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別冊－7

S-COPD 計算プログラム改修仕様書

【概要】

S-COPD での安全裕度評価解析を行うために実施した改修について改修仕様書をまとめる。

コード改修記録	コード名	Ｓｕｐｅｒ－ＣＯＰＤ

もんじゅ安全裕度評価用データの整備（I）

改修Ｎｏ	内　　容	モジュール	注
1	コモンサイズの修正	AC,VV,FA	△
2	プール変数出力数の増加	AA	○
3	途中停止の場合でも SUMY 用ファイルが作成されるように改修	AA	○
4	ディメンション　オーバーの修正	LG	◎
5	FA リスタート時のデータ読み込み不具合の修正	FA	◎
6	KN　パラメータ増加	KN	△
7	ポンプ摩擦トルク計算部修正	PP	◎
8	ポンプ停止時不具合の修正	PP	◎
9	LW　不具合の修正	LW	◎
１０	原子炉トリップ時スクラム反応度不具合の修正	CR	◎
１１	逆止弁不作動オプションの追加	CK	△
１２	逆止弁ダッシュポット添十モデルの追加	CK	△
１３	バルブ初期圧損系数設定部の改修	VV	○
１４	RF 崩壊熱計算部修正	RF	◎
１５	モジュール追加	ST,RX,UP	△

注）　◎　：　プログラム不具合のため要修正

○　：　直した方が使い易い

△　：　今回 解析のため改修

Super—COPD　　改修仕様書　　改修NO. －1

目　的	コモンサイズの修正	改修サブルーチン	ACRSTA FARSTA VVRSTA
		改修コモン	—

概　　要
リスタート入出力用コモンサイズを修正。 コモン変数の数と合っていないコモンのサイズを、合わせる。

ＡＣＲＳＴＡ改修部

```
      SUBROUTINE   ACRSTA ( JR )
C
C     READ  &  WRITE
C     RE - START  FILE OF MODULA AC
C
C      JR = 1   WRITE RE-START FILE
C      JR = 2   READ  RE-START FILE
C
C --- MODULE  SUBROUTINE ---
C
c     INCLUDE  ( ACA )
      INCLUDE '../copcom/aca'
C-----   H07/05/26 KATO   ---
      COMMON / ACMI1 / R1 ( 1 + 50*(KNAC) + 2*(5*KNAC) + (30*knac) )
c     COMMON / ACMI2 / R2 ( 60*(KNAC) + 2*(20*KNAC) )
      COMMON / ACMI2 / R2 ( 56*(KNAC) + 2*(20*KNAC) )
      COMMON / ACM1  / R3 ( 5*(KNAC) + 25*(KNAC*KMAC) )
      COMMON / ACM2  / R4 ( 13*(KNAC) + 11*(2*KNAC) + 8*(KNAC*KMAC)
     1                    + 5*(2*KNAC*KLAC) + 11*(2*KNAC*KMAC)
     2                    + 1*(KNAC*5) )
C-----------------------------------
C     COMMON / ACMI1 / R1 ( 1 + 49 * KNAC + 30 * KNAC + 2*(5*KNAC) )
C     COMMON / ACMI1 / R1 ( 1 + 50 * KNAC + 30 * KNAC + 2*(5*KNAC) )
C     COMMON / ACMI2 / R2 ( 84 * KNAC  )
C     COMMON / ACMI2 / R2 ( 96 * KNAC  )
C     COMMON / ACM1  / R3 ( 5 * KNAC + 25 * ( KNAC * KMAC ) )
C     COMMON / ACM2  / R4 ( 10 * 2 * KNAC  + 10 * 2 * KNAC*KMAC
C    1                    + 5 * 2 * KNAC * KLAC  + 8 * KNAC *KMAC
C    2                    +18 *  KNAC  + 2*KNAC*KMAC )
C
C     COMMON / ACM2  / R4 (  9*2*KNAC + 6*2*KNAC*KMAC + 3*2*KNAC*KLAC
C    1                   + 2*KNAC*KMAC + 2*2*KNAC   + 2*2*KNAC*KMAC
C    2                   + 2*2*KNAC*KLAC + 2*2*KNAC*KMAC + 8*KNAC*KMAC
C    3                   + 13*KNAC + 5*KNAC )
C-----------------------------------
C
      IF ( JR . EQ . 2 )  GO  TO   2000
C
C --- WRITE  RESTART  FILE ---
C
C
      WRITE ( 40 )  R1
      WRITE ( 40 )  R2
      WRITE ( 40 )  R3
      WRITE ( 40 )  R4
C
      WRITE ( 6,6000 ) (R3(I), I=1, KNAC)
      WRITE ( 6,6002 )
      RETURN
C
C
C
C
C === READ  RESTART  FILE ===
C
 2000 CONTINUE
C
      READ ( 41 )  R1
      READ ( 41 )  R2
      READ ( 41 )  R3
      READ ( 41 )  R4
C
      WRITE ( 6 , 6010 ) (R3(I), I=1, KNAC)
      WRITE ( 6 , 6012 )
      RETURN
C
```

５１ より変更

変更

追加

FARSTA改修部

```
      SUBROUTINE   FARSTA ( JR )
C
C     READ  &  WRITE
C     RE - START  FILE OF MODULA FA
C
C      JR = 1   WRITE RE-START FILE
C      JR = 2   READ  RE-START FILE
C
C --- MODULE  SUBROUTINE ---
C
c     INCLUDE  ( FAA )
      include '../copcom/faa'
C
CMOD.1993/11/24< A.0 >
C     COMMON / FAMI1 / R1 ( 1 + 6 * KNFA + 2+(5 * KNFA) + 2 * KNFA
C    1                    + 30 * KNFA)
C     COMMON / FAMI2 / R2 ( 19 * KNFA )
C     COMMON / FAMI2 / R2 ( 21 * KNFA )
C     COMMON / FAM2  / R4 ( 2 * KNFA + (4 * KNFA))
C     COMMON / FAMI1 / R1 ( 1 + 8 * KNFA + 2*(5 * KNFA) + 30 * KNFA )
C     COMMON / FAMI2 / R2 (27*KNFA + 6*(2*KNFA) + 2*(3*KNFA) )
C     COMMON / FAM1  / R3 ( 5 * KNFA )
C     COMMON / FAM2  / R4 ( 6 * KNFA + 2*(2* KNFA) )
C-----   H05/05/29 KATO   -----
      COMMON / FAMI1 / R1 ( 1 + 8*(KNFA) + 2*(5*KNFA) + 1*(30*KNFA) )
c     COMMON / FAMI2 / R2 (29*(KNFA) + 6*(2*KNFA) + 2*(3*KNFA) )
      COMMON / FAMI2 / R2 (27*(KNFA) + 6*(2*KNFA) + 2*(3*KNFA) )
      COMMON / FAM1  / R3 ( 5*(KNFA) )
      COMMON / FAM2  / R4 ( 6*(KNFA) + 2*(2*KNFA) )
C-----------------------------------
C
      IF ( JR . EQ . 2 )  GO  TO   2000
C
C
C --- WRITE  RESTART  FILE ---
C
C
      WRITE ( 40 )  R1
      WRITE ( 40 )  R2
      WRITE ( 40 )  R3
      WRITE ( 40 )  R4
C
      WRITE ( 6,6000 ) (R3(I),I=1,KNFA)
      WRITE ( 6,6002 )
      RETURN
C
C
C
C
C === READ  RESTART  FILE ===
C
 2000 CONTINUE
C
      READ ( 41 )  R1
      READ ( 41 )  R2
      READ ( 41 )  R3
      READ ( 41 )  R4
C
      WRITE ( 6 , 6010 ) (R3(I),I=1,KNFA)
      WRITE ( 6 , 6012 )
      RETURN
C
C
C
 6000 FORMAT ( 1H0 , 48('-'),' WRITE RE-START FILE ( MODULE FA ) ',
     1              49('-')
```

変更

VVRSTA改修部

```
      SUBROUTINE   VVRSTA ( JR )                                        0000000
C                                                                       0000000
C     READ  &  WRITE                                                    0000000
C     RE - START  FILE OF MODULA VV                                     0000000
C                                                                       0000000
C      JR = 1   WRITE RE-START FILE                                     0000000
C      JR = 2   READ  RE-START FILE                                     0000000
C                                                                       0000000
C --- MODULE  SUBROUTINE ---                                            0000000
C                                                                       0000000
c     INCLUDE  ( VVA )                                                  0000000
      include '../copcom/vva'
C                                                                       0000000
      COMMON / VVMI1 / R1(1+2*KNVV+2*(5*KNVV)+2*KNVV+(30*KNVV) )        0000000
      COMMON / VVMI2 / R2(16*KNVV+2*(20*KNVV)+2*KNVV+2*(20*KNVV)        0000000
C    1                 +18*KNVV )                                       0000000
     1                 +19*KNVV )                                       0000000
      COMMON / VVM1  / R3(5*KNVV)                                       0000000
C     COMMON / VVM2  / R4(KNVV+(2*KNVV)+8*KNVV+(200*KNVV)+7*KNVV )      0000000
                                                                        0000000
C-----   H07/05/29 KATO   -----                                        0000000
      COMMON / VVM2  / R4( 16*(KNVV) + (2*knvv) + (200*KNVV) )          0000000
C-----------------------------------------------------------------------0000000
C                                                                       0000000
C                          １７ より変更        追加                    0000000
      IF ( JR . EQ . 2 )  GO  TO   2000                                 0000000
C                                                                       0000000
C                                                                       0000000
C --- WRITE  RESTART  FILE ---                                          0000000
C                                                                       0000000
C                                                                       0000000
      WRITE ( 40 )  R1                                                  0000000
      WRITE ( 40 )  R2                                                  0000000
      WRITE ( 40 )  R3                                                  0000000
      WRITE ( 40 )  R4                                                  0000000
C                                                                       0000000
      WRITE ( 6, 6000 ) (R3(I), I=1, KNVV)                              0000000
      WRITE ( 6, 6002 )                                                 0000000
      RETURN                                                            0000000
C                                                                       0000000
C                                                                       0000000
C                                                                       0000000
C                                                                       0000000
C === READ  RESTART  FILE ===                                           0000000
C                                                                       0000000
 2000 CONTINUE                                                          0000000
C                                                                       0000000
      READ ( 41 )  R1                                                   0000000
      READ ( 41 )  R2                                                   0000000
      READ ( 41 )  R3                                                   0000000
      READ ( 41 )  R4                                                   0000000
C                                                                       0000000
      WRITE ( 6 , 6010 ) (R3(I), I=1, KNVV)                             0000000
      WRITE ( 6 , 6012 )                                                0000000
      RETURN                                                            0000000
C                                                                       0000000
C                                                                       0000000
C                                                                       0000000
 6000 FORMAT ( 1H0 , 48('-'),' WRITE RE-START FILE ( MODULE VV ) ',     0000000
     1               49('-')                                            0000000
     2        /1H  , 4X,  'ETVV=', 15F8.2  )                            0000000
 6002 FORMAT ( 1H  ,132('-'))                                           0000000
C                                                                       0000000
C                                                                       0000000
 6010 FORMAT ( 1H0 , 49('-'),' READ RE-START FILE ( MODULE VV ) ',      0000000
     1               49('-')                                            0000000
```

Super—COPD　　改修仕様書　　改修NO. －2

目　的	プール変数出力数の増加	改修サブルーチン	AABLOK AARSTA
		改修コモン	AAA,AACI3,AAC2

概　　要

プール変数パラメータの変更及びプール変数の出力数を増加する。
これに伴い、SUMY のコモン（AACI3,AAC2）も同様に改修。

１３００ より変更

aaa改修部

```
PARAMETER( KNTP=5000 )  70,   5,   20,   5 より変更 0000000
PARAMETER( KNFF=100  ,KNWF=20  ,KNOP=50  ,KNWP=20  )        0000000
PARAMETER( KNPM=16   ,KNNM=16  ,KNPV=5   ,KNNV=120 )        0000000
```

８，　１０　より変更　　８０　より変更

```
      BLOCK DATA AABLOK                                                 0000000
c     INCLUDE ( AAC     )                                               0000000
      INCLUDE '../copcom/aac'
C                                                                       0000000
C                                                                       0000000
      DATA   NINTAL  ,IPINIT                                            0000000
     *      ,DELT    ,TMAX                                              0000000
     *      ,OUTTIM  ,OUTDEL  ,NUMREC                                   0000000
     *      ,IORSTA  ,RSTART  ,RSTTIM  ,RSTDEL                          0000000
     *      / 2*0,  2*0.0,  10*0.0, 50, 0, 0.0, 10*0.0 /
C                                                                       0000000
      DATA   NTEMP  ,NFLWN  ,NPRSN  ,NPMPN  ,NVLVN                      0000000
     *      ,NTMP   ,NFNNET ,NPNNET ,NHNPMP ,NVNVLV                     0000000
     *      ,NFNPAS ,NPNNOD ,NHNNUM ,NVNNUM                             0000000
     *      ,ITMAX  ,IFNMAX ,IPNMAX ,IHNMAX ,IVNMAX                     0000000
     *      ,XTEMP  ,XFLWN  ,XPRSN  ,XPMPN  ,XVLVN                      0000000
     *      ,YTEMP  ,YFLWN  ,YPRSN  ,YPMPN  ,YVLVN                      0000000
     *      ,TGAIN  ,FNGAIN ,PNGAIN ,HNGAIN ,VNGAIN                     0000000
     *      ,ITST   ,IFNST  ,IPNST  ,IHNST  ,IVNST                      0000000
     *      /5*0,    60*0,   40*0,   60*0,
     *       30000*0.0,15000*0.0,15000*0.0,15000*0.0,15000*0.0,
     *       30000*0.0,15000*0.0,15000*0.0,15000*0.0,15000*0.0,
     *       60*0.0,60*0/
C     DATA   NTEMP  ,NFLWN  ,NPRSN  ,NPMPN  ,NVLVN                      0000000
C    *      ,NTMP   ,NFNNET ,NPNNET ,NHNPMP ,NVNVLV                     0000000
C    *      ,NFNPAS ,NPNNOD ,NHNNUM ,NVNNUM                             0000000
C    *      ,ITMAX  ,IFNMAX ,IPNMAX ,IHNMAX ,IVNMAX                     0000000
C    *      ,XTEMP  ,XFLWN  ,XPRSN  ,XPMPN  ,XVLVN                      0000000
C    *      ,YTEMP  ,YFLWN  ,YPRSN  ,YPMPN  ,YVLVN                      0000000
C    *      ,TGAIN  ,FNGAIN ,PNGAIN ,HNGAIN ,VNGAIN                     0000000
C    *      ,ITST   ,IFNST  ,IPNST  ,IHNST  ,IVNST                      0000000
C    *      /5*0,    60*0,   40*0,   60*0,
C    *       600*0.0,300*0.0,300*0.0,300*0.0,300*0.0,
C    *       600*0.0,300*0.0,300*0.0,300*0.0,300*0.0,
C    *       60*0.0,60*0/
      DATA   NOTEMP ,NPTEMP ,NQTEMP ,TMPNOM                             0000000
     *      ,NOFLWN ,NPFLWN ,NQFLWN ,NRFLWN ,WNOMFN                     0000000
     *      ,NOPRSN ,NPPRSN ,NQPRSN ,NRPRSN                             0000000
     *      ,NOPMPN ,NPPMPN ,NQPMPN ,NRPMPN                             0000000
     *      ,NOVLVN ,NPVLVN ,NQVLVN ,NRVLVN                             0000000
     *      /2201*0,2000*100.0,2101*0,100*100.0,1051*0,421*0,1051*0/
C                                                                       0000000
C              221,  200,  211,  10,  106,  106,  106,  より変更
      DATA   TIMTMP ,TIMFLW ,TIMPRS ,TIMPMP,TIMVLV                      0000000
     *      ,DELTMP ,DELFLW ,DELPRS ,DELPMP,DELVLV                      0000000
     *      /100*0.0, 50*0.0, 50*0.0, 50*0.0, 50*0.0,
     *       100*0.0, 50*0.0, 50*0.0, 50*0.0, 50*0.0/
C                                                                       0000000
      END                                                               0000000
```

