	
PERLND 412	551.8	RCHRES 32	1	
PERLND 415	119.4	RCHRES 32	1	

PERLND 422	2.6	RCHRES 32	1
PERLND 425	7.1	RCHRES 32	1
PERLND 514	44.9	RCHRES 32	1
PERLND 515	847.0	RCHRES 32	1
PERLND 525	42.9	RCHRES 32	1
PERLND 535	3.8	RCHRES 32	1
IMPLND 612	95.1	RCHRES 32	2
IMPLND 614	40.9	RCHRES 32	2
IMPLND 615	277.0	RCHRES 32	2
IMPLND 625	0.8	RCHRES 32	2
IMPLND 635	10.9	RCHRES 32	2
PERLND 333	2.4	RCHRES 23	1
PERLND 334	1.9	RCHRES 23	1
PERLND 511	62.4	RCHRES 23	1
PERLND 513	15.5	RCHRES 23	1
PERLND 514	43.8	RCHRES 23	1
PERLND 521	3.7	RCHRES 23	1
PERLND 523	5.1	RCHRES 23	1
PERLND 524	15.1	RCHRES 23	1
IMPLND 611	51.3	RCHRES 23	2
IMPLND 613	6.5	RCHRES 23	2
IMPLND 614	18.9	RCHRES 23	2
IMPLND 621	1.6	RCHRES 23	2
IMPLND 623	2.3	RCHRES 23	2
IMPLND 624	5.4	RCHRES 23	2
IMPLND 633	1.6	RCHRES 23	2
PERLND 314	39.0	RCHRES 33	1
PERLND 315	239.3	RCHRES 33	1
PERLND 323	3.8	RCHRES 33	1
PERLND 324	40.6	RCHRES 33	1
PERLND 325	13.2	RCHRES 33	1
PERLND 331	5.8	RCHRES 33	1
PERLND 333	22.6	RCHRES 33	1
PERLND 334	71.1	RCHRES 33	1
PERLND 335	5.7	RCHRES 33	1
PERLND 511	427.4	RCHRES 33	1
PERLND 513	37.2	RCHRES 33	1
PERLND 514	1227.3	RCHRES 33	1
PERLND 521	26.9	RCHRES 33	1
PERLND 523	26.4	RCHRES 33	1
PERLND 524	154.0	RCHRES 33	1
IMPLND 611	351.0	RCHRES 33	2
IMPLND 613	15.5	RCHRES 33	2
IMPLND 614	531.2	RCHRES 33	2
IMPLND 615	59.9	RCHRES 33	2
IMPLND 621	11.9	RCHRES 33	2
IMPLND 623	11.9	RCHRES 33	2
IMPLND 624	64.9	RCHRES 33	2
IMPLND 625	5.2	RCHRES 33	2
IMPLND 633	11.1	RCHRES 33	2
IMPLND 634	25.8	RCHRES 33	2
PERLND 313	19.9	RCHRES 34	1
PERLND 323	34.6	RCHRES 34	1
PERLND 331	55.1	RCHRES 34	1
PERLND 333	378.4	RCHRES 34	1

PERLND 511	132.5	RCHRES 34	1
PERLND 513	1253.8	RCHRES 34	1
PERLND 514	22.7	RCHRES 34	1
PERLND 521	64.8	RCHRES 34	1
PERLND 523	430.4	RCHRES 34	1
PERLND 524	2.5	RCHRES 34	1
IMPLND 611	93.1	RCHRES 34	2
IMPLND 613	576.3	RCHRES 34	2
IMPLND 614	10.7	RCHRES 34	2
IMPLND 621	35.4	RCHRES 34	2
IMPLND 623	144.0	RCHRES 34	2
IMPLND 631	25.7	RCHRES 34	2
IMPLND 633	72.9	RCHRES 34	2
RCHRES 21		RCHRES 31	3
RCHRES 31		RCHRES 33	3
RCHRES 22		RCHRES 32	3
RCHRES 32		RCHRES 33	3
RCHRES 23		RCHRES 33	3
RCHRES 33		RCHRES 34	3
PERLND 312	22.3	COPY 100	90
PERLND 313	19.9	COPY 100	90
PERLND 314	92.4	COPY 100	90
PERLND 315	429.5	COPY 100	90
PERLND 322	10.7	COPY 100	90
PERLND 323	38.4	COPY 100	90
PERLND 324	45.4	COPY 100	90
PERLND 325	20.9	COPY 100	90
PERLND 331	60.9	COPY 100	90
PERLND 332	156.9	COPY 100	90
PERLND 333	403.5	COPY 100	90
PERLND 334	73.0	COPY 100	90
PERLND 335	5.7	COPY 100	90
PERLND 412	2518.8	COPY 100	90
PERLND 415	121.4	COPY 100	90
PERLND 422	9.3	COPY 100	90
PERLND 425	7.1	COPY 100	90
PERLND 511	744.8	COPY 100	90
PERLND 512	159.9	COPY 100	90
PERLND 513	1306.3	COPY 100	90
PERLND 514	2028.2	COPY 100	90
PERLND 515	883.9	COPY 100	90
PERLND 521	98.5	COPY 100	90
PERLND 522	302.0	COPY 100	90
PERLND 523	462.0	COPY 100	90
PERLND 524	178.0	COPY 100	90
PERLND 525	52.3	COPY 100	90
PERLND 535	6.5	COPY 100	90
IMPLND 611	552.2	COPY 100	91
IMPLND 612	706.5	COPY 100	91
IMPLND 613	598.3	COPY 100	91
IMPLND 614	1165.2	COPY 100	91
IMPLND 615	356.1	COPY 100	91
IMPLND 621	49.0	COPY 100	91
IMPLND 622	22.3	COPY 100	91
IMPLND 623	158.3	COPY 100	91

```

IMPLND 624          75.7    COPY    100    91
IMPLND 625          7.9     COPY    100    91
IMPLND 631         25.7    COPY    100    91
IMPLND 632          6.9     COPY    100    91
IMPLND 633         85.6    COPY    100    91
IMPLND 634         25.8    COPY    100    91
IMPLND 635         11.4    COPY    100    91

