

115	C		EQCOM	4
	C		EQCOM	5
	C	(ABOTTOM IS TRUNCATED TO SIX CHARACTERS AS ABOITQ)	EQCOM	6
	C		515002AA	2
120		DIMENSION AFACT(15),AOLD(21105),APHI(21105),AS(21105),	FIXDIM	17
		15 ASTRT(21105),AT(21105),ATC(21105),ATK(21105),ATR(21105),	FIXDIM	18
		25 AWELL(21105)	FIXDIM	19
	C		515002AA	6
	C	DIMENSION AEL(21105),AFL(21105),AGL(21105),AV(21105),AXI(21105)	515002BA	2
125	C		FIXDIM	24
	C		515002BA	4
		DIMENSION AQRE(1)	NRA	2
			NRA	3
	C		NRA	4
	C		NWTA	2
130		DIMENSION ABOITTO(1) , APERM(1)	NWTA	3
			NWTA	4
	C		EQUIV	2
		EQUIVALENCE (FACT,AFACT) , (OLD,AOLD) , (PHI,APHI) , (S,AS) ,	EQUIV	3
		1 (STRT,ASTRT) , (T,AT) , (TC,ATC) , (TK,ATK) , (TR,ATR) ,	EQUIV	4
135		2 (WELL,AWELL) , (EL,AEL) , (FL,AFL) , (GL,AGL) , (V,AV) ,	EQUIV	5
		3 (XI,AXI) , (QRE,AQRE) , (BOTTOM,ABOITTO) , (PERM,APERM)	EQUIV	6
	C		EQUIV	7
	C		ENDD	2
	C		ENDD	3
140		*****	ENDD	4
	C		ENDD	5
	C		ENDD	6
		COMMON /RIVR/ NRC(10),NADD(10),RQ(10),VK(20),RIVER(20),QMAX(20)	ENDD	7
		1,INDX(20,2),GRA(20,20),QS(10),NR ,NTOT,TQ(10)	ENDD	8
145		WMIN=1.	SP3 310 FD3D	858
		DELT=1.	SP3 320 FD3D	859
		P2=LENGTH-1	SP3 330 FD3D	860
		XT=3.141593**2/(2.*J2*J2)	SP3 340 FD3D	861
		YT=3.141593**2/(2.*I2*I2)	SP3 350 FD3D	862
150		ZT=3.141593**2/(2.*K0*K0)	SP3 360 FD3D	863
		RHO1=0.	SP3 370 FD3D	864
		RHO2=0.	SP3 380 FD3D	865
		RHO3=0.	SP3 390 FD3D	866
		DO 30 K=1,K0	SP3 400 FD3D	867
155		DO 30 I=2,I1	SP3 410 FD3D	868
		DO 30 J=2,J1	SP3 420 FD3D	869
		IF (T(I,J,K).EQ.0.) GO TO 30	SP3 430 FD3D	870
		IQ = I	FD3D	871
		JQ = J	FD3D	872
160		KQ = K	FD3D	873
		CALL COEF	SP3 440 FD3D	874
	C	*****	FD3D	875
	C		FD3D	876
165		TXM=AMAX1(D,F)	SP3 450 FD3D	877
		TYM=AMAX1(B,H)	SP3 460 FD3D	878
		TZM=AMAX1(SU,Z)	SP3 470 FD3D	879
		DEN=AMIN1(D,F)	SP3 480 FD3D	880
		IF (DEN,EQ.0.00) DEN=TXM	SP3 490 FD3D	881
		IF (DEN,EQ.0.00) GO TO 10	SP3 500 FD3D	882
170		RHO1=AMAX1(RHO1,TYM/DEN)	SP3 510 FD3D	883
		10 DEN=AMIN1(B,H)	SP3 520 FD3D	884

		IF (DEN.EQ.0.00) DEN=TYM	SP3 530	FD3D	885
		IF (DEN.EQ.0.00) GO TO 20	SP3 540	FD3D	886
175		RHO2=AMAX1(RHO2,IXM/DEN)	SP3 550	FD3D	887
	20	DEN=AMIN1(SU,Z)	SP3 560	FD3D	888
		IF (DEN.EQ.0.00) DEN=TZM	SP3 570	FD3D	889
		IF (DEN.EQ.0.00) GO TO 30	SP3 580	FD3D	890
		RHO3=AMAX1(RHO3,IXM/DEN)	SP3 590	FD3D	891
180	30	CONTINUE	SP3 600	FD3D	892
		XPART=XT/(1.00+RH01)	SP3 610	FD3D	893
		YPART=YT/(1.00+RH02)	SP3 620	FD3D	894
		ZPART=ZT/(1.00+RH03)	SP3 630	FD3D	895
		WMIN=AMIN1(WMIN,XPART,YPART,ZPART)	SP3 640	FD3D	896
		WMAX=1.00-WMIN	SP3 650	FD3D	897
185		READ (5,270) WMAX		FD3D	898
		PJ=-1.	SP3 660	FD3D	899
		DO 40 I=1,LENGTH	SP3 670	FD3D	900
		PJ=PJ+1.	SP3 680	FD3D	901
190	40	RHOP(I)=1.00-(1.00-WMAX)**(PJ/P2)	SP3 690	FD3D	902
				FD3D	903
		WRITE(OP,260)	SP3 300	FD3D	904
		WRITE(OP,250) LENGTH,(RHOP(J),J=1,LENGTH)	SP3 700	FD3D	905
		RETURN	SP3 710	FD3D	906
195	C			FD3D	907
	C			FD3D	908
	C	---FORMATS---		FD3D	909
	C			FD3D	910
	C			FD3D	911
200	260	FORMAT ("=",44X,"SOLUTION BY THE STRONGLY IMPLICIT PROCEDURE"/45X,SP32550	FD3D	912	
		143(" "))	SP32560	FD3D	913
			FD3D	914	
	250	FORMAT (///1H0,I5,22H ITERATION PARAMETERS: ,6E15.7/(/28X,6E15.7/))	SP32540	FD3D	915
	270	FORMAT (F10.0)		FD3D	916
205	C			FD3D	917
		END		FD3D	918

1	C	SUBROUTINE MAP(NG,LA)		FD3D	919
	C	-----		FD3D	920
	C	-----		FD3D	921
5	C	PRINT MAPS OF DRAWDOWN AND HYDRAULIC HEAD	PRN 30	FD3D	922
	C	-----		FD3D	923
	C	-----		FD3D	924
	C	-----		FD3D	925
	C	* FOR SUBROUTINE MAP *		DMAP	2
10	C	-----		START	2
	C	-----		START	3
	C	*****		START	4
	C	-----		START	5
	C	-----		START	6
15	C	SPECIFICATIONS#		START	7
	C	-----		START	8
	C	--- THE FOLLOWING I/O DEVICES ARE USED ---		IOS	2
	C	-----		IOS	3
	C	* DEVICE * * UNIT * * NUMBER *		IOS	4
20	C	CARD READER IC 5		IOS	5
	C	DISK ID 4		IOS	6
	C	CARD PUNCH OC 7		IOS	7
	C	LINE PRINTER OP 6		IOS	8
25	C	COMMON /IO/ IC , ID , OC , OP		IOS	9
	C	-----		IOS	10
	C	INTEGER IC, ID, OC, OP		IOS	11
	C	REAL LHEAD2, LHEAD4	JEC	FIXDIM	12
30	C	-----		IOS	13
	C	-----		IOS	14
	C	--- THE FOLLOWING ARE INDEPENDENT OF MODEL DIMENSIONS ---		CMT1	2
	C	-----		CMT1	3
	C	-----		CMT1	4
35	C	COMMON /CK/ CFLUXT , CHDT , CHST , ETFLXT , FLUXT , FLXNT ,		CCK	2
	C	1 PUMPT, QRET, STORT, STORL2, STORL4, SFAC2, SFAC4, SUBH2, SUBH4	JEC	CCK	3
	C	-----		FIXDIM	29
	C	-----		CCK	5
40	C	COMMON /DPARAM/ B , D , F , H , RHO , SU , Z		CDPARAM	2
	C	-----		CDPARAM	3
	C	-----		CDPARAM	4
	C	COMMON /HDG/ HEADNG(33)		CHDG	2
	C	-----		CHDG	3
	C	-----		CHDG	4
45	C	COMMON /INTEGR/ IQ , IO , I1 , I2 , IDK1 , IDK2 , IDRAW , IERR ,		CINTEGR	2
	C	1 IFINAL , IFLO , IHEAD , IMAX , IPU1 , IPU2 , IQRE , IT , ITK ,		CINTEGR	3
	C	2 ITMAX , ITMX1 , IWATER , JO , J0 , J1 , J2 , KQ , K0 , K1 , K2 ,		CINTEGR	4
	C	3 KP , KT , KTH , LENGTH , NCH , NPER , NUMT , NWEL		CINTEGR	5
	C	4 , NPWELL , IPWELL , ISS24, ICHPNT, ILHEAD	JEC	CINTEGR	6
50	C	-----		FIXDIM	32
	C	-----		CINTEGR	7
	C	COMMON /PR/ BLANK(60) , DIGIT(122) , DINCH , FACT1 , FACT2 ,		CPR	2
	C	1 N1 , N2 , N3 , NA(4) , PRNT(122) , SYM(17) , TITLE(6) , UNITS ,		CPR	3
	C	2 VF1(6) , VF2(6) , VF3(7) , XLABEL(3) , XN(100) , XN1 , XSCALE ,		CPR	4
55	C	3 YLABEL(6) , YN(13) , YSCALE		CPR	5
	C	-----		CPR	6
	C	-----		CPR	7
	C	-----		CSARRAY	2

		COMMON /SARRAY/ ICHK(13)	CSARRAY 3
60	C		CSARRAY 4
	C	COMMON /SPARAM/ CDLT , DELT , ERR , QR , SUM , SUMP , TEST , TMAX	CSPARAM 2
	C		CSPARAM 3
	C		CSPARAM 4
	C	--- THE FOLLOWING ARE DIMENSIONED FOR THE FOLLOWING LIMITS ---	MAX1 2
65	C	--- IF OTHER LIMITS ARE NEEDED , ADD COMDECK MAX AND DEFINE NEWMAX	MAX1 3
	C		MAX1 4
	C		MAX1 5
	C	MODEL IS DEFINED ON ARRAYS (63,67,5) , OR (22,24,5)--DEPENDING	FIXDIM 34
	C	ON THE DEFINE CARDS-- *DEFINE,D515002, OR *DEFINE, D202504	FIXDIM 35
70	C	PARAMETER(DIMENSION) BASED ON LIMIT OF	MAX1 8
	C		MAX1 9
	C	DDN(100) MAXIMUM HORIZONTAL DIMENSION=100	MAX1 10
	C	FLOW(100),JFLO(100,3) MAXIMUM CONSTANT HEAD NODES=100	MAX1 11
	C	ITTO(100) MAXIMUM TIME STEPS = 100	MAX1 12
	C	LEVEL1(9),LEVEL2(9) MAXIMUM LEVELS PRINTED IN MAPS=9	MAX1 13
75	C	RHOP(20) MAXIMUM ITERATION PARAMETERS=20	MAX1 14
	C	TEST3(101) MAXIMUM ITERATIONS = 100	MAX1 15
	C		MAX1 16
	C	COMMON/MAX/DDN(67),FLOW(4221),ITTO(60),JFLO(4221,3),	FIXDIM 38
80	C	15 LEVEL1(9),LEVEL2(9),RHOP(20),TEST3(61)	FIXDIM 39
	C		MAX1 29
	C	--- THE FOLLOWING ARE DIMENSIONED FOR 63 NODES IN THE Y-DIRECTION	C515002 2
	C	(I.E. 63 ROWS) , 67 NODES IN THE X-DIRECTION (I.E. 67 COLUMNS)	FIXDIM 27
	C	, AND 5 NODES IN THE Z-DIRECTION (I.E. 5 LEVELS) ---	FIXDIM 28
85	C		C515002 5
	C	COMMON/ARRAY1/DELX(67),DELY(63),DELZ(5),FACT(5,3)	C515002 6
	C	COMMON/ARRA2/OLD(63,67,5),V(63,67,5),S(63,67,5)	FIXDIM 13
	C	COMMON/ARRAY3/STRT(63,67,5),T(63,67,5),TR(63,67,5)	FIXDIM 14
	C	COMMON/ARRAY4/TC(63,67,5),TK(63,67,5),WELL(63,67,5)	FIXDIM 15
90	C		FIXDIM 16
	C		515002A 6
	C	COMMON/ARRAY5/EL(63,67,5),FL(63,67,5),GL(63,67,5)	FIXDIM 20
	C	COMMON/ARRAY6/PHI(63,67,5),ISTOR2(63,67),ISTOR4(63,67)	FIXDIM 21
	C	COMMON/ARRAY7/XI(63,67,5),CSUB(63,67),LHEAD2(63,67),	FIXDIM 22
	C	15 LHEAD4(63,67)	FIXDIM 23
95	C		515002B 5
	C	LEVEL 2 ,OLD,STRT,TC,EL,XI	515002B 6
	C		515002B 7
	C		CMTNR 2
100	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNR 3
	C	WITHOUT RECHARGE TO THE TOP LEVEL ---	CMTNR 4
	C	-----	CMTNR 5
	C		CMTNR 6
	C	COMMON /RCHRG/ QRE(1,1)	NR 2
105	C		NR 3
	C		NR 4
	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNWT 2
	C	IN WHICH THE TOP LEVEL IS CONFINED	CMTNWT 3
	C	-----	CMTNWT 4
110	C		CMTNWT 5
	C	COMMON /TABLE/ BOTTOM(1,1) , PERM(1,1)	NWT 2
	C		NWT 3
	C	--- THE FOLLOWING 1-DIMENSIONAL ARRAYS ARE EQUIVALENT TO THE	NWT 4
	C	ABOVE ARRAYS WITH THE SAME NAME EXCEPT FOR THE LEADING "A"	EQCOM 2
	C		EQCOM 3

115	C		EQCOM	4
	C		EOCOM	5
	C	(ABOTTOM IS TRUNCATED TO SIX CHARACTERS AS ABOTTO)	EQCOM	6
	C		515002AA	2
	C	DIMENSION AFACT(15),AOLD(21105),APHI(21105),AS(21105),	FIXDIM	17
120	C	15 ASTR(21105),AT(21105),ATC(21105),ATK(21105),ATR(21105),	FIXDIM	18
	C	25 AWELL(21105)	FIXDIM	19
	C		515002AA	6
	C		515002BA	2
	C	DIMENSION AEL(21105),AFL(21105),AGL(21105),AV(21105),AXI(21105)	FIXDIM	24
125	C		515002BA	4
	C		NRA	2
	C	DIMENSION AQRE(1)	NRA	3
	C		NRA	4
	C		NWTA	2
130	C	DIMENSION ABOTTO(1) , APERM(1)	NWTA	3
	C		NWTA	4
	C		EQUIV	2
	C	EQUIVALENCE (FACT,AFACT) , (OLD,AOLD) , (PHI,APHI) , (S,AS) ,	EQUIV	3
	C	1 (STR,ASTRT) , (T,AT) , (TC,ATC) , (TK,ATK) , (TR,ATR) ,	EQUIV	4
135	C	2 (WELL,AWELL) , (EL,AEL) , (FL,AFL) , (GL,AGL) , (V,AV) ,	EQUIV	5
	C	3 (XI,AXI) , (QRE,AQRE) , (BOTTOM,ABOTTO) , (PERM,APERM)	EQUIV	6
	C		EQUIV	7
	C		COMMAP	2
	C	COMMON /PR2/ NC , NXD , N4 , N6 , N8 , WIDTH , XSF , YSF	COMMAP	3
140	C		COMMAP	4
	C		ENDD	2
	C	-----	ENDD	3
	C	*****	ENDD	4
	C	-----	ENDD	5
145	C		ENDD	6
	C	COMMON /RIVR/ NRC(10),NADD(10),RQ(10),VK(20),RIVER(20),QMAX(20)	ENDD	7
	C	1,INDX(20,2),QRA(20,20),QS(10),NR ,NTOT,TQ(10)	ENDD	8
	C		FD3D	927
	C	---VARIABLES INITIALIZED EACH TIME A PLOT IS REQUESTED---	PRN 720 FD3D	928
150	C		FD3D	929
	C	DIST=WIDTH-DELX(J1)/2.	PRN 730 FD3D	930
	C	JJ=J1	PRN 740 FD3D	931
	C	LL=1	PRN 750 FD3D	932
	C	XNXD= FLOAT(NXD)	FD3D	933
155	C	ZLINE = XNXD * XSF	FD3D	934
	C	IF (NG,EQ.1) WRITE(OP,300) (TITLE(I),I=1,3),LA	PRN 770 FD3D	935
	C	IF (NG,EQ.2) WRITE(OP,300) (TITLE(I),I=4,6),LA	PRN 780 FD3D	936
	C	DO 290 I=1,N4	PRN 790 FD3D	937
	C		PRN 800 FD3D	938
160	C	---LOCATE X AXES---	PRN 810 FD3D	939
	C		FD3D	940
	C	IF (I.EQ.1.OR.I.EQ.N4) GO TO 70	PRN 820 FD3D	941
	C	PRNT(1)=SYM(12)	PRN 830 FD3D	942
	C	PRNT(N8)=SYM(12)	PRN 840 FD3D	943
165	C	IF ((I-1)/N1*N1.NE.I-1) GO TO 90	PRN 850 FD3D	944
	C	PRNT(1)=SYM(14)	PRN 860 FD3D	945
	C	PRNT(N8)=SYM(14)	PRN 870 FD3D	946
	C	GO TO 90	PRN 880 FD3D	947
	C		PRN 890 FD3D	948
170	C	---LOCATE Y AXES---	PRN 900 FD3D	949
	C		FD3D	950

	70 DO 80 J=1,N8		PRN 910	FD3D	951
	IF ((J-1)/N2*N2.EQ.J-1) PRNT(J)=SYM(14)		PRN 920	FD3D	952
175	80 IF ((J-1)/N2*N2.NE.J-1) PRNT(J)=SYM(13)		PRN 930	FD3D	953
	C		PRN 940	FD3D	954
	C	---COMPUTE LOCATION OF NODES AND DETERMINE APPROPRIATE SYMBOL---	PRN 950	FD3D	955
	90 IF (DIST.LT.0..OR.DIST.LT.ZLINE-XN1*XSF) GO TO 240			FD3D	956
180	YLEN=DELY(2)/2.		PRN 960	FD3D	957
	DO 220 L=2,11		PRN 970	FD3D	958
	XN2 = FLOAT(N2)		PRN 980	FD3D	959
	XJ = YLEN * XN2 / YSF +1.5			FD3D	960
	J = IFIX(XJ)			FD3D	961
185	IF (T(L,JJ,LA).EQ.0.) GO TO 160		PRN1000	FD3D	962
	IF (S(L,JJ,LA).LT.0.) GO TO 210		PRN1010	FD3D	963
	INDX3=0		PRN1020	FD3D	964
	GO TO (100,110), NG		PRN1030	FD3D	965
	100 XKHEAD = (STRT(L,JJ,LA)-PHI(L,JJ,LA)) * FACT1			FD3D	966
	KHEAD = IFIX(XKHEAD)			FD3D	967
190	C			FD3D	968
	C			FD3D	969
	C	-TO CYCLE SYMBOLS FOR DRAWDOWN; REMOVE C FROM COL. 1 OF NEXT CARD-PRN1050		FD3D	970
	C	KHEAD=AMOD(KHEAD,10.)	PRN1060	FD3D	971
195	C			FD3D	972
	C			FD3D	973
	GO TO 120			FD3D	974
	110 XKHEAD = PHI(L,JJ,LA) * FACT2		PRN1070	FD3D	975
	KHEAD = IFIX(XKHEAD)			FD3D	976
200	120 IF (KHEAD) 130,160,140			FD3D	977
	130 IF (J-2.GT.0) PRNT(J-2)=SYM(13)		PRN1090	FD3D	978
	XXN = -XKHEAD +.5		PRN1100	FD3D	979
	N = IFIX(XXN)			FD3D	980
	IF (N.LT.100) GO TO 150			FD3D	981
205	GO TO 190		PRN1120	FD3D	982
	140 XXN = XKHEAD +.5		PRN1130	FD3D	983
	N = IFIX(XXN)			FD3D	984
	IF (N.LT.100) GO TO 150			FD3D	985
	IF (N.GT.999) GO TO 190		PRN1150	FD3D	986
210	INDX3=N/100		PRN1160	FD3D	987
	IF (J-2.GT.0) PRNT(J-2)=SYM(INDX3)		PRN1170	FD3D	988
	N=N-INDX3*100		PRN1180	FD3D	989
	150 INDX1=MOD(N,10)		PRN1190	FD3D	990
	IF (INDX1.EQ.0) INDX1=10		PRN1200	FD3D	991
	C		PRN1210	FD3D	992
215	C			FD3D	993
	C	-TO CYCLE SYMBOLS FOR DRAWDOWN; REMOVE C FROM COL. 1 OF NEXT CARD-PRN1220		FD3D	994
	C	IF (NG.EQ.1) GO TO 170	PRN1220	FD3D	995
	C		PRN1230	FD3D	996
	C			FD3D	997
220	INDX2=N/10			FD3D	998
	IF (INDX2.GT.0) GO TO 180		PRN1240	FD3D	999
	INDX2=10		PRN1250	FD3D	1000
	IF (INDX3.EQ.0) INDX2=15		PRN1260	FD3D	1001
	GO TO 180		PRN1270	FD3D	1002
225	160 INDX1=15		PRN1280	FD3D	1003
	170 INDX2=15		PRN1290	FD3D	1004
	180 IF (J-1.GT.0) PRNT(J-1)=SYM(INDX2)		PRN1300	FD3D	1005
	PRNT(J)=SYM(INDX1)		PRN1310	FD3D	1006
			PRN1320	FD3D	1007

		GO TO 220	PRN1330 FD3D 1008
230	190	DO 200 II=1,3	PRN1340 FD3D 1009
		JI=J-3+II	PRN1350 FD3D 1010
	200	IF (JI.GT.0) PRNT(JI)=SYM(11)	PRN1360 FD3D 1011
	210	IF (S(L,JJ,LA),LJ,0.) PRNT(J)=SYM(16)	PRN1370 FD3D 1012
	220	YLEN=YLEN+(DELY(L)+DELY(L+1))/2.	PRN1380 FD3D 1013
235	230	DIST=DIST-(DELY(JJ)+DELY(JJ-1))/2.	PRN1390 FD3D 1014
		JJ=JJ-1	PRN1400 FD3D 1015
		IF (JJ.EQ.0) GO TO 240	PRN1410 FD3D 1016
		IF (DIST.GT.ZLINE-XN1*XSF) GO TO 230	PRN1420 FD3D 1017
240	240	CONTINUE	PRN1430 FD3D 1018
	C		PRN1440 FD3D 1019
	C	---PRINT AXES,LABELS, AND SYMBOLS---	PRN1450 FD3D 1020
	C		FD3D 1021
		IF (I-NA(LL).EQ.0) GO TO 260	PRN1460 FD3D 1022
		IF ((I-1)/N1*N1-(I-1)) 270,250,270	PRN1470 FD3D 1023
245	250	WRITE(OP,VF1) (BLANK(J),J=1,NC),(PRNT(J),J=1,N8),XN(1+(I-1)/6)	PRN1480 FD3D 1024
		GO TO 280	PRN1490 FD3D 1025
	260	WRITE(OP,VF2) (BLANK(J),J=1,NC),(PRNT(J),J=1,N8),XLABEL(LL)	PRN1500 FD3D 1026
		LL=LL+1	PRN1510 FD3D 1027
		GO TO 280	PRN1520 FD3D 1028
250	270	WRITE(OP,VF2) (BLANK(J),J=1,NC),(PRNT(J),J=1,N8)	PRN1530 FD3D 1029
	C		PRN1540 FD3D 1030
	C	---COMPUTE NEW VALUE FOR ZLINE AND INITIALIZE PRNT	PRN1550 FD3D 1031
	C		FD3D 1032
	280	ZLINE=ZLINE-2.*XN1*XSF	PRN1560 FD3D 1033
255		DO 290 J=1,N8	PRN1570 FD3D 1034
	290	PRNT(J)=SYM(15)	PRN1580 FD3D 1035
	C		PRN1590 FD3D 1036
	C	---NUMBER AND LABEL Y AXIS AND PRINT LEGEND---	PRN1600 FD3D 1037
	C		FD3D 1038
260		WRITE(OP,VF3) (BLANK(J),J=1,NC),(YN(I),I=1,N6)	PRN1610 FD3D 1039
		WRITE(OP,320) (YLABEL(I),I=1,6)	PRN1620 FD3D 1040
		IF (NG.EQ.1) WRITE(OP,310) FACT1	PRN1630 FD3D 1041
		IF (NG.EQ.2) WRITE(OP,310) FACT2	PRN1640 FD3D 1042
	C		FD3D 1043
265		RETURN	PRN1650 FD3D 1044
	C		PRN1660 FD3D 1045
	C		FD3D 1046
	C	---FORMATS---	PRN1670 FD3D 1047
	C		PRN1680 FD3D 1048
270			PRN1700 FD3D 1049
	C	300 FORMAT ("1",49X,3A8,"LAYER",I4//)	PRN1720 FD3D 1050
	C		FD3D 1051
		310 FORMAT ("0EXPLANATION"/" ",11("-")// " R = CONSTANT HEAD BOUNDARY"/PRN1730 FD3D 1052	
		1" *** = VALUE EXCEEDED 3 FIGURES"/" MULTIPLICATION FACTOR =" ,F8.3)PRN1740 FD3D 1053	
275			FD3D 1054
	C	320 FORMAT ("0",39X,6A8)	PRN1750 FD3D 1055
	C		FD3D 1056
		END	PRN1790-FD3D 1057