AABLOK改修部

AARSTA改修部

```
      SUBROUTINE   AARSTA ( JR , JEND )
C
C     READ  &  WRITE
C     RE - START  FILE  OF CONTROL MODULE
C
C      JR = 1   WRITE RE-START FILE
C      JR = 2   READ  RE-START FILE
C
C      JEND=0   NOMAL END   ON READ  RE-START FILE
C      JEND=1   END OF DATA ON READ  RE-START FILE
C
C === CONTROL  SUBROUTINE ===
C
c     INCLUDE  ( AAA )
      INCLUDE '../copcom/aaa'
C
C     COMMON / AAC1  / R1 ( 7 )
C     COMMON / AAC2  / R2 ( 11275)
C     COMMON / AACI1 / R3 ( 27 )
C     COMMON / AACI2 / R4 ( 3885 )
C     COMMON / AACI2 / R4 (40115 )
C     COMMON / AACI2 / R4 (52128 )
C     COMMON / AACI3 / R5 ( 960 )
C
      COMMON / AAC1  / R1 ( 7 )
      COMMON / AAC2  / R2 ( 11275)
      COMMON / AACI1 / R3 ( 27 )
      COMMON / AACI2 / R4 ( 6485 )
      COMMON / AACI3 / R5 ( 8925 )
      COMMON / AAP1  / R6 ( KNTP + KNFF * KNWF + KNOP * KNWP
     1                     + KNPM * KNNM + KNPV * KNNV )
C
      IF ( JR . EQ . 2 )  GO  TO   2000
C
C
C --- WRITE  RESTART  FILE ---
C
C
      WRITE ( 40 )  R1
C     WRITE ( 40 )  R2
      WRITE ( 40 )  R3
      WRITE ( 40 )  R4
      WRITE ( 40 )  R5
      WRITE ( 40 )  R6
C
      WRITE ( 6,6000 )  R1 (1)
      RETURN
C
C
C
C === READ  RESTART  FILE ===
C
 2000 CONTINUE
C
      READ ( 41 , END = 999 )  R1
C     READ ( 41 )  R2
      READ ( 41 )  R3
      READ ( 41 )  R4
      READ ( 41 )  R5
      READ ( 41 )  R6
C
      JEND  = 0
      WRITE ( 6 , 6010 )  R1 (1)
      RETURN
C
C
```

９６０ より変更

aac改修部

```
 COMMON/ AACI1  /   NINTAL          ,IPINIT                          0000000
*                  ,DELT            ,TMAX                            0000000
*                  ,OUTTIM(5)       ,OUTDEL(5)       ,NUMREC         0000000
*                  ,IORSTA          ,RSTART                          0000000
*                  ,RSTTIM(5)       ,RSTDEL(5)                       0000000
 COMMON/ AACI2  /   NTEMP            ,NTMP(20)        ,ITMAX(20)      0000000
*                  ,XTEMP(1500,20) ,YTEMP(1500,20) ,TGAIN(20)       0000000
*                  ,ITST(20)        ,TIMTMP(5,20)    ,DELTMP(5,20)   0000000
*                  ,NFLWN           ,NFNNET(10)      ,NFNPAS(10)     0000000
*                  ,IFNMAX(10)      ,XFLWN(1500,10) ,YFLWN(1500,10) 0000000
*                  ,FNGAIN(10)      ,IFNST(10)       ,TIMFLW(5,10)   0000000
*                  ,DELFLW(5,10)                                     0000000
*                  ,NPRSN           ,NPNNET(10)      ,NPNNOD(10)     0000000
*                  ,IPNMAX(10)      ,XPRSN(1500,10) ,YPRSN(1500,10) 0000000
*                  ,PNGAIN(10)      ,IPNST(10)       ,TIMPRS(5,10)   0000000
*                  ,DELPRS(5,10)                                     0000000
*                  ,NPMPN           ,NHNPMP(10)      ,NHNNUM(10)     0000000
*                  ,IHNMAX(10)      ,XPMPN(1500,10) ,YPMPN(1500,10) 0000000
*                  ,HNGAIN(10)      ,IHNST(10)       ,TIMPMP(5,10)   0000000
*                  ,DELPMP(5,10)                                     0000000
*                  ,NVLVN           ,NVNVLV(10)      ,NVNNUM(10)     0000000
*                  ,IVNMAX(10)      ,XVLVN(1500,10) ,YVLVN(1500,10) 0000000
*                  ,VNGAIN(10)      ,IVNST(10)       ,TIMVLV(5,10)   0000000
*                  ,DELVLV(5,10)                                     0000000
 COMMON/ AACI3  /   NOTEMP          ,NPTEMP(200)     ,NQTEMP(10,200) 0000000
*                  ,TMPNOM(10,200)                                   0000000
*                  ,NOFLWN          ,NPFLWN(100)     ,NQFLWN(10,100) 0000000
*                  ,NRFLWN(10,100)  ,WNOMFN(100)                     0000000
*                  ,NOPRSN          ,NPPRSN(50)      ,NQPRSN(10,50)  0000000
*                  ,NRPRSN(10,50)                                    0000000
*                  ,NOPMPN          ,NPPMPN(20)      ,NQPMPN(10,20)  0000000
*                  ,NRPMPN(10,20)                                    0000000
*                  ,NOVLVN          ,NPVLVN(50)      ,NQVLVN(10,50)  0000000
*                  ,NRVLVN(10,50)                                    0000000
 COMMON/ AAC1   /   ET               ,YTIME           ,ICOUNT         0000000
*                  ,JTOTAL          ,JBLOCK                          0000000
*                  ,ETMIN           ,RTIME
 COMMON/ AAC2   /   TTIME(50)            ,TTEMP(50,10,200)            0000000
*                  ,TFLWN(50,10,100)    ,TPRSN(50,10,50)             0000000
*                  ,TPMPN(50,10,20)      ,TVLVN(50,10,50)             0000000
```

変更

変更

```
 COMMON/ AACI3  /   NOTEMP          ,NPTEMP(20)      ,NQTEMP(10,20)
*                  ,TMPNOM(10,20)
*                  ,NOFLWN          ,NPFLWN(10)      ,NQFLWN(10,10)
*                  ,NRFLWN(10,10)   ,WNOMFN(10)
*                  ,NOPRSN          ,NPPRSN(5)       ,NQPRSN(10,5)
*                  ,NRPRSN(10,5)
*                  ,NOPMPN          ,NPPMPN(5)       ,NQPMPN(10,5)
*                  ,NRPMPN(10,5)
*                  ,NOVLVN          ,NPVLVN(5)       ,NQVLVN(10,5)
*                  ,NRVLVN(10,5)
```

```
 COMMON/ AAC2   /   TTIME(25)        ,TTEMP(25,10,20)
*                  ,TFLWN(25,10,10),TPRSN(25,10, 5)
*                  ,TPMPN(25,10, 5),TVLVN(25,10, 5)
```

目　的	途中停止の場合でも SUMY 用ファイルが作成されるように改修	改修サブルーチン	MAINRS (MAIN プログラム)
		改修コモン	—

概　　要
途中停止の場合 09 番ファイルが作成されず SUMY 処理ができないため、10 番ファイルと同時に 09 番ファイルも作成するように改修。

```
  501 CONTINUE                                                          0000000
      YTIME   = RSTART + DT                                             0000000
C-----------------                                                      0000000
C                                                                       0000000
C                                                                       0000000
C                                                                       0000000
C-----------------------------------------                              0000000
C-----   J1 = 4  --- STATIC CALCULATION ---
C-----------------------------------------                              0000000
      ELSE IF( J1 .EQ. 4 ) THEN                                         0000000
C                                                                       0000000
C                                                                       0000000
      IRSTAT  = IORSTA
      TIME    = 0.
      IF( IORSTA .EQ. 1 ) THEN                                          0000000
      NDO     = 1
      ELSE
C                                                                       0000000
C   --INITIAL SETTING--                                                 0000000
      ET          = 0.0
      ETMIN       = 0.0
      YTIME       = 0.0                                                 0000000
      RTIME       = 0.0                                                 0000000
      ICOUNT      = 0                                                   0000000
      JTOTAL      = 0                                                   0000000
      JBLOCK      = 0                                                   0000000
C                                                                       0000000
C   --PRINT OUT--                                                       0000000
      IF( IPINIT .GE. 1 ) THEN                                          0000000
      WRITE(6, 402)                                                     0000000
      WRITE(6, 405)                                                     0000000
      WRITE(6, 410) ET ,ETMIN      ,RTIME   ,YTIME                      0000000
      WRITE(6, 415)                          ICOUNT                     0000000
      WRITE(6, 420)                          JTOTAL                     0000000
      WRITE(6, 425)                          JBLOCK                     0000000
C                                                                       0000000
  402 FORMAT(1H1,'*** CONTROL MODULE INITIAL SETTING ***')              0000000
  405 FORMAT(1H0,'CALCULATION TIME',47X,                                0000000
     1           'RESTART OUTPUT',19X,                                  0000000
     2           'PLOT OUTPUT')                                         0000000
  410 FORMAT(1H0,'ET       = ',E12.5, 7X,'ETMIN    = ',E12.5,10X,       0000000
     1           'RTIME    = ',E12.5,10X,                               0000000
     2           'YTIME    = ',E12.5)                                   0000000
  415 FORMAT(1H ,96X,'ICOUNT   = ',I3)                                  0000000
  420 FORMAT(1H ,96X,'JTOTAL   = ',I3)                                  0000000
  425 FORMAT(1H ,96X,'JBLOCK   = ',I3)                                  0000000
      END IF
C                                                                       0000000
      JBACK   = 0
      NDO     = NINTAL
      END IF
C                                                                       0000000
C                                                                       0000000
C                                                                       0000000
C-----------------------------------------                              0000000
C-----   J1 = 5  --- TRANSIENT CALCULATION---
C-----------------------------------------                              0000000
      ELSE                                                              0000000
C                                                                       0000000
C   --CALCULATE JREC1--                                                 0000000
      JREC1 = 0
      DO 531 I = 1, NOTEMP
  531 JREC1 = JREC1 + NPTEMP(I)
      DO 532 I = 1, NOFLWN
  532 JREC1 = JREC1 + NPFLWN(I)
      DO 533 I = 1, NOPRSN
```

MAINRS改修部

追加

```
  533 JREC1 = JREC1 + NPPRSN(I)
      DO 534 I = 1, NOPMPN
  534 JREC1 = JREC1 + NPPMPN(I)
      DO 535 I = 1, NOVLVN
  535 JREC1 = JREC1 + NPVLVN(I)
C                                                                       0000000
C ----TRANSIENT CALCULATION CONTROL----                                 0000000
C                                                                       0000000
      IRSTAT  = IORSTA
      NDO     = 1
C                                                                       0000000
  510 CONTINUE
      TIME = 1.0E+20
      IF( ET .LE. ETMIN .AND. IRSTAT .NE. 2 ) THEN                      0000000
      IF( DELT .EQ. 0.0 ) GO TO 1000                                    0000000
      IF( ET   .GT. TMAX) GO TO 1000
C                                                                       0000000
      XTIME        = ET  +  DELT                                        0000000
C                                                                       0000000
C   --DATA STORE & OUTPUT SUMMARY & PLOT OUTPUT--                       0000000
C                                                                       0000000
      IF( ET    .GE. YTIME  .OR. XTIME .GT. TMAX ) THEN                 0000000
      DO 520 I = 1,5                                                    0000000
      IF( I.NE.1 .AND. OUTTIM(I).EQ.0.0 ) GO TO 522
      IF( ET .GE. OUTTIM(I) ) DT = OUTDEL(I)                            0000000
  520 CONTINUE                                                          0000000
  522 CONTINUE                                                          0000000
      ICOUNT   = ICOUNT + 1                                             0000000
      JTOTAL   = JTOTAL + 1                                             0000000
      CALL AASTOR( ICOUNT )                                             0000000
      YTIME    = YTIME + DT                                             0000000
      IF( JTOTAL .GE. 2000  ) THEN                                      0000000
      WRITE( 6, 538)                                                    0000000
      TMAX     = ET
      END IF
      IF( ICOUNT .GE. NUMREC) THEN                                      0000000
      JBLOCK   = JBLOCK + 1                                             0000000
C
      WRITE( 6, 536) JBLOCK, JTOTAL, JREC1, NUMREC, ET                  0000000
C                                                                       0000000
C   --FILE OUT DATA (UNIT 9)--                                          0000000
      REWIND(9)
      WRITE( 9 )     JBLOCK, JTOTAL, JREC1, NUMREC                      0000000
      WRITE( 9 )     NOTEMP, NPTEMP, NQTEMP                             0000000
      WRITE( 9 )     NOFLWN, NPFLWN, NQFLWN, NRFLWN                     0000000
      WRITE( 9 )     NOPRSN, NPPRSN, NQPRSN, NRPRSN                     0000000
      WRITE( 9 )     NOPMPN, NPPMPN, NQPMPN, NRPMPN                     0000000
      WRITE( 9 )     NOVLVN, NPVLVN, NQVLVN, NRVLVN                     0000000
C                                                                       0000000
      JF       = 1
      CALL AAFILE( JF  ,JBACK )                                         0000000
      ICOUNT   = 0                                                      0000000
      JBACK    = 0
      END IF                                                            0000000
      END IF                                                            0000000
C                                                                       0000000
C   --CONTROL MODULE RE-START FILE OUTPUT--                             0000000
      IF( ET.GE. RTIME .OR. XTIME.GT.TMAX ) THEN                        0000000
      DO 540 I = 1,5                                                    0000000
      IF( I.NE.1 .AND. RSTTIM(I).EQ.0.0 ) GO TO 542
      IF( ET .GE. RSTTIM(I) ) DR = RSTDEL(I)                            0000000
  540 CONTINUE                                                          0000000
  542 CONTINUE                                                          0000000
      IF( ICOUNT.NE.0    ) THEN
      JBLOCK    = JBLOCK + 1                                            0000000
C
```

