A COMPUTER PROGRAM DOCUMENTATION OF THE DAIRY MARKET POLICY SIMULATOR (MODEL A)

by

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PREFACE

This paper provides a listing and brief documentation of the Dairy Market Policy Simulator, or DAMPS. DAMPS was constructed as part of Novakovic's Ph.D. thesis at Purdue University. During some part of the course of the research and model development, all of the authors were at Purdue. Dr. Andrew Novakovic is now an Assistant Professor in the Department of Agricultural Economics at Cornell University. Dr. Emerson Babb is a Professor in the Department of Agricultural Economics at Purdue University. David Martella is on the staff of the Department of Agricultural Economics and Rural Sociology of the University of Arkansas. James Pratt is a Ph.D. student in the Department of Agricultural Economics at Michigan State University.

The authors also benefited from the earlier modeling work of Dr. David Banker of the Dairy Group of the Economics, Statistics, and Cooperatives Service in the U.S. Department of Agriculture and Dr. Oscar Goldman, a graduate of Pennsylvania State University now living in Argentina.

The information contained in this paper is intended a a reference for those already familiar with DAMPS. A detailed description of the economic model embodied in DAMPS or the underlying mathematical relations is not provided. It is assumed that the reader has a basic understanding of the U.S. dairy economy and the methods used to construct DAMPS.

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TABLE OF CONTENTS

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INTRODUCTION

The Dairy Market Policy Simulator or DAMPS was developed as part of a thesis research project at Purdue University (7). DAMPS evolved from a model known as the Federal Milk Marketing Order System Policy Simulator, or FMMOPS, developed by Banker (4). Details of the economic model and program documentation for FMMOPS are provided elsewhere (1, 2, 3, 5, 6). These references serve as background to DAMPS.

DAMPS is a transshipment model of the U.S. Dairy Sector. The dairy sector is split geographically into federally regulated areas, state regulated areas, unregulated Grade A milk regions, and Grade B or manufacturing milk regions.

Model components include:

- supplies of Grade A milk
- supplies of Grade B milk
- processing activities
- demands for fluid (Class I) products, soft (Class II) manufactured products, cheese, butter, nonfat dry milk, and miscellaneous hard (Class III) manufactured products
- imports of cheese, butter, nonfat dry milk and miscellaneous Class III products
- commercial stocks of cheese, butter, and nonfat dry milk
- government stocks of cheese, butter, and nonfat dry milk

DAMPS is a quarterly model, capable of simulating from one to five years of dairy sector activity. Dynamic elements of the dairy sector are represented in DAMPS by the carryover of dairy stocks between quarters and by a lagged response of production and consumption to prices.

Simulation with and the operation of DAMPS is controlled by two sources of data--base data and input form data. Base data are data for the base year (1976) from which projections of production, consumption, and so forth are extrapolated. The base data includes prices and quantities for milk and milk products, processing capacities, marketing costs, hauling distances, exogenous factors affecting production, consumption, and costs, and other restrictions or model options. Input form data permit the user to select various pricing, merger, exogenous factors, length of run, and report wrtier options. For a listing and description of the data see Novakovic (7, Appendix C).

Projected Grade B prices are the basic model input. The Class III price in regulated areas is equal to the Grade B price. Class I and II prices in regulated areas are based on Class I and II differentials added to the Class III price. Differentials default to values in the base year, 1976, but can be set at any level. Retail prices are based on farm level prices and marketing costs or margins. Other model data include exogenously specified import levels, desired stock levels, the levels of exogenous factors affecting supply and demand, and restrictions and pricing mechanisms used in regulated markets.

Given a matrix of prices and exogenous factors, quarterly production, consumption, beginning stocks, imports, and desired ending stocks, can be computed in each area or region. DAMPS determines the spatial allocation that minimizes marketing costs; a capacitated network algorithm solves the transshipment problem. Actually, the transshipment model solves in three stages. In stage one, the optimal allocation of raw milk in fluid milk markets is computed. In stage two, primary manufactured products (all manufactured products, excluding butter and nonfat dry milk) markets are modeled. For further details on the mathematical model the reader is referred to Novakovic (7, Chapter III). Use of DAMPS, input forms, and available output are described elsewhere by Novakovic, et al. (8).

The purpose of the remainder of this paper is to list the computer programs that form DAMPS and briefly discuss the purpose of the programs. A detailed documentation of the computer model is not provided. Each program contains some internal documentation. All programs are written in FORTRAN IV for the Minnesota FORTRAN compiler available with the CDC 6500 at Purdue University. A list of the major variables used in the program is also provided, along with their dimension and function.

DAMPS is made up of five computer programs named DAMPSIN, DAMPSLV, DAMPCLC, DRW1, and DRW2. Figure 1 illustrates the flow of these programs in DAMPS. Briefly, DAMPSIN reads in model input and sets up base and input data needed for the solver and the report writers. DAMPSIN will list the base data, if requested. DAMPSLV sets up the model networks and solves the networks for the number of quarters requested. Results from stage one are passed to DAMPCLC. Some results from stage one and all results from stages two and three are passed to DRW2. DAMPSLV lists the solution time, value of the objective function, and other information which may be of interest to the operator. A listing of costs and restrictions on arcs and the raw solution by arcs is optional. DAMPCLC performs calculations needed for the report writers, in particular DRW1. DRW1 writes reports for stages two and three of DAMPS and for aggregated results of all three stages.

DAMPSIN

DAMPSIN, listed on the following pages, includes one subroutine--OSET and five functions--GCLIP, TRANSB, TRANSM, TRANSD, and TRANSP. The main program reads input and base data, prints base data (if requested), and writes data as it is needed to DAMPSLV, DAMPCLC, and DRW2. OSET sets up an array used in DAMPCLC for a report. The functions compute various transportation costs.