1	C	SUBROUTINE NEWIT		FD3D	1058
	C	-----		FD3D	1059
	C			FD3D	1060
5	C	---INITIALIZE DATA FOR A NEW ITERATION---	SP3 740	FD3D	1061
	C			FD3D	1062
	C	-----		FD3D	1063
	C	* FOR SUBROUTINE NEWIT *		FD3D	1064
	C			DNEWIT	2
10	C	-----		START	2
	C	*****		START	3
	C	-----		START	4
	C			START	5
	C	SPECIFICATIONS@		START	6
15	C			START	7
	C	--- THE FOLLOWING I/O DEVICES ARE USED ---		START	8
	C			IOS	2
	C			IOS	3
	C	* DEVICE * * UNIT * * NUMBER *		IOS	4
20	C			IOS	5
	C	CARD READER IC 5		IOS	6
	C	DISK ID 4		IOS	7
	C	CARD PUNCH OC 7		IOS	8
	C	LINE PRINTER OP 6		IOS	9
25	C			IOS	10
	C	COMMON /IO/ IC , ID , OC , OP		IOS	11
	C			IOS	12
	C	INTEGER IC, ID, OC, OP		IOS	13
30	C	REAL LHEAD2, LHEAD4	JEC	FIXDIM	33
	C			IOS	15
	C	--- THE FOLLOWING ARE INDEPENDENT OF MODEL DIMENSIONS ---		CMT1	2
	C			CMT1	3
	C			CMT1	4
35	C	COMMON /CK/ CFLUXT , CHDT , CHST , ETFLXT , FLUXT , FLXNT ,		CCK	2
	C	1 PUMPT, QRET, STORT, STORL2, STORL4, SFAC2, SFAC4, SUBH2, SUBH4	JEC	FIXDIM	29
	C			CCK	5
	C	COMMON /DPARAM/ B , D , F , H , RHO , SU , Z		CDPARAM	2
40	C			CDPARAM	3
	C	COMMON /HDG/ HEADNG(33)		CHDG	2
	C			CHDG	3
	C			CHDG	4
45	C	COMMON /INTEGR/ IQ, IO , I1 , I2 , IDK1 , IDK2, IDRAW , IERR ,		CINTEGR	2
	C	1 IFINAL , IFLO , IHEAD , IMAX , IPU1 , IPU2 , IQRE , IT , ITK ,		CINTEGR	3
	C	2 ITMAX , ITMX1 , IWATER , JQ, JO , J1 , J2 , KQ, K0 , K1 , K2 ,		CINTEGR	4
	C	3 KP , KT , KTH , LENGTH , NCH , NPER , NUMT , NWEL		CINTEGR	5
	C	4 , NPWELL, IPWELL, ISS24, ICHPNT, ILHEAD	JEC	CINTEGR	6
50	C			FIXDIM	32
	C			CINTEGR	7
	C	COMMON /PR/ BLANK(60) , DIGIT(122) , DINCH , FACT1 , FACT2 ,		CPR	2
	C	1 N1 , N2 , N3 , NA(4) , PRNT(122) , SYM(17) , TITLE(6) , UNITS ,		CPR	3
	C	2 VF1(6) , VF2(6) , VF3(7) , XLABEL(3) , XN(100) , XN1 , XSCALE ,		CPR	4
55	C	3 YLABEL(6) , YN(13) , YSCALE		CPR	5
	C			CPR	6
	C			CPR	7
	C			CSARRAY	2

60	C	COMMON /SABRAY/ ICHK(13)	CSABRAY 3
	C		CSARRAY 4
	C		CSPARAH 2
	C		CSPARAH 3
	C		CSPARAH 4
65	C	--- THE FOLLOWING ARE DIMENSIONED FOR THE FOLLOWING LIMITS ---	MAXI 3
	C		MAXI 4
	C	--- IF OTHER LIMITS ARE NEEDED , ADD COMDECK MAX AND DEFINE NEWMAX	MAXI 5
	C		MAXI 4
	C	MODEL IS DEFINED ON ARRAYS (63,67,5) , OR ((22,24,5) --DEPENDING	FIXDIM 34
	C	ON THE DEFINE CARDS-- *DEFINE,D515002, OR *DEFINE, D202504	FIXDIM 35
	C	PARAMETER(DIMENSION) BASED ON LIMIT OF	MAXI 8
70	C		MAXI 9
	C		MAXI 10
	C	DN(100)	MAXI 11
	C	FLOW(100),JFLO(100,3) MAXIMUM CONSTANT HEAD NODES=100	MAXI 11
	C	I10(100)	MAXI 12
	C	MAXIMUM TIME STEPS = 100	MAXI 12
	C	LEVEL1(9),LEVEL2(9)	MAXI 13
	C	MAXIMUM LEVELS PRINTED IN MAPS=9	MAXI 13
	C	RHOP(20)	MAXI 14
	C	TEST3(101)	MAXI 15
	C	MAXIMUM ITERATIONS = 100	MAXI 15
75	C	COMMON/MAX/DDN(67),FLOW(4221),I10(60),JFLO(4221,3),	MAXI 16
	C	15 LEVEL1(9),LEVEL2(9),RHOP(20),TEST3(61)	FIXDIM 36
	C		MAXI 36
80	C		FIXDIM 38
	C		MAXI 29
	C		CS15002 2
	C	--- THE FOLLOWING ARE DIMENSIONED FOR 63 NODES IN THE Y-DIRECTION	FIXDIM 27
	C	(I.E. 63 ROWS) , 67 NODES IN THE X-DIRECTION (I.E. 67 COLUMNS)	FIXDIM 28
	C	, AND 5 NODES IN THE Z-DIRECTION (I.E. 5 LEVELS) ---	CS15002 5
85	C		CS15002 6
	C	COMMON/ARRAY1/DELX(67),DELY(63),DELZ(5),FACT(5,3)	FIXDIM 13
	C	COMMON/ARRAZ/OLD(63,67,5),V(63,67,5),S(63,67,5)	FIXDIM 14
	C	COMMON/ARRAY3/STRT(63,67,5),I(63,67,5),TR(63,67,5)	FIXDIM 15
	C	COMMON/ARRAY4/TC(63,67,5),TK(63,67,5),WELL(63,67,5)	FIXDIM 16
90	C		S15002A 6
	C	COMMON/ARRAYS/EL(63,67,5),FL(63,67,5),GL(63,67,5)	FIXDIM 20
	C	COMMON/ARRAY6/PHI(63,67,5),I1STOR2(63,67),I1STOR4(63,67)	FIXDIM 21
	C	COMMON/ARRAY7/XI(63,67,5),CSUB(63,67),LHEAD2(63,67),	FIXDIM 22
	C	15 LHEAD4(63,67)	FIXDIM 23
95	C		S15002B 5
	C	LEVEL 2 ,OLD,STRT,TC,EL,XI	S15002B 6
	C		S15002B 7
	C		CMNR 2
	C		CMNR 3
	C		CMNR 4
100	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMNR 5
	C	WITHOUT RECHARGE TO THE TOP LEVEL ---	CMNR 6
	C		CMNR 7
	C		CMNR 8
	C		CMNR 9
	C		CMNR 10
	C		CMNR 11
	C		CMNR 12
	C		CMNR 13
	C		CMNR 14
	C		CMNR 15
	C		CMNR 16
	C		CMNR 17
	C		CMNR 18
	C		CMNR 19
	C		CMNR 20
	C		CMNR 21
	C		CMNR 22
	C		CMNR 23
	C		CMNR 24
	C		CMNR 25
	C		CMNR 26
	C		CMNR 27
	C		CMNR 28
	C		CMNR 29
	C		CMNR 30
	C		CMNR 31
	C		CMNR 32
	C		CMNR 33
	C		CMNR 34
	C		CMNR 35
	C		CMNR 36
	C		CMNR 37
	C		CMNR 38
	C		CMNR 39
	C		CMNR 40
	C		CMNR 41
	C		CMNR 42
	C		CMNR 43
	C		CMNR 44
	C		CMNR 45
	C		CMNR 46
	C		CMNR 47
	C		CMNR 48
	C		CMNR 49
	C		CMNR 50
	C		CMNR 51
	C		CMNR 52
	C		CMNR 53
	C		CMNR 54
	C		CMNR 55
	C		CMNR 56
	C		CMNR 57
	C		CMNR 58
	C		CMNR 59
	C		CMNR 60
	C		CMNR 61
	C		CMNR 62
	C		CMNR 63
	C		CMNR 64
	C		CMNR 65
	C		CMNR 66
	C		CMNR 67
	C		CMNR 68
	C		CMNR 69
	C		CMNR 70
	C		CMNR 71
	C		CMNR 72
	C		CMNR 73
	C		CMNR 74
	C		CMNR 75
	C		CMNR 76
	C		CMNR 77
	C		CMNR 78
	C		CMNR 79
	C		CMNR 80
	C		CMNR 81
	C		CMNR 82
	C		CMNR 83
	C		CMNR 84
	C		CMNR 85
	C		CMNR 86
	C		CMNR 87
	C		CMNR 88
	C		CMNR 89
	C		CMNR 90
	C		CMNR 91
	C		CMNR 92
	C		CMNR 93
	C		CMNR 94
	C		CMNR 95
	C		CMNR 96
	C		CMNR 97
	C		CMNR 98
	C		CMNR 99
	C		CMNR 100
	C		CMNR 101
	C		CMNR 102
	C		CMNR 103
	C		CMNR 104
	C		CMNR 105
	C		CMNR 106
	C		CMNR 107
	C		CMNR 108
	C		CMNR 109
	C		CMNR 110
	C		CMNR 111
	C		CMNR 112
	C		CMNR 113
	C		CMNR 114
	C		CMNR 115
	C		CMNR 116
	C		CMNR 117
	C		CMNR 118
	C		CMNR 119
	C		CMNR 120
	C		CMNR 121
	C		CMNR 122
	C		CMNR 123
	C		CMNR 124
	C		CMNR 125
	C		CMNR 126
	C		CMNR 127
	C		CMNR 128
	C		CMNR 129
	C		CMNR 130
	C		CMNR 131
	C		CMNR 132
	C		CMNR 133
	C		CMNR 134
	C		CMNR 135
	C		CMNR 136
	C		CMNR 137
	C		CMNR 138
	C		CMNR 139
	C		CMNR 140
	C		CMNR 141
	C		CMNR 142
	C		CMNR 143
	C		CMNR 144
	C		CMNR 145
	C		CMNR 146
	C		CMNR 147
	C		CMNR 148
	C		CMNR 149
	C		CMNR 150
	C		CMNR 151
	C		CMNR 152
	C		CMNR 153
	C		CMNR 154
	C		CMNR 155
	C		CMNR 156
	C		CMNR 157
	C		CMNR 158
	C		CMNR 159
	C		CMNR 160
	C		CMNR 161
	C		CMNR 162
	C		CMNR 163
	C		CMNR 164
	C		CMNR 165
	C		CMNR 166
	C		CMNR 167
	C		CMNR 168
	C		CMNR 169
	C		CMNR 170
	C		CMNR 171
	C		CMNR 172
	C		CMNR 173
	C		CMNR 174
	C		CMNR 175
	C		CMNR 176
	C		CMNR 177
	C		CMNR 178
	C		CMNR 179
	C		CMNR 180
	C		CMNR 181
	C		CMNR 182
	C		CMNR 183
	C		CMNR 184
	C		CMNR 185
	C		CMNR 186
	C		CMNR 187
	C		CMNR 188
	C		CMNR 189
	C		CMNR 190
	C		CMNR 191
	C		CMNR 192
	C		CMNR 193
	C		CMNR 194
	C		CMNR 195
	C		CMNR 196
	C		CMNR 197
	C		CMNR 198
	C		CMNR 199
	C		CMNR 200

III-52

115	C		EQCOM	4
	C		EQCOM	5
	C	(ABOTTOM IS TRUNCATED TO SIX CHARACTERS AS ABOTTO)	EQCOM	6
	C		515002AA	2
120		DIMENSION AFACT(15),AOLD(21105),APHI(21105),AS(21105),	FIXDIM	17
		15 ASTRT(21105),AT(21105),ATC(21105),ATK(21105),ATR(21105),	FIXDIM	18
		25 AWELL(21105)	FIXDIM	19
	C		515002AA	6
	C		515002BA	2
125	C	DIMENSION AEL(21105),AFL(21105),AGL(21105),AV(21105),AXI(21105)	FIXDIM	24
	C		515002BA	4
	C	DIMENSION AQRE(1)	NRA	2
	C		NRA	3
	C		NRA	4
130	C	DIMENSION ABOTTO(1) , APERM(1)	NWTA	2
	C		NWTA	3
	C		NWTA	4
	C	EQUIVALENCE (FACT,AFACT) , (OLD,AOLD) , (PHI,APHI) , (S,AS) ,	EQUIV	2
		1 (STRT,ASTRT) , (T,AT) , (TC,ATC) , (TK,ATK) , (TR,ATR) ,	EQUIV	3
135		2 (WELL,AWELL) , (EL,AEL) , (FL,AFL) , (GL,AGL) , (V,AV) ,	EQUIV	4
		3 (XI,AXI) , (QRE,AQRE) , (BOTTOM,ABOTTO) , (PERM,APERM)	EQUIV	5
	C		EQUIV	6
	C		EQUIV	7
	C	COMMON /BIGW/ BIG , W	COMBIGW	2
140	C		COMBIGW	3
	C		COMBIGW	4
	C	-----	ENDD	2
	C	*****	ENDD	3
	C	-----	ENDD	4
145	C		ENDD	5
		COMMON /RIVR/ NRC(10),NADD(10),RQ(10),VK(20),RIVER(20),QMAX(20)	ENDD	6
		1,INDX(20,2),QRA(20,20),QS(10),NR ,NTOT,TQ(10)	ENDD	7
			ENDD	8
	C	---INCREMENT COUNTER AND TEST TO SEE IF MAXIMUM ITERATIONS ARE EXCEEDED---	FD3D	1066
150	C		FD3D	1067
		IT=IT+1	FD3D	1068
		IF (IT.LE.ITMAX) GO TO 50	SP3 780 FD3D	1069
		WRITE(OP,240)	SP3 790 FD3D	1070
			SP3 800 FD3D	1071
155	C	CALL OUTPT	FD3D	1072
	C	*****	FD3D	1073
	C		FD3D	1074
	C	---CYCLE THROUGH ITERATION PARAMETERS---	FD3D	1075
	C		FD3D	1076
	C		FD3D	1077
160		50 IF (MOD(IT,LENGTH)) 60,60,70	SP3 820 FD3D	1078
		60 NTH=0	SP3 860 FD3D	1079
		70 NTH=NTH+1	SP3 870 FD3D	1080
		W=RHOP(NTH)	SP3 880 FD3D	1081
	C		FD3D	1082
165	C	---INITIALIZE VARIABLES---	FD3D	1083
	C		FD3D	1084
		TEST3(IT+1)=0.	SP3 890 FD3D	1085
		TEST=0.0	SP3 900 FD3D	1086
		BIG=0.	SP3 910 FD3D	1087
170	C		FD3D	1088
		DO 80 K=1,K0	SP3 920 FD3D	1089

		DO 80 I=1,I0	SP3 930	FD3D	1090
		DO 80 J=1,J0	SP3 940	FD3D	1091
175		EL(I,J,K)=0.	SP3 950	FD3D	1092
		FL(I,J,K)=0.	SP3 960	FD3D	1093
		GL(I,J,K)=0.	SP3 970	FD3D	1094
		V(I,J,K)=0.	SP3 980	FD3D	1095
	80	XI(I,J,K)=0.	SP3 990	FD3D	1096
	C			FD3D	1097
180		RETURN		FD3D	1098
	C			FD3D	1099
	C			FD3D	1100
	C	---FORMATS---		FD3D	1101
	C			FD3D	1102
185				FD3D	1103
	C	240 FORMAT ("EXCEEDED PERMITTED NUMBER OF ITERATIONS"/" ",39(" "))	SP32530	FD3D	1104
	C			FD3D	1105
		END		FD3D	1106

1	C	SUBROUTINE NEWPER	FD3D	1107
	C		FD3D	1108
	CDAT2160	FD3D	1109
5	C	---READ TIME PARAMETERS AND PUMPING DATA FOR A NEW PUMPING PERIOD-DAT2170	FD3D	1110
	C		FD3D	1111
	C	FD3D	1112
	C		FD3D	1113
	C		DAT2210	FD3D 1114
10	C	* FOR SUBROUTINE NEWPER *	DNEWPER	2
	C	-----	START	2
	C	-----	START	3
	C	*****	START	4
	C	-----	START	5
	C		START	6
15	C	SPECIFICATIONS#	START	7
	C		START	8
	C	--- THE FOLLOWING I/O DEVICES ARE USED ---	IOS	2
	C		IOS	3
	C		IOS	4
20	C	* DEVICE * * UNIT * * NUMBER *	IOS	5
	C		IOS	6
	C	CARD READER IC 5	IOS	7
	C	DISK ID 4	IOS	8
	C	CARD PUNCH OC 7	IOS	9
25	C	LINE PRINTER OP 6	IOS	10
	C		IOS	11
	C	COMMON /IO/ IC , ID , OC , OP	IOS	12
	C		IOS	13
	C	INTEGER IC, ID, OC, OP	IOS	14
30	C	REAL LHEAD2, LHEAD4	JEC	FIXDIM 33
	C		IOS	15
	C		CMT1	2
	C	--- THE FOLLOWING ARE INDEPENDENT OF MODEL DIMENSIONS ---	CMT1	3
	C		CMT1	4
35	C		CCK	2
	C	COMMON /CK/ CFLUXT , CHDT , CHST , ETFLXT , FLUXT , FLXNT ,	CCK	3
	C	1 PUMPT, QRET, STORT, STORL2, STORL4, SFAC2, SFAC4, SUBH2, SUBH4	JEC	FIXDIM 29
	C		CCK	5
40	C	COMMON /DPARAM/ B , D , F , H , RHO , SU , Z	CDPARAM	2
	C		CDPARAM	3
	C		CDPARAM	4
	C	COMMON /HDG/ HEADNG(33)	CHDG	2
	C		CHDG	3
	C		CHDG	4
45	C		CINTEGR	2
	C	COMMON /INTEGR/ IQ, IO, I1, I2, IDK1, IDK2, IDRAW, IERR,	CINTEGR	3
	C	1 IFINAL, IFLO, IHEAD, IMAX, IPU1, IPU2, IQRE, IT, ITK,	CINTEGR	4
	C	2 ITMAX, ITMX1, IWATER, JQ, JO, J1, J2, KQ, K0, K1, K2,	CINTEGR	5
	C	3 KP, KT, KTH, LENGTH, NCH, NPER, NUMT, NWEL	CINTEGR	6
50	C	4, NPWELL, IPWELL, ISS24, ICHPNT, ILHEAD	JEC	FIXDIM 32
	C		CINTEGR	7
	C	COMMON /PR/ BLANK(60), DIGIT(122), DINCH, FACT1, FACT2,	CPR	2
	C	1 N1, N2, N3, NA(4), PRNT(122), SYM(17), TITLE(6), UNITS,	CPR	3
55	C	2 VF1(6), VF2(6), VF3(7), XLABEL(3), XN(100), XN1, XSCALE,	CPR	4
	C	3 YLABEL(6), YN(13), YSCALE	CPR	5
	C		CPR	6
	C		CPR	7

	C		CSARRAY	2
60	C	COMMON /SARRAY/ ICHK(13)	CSARRAY	3
	C		CSARRAY	4
	C	COMMON /SPARAM/ CDLT , DELT , ERR , QR , SUM , SUMP , TEST , TMAX	CSPARAM	2
	C		CSPARAM	3
	C		CSPARAM	4
65	C	--- THE FOLLOWING ARE DIMENSIONED FOR THE FOLLOWING LIMITS ---	MAX1	2
	C	--- IF OTHER LIMITS ARE NEEDED , ADD COMDECK MAX AND DEFINE NEWMAX	MAX1	3
	C		MAX1	4
	C		MAX1	5
	C	MODEL IS DEFINED ON ARRAYS (63,67,5), OR (22,24,5)--DEPENDING	FIXDIM	34
	C	ON THE DEFINE CARDS-- *DEFINE,D515002, OR *DEFINE, D202504	FIXDIM	35
70	C	PARAMETER(DIMENSION) BASED ON LIMIT OF	MAX1	8
	C		MAX1	9
	C	DDN(100) MAXIMUM HORIZONTAL DIMENSION=100	MAX1	10
	C	FLOW(100),JFLO(100,3) MAXIMUM CONSTANT HEAD NODES=100	MAX1	11
	C	ITTO(100) MAXIMUM TIME STEPS = 100	MAX1	12
75	C	LEVEL1(9),LEVEL2(9) MAXIMUM LEVELS PRINTED IN MAPS=9	MAX1	13
	C	RHOP(20) MAXIMUM ITERATION PARAMETERS=20	MAX1	14
	C	TEST3(101) MAXIMUM ITERATIONS = 100	MAX1	15
	C		MAX1	16
80	C	COMMON/MAX/DDN(67),FLOW(4221),ITTO(60),JFLO(4221,3),	FIXDIM	38
	C	1\$ LEVEL1(9),LEVEL2(9),RHOP(20),TEST3(61)	FIXDIM	39
	C		MAX1	29
	C	--- THE FOLLOWING ARE DIMENSIONED FOR 63 NODES IN THE Y-DIRECTION	C515002	2
	C	(I.E. 63 ROWS), 67 NODES IN THE X-DIRECTION (I.E. 67 COLUMNS)	FIXDIM	27
85	C	, AND 5 NODES IN THE Z-DIRECTION (I.E. 5 LEVELS) ---	FIXDIM	28
	C		C515002	5
	C		C515002	6
	C	COMMON/ARRAY1/DELX(67),DELY(63),DELZ(5),FACT(5,3)	FIXDIM	13
	C	COMMON/ARRA2/OLD(63,67,5),V(63,67,5),S(63,67,5)	FIXDIM	14
90	C	COMMON/ARRAY3/STRT(63,67,5),T(63,67,5),TR(63,67,5)	FIXDIM	15
	C	COMMON/ARRAY4/TC(63,67,5),TK(63,67,5),WELL(63,67,5)	FIXDIM	16
	C		515002A	6
	C	COMMON/ARRAY5/EL(63,67,5),FL(63,67,5),GL(63,67,5)	FIXDIM	20
	C	COMMON/ARRAY6/PHI(63,67,5),ISTOR2(63,67),ISTOR4(63,67)	FIXDIM	21
	C	COMMON/ARRAY7/XI(63,67,5),CSUB(63,67),LHEAD2(63,67),	FIXDIM	22
95	C	1\$ LHEAD4(63,67)	FIXDIM	23
	C		515002B	5
	C	LEVEL 2 ,OLD,STRT,TC,EL,XI	515002B	6
	C		515002B	7
100	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNR	2
	C	WITHOUT RECHARGE TO THE TOP LEVEL ---	CMTNR	3
	C	-----	CMTNR	4
	C		CMTNR	5
	C		CMTNR	6
105	C	COMMON /RCHRG/ QRE(1,1)	NR	2
	C		NR	3
	C		NR	4
	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNWT	2
	C	IN WHICH THE TOP LEVEL IS CONFINED	CMTNWT	3
110	C	-----	CMTNWT	4
	C		CMTNWT	5
	C	COMMON /TABLE/ BOTTOM(1,1) , PERM(1,1)	NWT	2
	C		NWT	3
	C		NWT	4
	C	--- THE FOLLOWING 1-DIMENSIONAL ARRAYS ARE EQUIVALENT TO THE	EQCOM	2

115	C	ABOVE ARRAYS WITH THE SAME NAME EXCEPT FOR THE LEADING "A"	EQCOM	3
	C		EQCOM	4
	C		EQCOM	5
	C	(ABOTTOM IS TRUNCATED TO SIX CHARACTERS AS ABOTTO)	EQCOM	6
	C		515002AA	2
120		DIMENSION AFACT(15),AOLD(21105),APHI(21105),AS(21105), 1\$ ASTRT(21105),AT(21105),ATC(21105),ATK(21105),ATR(21105), 2\$ AWELL(21105)	FIXDIM	17
			FIXDIM	18
			FIXDIM	19
	C		515002AA	6
	C		515002BA	2
125		DIMENSION AEL(21105),AFL(21105),AGL(21105),AV(21105),AXI(21105)	FIXDIM	24
	C		515002BA	4
	C		NRA	2
		DIMENSION AQRE(1)	NRA	3
			NRA	4
130	C		NWTA	2
	C	DIMENSION ABOTTO(1) , APERM(1)	NWTA	3
	C		NWTA	4
	C		EQUIV	2
		EQUIVALENCE (FACT,AFACT) , (OLD,AOLD) , (PHI,APHI) , (S,AS) , 1 (STRT,ASTRT) , (T,AT) , (TC,ATC) , (TK,ATK) , (TR,ATR) , 2 (WELL,AWELL) , (EL,AEL) , (FL,AFL) , (GL,AGL) , (V,AV) , 3 (XI,AXI) , (QRE,AQRE) , (BOTTOM,ABOTTO) , (PERM,APERM)	EQUIV	3
135			EQUIV	4
			EQUIV	5
			EQUIV	6
	C		EQUIV	7
	C		ENDD	2
140	C	-----	ENDD	3
	C	* * * * *	ENDD	4
	C	-----	ENDD	5
	C		ENDD	6
		COMMON /RIVR/ NRC(10),NADD(10),RQ(10),VK(20),RIVER(20),QMAX(20) 1,INDX(20,2),QRA(20,20),QS(10),NR ,NTOT,TQ(10)	ENDD	7
145			ENDD	8
	C	---READ SCALAR PARAMETERS---	FD3D	1116
	C		FD3D	1122
	C		FD3D	1123
		READ(IC,5+1) KP,KPH1,NWEL,TMAX,NUMT,CDLT,DELT	FD3D	1124
150	C	---COMPUTE ACTUAL DELT AND NUMT---	DAT2230	FD3D 1125
	C		DAT2240	FD3D 1126
	C		FD3D	1127
		DT=DELT/24.	DAT2250	FD3D 1128
		TM=0.0	DAT2260	FD3D 1129
155		DO 410 I=1,NUMT	DAT2270	FD3D 1130
		DT=CDLT*DT	DAT2280	FD3D 1131
		TM=TM+DT	DAT2290	FD3D 1132
		IF (TM.GE.TMAX) GO TO 420	DAT2300	FD3D 1133
	410	CONTINUE	DAT2310	FD3D 1134
160		GO TO 430	DAT2320	FD3D 1135
	420	DELT=TMAX/TM*DELT	DAT2330	FD3D 1136
		NUMT=I	DAT2340	FD3D 1137
	C		FD3D	1138
	C	---WRITE TIME PARAMETERS FOR PUMPING PERIOD---	FD3D	1139
165	C		FD3D	1140
	430	WRITE(OP,660) KP,TMAX,NUMT,DELT,CDLT	DAT2350	FD3D 1141
	C		FD3D	1142
	C	---CONVERT TO SECONDS---	FD3D	1143
	C		FD3D	1144
170		DELT=DELT*3600.	DAT2360	FD3D 1145
		TMAX=TMAX*86400.	DAT2370	FD3D 1146