追加

```
      WRITE( 6, 536) JBLOCK, JTOTAL, JREC1, NUMREC, ET
C
C   --FILE OUT DATA (UNIT 9)--
      REWIND(9)
      WRITE( 9 )     JBLOCK, JTOTAL, JREC1, NUMREC
      WRITE( 9 )     NOTEMP, NPTEMP, NQTEMP
      WRITE( 9 )     NOFLWN, NPFLWN, NQFLWN, NRFLWN
      WRITE( 9 )     NOPRSN, NPPRSN, NQPRSN, NRPRSN
      WRITE( 9 )     NOPMPN, NPPMPN, NQPMPN, NRPMPN
      WRITE( 9 )     NOVLVN, NPVLVN, NQVLVN, NRVLVN
C
      JF        = 1
      CALL AAFILE( JF , JBACK )
      JBACK     = 1
      END IF
      JR        = 1
      CALL AARSTA( JR , JEND )
      RTIME     = RTIME + DR
      IRSTAT    = 2
      IF( ICOUNT.NE.0  ) JBLOCK    = JBLOCK -1
      END IF
C
      IF( XTIME .GT.TMAX ) THEN
      IF( ICOUNT.NE.0  ) JBLOCK    = JBLOCK +1
  536 FORMAT(1H0,85('*')/
     1       1H ,'OUTPUT DATA.....JBLOCK=',I6,'....JTOTAL=',I6
     2          ,'....JREC1 =',I6,'.....NUMREC =',I6, 'ET=',E12.5/
     3       1H ,85('*') )
  538 FORMAT(1H0,'*** NUMBER OF OUTPU DATA OVER 2000 ***')
      END IF
C
C   --TIME MESH--
      ET        = XTIME
C
CNOB
      CALL AADEBG(XTIME,DELT)
CNOB
      GO TO 510
C
      ELSE
C
C   --POOL VARIABLE FITTING--
      CALL AAFITP
      END IF
C
C
C
C
      END IF
C
C-----------------------------------------------
C------------ J=1,2,3,4,5   CALL MODULES ---------
C-----------------------------------------------
      NINT   = 1
C
      IF( JEND .EQ. 1 ) GO TO 210
c
C    -MODULE ST-
      CALL STCONT( J1, NINT, TIME, ETMIN, IRSTAT )
C
C     DO 1100 WHILE( NINT .LE. NDO )
      DO 1100 NINT=1,NDO
C
C
C******************** BEGIN ******************************************
C
```

追加

削除

追加

```
C   --CALCULATE JREC1--
      JREC1 = 0
      DO 531 I = 1, NOTEMP
  531 JREC1 = JREC1 + NPTEMP(I)
      DO 532 I = 1, NOFLWN
  532 JREC1 = JREC1 + NPFLWN(I)
      DO 533 I = 1, NOPRSN
  533 JREC1 = JREC1 + NPPRSN(I)
      DO 534 I = 1, NOPMPN
  534 JREC1 = JREC1 + NPPMPN(I)
      DO 535 I = 1, NOVLVN
  535 JREC1 = JREC1 + NPVLVN(I)
      WRITE( 6, 536) JBLOCK, JTOTAL, JREC1, NUMREC
C
C   --FILE OUT DATA (UNIT 9)--
      WRITE( 9 )     JBLOCK, JTOTAL, JREC1, NUMREC
      WRITE( 9 )     NOTEMP, NPTEMP, NQTEMP
      WRITE( 9 )     NOFLWN, NPFLWN, NQFLWN, NRFLWN
      WRITE( 9 )     NOPRSN, NPPRSN, NQPRSN, NRPRSN
      WRITE( 9 )     NOPMPN, NPPMPN, NQPMPN, NRPMPN
      WRITE( 9 )     NOVLVN, NPVLVN, NQVLVN, NRVLVN
```

Super—COPD　　改修仕様書　　改修NO. －4

目　的	ディメンションオーバーの修正	改修サブルーチン	LGTRNS
		改修コモン	—

概　　要

LGTRNS でディメンションオーバーが発生するため修正。

LGTRNS改修部

```
      SUBROUTINE LGTRNS                                                 0000000
C                                                                       0000000
C     MODULE LG TRANSIENT CALCULATION CONTROL                           0000000
C                                                                       0000000
C ====MODULE SUBROUTINE====                                             0000000
c     INCLUDE ( LGA     )                                               0000000
c     INCLUDE ( LGM     )                                               0000000
      include '../copcom/lga'
      include '../copcom/lgm'
      DIMENSION  CX(3),CY(20)                                           0000000
C                                                                       0000000
C                                                                       0000000
      FUNC(XOLD,YNEW,YOLD,TCON,GAIN,DT)                                 0000000
     1            = ((TCON - 0.5*DT)*XOLD + 0.5*GAIN*DT*(YNEW + YOLD)) 0000000
     2                  / (TCON + 0.5*DT)                               0000000
C                                                                       0000000
C                                                                       0000000
      N           = MLG2                                                0000000
      NP1         = MLG1                                                0000000
C                                                                       0000000
C ----DEFINE DELTLG----                                                 0000000
C                                                                       0000000
      CALL LGTDEL                                                       0000000
      IF( DELTLG .LE. 0.0 ) THEN                                        0000000
      WRITE(6,  10) DELTLG                                              0000000
   10 FORMAT(1H1,'----SUB.MODULE LG DELTLG = ',E12.5)                   0000000
      CALL EXIT                                                         0000000
      END IF                                                            0000000
C                                                                       0000000
C                                                                       0000000
C ----DETECTION ELEMENT----                                             0000000
C                                                                       0000000
C                                                                       0000000
      DO 100 K = 1,NDLG                                                 0000000
C                                                                       0000000
CMOD.1991/07/30  A.0                                                    0000000
C                                                                       0000000
C     IF( IBLKD(K) .EQ. 1 ) GO TO 100                                   0000000
C                                                                       0000000
      IF( IOP1LG(K) .EQ. 0 .AND. IBLKD(K) .EQ. 1 ) GO TO 100            0000000
C
      DO 110 M = 1,3                                                    0000000
      IF( LLGID(M,K) .EQ. 0 ) GO TO 120                                 0000000
      IJ          = 2                                                   0000000
      CALL LGCNCT( IJ,LLGID(M,K),MLGID(M,K),NLGID(M,K),CX(M) )          0000000
      GO TO 110                                                         0000000
  120 CONTINUE                                                          0000000
      IF( M .EQ. 2 ) CX(M) = 1.0                                        0000000
  110 CONTINUE                                                          0000000
      CLOGD(N,K,1) = CX(1) / CX(2)                                      0000000
      CLOGD(N,K,2) = FUNC( CLOGD(NP1,K,2),CLOGD(N,K,1),CLOGD(NP1,K,1)   0000000
     1                  ,VALLGD(1,K),1.0,DELTLG )                       0000000
      IF( VALLGD(1,K) .EQ. 0.0 ) CLOGD(N,K,2) = CLOGD(N,K,1)            0000000
      CLOGD(N,K,3) = CLOGD(N,K,2)*100.0 / VALLGD(2,K)                   0000000
      IF( ITDLD(K) .EQ. 1 ) GO TO 130                                   0000000
      IF( ISETD(K) .EQ. 1 ) THEN                                        0000000
         IX          = 2                                                0000000
         CALL YDISTB(XFTLGH(1,K),YFTLGH(1,K),IFTLGH(K),CX(3),ZZH,1.0,IX)0000000
         IX          = 2                                                0000000
         CALL YDISTB(XFTLGL(1,K),YFTLGL(1,K),IFTLGL(K),CX(3),ZZL,1.0,IX)0000000
      ELSE                                                              0000000
         ZZH         = VALLGD(3,K)                                      0000000
         ZZL         = VALLGD(4,K)                                      0000000
      END IF                                                            0000000
      IF( CLOGD(N,K,3) .GE. ZZH ) GO TO 140                             0000000
      IF( CLOGD(N,K,3) .LE. ZZL ) GO TO 140                             0000000
```

１０ より変更

```
CMOD.1991/07/30  A.0
      IF( IOP1LG(K) .EQ. 1 ) THEN
         LACTD(K)  =  0
         SIGOUT    =  FLOAT(LACTD(K))
         IJ        =  1
         CALL LGCNCT( IJ,LLGOD(K),MLGOD(K),NLGOD(K),SIGOUT )          0000000
      ENDIF
C.END
      GO TO 100                                                       0000000
  140 CONTINUE                                                        0000000
      TIMLGD(K)     = ETLG + TDLLGD(K)                                0000000
      ITDLD(K)      = 1                                               0000000
  130 CONTINUE                                                        0000000
      IF( ETLG .LT. TIMLGD(K) ) GO TO 100                             0000000
      LACTD(K)      = 1                                               0000000
      IBLKD(K)      = 1                                               0000000
      SIGOUT        = FLOAT(LACTD(K))                                 0000000
      IJ            = 1                                               0000000
      CALL LGCNCT( IJ,LLGOD(K),MLGOD(K),NLGOD(K),SIGOUT )             0000000
CMOD.1991/07/30  A.0
C
      ITDLD(K)      = 0
C
C.END-
C  — PRINT MESSAGE                                                    0000000
      IF( IPTRLG .GE. 1 ) THEN                                        0000000
         WRITE(6,  20)                                                0000000
         WRITE(6,  30) ETLG,K,LACTD(K)                                0000000
      END IF                                                          0000000
   20 FORMAT(1H0///1H0,'**** PROTECTION SYSTEM DETECTION SIGNAL IS NOW' 0000000
     1                 ' GENERATED ****')                             0000000
   30 FORMAT(1H0,'ETLG  = ',E12.5,3X,'LACTD(',I3,')  = ',I2)          0000000
C                                                                     0000000
  100 CONTINUE                                                        0000000
C                                                                     0000000
C                                                                     0000000
C ——ACTION ELEMENT——                                                  0000000
C                                                                     0000000
C                                                                     0000000
      DO 200 L = 1,NALG                                               0000000
C                                                                     0000000
CMOD.1991/07/30  A.0                                                  0000000
C                                                                     0000000
C     IF( IBLKA(L) .EQ. 1 ) GO TO 200                                 0000000
      IF( IOP2LG(L) .EQ. 0 .AND. IBLKA(L) .EQ. 1 ) GO TO 200          0000000
C     IF( ITDLA(L) .EQ. 1 ) GO TO 210                                 0000000
      LTEMP         = 0                                               0000000
      LCUNT         = 0                                               0000000
      DO 220 M = 1,NUMLGA(L)                                          0000000
      IJ            = 2                                               0000000
      CALL LGCNCT( IJ,LLGIA(M,L),MLGIA(M,L),NLGIA(M,L),CY(M) )        0000000
      LTEMP         = LTEMP + INT(CY(M))                              0000000
      LCUNT         = LCUNT + 1                                       0000000
  220 CONTINUE                                                        0000000
CMOD.1991/07/30  A.0                                                  0000000
C                                                                     0000000
C     IF( ISELA(L).EQ.1 .AND. LTEMP.GE.1  .OR.                        0000000
C    1    ISELA(L).EQ.2 .AND. LTEMP.EQ.LCUNT ) THEN                   0000000
C
      IF( ISELA(L).EQ.1 .AND. LTEMP.GE.1  .OR.                        0000000
     1    ISELA(L).EQ.2 .AND. LTEMP.EQ.LCUNT .OR.                     0000000
     2    ISELA(L).EQ.3 .AND. LTEMP.EQ.0     ) THEN                   0000000
C
         IF( ITDLA(L) .EQ. 1 ) GO TO 210                              0000000
C
C.END
```