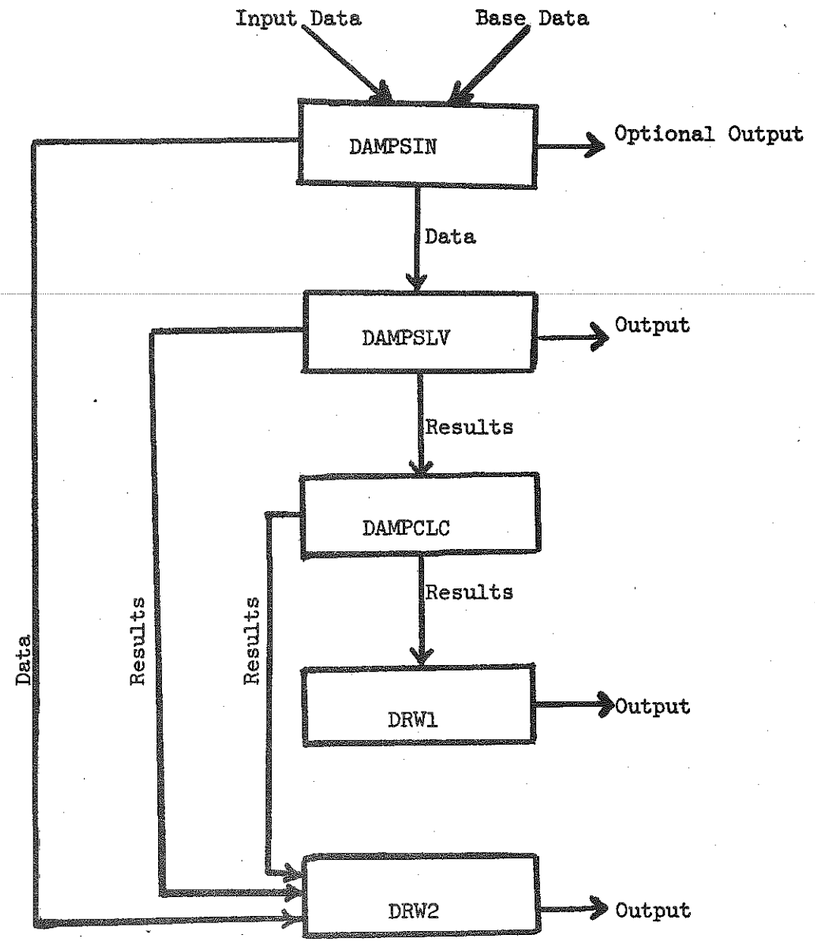

Figure 1. The Overall Flow Between Computer Programs Comprising DAMPS.

```
      PROGRAM DAMPSIN (INPUT=130,OUTPUT=130,TAPE6=OUTPUT,TAPE5=INPUT,TAP
     1E8=130,TAPE9=260,TAPE10=130,TAPE12=130,TAPE41=130)

C*****************************************************************
C       .... DAMPSIN IS THE FIRST PROGRAM OF DAMPS ....
C     DAMPSIN READS IN AND PREPARES DATA FOR DAMPSLV, DAMPCLC,
C     AND THE REPORT WRITERS - DRW1 AND DRW2.  DAMPSIN WAS
C     WRITTEN BY D.R. MARTELLA, J.E. PRATT, AND A.M. NOVAKOVIC.
C
C*****************************************************************

      DIMENSION WORK1(14992)
      DIMENSION WORK2(8025)
      DIMENSION WORK4(24), WORK5(890), WORK6(45), WORK8(11)
      DIMENSION WORK9(407), WORK10(852), WORK11(18)
      DIMENSION WORK12(767), WORK13(10)

...WORK1 = TOTAL SIZE OF BLANK COMMON UP TO AND INCLUDING SPACE2
   WORK2 = TOTAL SIZE OF COMMON IN BLK1
   WORK4 = TOTAL SIZE OF COMMON IN BLK2
   WORK5 = TOTAL SIZE OF COMMON IN BLK5
   WORK6 = TOTAL SIZE OF COMMON IN BLK7 EXCLUDING OP4
   WORK8 = TOTAL SIZE OF COMMON IN BLK9
   WORK9 = TOTAL SIZE OF COMMON IN BLK10
   WORK10 = TOTAL SIZE OF COMMON IN BLK11 UP TO AND INCLUDING EFRR
   WORK11 = TOTAL SIZE OF COMMON IN BLK12
   WORK12 = TOTAL SIZE OF COMMON IN BLK14
   WORK13 = SIZE OF LAST LINE OF COMMON IN BLK11
...CURRRENT SIZE OF UNLABELED COMMON IN DAMPSIN IS 22093

      COMMON SPACE1(9600),ABLEND(59),ACEXP(2),ACHGC1(45),ACHGC2(45),ACHG
     1C3(45),ACHGPR(45),ACHIAC(45),ACL1P(59),ACL1UT(59),ACL2D(59,2),ACL3
     20(59,2),AFRPS(59),AGRC1(45),AIAC1S(59,2),AMBLND(2),AMC1P(2),AMC1U(
     32),AMC2P(2),AMC3P(2),AMRTL(2),AMUCP(2),ANFP(45),AOAG1T(45),APCL1(5
     43,2),APRREC(59,2),ARODC(45),ARPR(59),ASCL2D(2),ASCL3D(2),ASFRPS(2)
     5,ASIAC1(2),ASMFGU(2),ASNFP(2),ASOAC1(2),ASPCL1(2),ASPRRC(2),ASRODC
     6(2),ASTRNS(2),ATCCWT(59),ATMMC(53),ATRANS(45),ATRMC(45),AUMCP(53),
     7AUTCP(59),AVP(2),AWFRPS(2),BCEXP(5),BC3P(5),BLDIF(59),BMBLEN(5),BM
     8CL1P(5),BMCL1U(5),BMRTLP(5),BNCL2P(5),BNCL3P(5),BP(20),BPS(20),BSM
     9FGU(5),BSMUCP(5),BSNFP(5),BSOAC1(5),BSTRNS(5),BSVFRP(5),BSVP(5),BS
     *VROD(5),BWFRPS(5),CHGCL1(59),CHGCL0(45),CHGCL2(45),CHGCL3(45),CHGI
     *AC(45),CHGPRR(45),CL1P(59,5),CL10(59,4),CL1UT(59),FRPS(59),IACL1(5
     *8,4),ICR(10),IDICST(5),IMRG(59),MCL10(5),MCL20(5),MCL30(5),MIACL1(
     *4),MR(5),MTPS0(5),NCL20(59,4),NFP(45),NYID(5),OMC1P(75),PCL2(59),Q
     *CL1P(59,20),QCL2P(20),QCL3P(20),QR(20),RODC(45),SAD(14,4),SERCST(5
     *),SRMPC(5),TCCNT(59),TMYC(53),TPS0(59,4),UMCP(53),UTCP(59),SPACE2(
     *53),ARMMD(45,45),ARMMS(16,45),AMMFG(61,28),APMM(59,45),QRB(5),ICRB
     *(14),ICRS(10)
      COMMON /BLK1/ SPMI(61,45),DMMFG(27,10),LMMFG(27,10),MMNC(27,10),PD
     1MI(45,45),MPDRM(59),MPDPM(59),IPPM(45),MARC(15),SPLB(16,4),DISTB(7
     25),DISTP(59),NOR(75),ONAME(75),QSPR(16),HCHG1(16),MMDM(19),CMGPT(5
     3),CMGBT(5),AR,BR,AP,DP1,IBTEF,IPTEF,NSX1,NSPX,A(59,5),DE(59),CHGNC
     42(59),CHGNC1(59),IC1EF,BC2P(5),CL20(59,4),PSE2,ICEEF,DIAC1(59,4),D
     5ISTD,DCHG1,SSPMI(14,8,8)
      COMMON /BLK2/ RDA(5),NSP,NSA1,NSMF,NDM,MMMF,NMFGT,BIGI,IMR,IMRN(11
     1)
      COMMON /BLK5/ CPRCHG(59),BTPS0(59,4),BLEND(59,6),SE(59),GRBIND(4),
     1GRBCNV(59),IGDEF,COTSP(59),QSPL1(59)
```

```
      COMMON /BLK7/ NAD,NOD,MXC,NNODES,IPRI(20),IPRO(20),QCNT1,OP4
      COMMON /BLK8/ NYCNT
      COMMON /BLK9/ NW,NSN,NT,NPN,NNN,NMN,NMM,NMD,NDP,NMS,NTN
      COMMON /BLK10/ MMFC(27),CL1CP(59),CL1SP(16),IR(61),CHGHC(5),CHGPD(
     120),ERCST(75),SPRC(16),IDMG1(26),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
     2XC,NNOD,NNNE,NNND,ISTPS,NYRBC,NYBASE,QT,QCNT,NQ,NIC,ISUP1,ISUP7,NS
     3PM,NSC,NSK,IHCEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL4,ISC1CP,CHGCL5,ACST,
     4PMCHG,RMGN,OCST2,C2MGN,RMR,PCR,PMR,MCR,OPCL1,LBCHK,IPNARC,SCL1CP,T
     5SMFC,XBP,XBP3,MPDC
      COMMON /BLK11/ NCL1P(59),CL1RR(59),IWORK2,START4,OCST,ILI(45),CHGP
     1RC(5),TRANSR(59),OACL1T(59),CINSP(59),PMCST(59),PRCST(59),ICST(5,1
     20),HCHG2(16),MXN,IPCEF,CQC2D(59),CQC1D(59),NRPR(59),XCL2P,DTCST,IW