```

END SCHEMATIC

MASS-LINK

```

MASS-LINK          1
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name>          <Name> x x<-factor->strg <Name>          <Name> x x ***
PERLND    PWATER PERO          0.0833333    RCHRES          INFLOW IVOL
  END MASS-LINK    1
MASS-LINK          2
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name>          <Name> x x<-factor->strg <Name>          <Name> x x ***
IMPLND    IWATER SURO          0.0833333    RCHRES          INFLOW IVOL
  END MASS-LINK    2
MASS-LINK          3
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name>          <Name> x x<-factor->strg <Name>          <Name> x x ***
RCHRES    HYDR   ROVOL  1          RCHRES          INFLOW IVOL
  END MASS-LINK    3
MASS-LINK          90
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name>          <Name> x x<-factor->strg <Name>          <Name> x x ***
PERLND    PWATER SURO          COPY          INPUT  MEAN    1
PERLND    PWATER IFWO          COPY          INPUT  MEAN    2
PERLND    PWATER AGWO          COPY          INPUT  MEAN    3
PERLND    PWATER PET           COPY          INPUT  MEAN    4
PERLND    PWATER TAET          COPY          INPUT  MEAN    5
PERLND    PWATER UZS           COPY          INPUT  MEAN    6
PERLND    PWATER LZS           COPY          INPUT  MEAN    7
  END MASS-LINK    90
MASS-LINK          91
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name>          <Name> x x<-factor->strg <Name>          <Name> x x ***
IMPLND    IWATER SURO          COPY          INPUT  MEAN    1
IMPLND    IWATER PET           COPY          INPUT  MEAN    4
IMPLND    IWATER IMPEV         COPY          INPUT  MEAN    5
  END MASS-LINK    91

```

END MASS-LINK

FTABLES

```

FTABLE          21
  14          5
  DEPTH        AREA        VOLUME        DISCH        FLO-THRU ***
  (FT)         (ACRES)     (AC-FT)     (CFS)         (CFS) ***
  0.0           0.0         0.0         0.0           0.0
  1.2           0.725       0.867       0.6           0.0
  2.4           1.45        3.467       8.0           0.0
  3.6           2.174       7.801       22.0          0.0
  4.8           2.899       13.869      74.0          0.0
  6.0           3.624       21.674     136.0         0.0
  7.2           4.349       31.21      315.0         2.1

```


8.4	5.074	42.48	419.7	2.6
9.6	5.799	55.483	556.5	3.1
10.8	6.524	70.22	775.2	3.7
12.0	7.248	86.69	1035.0	4.2
12.6	7.611	95.576	1035.4	4.4
13.2	7.973	104.895	1066.7	4.7
13.8	8.336	114.647	2097.1	5.0

END FTABLE 21

FTABLE 31

18 4

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	FLO-THRU (MIN)	*** ***
0.0	0.0	0.0	0.0		
0.119	9.429999	1.12	1.0		
0.165	9.660001	1.6	2.0		
0.202	9.87	1.99	3.0		
0.232	10.02	2.32	4.0		
0.285	10.23	2.91	6.0		
0.33	10.37	3.42	8.0		
0.372	10.5	3.9	10.0		
0.445	11.29	5.02	15.0		
0.618	12.54	7.75	30.0		
0.908	13.31	12.08	60.0		
1.311	14.41	18.88	120.0		
1.916	16.04	30.74	250.0		
2.63	19.12	50.28	500.0		
2.785	32.12	89.47	1000.0		
2.899	60.38	175.03	2000.0		
4.016	76.28999	306.35	4000.0		
5.446	78.98	430.08	6000.0		