	C		FD3D	1147
	C	--- ZERO OUT THE OLD PUMPING RATES ---	FD3D	1148
	C		FD3D	1149
175		DO 431 K=1,K0	FD3D	1150
		DO 431 J=1,J0	FD3D	1151
		DO 431 I=1,I0	FD3D	1152
		431 WELL(I,J,K) =0.0	FD3D	1153
	C		DAT2390	FD3D 1154
180	C	---READ AND WRITE WELL PUMPING RATES---	DAT2400	FD3D 1155
	C		FD3D	1156
		WRITE(OP,670) NWEL	DAT2410	FD3D 1157
		IF(NWEL.EQ.0) GO TO 441	FD3D	1158
		NNWEL = NWEL - 5	JEC	FIXFD 80
185		DO 440 II=1,NWEL	DAT2430	FD3D 1159
		READ (14,542) K,I,J,WELL(I,J,K)	FD3D	1160
		IF(IPWELL .EQ. 0) GO TO 432	JEC	FIXFD 81
		IF(IPWELL .EQ. 1) GO TO 440	JEC	FIXFD 82
		IF(II .GT. 5 .AND. II .LT. NNWEL) GO TO 440	JEC	FIXFD 83
190		432 WRITE(OP,680) K,I,J,WELL(I,J,K)	JEC	FIXFD 84
	C		FD3D	1162
	C	---ADJUST PUMPING RATE FOR AREA OF NODE---	FD3D	1163
	C		FD3D	1164
195	C	440 WELL(I,J,K)=WELL(I,J,K)/(DELX(J)*DELY(I))	DAT2460	FD3D 1165
	C		FD3D	1166
		441 IF(NR.EQ.0) GO TO 445	FD3D	1167
	C		FD3D	1168
		IF(NR.EQ.0)GO TO 445	FD3D	1169
	C		FD3D	1170
200		23 FORMAT(8F10.0)	FD3D	1171
		READ(5,23)(RQ(I),I=1,NR)	FD3D	1172
		WRITE(6,25)	FD3D	1173
		25 FORMAT(*OSTREAM DISCHARGE*)	FD3D	1174
		WRITE(6,24)(I,RQ(I),I=1,NR)	FD3D	1175
205		24 FORMAT (15,E10.3)	FD3D	1176
	C	---INITIALIZE VARIABLES---	FD3D	1177
	C		FD3D	1178
		445 SUMP=0.	FD3D	1179
		KT=0	MAN1340	FD3D 1180
210		IFINAL=0	MAN1350	FD3D 1181
	C		FD3D	1182
		450 RETURN	DAT2470	FD3D 1183
	C		DAT2480	FD3D 1184
	C		DAT2520	FD3D 1185
215	C	---FORMATS---	DAT2490	FD3D 1186
	C		DAT2500	FD3D 1187
	C		DAT2510	FD3D 1188
		541 FORMAT(3I10,F10.0,I10,2F10.0)	FD3D	1189
	C		FD3D	1190
220		542 FORMAT(3I10,F10.0)	FD3D	1191
	C		FD3D	1192
		660 FORMAT ("1",50X,"PUMPING PERIOD NO.",I4,":",F10.2," DAYS"/51X,38("	FD3D	1193
		1-")//53X,"NUMBER OF TIME STEPS=",16//59X,"DELT IN HOURS =",F10.3//DAT2830	FD3D	1194
		253X,"MULTIPLIER FOR DELT =",F10.3)	DAT2840	FD3D 1195
225	C		FD3D	1196
		670 FORMAT ("-",63X,I4," WELLS"/65X,9("-")//50X,"K",9X,"I",9X,"J	PUDAT2850	FD3D 1197
		MPING RATE"/)	DAT2860	FD3D 1198
	C		FD3D	1199

230 C 680 FORMAT (41X,3I10,2F13.2)

DAT2870 FD3D 1200

FD3D 1201

FD3D 1202

END

III-58

1	C	SUBROUTINE NEWSTP	FD3D	1203
	C	-----	FD3D	1204
	C	-----STP 30	FD3D	1205
5	C	INITIALIZE DATA FOR A NEW TIME STEP	FD3D	1206
	C	-----	FD3D	1207
	C	-----STP 50	FD3D	1208
	C	* FOR SUBROUTINE NEWSTP *	FD3D	1209
	C	-----	DNEWSTP	2
10	C	-----	START	2
	C	-----	START	3
	C	*****	START	4
	C	-----	START	5
	C	-----	START	6
15	C	SPECIFICATIONS@	START	7
	C	-----	START	8
	C	--- THE FOLLOWING I/O DEVICES ARE USED ---	IOS	2
	C	-----	IOS	3
	C	* DEVICE * * UNIT * * NUMBER *	IOS	4
20	C	-----	IOS	5
	C	-----	IOS	6
	C	CARD READER IC 5	IOS	7
	C	DISK ID 4	IOS	8
	C	CARD PUNCH OC 7	IOS	9
	C	LINE PRINTER OP 6	IOS	10
25	C	-----	IOS	11
	C	COMMON /IO/ IC , ID , OC , OP	IOS	12
	C	-----	IOS	13
	C	INTEGER IC, ID, OC, OP	IOS	14
	C	REAL LHEAD2, LHEAD4	JEC	FIXDIM 33
30	C	-----	IOS	15
	C	--- THE FOLLOWING ARE INDEPENDENT OF MODEL DIMENSIONS ---	CMT1	2
	C	-----	CMT1	3
	C	-----	CMT1	4
35	C	COMMON /CK/ CFLUXT , CHDY , CHST , ETFLXT , FLUXT , FLXNT ,	CCK	2
	C	1 PUMPT, GRET, STORT, STORL2, STORL4, SFAC2, SFAC4, SUBH2, SUBH4	CCK	3
	C	-----	JEC	FIXDIM 29
	C	-----	CCK	5
	C	COMMON /DPARAM/ B , D , F , H , RHO , SU , Z .	CDPARAM	2
40	C	-----	CDPARAM	3
	C	-----	CDPARAM	4
	C	COMMON /HDG/ HEADNG(33)	CHDG	2
	C	-----	CHDG	3
	C	-----	CHDG	4
45	C	COMMON /INTEGR/ IQ, IO, I1, I2, IDK1, IDK2, IDRAW, IERR,	CINTEGR	2
	C	1 IFINAL, IFLO, IHEAD, IMAX, IPU1, IPU2, IQRE, IT, ITK,	CINTEGR	3
	C	2 ITMAX, ITMX1, IWATER, JQ, JO, J1, J2, KQ, KO, K1, K2,	CINTEGR	4
	C	3 KP, KT, KTH, LENGTH, NCH, NPER, NUMT, NWEL	CINTEGR	5
	C	4, NPWELL, IPWELL, ISS24, ICHPNT, ILHEAD	CINTEGR	6
50	C	-----	JEC	FIXDIM 32
	C	-----	CINTEGR	7
	C	COMMON /PR/ BLANK(60), DIGIT(122), DINCH, FACT1, FACT2,	CPR	2
	C	1 N1, N2, N3, NA(4), PRNT(122), SYM(17), TITLE(6), UNITS,	CPR	3
	C	2 VF1(6), VF2(6), VF3(7), XLABEL(3), XN(100), XN1, XSCALE,	CPR	4
55	C	3 YLABEL(6), YN(13), YSCALE	CPR	5
	C	-----	CPR	6
	C	-----	CPR	7
	C	-----	CSARRAY	2

		COMMON /SARRAY/ ICHK(13)	CSARRAY 3
60	C		CSARRAY 4
	C		CSPARAM 2
	C	COMMON /SPARAM/ CDLT , DELT , ERR , QR , SUM , SUMP , TEST , TMAX	CSPARAM 3
	C		CSPARAM 4
	C		MAX1 2
	C	--- THE FOLLOWING ARE DIMENSIONED FOR THE FOLLOWING LIMITS ---	MAX1 3
65	C	--- IF OTHER LIMITS ARE NEEDED , ADD COMDECK MAX AND DEFINE NEWMAX	MAX1 4
	C		MAX1 5
	C	MODEL IS DEFINED ON ARRAYS (63,67,5) , OR (22,24,5)--DEPENDING	FIXDIM 34
	C	ON THE DEFINE CARDS-- *DEFINE,D515002, OR *DEFINE, D202504	FIXDIM 35
	C	PARAMETER(DIMENSION) BASED ON LIMIT OF	MAX1 8
70	C		MAX1 9
	C	DDN(100) MAXIMUM HORIZONTAL DIMENSION=100	MAX1 10
	C	FLOW(100),JFLO(100,3) MAXIMUM CONSTANT HEAD NODES=100	MAX1 11
	C	ITTO(100) MAXIMUM TIME STEPS = 100	MAX1 12
	C	LEVEL1(9),LEVEL2(9) MAXIMUM LEVELS PRINTED IN MAPS=9	MAX1 13
75	C	RHOP(20) MAXIMUM ITERATION PARAMETERS=20	MAX1 14
	C	TEST3(101) MAXIMUM ITERATIONS = 100	MAX1 15
	C		MAX1 16
	C	COMMON/MAX/DDN(67),FLOW(4221),ITTO(60),JFLO(4221,3),	FIXDIM 38
80	C	1\$ LEVEL1(9),LEVEL2(9),RHOP(20),TEST3(61)	FIXDIM 39
	C		MAX1 29
	C	--- THE FOLLOWING ARE DIMENSIONED FOR 63 NODES IN THE Y-DIRECTION	C515002 2
	C	(I.E. 63 ROWS), 67 NODES IN THE X-DIRECTION (I.E. 67 COLUMNS)	FIXDIM 27
	C	, AND 5 NODES IN THE Z-DIRECTION (I.E. 5 LEVELS) ---	FIXDIM 28
85	C		C515002 5
	C	COMMON/ARRAY1/DELX(67),DELY(63),DELZ(5),FACT(5,3)	C515002 6
	C	COMMON/ARRA2/OLD(63,67,5),V(63,67,5),S(63,67,5)	FIXDIM 13
	C	COMMON/ARRAY3/STRT(63,67,5),T(63,67,5),TR(63,67,5)	FIXDIM 14
	C	COMMON/ARRAY4/TC(63,67,5),TK(63,67,5),WELL(63,67,5)	FIXDIM 15
90	C		FIXDIM 16
	C		515002A 6
	C	COMMON/ARRAY5/EL(63,67,5),FL(63,67,5),GL(63,67,5)	FIXDIM 20
	C	COMMON/ARRAY6/PHI(63,67,5),ISTOR2(63,67),ISTOR4(63,67)	FIXDIM 21
	C	COMMON/ARRAY7/XI(63,67,5),CSUB(63,67),LHEAD2(63,67),	FIXDIM 22
	C	1\$ LHEAD4(63,67)	FIXDIM 23
95	C		515002B 5
	C	LEVEL 2 ,OLD,STRT,TC,EL,XI	515002B 6
	C		515002B 7
	C		CMTNR 2
	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNR 3
100	C	WITHOUT RECHARGE TO THE TOP LEVEL ---	CMTNR 4
	C	-----	CMTNR 5
	C		CMTNR 6
	C		NR 2
	C	COMMON /RCHRG/ QRE(1,1)	NR 3
105	C		NR 4
	C		CMTNWT 2
	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNWT 3
	C	IN WHICH THE TOP LEVEL IS CONFINED	CMTNWT 4
	C	-----	CMTNWT 5
110	C		NWT 2
	C	COMMON /TABLE/ BOTTOM(1,1) , PERM(1,1)	NWT 3
	C		NWT 4
	C	--- THE FOLLOWING 1-DIMENSIONAL ARRAYS ARE EQUIVALENT TO THE	EQCOM 2
	C	ABOVE ARRAYS WITH THE SAME NAME EXCEPT FOR THE LEADING "A"	EQCOM 3

III-72

115	C	ABOVE ARRAYS WITH THE SAME NAME EXCEPT FOR THE LEADING "A"	EQCOM	3
	C		EQCOM	4
	C		EQCOM	5
	C	(ABOTTOM IS TRUNCATED TO SIX CHARACTERS AS ABOTTO)	EQCOM	6
	C		515002AA	2
120	C	DIMENSION AFACT(15),AOLD(21105),APHI(21105),AS(21105),	FIXDIM	17
	C	15 ASTR(21105),AT(21105),ATC(21105),ATK(21105),ATR(21105),	FIXDIM	18
	C	25 AVELL(21105)	FIXDIM	19
	C		515002AA	6
	C		515002BA	2
125	C	DIMENSION AEL(21105),AFL(21105),AGL(21105),AV(21105),AXI(21105)	FIXDIM	24
	C		515002BA	4
	C		NRA	2
	C	DIMENSION AQRE(1)	NRA	3
	C		NRA	4
130	C		NWTA	2
	C	DIMENSION ABOTTO(1) , APERM(1)	NWTA	3
	C		NWTA	4
	C		EQUIV	2
	C	EQUIVALENCE (FACT,AFAC) , (OLD,AOLD) , (PHI,APHI) , (S,AS) ,	EQUIV	3
135	C	1 (STR,ASTR) , (T,AT) , (TC,ATC) , (TK,ATK) , (TR,ATR) ,	EQUIV	4
	C	2 (WELL,AWELL) , (EL,AEL) , (FL,AFL) , (GL,AGL) , (V,AV) ,	EQUIV	5
	C	3 (XI,AXI) , (QRE,AQRE) , (BOTTOM,ABOTTO) , (PERM,APERM)	EQUIV	6
	C		EQUIV	7
	C		COMBIGW	2
140	C	COMMON /BIGW/ BIG , W	COMBIGW	3
	C		COMBIGW	4
	C		ENDD	2
	C	-----	ENDD	3
	C	*****	ENDD	4
145	C	-----	ENDD	5
	C		ENDD	6
	C	COMMON /RIVR/ NRC(10),NADD(10),RQ(10),VK(20),RIVER(20),QMAX(20)	ENDD	7
	C	1,INDX(20,2),QRA(20,20),QS(10),NR ,NTOT,TQ(10)	ENDD	8
	C		FD3D	1455
150	C	--- CYCLE THROUGH ROWS WEST TO EAST ---	FD3D	1456
	C	COLUMNS SOUTH TO NORTH ---	FD3D	1457
	C	LEVELS TOP TO BOTTOM ---	FD3D	1458
	C		FD3D	1459
	C	170 DO 220 KK=1,K1	FD3D	1460
155	C	K=K1-KK+1	FD3D	1461
	C	DO 220 II=1,I2	SP31800	FD3D 1462
	C	I=I0-II	SP31810	FD3D 1463
	C	DO 220 J=2,J1	SP31820	FD3D 1464
	C		SP31830	FD3D 1465
160	C	---SKIP COMPUTATIONS IF NODE OUTSIDE AQUIFER---	SP31840	FD3D 1466
	C		FD3D	1467
	C	IF (T(I,J,K)) 180,220,180	SP31850	FD3D 1468
	C		FD3D	1469
	C	---FOR CONSTANT HEAD NODES, RHO IS INFINITE AND OTHER COEFFICIENTS	FD3D	1470
165	C	ARE INSIGNIFICANT---	FD3D	1471
	C		FD3D	1472
	C	180 IF (S(I,J,K).LT.0.) GO TO 190	SP31860	FD3D 1473
	C		SP31870	FD3D 1474
	C	---COMPUTE COEFFICIENTS---	SP31880	FD3D 1475
170	C	D,F,B,H,SU,Z,RHO, AND QR	FD3D	1476
	C	IQ = I	FD3D	1477

	C							
60	C	COMMON /SARRAY/ ICHK(13)		CSARRAY	2			
	C			CSARRAY	3			
	C			CSARRAY	4			
	C	COMMON /SPARAM/ CQLT , DELT , ERR , QR , SUM , SUMP , TEST , TMAX		CSPARAM	2			
	C			CSPARAM	3			
	C			CSPARAM	4			
65	C	--- THE FOLLOWING ARE DIMENSIONED FOR THE FOLLOWING LIMITS ---		MAX1	2			
	C	--- IF OTHER LIMITS ARE NEEDED , ADD COMDECK MAX AND DEFINE NEWMAX		MAX1	3			
	C			MAX1	4			
	C			MAX1	5			
	C	MODEL IS DEFINED ON ARRAYS (63,67,5) , OR (22,24,5)--DEPENDING		FIXDIM	34			
70	C	ON THE DEFINE CARDS-- *DEFINE, D515002, OR *DEFINE, D202504		FIXDIM	35			
	C	PARAMETER(DIMENSION) BASED ON LIMIT OF		MAX1	8			
	C			MAX1	9			
	C	DDN(100) MAXIMUM HORIZONTAL DIMENSION=100		MAX1	10			
	C	FLOW(100),JFLO(100,3) MAXIMUM CONSTANT HEAD NODES=100		MAX1	11			
75	C	ITTO(100) MAXIMUM TIME STEPS = 100		MAX1	12			
	C	LEVEL1(9),LEVEL2(9) MAXIMUM LEVELS PRINTED IN MAPS=9		MAX1	13			
	C	RHOP(20) MAXIMUM ITERATION PARAMETERS=20		MAX1	14			
	C	TEST3(101) MAXIMUM ITERATIONS = 100		MAX1	15			
	C			MAX1	16			
80	C	COMMON/MAX/DDN(67),FLOW(4221),ITTO(60),JFLO(4221,3),		FIXDIM	38			
	C	1\$ LEVEL1(9),LEVEL2(9),RHOP(20),TEST3(61)		FIXDIM	39			
	C			MAX1	29			
	C			C515002	2			
85	C	--- THE FOLLOWING ARE DIMENSIONED FOR 63 NODES IN THE Y-DIRECTION		FIXDIM	27			
	C	(I.E. 63 ROWS), 67 NODES IN THE X-DIRECTION (I.E. 67 COLUMNS)		FIXDIM	28			
	C	, AND 5 NODES IN THE Z-DIRECTION (I.E. 5 LEVELS) ---		C515002	5			
	C			C515002	6			
	C	COMMON/ARRAY1/DELX(67),DELY(63),DELZ(5),FACT(5,3)		FIXDIM	13			
	C	COMMON/ARRA2/OLD(63,67,5),V(63,67,5),S(63,67,5)		FIXDIM	14			
90	C	COMMON/ARRAY3/STRT(63,67,5),T(63,67,5),TR(63,67,5)		FIXDIM	15			
	C	COMMON/ARRAY4/TC(63,67,5),TK(63,67,5),WELL(63,67,5)		FIXDIM	16			
	C			515002A	6			
	C	COMMON/ARRAY5/EL(63,67,5),FL(63,67,5),GL(63,67,5)		FIXDIM	20			
	C	COMMON/ARRAY6/PHI(63,67,5),ISTOR2(63,67),ISTOR4(63,67)		FIXDIM	21			
95	C	COMMON/ARRAY7/XI(63,67,5),CSUB(63,67),LHEAD2(63,67),		FIXDIM	22			
	C	1\$ LHEAD4(63,67)		FIXDIM	23			
	C			515002B	5			
	C	LEVEL 2 ,OLD,STRT,TC,EL,XI		515002B	6			
	C			515002B	7			
100	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM		CMTNR	2			
	C	WITHOUT RECHARGE TO THE TOP LEVEL ---		CMTNR	3			
	C	-----		CMTNR	4			
	C			CMTNR	5			
	C			CMTNR	6			
105	C	COMMON /RCHRG/ QRE(1,1)		NR	2			
	C			NR	3			
	C			NR	4			
	C			CMTNWT	2			
	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM		CMTNWT	3			
	C	IN WHICH THE TOP LEVEL IS CONFINED		CMTNWT	4			
110	C	-----		CMTNWT	5			
	C			NWT	2			
	C	COMMON /TABLE/ BOTTOM(1,1) , PERM(1,1)		NWT	3			
	C			NWT	4			
	C	--- THE FOLLOWING 1-DIMENSIONAL ARRAYS ARE EQUIVALENT TO THE		NWT	4			
	C			EQCOM	2			

1	C	SUBROUTINE PIS	FD3D	1446
	C	-----	FD3D	1447
	C		FD3D	1448
5	C	SOLUTION BY THE STRONGLY IMPLICIT PROCEDURE	FD3D	1449
	C	REVERSE ALGORITHM	FD3D	1450
	C	-----	FD3D	1451
	C		FD3D	1452
	C		FD3D	1453
10	C	* FOR SUBROUTINE PIS *	DPIS	2
	C	-----	START	2
	C		START	3
	C	*****	START	4
	C	-----	START	5
	C		START	6
15	C	SPECIFICATIONS*	START	7
	C		START	8
	C	--- THE FOLLOWING I/O DEVICES ARE USED ---</td <td>IOS</td> <td>2</td>	IOS	2
	C		IOS	3
20	C	* DEVICE * * UNIT * * NUMBER *	IOS	4
	C		IOS	5
	C		IOS	6
	C	CARD READER IC 5	IOS	7
	C	DISK ID 4	IOS	8
	C	CARD PUNCH OC 7	IOS	9
25	C	LINE PRINTER OP 6	IOS	10
	C		IOS	11
	C	COMMON /IO/ IC , ID , OC , OP	IOS	12
	C		IOS	13
	C	INTEGER IC, ID, OC, OP	IOS	14
30	C	REAL LHEAD2, LHEAD4	JEC FIXDIM	33
	C		IOS	15
	C	--- THE FOLLOWING ARE INDEPENDENT OF MODEL DIMENSIONS ---</td <td>CMT1</td> <td>2</td>	CMT1	2
	C		CMT1	3
	C		CMT1	4
35	C		CCK	2
	C	COMMON /CK/ CFLXT , CHDT , CHST , ETFLXT , FLXT , FLXNT ,	CCK	3
	C	1 PUMPT, QRET, STORT, STORL2, STORL4, SFAC2, SFAC4, SUBH2, SUBH4	JEC FIXDIM	29
	C		CCK	5
	C		CDPARAM	2
40	C	COMMON /DPARAM/ B , D , F , H , RHO , SU , Z	CDPARAM	3
	C		CDPARAM	4
	C		CHDG	2
	C	COMMON /HDG/ HEADNG(33)	CHDG	3
	C		CHDG	4
45	C		CINTEGR	2
	C	COMMON /INTEGR/ IQ, IO, I1, I2, IDK1, IDK2, IDRAW, IERR,	CINTEGR	3
	C	1 IFINAL, IFLO, IHEAD, IMAX, IPU1, IPU2, IQRE, IT, ITK,	CINTEGR	4
	C	2 ITMAX, ITMX1, IWATER, JQ, J0, J1, J2, KQ, K0, K1, K2,	CINTEGR	5
	C	3 KP, KT, KTH, LENGTH, NCH, NPER, NUMT, NWEL	CINTEGR	6
50	C	4, NPWELL, IPWELL, ISS24, ICHPNT, ILHEAD	JEC FIXDIM	32
	C		CINTEGR	7
	C		CPR	2
	C	COMMON /PR/ BLANK(60), DIGIT(122), DINCH, FACT1, FACT2,	CPR	3
	C	1 N1, N2, N3, NA(4), PRNT(122), SYM(17), TITLE(6), UNITS,	CPR	4
55	C	2 VF1(6), VF2(6), VF3(7), XLABEL(3), XN(100), XN1, XSCALE,	CPR	5
	C	3 YLABEL(6), YN(13), YSCALE	CPR	6
	C		CPR	7

```
C
345 C 240 FORMAT ("0TIME STEP :",40I3)
C 250 FORMAT ("0ITERATIONS:",40I3)
C 260 FORMAT (" ",10("-"))
350 C END
```

```
FD3D 1438
STP1370 FD3D 1439
FD3D 1440
STP1380 FD3D 1441
FD3D 1442
STP1390 FD3D 1443
FD3D 1444
STP1400-FD3D 1445
```

69-III

89-III

		IF (KP.LT.NPER.OR.IFINAL.NE.1) RETURN	STP1070	FD3D	1369
	C	*****		FD3D	1370
	C		STP1100	FD3D	1373
290	C	---PUNCH FINAL RESULTS ON CARDS IF OPTION WAS SELECTED---		FD3D	1374
	C			FD3D	1375
		130 IF (IPU2.NE.ICHK(9)) GO TO 160	STP1120	FD3D	1376
		IF (IERR.EQ.2) GO TO 140	STP1130	FD3D	1377
		WRITE(OC,230) SUM,SUMP,PUMPT,CFLUXT,QRET,CHST,CHDT,FLUXT,STORT,ETF	STP1140	FD3D	1378
295		1LXT,FLXNT	STP1150	FD3D	1379
		140 DO 150 K=1,K0	STP1160	FD3D	1380
		150 WRITE(OC,220) ((PHI(I,J,K),J=1,J0),I=1,I0)	STP1170	FD3D	1381
	C			FD3D	1382
	C	---STOP 2 IF MAXIMUM ITERATIONS EXCEEDED---		FD3D	1383
	C			FD3D	1384
300		160 IF (IERR.EQ.2) STOP2	STP1180	FD3D	1385
	C	*****		FD3D	1386
	C			FD3D	1387
	C	RETURN	STP1190	FD3D	1388
305	C		STP1200	FD3D	1389
	C	---FORMATS---		FD3D	1390
	C		STP1210	FD3D	1391
	C		STP1220	FD3D	1392
	C		STP1230	FD3D	1393
310		163 FORMAT(1H,10X,"2",6X,"3",6X,"4",6X,"5",6X,"6",6X,"7",6X,"8",6X, 15"9",5X,"10",5X,"11",5X,"12",5X,"13",5X,"14",5X,"15",5X,"16",5X, 25"17",5X,"18",5X,"19", /10X,"20",5X,"21",5X,"22",5X,"23",5X,"24", 35"5X,"25",5X,"26",5X,"27",5X,"28",5X,"29",5X,"30",5X,"31",5X,"32", 45"5X,"33",5X,"34",5X,"35",5X,"36",5X,"37",/10X,"38",5X,"39",5X,"40", 5 5X, 55"41",5X,"42",5X,"43",5X,"44",5X,"45",5X,"46",5X,"47",5X,"48",5X, 65"49",5X,"50",5X,"51",5X,"52",5X,"53",5X,"54",5X,"55",/10X,"56",5X, 75"57",5X,"58",5X,"59",5X,"60",5X,"61",5X,"62",5X,"63",5X,"64",5X, 85"65",) FD3D 1403 FD3D 1404 FD3D 1405 FD3D 1406 FD3D 1407 FD3D 1408 FD3D 1409 FD3D 1410 FD3D 1411 FD3D 1412			
320		164 FORMAT(" ",10X,122(" ")) 165 FORMAT(1H1,10X," SUBSIDIENCE DUE TO CLAY COMPACTION IN LAYE 1R 2 AND 4 :PUMPING PERIOD NUMBER",I4, /) 167 FORMAT(1H1,10X,"CUMULATIVE SUBSIDIENCE DUE TO CLAY COMPACTION IN LA 1YERS 2 AND 4 FROM START OF MODEL RUN",/) 170 FORMAT ("0",I4,18F7.2/(5X,18F7.2))		FD3D	1414 1415 1416 1417 1418
325	C		STP1250	FD3D	1419
	C	180 FORMAT ("0MAXIMUM HEAD CHANGE FOR EACH ITERATION:"/" ",39(" ")/("0STP1260		FD3D	1420
	C	1",10F12.4))	STP1270	FD3D	1421 1422 1423
330	C	190 FORMAT ("1",55X,"HEAD MATRIX, LAYER",I3/56X,21(" "))	STP1280	FD3D	1424 1425
	C	200 FORMAT("1",37X," DRAWDOWN, LAYER",I3,10X," :PUMPING PERIOD NUMBER 15:",I4, /41X,54(" "))		FD3D	1426 1427
	C	205 FORMAT(1H1,59X,"PUMPING PERIOD NO. : ", I6)		FD3D	1428
335		210 FORMAT(1H,44X,57(" ")/45X," ",14X,"TIME STEP NUMBER =",I9,14X," 1"/45X,57(" ")/50X,29HSIZE OF TIME STEP IN SECONDS=F14.2/55X,"TOSTP1310 2TAL SIMULATION TIME IN SECONDS=",F14.2/80X,8HMINUTES=F14.2/82X,6HSTP1320 3HOURS=F14.2/83X,5HDAYS=F14.2/82X,"YEARS=",F14.2/45X,"DURATION OF 4 CURRENT PUMPING PERIOD IN DAYS=",F14.2/82X,"YEARS=",F14.2/)		FD3D	1429 1430 1431 1432 1433 1434
340	C	220 FORMAT (10F8.2)	STP1350	FD3D	1435
	C	230 FORMAT (4E20.10)		FD3D	1436 1437