     3ORK3,SFPCST,DFPCST,TRMPC,TMCST,RMPC(75),EFRR(59),ADTCST,ASFPCS,ADF
     4PCS,ATMCST,ATRMPC
      COMMON /BLK12/ ISTATE,MXP,NSA1S,NSMFS,NT1,NT2,NT3,NT4,NPN1,NDP1,NT
     1N1,NT5,NT6,NT7,NT8,NT9,NT10,NT11
      COMMON /BLK14/ IDXB(9,12),UNRS(9),B(9,4),BIMP(4,2,4),C(5,5,4),RPB(
     15,5),BS(6,9,4),BPC(9),BSE(9),BDE(5),BTRANS(11,5),BBC3P(5),BCHGI(4)
     2,PCHGI(4),NRPB(5),CHGMC(5,5),SIDX(3,4),RSS(9),CF(5),BMKP(5),BRCST(
     35),BNF(2),BTCST(2,5),ISS,UNUT,UNPC,DGSC(20),IMPHLD,UNS(4),UNGBP(9,
     44),UNFPHC,UNPMC,ECHBT(5),BFPHC

      INTEGER QR,QT,QCNT,QCNT1,CR,PCR,PMR,RMR,RDA,OPEXF,OPCL1,OP1,OP2,OP
     13,OP4,OP5,OP6,OP7,BIGI,OP8,QRB

      REAL NFP,IACL1,MPDRM,MMFC,MPDPM,IPPM,NCL2Q,MCL2Q,MCL3Q,NRPR,NCL1P,
     1MFGS,MFGM,IACL1S,MTPSQ,MCL1Q,ICHG,MOCC,MOPC,MPPC,MRTLP,NCL2P,MBLEN
     2D,MCL1P,MCL1U,MIACL1,MMDM,ICP,NCL3,NCL3P,NTPSQ,MMFG

      EQUIVALENCE (SPACE1(1),WORK1(1))
      EQUIVALENCE (SPMI(1),WORK2(1))
      EQUIVALENCE (RDA(1),WORK4(1)), (CPRCHG(1),WORK5(1)), (NAD,WORK6(1)
     1), (NYCNT,WORK7), (NW,WORK8(1)), (MMFC(1),WORK9(1)), (NCL1P(1),WOR
     2K10(1)), (ISTATE,WORK11(1)), (IDXB(1),WORK12(1)), (ADTCST,WORK13(1
     3))

      DATA MODL/2H A/

      TRACESUBSCRIPTS

...SET PARAMETERS FOR WORK ARRAYS

      IWORK1=14992
      IWORK2=8025
      IWORK4=24
      IWORK5=890
      IWORK6=45
      IWORK8=11
      IWORK9=407
      IWORK0=852
      IWORK7=18
      IWORKA=767
      IWORKB=10

      IWORK1=SIZE OF ARRAY WORK1
      IWORK2=SIZE OF ARRAY WORK2

...ASSIGN LOGICAL FILE PARAMETERS

      IP1=8
```

```
      IP2=5
      IP3=10
      IP4=5
      OP1=8
      OP2=9
      OP3=6
      OP5=10
      OP7=12
      OP8=41

      IP1=MODEL BASE DATA INPUT - FEDERAL ORDER
      IP2=DATA FROM INPUT FORMS - FEDERAL ORDER
      IP3=MODEL BASE DATA INPUT - STATE ORDER
      IP4=DATA FROM INPUT FORMS - STATE ORDER
      OP1=MODEL OUTPUT FOR GRADE A REPORT WRITER - DRW1
      OP2=SCRATCH FILE-OUTPUT TO DAMPCLC
      OP3=ALL OTHER OUTPUT FROM DAMPSIN
      OP5=SCRATCH FILE-OUTPUT TO DAMPSLV
      OP7=SCRATCH FILE - OUTPUT TO DAMPCLC
      OP8=BASE DATA FOR GRADE B REPORT WRITER - DRW2

      REWIND OP2

...SET PARAMETERS FOR GNET

      NNODES=381
      NAD=4360
      NNOD=382
      SMXC=1607
      BIGI=140737488355328
      NNNE=NNODES
      NNND=NAD

      NNODES=NUMBER OF NODES IN NETWORK
      NAD   =DIMENSION FOR ARC LENGTH ARRAYS (T,C,CP) IN GNETA
             SHOULD BE AT LEAST ONE GREATER THAN TOTAL NUMBER OF
             ARCS IN NETWORK EXCLUDING ARCS TO AND FROM SUPER SINK
             AND SUPER SOURCE
      NNOD  =DIMENSION OF NODE LENGTH ARRAYS (U,X,H,P,D,IT,CPX) IN
             GNETA SHOULD BE AT LEAST ONE GREATER THAN NNODES
      SMXC  =DIMENSION OF ARRAYS (ISA,NSA) IN GNETA WHERE
             SMXC=(NAD-3*NNOD)/2
      BIGI  =LARGEST INTEGER -MACHINE SPECIFIC- CURRENT VALUE=2**47

...SET MODEL PARAMETERS

      NSA1=45
      NSA1S=14
      NSX1=NSA1
      NSP=16
      NSPX=NSP
      NSMF=26
      NSMFS=14
      NDM=19
      NMMF=27
      NMFGT=28
      MXN=9
      MXM=10
      MXP=5
      NW=NSA1-NSP
```

```
      NSN=2*NSA1+2*NSA1S+NSP
      NT=NSA1+NSP
      NT1=NT+NSA1S
      NT2=NT1+NSA1
      NT3=NSA1+NSA1S
      NT4=NSN+NSA1
      NT5=NSA1+1
      NT6=NT+1
      NT7=NSMF+1
      NT8=NSMF+NSMFS
      NT9=NSA1
      NT10=NMFGT+NSMFS
      NT11=8
      NPN=NSN+NT3
      NPN1=NPN+NSMF
      NNN=NPN1+NSMFS
      NMN=NNN+1
      NMM=NMN+NMMF
      NMD=NMM+1
      NDP=NMD+NSA1
      NDP1=NDP+NSA1S
      NTN=NDP1+NSA1
      NTN1=NTN+NSA1S
      NMS=NTN1+1
      NSC=NTN1+2
      NSK=NTN1+3
      NSPM=NSMF+NMMF
      NSPM3=NSPM+3
      MS=9
      MIMP=2
      MC=5
      MSI=MS+MIMP

      NSA1  =NUMBER OF FEDERAL ORDER-PROCESSING-CONSUMPTION  AREAS
      NSA1S  =NUMBER OF STATE ORDER-PROCESSING-CONSUMPTION  AREAS
      NSP   =NUMBER OF FEDERAL ORDER AREAS WITH SUPPLY PLANT MILK
      NSMF  =NUMBER OF FEDERAL SINGLE MANUFACTURING CENTERS
      NSMFS  =NUMBER OF STATE SINGLE MANUFACTURING CENTERS
      NMMF  =NUMBER OF MULTIPLE MANUFACTURING CENTERS (F.O. ONLY)
      NDM   =NUMBER OF FEDERAL ORDER AREAS LINKED TO MULTIPLE MFG. CENTE