END FTABLE 31

FTABLE 22

14 5

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	FLO-THRU (CFS)	*** ***
0.0	0.0	0.0	0.0	0.0	
1.2	0.725	0.867	0.6	0.0	
2.4	1.45	3.467	8.0	0.0	
3.6	2.174	7.801	22.0	0.0	
4.8	2.899	13.869	74.0	0.0	
6.0	3.624	21.674	136.0	0.0	
7.2	4.349	31.21	315.0	2.1	
8.4	5.074	42.48	419.7	2.6	
9.6	5.799	55.483	556.5	3.1	
10.8	6.524	70.22	775.2	3.7	
12.0	7.248	86.69	1035.0	4.2	
12.6	7.611	95.576	1035.4	4.4	
13.2	7.973	104.895	1066.7	4.7	
13.8	8.336	114.647	2097.1	5.0	

END FTABLE 22

FTABLE 32

18 4

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	FLO-THRU (MIN)	*** ***
0.0	0.0	0.0	0.0		

0.139	4.91	0.68	1.0
0.193	5.02	0.97	2.0
0.236	5.13	1.21	3.0
0.271	5.21	1.41	4.0
0.333	5.32	1.77	6.0
0.386	5.39	2.08	8.0
0.434	5.46	2.37	10.0
0.521	5.87	3.05	15.0
0.722	6.52	4.71	30.0
1.061	6.92	7.34	60.0
1.531	7.49	11.47	120.0
2.239	8.34	18.67	250.0
3.072	9.94	30.54	500.0
3.254	16.71	54.34	1000.0
3.387	31.39	106.31	2000.0
4.692	39.66	186.07	4000.0
6.362	41.06	261.22	6000.0

END FTABLE 32

FTABLE 23

14 5

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	FLO-THRU (CFS)	*** ***
0.0	0.0	0.0	0.0	0.0	
1.2	0.725	0.867	0.6	0.0	
2.4	1.45	3.467	8.0	0.0	
3.6	2.174	7.801	22.0	0.0	
4.8	2.899	13.869	74.0	0.0	
6.0	3.624	21.674	136.0	0.0	
7.2	4.349	31.21	315.0	2.1	
8.4	5.074	42.48	419.7	2.6	
9.6	5.799	55.483	556.5	3.1	
10.8	6.524	70.22	775.2	3.7	
12.0	7.248	86.69	1035.0	4.2	
12.6	7.611	95.576	1035.4	4.4	
13.2	7.973	104.895	1066.7	4.7	
13.8	8.336	114.647	2097.1	5.0	

END FTABLE 23

FTABLE 33

18 4

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	FLO-THRU (MIN)	*** ***
0.0	0.0	0.0	0.0		
0.462	10.59	4.89	1.0		
0.535	11.03	5.89	2.0		
0.596	11.34	6.76	3.0		
0.648	11.58	7.51	4.0		
0.736	11.92	8.78	6.0		
0.809	12.25	9.91	8.0		
0.876	12.52	10.97	10.0		
1.017	13.14	13.37	15.0		
1.332	14.49	19.29	30.0		
1.789	16.05	28.72	60.0		
2.451	17.86	43.78	120.0		
3.406	20.78	70.78999	250.0		
4.052	22.84	92.53	500.0		

5.461	28.31	154.63	1000.0
5.571	58.45	325.61	2000.0
6.255	127.89	800.22	4000.0
6.714	148.01	993.67	6000.0

END FTABLE 33

FTABLE 24

14 5

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	FLO-THRU (CFS)	*** ***
0.0	0.0	0.0	0.0	0.0	
1.2	0.725	0.867	0.0	0.0	
2.4	1.45	3.467	0.0	0.0	
3.6	2.174	7.801	0.0	0.0	
4.8	2.899	13.869	0.0	0.0	
6.0	3.624	21.674	6.0	0.0	
7.2	4.349	31.21	15.0	2.1	
8.4	5.074	42.48	19.7	2.6	
9.6	5.799	55.483	26.5	3.1	
10.8	6.524	70.22	35.2	3.7	
12.0	7.248	86.69	35.0	4.2	
12.6	7.611	95.576	35.4	4.4	
13.2	7.973	104.895	66.7	4.7	
13.8	8.336	114.647	97.1	5.0	

END FTABLE 24

FTABLE 34

18 4

DEPTH (FT)	AREA (ACRES)	VOLUME (AC-FT)	DISCH (CFS)	FLO-THRU (MIN)	*** ***
0.0	0.0	0.0	0.0		
0.361	12.81	4.61	1.0		
0.421	15.08	6.35	2.0		
0.483	15.36	7.42	3.0		
0.544	15.56	8.469999	4.0		
0.597	16.95	10.11	6.0		
0.635	18.02	11.44	8.0		
0.695	18.41	12.81	10.0		
0.725	21.91	15.91	15.0		
0.901	25.65	23.09	30.0		
1.204	27.16	32.69	60.0		
1.621	29.06	47.11	120.0		
2.326	31.62	73.55	250.0		
3.279	35.28	115.66	500.0		
4.513	40.55	182.99	1000.0		
5.234	60.19	314.98	2000.0		
5.633	114.15	642.97	4000.0		
6.457	226.15	1460.25	6000.0		

END FTABLE 34

END FTABLES

END RUN

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Water Resources Division
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