230	DO 90 I = 2,11	FD3D 1331
	DO 80 J = 2,J1	FD3D 1332
	80 DDN(J)=STRT(I,J,K)-PHI(I,J,K)	FD3D 1333
	90 WRITE(OP,170) I, (DDN(J), J=2,J1)	STP 950 FD3D 1334
	C	FD3D 1335
	C ---- PRINT CUMULATIVE SUBSIDENCE -----	JEC FIXFD 134
235	WRITE(6,167)	FD3D 1346
	WRITE(6,163)	FD3D 1347
	WRITE(6,164)	FD3D 1348
	DO 98 I = 2,11	FD3D 1349
240	98 WRITE(6,170) I, (CSUB(I,J), J=2,J1)	JEC FIXFD 135
	C	FD3D 1354
	C ---PRINT HEAD MATRIX IF OPTION REQUESTED---	STP 990 FD3D 1355
	C	FD3D 1356
	100 IF (IHEAD.NE.ICHK(2)) GO TO 120	STP 970 FD3D 1357
	DO 110 K=1,K0	STP1000 FD3D 1358
245	WRITE(OP,190) K	STP1010 FD3D 1359
	DO 110 I=1,10	STP1020 FD3D 1360
	110 WRITE(OP,170) I, (PHI(I,J,K),J=1,J0)	STP1030 FD3D 1361
	C	STP1040 FD3D 1362
	C ---WRITE FINAL RESULTS ON DISK IF OPTION WAS SELECTED---	FD3D 1363
250	C	FD3D 1364
	120 IF (IERR.EQ.2) GO TO 130	STP1060 FD3D 1365
	C	FD3D 1366
	IF(IFINAL.NE.1) GO TO 125	JEC FIXFD 136
255	C ISS24 IS AN INDEX TO WRITE THE INDEX ARRAYS FOR CLAY STORAGE.	JEC FIXFD 137
	C Istor2 AND Istor4 ARE ARRAYS TO INDICATE IF THE CLAY STORAGE AT	JEC FIXFD 138
	C A NODE HAS BEEN CHANGED.	JEC FIXFD 139
	IF(ISS24.NE.1) GO TO 125	JEC FIXFD 140
	WRITE(OP,171)	JEC FIXFD 141
	DO 122 I= 2,11	JEC FIXFD 142
260	122 WRITE(OP,172) I, (ISTOR2(I,J), J= 2,J1)	JEC FIXFD 143
	WRITE(OP,171)	JEC FIXFD 144
	DO 124 I = 2,11	JEC FIXFD 145
	124 WRITE(OP,172) I, (ISTOR4(I,J), J= 2,J1)	JEC FIXFD 146
265	C OPTION TO WRITE INITIAL LOW HEAD VALUES.	JEC FIXFD 147
	IF(ILHEAD.EQ.0) GO TO 105	JEC FIXFD 148
	WRITE(6,535)	JEC FIXFD 149
	DO 106 I = 2,11	JEC FIXFD 150
	106 WRITE(6,581) I, (LHEAD2(I,J),J=2,J1)	JEC FIXFD 151
	WRITE(6,950)	JEC FIXFD 152
270	DO 108 I = 2,11	JEC FIXFD 153
	108 WRITE(6,581) I, (LHEAD4(I,J),J=2,J1)	JEC FIXFD 154
	105 CONTINUE	JEC FIXFD 155
	535 FORMAT(1H1,30X," LOW HEAD MATRIX--LHEAD2 LISTED FIRST THAN	JEC FIXFD 156
	15 LHEAD4",//)	JEC FIXFD 157
275	581 FORMAT(1H ,12,2X,18F7.1/(5X,18F7.1))	JEC FIXFD 158
	950 FORMAT(1H1)	JEC FIXFD 159
	171 FORMAT ("1")	JEC FIXFD 160
	172 FORMAT ("0",I4,18I7/(I5,18I7))	JEC FIXFD 161
	125 CONTINUE	JEC FIXFD 162
280	C ---RETURN IF THESE ARE NOT FINAL RESULTS---	FD3D 1367
	C	FD3D 1368
	IF(IDK2.EQ.ICHK(5).AND.IFINAL.EQ.1) WRITE(15) PHI,SUM,SUMP,	JEC FIXFD 163
	15 PUMPT,CFLUXT,QRET,CHST,CHDT,FLUXT,STORT,ETFLXT,FLXNT,STORL2,	JEC FIXFD 164
285	C 25 STORL4,ISTOR2,ISTOR4,S,CSUB,LHEAD2,LHEAD4	JEC FIXFD 165
		FIXFD 166

	C		FD3D	1274
	C	---RETURN UNLESS OUTPUT IS REQUESTED FOR THIS STEP OR ITMAX HAS	FD3D	1275
	C	BEEN EXCEEDED---	FD3D	1276
175	C		FD3D	1277
	C	IF (IERR.EQ.2) GO TO 30	STP 650	FD3D 1278
	C	IF (MOD(KT,KTH).NE.0.AND.IFINAL.NE.1) RETURN	STP 660	FD3D 1279
	C	*****	FD3D	1280
	C		FD3D	1281
180	C	---WRITE TIME PARAMETERS---	FD3D	1282
	C	WRITE(OP,205) KP	FD3D	1283
	C	30 WRITE(OP,210) KT,DELT,SUM,SMIN,HRS,DAYS,YRS,DAYSP,YRSP	STP 670	FD3D 1284
	C		FD3D	1285
	C	---WRITE RESULTS OF VOLUMETRIC BALANCE IF OPTION SELECTED	FD3D	1286
185	C		FD3D	1287
	C	IF (IFLO.EQ.ICHK(3)) CALL CWRITE	STP 680	FD3D 1288
	C	*****	FD3D	1289
	C		FD3D	1290
	C	---WRITE ITERATION VALUES---	FD3D	1291
190	C		FD3D	1292
	C	IT=IT+1	STP 690	FD3D 1293
	C	WRITE(OP,180) (TEST3(J),J=1,IT)	STP 700	FD3D 1294
	C	WRITE(OP,240) (I,I=1,KT)	STP 710	FD3D 1295
	C	WRITE(OP,260)	STP 720	FD3D 1296
195	C	WRITE(OP,250) (ITTO(I),I=1,KT)	STP 730	FD3D 1297
	C	WRITE(OP,260)	STP 740	FD3D 1298
	C		STP 750	FD3D 1299
	C	---CHECK TO SEE IF PRINTER MAPS WERE REQUESTED---	FD3D	1300
200	C		FD3D	1301
	C	IF (XSCALE.EQ.0.) GO TO 70	STP 770	FD3D 1302
	C	IF (FACT1.EQ.0.) GO TO 50	STP 780	FD3D 1303
	C		FD3D	1304
	C	---PRINT DRAWDOWN MAPS---	FD3D	1305
	C		FD3D	1306
205	C	DO 40 IOZ=1,9	FD3D	1307
	C	II = LEVEL1(IOZ)	FD3D	1308
	C	IF (II.EQ.0) GO TO 50	STP 810	FD3D 1309
	C	CALL MAP(1,II)	FD3D	1310
	C	*****	FD3D	1311
210	C	40 CONTINUE	FD3D	1312
	C		FD3D	1313
	C	---PRINT HEAD MAPS IF REQUESTED---	FD3D	1314
	C		FD3D	1315
	C	50 IF (FACT2.EQ.0.) GO TO 70	STP 830	FD3D 1316
215	C	DO 60 IOZ=1,9	FD3D	1317
	C	II = LEVEL2(IOZ)	FD3D	1318
	C	IF (II.EQ.0) GO TO 70	STP 860	FD3D 1319
	C	CALL MAP(2,II)	FD3D	1320
	C	*****	FD3D	1321
220	C	60 CONTINUE	FD3D	1322
	C		FD3D	1323
	C	---PRINT DRAWDOWN MATRIX IF OPTION SELECTED---	STP 900	FD3D 1324
	C		FD3D	1325
	C	70 IF (IDRAW.NE.ICHK(1)) GO TO 100	STP 880	FD3D 1326
225	C	DO 90 K= 1,K1	FD3D	1327
	C	WRITE(OP,200) K, KP	FD3D	1328
	C	WRITE (6,163)	FD3D	1329
	C	WRITE(6,164)	FD3D	1330

59-III

115	C								
	C								
	C	(ABOTTOM IS TRUNCATED TO SIX CHARACTERS AS ABOITTO)							
	C								
120		DIMENSION AFACT(15),AOLD(21105),APHI(21105),AS(21105),							
		15 ASTRT(21105),AT(21105),ATC(21105),ATK(21105),ATR(21105),							
		25 AWELL(21105)							
	C								
	C								
125	C	DIMENSION AEL(21105),AFL(21105),AGL(21105),AV(21105),AXI(21105)							
	C								
	C								
	C	DIMENSION AQRE(1)							
	C								
130	C	DIMENSION ABOITTO(1) , APERM(1)							
	C								
	C								
	C								
135		EQUIVALENCE (FACT,AFACT) , (OLD,AOLD) , (PHI,APHI) , (S,AS) ,							
		1 (STRT,ASTRT) , (T,AT) , (TC,ATC) , (TK,ATK) , (TR,ATR) ,							
		2 (WELL,AWELL) , (EL,AEL) , (FL,AFL) , (GL,AGL) , (V,AV) ,							
		3 (XI,AXI) , (QRE,AQRE) , (BOTTOM,ABOITTO) , (PERM,APERM)							
	C								
	C								
140	C	COMMON /TIMES/ DAYS , DAYSP , HRS , SMIN , YRS , YRSP							
	C								
	C								
	C								
	C								
	C								
145	C								
	C	COMMON /RIVR/ NRC(10),NADD(10),RQ(10),VK(20),RIVER(20),QMAX(20)							
	C	1,INDX(20,2),QRA(20,20),QS(10),NR ,NTOT,TQ(10)							
	C								
150	C	---CHECK FOR FINAL TIME STEP---							
	C								
	C	IF (KT.EQ.NUHT) IFINAL=1							
	C								
	C	---RECORD NUMBER OF ITERATIONS---							
155	C	ITTO(KT)=IT							
	C								
	C	---IF MAXIMUM ITERATIONS EXCEEDED;WRITE RESULTS ON DISK OR CARDS--							
	C								
160	C	IF (IT.LE.ITMAX) GO TO 20							
	C	IT=IT-1							
	C	ITTO(KT)=IT							
	C	IERR=2							
	C	IF (IDK2.EQ.ICHK(5)) WRITE (ID) PHI,SUM,SUMP,PUMPT,CFLUXT,QRET,CHST							
165	C	1,CHDT,FLUXT,STORT,ETFLXT,FLXNT							
	C	IF (IPU2.EQ.ICHK(9)) WRITE (OC,230) SUM,SUMP,PUMPT,CFLUXT,QRET,CHST							
	C	1,CHDT,FLUXT,STORT,ETFLXT,FLXNT							
	C								
	C	---COMPUTE A VOLUMETRIC BALANCE IF OPTION SELECTED---							
170	C	20 IF (IFLO.EQ.ICHK(3)) CALL CHECK							
	C	*****							

170-1001

	C	COMMON /SARRAY/ ICHK(13)	CSARRAY	3
60	C		CSARRAY	4
	C	COMMON /SPARAM/ CDLT , DELT , ERR , QR , SUM , SUMP , TEST , TMAX	CSPARAM	2
	C		CSPARAM	3
	C		CSPARAM	4
	C		MAX1	2
	C	--- THE FOLLOWING ARE DIMENSIONED FOR THE FOLLOWING LIMITS ---	MAX1	3
65	C	--- IF OTHER LIMITS ARE NEEDED , ADD COMDECK MAX AND DEFINE NEWMAX	MAX1	4
	C		MAX1	5
	C	MODEL IS DEFINED ON ARRAYS (63,67,5) , OR (22,24,5)--DEPENDING	FIXDIM	34
	C	ON THE DEFINE CARDS-- *DEFINE, D515002, OR *DEFINE, D202504	FIXDIM	35
	C	PARAMETER(DIMENSION) BASED ON LIMIT OF	MAX1	8
70	C		MAX1	9
	C	DDN(100) MAXIMUM HORIZONTAL DIMENSION=100	MAX1	10
	C	FLOW(100),JFLO(100,3) MAXIMUM CONSTANT HEAD NODES=100	MAX1	11
	C	ITTO(100) MAXIMUM TIME STEPS = 100	MAX1	12
	C	LEVEL1(9),LEVEL2(9) MAXIMUM LEVELS PRINTED IN MAPS=9	MAX1	13
75	C	RHOP(20) MAXIMUM ITERATION PARAMETERS=20	MAX1	14
	C	TEST3(101) MAXIMUM ITERATIONS = 100	MAX1	15
	C		MAX1	16
	C	COMMON/MAX/DDN(67),FLOW(4221),ITTO(60),JFLO(4221,3),	FIXDIM	38
	C	15 LEVEL1(9),LEVEL2(9),RHOP(20),TEST3(61)	FIXDIM	39
80	C		MAX1	29
	C	--- THE FOLLOWING ARE DIMENSIONED FOR 63 NODES IN THE Y-DIRECTION	C515002	2
	C	(I.E. 63 ROWS), 67 NODES IN THE X-DIRECTION (I.E. 67 COLUMNS)	FIXDIM	27
	C	, AND 5 NODES IN THE Z-DIRECTION (I.E. 5 LEVELS) ---	FIXDIM	28
85	C		C515002	5
	C	COMMON/ARRAY1/DELX(67),DELY(63),DELZ(5),FACT(5,3)	C515002	6
	C	COMMON/ARRA2/OLD(63,67,5),V(63,67,5),S(63,67,5)	FIXDIM	13
	C	COMMON/ARRAY3/STRT(63,67,5),T(63,67,5),TR(63,67,5)	FIXDIM	14
	C	COMMON/ARRAY4/TC(63,67,5),TK(63,67,5),WELL(63,67,5)	FIXDIM	15
90	C		FIXDIM	16
	C	COMMON/ARRAY5/EL(63,67,5),FL(63,67,5),GL(63,67,5)	515002A	6
	C	COMMON/ARRAY6/PHI(63,67,5),ISTOR2(63,67),ISTOR4(63,67)	FIXDIM	20
	C	COMMON/ARRAY7/XI(63,67,5),CSUB(63,67),LHEAD2(63,67),	FIXDIM	21
	C	15 LHEAD4(63,67)	FIXDIM	22
95	C		FIXDIM	23
	C	LEVEL 2 ,OLD,STRT,TC,EL,XI	515002B	5
	C		515002B	6
	C		515002B	7
	C		CMTNR	2
100	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNR	3
	C	WITHOUT RECHARGE TO THE TOP LEVEL ---	CMTNR	4
	C	-----	CMTNR	5
	C		CMTNR	6
	C		NR	2
105	C	COMMON /RCHRG/ QRE(1,1)	NR	3
	C		NR	4
	C		CMTNWT	2
	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNWT	3
	C	IN WHICH THE TOP LEVEL IS CONFINED	CMTNWT	4
	C	-----	CMTNWT	5
110	C		NWT	2
	C	COMMON /TABLE/ BOTTOM(1,1) , PERM(1,1)	NWT	3
	C		NWT	4
	C	--- THE FOLLOWING 1-DIMENSIONAL ARRAYS ARE EQUIVALENT TO THE	EQCOM	2
	C	ABOVE ARRAYS WITH THE SAME NAME EXCEPT FOR THE LEADING "A"	EQCOM	3

59-III

Line	Code	Text	Label	Value
1	C	SUBROUTINE OUTPT		
	C	-----	FD3D	1242
	C	-----	FD3D	1243
	C	-----	FD3D	1244
5	C	---PRINT OUTPUT AT DESIGNATED TIME STEPS---	FD3D	1245
	C	-----	STP 470	FD3D 1246
	C	-----	FD3D	1247
	C	-----	FD3D	1248
	C	* FOR SUBROUTINE OUTPUT *		
10	C	-----	DOUTPT	2
	C	-----	START	2
	C	-----	START	3
	C	-----	START	4
	C	-----	START	5
	C	-----	START	6
15	C	SPECIFICATIONS#	START	7
	C	-----	START	8
	C	--- THE FOLLOWING I/O DEVICES ARE USED ---	IOS	2
	C	-----	IOS	3
	C	* DEVICE * * UNIT * * NUMBER *	IOS	4
20	C	CARD READER IC 5	IOS	5
	C	DISK ID 4	IOS	6
	C	CARD PUNCH OC 7	IOS	7
	C	LINE PRINTER OP 6	IOS	8
25	C	COMMON /IO/ IC , ID , OC , OP	IOS	9
	C	-----	IOS	10
	C	-----	IOS	11
	C	-----	IOS	12
	C	-----	IOS	13
	C	-----	IOS	14
30	C	INTEGER IC, ID, OC, OP	JEC	FIXDIM 33
	C	REAL LHEAD2, LHEAD4	IOS	15
	C	-----	CMT1	2
	C	--- THE FOLLOWING ARE INDEPENDENT OF MODEL DIMENSIONS ---	CMT1	3
	C	-----	CMT1	4
35	C	COMMON /CK/ CFLUXT , CHDT , CHST , ETFLXT , FLUXT , FLXNT ,	CCK	2
	C	1 PUMPT, QRET, STORT, STORL2, STORL4, SFAC2, SFAC4, SUBH2, SUBH4	CCK	3
	C	-----	JEC	FIXDIM 29
	C	-----	CCK	5
40	C	COMMON /DPARAM/ B , D , F , H , RHO , SU , Z	CDPARAM	2
	C	-----	CDPARAM	3
	C	-----	CDPARAM	4
	C	COMMON /HDG/ HEADNG(33)	CHDG	2
	C	-----	CHDG	3
	C	-----	CHDG	4
45	C	COMMON /INTEGR/ IQ, IO , I1 , I2 , IDK1 , IDK2, IDRAW , IERR ,	CINTEGR	2
	C	1 IFINAL , IFLO , IHEAD , IMAX , IPU1 , IPU2 , IGRE , IT , ITK ,	CINTEGR	3
	C	2 ITMAX , ITMX1 , IWATER , JQ, JO , J1 , J2 , KQ, KO , K1 , K2 ,	CINTEGR	4
	C	3 KP , KT , KTH , LENGTH , NCH , NPER , NUMT , NWEL	CINTEGR	5
	C	4 , NPWELL, IPWELL, ISS24, ICHPNT, ILHEAD	CINTEGR	6
50	C	-----	JEC	FIXDIM 32
	C	-----	CINTEGR	7
	C	COMMON /PR/ BLANK(60) , DIGIT(122) , DINCH , FACT1 , FACT2 ,	CPR	2
	C	1 N1 , N2 , N3 , NA(4) , PRNT(122) , SYM(17) , TITLE(6) , UNITS ,	CPR	3
	C	2 VF1(6) , VF2(6) , VF3(7) , XLABEL(3) , XN(100) , XN1 , XSCALE ,	CPR	4
55	C	3 YLABEL(6) , YN(13) , YSCALE	CPR	5
	C	-----	CPR	6
	C	-----	CPR	7
	C	-----	CSARRAY	2

		GO TO 26	JEC	FIXFD	97
	C	CHECK RELATIVE VALUE OF PHI TO LHEAD2.	JEC	FIXFD	98
175	20	IF (PHI(I,J,2) .GT. LHEAD2(I,J)) GO TO 22	JEC	FIXFD	99
		GO TO 23	JEC	FIXFD	100
	22	IF (ISTOR2(I,J) .EQ. 2) GO TO 26	JEC	FIXFD	101
		ISTOR2(I,J) = 2	JEC	FIXFD	102
		S(I,J,2) = S(I,J,2) / SFAC2		FIXFD	103
		GO TO 26	JEC	FIXFD	104
180	23	IF (ISTOR2(I,J) .EQ. 2) GO TO 25	JEC	FIXFD	105
		GO TO 26	JEC	FIXFD	106
	25	ISTOR2(I,J) = 1	JEC	FIXFD	107
		S(I,J,2) = S(I,J,2) * SFAC2		FIXFD	108
	C	MODIFICATION OF CLAY STORAGE LAYER 4	JEC	FIXFD	109
185	26	IF (ISTOR4(I,J) .GE. 1) GO TO 30	JEC	FIXFD	110
		IF ((STRT(I,J,4) - PHI(I,J,4)) .LT. SUBH4) GO TO 40	JEC	FIXFD	111
		S(I,J,4) = S(I,J,4) * SFAC4	JEC	FIXFD	112
		ISTOR4(I,J) = 1	JEC	FIXFD	113
		GO TO 40	JEC	FIXFD	114
190	C	CHECK RELATIVE VALUE PHI TO LHEAD4	JEC	FIXFD	115
	30	IF (PHI(I,J,4) .GT. LHEAD4(I,J)) GO TO 32	JEC	FIXFD	116
		GO TO 33	JEC	FIXFD	117
	32	IF (ISTOR4(I,J) .EQ. 2) GO TO 40	JEC	FIXFD	118
		ISTOR4(I,J) = 2	JEC	FIXFD	119
195		S(I,J,4) = S(I,J,4) / SFAC4		FIXFD	120
		GO TO 40	JEC	FIXFD	121
	33	IF (ISTOR4(I,J) .EQ. 2) GO TO 35	JEC	FIXFD	122
		GO TO 40	JEC	FIXFD	123
	35	ISTOR4(I,J) = 1	JEC	FIXFD	124
200		S(I,J,4) = S(I,J,4) * SFAC4		FIXFD	125
	40	CONTINUE	JEC	FIXFD	126
	C	-----*****-----**	JEC	FIXFD	127
	C	IF PHI IS SMALLER--TRANSFER PHI TO LHEAD	JEC	FIXFD	128
		DO 46 I = 2, I1	JEC	FIXFD	129
205		DO 46 J = 2, J1	JEC	FIXFD	130
		IF (PHI(I,J,2) .LT. LHEAD2(I,J)) LHEAD2(I,J) = PHI(I,J,2)	JEC	FIXFD	131
	46	IF (PHI(I,J,4) .LT. LHEAD4(I,J)) LHEAD4(I,J) = PHI(I,J,4)	JEC	FIXFD	132
	C			FD3D	1223
210	C	---INCREMENT TIME---		FD3D	1224
	C			FD3D	1225
	50	DELT = CDLT * DELT	JEC	FIXFD	133
		SUM = SUM + DELT	STP 370	FD3D	1227
		SUMP = SUMP + DELT	STP 380	FD3D	1228
	C			FD3D	1229
215	C	---CONVERT TIME TO UNITS FOR OUTPUT---		FD3D	1230
	C			FD3D	1231
		DAYSP = SUMP / 86400.	STP 390	FD3D	1232
		YRSP = DAYSP / 365.	STP 400	FD3D	1233
		HRS = SUM / 3600.	STP 410	FD3D	1234
220		SMIN = HRS * 60.	STP 420	FD3D	1235
		DAYS = HRS / 24.	STP 430	FD3D	1236
		YRS = DAYS / 365.	STP 440	FD3D	1237
	C		STP 460	FD3D	1238
225		IF (NR, NE, 0) CALL RIVERQ		FD3D	1239
		RETURN	STP 450	FD3D	1240
		END		FD3D	1241

19-III

115	C								
	C								
	C	(ABOTTOM IS TRUNCATED TO SIX CHARACTERS AS ABOTTO)							
	C								
120	C	DIMENSION AFACT(15),AOLD(21105),APHI(21105),AS(21105),							
	C	1\$ ASTRT(21105),AT(21105),ATC(21105),ATK(21105),ATR(21105),							
	C	2\$ AWELL(21105)							
	C								
125	C	DIMENSION AEL(21105),AFL(21105),AGL(21105),AV(21105),AXI(21105)							
	C								
	C	DIMENSION AQRE(1)							
130	C	DIMENSION ABOTTO(1) , APERM(1)							
	C								
	C	EQUIVALENCE (FACT,AFAC) , (OLD,AOLD) , (PHI,APHI) , (S,AS) ,							
	C	1 (STR,ASTRT) , (T,AT) , (TC,ATC) , (TK,ATK) , (TR,ATR) ,							
135	C	2 (WELL,AWELL) , (EL,AEL) , (FL,AFL) , (GL,AGL) , (V,AV) ,							
	C	3 (XI,AXI) , (QRE,AQRE) , (BOTTOM,ABOTTO) , (PERM,APERM)							
	C								
140	C	COMMON /TIMES/ DAYS , DAYSP , HRS , SMIN , YRS , YRSP							
	C								
	C	-----							
	C	* * * * *							
	C	-----							
145	C	COMMON /RIVR/ NRC(10),NADD(10),RO(10),VK(20),RIVER(20),QMAX(20)							
	C	1,INDX(20,2),QRA(20,20),QS(10),NR ,NTOT,TQ(10)							
	C								
	C	---MOVE PHI TO OLD---							
150	C								
	C	DO 10 K=1,K0							
	C	DO 10 I=1,I0							
	C	DO 10 J=1,J0							
155	C	10 OLD(I,J,K)=PHI(I,J,K)							
	C								
	C	---INITIALIZE COUNTERS---							
	C								
	C	KT=KT+1							
	C	IT= -1							
160	C	-----							
	C	CORRECTION OF CLAY STORAGE AS A FUNCTION OF HEAD							
	C	-----							
	C	SKIP INITIAL TIME STEP FIRST PUMPING PERIOD							
165	C	IF(KP .EQ. 1 .AND. KT .EQ. 1) GO TO 50							
	C	DO 40 I = 2,I1							
	C	DO 40 J = 2,J1							
	C	MODIFICATION OF CLAY STORAGE LAYER 2							
	C	IF(ISTOR2(I,J) .GE. 1) GO TO 20							
170	C	IF((STRT(I,J,2)-PHI(I,J,2)) .LT. SUBH2) GO TO 26							
	C	S(I,J,2) = S(I,J,2)*SFAC2							
	C	ISTOR2(I,J) = 1							