      NMFGT =MAX(NSMF,NMMF)+1
      MXM   =COLUMN DIMENSION FOR ARRAYS(LMMFG,DMMFG,MMNC)
      MXN=  =COLUMN DIMENSION FOR ARRAY(ICST)
      MXP   =ROW DIMENSION FOR ARRAY(ICST)= MAXIMUM NUMBER OF F.O. AREAS
             WITH INSPECTION COSTS
      MS    =NUMBER OF GRADE B SUPPLY REGIONS
      MIMP  =NUMBER OF GRADE B PORTS OF TRADE
      MC    =NUMBER OF GRADE B DEMAND REGIONS

...INITIALIZE VARIABLES AND ARRAYS

      NYCNT=1
      QCNT=1
      QCNT1=QCNT
      QT=6
      CL2=0.0
      CL3=0.0
      SCL1CP=0.
      ISC1CP=0
      ADTCST=0.
```

```
      ASFPCS=0.
      ADFPCS=0.
      ATMCST=0.
      ATRMPC=0.
      DTCST=0.
      SFPCST=0.
      DFPCST=0.
      TRMPC=0.
      TMCST=0.
      ASIAC1(1)=0.
      ASFRRC(1)=0.
      ASPCL1(1)=0.
      ASCL2D(1)=0.
      ASCL3D(1)=0.
      SMMFC=0.
      SSMFC=0.
      AMC1U(1)=0.
      AMC1P(1)=0.
      AMC2P(1)=0.
      AMC3P(1)=0.
      AMBLND(1)=0.
      AUP(1)=0.
      ASNFP(1)=0.
      ASRODC(1)=0.
      ASFRPS(1)=0.
      ACEXP(1)=0.
      AMRTL(1)=0.
      AWFRPS(1)=0.
      AMUCP(1)=0.
      ASMFGU(1)=0.
      ASTRNS(1)=0.
      ASDAC1(1)=0.
      DO 1 I=1,NMMF
      DO 1 J=1,MXM
         LMMFG(I,J)=0
         DMMFG(I,J)=0.
    1 CONTINUE
      DO 2 I=1,MXP
      DO 2 J=1,MXN
         ICST(I,J)=0
    2 CONTINUE
      DO 3 I=1,NSMF
    3 IDMG1(I)=0
      DO 4 I=1,NDM
         MMDM(I)=0.0
    4 IDMG2(I)=0

...READ DATA FROM PRIMARY INPUT FORM

      READ (IP2,44) TITLE,CR,ISTATE,IMFGB,IMR

...READ ORDER NAMES , ID , DISTANCES FOR GENERATING CLASS 1 PRICES
   FROM A BASE PRICE USING A LOCATION DIFFERENTIAL , LAST PRICE
   AND BASE YEAR FROM SECTIONS 1 AND 2 OF MODEL BASE DATA

      READ (IP1,57) (ARMMS(K,25),K=1,15),(ARMMS(K,35),K=1,15)
      READ (IP1,50) (ARMMS(K,1),K=1,15),(IR(I),NOR(IR(I)),ONAME(IR(I)),W
     1ORK1(I),WORK1(I+NT),AMMFG(IR(I),1),OMC1P(IR(I)),I=1,NT)
      READ (IP1,43) (ARMMS(K,24),K=1,15),NYBASE
      IF (ISTATE.LE.0) GO TO 5
```

```
      READ (IP3,60) (ARMMD(K,1),K=1,15),(NOR(I),ONAME(I),AMMFG(I-NSP,2),
     1OMC1P(I),I=NT6,NT1)
    5 CONTINUE
      IF (IMR.LE.0) GO TO 13
      BLWT=0.0
      N1=0
      N2=0
      INNRG=0
      READ (IP2,58)
      DO 7 I=1,IMR
         N1=N2+1
         READ (IP2,6) INNRG,(IMRG(J),J=N1,N2+INNRG)
    6 FORMAT (18I4)
         N2=N2+INNRG
    7 IMRN(I)=INNRG
      IMRT=N2
      READ (IP2,11) IMRB,BLWT
      IMRN(11)=IMRB
      IF (IMRB.LE.0) GO TO 13
      IF (IMRB.NE.1) GO TO 9
      DO 8 I=1,NSA1
    8 BLDIF(I)=BLWT*AMMFG(I,1)
      GO TO 13
    9 READ (IP2,12) (BLDIF(IR(I)),I=1,NSA1)
      DO 10 I=1,NSA1
   10 BLDIF(I)=BLDIF(I)*100.0
   11 FORMAT (1X/I2,F8.0)
   12 FORMAT (1X/(9F8.0))
   13 IF (CR.EQ.0) READ (IP2,38) (NCL1P(IR(I)),CHGCL1(IR(I)),I=1,NSA1)
      IF (CR.EQ.0.AND.ISTATE.GT.0) READ (IP2,38) (NCL1P(I),CHGCL1(I),I=N
     1T5,NT3)
      NCL2P=0.0
      CHGCL4=0.0
      NCL3P=0.0
      CHGCL5=0.0
      IF (CR.LT.2) READ (IP2,52) NCL2P,CHGCL4,NCL3P,CHGCL5
      READ (IP2,46) MR,GR,NY
      READ (IP2,47) IPRTB,OPEXF

...DETERMINE LENGTH OF RUN IN YEARS AND QUARTERS

      NYRBC=NYBASE+1
      NY=NY-NYBASE
      IF (NY.LT.1) NY=1
      IF (NY.GT.5) NY=5
      NQ=NY*4

...READ DATA FROM PRIMARY INPUT FORM, PART II

      READ (IP2,46) ISUP1,ISUP2,ISUP3,ISUP4,ISUP5,ISUP6,ISUP7,ISUP8,ISUP
     19,I12A,I12B,I12C,I12D,I13A,I13B,I13C
      READ (IP2,42) PSE2,PCR,MCR,PMR,RMR,OPCL1
      IF (ISTATE.GT.0) GO TO 14
      READ (IP2,47) ICR
      GO TO 15
   14 READ (IP2,47) ICR,ICRS
      READ (IP2,52) DCSC
      READ (IP2,47) ISS
      READ (IP2,47) IMPHLD
      READ (IP2,46) QRB
```

```
      READ (IP2,46) ICRB
   15 CONTINUE

...READ DATA FROM SUPPLEMENTAL INPUT FORM F-A (OPTIONAL)

      IKKK=ISUP1+ISUP2+ISUP3+ISUP4+ISUP5+ISUP6
      IF (IKKK.GT.0) READ (IP2,48) (APMM(IR(I),1),APMM(IR(I),2),APMM(IR(
     1I),3),APMM(IR(I),4),APMM(IR(I),5),APMM(IR(I),6),I=1,NSA1)
      IF (ISUP1.EQ.1) READ (IP2,52) CL2,CL3

...DETERMINE IF OPTIONAL DATA IS TO BE READ IN FROM SUPPLEMENTAL
   INPUT FORMS F-B, F-C, OR F-D.

      ISUP7=ISUP7+ISUP8*2+ISUP9*3
      ISUPP7=ISUP7+1
      GO TO (23,16,19,21), ISUPP7

...READ DATA FROM SUPPLEMENTAL INPUT FORM F-B (OPTIONAL)