入力データ最大１８

Super—COPD　　改修仕様書　　改修NO. －5

目　的	ＦＡリスタート時のデータ読込み不具合の修正	改修サブルーチン	FAREAD
		改修コモン	—

概　　要
リスタート時に05番データによるデータ改訂が入らないため修正。

FAREAD改修部

```
      SUBROUTINE FAREAD (J1)                                            0000000
C                                                                       0000000
C     MODULE FA DATA INPUT                                              0000000
C                                                                       0000000
C ====MODULE SUBROUTINE====                                             0000000
c     INCLUDE ( AAA )                                                   0000000
c     INCLUDE ( FAA )                                                   0000000
c     INCLUDE ( FAM )                                                   0000000
      include '../copcom/aaa'
      include '../copcom/faa'
      include '../copcom/fam'
C                                                                       0000000
C                                                                       0000000
      NAMELIST/ NAMFA1 / NNFA    ,IMDLFA                                0000000
     *                  ,DMAXFA  ,DMINFA  ,TMAXFA                      0000000
     *                  ,ITIMFA  ,DTIMFA  ,DDELFA  ,DCOTFA
     *                  ,ISTAFA  ,IDBGFA                               0000000
     *                  ,OUTFA                                         0000000
      NAMELIST/ NAMFA2 / NELHDA  ,NTAFA   ,NPA1    ,NPA2    ,NVA1      0000000
     * ,NNVA  ,NTAAV   ,NTAIN   ,NVA2    ,IOP1FA  ,IOP2FA  ,IOP3FA     0000000
     * ,IOP4FA,IOP5FA  ,ALCFA   ,HDFA    ,TAIRFA  ,FRICFA              0000000
     *        ,DEFA    ,ASFA    ,WINTA   ,VINTA   ,IEINTA  ,EINTA      0000000
     *        ,KPR1FA  ,ITINT   ,TINTAV  ,IPINT   ,PINTA               0000000
     *        ,CFK1IA  ,CFK1IB  ,CFK1RE  ,CFK2IA  ,CFK2IB  ,CFK2RE     0000000
C
C ----READ INPUT DATA----
C
      IF( J1 .EQ. 1 ) IU = 7
      IF( J1 .EQ. 3 ) IU = 5
C                                  1 より変更
      REWIND(IU)
      READ(IU,NAMFA1,END=999)
      READ(IU,NAMFA2)
C                                                                       0000000
C
      GO TO 200
C
  999 CONTINUE
      WRITE(6,900) IU
  900 FORMAT(1H0,5X,'***FAREAD END OF DATA ON UNIT ',I3,'***')
C
C
  200 CONTINUE
C
C
C
      RETURN
      END
C
C
      BLOCK DATA FABLOK
c     INCLUDE ( AAA )
c     INCLUDE ( FAA )
c     INCLUDE ( FAM )
      include '../copcom/aaa'
      include '../copcom/faa'
      include '../copcom/fam'
C
C ----DATA SET----
C
      DATA     NNFA     / 0      /
      DATA     IMDLFA   ,DMAXFA   ,DMINFA   ,TMAXFA
     *        ,ITIMFA   ,DTIMFA   ,DDELFA   ,DCOTFA
     *        ,ISTAFA   ,IDBGFA   ,OUTFA
     *        /KNFA*0   ,KNFA*0.0 ,KNFA*0.0 ,KNFA*0.0
     *        ,KNFA*0   ,KNFA*0.0 ,KNFA*0.0 ,KNFA*0.0
```

Super—COPD　　改修仕様書　　改修NO. －6

目　的	KNパラメータ増加	改修サブルーチン	—
		改修コモン	KNA

概　　要
炉心詳細モデルに対応するためフィードバック反応度係数個数のパラメータを増やす。

```
PARAMETER ( KRKN=12)                                          0000000
```

4 より変更

ｋｎａ改修部

Super—COPD　　改修仕様書　　改修NO. －7

目　的	ポンプ摩擦トルク計算部修正	改修サブルーチン	PPFNA1
		改修コモン	—

概　　要

ポンプ摩擦トルク計算部を、もんじゅデータ集２次主循環ポンプデータと異なるため修正。

```
     2            + COEFPM(4,4,I) * X ** 3                          00001100
     3            + COEFPM(5,4,I) * X ** 4                          00001100
     4            + COEFPM(6,4,I) * X ** 5                          00001200
               PPFNA2 = PTORQR(I) * Q * R ** 2                      00001300
        GO TO 300                                                   0000000
  100 CONTINUE                                                      0000000
               X = 1. / X                                           00001700
               Q = COEFPM(1,5,I) + COEFPM(2,5,I) * X                00001000
     1            + COEFPM(3,5,I) * X ** 2                          00001000
     2            + COEFPM(4,5,I) * X ** 3                          00001100
     3            + COEFPM(5,5,I) * X ** 4                          00001100
     4            + COEFPM(6,5,I) * X ** 5                          00001200
               PPFNA2 = PTORQR(I) * Q * W ** 2                      00001740
        GO TO 300                                                   00001750
  200 CONTINUE                                                      00001750
               X = 1. / X                                           00001700
               Q = COEFPM(1,6,I) + COEFPM(2,6,I) * X                00001000
     1            + COEFPM(3,6,I) * X ** 2                          00001000
     2            + COEFPM(4,6,I) * X ** 3                          00001100
     3            + COEFPM(5,6,I) * X ** 4                          00001100
     4            + COEFPM(6,6,I) * X ** 5                          00001200
               PPFNA2 = PTORQR(I) * Q * W ** 2                      00001740
  300 CONTINUE                                                      0000000
      ENDIF                                                         0000000
      RETURN                                                        00004100
C                                                                   00001770
C                                                                   00001780
C                                                                   00001790
      ENTRY  PPFNA3(ROT,I)                                          00001800
      R = ROT / ROTAR(I)                                            00002300
c     IF(R .LE. 0.0117)  THEN                                       0000000
c          F = FCOE(1,1,I) + FCOE(2,1,I) * R + FCOE(3,1,I) * R**2   0000000
      IF(R .GT. 0.005)  THEN
          F = FCOE(1,2,I) + FCOE(2,2,I) * R + FCOE(3,2,I) * R**2    0000000
      ELSE                                                          0000000
          F = FCOE(1,3,I) + FCOE(2,3,I) * R + FCOE(3,3,I) * R**2    0000000
      ENDIF                                                         0000000
       PPFNA3 = PTORQR(I) * F                                       0000000
      RETURN                                                        00004100
C                                                                   00001770
C                                                                   00001780
C                                                                   00001790
      ENTRY  PPFNA4(TIME)                                           00001800
C                                                                   00002200
      RETURN                                                        00004100
C                                                                   00000500
C                                                                   00002200
      ENTRY  PPFNA5(PHD,ROT,WPUMP,I)                                00001800
C                                                                   0000000
      H = PHD / PHEADR(I)                                           0000000
      R = ROT / ROTAR(I)                                            00000600
      W = WPUMP / PWFLWR(I)                                         00000700
      YX = 1.0E+60                                                  0000000
      IX = 1                                                        0000000
      SAP = 0.0                                                     0000000
   51 CONTINUE                                                      0000000
      Z = W / R                                                     00000800
      IF(Z .LT. 1.)     THEN                                        00000900
               Q0 = COEFPM(1,1,I)*R**5                              00001000
     1            + COEFPM(2,1,I) * W * R **4                       00001000
     2            + ( COEFPM(3,1,I) * W ** 2 - H ) * R **3          00001000
     3            + COEFPM(4,1,I) * W ** 3 * R **2                  00001100
     4            + COEFPM(5,1,I) * W ** 4 * R                      00001100
     5            + COEFPM(6,1,I) * W ** 5                          00001200
C                                                                   0000000
               Q1 = 5 * COEFPM(1,1,I) * R ** 4                      00001000
```

追加

ELSE IF(R .GT. 0.005) THEN より変更

ＰＰＦＮＡ１改修部

Super—COPD　　改修仕様書　　改修NO. －8

目　的	ポンプ停止時不具合の修正	改修サブルーチン	PPFNA1
		改修コモン	—

概　　要
プログラムにミスがあり、ポンプ回転数＝0時のポンプヘッド、トルクが0になってしまうため修正。

ＰＰＦＮＡ１改修部

```
      FUNCTION    PPFNA1(ROT,WPUMP,I)                                 00000100
C                                                                     0000000
C                                                                     0000000
C     PUMP CHARACTERISTICSCALCULATION                                 0000000
C                                                                     0000000
C                                                                     0000000
c     INCLUDE ( PPA    )                                              0000000
c     INCLUDE ( PPM    )                                              0000000
      include '../copcom/ppa'
      include '../copcom/ppm'
                                                                      0000000
C                                                                     0000000
      R = ROT / ROTAR(I)                                              00000600
      W = WPUMP / PWFLWR(I)                                           00000700
      IF(R .EQ. 0.0)    THEN                                          0000000
         Q      = COEFPM(1,2,I)
         IF(W .LT. 0.0) Q =  COEFPM(1,3,I)
         PPFNA1 = PHEADR(I) * Q * RYOYU(I) * W ** 2
      ELSE                                                            0000000
          X = W / R                                                   00000800
      IF(X .GT. 1.)  GO TO 10                                         00000900
      IF(X .LT.-1.)  GO TO 20                                         00000900
              Q = COEFPM(1,1,I) + COEFPM(2,1,I) * X                   00001000
     1          + COEFPM(3,1,I) * X ** 2                              00001000
     2          + COEFPM(4,1,I) * X ** 3                              00001100
     3          + COEFPM(5,1,I) * X ** 4                              00001100
     4          + COEFPM(6,1,I) * X ** 5                              00001200
             PPFNA1 = PHEADR(I) * Q * RYOYU(I) * R ** 2               00001300
        GO TO 30                                                      0000000
   10 CONTINUE                                                        0000000
              X = 1. / X                                              00001700
              Q = COEFPM(1,2,I) + COEFPM(2,2,I) * X                   00001000
     1          + COEFPM(3,2,I) * X ** 2                              00001000
     2          + COEFPM(4,2,I) * X ** 3                              00001100
     3          + COEFPM(5,2,I) * X ** 4                              00001100
     4          + COEFPM(6,2,I) * X ** 5                              00001200
             PPFNA1 = PHEADR(I) * Q * RYOYU(I) * W ** 2               00001740
        GO TO 30                                                      00001750
   20 CONTINUE                                                        00001750
              X = 1. / X                                              00001700
              Q = COEFPM(1,3,I) + COEFPM(2,3,I) * X                   00001000
     1          + COEFPM(3,3,I) * X ** 2                              00001000
     2          + COEFPM(4,3,I) * X ** 3                              00001100
     3          + COEFPM(5,3,I) * X ** 4                              00001100
     4          + COEFPM(6,3,I) * X ** 5                              00001200
             PPFNA1 = PHEADR(I) * Q * RYOYU(I) * W ** 2               00001740
   30 CONTINUE
      END IF                                                          0000000
      RETURN                                                          00001760
C                                                                     00001770
C                                                                     00001780
C                                                                     00001790
      ENTRY    PPFNA2(ROT,WPUMP,I)                                    00001800
C                                                                     00002200
      R = ROT / ROTAR(I)                                              00000600
      W = WPUMP / PWFLWR(I)                                           00000700
      IF(R .EQ. 0.0)    THEN                                          0000000
         Q      = COEFPM(1,5,I)                                       0000000
         IF(W .LT. 0.0) Q =  COEFPM(1,6,I)
         PPFNA2 = PTORQR(I) * Q * W ** 2
      ELSE                                                            0000000
          X = W / R                                                   00000800
      IF(X .GT. 1.)  GO TO 100                                        00000900
      IF(X .LT.-1.)  GO TO 200                                        00000900
              Q = COEFPM(1,4,I) + COEFPM(2,4,I) * X                   00001000
     1          + COEFPM(3,4,I) * X ** 2                              00001000
```

追加

ここにあった　ＥＮＤ　ＩＦ　を移動

追加

ここにあった　ＥＮＤ　ＩＦ　を移動

```
     2            + COEFPM(4,4,I) * X ** 3                          00001100
     3            + COEFPM(5,4,I) * X ** 4                          00001100
     4            + COEFPM(6,4,I) * X ** 5                          00001200
              PPFNA2 = PTORQR(I) * Q * R ** 2                       00001300
        GO TO 300                                                   0000000
  100 CONTINUE                                                      0000000
              X = 1. / X                                            00001700
              Q = COEFPM(1,5,I) + COEFPM(2,5,I) * X                 00001000
     1          + COEFPM(3,5,I) * X ** 2                            00001000
     2          + COEFPM(4,5,I) * X ** 3                            00001100
     3          + COEFPM(5,5,I) * X ** 4                            00001100
     4          + COEFPM(6,5,I) * X ** 5                            00001200
              PPFNA2 = PTORQR(I) * Q * W ** 2                       00001740
        GO TO 300                                                   00001750
  200 CONTINUE                                                      00001750
              X = 1. / X                                            00001700
              Q = COEFPM(1,6,I) + COEFPM(2,6,I) * X                 00001000
     1          + COEFPM(3,6,I) * X ** 2                            00001000
     2          + COEFPM(4,6,I) * X ** 3                            00001100
     3          + COEFPM(5,6,I) * X ** 4                            00001100
     4          + COEFPM(6,6,I) * X ** 5                            00001200
              PPFNA2 = PTORQR(I) * Q * W ** 2                       00001740
  300 CONTINUE                                                      0000000
      ENDIF                                                         0000000
      RETURN                                                        00004100
C                                                                   00001770
C                                                                   00001780
C                                                                   00001790
      ENTRY  PPFNA3(ROT,I)                                          00001800
      R = ROT / ROTAR(I)                                            00002300
c     IF(R .LE. 0.0117)  THEN                                       0000000
c          F = FCOE(1,1,I) + FCOE(2,1,I) * R + FCOE(3,1,I) * R**2   0000000
      IF(R .GT. 0.05)  THEN                                         0000000
           F = FCOE(1,2,I) + FCOE(2,2,I) * R + FCOE(3,2,I) * R**2   0000000
      ELSE                                                          0000000
           F = FCOE(1,3,I) + FCOE(2,3,I) * R + FCOE(3,3,I) * R**2   0000000
      ENDIF                                                         0000000
       PPFNA3 = PTORQR(I) * F                                       0000000
      RETURN                                                        00004100
C                                                                   00001770
C                                                                   00001780
C                                                                   00001790
      ENTRY  PPFNA4(TIME)                                           00001800
C                                                                   00002200
      RETURN                                                        00004100
C                                                                   00000500
C                                                                   00002200
      ENTRY  PPFNA5(PHD,ROT,WPUMP,I)                                00001800
C                                                                   0000000
      H = PHD / PHEADR(I)                                           0000000
      R = ROT / ROTAR(I)                                            00000600
      W = WPUMP / PWFLWR(I)                                         00000700
      YX = 1.0E+60                                                  0000000
      IX = 1                                                        0000000
      SAP = 0.0                                                     0000000
   51 CONTINUE                                                      0000000
      Z = W / R                                                     00000800
      IF(Z .LT. 1.)     THEN                                        00000900
              Q0 = COEFPM(1,1,I)*R**5                               00001000
     1          + COEFPM(2,1,I) * W * R **4                         00001000
     2          + ( COEFPM(3,1,I) * W ** 2 - H ) * R **3            00001000
     3          + COEFPM(4,1,I) * W ** 3 * R **2                    00001100
     4          + COEFPM(5,1,I) * W ** 4 * R                        00001100
     5          + COEFPM(6,1,I) * W ** 5                            00001200
C                                                                   0000000
              Q1 = 5 * COEFPM(1,1,I) * R ** 4                       00001000
```