FQCOM	4
EQCOM	5
EQCOM	6
515002AA	2
FIXDIM	17
FIXDIM	18
FIXDIM	19
515002AA	6
515002BA	2
FIXDIM	24
515002BA	4
NRA	2
NRA	3
NRA	4
NWTA	2
NWTA	3
NWTA	4
EQUIV	2
EQUIV	3
EQUIV	4
EQUIV	5
EQUIV	6
EQUIV	7
COMTIM	2
COMTIM	3
COMTIM	4
ENDD	2
ENDD	3
ENDD	4
ENDD	5
ENDD	6
ENDD	7
ENDD	8
FD3D	1211
FD3D	1212
FD3D	1213
STP 320	FD3D 1214
STP 330	FD3D 1215
STP 340	FD3D 1216
STP 350	FD3D 1217
FD3D	1218
FD3D	1219
FD3D	1220
STP 300	FD3D 1221
FD3D	1222
JEC	FIXFD 85
JEC	FIXFD 86
JEC	FIXFD 87
JEC	FIXFD 88
JEC	FIXFD 89
JEC	FIXFD 90
JEC	FIXFD 91
JEC	FIXFD 92
JEC	FIXFD 93
JEC	FIXFD 94
JEC	FIXFD 95
JEC	FIXFD 96

1111111111

8,"105","106","107","108","109","110","111","112","113","114","115"BLK 300 FD3D 1967
 9,"116","117","118","119","120","121","122"/ BLK 310 FD3D 1968

175

C

DATA VF1/"(1H ","","" "","A1,F","10.2","")"/ FD3D 1969

DATA VF2/"(1H ","","" "","A1,1","X,A8","")"/ BLK 320 FD3D 1970

DATA VF3/"(1H0","","" "","A1,F","3.1",""12F1","0.2)"/ BLK 330 FD3D 1971

C

*****BLK 340 FD3D 1972

C

*****BLK 350 FD3D 1973

180

C

*****BLK 360-FD3D 1974

*****BLK 360-FD3D 1975

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

*****BLK 360-FD3D 1976

III-103

115	DIMENSION AFACT(15),AOLD(21105),APHI(21105),AS(21105), 1\$ ASTR(21105),AT(21105),ATC(21105),ATK(21105),ATR(21105), 2\$ AWELL(21105)	FIXDIM 17 FIXDIM 18 FIXDIM 19 515002AA 6 515002BA 2
C		
120	DIMENSION AEL(21105),AFL(21105),AGL(21105),AV(21105),AXI(21105)	FIXDIM 24 515002BA 4
C		
C	DIMENSION AQRE(1)	NRA 2 NRA 3 NRA 4
C		
125	DIMENSION ABOTTO(1) , APERM(1)	NWTA 2 NWTA 3 NWTA 4
C		
C	EQUIVALENCE (FACT,FACT) , (OLD,AOLD) , (PHI,APHI) , (S,AS) , 1 (STRT,ASTRT) , (T,AT) , (TC,ATC) , (TK,ATK) , (TR,ATR) , 2 (WELL,AWELL) , (EL,AEL) , (FL,AFL) , (GL,AGL) , (V,AV) , 3 (XI,AXI) , (QRE,AQRE) , (BOTTOM,ABOTTO) , (PERM,APERM)	EQUIV 2 EQUIV 3 EQUIV 4 EQUIV 5 EQUIV 6 EQUIV 7
130		
C		
135	----- ***** -----	ENDD 2 ENDD 3 ENDD 4 ENDD 5
C		
C	COMMON /RIVR/ NRC(10),NADD(10),RQ(10),VK(20),RIVER(20),QMAX(20)	ENDD 6
140	1.INDX(20,2),ORA(20,20),QS(10),NR ,NTOT,TQ(10) *****	ENDD 7 ENDD 8
C		FD3D 1936
C		BLK 110
C		FD3D 1937
C		BLK 120
C		FD3D 1938
145	DATA IC/5/ , ID/4/ , OC/7/ , OP/6/	FD3D 1939
C		FD3D 1940
C	DATA ICHK/"DRAW","HEAD","MASS","DK1","DK2","WATE","RECH","PUN1","PBLK 1UN2","ITKR",3*0/	BLK 130 FD3D 1941 BLK 140 FD3D 1942
C		FD3D 1943
C	DATA SYM/1H1,1H2,1H3,1H4,1H5,1H6,1H7,1H8,1H9,1H0,1H*,1H1,1H-, 1 1H*,1H ,1HR,1HW/	FD3D 1944 FD3D 1945
150		FD3D 1946
C	--- THE VALUES OF N1,N2,N3,AND XN1 ASSUME PRINTER SPECIFICATIONS AS FOLLOWS -- 6 LINES PER INCH	FD3D 1947
C		FD3D 1948
C	10 CHARACTERS PER INCH	FD3D 1949
155	133 CHARACTERS PER LINE	FD3D 1950
C		FD3D 1951
C	DATA PRNT/122(1H)/,N1,N2,N3,XN1/6,10,133,0.0833333333/, 1 BLANK/60(1H)/,NA(4)/1000/	FD3D 1952 FD3D 1953
C		FD3D 1954
160	DATA XLABEL/" X DIS- ", "TANCE IN", " MILES "/,YLABEL/"DISTANCE", 1FROM OR","IGIN IN ", "Y DIRECT", "ION, IN ", "MILES. "/,TITLE/"PLOT 2OF ", "DRAWDOWN", " ", "PLOT OF ", "HYDRAULI", "C HEAD"/	BLK 190 FD3D 1955 BLK 200 FD3D 1956 BLK 210 FD3D 1957
C		FD3D 1958
165	DATA DIGIT/"1","2","3","4","5","6","7","8","9","10","11","12","13" 1,"14","15","16","17","18","19","20","21","22","23","24","25","26", 2"27","28","29","30","31","32","33","34","35","36","37","38","39", 340","41","42","43","44","45","46","47","48","49","50","51","52", 43","54","55","56","57","58","59","60","61","62","63","64","65", 5"67","68","69","70","71","72","73","74","75","76","77","78", 6"80","81","82","83","84","85","86","87","88","89","90","91", 7,"93","94","95","96","97","98","99","100","101","102","103", " 104"BLK	BLK 220 FD3D 1959 BLK 230 FD3D 1960 BLK 240 FD3D 1961 BLK 250 FD3D 1962 BLK 260 FD3D 1963 BLK 270 FD3D 1964 BLK 280 FD3D 1965 BLK 290 FD3D 1966
170		

III-103

III-102

	C		CSPARAM	4
60	C	---	MAX1	2
	C	THE FOLLOWING ARE DIMENSIONED FOR THE FOLLOWING LIMITS ---	MAX1	3
	C	---	MAX1	4
	C	IF OTHER LIMITS ARE NEEDED , ADD COMDECK MAX AND DEFINE NEWMAX	MAX1	5
	C		MAX1	5
	C	MODEL IS DEFINED ON ARRAYS (63,67,5), OR (22,24,5)--DEPENDING	FIXDIM	34
65	C	ON THE DEFINE CARDS-- *DEFINE, D515002, OR *DEFINE, D202504	FIXDIM	35
	C	PARAMETER(DIMENSION) BASED ON LIMIT OF	MAX1	8
	C		MAX1	9
	C	DDN(100) MAXIMUM HORIZONTAL DIMENSION=100	MAX1	10
	C	FLOW(100),JFLO(100,3) MAXIMUM CONSTANT HEAD NODES=100	MAX1	11
70	C	ITTO(100) MAXIMUM TIME STEPS = 100	MAX1	12
	C	LEVEL1(9),LEVEL2(9) MAXIMUM LEVELS PRINTED IN MAPS=9	MAX1	13
	C	RHOP(20) MAXIMUM ITERATION PARAMETERS=20	MAX1	14
	C	TEST3(101) MAXIMUM ITERATIONS = 100	MAX1	15
	C		MAX1	16
75	C	COMMON/MAX/DDN(67),FLOW(4221),ITTO(60),JFLO(4221,3),	FIXDIM	38
	C	15 LEVEL1(9),LEVEL2(9),RHOP(20),TEST3(61)	FIXDIM	39
	C		MAX1	29
	C		C515002	2
	C	---	FIXDIM	27
	C	THE FOLLOWING ARE DIMENSIONED FOR 63 NODES IN THE Y-DIRECTION	FIXDIM	28
80	C	(I.E. 63 ROWS), 67 NODES IN THE X-DIRECTION (I.E. 67 COLUMNS)	C515002	5
	C	, AND 5 NODES IN THE Z-DIRECTION (I.E. 5 LEVELS) ---	C515002	6
	C		FIXDIM	13
	C	COMMON/ARRAY1/DELX(67),DELY(63),DELZ(5),FACT(5,3)	FIXDIM	14
	C	COMMON/ARRA2/OLD(63,67,5),V(63,67,5),S(63,67,5)	FIXDIM	15
85	C	COMMON/ARRAY3/STRT(63,67,5),T(63,67,5),TR(63,67,5)	FIXDIM	16
	C	COMMON/ARRAY4/TC(63,67,5),TK(63,67,5),WELL(63,67,5)	515002A	6
	C		FIXDIM	20
	C	COMMON/ARRAY5/EL(63,67,5),FL(63,67,5),GL(63,67,5)	FIXDIM	21
	C	COMMON/ARRAY6/PHI(63,67,5),ISTOR2(63,67),ISTOR4(63,67)	FIXDIM	22
90	C	COMMON/ARRAY7/XI(63,67,5),CSUB(63,67),LHEAD2(63,67),	FIXDIM	23
	C	15 LHEAD4(63,67)	515002B	5
	C		515002B	6
	C	LEVEL 2 ,OLD,STRT,TC,EL,XI	515002B	7
	C		CMTNR	2
95	C	---	CMTNR	3
	C	THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNR	4
	C	WITHOUT RECHARGE TO THE TOP LEVEL ---	CMTNR	5
	C	-----	CMTNR	6
	C		NR	2
100	C	COMMON /RCHRG/ QRE(1,1)	NR	3
	C		NR	4
	C		CMTNWT	2
	C	---	CMTNWT	3
	C	THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNWT	4
105	C	IN WHICH THE TOP LEVEL IS CONFINED	CMTNWT	5
	C	-----	NWT	2
	C		NWT	3
	C	COMMON /TABLE/ BOTTOM(1,1) , PERM(1,1)	NWT	4
	C		EQCOM	2
110	C	---	EQCOM	3
	C	THE FOLLOWING 1-DIMENSIONAL ARRAYS ARE EQUIVALENT TO THE	EQCOM	4
	C	ABOVE ARRAYS WITH THE SAME NAME EXCEPT FOR THE LEADING "A"	EQCOM	5
	C		EQCOM	6
	C	(ABOTTOM IS TRUNCATED TO SIX CHARACTERS AS ABOOTO)	515002AA	2

Line	Code	Description	Block	Start	End
1	C	BLOCK DATA	BLK 10	FD3D	1932
	C	-----	BLK 20	FD3D	1933
	C		BLK 30	FD3D	1934
5	C	* FOR BLOCK DATA *		DBLOCK	2
	C	-----		START	2
	C	*****		START	3
	C	-----		START	4
	C			START	5
10	C	SPECIFICATIONS#		START	6
	C			START	7
	C			START	8
	C	--- THE FOLLOWING I/O DEVICES ARE USED ---		IOS	2
15	C	* DEVICE * * UNIT * * NUMBER *		IOS	3
	C			IOS	4
	C			IOS	5
	C	CARD READER IC 5		IOS	6
	C	DISK ID 4		IOS	7
	C	CARD PUNCH OC 7		IOS	8
20	C	LINE PRINTER OP 6		IOS	9
	C			IOS	10
	C	COMMON /IO/ IC , ID , OC , OP		IOS	11
	C			IOS	12
	C	INTEGER IC, ID, OC, OP		IOS	13
25	C	REAL LHEAD2, LHEAD4	JEC	FIXDIM	33
	C			IOS	15
	C	--- THE FOLLOWING ARE INDEPENDENT OF MODEL DIMENSIONS ---		CMT1	2
30	C			CMT1	3
	C			CMT1	4
	C	COMMON /CK/ CFLUXT , CHDT , CHST , ETFLXT , FLUXT , FLXNT ,		CCK	2
	C	1 PUMPT, QRET, STORT, STORL2, STORL4, SFAC2, SFAC4, SUBH2, SUBH4	JEC	FIXDIM	29
	C			CCK	5
35	C	COMMON /DPARAM/ B , D , F , H , RHO , SU , Z		CDPARAM	2
	C			CDPARAM	3
	C			CDPARAM	4
	C	COMMON /HDG/ HEADNG(33)		CHDG	2
40	C			CHDG	3
	C			CHDG	4
	C	COMMON /INTEGR/ IQ, IO, I1, I2, IDK1, IDK2, IDRAW, IERR,		CINTEGR	2
	C	1 IFINAL, IFLO, IHEAD, IMAX, IPU1, IPU2, IQRE, IT, ITK,		CINTEGR	3
	C	2 ITMAX, ITMX1, IWATER, JQ, J0, J1, J2, KQ, K0, K1, K2,		CINTEGR	4
	C	3 KP, KT, KTH, LENGTH, NCH, NPER, NUMT, NWEL		CINTEGR	5
45	C	4, NPWELL, IPWELL, ISS24, ICHPNT, ILHEAD	JEC	FIXDIM	32
	C			CINTEGR	7
	C	COMMON /PR/ BLANK(60), DIGIT(122), DINCH, FACT1, FACT2,		CPR	2
50	C	1 N1, N2, N3, NA(4), PRNT(122), SYM(17), TITLE(6), UNITS,		CPR	3
	C	2 VF1(6), VF2(6), VF3(7), XLABEL(3), XN(100), XN1, XSCALE,		CPR	4
	C	3 YLABEL(6), YN(13), YSCALE		CPR	5
	C			CPR	6
	C			CPR	7
55	C	COMMON /SARRAY/ ICHK(13)		CSARRAY	2
	C			CSARRAY	3
	C			CSARRAY	4
	C	COMMON /SPARAM/ CDLT, DELT, ERR, QR, SUM, SUMP, TEST, TMAX		CSPARAM	2
	C			CSPARAM	3

III-101

101-101

		1DELY(I))*FACT(K+2)	COF 650	TCOFS 22
	C			TCOFS 23
		40 CONTINUE	COF 660	TCOFS 24
175	C			TCOFS 25
	C	---RETURN IF YOU DO NOT NEED A TK VALUE---		TCOFS 26
	C			TCOFS 27
		IF (K0.EQ.1.OR.ITK.EQ.ICHK(10)) RETURN	COF 670	TCOFS 28
	C			TCOFS 29
180		DO 50 K=NN+K1		TCOFS 30
		DO 50 I=2,I1	COF 690	TCOFS 31
		DO 50 J=2,J1	COF 700	TCOFS 32
	C			TCOFS 33
		IF (T(I,J,K+1).EQ.0.) GO TO 50	COF 710	TCOFS 34
185	C			TCOFS 35
		T1=T(I,J,K)*FACT(K,3)	COF 720	TCOFS 36
		T2=T(I,J,K+1)*FACT(K+1,3)	COF 730	TCOFS 37
	C			TCOFS 38
		TK(I,J,K)=(2.*T2*T1)/(T1*DELZ(K+1)+T2*DELZ(K))	COF 740	TCOFS 39
190	C			TCOFS 40
		50 CONTINUE	COF 750	TCOFS 41
	C			FD3D 1928
		RETURN	COF 760	FD3D 1929
	C			FD3D 1930
195		END		FD3D 1931

```

115      C      ABOVE ARRAYS WITH THE SAME NAME EXCEPT FOR THE LEADING "A"
          C
          C
          C      (ABOTTOM IS TRUNCATED TO SIX CHARACTERS AS ABOTTO)
          C
120      DIMENSION AFACT(15),AOLD(21105),APHI(21105),AS(21105),
          1$ ASTR1(21105),AT(21105),ATC(21105),ATK(21105),ATR(21105),
          2$ AVELL(21105)
          C
125      DIMENSION AEL(21105),AFL(21105),AGL(21105),AV(21105),AXI(21105)
          C
          C      DIMENSION AQRE(1)
          C
130      DIMENSION ABOTTO(1) , APERM(1)
          C
          C
          C      EQUIVALENCE (FACT,AFAC) , (OLD,AOLD) , (PHI,APHI) , (S,AS) ,
135      1 (STR1,ASTR1) , (T,AT) , (TC,ATC) , (TK,ATK) , (TR,ATR) ,
          2 (WELL,AWELL) , (EL,AEL) , (FL,AFL) , (GL,AGL) , (V,AV) ,
          3 (XI,AXI) , (QRE,AQRE) , (BOTTOM,ABOTTO) , (PERM,APERM)
          C
          C
140      -----
          C      * * * * *
          C      -----
          C
145      COMMON /RIVR/ NRC(10),NADD(10),RQ(10),VK(20),RIVER(20),QMAX(20)
          1,INDX(20,2),QRA(20,20),QS(10),NR ,NTOT,TQ(10)
          C
          C      ---DO CALCULATIONS FOR TOP LEVEL ONLY---
          C
          C      NN1 = K0
          C      NN2 = K0
          C      NN4 = K1
          C
          C      *****
155      ---SAME CALCULATIONS ARE DONE IN TCOF AND WTTCOF---
          C
          C      20 DO 40 K=NN1,NN2
          C      DO 40 I=1,I1
          C      DO 40 J=1,J1
          C
          C      ---SKIP COMPUTATIONS IF ONE OF THE NODES LIES OUTSIDE THE BOUNDARY---
          C
          C      IF (T(I,J,K).EQ.0.) GO TO 40
          C      IF (T(I,J+1,K).EQ.0.) GO TO 30
160      TR(I,J,K)=(2.*T(I,J+1,K)*T(I,J,K))/(T(I,J,K)*DELX(J+1)+T(I,J+1,K)*
          1DELX(J))*FACT(K,1)
          C
          C      30 IF (T(I+1,J,K).EQ.0.) GO TO 40
170      TC(I,J,K)=(2.*T(I+1,J,K)*T(I,J,K))/(T(I,J,K)*DELY(I+1)+T(I+1,J,K)*
          TC(I,J,K)=(2.*T(I+1,J,K)*T(I,J,K))/(T(I,J,K)*DELY(I+1)+T(I+1,J,K)*

```

```

          EQCOM 3
          EQCOM 4
          EQCOM 5
          EQCOM 6
          515002AA 2
          FIXDIM 17
          FIXDIM 18
          FIXDIM 19
          515002AA 6
          515002BA 2
          FIXDIM 24
          515002BA 4
          NRA 2
          NRA 3
          NRA 4
          NWT A 2
          NWT A 3
          NWT A 4
          EQUIV 2
          EQUIV 3
          EQUIV 4
          EQUIV 5
          EQUIV 6
          EQUIV 7
          ENDD 2
          ENDD 3
          ENDD 4
          ENDD 5
          ENDD 6
          ENDD 7
          ENDD 8
          FD3D 1921
          FD3D 1922
          FD3D 1923
          FD3D 1924
          FD3D 1925
          FD3D 1926
          TCOFS 2
          TCOFS 3
          TCOFS 4
          TCOFS 5
          TCOFS 6
          TCOFS 7
          COF 570 TCOFS 8
          COF 580 TCOFS 9
          TCOFS 10
          TCOFS 11
          TCOFS 12
          COF 590 TCOFS 13
          COF 600 TCOFS 14
          TCOFS 15
          COF 610 TCOFS 16
          COF 620 TCOFS 17
          TCOFS 18
          COF 630 TCOFS 19
          TCOFS 20
          COF 640 TCOFS 21

```

	C		CSARRAY	2
	C	COMMON /SARRAY/ ICHK(13)	CSARRAY	3
60	C		CSARRAY	4
	C		CSPARAM	2
	C	COMMON /SPARAM/ CDLT , DELT , ERR , QR , SUM , SUMP , TEST , TMAX	CSPARAM	3
	C		CSPARAM	4
65	C	--- THE FOLLOWING ARE DIMENSIONED FOR THE FOLLOWING LIMITS ---	MAX1	2
	C	--- IF OTHER LIMITS ARE NEEDED , ADD COMDECK MAX AND DEFINE NEWMAX	MAX1	3
	C		MAX1	4
	C		MAX1	5
	C	MODEL IS DEFINED ON ARRAYS (63,67,5) , OR (22,24,5)--DEPENDING	FIXDIM	34
	C	ON THE DEFINE CARDS-- *DEFINE,D515002, OR *DEFINE, D202504	FIXDIM	35
70	C	PARAMETER(DIMENSION) BASED ON LIMIT OF	MAX1	8
	C		MAX1	9
	C	DDN(100) MAXIMUM HORIZONTAL DIMENSION=100	MAX1	10
	C	FLOW(100),JFLO(100,3) MAXIMUM CONSTANT HEAD NODES=100	MAX1	11
	C	ITTO(100) MAXIMUM TIME STEPS = 100	MAX1	12
75	C	LEVEL1(9),LEVEL2(9) MAXIMUM LEVELS PRINTED IN MAPS=9	MAX1	13
	C	RHOP(20) MAXIMUM ITERATION PARAMETERS=20	MAX1	14
	C	TEST3(101) MAXIMUM ITERATIONS = 100	MAX1	15
	C		MAX1	16
80	C	COMMON/MAX/DDN(67),FLOW(4221),ITTO(60),JFLO(4221,3),	FIXDIM	38
	C	1\$ LEVEL1(9),LEVEL2(9),RHOP(20),TEST3(61)	FIXDIM	39
	C		MAX1	29
	C		CS15002	2
	C	--- THE FOLLOWING ARE DIMENSIONED FOR 63 NODES IN THE Y-DIRECTION	FIXDIM	27
	C	(I.E. 63 ROWS), 67 NODES IN THE X-DIRECTION (I.E. 67 COLUMNS)	FIXDIM	28
85	C	, AND 5 NODES IN THE Z-DIRECTION (I.E. 5 LEVELS) ---	CS15002	5
	C		CS15002	6
	C	COMMON/ARRAY1/DELX(67),DELY(63),DELZ(5),FACT(5,3)	FIXDIM	13
	C	COMMON/ARRA2/OLD(63,67,5),V(63,67,5),S(63,67,5)	FIXDIM	14
	C	COMMON/ARRAY3/STRT(63,67,5),T(63,67,5),TR(63,67,5)	FIXDIM	15
90	C	COMMON/ARRAY4/TC(63,67,5),TK(63,67,5),WELL(63,67,5)	FIXDIM	16
	C		515002A	6
	C	COMMON/ARRAY5/EL(63,67,5),FL(63,67,5),GL(63,67,5)	FIXDIM	20
	C	COMMON/ARRAY6/PHI(63,67,5),ISTOR2(63,67),ISTOR4(63,67)	FIXDIM	21
	C	COMMON/ARRAY7/XI(63,67,5),CSUB(63,67),LHEAD2(63,67),	FIXDIM	22
95	C	1\$ LHEAD4(63,67)	FIXDIM	23
	C		515002B	5
	C	LEVEL 2 ,OLD,STRT,TC,EL,XI	515002B	6
	C		515002B	7
100	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNR	2
	C	WITHOUT RECHARGE TO THE TOP LEVEL ---	CMTNR	3
	C	-----	CMTNR	4
	C		CMTNR	5
	C		CMTNR	6
105	C	COMMON /RCHRG/ GRE(1,1)	NR	2
	C		NR	3
	C		NR	4
	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNWT	2
	C	IN WHICH THE TOP LEVEL IS CONFINED	CMTNWT	3
110	C	-----	CMTNWT	4
	C		CMTNWT	5
	C		NWT	2
	C	COMMON /TABLE/ BOTTOM(1,1) , PERM(1,1)	NWT	3
	C		NWT	4
	C	--- THE FOLLOWING 1-DIMENSIONAL ARRAYS ARE EQUIVALENT TO THE	EQCOM	2

1	C	SUBROUTINE WTTICOF			FD3D	1912
	C	-----			FD3D	1913
	C	-----			FD3D	1914
5	C	---COMPUTE I COEFFICIENTS FOR UPPER HYDROLOGIC UNIT			FD3D	1915
	C	WHEN IT IS UNCONFINED---			FD3D	1916
	C	-----			FD3D	1917
	C	-----			FD3D	1918
	C	* FOR SUBROUTINE WTTICOF *			FD3D	1919
10	C	-----			DWTTICOF	2
	C	-----			START	2
	C	-----			START	3
	C	*****			START	4
	C	-----			START	5
15	C	SPECIFICATIONS@			START	6
	C	-----			START	7
	C	-----			START	8
	C	--- THE FOLLOWING I/O DEVICES ARE USED ---			IOS	2
20	C	* DEVICE * * UNIT * * NUMBER *			IOS	3
	C				IOS	4
	C	CARD READER IC 5			IOS	5
	C	DISK ID 4			IOS	6
	C	CARD PUNCH OC 7			IOS	7
25	C	LINE PRINTER OP 6			IOS	8
	C				IOS	9
	C	COMMON /IO/ IC , ID , OC , OP			IOS	10
	C				IOS	11
	C	INTEGER IC, ID, OC, OP			IOS	12
30	C	REAL LHEAD2, LHEAD4			IOS	13
	C				IOS	14
	C			JEC	FIXDIM	33
	C				IOS	15
	C	--- THE FOLLOWING ARE INDEPENDENT OF MODEL DIMENSIONS ---			CMT1	2
35	C				CMT1	3
	C				CMT1	4
	C	COMMON /CK/ CFLUXT , CHDT , CHST , ETFLXT , FLUXT , FLXNT ,			CCK	2
	C	1 PUMPT, QRET, STORT, STORL2, STORL4, SFAC2, SFAC4, SUBH2, SUBH4			CCK	3
	C			JEC	FIXDIM	29
	C				CCK	5
40	C	COMMON /DPARAM/ B , D , F , H , RHO , SU , Z			CDPARAM	2
	C				CDPARAM	3
	C				CDPARAM	4
	C	COMMON /HDG/ HEADNG(33)			CHDG	2
45	C				CHDG	3
	C				CHDG	4
	C	COMMON /INTEGR/ IQ, IO, I1, I2, IDK1, IDK2, IDRAW, IERR,			CINTEGR	2
	C	1 IFINAL, IFLO, IHEAD, IMAX, IPUL, IPUL2, IQRE, IT, ITK,			CINTEGR	3
	C	2 ITMAX, ITMX1, IWATER, JQ, JO, J1, J2, KQ, K0, K1, K2,			CINTEGR	4
	C	3 KP, KT, KTH, LENGTH, NCH, NPER, NUMT, NWEL			CINTEGR	5
50	C	4, NPWELL, IPWELL, ISS24, ICHPNT, ILHEAD			CINTEGR	6
	C			JEC	FIXDIM	32
	C				CINTEGR	7
	C	COMMON /PR/ BLANK(60), DIGIT(122), DINCH, FACT1, FACT2,			CPR	2
55	C	1 N1, N2, N3, NA(4), PRNT(122), SYM(17), TITLE(6), UNITS,			CPR	3
	C	2 VF1(6), VF2(6), VF3(7), XLABEL(3), XN(100), XN1, XSCALE,			CPR	4
	C	3 YLABEL(6), YN(13), YSCALE			CPR	5
	C				CPR	6
	C				CPR	7