   16 READ (IP2,58)
      DO 17 J=1,NY
         IJK=(J-1)*4+1
   17 READ (IP2,35) (QCL1P(IR(I),IJK),QCL1P(IR(I),IJK+1),QCL1P(IR(I),IJK
     1+2),QCL1P(IR(I),IJK+3),I=1,NSA1)
      READ (IP2,52) (QCL2P(I),I=1,NQ)
      READ (IP2,52) (QCL3P(I),I=1,NQ)
      DO 18 J=1,NQ
         QCL2P(J)=QCL2P(J)*100.0
         QCL3P(J)=QCL3P(J)*100.0
      DO 18 I=1,NSA1
   18 QCL1P(I,J)=QCL1P(I,J)*100.0
      GO TO 23

...READ DATA FROM SUPPLEMENTAL INPUT FORM F-C (OPTIONAL)

   19 READ (IP2,52) DIFF,CHGBP,BP(1)
      IF (ISUP1.EQ.1) ISUPP7=5
      BP(1)=BP(1)*100.0
      DO 20 J=1,NQ
         XBP=BP(1)+CHGBP*FLOAT(J-1)*100.0
         IF (ISUP1.EQ.1) XBP=BP(1)*(1.0+CHGBP*FLOAT(J-1)*0.01)
      DO 20 I=1,NSA1
         DIST=AMMFG(I,1)

...GENERATE CLASS I PRICE SURFACE

   20 QCL1P(I,J)=GCL1P(XBP,DIFF,DIST)
      GO TO 23

...READ DATA FROM SUPPLEMENTAL INPUT FORM F-D (OPTIONAL)

   21 READ (IP2,41) DIFF
      READ (IP2,52) (BP(J),J=1,NQ)
      READ (IP2,52) (QCL2P(I),I=1,NQ)
      READ (IP2,52) (QCL3P(I),I=1,NQ)
      DO 22 J=1,NQ
         QCL2P(J)=QCL2P(J)*100.0
         QCL3P(J)=QCL3P(J)*100.0
         BP(J)=BP(J)*100.0
         XBP=BP(J)
```

```
      DO 22 I=1,NSA1
         DIST=AMMFG(I,1)

...GENERATE CLASS I PRICE SURFACE

   22 QCL1P(I,J)=GCL1P(XBP,DIFF,DIST)

   23 IF (ISTATE.LT.1) GO TO 31

...READ DATA FROM SUPPLEMENTAL INPUT FORM S-A (OPTIONAL)

      JKKK=I12A+I12B+I12C+I12D
      IF (JKKK.GT.0) READ (IP2,64) (SAD(I,1),SAD(I,2),SAD(I,3),SAD(I,4),
     1I=1,NSA1S)

...DETERMINE IF OPTIONAL DATA IS TO BE READ IN FROM SUPPLEMENTAL
   INPUT FORMS S-B, S-C, OR S-D.

      ISTT=1+I13A+2*I13B+3*I13C
      GO TO (31,24,27,29), ISTT

...READ DATA FROM SUPPLEMENTAL INPUT FORM S-B (OPTIONAL)

   24 READ (IP2,58)
      DO 25 J=1,NY
         IJK=(J-1)*4+1
   25 READ (IP2,36) (QCL1P(I,IJK),QCL1P(I,IJK+1),QCL1P(I,IJK+2),QCL1P(I,
     1IJK+3),I=NT5,NT3)
      DO 26 J=1,NQ
      DO 26 I=NT5,NT3
   26 QCL1P(I,J)=QCL1P(I,J)*100.0
      GO TO 31

...READ DATA FROM SUPPLEMENTAL INPUT FORM S-C (OPTIONAL)

   27 READ (IP2,52) DIFFS,CHGBPS,BPS(1)
      BPS(1)=BPS(1)*100.0
      DO 28 J=1,NQ
         XBPS=BPS(1)+CHGBPS*FLOAT(J-1)*100.0
         IF (I12A.EQ.1) XBPS=BPS(1)*(1.0+CHGBPS*FLOAT(J-1)*0.01)
      DO 28 I=NT5,NT3
         DISTS=AMMFG(I,2)

...GENERATE CLASS I PRICE SURFACE

   28 QCL1P(I,J)=GCL1P(XBPS,DIFFS,DISTS)
      GO TO 31

...READ DATA FROM SUPPLEMENTAL INPUT FORM S-D (OPTIONAL)

   29 READ (IP2,41) DIFFS
      READ (IP2,52) (BPS(J),J=1,NQ)
      DO 30 J=1,NQ
         BPS(J)=BPS(J)*100.0
         XBPS=BPS(J)
      DO 30 I=NT5,NT3
         DISTS=AMMFG(I,2)

...GENERATE CLASS I PRICE SURFACE
```

```
   30 GCL1P(I,J)=GCL1P(XBPS,DIFFS,DISTS)

   31 DO 32 I=1,NT3
         NCL1P(I)=NCL1P(I)*100.0
   32 CHGCL1(I)=CHGCL1(I)*100.0
      NCL2P=NCL2P*100.0
      CHGCL4=CHGCL4*100.0
      NCL3P=NCL3P*100.0
      CHGCL5=CHGCL5*100.0

...INPUT FORMATS

   33 FORMAT (15A5/(10X,4F11.0))
   34 FORMAT (15A5/(20I2))
   35 FORMAT (15A5/(10X,5F8.0))
   36 FORMAT (10X,4F8.0)
   37 FORMAT (15A5/(10X,2F8.0))
   38 FORMAT (1X/(10X,2F8.0))
   39 FORMAT (15A5/(10X,5F8.0))
   40 FORMAT (15A5/(10X,F8.0))
   41 FORMAT (1X/(10X,F8.0))
   42 FORMAT (1X/(F8.0,5I2))
   43 FORMAT (15A5/(10X,I4))
   44 FORMAT (1X/(A6,5I2))
   45 FORMAT (15A5/(25I2,/,I6))
   46 FORMAT (1X/25I2/I6)
   47 FORMAT (1X/(10I2,/,10I2))
   48 FORMAT (1X/(6F8.0))
   49 FORMAT (15A5/(10X,4F8.0))
   50 FORMAT (15A5/(I2,I3,A10,5X,A3,2X,A10,10X,F5.0,5X,F5.0))
   51 FORMAT (I3,7X,16I3)
   52 FORMAT (1X/(10X,4F8.0))
   53 FORMAT (10X,12F5.0)
   54 FORMAT (5X,15F5.0)
   55 FORMAT (10X,17I4)
   56 FORMAT (10X,10I5)
   57 FORMAT (15A5)
   58 FORMAT (1X)
   59 FORMAT (15A5/(10X,9F5.0))
   60 FORMAT (15A5/(I3,2X,A10,F5.0,5X,F5.0))
   61 FORMAT (15A5/(10X,8F3.0))
   62 FORMAT (15A5/(10X,8F5.0))
   63 FORMAT (15A5/(2X,12I4))
   64 FORMAT (1X/(4F8.0))

...READ IN BASE DATA
      START1=CTIME(T1)

      READ (IP1,33) (ARMMS(K,2),K=1,15),((IACL1(I,J),J=1,4),I=1,NSA1)
      READ (IP1,35) (ARMMS(K,3),K=1,15),((CL1P(I,J),J=1,5),I=1,NSA1)
      READ (IP1,35) (ARMMS(K,4),K=1,15),((BLEND(I,J),J=1,5),I=1,NSA1)