目　的	LW 不具合の改修	改修サブルーチン	LWTRNS
		改修コモン	—

概　　要

下部プレナムモデルの無駄時間部を１計算時間巾で通り過ぎる場合には、ディメンションオーバーが起こるため、エラーメッセージを出力して止まるようになっていたが、出口温度＝入口温度として計算を続行するように改修を行った。

LWTRNS改修部

```
      SUBROUTINE LWTRNS                                                 00010000
C                                                                       00020000
C     R/V LOWER PLENUM NEW MODEL                                        00030000
C                                                                       00040000
c     INCLUDE (  AAA  )                                                 00050000
c     INCLUDE (  AAP  )                                                 00060000
c     INCLUDE (  LWM  )                                                 00080000
      include '../copcom/aaa'
      include '../copcom/aap'
      include '../copcom/lwm'
      DIMENSION AAAA(4)                                                 00090000
C                                                                       00100000
      FUNC(YOLD,XNEW,XOLD,TCON,GAIN,DT)                                 00110000
     1    = ((TCON - 0.5*DT)*YOLD + 0.5*GAIN*DT*(XNEW + XOLD))          00120000
     2                                 / (TCON + 0.5*DT)                00130000
C                                                                       00140000
C ---- DEFINE DELTLW                                                    00150000
C                                                                       00160000
      CALL LWTDEL                                                       00170000
      IF( DELTLW .LE. 0.0 ) THEN                                        00180000
      WRITE(6,  10) DELTLW                                              00190000
   10 FORMAT(1H1,'----SUB.MODULE LW   DELTM = ',E12.5)                  00200000
      CALL EXIT                                                         00210000
      END IF                                                            00220000
C                                                                       00221000
C     OPTION SELECT                                                     00222000
C                                                                       00223000
      IF(IOPTLW.NE.2) GO TO 2000                                        00224000
C                                                                       00230000
C     FLOW RATE OF INLET NOZZLE                                         00240000
C                                                                       00250000
      DO 100 II=1,NLOOP                                                 00260000
      WNILP(II) = FLWN(NFLW(II),NWLW)                                   00270000
      IF( WNILP(II) .LE. 0.0 ) WNILP(II) = 0.0                          00280000
  100 CONTINUE                                                          00290000
C                                                                       00300000
C     TEMPERATURE OF INLET NOZZLE                                       00310000
C                                                                       00320000
      DO 110 II=1,NLOOP                                                 00330000
      TNILP(II) = TEMP(NTILW(II))                                       00340000
  110 CONTINUE                                                          00350000
C                                                                       00360000
C                                                                       00370000
C     TRANSPORT LAG                                                     00380000
C                                                                       00390000
      DO 400 II=1,NLOOP                                                 00400000
      IF( WNILP(II) .GT. WLPLIM ) THEN                                  00410000
        ILPFL(II)  = 0                                                  00420000
        ILPFLX(II) = 0                                                  00430000
        VLAGLP(II) = VMXLP1 * RATLP                                     00440000
        NBTEMP = INT(XLUB2(II))                                         00450000
        XLUB2(II) = XLUB2(II) + DELTLW*50.0*WNILP(II)/VLAGLP(II)        00460000
        LNBTMP = INT(XLUB2(II) - FLOAT(NBTEMP))                         00470000
        IF( LNBTMP .GT. 50 ) THEN                                       00480000
c         WRITE(6,450) LNBTMP                                           00490000
c 450     FORMAT(1H0,'***** DIMENSION OVER *****'/11X,'LNBTMP = ',I5)   00500000
c         STOP                                                          00510000
          LNBTMP = 50                                                   00560000
          ILUM = LNBTMP                                                 00560000
          DO 505 KK=1,ILUM                                              00570000
  505     TNOLP(KK,MLW2,II) = TNILP(II)                                 00580000
          TN1LP(II) = TNOLP(50,MLW2,II)                                 00630000
        ELSEIF( LNBTMP .LE. 0 ) THEN                                    00520000
          DO 480 KK=1,50                                                00530000
  480     TNOLP(KK,MLW2,II) = TNOLP(KK,MLW1,II)                         00540000
        ELSE                                                            00550000
```

← 追加

Super—COPD　　改修仕様書　　改修NO. －10

目　的	原子炉トリップ時スクラム反応度不具合の修正	改修サブルーチン	CRTRNS
		改修コモン	—

概　　要

スクラム反応度の挿入時間が短縮されるため正しく入るように修正。

```
      CONTCR(N,6)  = ETCR                                       0000000
      CONTCR(NP1,6)= ETCR                                       0000000
 210  CONTINUE                                                  0000000
      ABSVS        = ABSVS - CRDATA(1)*DELTCR                   0000000
      IF( ABSVS .LT. ABSVD ) ABSVS = ABSVD                      0000000
      IF( ABSVS .GE. CRDATA(3) ) GO TO 180                      0000000
      ABSVS        = 0.0                                        0000000
      CONTCR(N,5)  = ETCR                                       0000000
      CONTCR(NP1,5)= ETCR                                       0000000
      GO TO 180                                                 0000000
 200  CONTINUE                                                  0000000
      CONTCR(N,7)  = ETCR - CONTCR(NP1,6)                       0000000
      CONTCR(NP1,7)= ETCR - CONTCR(NP1,6)                       0000000
      IF( CONTCR(N,7) .GE. 0.1 ) GO TO 210                      0000000
      CONTCR(N,4)  = CONTCR(NP1,4)                              0000000
      GO TO 182                                                 0000000
 180  CONTINUE                                                  0000000
      CONTCR(N,4)  = ABSVS*CONTCR(N,3)                          0000000
 182  CONTCR(N,8)  = CONTCR(NP1,8) - CONTCR(N,4)*DELTCR         0000000
 110  CONTINUE                                                  0000000
    END IF                                                      0000000
C                                                               0000000
    CONTCR(N,9)  = XCR0 + CONTCR(N,8)                           0000000
    IJ           = 2                                            0000000
    CALL YDISTB( XCROD(1),RCROD(1),MCROD,CONTCR(N,9)            0000000
   1               ,CONTCR(N,10),1.0,IJ )                       0000000
    CONTCR(N,11) = CONTCR(N,10) - R1CR0                         0000000
    CONTCR(N,11) = - CONTCR(N,11)                               0000000
    TEMP(N1CR)   = CONTCR(N,11)                                 0000000
C                                                               0000000
C ---SCRAM ROD REACTIVITY---                                    0000000
C                                                               0000000
    CONTCR(N,14) = TEMP(NSCR)                                   0000000
    IF( CONTCR(N,14) .NE. 1.0 ) GO TO 2000                      0000000
    CONTCR(N,16) = CONTCR(np1,16) + DELTCR      N より変更      0000000
    IJ           = 2                                            0000000
    CALL YDISTB( TBUCK(1),RBUCK(1),MBUCK,CONTCR(N,16)           0000000
   1                                ,CONTCR(N,15),BUCKS,IJ )    0000000
2000 CONTINUE                                                   0000000
    CONTCR(N,15) = - CONTCR(N,15)                               0000000
    TEMP(N2CR)   = CONTCR(N,15)                                 0000000
C                                                               0000000
C ---TOTAL REACTIVITY---                                        0000000
C                                                               0000000
    CONTCR(N,18) = CONTCR(N,11) + CONTCR(N,15)                  0000000
    TEMP(NTOTCR) = CONTCR(N,18)                                 0000000
C                                                               0000000
C ---REAL TIME OUTPUT---                                        0000000
C                                                               0000000
    IF( (IDBGCR .GE. 1) .AND. (OUTCR(IOUTCR) .GT. 0.0)          0000000
   1          .AND. (ETCR .GE. OUTCR(IOUTCR)) ) THEN            0000000
C                                                               0000000
    WRITE(6,5000)                                               0000000
    WRITE(6,5010) ETCR,DELTCR                                   0000000
    WRITE(6,5020) NVCR,TEMP(NVCR),NTCR,TEMP(NTCR),NSCR,TEMP(NSCR)  0000000
    WRITE(6,5020) N1CR,TEMP(N1CR),N2CR,TEMP(N2CR),NTOTCR,TEMP(NTOTCR) 0000000
    DO 5040 J = 1,20                                            0000000
5040 WRITE(6,5030) J,CONTCR(N,J),J,CONTCR(NP1,J)                0000000
C                                                               0000000
5000 FORMAT(1H0,'*** REAL TIME OUTPUT - MODULE CR ***')         0000000
5010 FORMAT(1H0,1X,'ETCR = ',E12.5,2X,'DELTCR = ',E12.5/)       0000000
5020 FORMAT(1H ,1X,'TEMP(',I3,') = ',E12.5,2X,                  0000000
   1            'TEMP(',I3,') = ',E12.5,2X,                     0000000
   2            'TEMP(',I3,') = ',E12.5/)                       0000000
5030 FORMAT(1H ,1X,'CONTCR(N  ,',I2,') = ',E12.5,2X,            0000000
   1            'CONTCR(NP1,',I2,') = ',E12.5)                  0000000
```

CRTRNS改修部

目　的	逆止弁不作動オプションの追加	改修サブルーチン	CKREAD, CKRSTA CKBLOK, CKTRNS,
		改修コモン	CKMI1

概　　要

逆止弁不作動オプションを追加し不作動時逆止弁圧損係数を計算する。

新入力変数　　IOPCK(I)　　＝0；逆止弁作動
　　＝1；逆止弁不作動

```
 COMMON/ CKMI1 /   NNCK            ,IMDLCK(KNCK)                      0000000
*                 ,NTSCK(KNCK)     ,NWSCK(KNCK)     ,NFSCK(KNCK)      0000000
*                 ,NVOCK(KNCK)     ,NVFCK(KNCK)     ,NVCK(KNCK)       0000000
*                 ,VOPCK0(KNCK)                                      0000000
*                 ,DMAXCK(KNCK)    ,DMINCK(KNCK)    ,TMAXCK(KNCK)     0000000
*                 ,ISTACK(KNCK)    ,IDBGCK(KNCK)                      0000000
*                 ,OUTCK(30,KNCK)                                    0000000
*                 ,KPCCK(KNCK)     ,TSXCK(KNCK)     ,IOPCK(KNCK)      0000000
 COMMON/ CKM1  /   ETCK(KNCK)       ,DELTCK(KNCK)    ,MCK1(KNCK)       0000000
*                 ,MCK2(KNCK)                                        0000000
*                 ,IOUTCK(KNCK)                                      0000000
*                 ,ROSCK(KNCK)                                       0000000
 COMMON/ CKMI2 /   DDSCK(KNCK)                                       0000000
*                 ,AGCK(KNCK)      ,WVCK(KNCK)      ,ZGVCK(KNCK)      0000000
*                 ,ZFVCK(KNCK)     ,ZDVCK(KNCK)     ,OFVCK(KNCK)      0000000
*                 ,ADCK(KNCK)      ,FDOCK(3,KNCK)   ,FRDCK(KNCK)      0000000
*                 ,ZSDCK(2,KNCK)   ,WDSCK(KNCK)     ,WDPCK(KNCK)      0000000
*                 ,ODCK(KNCK)      ,CDPCK(KNCK)     ,DVCK(KNCK)       0000000
*                 ,VIMCK(KNCK)                                       0000000
*                 ,IMOCK(KNCK)     ,VMOCK(50,KNCK)  ,CMOCK(50,KNCK)   0000000
*                 ,IDMCK(KNCK)                                       0000000
*                 ,IFCCK(KNCK)     ,VFCCK(50,KNCK)  ,CFCCK(50,KNCK)   0000000
*                 ,IDFCK(KNCK)                                       0000000
 COMMON/ CKM2  /   TSCK(2*KNCK)     ,GSCK(2*KNCK)    ,VOPCK(2*KNCK)    0000000
*                 ,VFRCK(KNCK)                                       0000000
*                 ,OMGCK(2*KNCK)   ,VMOMCK(KNCK)    ,GCSCK(KNCK)      0000000
*                 ,IVOPCK(KNCK)                                      0000000
*                 ,PCCK(10,KNCK)                                     0000000
```

ｃｋｍ改修部

追加

CKREAD改修部

```
      SUBROUTINE CKREAD (J1)                                            CKR00010
C                                                                       CKR00020
C     MODULE CK DATA INPUT                                              CKR00030
C                                                                       CKR00040
C ====MODULE SUBROUTINE====                                             CKR00050
c     INCLUDE ( AAA )                                                   CKR00060
c     INCLUDE ( CKA )                                                   CKR00070
c     INCLUDE ( CKM )                                                   CKR00080
      INCLUDE '../copcom/aaa'
      INCLUDE '../copcom/cka'
      INCLUDE '../copcom/ckm'
C                                                                       CKR00090
C                                                                       CKR00100
C                                                                       CKR00110
      NAMELIST/ NAMCK1 / NNCK          ,IMDLCK                          CKR00120
     *                  ,NTSCK         ,NWSCK          ,NFSCK           CKR00130
     *                  ,NVOCK         ,NVFCK          ,NVCK            CKR00140
     *                  ,VOPCK0                                         CKR00150
     *                  ,DMAXCK        ,DMINCK         ,TMAXCK          CKR00160
     *                  ,ISTACK        ,IDBGCK                          CKR00170
     *                  ,OUTCK                                          CKR00180
     *                  ,KPCCK         ,TSXCK          ,iopck  <------- 追加
C                                                                       CKR00200
      NAMELIST/ NAMCK2 / DDSCK                                          CKR00210
     *                  ,AGCK          ,WVCK           ,ZGVCK           CKR00220
     *                  ,ZFVCK         ,ZDVCK          ,OFVCK           CKR00230
     *                  ,ADCK          ,FDOCK          ,FRDCK           CKR00240
     *                  ,ZSDCK         ,WDSCK          ,WDPCK           CKR00250
     *                  ,ODCK          ,CDPCK          ,DVCK            CKR00260
     *                  ,VIMCK                                          CKR00270
     *                  ,IMOCK         ,VMOCK          ,CMOCK           CKR00280
     *                  ,IDMCK                                          CKR00290
     *                  ,IFCCK         ,VFCCK          ,CFCCK           CKR00300
     *                  ,IDFCK                                          CKR00310
C                                                                       CKR00320
C                                                                       CKR00330
C ----READ INPUT DATA----                                               CKR00340
C                                                                       CKR00350
      IF( J1 .EQ. 1 ) IU = 7                                            CKR00360
      IF( J1 .EQ. 3 ) IU = 5                                            CKR00370
C                                                                       CKR00380
      REWIND(IU)                                                        CKR00390
      READ(IU,NAMCK1,END=999)                                           CKR00400
      READ(IU,NAMCK2)                                                   CKR00410
C                                                                       CKR00420
C                                                                       CKR00430
      GO TO 200                                                         CKR00440
C                                                                       CKR00450
  999 CONTINUE                                                          CKR00460
      WRITE(6,900) IU                                                   CKR00470
  900 FORMAT(1H0,5X,'***CKREAD END OF DATA ON UNIT ',I3,'***')          CKR00480
C                                                                       CKR00490
C                                                                       CKR00500
  200 CONTINUE                                                          CKR00510
C                                                                       CKR00520
C                                                                       CKR00530
C                                                                       CKR00540
C ====  CALL CHECK ROUTINE ADD DEC,'89 ====                             CKR00550
C                                                                       CKR00560
C     CALL CKCHEK                                                       CKR00570
C                                                                       CKR00580
C                                                                       CKR00590
      RETURN                                                            CKR00600
      END                                                               CKR00610
C                                                                       CKR00620
C ----DATA SET----                                                      CKR00630
```