III-16

1111

		TC(I-1,J,K0)=0.	COF 400	FD3D	1893
		IF (K0.NE.1) TK(I,J,K1)=0.	COF 410	FD3D	1894
	C			FD3D	1895
175	C	---MAKE PHI INFINITE TO GET * IN MAP---		FD3D	1896
	C			FD3D	1897
		PHI(I,J,K0)=1.E30	COF 420	FD3D	1898
		10 CONTINUE	COF 430	FD3D	1899
	C			FD3D	1900
180	C	RETURN		FD3D	1901
	C			FD3D	1902
	C			FD3D	1903
	C	---FORMATS---		FD3D	1904
	C			FD3D	1905
185	C			FD3D	1906
	C	70 FORMAT (" ",20("*"),"WELL",213," IN LAYER",13," GOES DRY",20("*"))	COF 950	FD3D	1907
	C			FD3D	1908
	C	80 FORMAT (" ",20("*"),"NODE",213," IN LAYER",13," GOES DRY",20("*"))	COF 960	FD3D	1909
	C			FD3D	1910
190	C	END		FD3D	1911

115	C	ABOVE ARRAYS WITH THE SAME NAME EXCEPT FOR THE LEADING "A"		EQCOM	3
	C			EQCOM	4
	C			EQCOM	5
	C	(ABOTTOM IS TRUNCATED TO SIX CHARACTERS AS ABOTTO)		EQCOM	6
	C			515002AA	2
120	C	DIMENSION AFACT(15),AOLD(21105),APHI(21105),AS(21105),		FIXDIM	17
	C	15 ASTR(21105),AT(21105),ATC(21105),ATK(21105),ATR(21105),		FIXDIM	18
	C	25 AVELL(21105)		FIXDIM	19
	C			515002AA	6
125	C	DIMENSION AEL(21105),AFL(21105),AGL(21105),AV(21105),AXI(21105)		515002BA	2
	C			FIXDIM	24
	C			515002BA	4
	C	DIMENSION AQRE(1)		NRA	2
	C			NRA	3
130	C			NRA	4
	C	DIMENSION ABOTTO(1) , APERM(1)		NWTA	2
	C			NWTA	3
	C			NWTA	4
	C			EQUIV	2
135	C	EQUIVALENCE (FACT,AFAC) , (OLD,AOLD) , (PHI,APHI) , (S,AS) ,		EQUIV	3
	C	1 (STR,ASTR) , (T,AT) , (TC,ATC) , (TK,ATK) , (TR,ATR) ,		EQUIV	4
	C	2 (WELL,AWELL) , (EL,AEL) , (FL,AFL) , (GL,AGL) , (V,AV) ,		EQUIV	5
	C	3 (XI,AXI) , (QRE,AQRE) , (BOTTOM,ABOTTO) , (PERM,APERM)		EQUIV	6
	C			EQUIV	7
140	C	-----		ENDD	2
	C	* * * * *		ENDD	3
	C	-----		ENDD	4
	C			ENDD	5
	C			ENDD	6
145	C	COMMON /RIVR/ NRC(10),NADD(10),RQ(10),VK(20),RIVER(20),QMAX(20)		ENDD	7
	C	1,INDX(20,2),QRA(20,20),QS(10),NR ,NTOT,TQ(10)		ENDD	8
	C	--- <td></td> <td>FD3D</td> <td>1867</td>		FD3D	1867
	C			FD3D	1868
	C			FD3D	1869
150	C	DO 10 I=2,11	COF 280	FD3D	1870
	C	DO 10 J=2,11	COF 290	FD3D	1871
	C	IF (PERM(I,J),EQ,0.) GO TO 10	COF 300	FD3D	1872
	C	--- <td></td> <td>FD3D</td> <td>1873</td>		FD3D	1873
	C			FD3D	1874
155	C	T(I,J,K0)=PERM(I,J)*(PHI(I,J,K0)-BOTTOM(I,J))	COF 310	FD3D	1875
	C	IF (T(I,J,K0),GT,0.) GO TO 10	COF 320	FD3D	1876
	C			FD3D	1877
	C	--- <td></td> <td>FD3D</td> <td>1879</td>		FD3D	1879
160	C	PRINT AN APPROPRIATE MESSAGE AND REMOVE FROM AQUIFER---		FD3D	1880
	C			FD3D	1881
	C			FD3D	1882
	C	WRITE(OP,100) KT, IT, PHI(I,J,K0) , BOTTOM(I,J)		FD3D	1883
	C	100 FORMAT(1X, *KT=*, I3,7X,*IT=*,I3,7X, *PHJ=*,E10.4,10X, *BOTTOM=*,		FD3D	1884
	C	1 E10.4)		FD3D	1885
165	C	IF (WELL(I,J,K0),LT,0.) WRITE(OP,70) I,J,K0	COF 330	FD3D	1886
	C	IF (WELL(I,J,K0),GE,0.) WRITE(OP,80) I,J,K0	COF 340	FD3D	1887
	C	PERM(I,J)=0.	COF 350	FD3D	1888
	C	T(I,J,K0)=0.	COF 360	FD3D	1889
	C	TR(I,J=1,K0)=0.	COF 370	FD3D	1890
170	C	TR(I,J,K0)=0.	COF 380	FD3D	1891
	C	TC(I,J,K0)=0.	COF 390	FD3D	1892

	C		CSARRAY	2
	C	COMMON /SARRAY/ ICHK(13)	CSARRAY	3
60	C		CSARRAY	4
	C		CSPARAM	2
	C	COMMON /SPARAM/ CDLT , DELT , ERR , QR , SUM , SUMP , TEST , TMAX	CSPARAM	3
	C		CSPARAM	4
	C		MAX1	2
65	C	--- THE FOLLOWING ARE DIMENSIONED FOR THE FOLLOWING LIMITS ---	MAX1	3
	C	--- IF OTHER LIMITS ARE NEEDED , ADD COMDECK MAX AND DEFINE NEWMAX	MAX1	4
	C		MAX1	5
	C	MODEL IS DEFINED ON ARRAYS (63,67,5), OR (22,24,5)--DEPENDING	FIXDIM	34
	C	ON THE DEFINE CARDS-- *DEFINE,D515002, OR *DEFINE, D202504	FIXDIM	35
70	C	PARAMETER(DIMENSION) BASED ON LIMIT OF	MAX1	8
	C		MAX1	9
	C	DDN(100) MAXIMUM HORIZONTAL DIMENSION=100	MAX1	10
	C	FLOW(100),JFLO(100,3) MAXIMUM CONSTANT HEAD NODES=100	MAX1	11
	C	ITTO(100) MAXIMUM TIME STEPS = 100	MAX1	12
75	C	LEVEL1(9),LEVEL2(9) MAXIMUM LEVELS PRINTED IN MAPS=9	MAX1	13
	C	RHOP(20) MAXIMUM ITERATION PARAMETERS=20	MAX1	14
	C	TEST3(101) MAXIMUM ITERATIONS = 100	MAX1	15
	C		MAX1	16
	C	COMMON/MAX/DDN(67),FLOW(4221),ITTO(60),JFLO(4221,3),	FIXDIM	38
80	C	15 LEVEL1(9),LEVEL2(9),RHOP(20),TEST3(61)	FIXDIM	39
	C		MAX1	29
	C		CS15002	2
	C	--- THE FOLLOWING ARE DIMENSIONED FOR 63 NODES IN THE Y-DIRECTION	FIXDIM	27
	C	(I.E. 63 ROWS), 67 NODES IN THE X-DIRECTION (I.E. 67 COLUMNS)	FIXDIM	28
85	C	, AND 5 NODES IN THE Z-DIRECTION (I.E. 5 LEVELS) ---	CS15002	5
	C		CS15002	6
	C	COMMON/ARRAY1/DELX(67),DELY(63),DELZ(5),FACT(5,3)	FIXDIM	13
	C	COMMON/ARRA2/OLD(63,67,5),V(63,67,5),S(63,67,5)	FIXDIM	14
	C	COMMON/ARRAY3/STRT(63,67,5),T(63,67,5),TR(63,67,5)	FIXDIM	15
90	C	COMMON/ARRAY4/TC(63,67,5),TK(63,67,5),WELL(63,67,5)	FIXDIM	16
	C		515002A	6
	C	COMMON/ARRAY5/EL(63,67,5),FL(63,67,5),GL(63,67,5)	FIXDIM	20
	C	COMMON/ARRAY6/PHI(63,67,5),ISTOR2(63,67),ISTOR4(63,67)	FIXDIM	21
	C	COMMON/ARRAY7/XI(63,67,5),CSUB(63,67),LHEAD2(63,67),	FIXDIM	22
95	C	15 LHEAD4(63,67)	FIXDIM	23
	C		515002B	5
	C	LEVEL 2 ,OLD,STRT,TC,EL,XI	515002B	6
	C		515002B	7
	C		CMTNR	2
100	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNR	3
	C	WITHOUT RECHARGE TO THE TOP LEVEL ---	CMTNR	4
	C	-----	CMTNR	5
	C		CMTNR	6
	C		NR	2
105	C	COMMON /RCHR/ QRE(1,1)	NR	3
	C		NR	4
	C		CMTNWT	2
	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNWT	3
	C	IN WHICH THE TOP LEVEL IS CONFINED	CMTNWT	4
110	C	-----	CMTNWT	5
	C		NWT	2
	C	COMMON /TABLE/ BOTTOM(1,1) , PERM(1,1)	NWT	3
	C		NWT	4
	C	--- THE FOLLOWING 1-DIMENSIONAL ARRAYS ARE EQUIVALENT TO THE	EQCOM	2

Line	Code	Description	Label	Value
1	C	SUBROUTINE TRANS	FD3D	1858
	C	-----	FD3D	1859
	C	-----COF 30	FD3D	1860
5	C	---COMPUTE TRANSMISSIVITY FOR UPPER HYDROLOGIC UNIT WHEN	FD3D	1861
	C	IT IS UNCONFINED---	COF 230	FD3D 1862
	C		COF 240	FD3D 1863
	C	-----	FD3D	1864
	C	-----COF 50	FD3D	1865
10	C	* FOR SUBROUTINE TRANS *	DTRANS	2
	C	-----	START	2
	C	-----	START	3
	C	-----	START	4
	C	-----	START	5
15	C	SPECIFICATIONS*	START	6
	C	-----	START	7
	C	-----	START	8
	C	--- THE FOLLOWING I/O DEVICES ARE USED ---	IOS	2
	C		IOS	3
20	C	* DEVICE * * UNIT * * NUMBER *	IOS	4
	C		IOS	5
	C	CARD READER IC 5	IOS	6
	C	DISK ID 4	IOS	7
	C	CARD PUNCH OC 7	IOS	8
25	C	LINE PRINTER OP 6	IOS	9
	C		IOS	10
	C	COMMON /IO/ IC , ID , OC , OP	IOS	11
	C		IOS	12
30	C	INTEGER IC, ID, OC, OP	IOS	13
	C	REAL LHEAD2, LHEAD4	IOS	14
	C		JEC	FIXDIM 33
	C		IOS	15
	C	--- THE FOLLOWING ARE INDEPENDENT OF MODEL DIMENSIONS ---	CMT1	2
	C		CMT1	3
35	C		CMT1	4
	C	COMMON /CK/ CFLUXT , CHDT , CHST , ETFLXT , FLUXT , FLXNT ,	CCK	2
	C	1 PUMPT, GRET, STORT, STORL2, STORL4, SFAC2, SFAC4, SUBH2, SUBH4	CCK	3
	C		JEC	FIXDIM 29
	C		CCK	5
40	C	COMMON /DPARAM/ B , D , F , H , RHO , SU , Z	CDPARAM	2
	C		CDPARAM	3
	C		CDPARAM	4
	C	COMMON /HDG/ HEADNG (33)	CHDG	2
	C		CHDG	3
45	C		CHDG	4
	C	COMMON /INTEGR/ IQ, IO , I1 , I2 , IDK1 , IDK2, IDRAW , IERR ,	CINTEGR	2
	C	1 IFINAL , IFLO , IHEAD , IMAX , IPU1 , IPU2 , IQRE , IT , ITK ,	CINTEGR	3
	C	2 ITMAX , ITMX1 , IWATER , JQ, J0 , J1 , J2 , KQ, K0 , K1 , K2 ,	CINTEGR	4
	C	3 KP , KT , KTH , LENGTH , NCH , NPER , NUMT , NWEL	CINTEGR	5
50	C	4 , NPWELL, IPWELL, ISS24, ICHPNT, ILHEAD	CINTEGR	6
	C		JEC	FIXDIM 32
	C		CINTEGR	7
	C	COMMON /PR/ BLANK(60) , DIGIT(122) , DINCH , FACT1 , FACT2 ,	CPR	2
	C	1 N1 , N2 , N3 , NA(4) , PRNT(122) , SYM(17) , TITLE(6) , UNITS ,	CPR	3
55	C	2 VF1(6) , VF2(6) , VF3(7) , XLABEL(3) , XN(100) , XN1 , XSCALE ,	CPR	4
	C	3 YLABEL(6) , YN(13) , YSCALE	CPR	5
	C		CPR	6
	C		CPR	7

56-III

11/11/79

	C		TCOFS	23
	C	40 CONTINUE	COF 660 TCOFS	24
175	C	----	TCOFS	25
	C	---RETURN IF YOU DO NOT NEED A TK VALUE---	TCOFS	26
	C		TCOFS	27
	C	IF (K0.EQ.1.OR.ITK.EQ.ICLK(10)) RETURN	COF 670 TCOFS	28
	C		TCOFS	29
180	C	DO 50 K=NN4,K1	TCOFS	30
	C	DO 50 I=2,I1	COF 690 TCOFS	31
	C	DO 50 J=2,J1	COF 700 TCOFS	32
	C		TCOFS	33
	C	IF (T(I,J,K+1).EQ.0.) GO TO 50	COF 710 TCOFS	34
185	C		TCOFS	35
	C	T1=T(I,J,K)*FACT(K,3)	COF 720 TCOFS	36
	C	T2=T(I,J,K+1)*FACT(K+1,3)	COF 730 TCOFS	37
	C		TCOFS	38
	C	TK(I,J,K)=(2.*T2*T1)/(T1*DELZ(K+1)+T2*DELZ(K))	COF 740 TCOFS	39
	C		TCOFS	40
190	C	50 CONTINUE	COF 750 TCOFS	41
	C		FD3D	1854
	C	RETURN	FD3D	1855
	C		FD3D	1856
	C	END	FD3D	1857

115	C		EQCOM	4
	C		EQCOM	5
	C	(ABOTTOM IS TRUNCATED TO SIX CHARACTERS AS ABOTTO)	EQCOM	6
	C		515002AA	2
120	C	DIMENSION AFACT(15),AOLD(21105),APHI(21105),AS(21105),	FIXDIM	17
	C	15 ASTRT(21105),AT(21105),ATC(21105),ATK(21105),ATR(21105),	FIXDIM	18
	C	25 AWELL(21105)	FIXDIM	19
	C		515002AA	6
125	C	DIMENSION AEL(21105),AFL(21105),AGL(21105),AV(21105),AXI(21105)	515002BA	2
	C		FIXDIM	24
	C		515002BA	4
	C	DIMENSION AQRE(1)	NRA	2
	C		NRA	3
130	C		NRA	4
	C	DIMENSION ABOTTO(1) , APERM(1)	NWTA	2
	C		NWTA	3
	C		NWTA	4
	C	EQUIVALENCE (FACT,AFACT) , (OLD,AOLD) , (PHI,APHI) , (S,AS) ,	EQUIV	2
135	C	1 (STRT,ASTRT) , (T,AT) , (TC,ATC) , (TK,ATK) , (TR,ATR) ,	EQUIV	3
	C	2 (WELL,AWELL) , (EL,AEL) , (FL,AFL) , (GL,AGL) , (V,AV) ,	EQUIV	4
	C	3 (XI,AXI) , (QRE,AQRE) , (BOTTOM,ABOTTO) , (PERM,APERM)	EQUIV	5
	C		EQUIV	6
	C		EQUIV	7
140	C	-----	ENDD	2
	C	* * * * *	ENDD	3
	C	-----	ENDD	4
	C		ENDD	5
	C	COMMON /RIVR/ NRC(10),NADD(10),RO(10),VK(20),RIVER(20),QMAX(20)	ENDD	6
145	C	1,INDX(20,2),QRA(20,20),QS(10),NR ,NTOT,TQ(10)	ENDD	7
	C		ENDD	8
	C	---DO CALCULATIONS FOR ALL LEVELS---	FD3D	1847
	C		FD3D	1848
	C	NN1 = 1	FD3D	1849
150	C	NN2 = K0	FD3D	1850
	C	NN4 = 1	FD3D	1851
	C		FD3D	1852
	C	*****	TCOFS	2
	C		TCOFS	3
155	C	---SAME CALCULATIONS ARE DONE IN TCOF AND WTTCOF---	TCOFS	4
	C		TCOFS	5
	C	20 DO 40 K=NN1,NN2	TCOFS	6
	C	DO 40 I=1,I1	TCOFS	7
	C	DO 40 J=1,J1	COF 570	TCOFS 8
	C		COF 580	TCOFS 9
160	C	---SKIP COMPUTATIONS IF ONE OF THE NODES LIES OUTSIDE THE BOUNDARY---	TCOFS	10
	C		TCOFS	11
	C	IF (T(I,J,K).EQ.0.) GO TO 40	TCOFS	12
	C	IF (T(I,J+1,K).EQ.0.) GO TO 30	COF 590	TCOFS 13
	C		COF 600	TCOFS 14
165	C	TR(I,J,K)=(2.*T(I,J+1,K)*T(I,J,K))/(T(I,J,K)*DELX(J+1)+T(I,J+1,K)*	TCOFS	15
	C	DELX(J))*FACT(K,1)	COF 610	TCOFS 16
	C		COF 620	TCOFS 17
	C		TCOFS	18
	C	30 IF (T(I+1,J,K).EQ.0.) GO TO 40	COF 630	TCOFS 19
	C		TCOFS	20
170	C	TC(I,J,K)=(2.*T(I+1,J,K)*T(I,J,K))/(T(I,J,K)*DELY(I+1)+T(I+1,J,K)*	COF 640	TCOFS 21
	C	DELY(I))*FACT(K,2)	COF 650	TCOFS 22

	C	COMMON /SARRAY/ ICHK(13)	CSARRAY 3
60	C		CSARRAY 4
	C	COMMON /SPARAM/ CDLT , DELT , ERR , QR , SUM , SUMP , TEST , TMAX	CSPARAM 2
	C		CSPARAM 3
	C		CSPARAM 4
	C	--- THE FOLLOWING ARE DIMENSIONED FOR THE FOLLOWING LIMITS ---	MAX1 2
65	C	--- IF OTHER LIMITS ARE NEEDED , ADD COMDECK MAX AND DEFINE NEWMAX	MAX1 3
	C		MAX1 4
	C		MAX1 5
	C	MODEL IS DEFINED ON ARRAYS (63,67,5) , OR (22,24,5)--DEPENDING	FIXDIM 34
	C	ON THE DEFINE CARDS-- *DEFINE,D515002, OR *DEFINE, D202504	FIXDIM 35
	C	PARAMETER(DIMENSION) BASED ON LIMIT OF	MAX1 8
70	C		MAX1 9
	C	DDN(100) MAXIMUM HORIZONTAL DIMENSION=100	MAX1 10
	C	FLOW(100),JFLO(100,3) MAXIMUM CONSTANT HEAD NODES=100	MAX1 11
	C	ITTO(100) MAXIMUM TIME STEPS = 100	MAX1 12
	C	LEVEL1(9),LEVEL2(9) MAXIMUM LEVELS PRINTED IN MAPS=9	MAX1 13
75	C	RHOP(20) MAXIMUM ITERATION PARAMETERS=20	MAX1 14
	C	TEST3(101) MAXIMUM ITERATIONS = 100	MAX1 15
	C		MAX1 16
	C	COMMON/MAX/DDN(67),FLOW(4221),ITTO(60),JFLO(4221,3),	FIXDIM 38
80	C	1\$ LEVEL1(9),LEVEL2(9),RHOP(20),TEST3(61)	FIXDIM 39
	C		MAX1 29
	C	--- THE FOLLOWING ARE DIMENSIONED FOR 63 NODES IN THE Y-DIRECTION	C515002 2
	C	(I.E. 63 ROWS) , 67 NODES IN THE X-DIRECTION (I.E. 67 COLUMNS)	FIXDIM 27
	C	, AND 5 NODES IN THE Z-DIRECTION (I.E. 5 LEVELS) ---	FIXDIM 28
85	C		C515002 5
	C	COMMON/ARRAY1/DELX(67),DELY(63),DELZ(5),FACT(5,3)	C515002 6
	C	COMMON/ARRA2/OLD(63,67,5),V(63,67,5),S(63,67,5)	FIXDIM 13
	C	COMMON/ARRAY3/STRT(63,67,5),T(63,67,5),TR(63,67,5)	FIXDIM 14
	C	COMMON/ARRAY4/TC(63,67,5),TK(63,67,5),WELL(63,67,5)	FIXDIM 15
90	C		FIXDIM 16
	C		515002A 6
	C	COMMON/ARRAY5/EL(63,67,5),FL(63,67,5),GL(63,67,5)	FIXDIM 20
	C	COMMON/ARRAY6/PHI(63,67,5),ISTOR2(63,67),ISTOR4(63,67)	FIXDIM 21
	C	COMMON/ARRAY7/XI(63,67,5),CSUB(63,67),LHEAD2(63,67),	FIXDIM 22
	C	1\$ LHEAD4(63,67)	FIXDIM 23
95	C		515002B 5
	C	LEVEL 2 ,OLD,STRT,TC,EL,XI	515002B 6
	C		515002B 7
	C		CMTNR 2
100	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNR 3
	C	WITHOUT RECHARGE TO THE TOP LEVEL ---	CMTNR 4
	C	-----	CMTNR 5
	C		CMTNR 6
	C		NR 2
105	C	COMMON /RCHRG/ QRE(1,1)	NR 3
	C		NR 4
	C		CMTNWT 2
	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNWT 3
	C	IN WHICH THE TOP LEVEL IS CONFINED	CMTNWT 4
	C	-----	CMTNWT 5
110	C		NWT 2
	C	COMMON /TABLE/ BOTTOM(1,1) , PERM(1,1)	NWT 3
	C		NWT 4
	C	--- THE FOLLOWING 1-DIMENSIONAL ARRAYS ARE EQUIVALENT TO THE	EQCOM 2
	C	ABOVE ARRAYS WITH THE SAME NAME EXCEPT FOR THE LEADING "A"	EQCOM 3

Line	Code	Text	Label	Address
1	C	SUBROUTINE TCOF		FD3D 1839
	C	-----		FD3D 1840
	C			FD3D 1841
5	C	---COMPUTE T. COEFFICIENTS---	COF 490	FD3D 1842
	C			FD3D 1843
	C	-----		FD3D 1844
	C	* FOR SUBROUTINE TCOF *		FD3D 1845
10	C	-----		DTCOF 2
	C			START 2
	C	*****		START 3
	C			START 4
	C	-----		START 5
	C	SPECIFICATIONS*		START 6
15	C			START 7
	C			START 8
	C	--- THE FOLLOWING I/O DEVICES ARE USED ---		IOS 2
	C			IOS 3
	C	* DEVICE * * UNIT * * NUMBER *		IOS 4
20	C			IOS 5
	C	CARD READER IC 5		IOS 6
	C	DISK ID 4		IOS 7
	C	CARD PUNCH OC 7		IOS 8
	C	LINE PRINTER OP 6		IOS 9
25	C			IOS 10
	C	COMMON /IO/ IC , ID , OC , OP		IOS 11
	C			IOS 12
	C	INTEGER IC, ID, OC, OP		IOS 13
	C	REAL LHEAD2, LHEAD4	JEC	IOS 14
30	C			FIXDIM 33
	C			IOS 15
	C	--- THE FOLLOWING ARE INDEPENDENT OF MODEL DIMENSIONS ---		CMT1 2
	C			CMT1 3
	C			CMT1 4
35	C	COMMON /CK/ CFLTXT , CHDT , CHST , ETLTXT , FLTXT , FLXNT ,		CCK 2
	C	1 PUMPT, QRET, STORT, STORL2, STORL4, SFAC2, SFAC4, SUBH2, SUBH4	JEC	CCK 3
	C			FIXDIM 29
	C			CCK 5
40	C	COMMON /DPARAM/ B , D , F , H , RHO , SU , Z		CDPARAM 2
	C			CDPARAM 3
	C			CDPARAM 4
	C	COMMON /HDG/ HEADNG(33)		CHDG 2
	C			CHDG 3
	C			CHDG 4
45	C	COMMON /INTEGR/ IQ , IO , I1 , I2 , IDK1 , IDK2 , IDRAW , IERR ,		CINTEGR 2
	C	1 IFINAL , IFLO , IHEAD , IMAX , IPU1 , IPU2 , IQRE , IT , ITK ,		CINTEGR 3
	C	2 ITMAX , ITMX1 , IWATER , JQ , J0 , J1 , J2 , KQ , K0 , K1 , K2 ,		CINTEGR 4
	C	3 KP , KT , KTH , LENGTH , NCH , NPER , NUMT , NWEL		CINTEGR 5
	C	4 , NPWELL , IPWELL , ISS24 , ICHPNT , ILHEAD	JEC	CINTEGR 6
50	C			FIXDIM 32
	C			CINTEGR 7
	C	COMMON /PR/ BLANK(60) , DIGIT(122) , DINCH , FACT1 , FACT2 ,		CPR 2
	C	1 N1 , N2 , N3 , NA(4) , PRNT(122) , SYM(17) , TITLE(6) , UNITS ,		CPR 3
	C	2 VF1(6) , VF2(6) , VF3(7) , XLABEL(3) , XN(100) , XN1 , XSCALE ,		CPR 4
55	C	3 YLABEL(6) , YN(13) , YSCALE		CPR 5
	C			CPR 6
	C			CPR 7
	C			CSARRAY 2