      READ (IP1,33) (ARMMS(K,5),K=1,15),((TPSQ(I,J),J=1,4),I=1,NSA1)
      READ (IP1,33) (ARMMS(K,6),K=1,15),((CL1Q(I,J),J=1,4),I=1,NSA1)
      READ (IP1,33) (ARMMS(K,7),K=1,15),((CL2Q(I,J),J=1,4),I=1,NSA1)
      READ (IP1,57) (ARMMS(K,8),K=1,15)
      DO 65 I=1,NT
   65 READ (IP1,54) (SPMI(I,J),J=1,NSA1)
      READ (IP1,57) (ARMMS(K,9),K=1,15)
      DO 66 I=1,NSA1
   66 READ (IP1,54) (PDMI(I,J),J=1,NSA1)
```

```
      READ (IP1,57) (ARMMS(K,10),K=1,15)
      DO 67 I=1,NMMF
   67 READ (IP1,55) (LMMFG(I,J),J=1,MXM)
      READ (IP1,57) (ARMMS(K,11),K=1,15)
      DO 68 I=1,NMMF
   68 READ (IP1,53) (DMMFG(I,J),J=1,MXM)
      READ (IP1,57) (ARMMS(K,23),K=1,15)
      DO 69 I=1,NMMF
   69 READ (IP1,56) (MMNC(I,J),J=1,MXM)
      READ (IP1,49) (ARMMS(K,12),K=1,15),((SPLB(I,J),J=1,4),I=1,NSP)
      READ (IP1,39) (ARMMS(K,13),K=1,15),((A(I,J),J=1,5),I=1,NSA1)
      READ (IP1,57) (ARMMS(K,14),K=1,15)
      DO 70 I=1,MXP
   70 READ (IP1,51) IDICST(I),(ICST(I,J),J=1,MXN)
      READ (IP1,40) (ARMMS(K,15),K=1,15),(CINSP(I),I=1,NSA1)
      READ (IP1,40) (ARMMS(K,16),K=1,15),(DISTB(I),I=1,NT)
      READ (IP1,40) (ARMMS(K,17),K=1,15),(DISTP(I),I=1,NSA1)
      READ (IP1,40) (ARMMS(K,18),K=1,15),(ERCST(I),I=1,NT)
      READ (IP1,40) (ARMMS(K,19),K=1,15),(PRCST(I),I=1,NSA1)
      READ (IP1,37) (ARMMS(K,20),K=1,15),(HCHG1(I),HCHG2(I),I=1,NSP)
      READ (IP1,40) (ARMMS(K,21),K=1,15),(SPRC(I),I=1,NSP)
      READ (IP1,40) (ARMMS(K,22),K=1,15),(MPDRM(I),I=1,NSA1)
      READ (IP1,40) (ARMMS(K,26),K=1,15),(MMFC(I),I=1,NMMF)
      READ (IP1,40) (ARMMS(K,27),K=1,15),(SMFC(I),I=1,NSMF)
      READ (IP1,40) (ARMMS(K,28),K=1,15),(CL1CP(I),I=1,NSA1)
      READ (IP1,40) (ARMMS(K,29),K=1,15),(MPDPM(I),I=1,NSA1)
      READ (IP1,40) (ARMMS(K,30),K=1,15),(RMPC(I),I=1,NT)
      READ (IP1,40) (ARMMS(K,31),K=1,15),(SE(I),I=1,NSA1)
      READ (IP1,40) (ARMMS(K,32),K=1,15),(DE(I),I=1,NSA1)
      READ (IP1,40) (ARMMS(K,33),K=1,15),(IPPM(I),I=1,NSA1)
      READ (IP1,40) (ARMMS(K,34),K=1,15),(CL1RR(I),I=1,NSA1)
      READ (IP1,40) (ARMMS(K,36),K=1,15),AR,BR,AP,BP1,(BC2P(I),I=1,5),(B
     1C3P(I),I=1,4)
      READ (IP1,40) (ARMMS(K,37),K=1,15),RMGN,OCST,C2MGN,OCST2,SE2,ACST
      READ (IP1,40) (ARMMS(K,38),K=1,15),DISTD,DCHG1,ECHG,PMCHG
      READ (IP1,37) (ARMMS(K,40),K=1,15),(CHGNC1(I),CHGNC2(I),I=1,NSA1)
      READ (IP1,40) (ARMMS(K,41),K=1,15),(GRBCNV(I),I=1,NSA1)
      READ (IP1,49) (ARMMS(K,42),K=1,15),(GRBIND(I),I=1,4)
      READ (IP1,49) (ARMMS(K,43),K=1,15),(CHGBT(I),CHGPT(I),CHGHC(I),CHG
     1PRC(I),I=1,5)
      READ (IP1,49) (ARMMS(K,44),K=1,15),(CHGPD(I),I=1,20)
      READ (IP1,45) (ARMMS(K,39),K=1,15),IPNARC,LBCHK,MPDC,IC1EF,IC2EF,I
     1PCEF,IGBEF,IBTEF,IPTEF,IHCEF,IPDEF
      READ (IP1,34) (ARMMS(K,45),K=1,15),(IPRI(I),I=1,20),(IPRO(I),I=1,2
     10)

...READ IN BASE DATA FOR STATES

      IF (ISTATE.LE.0) GO TO 80

      NT9=NT3
      READ (IP3,35) (ARMMD(K,2),K=1,15),((CL1P(I,J),J=1,5),I=NT5,NT3)
      READ (IP3,35) (ARMMD(K,3),K=1,15),((BLEND(I,J),J=1,5),I=NT5,NT3)
      READ (IP3,33) (ARMMD(K,4),K=1,15),((TPSQ(I,J),J=1,4),I=NT5,NT3)
      READ (IP3,33) (ARMMD(K,5),K=1,15),((IACL1(I,J),J=1,4),I=NT5,NT3)
      READ (IP3,33) (ARMMD(K,6),K=1,15),((CL2Q(I,J),J=1,4),I=NT5,NT3)
      READ (IP3,39) (ARMMD(K,7),K=1,15),((A(I,J),J=1,5),I=NT5,NT3)
      READ (IP3,40) (ARMMD(K,8),K=1,15),(DISTB(I),I=NT6,NT1)
      READ (IP3,40) (ARMMD(K,9),K=1,15),(DISTP(I),I=NT5,NT3)
      READ (IP3,40) (ARMMD(K,10),K=1,15),(ERCST(I),I=NT6,NT1)
```

```
      READ (IP3,40) (ARMMD(K,11),K=1,15),(PRCST(I),I=NT5,NT3)
      READ (IP3,40) (ARMMD(K,12),K=1,15),(MPDRM(I),I=NT5,NT3)
      READ (IP3,40) (ARMMD(K,13),K=1,15),(SMFC(I),I=NT7,NT8)
      READ (IP3,40) (ARMMD(K,14),K=1,15),(CL1CP(I),I=NT5,NT3)
      READ (IP3,40) (ARMMD(K,15),K=1,15),(MPDPM(I),I=NT5,NT3)
      READ (IP3,40) (ARMMD(K,16),K=1,15),(RMPC(I),I=NT6,NT1)
      READ (IP3,40) (ARMMD(K,17),K=1,15),(SE(I),I=NT5,NT3)
      READ (IP3,40) (ARMMD(K,18),K=1,15),(DE(I),I=NT5,NT3)
      READ (IP3,40) (ARMMD(K,19),K=1,15),(CL1RR(I),I=NT5,NT3)
      READ (IP3,37) (ARMMD(K,20),K=1,15),(CHGNC1(I),CHGNC2(I),I=NT5,NT3)
      READ (IP3,40) (ARMMD(K,21),K=1,15),(GRBCNV(I),I=NT5,NT3)