CKBLOK改修部

```
C                                                                       CKR00640
      BLOCK DATA CKBLOK                                                 CKR00650
c     INCLUDE ( AAA )                                                   CKR00660
c     INCLUDE ( CKA )                                                   CKR00670
c     INCLUDE ( CKM )                                                   CKR00680
      INCLUDE '../copcom/aaa'
      INCLUDE '../copcom/cka'
      INCLUDE '../copcom/ckm'
C                                                                       CKR00690
      DATA    NNCK     / 0          /                                  CKR00700
      DATA    IMDLCK   / KNCK*0     /                                  CKR00710
      DATA    NTSCK    / KNCK*KNTP /                                   CKR00720
      DATA    NWSCK    / KNCK*KNWF /                                   CKR00730
      DATA    NFSCK    / KNCK*KNFF /                                   CKR00740
      DATA    NVOCK    / KNCK*KNPV /                                   CKR00750
      DATA    NVFCK    / KNCK*KNPV /                                   CKR00760
      DATA    NVCK     / KNCK*KNNV /                                   CKR00770
      DATA    VOPCK0   ,DMINCK   ,TMAXCK   ,TMAXCK                     CKR00780
     *       ,ISTACK   ,IDBGCK   ,OUTCK    ,KPCCK                      CKR00790
     *       ,TSXCK    ,iopck  <------------------------------ 追加
     *       /KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0                   CKR00810
     *       ,KNCK*0   ,KNCK*0   ,KNCK*0.0 ,KNCK*0.0                   CKR00820
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0                   CKR00830
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0                   CKR00840
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0                   CKR00850
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0                   CKR00860
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0                   CKR00870
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0                   CKR00880
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0                   CKR00890
     *       ,KNCK*0.0 ,KNCK*0   ,knck*0/  <------------------------ 追加
      DATA    DDSCK    ,WVCK     ,AGCK     ,ZGVCK                      CKR00910
     *       ,ZFVCK    ,ZDVCK    ,OFVCK    ,ADCK                       CKR00920
     *       ,FDOCK    ,FRDCK    ,ZSDCK    ,WDSCK                      CKR00930
     *       ,WDPCK    ,ODCK                                           CKR00940
     *       /KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0                   CKR00950
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0                   CKR00960
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0                   CKR00970
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0                   CKR00980
     *       ,KNCK*0.0 /                                               CKR00990
      DATA    CDPCK    ,DVCK     ,VIMCK    ,IMOCK    ,VMOCK            CKR01000
     *       /KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0   ,KNCK*0.0         CKR01010
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01020
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01030
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01040
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01050
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01060
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01070
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01080
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01090
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01100
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 /                 CKR01110
      DATA    CMOCK    ,IDMCK                                          CKR01120
     *       /KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01130
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01140
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01150
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01160
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01170
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01180
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01190
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01200
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01210
     *       ,KNCK*0.0 ,KNCK*0   ,KNCK*0   ,KNCK*0.0 ,KNCK*0.0         CKR01220
     *       ,KNCK*0 /                                                 CKR01230
      DATA    IFCCK    ,VFCCK                                          CKR01240
     *       /KNCK*0   ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01250
     *       ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0 ,KNCK*0.0         CKR01260
```

CKTRNS改修部

```
      SUBROUTINE CKTRNS( II )                                           0000000
C                                                                       0000000
C     MODULE CK TRANSIENT CALCULATION CONTROL                           0000000
C                                                                       0000000
C ====MODULE SUBROUTINE====                                             0000000
C                                                                       0000000
c     INCLUDE ( AAA )                                                   0000000
c     INCLUDE ( AAP )                                                   0000000
c     INCLUDE ( CKA )                                                   0000000
c     INCLUDE ( CKM )                                                   0000000
      INCLUDE '../copcom/aaa'
      INCLUDE '../copcom/aap'
      INCLUDE '../copcom/cka'
      INCLUDE '../copcom/ckm'
C                                                                       0000000
C                                                                       0000000
C                                                                       0000000
C     57.296 = 180. / 3.1416                                            0000000
C                                                                       0000000
C                                                                       0000000
      N             = MCK2(II)                                          0000000
      NP1           = MCK1(II)                                          0000000
C                                                                       0000000
C ---INPUT OF THIS MODULE---                                            0000000
C                                                                       0000000
      TSCK(N)       = TEMP(NTSCK(II))                                   0000000
      GSCK(N)       = FLWN(NFSCK(II),NWSCK(II))                         0000000
C                                                                       0000000
C                                                                       0000000
C   - COEFICIENTS -                                                     0000000
      IF( KPCCK(II) .EQ. 1 ) THEN                                       0000000
       CALL ZSODUM( 2, TSCK(II), ROSCK(II) )                            0000000
       IJ   =  2                                                        0000000
       CALL CKCOEF(IJ,II)                                               0000000
      END IF                                                            0000000
C                                                                       0000000
C ---TIME MESH ---                                                      0000000
C                                                                       0000000
      DELTCK(II)    = DMAXCK(II)                                        0000000
      IF( DELTCK(II) .LE. 0.0 ) THEN                                    0000000
      WRITE(6,7000) II,II,DELTCK(II)                                    0000000
 7000 FORMAT(1H1,'---SUB.CKTRNS(',I3,') DELTCK(',I3,') = ',E12.5)       0000000
      CALL EXIT                                                         0000000
      END IF                                                            0000000
C                                                                       0000000
C                                                                       0000000
C --- CHECK VALVE OPEN ---                                              0000000
      IF( GSCK(N)  .GE.GCSCK(II) .or. iopck(ii) .eq. 1) THEN
      VOPCK(N)   = VOPCK0(II)                                           0000000
      GO TO 2000                                                        0000000
      END IF                                                            0000000
C                                                                       0000000
      IF( IVOPCK(II) .EQ. 0 ) IVOPCK(II) = 1                            0000000
C                                                                       0000000
C --- CHECK VALVE CLOSED---                                             0000000
      IF( VOPCK(NP1) .EQ. 0.0  ) GO TO 2000                             0000000
C                                                                       0000000
C --- MOMENT EQUATION ---                                               0000000
C                                                                       0000000
      VOPEN = VOPCK(NP1)                                                0000000
      OMEGA = OMGCK(NP1)                                                0000000
C                                                                       0000000
C                                                                       0000000
C   - RUNGE KUTTA METHODS-                                              0000000
C                                                                       0000000
      CALL CKDIFF(II,  VOPEN, OMEGA, FCK0, IDASH )                      0000000
```

追加

CKRSTA改修部

```
      SUBROUTINE   CKRSTA ( JR )
C
C     READ  &  WRITE
C     RE - START  FILE OF MODULA CK
C
C      JR = 1   WRITE RE-START FILE
C      JR = 2   READ  RE-START FILE
C
C --- MODULE  SUBROUTINE ---
C
c     INCLUDE  ( CKA )
      INCLUDE '../copcom/cka'
C------   H07/05/26 KATO   ------
      COMMON / CKMI1 / R1 ( 1 + 16*(KNCK) + 1*(30*KNCK) )
      COMMON / CKMI2 / R2 ( 19*(KNCK) + 1*(2*KNCK) + 1*(3*KNCK)
     1                    + 4*(50*KNCK) )
      COMMON / CKM1  / R3 ( 6*(KNCK) )
      COMMON / CKM2  / R4 ( 4*(KNCK) + 4*(2*KNCK) + 1*(10*KNCK) )
C-----------------------------------
C     COMMON / CKMI1 / R1 ( 1 + 6 * KNCK + 2+(5 * KNCK) + 2 * KNCK
C    1                    + 30 * KNCK)
C     COMMON / CKMI2 / R2 ( 19 * KNCK )
C     COMMON / CKM1  / R3 ( 5 * KNCK )
C     COMMON / CKM2  / R4 ( 2 * KNCK + (4 * KNCK))
C-----------------------------------
      IF ( JR . EQ . 2 )  GO  TO   2000
C
C
C --- WRITE  RESTART  FILE ---
C
C
      WRITE ( 40 )  R1
      WRITE ( 40 )  R2
      WRITE ( 40 )  R3
      WRITE ( 40 )  R4
C
      WRITE ( 6,6000 ) (R3(I),I=1,KNCK)
      WRITE ( 6,6002 )
      RETURN
C
C
C
C
C === READ  RESTART  FILE ===
C
 2000 CONTINUE
C
      READ ( 41 )  R1
      READ ( 41 )  R2
      READ ( 41 )  R3
      READ ( 41 )  R4
C
      WRITE ( 6 , 6010 ) (R3(I),I=1,KNCK)
      WRITE ( 6 , 6012 )
      RETURN
C
C
C
 6000 FORMAT ( 1H0 , 48('-'),' WRITE RE-START FILE ( MODULE CK ) ',
     1              49('-')
     2        /1H  , 4X,  'ETCK=', 15F8.2  )
 6002 FORMAT ( 1H  ,132('-'))
C
C
 6010 FORMAT ( 1H0 , 49('-'),' READ RE-START FILE ( MODULE CK ) ',
     1              49('-')
```

１５ より変更

目　的	逆止弁ダッシュポット添十モデルの追加	改修サブルーチン	CKDIFF CKTRNS
		改修コモン	—

概　　要

逆止弁ダッシュポット添十モデル；逆止弁開度5℃になった時点から3秒で全閉

を追加する。

入力変数　DDSCK(I)　ダッシュポット作動開始逆止弁開度

意味の追加：ダッシュポット作動開始逆止弁開度＜0の時
ABS（DDSCK(ii)）から3秒で全閉
すなわちDDSCK(I)＝-5.0の時5℃から3秒で全閉になる。

CKDIFF改修部

```
      SUBROUTINE CKDIFF(II, VOPEN, OMEGA, FCKI, IDASH )
C
C      CALCULATE DIFARENTIAL FOR RUNGE-KUTTA (MODULE CK)
C
C
C ==== MODULE SUBROUTINE ======
C
C
c     INCLUDE ( CKA )
c     INCLUDE ( CKM )
      INCLUDE '../copcom/cka'
      INCLUDE '../copcom/ckm'
C
C
C
      N            = MCK2(II)
      NP1          = MCK1(II)
C
C
C  -- DASH POT OPTION --
      IDASH = 0
      IF( DDSCK(II) .ge. 0.0 ) THEN
      IF(VOPCK(NP1) .LT. DDSCK(II)) IDASH = 1
      ELSE
        IF(VOPCK(NP1) .LT. -DDSCK(II)) THEN
           IDASH = 2
           OMEGA = 0.0
           FCKI  = 0.0
        RETURN
        END IF
      END IF
C
C
      GGS = GSCK(N)
C
C  -- MOMENT COEFCIENT --
      VVV  = SIGN(VOPEN, GGS)
      IDMCKV   = 2
      CALL YDISTB( VMOCK(1, II), CMOCK(1, II), IMOCK(II), VVV,
     1             VMOMCK(II), 1.0, IDMCKV)
C
C -- DW / DT --
      GTEMP = PCCK(2, II)*GGS
     1    - PCCK(3, II)*OMEGA / COS(1.7453E-02*VOPEN)
      IF(IDASH.EQ.1) GTEMP = PCCK(2, II)*GGS
C
      FK1   = PCCK(1, II)*GTEMP*ABS(GTEMP)*VMOMCK(II)
      FK2   = - PCCK(4, II)*SIN(1.7453E-02*(VOPEN -OFVCK(II)))
      DK1   = 0.0
      DK2   = 0.0
      FK3   = 0.0
C
CCCCCCCCCCCCCCCCCCCCCCCCCCCC
C     IF ( ETCK(II) .GE.2.0 ) THEN
C     WRITE(6, 900) ETCK(II), IDASH, VOPEN, VVV, VMOMCK(II), GTEMP, FK1, FK2
C    1            ,FCKI
C 900 FORMAT(1H0,'FCK OUTPUT ','ETCK  =',E12.5, 3X,'IDASH=', I5/
C    1       1H ,'VOPEN =',E12.5,
C    1       3X ,'VVV   =',E12.5,
C    1       3X ,'VMOMCK=',E12.5,
C    1       3X ,'GTEMP =',E12.5,
C    1       3X ,'FK1   =',E12.5/
C    1       1H ,'FK2   =',E12.5,
C    1       3X ,'FCKI  =',E12.5)
C     END IF
CCCCCCCCCCCCCCCCCCCCCCCCCCCC
```