68-III

111

END

FD3D 1838

111-88

		IF (YSCALE.LT.1.0) WRITE(OP,340)							
		GO TO 30							PRN 390 FD3D 1781
175	C	40 XNXD = WIDTH / XSF							PRN 400 FD3D 1782
		NXD = IFIX(XNXD)							FD3D 1783
		XXNXD = FLOAT(NXD)							FD3D 1784
		IF (XXNXD*XSF.LE.WIDTH-DELX(J1) / 2.) NXD = NXD + 1							FD3D 1785
									FD3D 1786
									FD3D 1787
180	C	N4=NXD*N1+1							FD3D 1788
		N5=NXD+1							PRN 430 FD3D 1789
		N6=NYD+1							PRN 440 FD3D 1790
		N8=N2*NYD+1							PRN 450 FD3D 1791
185	C	--- <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PRN 460 FD3D 1792</td>							PRN 460 FD3D 1792
									FD3D 1793
									FD3D 1794
		NA(1)=N4/2-1							FD3D 1795
		NA(2)=N4/2							PRN 470 FD3D 1796
		NA(3)=N4/2+3							PRN 480 FD3D 1797
190	C	--- <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PRN 490 FD3D 1798</td>							PRN 490 FD3D 1798
									FD3D 1799
									FD3D 1800
		NC=(N3-N8-10)/2							FD3D 1801
		ND=NC+N8							PRN 500 FD3D 1802
195	C	VF1(3)=DIGIT(ND)							PRN 510 FD3D 1803
		VF2(3)=DIGIT(ND)							PRN 530 FD3D 1804
		VF3(3)=DIGIT(ND)							PRN 540 FD3D 1805
									PRN 550 FD3D 1806
200	C	--- <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>FD3D 1807</td>							FD3D 1807
									FD3D 1808
									FD3D 1809
		XLABEL(3)=UNITS							PRN 560 FD3D 1810
		YLABEL(6)=UNITS							PRN 570 FD3D 1811
205	C	--- <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>FD3D 1812</td>							FD3D 1812
									FD3D 1813
									FD3D 1814
		NE=MAX0(N5,N6)							PRN 520 FD3D 1815
		DO 60 I=1,NE							PRN 580 FD3D 1816
		NNX=N5-I							PRN 590 FD3D 1817
		NNY=I-1							PRN 600 FD3D 1818
210	C	IF (NNY.GE.N6) GO TO 50							PRN 610 FD3D 1819
		XNNY = FLOAT(NNY)							FD3D 1820
		YN(I) = YSF * XNNY / YSCALE							FD3D 1821
		50 IF (NNX.LT.0) GO TO 60							PRN 630 FD3D 1822
		XNNX = FLOAT(NNX)							FD3D 1823
215	C	XN(I) = XSF * XNNX / YSCALE							FD3D 1824
		60 CONTINUE							PRN 650 FD3D 1825
									FD3D 1826
		RETURN							PRN 660 FD3D 1827
220	C								FD3D 1828
									FD3D 1829
		--- <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>FD3D 1830</td>							FD3D 1830
									FD3D 1831
									FD3D 1832
225	C	330 FORMAT (1H0,25X,10(1H*),46H TO FIT MAP WITHIN 12 INCHES, DINCH REV							FD3D 1833
		1ISED TO. E15.7 , 1X , 10(1H*))							FD3D 1834
									FD3D 1835
		340 FORMAT ("0",45X,"NOTE: GENERALLY SCALE SHOULD BE > OR = 1.0")							PRN1780 FD3D 1836
									FD3D 1837

115	C		EQCOM	4
	C		EQCOM	5
	C	(ABOTTOM IS TRUNCATED TO SIX CHARACTERS AS ABOTTO)	EQCOM	6
	C		515002AA	2
		DIMENSION AFACT(15),AOLD(21105),APHI(21105),AS(21105),	FIXDIM	17
120		1\$ ASTRT(21105),AT(21105),ATC(21105),ATK(21105),ATR(21105),	FIXDIM	18
		2\$ AWELL(21105)	FIXDIM	19
	C		515002AA	6
	C		515002BA	2
125		DIMENSION AEL(21105),AFL(21105),AGL(21105),AV(21105),AXI(21105)	FIXDIM	24
	C		515002BA	4
	C		NRA	2
	C	DIMENSION AQRE(1)	NRA	3
			NRA	4
	C		NWTA	2
130		DIMENSION ABOTTO(1) , APERM(1)	NWTA	3
	C		NWTA	4
	C		EQUIV	2
		EQUIVALENCE (FACT,AFAC) , (OLD,AOLD) , (PHI,APHI) , (S,AS) ,	EQUIV	3
		1 (STRT,ASTRT) , (T,AT) , (TC,ATC) , (TK,ATK) , (TR,ATR) ,	EQUIV	4
135		2 (WELL,AWELL) , (EL,AEL) , (FL,AFL) , (GL,AGL) , (V,AV) ,	EQUIV	5
		3 (XI,AXI) , (QRE,AQRE) , (BOTTOM,ABOTTO) , (PERM,APERM)	EQUIV	6
	C		EQUIV	7
	C		COMMAP	2
140		COMMON /PR2/ NC , NXD , N4 , N6 , N8 , WIDTH , XSF , YSF	COMMAP	3
	C		COMMAP	4
	C	-----	ENDD	2
	C	-----	ENDD	3
	C	* * * * *	ENDD	4
	C	-----	ENDD	5
145			ENDD	6
	C	COMMON /RIVR/ NRC(10),NADD(10),RQ(10),VK(20),RIVER(20),QMAX(20)	ENDD	7
		1,INDX(20,2),QRA(20,20),QS(10),NR ,NTOT,TQ(10)	ENDD	8
	C		FD3D	1757
	C	---CALCULATE WIDTH AND LENGTH OF MODEL---	FD3D	1758
150			FD3D	1759
		YDIM=0.	PRN 260	FD3D 1760
		WIDTH=0.	PRN 270	FD3D 1761
		DO 10 J=2,J1	PRN 280	FD3D 1762
		10 WIDTH=WIDTH+DELX(J)	PRN 290	FD3D 1763
155		DO 20 I=2,I1	PRN 300	FD3D 1764
		20 YDIM=YDIM+DELY(I)	PRN 310	FD3D 1765
	C		FD3D	1766
	C	---ADJUST TO MAP SCALE---	FD3D	1767
	C		FD3D	1768
160		30 XSF=DINCH*XSCALE	PRN 320	FD3D 1769
		YSF=DINCH*YSCALE	PRN 330	FD3D 1770
		XNYD = YDIM / YSF	FD3D	1771
		NYD = IFIX(XNYD)	FD3D	1772
		XXNYD = FLOAT(NYD)	FD3D	1773
165		IF (XXNYD*YSF.LE.YDIM-DELY(I1)/2.) NYD=NYD+1	FD3D	1774
		IF (NYD.LE.12) GO TO 40	PRN 360	FD3D 1775
	C		FD3D	1776
	C	---ADJUST SCALE IF NECESSARY	FD3D	1777
	C		FD3D	1778
170		DINCH=YDIM/(12.*YSCALE)	PRN 370	FD3D 1779
		WRITE(OP,330) DINCH	PRN 380	FD3D 1780

	C	COMMON /SARRAY/ ICHK(13)	CSARRAY	3
60	C		CSARRAY	4
	C	COMMON /SPARAM/ CDLT , DELT , ERR , QR , SUM , SUMP , TEST , TMAX	CSPARAM	2
	C		CSPARAM	3
	C		CSPARAM	4
65	C	--- THE FOLLOWING ARE DIMENSIONED FOR THE FOLLOWING LIMITS ---	MAX1	2
	C	--- IF OTHER LIMITS ARE NEEDED , ADD COMDECK MAX AND DEFINE NEWMAX	MAX1	3
	C		MAX1	4
	C		MAX1	5
	C	MODEL IS DEFINED ON ARRAYS (63,67,5), OR (22,24,5)--DEPENDING	FIXDIM	34
	C	ON THE DEFINE CARDS-- *DEFINE, D515002, OR *DEFINE, D202504	FIXDIM	35
70	C	PARAMETER(DIMENSION) BASED ON LIMIT OF	MAX1	8
	C		MAX1	9
	C	DDN(100) MAXIMUM HORIZONTAL DIMENSION=100	MAX1	10
	C	FLOW(100),JFLO(100,3) MAXIMUM CONSTANT HEAD NODES=100	MAX1	11
	C	ITTO(100) MAXIMUM TIME STEPS = 100	MAX1	12
75	C	LEVEL1(9),LEVEL2(9) MAXIMUM LEVELS PRINTED IN MAPS=9	MAX1	13
	C	RHOP(20) MAXIMUM ITERATION PARAMETERS=20	MAX1	14
	C	TEST3(101) MAXIMUM ITERATIONS = 100	MAX1	15
	C		MAX1	16
	C	COMMON/MAX/DDN(67),FLOW(4221),ITTO(60),JFLO(4221,3),	FIXDIM	38
80	C	15 LEVEL1(9),LEVEL2(9),RHOP(20),TEST3(61)	FIXDIM	39
	C		MAX1	29
	C	--- THE FOLLOWING ARE DIMENSIONED FOR 63 NODES IN THE Y-DIRECTION	C515002	2
	C	(I.E. 63 ROWS), 67 NODES IN THE X-DIRECTION (I.E. 67 COLUMNS)	FIXDIM	27
	C	, AND 5 NODES IN THE Z-DIRECTION (I.E. 5 LEVELS) ---	FIXDIM	28
85	C		C515002	5
	C	COMMON/ARRAY1/DELX(67),DELY(63),DELZ(5),FACT(5,3)	C515002	6
	C	COMMON/ARRA2/OLD(63,67,5),V(63,67,5),S(63,67,5)	FIXDIM	13
	C	COMMON/ARRAY3/STRT(63,67,5),T(63,67,5),TR(63,67,5)	FIXDIM	14
	C	COMMON/ARRAY4/TC(63,67,5),TK(63,67,5),WELL(63,67,5)	FIXDIM	15
90	C		FIXDIM	16
	C	COMMON/ARRAY5/EL(63,67,5),FL(63,67,5),GL(63,67,5)	515002A	6
	C	COMMON/ARRAY6/PHI(63,67,5),ISTOR2(63,67),ISTOR4(63,67)	FIXDIM	20
	C	COMMON/ARRAY7/XI(63,67,5),CSUB(63,67),LHEAD2(63,67),	FIXDIM	21
	C	15 LHEAD4(63,67)	FIXDIM	22
95	C		FIXDIM	23
	C	LEVEL 2 ,OLD,STRT,TC,EL,XI	515002B	5
	C		515002B	6
	C		515002B	7
100	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNR	2
	C	WITHOUT RECHARGE TO THE TOP LEVEL ---	CMTNR	3
	C	-----	CMTNR	4
	C		CMTNR	5
	C		CMTNR	6
	C	COMMON /RCHRG/ QRE(1,1)	NR	2
105	C		NR	3
	C		NR	4
	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNWT	2
	C	IN WHICH THE TOP LEVEL IS CONFINED	CMTNWT	3
	C	-----	CMTNWT	4
110	C		CMTNWT	5
	C	COMMON /TABLE/ BOTTOM(1,1) , PERM(1,1)	NWT	2
	C		NWT	3
	C	--- THE FOLLOWING 1-DIMENSIONAL ARRAYS ARE EQUIVALENT TO THE	NWT	4
	C	ABOVE ARRAYS WITH THE SAME NAME EXCEPT FOR THE LEADING "A"	EQCOM	2
	C		EQCOM	3

1	C	SUBROUTINE SETMAP	FD3D 1749
	C	-----PRN 20	FD3D 1750
	C		FD3D 1751
5	C	---INITIALIZE VARIABLES FOR PLOT---	FD3D 1752
	C	PRN 220	FD3D 1753
	C		FD3D 1754
	C	-----PRN 40	FD3D 1755
	C	* FOR SUBROUTINE SETMAP *	OSETMAP 2
10	C		START 2
	C	*****	START 3
	C	*****	START 4
	C	*****	START 5
	C	*****	START 6
15	C	SPECIFICATIONS#	START 7
	C		START 8
	C	--- THE FOLLOWING I/O DEVICES ARE USED ---	IOS 2
	C		IOS 3
	C		IOS 4
20	C	* DEVICE * * UNIT * * NUMBER *	IOS 5
	C		IOS 6
	C	CARD READER IC 5	IOS 7
	C	DISK ID 4	IOS 8
	C	CARD PUNCH OC 7	IOS 9
	C	LINE PRINTER OP 6	IOS 10
25	C		IOS 11
	C	COMMON /IO/ IC , ID , OC , OP	IOS 12
	C		IOS 13
	C	INTEGER IC, ID, OC, OP	IOS 14
30	C	REAL LHEAD2, LHEAD4	JEC FIXDIM 33
	C		IOS 15
	C	--- THE FOLLOWING ARE INDEPENDENT OF MODEL DIMENSIONS ---	CMT1 2
	C		CMT1 3
	C		CMT1 4
35	C	COMMON /CK/ CFLTXT , CHDT , CHST , ETFLXT , FLTXT , FLXNT ,	CCK 2
	C	1 PUMPT, QRET, STORT, STORL2, STORL4, SFAC2, SFAC4, SUBH2, SUBH4	JEC FIXDIM 29
	C		CCK 5
	C	COMMON /DPARAM/ B , D , F , H , RMO , SU , Z	CDPARAM 2
40	C		CDPARAM 3
	C		CDPARAM 4
	C	COMMON /HDG/ HEADNG(33)	CHDG 2
	C		CHDG 3
	C		CHDG 4
45	C	COMMON /INTEGR/ IQ, IO , I1 , I2 , IDK1 , IDK2, IDRAW , IERR ,	CINTEGR 2
	C	1 IFINAL , IFLO , IHEAD , IMAX , IPU1 , IPU2 , IQRE , IT , ITK ,	CINTEGR 3
	C	2 ITMAX , ITMX1 , IWATER , JQ, JO , J1 , J2 , KQ, K0 , K1 , K2 ,	CINTEGR 4
	C	3 KP , KT , KTH , LENGTH , NCH , NPER , NUMT , NWEL	CINTEGR 5
	C	4 , NPWELL, IPWELL, ISS24, ICHPNT, ILHEAD	CINTEGR 6
50	C		JEC FIXDIM 32
	C		CINTEGR 7
	C	COMMON /PR/ BLANK(60) , DIGIT(122) , DINCH , FACT1 , FACT2 ,	CPR 2
	C	1 N1 , N2 , N3 , NA(4) , PRNT(122) , SYM(17) , TITLE(6) , UNITS ,	CPR 3
	C	2 VF1(6) , VF2(6) , VF3(7) , XLABEL(3) , XN(100) , XN1 , XSCALE ,	CPR 4
55	C	3 YLABEL(6) , YN(13) , YSCALE	CPR 5
	C		CPR 6
	C		CPR 7
	C		CSARRAY 2

230	C	---BACK SUBSTITUTE FOR VECTOR XI---	SP31560	FD3D	1710
	C			FD3D	1711
	C	--- CYCLE THROUGH ROWS EAST TO WEST ---		FD3D	1712
	C	COLUMNS SOUTH TO NORTH---		FD3D	1713
	C	LEVELS TOP TO BOTTOM---		FD3D	1714
235	C	DO 160 K=1,K1		FD3D	1715
		K3 = K1-K+ 1		FD3D	1716
		DO 160 I=1,I2		FD3D	1717
		I3=I0-I	SP31590	FD3D	1718
		DO 160 J=1,J2	SP31600	FD3D	1719
240		J3=J0-J	SP31610	FD3D	1720
			SP31620	FD3D	1721
	C	---SKIP COMPUTATION IF NODE IS OUTSIDE AQUIFER---		FD3D	1722
	C			FD3D	1723
	C			FD3D	1724
245		IF (T(I3,J3,K3).EQ.0.) GO TO 160	SP31630	FD3D	1725
		GLXI=0.	SP31640	FD3D	1726
		IF (K3.NE.K0) GLXI=GL(I3,J3,K3)*XI(I3,J3,K3+1)	SP31650	FD3D	1727
		XI(I3,J3,K3)=V(I3,J3,K3)-EL(I3,J3,K3)*XI(I3,J3+1,K3)-FL(I3,J3,K3)*	SP31660	FD3D	1728
		1XI(I3+1,J3,K3)-GLXI	SP31670	FD3D	1729
250	C	---SAVE LARGEST VALUE OF HEAD CHANGE---	SP31680	FD3D	1730
	C			FD3D	1731
	C			FD3D	1732
		TCHK=ABS(XI(I3,J3,K3))	SP31700	FD3D	1733
		IF (TCHK.GT.BIG) BIG=TCHK	SP31710	FD3D	1734
255	C	---ADJUST VALUE OF PHI---		FD3D	1735
	C			FD3D	1736
	C			FD3D	1737
		PHI(I3,J3,K3)=PHI(I3,J3,K3)+XI(I3,J3,K3)	SP31720	FD3D	1738
		160 CONTINUE	SP31730	FD3D	1739
260	C	---COMPARE MAGNITUDE OF CHANGE WITH CLOSURE CRITERIA---		FD3D	1740
	C		SP31690	FD3D	1741
				FD3D	1742
		IF (BIG.GT.ERR) TEST=1.	SP31740	FD3D	1743
		TEST3(IT+1)=BIG	SP31750	FD3D	1744
265	C	RETURN		FD3D	1745
	C		SP31760	FD3D	1746
				FD3D	1747
		END		FD3D	1748

		CALL COFF	SP31170	FD3D	1653
	C	*****		FD3D	1654
	C			FD3D	1655
175		GO TO 130	SP31180	FD3D	1656
		120 RHO=1.E30	SP31190	FD3D	1657
	C		SP31200	FD3D	1658
	C	---SIP NORMAL ALGORITHM---	SP31210	FD3D	1659
	C	---FORWARD SUBSTITUTE, COMPUTING INTERMEDIATE VECTOR V---	SP31220	FD3D	1660
180				FD3D	1661
		130 E=-B-D-F-H-SU-Z-RHO	SP31230	FD3D	1662
		BL=B/(1.+W*(EL(I-1,J,K)+GL(I-1,J,K)))	SP31240	FD3D	1663
		CL=D/(1.+W*(FL(I,J-1,K)+GL(I,J-1,K)))	SP31250	FD3D	1664
		C=BL*FL(I-1,J,K)	SP31260	FD3D	1665
185		G=CL*FL(I,J-1,K)	SP31270	FD3D	1666
		WU=CL*GL(I,J-1,K)	SP31280	FD3D	1667
		U=BL*GL(I-1,J,K)	SP31290	FD3D	1668
		IF (K.EQ.1) GO TO 140	SP31300	FD3D	1669
	C			FD3D	1670
190		---FOR ALL LAYERS EXCEPT THE TOP LAYER---		FD3D	1671
	C			FD3D	1672
		AL=Z/(1.+W*(EL(I,J,K-1)+FL(I,J,K-1)))	SP31310	FD3D	1673
		A=AL*EL(I,J,K-1)	SP31320	FD3D	1674
		TU=AL*FL(I,J,K-1)	SP31330	FD3D	1675
195		DL=E+W*(A+C+G+WU+U)-CL*EL(I,J-1,K)-BL*FL(I-1,J,K)-AL*GL(I,J,K-1)	SP31340	FD3D	1676
		1)	SP31350	FD3D	1677
	C			FD3D	1678
		EL(I,J,K)=(F-W*(A+C))/DL	SP31360	FD3D	1679
		FL(I,J,K)=(H-W*(G+TU))/DL	SP31370	FD3D	1680
200		GL(I,J,K)=(SU-W*(WU+U))/DL	SP31380	FD3D	1681
	C			FD3D	1682
		SUPH=0.	SP31390	FD3D	1683
		IF (K.NE.K0) SUPH=SU*PHI(I,J,K+1)	SP31400	FD3D	1684
	C			FD3D	1685
205		RES=-B*PHI(I-1,J,K)-D*PHI(I,J-1,K)-E*PHI(I,J,K)-F*PHI(I,J+1,K)-H*PSP31410	FD3D	1686	
		IHI(I+1,J,K)-SUPH-Z*PHI(I,J,K-1)-WELL(I,J,K)-RHO*OLD(I,J,K)-QR	SP31420	FD3D	1687
	C			FD3D	1688
		V(I,J,K)=(RES-AL*V(I,J,K-1)-BL*V(I-1,J,K)-CL*V(I,J-1,K))/DL	SP31430	FD3D	1689
		GO TO 150	SP31440	FD3D	1690
210				FD3D	1691
	C			FD3D	1692
	C	--- FOR THE BOTTOM LAYER ---		FD3D	1693
		140 DL=E+W*(C+G+WU+U)-CL*EL(I,J-1,K)-BL*FL(I-1,J,K)	SP31450	FD3D	1694
	C			FD3D	1695
215		EL(I,J,K)=(F-W*C)/DL	SP31460	FD3D	1696
		FL(I,J,K)=(H-W*G)/DL	SP31470	FD3D	1697
		GL(I,J,K)=(SU-W*(WU+U))/DL	SP31480	FD3D	1698
	C			FD3D	1699
		SUPH=0.	SP31490	FD3D	1700
220		IF (K.NE.K0) SUPH=SU*PHI(I,J,K+1)	SP31500	FD3D	1701
	C			FD3D	1702
		RES=-B*PHI(I-1,J,K)-D*PHI(I,J-1,K)-E*PHI(I,J,K)-F*PHI(I,J+1,K)-H*PSP31510	FD3D	1703	
		IHI(I+1,J,K)-SUPH-WELL(I,J,K)-RHO*OLD(I,J,K)-QR	SP31520	FD3D	1704
	C			FD3D	1705
225		V(I,J,K)=(RES-BL*V(I-1,J,K)-CL*V(I,J-1,K))/DL	SP31530	FD3D	1706
	C			FD3D	1707
		150 CONTINUE	SP31540	FD3D	1708
	C		SP31550	FD3D	1709

115	C	ABOVE ARRAYS WITH THE SAME NAME EXCEPT FOR THE LEADING "A"	EQCOM	3
	C		EQCOM	4
	C		EQCOM	5
	C	(ABOTTOM IS TRUNCATED TO SIX CHARACTERS AS ABOTTO)	EQCOM	6
120	C	DIMENSION AFACT(15),AOLD(21105),APHI(21105),AS(21105),	S15002AA	2
	C	15 ASTRT(21105),AT(21105),ATC(21105),ATK(21105),ATR(21105),	FIXDIM	17
	C	25 AVELL(21105)	FIXDIM	18
	C		FIXDIM	19
	C		S15002AA	6
125	C	DIMENSION AEL(21105),AFL(21105),AGL(21105),AV(21105),AXI(21105)	S15002BA	2
	C		FIXDIM	24
	C		S15002BA	4
	C	DIMENSION AQRE(1)	NRA	2
	C		NRA	3
130	C		NRA	4
	C	DIMENSION ABOTTO(1) , APERM(1)	NWTA	2
	C		NWTA	3
	C		NWTA	4
	C		EQUIV	2
135	C	EQUIVALENCE (FACT,AFACT) , (OLD,AOLD) , (PHI,APHI) , (S,AS) ,	EQUIV	3
	C	1 (STRT,ASTRT) , (T,AT) , (TC,ATC) , (TK,ATK) , (TR,ATR) ,	EQUIV	4
	C	2 (WELL,AWELL) , (EL,AEL) , (FL,AFL) , (GL,AGL) , (V,AV) ,	EQUIV	5
	C	3 (XI,AXI) , (QRE,AQRE) , (BOTTOM,ABOTTO) , (PERM,APERM)	EQUIV	6
	C		EQUIV	7
140	C	COMMON /BIGW/ BIG , W	COMBIGW	2
	C		COMBIGW	3
	C		COMBIGW	4
	C	-----	ENDD	2
	C	* * * * *	ENDD	3
145	C	-----	ENDD	4
	C		ENDD	5
	C	COMMON /RIVR/ NRC(10),NADD(10),RQ(10),VK(20),RIVER(20),QMAX(20)	ENDD	6
	C	1,INDX(20,2),QRA(20,20),QS(10),NR ,NTOT,TQ(10)	ENDD	7
	C		ENDD	8
150	C	--- CYCLE THROUGH ROWS WEST TO EAST ---	FD3D	1630
	C	COLUMNS NORTH TO SOUTH---	FD3D	1631
	C	LEVELS BOTTOM TO TOP---	FD3D	1632
	C		FD3D	1633
	C		FD3D	1634
155	C	100 DO 150 K=1,K1	FD3D	1635
	C	DO 150 I=2,I1	SP31090	FD3D 1636
	C	DO 150 J=2,J1	SP31100	FD3D 1637
	C		SP31110	FD3D 1638
	C	---SKIP COMPUTATIONS IF NODE OUTSIDE AQUIFER	SP31120	FD3D 1639
160	C	IF (T(I,J,K)) 110,150,110	FD3D	1640
	C		SP31130	FD3D 1641
	C	---FOR CONSTANT HEAD NODES, RHO IS INFINITE AND OTHER COEFFICIENTS	FD3D	1642
	C	ARE INSIGNIFICANT---	FD3D	1643
	C		FD3D	1644
165	C	110 IF (S(I,J,K).LT.0.) GO TO 120	FD3D	1645
	C		SP31140	FD3D 1646
	C	---COMPUTE COEFFICIENTS---	SP31150	FD3D 1647
	C	D,F,B,H,SU,Z,RHO, AND QR	SP31160	FD3D 1648
	C	IQ = I	FD3D	1649
170	C	JQ = J	FD3D	1650
	C	KQ = K	FD3D	1651
	C		FD3D	1652