      LL=22
      DO 71 KK=1,7,2
         READ (IP3,61) (ARMMD(K,LL),K=1,15),((SSPMI(I,J,KK),J=1,NT11),I=
     1   1,NSA15)
         READ (IP3,62) (ARMMD(K,LL+1),K=1,15),((SSPMI(I,J,KK+1),J=1,NT11
     1   ),I=1,NSA15)
   71 LL=LL+2
      READ (IP3,63) (ARMMD(K,30),K=1,15),((IDXB(I,J),J=1,12),I=1,MS)

...READ IN BASE DATA FOR UNREGULATED

      READ (IP3,33) (ARMMD(K,31),K=1,15),(UNS(J),J=1,4)
      READ (IP3,59) (ARMMD(K,32),K=1,15),(UNRS(I),I=1,MS)
      READ (IP3,40) (ARMMD(K,33),K=1,15),UNUT
      READ (IP3,39) (ARMMD(K,34),K=1,15),UNPC,UNFPHC,UNPMC

...READ IN BASE DATA FOR GRADE B

      IF (IMFGB.LE.0) GO TO 80
      READ (IP3,33) (ARMMD(K,35),K=1,15),((B(I,J),J=1,4),I=1,MS)
      DO 72 L=1,4
   72 READ (IP3,33) (ARMMD(K,35+L),K=1,15),((BIMP(L,I,J),J=1,4),I=1,MIMP
     1)
      DO 73 KK=1,5
   73 READ (IP3,33) (ARMMD(K,39+KK),K=1,15),((C(KK,I,J),J=1,4),I=1,MC)
      READ (IP3,35) (AMMFG(K,3),K=1,15),((RPB(I,J),J=1,5),I=1,5)
      DO 74 KK=1,6
   74 READ (IP3,33) (AMMFG(K,3+KK),K=1,15),((BS(KK,I,J),J=1,4),I=1,MS)
      READ (IP3,40) (AMMFG(K,10),K=1,15),(BPC(I),I=1,MS)
      READ (IP3,40) (AMMFG(K,11),K=1,15),(BSE(I),I=1,MS)
      READ (IP3,40) (AMMFG(K,12),K=1,15),(BDE(I),I=1,MC)
      READ (IP3,35) (AMMFG(K,13),K=1,15),((BTRANS(I,J),J=1,5),I=1,MSI)
      READ (IP3,40) (AMMFG(K,14),K=1,15),(BCHGI(I),I=1,4),(PCHGI(I),I=1,
     14)
      READ (IP3,35) (AMMFG(K,15),K=1,15),((CHGMC(I,J),J=1,MC),I=1,5)
      READ (IP3,33) (AMMFG(K,16),K=1,15),((SIDX(I,J),J=1,4),I=1,3)
      READ (IP3,40) (AMMFG(K,17),K=1,15),(RSS(J),J=1,MS)
      READ (IP3,39) (AMMFG(K,18),K=1,15),(CF(I),I=1,5)
      READ (IP3,39) (AMMFG(K,19),K=1,15),(BMKP(I),I=1,5),(BRCST(I),I=1,5
     1),(BNF(I),I=1,2)
      READ (IP3,39) (AMMFG(K,20),K=1,15),((BTCST(I,J),J=1,5),I=1,2)
      READ (IP3,39) (AMMFG(K,21),K=1,15),BFPHC,BPMC,BOPC

...CONVERT CHEESE AND GIII DATA TO ME (F)

      DO 77 J=1,4
         DO 75 K=1,MS
            BS(1,K,J)=BS(1,K,J)*100./CF(8)
```

```
            BS(4,K,J)=BS(4,K,J)*100./CF(2)
 75       CONTINUE
          DO 76 K=1,MC
             C(2,K,J)=C(2,K,J)*100./CF(2)
             C(3,K,J)=C(3,K,J)*100./CF(3)
 76       CONTINUE
       DO 77 K=1,MIMP
          BIMP(2,K,J)=BIMP(2,K,J)*100.0/CF(3)
 77    CONTINUE
       DO 78 J=1,20
          DGSC(J)=DGSC(J)*100.0/CF(2)
 78    CONTINUE
...CONVERT BUTTER AND NFDM RETAIL PRICES TO PRODUCT WEIGHT

       DO 79 J=1,5
       DO 79 I=4,5
          RPB(I,J)=RPB(I,J)/CF(I)
 79    CONTINUE

 80    CONTINUE

       TIME1=START1-CTIME(T1)
...LIMIT COMPARATIVE REPORTS TO FIVE VARIABLES

       NIC=0
       DO 82 I=1,10
          IF (ICR(I).EQ.0.AND.ICRS(I).EQ.0) GO TO 82
          IF (NIC.GE.5) GO TO 81
          NIC=NIC+1
          GO TO 82
 81       ICR(I)=0
          ICRS(I)=0
 82    CONTINUE

...DETERMINE INTERNAL POSITIONS OF ORDERS WITH INSPECTION COSTS

       J=1
       DO 83 I=1,NSA1
          IF (J.GT.MXP) GO TO 84
          IF (CINSP(I).GT.0.0) ILI(I)=J
 83    IF (CINSP(I).GT.0.0) J=J+1
 84    CONTINUE
       REWIND OP1

...DETERMINE INTERNAL INDEX NUMBERS FOR SUPPLY AREAS LINKED TO
   SINGLE AND MULTIPLE MFG. CENTERS

       K=1
       K4=1
       DO 87 I=1,NSMF
          DO 86 J=K,NSA1
             IF (WORK1(I+NT).NE.ONAME(J)) GO TO 85
             IDMG1(I)=J
             K2=J
             GO TO 87
 85          IDMG2(K4)=J
             K4=K4+1
             IF (K4.GT.NDM+1) WRITE (OP3,88) WORK1(I+NT)
             IF (K4.GT.NDM+1) STOP
```

```
 86     CONTINUE
 87 K=K2+1
 88 FORMAT (1X,5HLABEL,3X,A10,1X,32HFROM COLUMNS 26-35 IN THE FIRST ,2
   12HSECTION OF BASE DATA ,,/19X,1SHDOES NOT MATCH ITS ,54HCOUNTERPAR
   2T IN COLUMNS 6-15. LABELS MUST BE IDENTICAL.)

...DETERMINE DISTANCES BETWEEN SUPPLY AREAS AND MULTIPLE
   MANUFACTURING DUMMY

      DO 92 I=1,NMMF
         K4=0
         DO 91 J=1,MXM
            DO 90 K=1,NDM
               IF (LMMFG(I,J).NE.IDMG2(K)) GO TO 90
               N2=1
               IF (LMMFG(I,J).GT.NW) N2=2
               DO 89 K1=1,N2
                  IF (DMMFG(I,J+K4).GT.MMDM(K)) MMDM(K)=DMMFG(I,J+K4)
 89            IF (LMMFG(I,J).GT.NW) K4=K4+1