追加

VOPEN より変更

追加

CKTRNS改修部

```
C
      IF( IDASH .EQ. 1 ) DELTCK(II) = DMINCK(II)
      VK1   = DELTCK(II) * FCK0 * 57.296
      VTEMP = VOPEN + DELTCK(II)*OMEGA
      OTEMP = OMEGA + VK1
C
      CALL CKDIFF(II,  VTEMP, OTEMP, FCK1, IDASH )
      VK2   = DELTCK(II) * FCK1 * 57.296
C
      IF( IDASH .EQ. 0 )  THEN
        VOPCK(N) = VOPEN + DELTCK(II)*OMEGA + 0.5*DELTCK(II)*VK1
        OMGCK(N) = OMEGA + 0.5*( VK1 + VK2 )
      ELSE IF( IDASH .EQ. 1 ) THEN   <------------ 追加
        VOPCK(N) = VOPEN + DELTCK(II)* 0.5*( OMEGA + OTEMP )
        OMGCK(N) = OTEMP
      ELSE IF( IDASH .EQ. 2 ) THEN
        VOPCK(N) = VOPcK(NP1)+(DDSCK(II)/3.0)*DELTCK(II)   <------ 追加
      END IF
C
C
      IF( VOPCK(N) .LT. 0.0 )THEN
        VOPCK(N) = 0.0
        OMGCK(N) = 0.0
        VOPCK(NP1) = 0.0
        OMGCK(NP1) = 0.0
      ELSE IF ( VOPCK(N) .GT. VOPCK0(II) ) THEN
        VOPCK(N) = VOPCK0(II)
        OMGCK(N) = 0.0
        VOPCK(NP1) = VOPCK0(II)
        OMGCK(NP1) = 0.0
      END IF
C
C
 2000 CONTINUE
C
C --- FRICTION FACTOR OF CHECK VALVE ---
C
C
C
C
      VOPEN = SIGN( VOPCK(N), GSCK(N) )
C
C
      IDFCKV   = 2
      CALL YDISTB( VFCCK(1,II),CFCCK(1,II),IFCCK(II),VOPEN,VFRCK(II),
     1             1.0,IDFCKV)
C
C
C ----OUTPUT OF THIS MODULE----
C
      VLVN(NVOCK(II),NVCK(II))   = VOPCK(N)
      VLVN(NVFCK(II),NVCK(II))   = VFRCK(II)
C
C ----REAL TIME OUTPUT----
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
C     IF( ETCK(II) .GE. 2.0 ) THEN
C     WRITE(6,900) ETCK(II),VOPEN,VFRCK(II),VOPCK(N),GSCK(N)
C 900 FORMAT(1H0,'MODUCK OUTPUT'/
C    1       1H ,'ETCK=  ',E12.5,
C    1       2X ,'VOPEN =',E12.5,
C    1       2X ,'VFRCK =',E12.5,
C    1       2X ,'VOPCK =',E12.5,
C    1       2X ,'GSCK  =',E12.5)
C     END IF
C
C
```

Super—COPD　　改修仕様書　　改修NO. －13

目　的	バルブ初期圧損係数設定部の改修	改修サブルーチン	VVSTAT
		改修コモン	—

概　　要

ICVCH2(I)＝4の時、初期圧損係数設定でのプール変数入力オプション
ICVCH4(I)＝1が効かなかったため、効くように改修。

```
            COEFK1(II) = 3024000.0*(1.0+0.0013*SINT(II))
     1                                  /PMINT(II)
            CVINT(II) =  COEFK1(II)*WINT(II)
C
C      —NORMAL TEMPERATURE GAS—
         ELSE IF ( ICVCH3(II) .EQ. 4 ) THEN
            IF( ICVCH4(II) .EQ. 0 ) VINT(II) = PINT(II) / WINT(II)**2
CMOD.1991/08/27 A.0
            IF( ICVCH4(II) .EQ. 1 ) VINT(II) = VLVN(NVNANS(II),II)
CMOD >      IF( ICVCH4(II) .EQ. 1 ) VINT(II) = VVINT(II)
            COEFK1(II) = 2.25E+09/PMINT(II)/GT(II)
            CVINT(II) = SQRT( COEFK1(II)/VINT(II) )
C
C      —HIGH TEMPERATURE GAS —
         ELSE IF ( ICVCH3(II) .EQ. 5 ) THEN
            IF( ICVCH4(II) .EQ. 0 ) VINT(II) = PINT(II) / WINT(II)**2
CMOD.1991/08/27 A.0
            IF( ICVCH4(II) .EQ. 1 ) VINT(II) = VLVN(NVNANS(II),II)
CMOD >      IF( ICVCH4(II) .EQ. 1 ) VINT(II) = VVINT(II)
            COEFK1(II) = 7.9404E+06*T1(II)/PMINT(II)/GT(II)
            CVINT(II) = SQRT( COEFK1(II)/VINT(II) )
         END IF
      END IF
C
C
C ——VALVE STROKE RATIO ——
C
C     —LINEAR (FROM CV VALUE)—
        IF ( ICVCH2(II) .EQ. 1 ) THEN
CTN——      XINT(II)  = CVINT(II)/CVMAX(II)
           XINT(II)  = CVINT(II)/CVMAX(II)*XMAX(II)
C
C     —EQUAL PER CENT (FROM CV VALUE)—
        ELSE IF ( ICVCH2(II) .EQ. 2 ) THEN
           XINT(II)  = ALOG( CVINT(II)/CVMIN(II) )*XMAX(II)
     1                          / ALOG(CVMAX(II)/CVMIN(II))
C
C     —FITTING (FROM CV VALUE)—
        ELSE IF ( ICVCH2(II) .EQ. 3 ) THEN
           JD        = 2
           ZZ        = CVINT(II)/GNTBL(II)
           CALL YDISTB( ZZTBL(1,II),XZTBL(1,II),ITBLXZ(II),  ZZ
     1                          ,ANS,1.0,JD )
           XINT(II)  = ANS
C
C   —FITTING (FROM FRICTION COEFFICIENT)—
        ELSE IF ( ICVCH2(II) .EQ. 4 ) THEN
c          VINT(II)     = PINT(II) / WINT(II)**2
         IF( ICVCH4(II) .EQ. 0 )  VINT(II)     = PINT(II) / WINT(II)**2
         IF( ICVCH4(II) .EQ. 1 ) VINT(II) = VLVN(NVNANS(II),II)
           ZINT(II)  = VINT(II)/COEFK2(II)
           JD        = 2
           ZZ        = ZINT(II)/GNTBL(II)
           KK        = ITBLXZ(II)/2
           DO 10 K=1,KK
           J         = ITBLXZ(II)-K+1
           WTBLZ(J)  = ZZTBL(K,II)
           WTBLX(J)  = XZTBL(K,II)
           WTBLZ(K)  = ZZTBL(J,II)
           WTBLX(K)  = XZTBL(J,II)
   10      CONTINUE
           CALL YDISTB( WTBLZ,WTBLX,ITBLXZ(II),ZZ,ANS,1.0,JD )
           XINT(II)  = ANS
C
C     —FITTING (FROM FLOW RATE)—
        ELSE IF ( ICVCH2(II) .EQ. 5 ) THEN
```

ＶＶＳＴＡＴ改修部

追加

目　的	RF 崩壊熱計算部修正	改修サブルーチン	RFREAD RFSTAT RFRSTA
		改修コモン	RFM

概　　要

部分負荷からのトリップ時に、崩壊熱が正しく計算されないため
修正を行った。

原子炉定格出力値に部分負荷出力値が代入されていたため、
原子炉定格出力値を入力データであたえて、
原子炉定格出力値に部分負荷出力値に代入している文を削除する。

追加入力データ
QALR0　;　原子炉定格出力　(kcal/sec)

RFREAD改修部

```
      SUBROUTINE RFREAD ( J1 )                                          0000000
C                                                                       0000000
C     MODULE RF DATA INPUT                                              0000000
C                                                                       0000000
C ====MODULE SUBROUTINE====                                             0000000
c     INCLUDE ( RFA   )                                                 0000000
c     INCLUDE ( RFM   )                                                 0000000
      include '../copcom/rfa'
      include '../copcom/rfm'
C                                                                       0000000
      NAMELIST/NAMRF1/   IMDLR                                          0000000
     *                  ,NQRR          ,NTRINR        ,NWRR            0000000
     *                  ,NFRR          ,NQALR         ,NDECR           0000000
     *                  ,NTROTR        ,NTFELR        ,NTCRDR          0000000
     *                  ,NTSODR        ,NTWAPR        ,NHDRR           0000000
     *                  ,NTRIPR                                        0000000
     *                  ,KHDR          ,KHER          ,KHBR            0000000
     *                  ,NINTR                                         0000000
     *                  ,TRIR          ,TROR          ,GR              0000000
     *                  ,QAR                                           0000000
     *                  ,IIIR          ,ERRR          ,ARRR            0000000
     *                  ,IOTIMR        ,DTIMR         ,DDELR ,DCOTR    0000000
     *                  ,DMAXR         ,DMINR         ,TMAXR           0000000
     *                  ,ISTAR         ,IDBGR         ,OUTR            0000000
     *                  ,KPR1R         ,KPR2R         ,KPR3R           0000000
     *                  ,KPR4R         ,KPRCR         ,KPRWR           0000000
     *                  ,TFXXR         ,TUBXXR        ,TLBXXR          0000000
     *                  ,TCXXR         ,TSXXR         ,TWXXR           0000000
     *                  ,QALR0
      NAMELIST/NAMRF2/   NFLR           ,NLBR          ,NUBR            0000000
     *                  ,DC1R          ,DC2R          ,THWR            0000000
     *                  ,DS2R          ,DS3R          ,A1R             0000000
     *                  ,A2R           ,A3R           ,AHCFR ,AHBFR    0000000
     *                  ,AHCR          ,AHSR          ,AHWR            0000000
     *                  ,AVSR          ,ZLCR          ,ZUBR            0000000
     *                  ,ZLBR                                          0000000
     *                  ,RCONR         ,AMAX2R        ,AMIN2R          0000000
     *                  ,AMAX3R        ,AMIN3R        ,QUBR            0000000
     *                  ,QLBR                                          0000000
     *                  ,IDECR         ,DECTR         ,DECFR           0000000
     *                  ,IDSTR         ,ZNHR                           0000000
C                                                                       0000000
C                                                                       0000000
C ----READ INPUT DATA----                                               0000000
C                                                                       0000000
C                                                                       0000000
      IF( J1 .EQ. 1 ) IU = 7                                            0000000
      IF( J1 .EQ. 3 ) IU = 5                                            0000000
C                                                                       0000000
C                                                                       0000000
      REWIND(IU)                                                        0000000
      READ(IU,NAMRF1,END=999)                                           0000000
      READ(IU,NAMRF2)                                                   0000000
C                                                                       0000000
C                                                                       0000000
      GO TO 200                                                         0000000
C                                                                       0000000
  999 CONTINUE                                                          0000000
      WRITE(6,900) IU                                                   0000000
  900 FORMAT(1H0,5X,'*** RFREAD END OF DATA ON UNIT ',I3,'***')         0000000
C                                                                       0000000
C                                                                       0000000
C                                                                       0000000
  200 CONTINUE                                                          0000000
C                                                                       0000000
C                                                                       0000000
```

追加

```
      ELSE IF( KHER .EQ. 3 ) THEN                                       0000000
         GRR(N)  = QALR(N) / (TROTR(N)*CPSR(1) - TRINR(N)*CPSR(1))      0000000
      END IF                                                            0000000
         TX      = TROTR(N)                                             0000000
      END IF                                                            0000000
C                                                                       0000000
C                                                                       0000000
C ----ITERATION FOR HEAT BALANCE ----                                   0000000
C                                                                       0000000
      III = 1                                                           0000000
 1000 CONTINUE                                                          0000000
C                                                                       0000000
C                                                                       0000000
      MMM   =   1                                                       0000000
 2000 CONTINUE                                                          0000000
C                                                                       0000000
C ----PROPERTIES  ----                                                  0000000
C                                                                       0000000
      IF( III.NE.1 .OR. MMM.NE.1 ) THEN
      J1 = 1
      CALL RFPROP(  J1  )
      END IF
C                                                                       0000000
C                                                                       0000000
C ----HEAT TRANSFER COEFFICIENT ----                                    0000000
C                                                                       0000000
      IJ = 1                                                            0000000
      CALL RFCOEF(  IJ  )                                               0000000
C                                                                       0000000
C                                                                       0000000
C --- REACTOR POWER ---                                                 0000000
c     QALR0       = QALR(N)  <------------  修正(コメントにする)        0000000
      DO 110 I = 1,NLBR
  110 QR(N,I)     = QALR(N)*QLBR /ZLBR                                  01085000
      DO 120 I = NLBR+1, NFLR-NUBR                                      01086000
  120 QR(N,I)     = QALR(N)*(1.-QLBR-QUBR) /( ZLCR-ZLBR-ZUBR)           01087000
      DO 130 I = NFLR-NUBR+1, NFLR                                      01088000
  130 QR(N,I)     = QALR(N)*QUBR /ZUBR                                  01089000
C                                                                       00350000
C                                                                       0000000
C ----TEMPERATURE DISTRIBUTION ----                                     0000000
C                                                                       0000000
C   --SODIUM --                                                         0000000
      TSR(N,1)      = TRINR(N)                                          0000000
      DO 200 K = 1,NFLR                                                 0000000
      TSR(N,K+1)    = TSR(N,K)                                          0000000
     1                + QR(N,K)*DELZR(K)/(CPSR(K)*GRR(N))               0000000
  200 CONTINUE                                                          0000000
C                                                                       0000000
C   --FUEL,CLAD,WAPER TUBE--                                            0000000
      DO 210 K = 1,NFLR                                                 0000000
      TCR(N,K)      = QR(N,K) / ( U2R(N,K)*A2R)                         0000000
     1                          + 0.5*( TSR(N,K) + TSR(N,K+1))          0000000
      TWR(N,K)      = 0.5*( TSR(N,K) + TSR(N,K+1) )                     0000000
      TFR(N,K)      = QR(N,K) / ( U1R(N,K)*A1R ) + TCR(N,K)             0000000
  210 CONTINUE                                                          0000000
C                                                                       0000000
C                                                                       0000000
      IF(  III.EQ.1 .AND. MMM.EQ.1 )      THEN                          0000000
      DO 250 K = 1,NFLR+1                                               0000000
      TE1(K)        =TSR(N,K)                                           0000000
  250 CONTINUE                                                          0000000
      END IF                                                            0000000
C                                                                       0000000
C                                                                       0000000
      IF ( MMM .GE. 500 ) THEN                                          0000000
```