	C		CSARRAY	2
60	C	COMMON /SARRAY/ ICHK(13)	CSARRAY	3
	C		CSARRAY	4
	C	COMMON /SPARAM/ CDLT , DELT , ERR , QR , SUM , SUMP , TEST , TMAX	CSPARAM	2
	C		CSPARAM	3
	C		CSPARAM	4
65	C	--- THE FOLLOWING ARE DIMENSIONED FOR THE FOLLOWING LIMITS ---	MAX1	2
	C	--- IF OTHER LIMITS ARE NEEDED , ADD COMDECK MAX AND DEFINE NEWMAX	MAX1	3
	C		MAX1	4
	C		MAX1	5
	C	MODEL IS DEFINED ON ARRAYS (63,67,5) , OR (22,24,5)--DEPENDING	FIXDIM	34
	C	ON THE DEFINE CARDS-- *DEFINE,D515002, OR *DEFINE, D202504	FIXDIM	35
70	C	PARAMETER(DIMENSION) BASED ON LIMIT OF	MAX1	8
	C		MAX1	9
	C	DDN(100) MAXIMUM HORIZONTAL DIMENSION=100	MAX1	10
	C	FLOW(100),JFLO(100,3) MAXIMUM CONSTANT HEAD NODES=100	MAX1	11
	C	ITTO(100) MAXIMUM TIME STEPS = 100	MAX1	12
75	C	LEVEL1(9),LEVEL2(9) MAXIMUM LEVELS PRINTED IN MAPS=9	MAX1	13
	C	RHOP(20) MAXIMUM ITERATION PARAMETERS=20	MAX1	14
	C	TEST3(101) MAXIMUM ITERATIONS = 100	MAX1	15
	C		MAX1	16
80	C	COMMON/MAX/DDN(67),FLOW(4221),ITTO(60),JFLO(4221,3),	FIXDIM	38
	C	1\$ LEVEL1(9),LEVEL2(9),RHOP(20),TEST3(61)	FIXDIM	39
	C		MAX1	29
	C		C515002	2
	C	--- THE FOLLOWING ARE DIMENSIONED FOR 63 NODES IN THE Y-DIRECTION	FIXDIM	27
	C	(I.E. 63 ROWS), 67 NODES IN THE X-DIRECTION (I.E. 67 COLUMNS)	FIXDIM	28
85	C	, AND 5 NODES IN THE Z-DIRECTION (I.E. 5 LEVELS) ---	C515002	5
	C		C515002	6
	C	COMMON/ARRAY1/DELX(67),DELY(63),DELZ(5),FACT(5,3)	FIXDIM	13
	C	COMMON/ARRA2/OLD(63,67,5),V(63,67,5),S(63,67,5)	FIXDIM	14
	C	COMMON/ARRAY3/STRT(63,67,5),T(63,67,5),TR(63,67,5)	FIXDIM	15
90	C	COMMON/ARRAY4/TC(63,67,5),TK(63,67,5),WELL(63,67,5)	FIXDIM	16
	C		515002A	6
	C	COMMON/ARRAY5/EL(63,67,5),FL(63,67,5),GL(63,67,5)	FIXDIM	20
	C	COMMON/ARRAY6/PHI(63,67,5),ISTOR2(63,67),ISTOR4(63,67)	FIXDIM	21
	C	COMMON/ARRAY7/XI(63,67,5),CSUB(63,67),LHEAD2(63,67),	FIXDIM	22
95	C	1\$ LHEAD4(63,67)	FIXDIM	23
	C		515002B	5
	C	LEVEL 2 ,OLD,STRT,TC,EL,XI	515002B	6
	C		515002B	7
100	C		CMTNR	2
	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNR	3
	C	WITHOUT RECHARGE TO THE TOP LEVEL ---	CMTNR	4
	C	-----	CMTNR	5
	C		CMTNR	6
	C		NR	2
105	C	COMMON /RCHRG/ GRE(1,1)	NR	3
	C		NR	4
	C		CMTNWT	2
	C	--- THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNWT	3
	C	IN WHICH THE TOP LEVEL IS CONFINED	CMTNWT	4
110	C	-----	CMTNWT	5
	C		NWT	2
	C	COMMON /TABLE/ BOTTOM(1,1) , PERM(1,1)	NWT	3
	C		NWT	4
	C	--- THE FOLLOWING 1-DIMENSIONAL ARRAYS ARE EQUIVALENT TO THE	EQCOM	2

1	C	SUBROUTINE SIP			FD3D	1621
	C				FD3D	1622
	C	-----SP3	30		FD3D	1623
5	C	SOLUTION BY THE STRONGLY IMPLICIT PROCEDURE			FD3D	1624
	C	NORMAL ALGORITHM		SP3	40	FD3D 1625
	C				FD3D	1626
	C	-----SP3	50		FD3D	1627
10	C	* FOR SUBROUTINE SIP *			FD3D	1628
	C				DSIP	2
	C	-----			START	2
	C	*****			START	3
	C	-----			START	4
	C				START	5
15	C	SPECIFICATIONS@			START	6
	C				START	7
	C				START	8
	C	--- THE FOLLOWING I/O DEVICES ARE USED ---			IOS	2
20	C	* DEVICE * * UNIT * * NUMBER *			IOS	3
	C				IOS	4
	C	CARD READER IC 5			IOS	5
	C	DISK ID 4			IOS	6
	C	CARD PUNCH OC 7			IOS	7
25	C	LINE PRINTER OP 6			IOS	8
	C				IOS	9
	C	COMMON /IO/ IC , ID , OC , OP			IOS	10
	C				IOS	11
	C	INTEGER IC, ID, OC, OP			IOS	12
30	C	REAL LHEAD2, LHEAD4			IOS	13
	C			JEC	FIXDIM	14
	C				IOS	15
	C	--- THE FOLLOWING ARE INDEPENDENT OF MODEL DIMENSIONS ---			CMT1	2
35	C				CMT1	3
	C				CMT1	4
	C	COMMON /CK/ CFLUXT , CHDT , CHST , ETFLXT , FLUXT , FLXNT ,			CCK	2
	C	1 PUMPT, QRET, STORT, STORL2, STORL4, SFAC2, SFAC4, SUBH2, SUBH4		JEC	CCK	3
	C				FIXDIM	29
	C				CCK	5
40	C	COMMON /DPARAM/ B , D , F , H , RHO , SU , Z			CDPARAM	2
	C				CDPARAM	3
	C				CDPARAM	4
	C	COMMON /HDG/ HEADNG(33)			CHDG	2
	C				CHDG	3
45	C				CHDG	4
	C	COMMON /INTEGR/ IQ, IO , I1 , I2 , IDK1 , IDK2, IDRAW , IERR ,			CINTEGR	2
	C	1 IFINAL , IFLO , IHEAD , IMAX , IPU1 , IPU2 , IQRE , IT , ITK ,			CINTEGR	3
	C	2 ITMAX , ITMX1 , IWATER , JQ, J0 , J1 , J2 , KQ, K0 , K1 , K2 ,			CINTEGR	4
	C	3 KP , KT , KTH , LENGTH , NCH , NPER , NUMT , NWEL			CINTEGR	5
50	C	4 , NPWELL, IPWELL, ISS24, ICHPNT, ILHEAD		JEC	CINTEGR	6
	C				FIXDIM	32
	C				CINTEGR	7
	C	COMMON /PR/ BLANK(60) , DIGIT(122) , DINCH , FACT1 , FACT2 ,			CPR	2
	C	1 N1 , N2 , N3 , NA(4) , PRNT(122) , SYM(17) , TITLE(6) , UNITS ,			CPR	3
55	C	2 VF1(6) , VF2(6) , VF3(7) , XLABEL(3) , XN(100) , XN1 , XSCALE ,			CPR	4
	C	3 YLABEL(6) , YN(13) , YSCALE			CPR	5
	C				CPR	6
	C				CPR	7

67-III

	100 CONTINUE	FD3D 1609
	WRITE(6,34)	FD3D 1610
	DO 32 I=1,I0	FD3D 1611
175	32 WRITE(6,31)I,(GRA(I,J),J=1,J0)	FD3D 1612
	WRITE(6,36)	FD3D 1613
	WRITE(6,37)(I,QS(I),I=1,NR)	FD3D 1614
	31 FORMAT(*0*,I4,10E12.3/5X,10E12.3)	FD3D 1615
	34 FORMAT(*1LEAKAGE RATE:*)	FD3D 1616
180	36 FORMAT(*0REMAINING DISCHARGE IN STREAMS*)	FD3D 1617
	37 FORMAT(*0*,I4,G15.7)	FD3D 1618
	RETURN	FD3D 1619
	END	FD3D 1620

115		25 AVELL (21105)	FIXDIM 19
	C		515002AA 6
	C		515002BA 2
		DIMENSION AEL (21105), AFL (21105), AGL (21105), AV (21105), AXI (21105)	FIXDIM 24
120	C		515002BA 4
		DIMENSION AQRE (1)	NRA 2
	C		NRA 3
	C		NRA 4
	C		NWTA 2
125	C	DIMENSION ABOTTO (1) , APERM (1)	NWTA 3
	C		NWTA 4
	C		EQUIV 2
		EQUIVALENCE (FACT, AFACT) , (OLD, AOLD) , (PHI, APMI) , (S, AS) ,	EQUIV 3
		1 (STRT, ASTRT) , (T, AT) , (TC, ATC) , (TK, ATK) , (TR, ATR) ,	EQUIV 4
		2 (WELL, AVELL) , (EL, AEL) , (FL, AFL) , (GL, AGL) , (V, AV) ,	EQUIV 5
130		3 (XI, AXI) , (QRE, AQRE) , (BOTTOM, ABOTTO) , (PERM, APERM)	EQUIV 6
	C		EQUIV 7
	C		ENDD 2
	C		ENDD 3
	C	-----	ENDD 4
135	C	*****	ENDD 5
	C	-----	ENDD 6
		COMMON /RIVR/ NRC (10), NADD (10), RQ (10), VK (20), RIVER (20), QMAX (20)	ENDD 7
		1, INDX (20, 2), QRA (20, 20), QS (10), NR, NTOT, TQ (10)	ENDD 8
	C	---INITIALIZE QRA ARRAY---	FD3D 1576
140		DO 82 I=1, I0	FD3D 1577
		DO 82 J=1, J0	FD3D 1578
	82	QRA (I, J)=0.	FD3D 1579
		DO 83 I=1, NR	FD3D 1580
	83	TQ (I)=0.	FD3D 1581
145		K3=1	FD3D 1582
		K4=NRC (1)	FD3D 1583
	C	---LOOP 100 DISTRIBUTES DISCHARGE---	FD3D 1584
		DO 100 KK=1, NR	FD3D 1585
		QS (KK)=RQ (KK)+TQ (KK)	FD3D 1586
150	C	---LOOP 90 DISTRIBUTES DISCHARGE WITHIN REACH OF EACH RIVER---	FD3D 1587
		DO 90 JJ=K3, K4	FD3D 1588
		I=INDX (JJ, 1)	FD3D 1589
		J=INDX (JJ, 2)	FD3D 1590
		AREA=DELX (J)*DELY (I)	FD3D 1591
155		RVTEMP=VK (JJ)*(RIVER (JJ)-PHI (I, J, K0))*AREA	FD3D 1592
		IF (RVTEMP.LT.0.) GO TO 97	FD3D 1593
		QRA (I, J)=AMINI (RVTEMP, QMAX (JJ))	FD3D 1594
		IF (QS (KK).LT.QRA (I, J)) GO TO 85	FD3D 1595
		QS (KK)=QS (KK)-QRA (I, J)	FD3D 1596
160		QRA (I, J)=QRA (I, J)/AREA	FD3D 1597
		GO TO 90	FD3D 1598
	85	QRA (I, J)=QS (KK)/AREA	FD3D 1599
		QS (KK) = 0.0	FD3D 1600
		GO TO 90	FD3D 1601
165	C	---GROUND WATER IS DISCHARGING TO STREAM---	FD3D 1602
	97	QRA (I, J)=RVTEMP/AREA	FD3D 1603
		QS (KK)=QS (KK)-RVTEMP	FD3D 1604
	90	CONTINUE	FD3D 1605
		IF (QS (KK).GT.0.) TQ (NADD (KK))=TQ (NADD (KK))+QS (KK)	FD3D 1606
170	95	K3=K3+NRC (KK)	FD3D 1607
		K4=K4+NRC (KK+1)	FD3D 1608

	C	---	THE FOLLOWING ARE DIMENSIONED FOR THE FOLLOWING LIMITS ---	MAX1	3
60	C	---	IF OTHER LIMITS ARE NEEDED , ADD COMDECK MAX AND DEFINE NEWMAX	MAX1	4
	C			MAX1	5
	C	MODEL IS DEFINED ON ARRAYS (63,67,5), OR (22,24,5)--DEPENDING		FIXDIM	34
	C	ON THE DEFINE CARDS-- *DEFINE, D515002, OR *DEFINE, D202504		FIXDIM	35
	C	PARAMETER(DIMENSION) BASED ON LIMIT OF		MAX1	8
	C			MAX1	9
65	C	DDN(100)	MAXIMUM HORIZONTAL DIMENSION=100	MAX1	10
	C	FLOW(100),JFLO(100,3)	MAXIMUM CONSTANT HEAD NODES=100	MAX1	11
	C	ITTO(100)	MAXIMUM TIME STEPS = 100	MAX1	12
	C	LEVEL1(9),LEVEL2(9)	MAXIMUM LEVELS PRINTED IN MAPS=9	MAX1	13
	C	RHOP(20)	MAXIMUM ITERATION PARAMETERS=20	MAX1	14
70	C	TEST3(101)	MAXIMUM ITERATIONS = 100	MAX1	15
	C			MAX1	16
	C	COMMON/MAX/DDN(67),FLOW(4221),ITTO(60),JFLO(4221,3),		FIXDIM	38
	C	1\$ LEVEL1(9),LEVEL2(9),RHOP(20),TEST3(61)		FIXDIM	39
75	C			MAX1	29
	C	---	THE FOLLOWING ARE DIMENSIONED FOR 63 NODES IN THE Y-DIRECTION	C515002	2
	C	(I.E. 63 ROWS), 67 NODES IN THE X-DIRECTION (I.E. 67 COLUMNS)		FIXDIM	27
	C	, AND 5 NODES IN THE Z-DIRECTION (I.E. 5 LEVELS) ---		FIXDIM	28
	C			C515002	5
80	C	COMMON/ARRAY1/DELX(67),DELY(63),DELZ(5),FACT(5,3)		C515002	6
	C	COMMON/ARRAZ2/OLD(63,67,5),V(63,67,5),S(63,67,5)		FIXDIM	13
	C	COMMON/ARRAY3/STRT(63,67,5),T(63,67,5),TR(63,67,5)		FIXDIM	14
	C	COMMON/ARRAY4/TC(63,67,5),TK(63,67,5),WELL(63,67,5)		FIXDIM	15
	C			FIXDIM	16
85	C	COMMON/ARRAY5/EL(63,67,5),FL(63,67,5),GL(63,67,5)		515002A	6
	C	COMMON/ARRAY6/PHI(63,67,5),ISTOR2(63,67),ISTOR4(63,67)		FIXDIM	20
	C	COMMON/ARRAY7/XI(63,67,5),CSUB(63,67),LHEAD2(63,67),		FIXDIM	21
	C	1\$ LHEAD4(63,67)		FIXDIM	22
	C			FIXDIM	23
90	C	LEVEL 2 ,OLD,STRT,TC,EL,XI		515002B	5
	C			515002B	6
	C			515002B	7
	C	---	THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNR	2
	C	WITHOUT RECHARGE TO THE TOP LEVEL ---		CMTNR	3
95	C	-----		CMTNR	4
	C			CMTNR	5
	C			CMTNR	6
	C	COMMON /RCHRG/ QRE(1,1)		NR	2
	C			NR	3
100	C			NR	4
	C	---	THE FOLLOWING IS USED TO CONSERVE STORAGE FOR A PROBLEM	CMTNWT	2
	C	IN WHICH THE TOP LEVEL IS CONFINED		CMTNWT	3
	C	-----		CMTNWT	4
	C			CMTNWT	5
105	C	COMMON /TABLE/ BOTTOM(1,1) , PERM(1,1)		NWT	2
	C			NWT	3
	C			NWT	4
	C	---	THE FOLLOWING 1-DIMENSIONAL ARRAYS ARE EQUIVALENT TO THE	EQCOM	2
	C	ABOVE ARRAYS WITH THE SAME NAME EXCEPT FOR THE LEADING "A"		EQCOM	3
	C			EQCOM	4
110	C			EQCOM	4
	C	(ABOTTOM IS TRUNCATED TO SIX CHARACTERS AS ABOTTO)		EQCOM	5
	C			EQCOM	6
	C			515002AA	2
	C	DIMENSION AFACT(15),AOLD(21105),APHI(21105),AS(21105),		FIXDIM	17
	C	1\$ ASTR1(21105),AT(21105),ATC(21105),ATK(21105),ATR(21105),		FIXDIM	18

S/-III

Line	Code	Description	Variable	Value
1	C	SUBROUTINE RIVERQ	FD3D	1574
	C	* FOR SUBROUTINE COEF *	DCEOF	2
	C		START	2
5	C	-----	START	3
	C	*****	START	4
	C	-----	START	5
	C		START	6
	C	SPECIFICATIONS#	START	7
10	C		START	8
	C	--- THE FOLLOWING I/O DEVICES ARE USED ---	IOS	2
	C		IOS	3
	C	* DEVICE * * UNIT * * NUMBER *	IOS	4
	C		IOS	5
15	C	CARD READER IC 5	IOS	6
	C	DISK ID 4	IOS	7
	C	CARD PUNCH OC 7	IOS	8
	C	LINE PRINTER OP 6	IOS	9
	C		IOS	10
20	C	COMMON /IO/ IC , ID , OC , OP	IOS	11
	C		IOS	12
	C	INTEGER IC, ID, OC, OP	IOS	13
	C	REAL LHEAD2, LHEAD4	IOS	14
	C		JEC FIXDIM	33
25	C		IOS	15
	C	--- THE FOLLOWING ARE INDEPENDENT OF MODEL DIMENSIONS ---	CMT1	2
	C		CMT1	3
	C		CMT1	4
	C		CCK	2
30	C	COMMON /CK/ CFLUXT , CHDT , CHST , ETFLXT , FLUXT , FLXNT , 1 PUMPT, QRET, STORT, STORL2, STORL4, SFAC2, SFAC4, SUBH2, SUBH4	CCK	3
	C		JEC FIXDIM	29
	C		CCK	5
	C	COMMON /DPARAM/ B , D , F , H , RHO , SU , Z	CDPARAM	2
35	C		CDPARAM	3
	C		CDPARAM	4
	C	COMMON /HDG/ HEADNG(33)	CHDG	2
	C		CHDG	3
	C		CHDG	4
40	C	COMMON /INTEGR/ IQ, IO, I1, I2, IDK1, IDK2, IDRAW, IERR, 1 IFINAL, IFLO, IHEAD, IMAX, IPU1, IPU2, IQRE, IT, ITK, 2 ITMAX, ITMX1, IWATER, JQ, JO, J1, J2, KQ, KO, K1, K2, 3 KP, KT, KTH, LENGTH, NCH, NPER, NUMT, NWEL 4, NPWELL, IPWELL, ISS24, ICHPNT, ILHEAD	CINTEGR	2
	C		CINTEGR	3
	C		CINTEGR	4
	C		CINTEGR	5
	C		CINTEGR	6
	C		JEC FIXDIM	32
45	C		CINTEGR	7
	C	COMMON /PR/ BLANK(60), DIGIT(122), DINCH, FACT1, FACT2, 1 N1, N2, N3, NA(4), PRNT(122), SYM(17), TITLE(6), UNITS, 2 VF1(6), VF2(6), VF3(7), XLABEL(3), XN(100), XN1, XSCALE, 3 YLABEL(6), YN(13), YSCALE	CPR	2
	C		CPR	3
	C		CPR	4
	C		CPR	5
50	C		CPR	6
	C		CPR	7
	C	COMMON /SARRAY/ ICHK(13)	CSARRAY	2
	C		CSARRAY	3
	C		CSARRAY	4
55	C	COMMON /SPARAM/ CDLT, DELT, ERR, QR, SUM, SUMP, TEST, TMAX	CSPARAM	2
	C		CSPARAM	3
	C		CSPARAM	4
	C		MAX1	2

230	C	220 CONTINUE	SP32260	FD3D	1535
	C	---	SP32270	FD3D	1536
	C	BACK SUBSTITUTE FOR VECTOR XI---	SP32280	FD3D	1537
	C	---	FD3D	1538	
	C	CYCLE THROUGH ROWS EAST TO WEST ---	FD3D	1539	
235	C	COLUMNS NORTH TO SOUTH---	FD3D	1540	
	C	LEVELS BOTTOM TO TOP	FD3D	1541	
		DO 230 K=1,K1	FD3D	1542	
		DO 230 I=2,I1	FD3D	1543	
		DO 230 J=1,J2	SP32300	FD3D	1544
240		J3=J0-J	SP32310	FD3D	1545
	C	---	SP32320	FD3D	1546
	C	SKIP COMPUTATION IF NODE IS OUTSIDE AQUIFER---	FD3D	1547	
	C	---	FD3D	1548	
245		IF (T(I,J3,K).EQ.0.) GO TO 230	FD3D	1549	
		GLXI=0,	SP32330	FD3D	1550
		IF (K.NE.1) GLXI=GL(I,J3,K)*XI(I,J3,K-1)	SP32340	FD3D	1551
		XI(I,J3,K)=V(I,J3,K)-EL(I,J3,K)*XI(I,J3+1,K)-FL(I,J3,K)*XI(I-1,J3,	SP32350	FD3D	1552
		1K)-GLXI	SP32360	FD3D	1553
250	C	---	SP32370	FD3D	1554
	C	SAVE LARGEST VALUE OF HEAD CHANGE	SP32380	FD3D	1555
	C	---	FD3D	1556	
		TCHK=ABS(XI(I,J3,K))	FD3D	1557	
		IF (TCHK.GT.BIG) BIG=TCHK	SP32400	FD3D	1558
		---	SP32410	FD3D	1559
255	C	---	FD3D	1560	
	C	ADJUST VALUE OF PHI---	FD3D	1561	
		PHI(I,J3,K)=PHI(I,J3,K)+XI(I,J3,K)	FD3D	1562	
		230 CONTINUE	SP32420	FD3D	1563
	C	---	SP32430	FD3D	1564
260	C	---	FD3D	1565	
	C	COMPARE MAGNITUDE OF CHANGE WITH CLOSURE CRITERIA---	SP32390	FD3D	1566
		IF (BIG.GT.ERR) TEST=1.	FD3D	1567	
		TEST3(IT+1)=BIG	SP32440	FD3D	1568
		---	SP32450	FD3D	1569
265	C	RETURN	FD3D	1570	
	C	---	SP32460	FD3D	1571
		END	FD3D	1572	
		---	FD3D	1573	

		JQ = J	FD3D	1478
		KQ = K	FD3D	1479
		CALL COEF	SP31890	FD3D 1480
175	C	*****	FD3D	1481
	C		FD3D	1482
		GO TO 200	SP31900	FD3D 1483
		190 RHO=1.E30	SP31910	FD3D 1484
	C		SP31920	FD3D 1485
180	C	---SIP REVERSE ALGORITHM---	SP31930	FD3D 1486
	C	---FORWARD SUBSTITUTE, COMPUTING INTERMEDIATE VECTOR V---	SP31940	FD3D 1487
	C		FD3D	1488
		200 E=-B-D-F-H-SU-Z-RHO	SP31950	FD3D 1489
		BL=H/(1.+W*(EL(I+1,J,K)+GL(I+1,J,K)))	SP31960	FD3D 1490
185		CL=D/(1.+W*(FL(I,J-1,K)+GL(I,J-1,K)))	SP31970	FD3D 1491
		C=BL*EL(I+1,J,K)	SP31980	FD3D 1492
		G=CL*FL(I,J-1,K)	SP31990	FD3D 1493
		WU=CL*GL(I,J-1,K)	SP32000	FD3D 1494
		U=BL*GL(I+1,J,K)	SP32010	FD3D 1495
190		IF (K.EQ.K0) GO TO 210	SP32020	FD3D 1496
	C		FD3D	1497
	C	---FOR ALL LAYERS EXCEPT THE TOP LAYER---	FD3D	1498
	C		FD3D	1499
		AL=SU/(1.+W*(EL(I,J,K+1)+FL(I,J,K+1)))	SP32030	FD3D 1500
195		A=AL*EL(I,J,K+1)	SP32040	FD3D 1501
		TU=AL*FL(I,J,K+1)	SP32050	FD3D 1502
		DL=E+W*(C+G+A+WU+TU)-AL*GL(I,J,K+1)-BL*FL(I+1,J,K)-CL*EL(I,J-1,K)	SP32060	FD3D 1503
		1)	SP32070	FD3D 1504
	C		FD3D	1505
200		EL(I,J,K)=(F-W*(C+A))/DL	SP32080	FD3D 1506
		FL(I,J,K)=(B-W*(G+TU))/DL	SP32090	FD3D 1507
		GL(I,J,K)=(Z-W*(WU+U))/DL	SP32100	FD3D 1508
	C		FD3D	1509
		ZPHI=0.	SP32110	FD3D 1510
205		IF (K.NE.1) ZPHI=Z*PHI(I,J,K-1)	SP32120	FD3D 1511
	C		FD3D	1512
		RES=-B*PHI(I-1,J,K)-D*PHI(I,J-1,K)-E*PHI(I,J,K)-F*PHI(I,J+1,K)-H*PSP	SP32130	FD3D 1513
		1HI(I+1,J,K)-SU*PHI(I,J,K+1)-ZPHI-WELL(I,J,K)-RHO*OLD(I,J,K)-QR	SP32140	FD3D 1514
	C		FD3D	1515
210		V(I,J,K)=(RES-AL*V(I,J,K+1)-BL*V(I+1,J,K)-CL*V(I,J-1,K))/DL	SP32150	FD3D 1516
		GO TO 220	SP32160	FD3D 1517
	C		FD3D	1518
	C	---FOR THE TOP LAYER---	FD3D	1519
	C		FD3D	1520
215		210 DL=E+W*(C+G+WU+U)-BL*FL(I+1,J,K)-CL*EL(I,J-1,K)	SP32170	FD3D 1521
	C		FD3D	1522
		EL(I,J,K)=(F-W*C)/DL	SP32180	FD3D 1523
		FL(I,J,K)=(B-W*G)/DL	SP32190	FD3D 1524
		GL(I,J,K)=(Z-W*(WU+U))/DL	SP32200	FD3D 1525
220			FD3D	1526
	C		SP32210	FD3D 1527
		ZPHI=0.	SP32220	FD3D 1528
		IF (K.NE.1) ZPHI=Z*PHI(I,J,K-1)		
	C		FD3D	1529
		RES=-B*PHI(I-1,J,K)-D*PHI(I,J-1,K)-E*PHI(I,J,K)-F*PHI(I,J+1,K)-H*PSP	SP32230	FD3D 1530
225		1HI(I+1,J,K)-ZPHI-WELL(I,J,K)-RHO*OLD(I,J,K)-QR	SP32240	FD3D 1531
	C		FD3D	1532
		V(I,J,K)=(RES-BL*V(I+1,J,K)-CL*V(I,J-1,K))/DL	SP32250	FD3D 1533
	C		FD3D	1534