RFSTAT改修部

RFRSTA改修部

```
      SUBROUTINE   RFRSTA ( JR )                                        0000000
C                                                                       0000000
C     READ  &  WRITE                                                    0000000
C     RE - START  FILE OF MODULA RF                                     0000000
C                                                                       0000000
C      JR = 1   WRITE RE-START FILE                                     0000000
C      JR = 2   READ  RE-START FILE                                     0000000
C                                                                       0000000
C --- MODULE  SUBROUTINE ---                                            0000000
C                                                                       0000000
C                                                                       0000000
c     INCLUDE ( RFA )                                                   0000000
      include '../copcom/rfa'
      COMMON / RFMI1 / R1 ( 85 )   <------------  修正                  0000000
      COMMON / RFMI2 / R2 ( 90 )                                        0000000
      COMMON / RFM1  / R3 ( 7 + 14*KNRF )                               0000000
      COMMON / RFM2  / R4 ( 40+ 26*KNRF )                               0000000
C                                                                       0000000
C                                                                       0000000
      IF ( JR . EQ . 2 )  GO  TO   2000                                 0000000
C                                                                       0000000
C                                                                       0000000
C --- WRITE  RESTART  FILE ---                                          0000000
C                                                                       0000000
C                                                                       0000000
      WRITE ( 40 )  R1                                                  0000000
      WRITE ( 40 )  R2                                                  0000000
      WRITE ( 40 )  R3                                                  0000000
      WRITE ( 40 )  R4                                                  0000000
C                                                                       0000000
C                                                                       0000000
C                                                                       0000000
      WRITE ( 6,6000 )  R3(1)                                           0000000
      WRITE ( 6,6002 )                                                  0000000
      RETURN                                                            0000000
C                                                                       0000000
C                                                                       0000000
C                                                                       0000000
C                                                                       0000000
C === READ  RESTART  FILE ===                                           0000000
C                                                                       0000000
 2000 CONTINUE                                                          0000000
C                                                                       0000000
      READ ( 41 )  R1                                                   0000000
      READ ( 41 )  R2                                                   0000000
      READ ( 41 )  R3                                                   0000000
      READ ( 41 )  R4                                                   0000000
C                                                                       0000000
C                                                                       0000000
C                                                                       0000000
      WRITE ( 6 , 6010 )  R3(1)                                         0000000
      WRITE ( 6 , 6012 )                                                0000000
      RETURN                                                            0000000
C                                                                       0000000
C                                                                       0000000
C                                                                       0000000
 6000 FORMAT ( 1H0 , 48('-'),' WRITE RE-START FILE ( MODULE RF ) ',     0000000
     1              49('-')                                             0000000
     2        /1H  , 4X,  'ETRF=', 15F8.2  )                            0000000
 6002 FORMAT ( 1H  ,132('-'))                                           0000000
C                                                                       0000000
C                                                                       0000000
 6010 FORMAT ( 1H0 , 49('-'),' READ RE-START FILE ( MODULE RF ) ',      0000000
     1              49('-')                                             0000000
     2        /1H  , 4X,  'ETRF=', 15F8.2  )                            0000000
 6012 FORMAT ( 1H  ,132('-'))                                           0000000
```

```
 COMMON/ RFMI1  /   IMDLR                                          0000000
*                  ,NQRR          ,NTRINR        ,NWRR             0000000
*                  ,NFRR          ,NQALR         ,NDECR            0000000
*                  ,NTROTR        ,NTFELR        ,NTCRDR           0000000
*                  ,NTSODR        ,NTWAPR        ,NHDRR            0000000
*                  ,NTRIPR                                         0000000
*                  ,KHDR          ,KHER          ,KHBR             0000000
*                  ,NINTR                                          0000000
*                  ,TRIR          ,TROR          ,GR     ,QAR      0000000
*                  ,IIIR          ,ERRR          ,ARRR             0000000
*                  ,IOTIMR        ,DTIMR(5)      ,DDELR(5)         0000000
*                  ,DCOTR
*                  ,DMAXR         ,DMINR         ,TMAXR            0000000
*                  ,ISTAR         ,IDBGR         ,OUTR(30)         0000000
*                  ,KPR1R         ,KPR2R         ,KPR3R            0000000
*                  ,KPR4R         ,KPRCR         ,KPRWR            0000000
*                  ,TFXXR         ,TUBXXR        ,TLBXXR           0000000
*                  ,TCXXR         ,TSXXR         ,TWXXR            0000000
*                  ,QALR0
 COMMON/ RFMI2  /   NFLR           ,NLBR          ,NUBR             0000000
*                  ,DC1R          ,DC2R          ,THWR             0000000
*                  ,DS2R          ,DS3R          ,A1R              0000000
*                  ,A2R           ,A3R           ,AHCFR ,AHBFR     0000000
*                  ,AHCR          ,AHSR          ,AHWR             0000000
*                  ,AVSR          ,ZLCR          ,ZUBR             0000000
*                  ,ZLBR                                           0000000
*                  ,RCONR         ,AMAX2R        ,AMIN2R           0000000
*                  ,AMAX3R        ,AMIN3R        ,QUBR             0000000
*                  ,QLBR                                           0000000
*                  ,IDECR         ,DECTR(30)     ,DECFR(30)        0000000
*                  ,IDSTR         ,ZNHR                            0000000
 COMMON/ RFM1   /   ETR            ,DELTR         ,MR1              0000000
*                  ,MR2           ,IOUTR                           0000000
*                  ,CPFR(KNRF)    ,ROFR(KNRF)    ,TKFR(KNRF)       0000000
*                  ,CPCR(KNRF)    ,ROCR(KNRF)    ,TKCR(KNRF)       0000000
*                  ,CPSR(KNRF)    ,ROSR(KNRF)    ,PRSR(KNRF)       0000000
*                  ,VKSR(KNRF)    ,TKSR(KNRF)                      0000000
*                  ,CPWR(KNRF)    ,ROWR(KNRF)    ,TKWR(KNRF)       0000000
*                  ,TIMDR
 COMMON/ RFM2   /   QRR(2)         ,TRINR(2)                        0000000
*                  ,GRR(2)        ,QALR(2)       ,DECR(2)          0000000
*                  ,TROTR(2)      ,TFELR(2)      ,TCRDR(2)         0000000
*                  ,TSODR(2)      ,TWAPR(2)      ,HDRR(2)          0000000
*                  ,TRIPR                                          0000000
*                  ,QR(2,KNRF)    ,TFR(2,KNRF)   ,TCR(2,KNRF)      0000000
*                  ,TSR(2,KNRF+1) ,TWR(2,KNRF)                     0000000
*                  ,U1R(2,KNRF)   ,U2R(2,KNRF)   ,U3R(2,KNRF)      0000000
*                  ,ALF2R(KNRF)   ,ALF3R(KNRF)                     0000000
*                  ,APE2R(KNRF)   ,APE3R(KNRF)                     0000000
*                  ,ANU2R(KNRF)   ,ANU3R(KNRF)                     0000000
*                  ,RE2R(KNRF)    ,RE3R(KNRF)                      0000000
*                  ,DELZR(KNRF)   ,AHFR(KNRF)                      0000000
*                  ,HET1R(5)      ,HET2R(5)                        0000000
*                  ,HET3R(5)                                       0000000
```

ＲＦＭ改修部

追加

Super—COPD　　改修仕様書　　改修NO. －15

目　的	モジュールの追加	改修サブルーチン	ST＊ RX＊ UP＊
		改修コモン	ST＊,PX＊,UP＊

概　　要
炉心熱計算詳細モジュールRX、水・蒸気系汎用熱流動計算モジュールＳＴを追加し、改良炉上部プレナムモジュールＵＰを入れ換える。

Super—COPD　　改修仕様書　　改修NO. －15

目　的	モジュールの追加	改修サブルーチン	MAINRS(main ﾙｰﾁﾝ) ST＊ RX＊ UP＊
		改修コモン	ST＊,PX＊,UP＊

概　　要

炉心熱計算詳細モジュールRX、水・蒸気系汎用熱流動計算モジュールＳＴを追加し、改良炉上部プレナムモジュールＵＰを入れ換える。

main に、ＲＸ，ＳＴ　呼び込み部を追加

データ読み込み
　ＳＴ用蒸気表データを FT21 から読み込む
　05 , 07 番データに ＲＸ，ＳＴデータ追加

RX　NAMRX1
　　NAMRX2

ST　NASST1
　　NASST2
　　NAMST1
　　NAMST2
　　NAMST3
　　NAMST4

MAINRS改修部

```
C                                                                       0000000
C-----------------------------------------------------------------------0000000
C---------- J=1, 2, 3, 4, 5   CALL MODULES ----------                   0000000
C-----------------------------------------------------------------------0000000
      NINT   = 1
C                                                                       0000000
      IF( JEND .EQ. 1 ) GO TO 210
c
C    -MODULE ST-                                                        0000000
      CALL STCONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C     DO 1100 WHILE( NINT .LE. NDO )
      DO 1100 NINT=1,NDO
C                                                                       0000000
C                                                                       0000000
C******************** BEGIN ***********************************************0000000
C                                                                       0000000
C    -MODULE KN-                                                        0000000
      CALL KNCONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C    -MODULE RF-                                                        0000000
      CALL RFCONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C    -MODULE RX-                                                        0000000
      CALL RXCONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C    -MODULE HX-                                                        0000000
      CALL HXCONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C    -MODULE AC-                                                        0000000
      CALL ACCONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C    -MODULE SG-                                                        0000000
c     CALL SGCONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C    -MODULE PC-                                                        0000000
C     CALL PCCONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C    -MODULE MN-                                                        0000000
      CALL MNCONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C    -MODULE LN-                                                        0000000
      CALL LNCONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C    -MODULE LS-                                                        0000000
c     CALL LSCONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C    -MODULE UP-                                                        0000000
      CALL UPCONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C    -MODULE LW-                                                        0000000
      CALL LWCONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C     NINT   =  NINT + 1
 1100 CONTINUE
C                                                                       0000000
C    -MODULE FN-                                                        0000000
      CALL FNCONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C    -MODULE FM-                                                        0000000
c     CALL FMCONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C    -MODULE FA-                                                        0000000
      CALL FACONT( J1, NINT, TIME, ETMIN, IRSTAT )                      0000000
C                                                                       0000000
C    -MODULE CR-                                                        0000000
```

追加

追加

テキストエディタ V3.5_1 [usso] - st0g0p.05d, ディレクトリ: /usr4/suz/scopd/y

ファイル(F) 表示(V) 編集(E) 検索(S)

```
      ***********************************
      *    ELECTORIC POWER     100%  *
      *    2000/2/9                  *
      *    st0g0p.05d   B LOOP STICK *
      ***********************************
&NAMAA1
      NINTAL = 110,    IPINIT = 1,
      DELT   = 0.01,   TMAX   =  600.01,
      DELT   = 0.01,   TMAX   = 3600.01,
      DELT   = 0.01,   TMAX   =  3600.01,
      DELT   = 0.01,   TMAX   =  600.1,

      NUMREC = 25,     IORSTA = 0,      RSTART = 200.,
      OUTTIM(1)  = 0.0, 180.0, 1000.0,3600.0, 1.0E+10,
      OUTDEL(1)  = 0.1, 1.0,   2.0,    5.0,   5.0,
      OUTTIM(1)  = 0.0, 10.0,180.0, 1000.0,3600.0,
      OUTDEL(1)  = 0.1, 1.0,   2.0,    5.0,   5.0,
      RSTTIM(1)  = 0.,    1000000.,
      RSTDEL(1)  = 3600.1,3600.1,
&END
&NAMAA2
&END
      NTEMP = 1,
      NTMP(1) =820,
      ITMAX(1)= 4,
      ITST(1) = 2,
      TGAIN(1)= 1.0,
      XTEMP(1,1) = 0.0, 0.79, 0.8, 1.0E+5,
      YTEMP(1,1) = 0.0, 0.0,  1.0,  1.0,
&NAMCR1
      IMDLCR       =    1,
      DTIMCR(1)    = 0.0,
      DDELCR(1)    = 0.01,
      TMAXCR       = 10.,
      ISTACR       =    0,
      IDBGCR       =    0,
      OUTCR(1)     = 1.0E+5,
&END
&NAMCR2
&END
&NAMKN1
      IMDLK  = 1,
      DTIMK(1) = 0.,10.,100.,1000.,100000.,
      DDELK(1) = 5*0.002,
      DDELK(1) = 5*0.001,
```

[無変換]

原子炉トリップオプションをはずす

テキストエディタ V3.5.1 [usso] st0g0p.05d, ディレクトリ: /usr4/suz/scopd/y

ファイル(F) 表示(V) 編集(E) 検索(S)

```
      YYLA(1,9,23) =2*14.868, 0.0,    0.0,
      YYLB(1,9,23) =2*14.868, 0.0,    0.0,

      MCLIN(1,31)     = 20,
      NCLIN(1,31)     = 16,

      MCLIO(1,1,31)   = 20,
      NCLIO(1,1,31)   = 16,

&END
&NAMLG1
      IMDLLG       =    1,   NDLG     =   77,        NALG =   146,
                            NDLG     =   75,        NALG =   136,
      DTIMLG(1)    = 0.0,    120.0,   1.0E+10,
      DDELLG(1)    = 0.02,   0.02,      0.02,
      TMAXLG       = 1.0E+10,
      IPSTLG       =   0,    IPTRLG   =   0,
      OUTLG(1)     = 1.0,10.,20.,30.,1.0E+10,

      IOP2LG( 7)    =    0,
      IOP2LG(16)    =    0,
      IOP2LG(22)    =    0,
      IOP2LG(28)    =    0,
&END
&NAMLG2
      IBLKA( 7) = 1,
      IBLKA(16) = 1,
      IBLKA(22) = 1,
      IBLKA(28) = 1,

      IBLKD(38) = 0,
      MLGOD(   38)=820,
&END
 &NAMRX1
&END
&NAMRX2
&END
&NASST1
      IOPST(31,1) = 1,
      IOPST(31,2) = 1,
      IOPST(31,3) = 1,
      IOPST1(1) = 3*0,
      TMAXST(1) = 1.0E10, 60.0, 1.0E10,
      TMAXO(1)  = 3*280.0,
      TMAXO(1)  = 3*300.0,
```

[編集済]

Bループ１次ポンプ回転数低トリップを生かす