               GO TO 91
 90         CONTINUE
 91      CONTINUE
 92   CONTINUE
      DO 93 I=1,NDM
 93   MMDM(I)=MMDM(I)+100.

...REPLACE BASE DATA WITH SUPPLEMENTAL INPUT

      DO 94 I=1,NSA1
         IF (ISUP2.EQ.1) DE(I)=APMM(I,2)
         IF (ISUP3.EQ.1) SE(I)=APMM(I,3)
         IF (ISUP6.EQ.1) CL1RR(I)=APMM(I,6)
         IF (I.GT.NSP) GO TO 94
         IF (ISUP4.EQ.1) HCHG1(I)=APMM(I+NW,4)*100.0
         IF (ISUP5.EQ.1) HCHG2(I)=APMM(I+NW,5)*100.0
         APMM(I+NW,4)=HCHG1(I)
         APMM(I+NW,5)=HCHG2(I)
   94 CONTINUE

...REPLACE STATE BASE DATA WITH SUPPLEMENTAL INPUT

      DO 95 I=NT5,NT3
         IF (I12A.EQ.1) CHGCL1(I)=SAD(I-NSA1,1)*0.01
         IF (I12B.EQ.1) DE(I)=SAD(I-NSA1,2)
         IF (I12C.EQ.1) SE(I)=SAD(I-NSA1,3)
         IF (I12D.EQ.1) CL1RR(I)=SAD(I-NSA1,4)
   95 CONTINUE
      IX=NYBASE+1
      DO 96 I=1,5
         NYID(I)=IX
   96 IX=IX+1

...WRITE BASE AND INPUT FORM DATA TO FILE OP1 FOR USE BY REPORT WRITER

      WRITE (OP1) TITLE,NY,QR,MR,CR,ISTATE,NSA1,NSA1S,NSP,ICR,ICRS,NIC,I
     1SUPP7,NSMF,NMMF,NT,NT1,NT2,NT3,NT4,NT5,NT6,NT7,NT8,NT9,NT10,NT11,N
     2DM,NMFGT,NYBASE,IMR,MODL,IMFCB
      IF (IMR.GT.0) WRITE (OP1) (IMRN(I),I=1,IMR),IMRT,(IMRG(I),I=1,IMRT
     1),IMRB,BLWT,(BLDIF(IR(I)),I=1,NSA1)
      WRITE (OP1) (IR(I),NOR(IR(I)),ONAME(IR(I)),I=1,NT),(IDMG2(I),I=1,N
```

```
     1DM),(WORK1(I),WORK1(I+NT),I=1,NSPM3)
      IF (ISTATE.GT.0) WRITE (OP1) (NOR(I),ONAME(I),I=NT5,NT1)
      WRITE (OP1) (OMC1P(IR(I)),NCL1P(IR(I)),CHGCL1(IR(I)),I=1,NSA1)
      IF (ISTATE.GT.0) WRITE (OP1) (OMC1P(I+NSP),NCL1P(I),CHGCL1(I),I=NT
     15,NT3),I13A,I13B,I13C
      WRITE (OP1) BC2P(5),NCL2P,CHGCL4,BC3P(4),NCL3P,CHGCL5,IPRTB,OPEXF
      WRITE (OP1) (APMM(IR(I),1),DE(IR(I)),SE(IR(I)),APMM(IR(I),4),APMM(
     1IR(I),5),CL1RR(IR(I)),I=1,NSA1)
      WRITE (OP1) CL2,CL3,SE2,PSE2,PCR,MCR,PMR,RMR,OPCL1,ISUP1,ISUP2,ISU
     1P3,ISUP4,ISUP5,ISUP6,I12A,I12B,I12C,I12D
      IF (IMFGB.NE.0) WRITE (OP1) QRB,ICRB,ISS,DGSC,IMPHLD
      IF (ISUP7.EQ.1) WRITE (OP1) ((QCL1P(IR(I),J),I=1,NSA1),J=1,NQ),(QC
     1L2P(I),I=1,NQ),(QCL3P(I),I=1,NQ)
      IF (ISUP7.GT.1) WRITE (OP1) ((QCL1P(IR(I),J),I=1,NSA1),J=1,NQ)
      IF (ISUP7.EQ.2) WRITE (OP1) BP(1),CHGBP,DIFF
      IF (ISUP7.EQ.3) WRITE (OP1) (BP(I),I=1,NQ),DIFF,(QCL2P(I),I=1,NQ),
     1(QCL3P(I),I=1,NQ)
      IF (ISTATE.EQ.0) GO TO 97
      WRITE (OP1) (SAD(I-NSA1,1),DE(I),SE(I),CL1RR(I),I=NT5,NT3)
      IF (ISTT.GT.1) WRITE (OP1) ((QCL1P(I,J),I=NT5,NT3),J=1,NQ)
      IF (I13B.EQ.1) WRITE (OP1) BPS(1),CHGBPS,DIFFS
      IF (I13C.EQ.1) WRITE (OP1) (BPS(I),I=1,NQ),DIFFS
      WRITE (OP1) UNUT

...PRINT BASE DATA (OPTIONAL)

   97 IF (IPRTB.NE.1) GO TO 144

      N1=NMFGT
      LT1=N1+NT
      WRITE (OP3,108)
      WRITE (OP3,109) (ARMMS(K,25),K=1,15),(ARMMS(K,35),K=1,15)
      WRITE (OP3,121) (ARMMS(K,1),K=1,15),(IR(I),NOR(IR(I)),ONAME(IR(I))
     1,WORK1(I),WORK1(I+NT),AMMFG(I,1),OMC1P(I),I=1,NT)
      WRITE (OP3,131) (ARMMS(K,24),K=1,15),NYBASE
      WRITE (OP3,130) (ARMMS(K,2),K=1,15)
      WRITE (OP3,110) (NOR(I),ONAME(I),(IACL1(I,J),J=1,4),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,3),K=1,15)
      WRITE (OP3,112) (NOR(I),ONAME(I),(CL1P(I,J),J=1,5),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,4),K=1,15)
      WRITE (OP3,112) (NOR(I),ONAME(I),(BLEND(I,J),J=1,5),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,5),K=1,15)
      WRITE (OP3,110) (NOR(I),ONAME(I),(TPSQ(I,J),J=1,4),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,6),K=1,15)
      WRITE (OP3,110) (NOR(I),ONAME(I),(CL1Q(I,J),J=1,4),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,7),K=1,15)
      WRITE (OP3,110) (NOR(I),ONAME(I),(CL2Q(I,J),J=1,4),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,8),K=1,15)
      DO 98 I=1,NT
   98 WRITE (OP3,125) NOR(I),ONAME(I),(SPMI(I,J),J=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,9),K=1,15)
      DO 99 I=1,NSA1
   99 WRITE (OP3,125) NOR(I),ONAME(I),(PDMI(I,J),J=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,10),K=1,15)
      DO 100 I=1,NMMF
  100 WRITE (OP3,118) WORK1(I+N1),WORK1(I+LT1),(LMMFG(I,J),J=1,MXM)
      WRITE (OP3,130) (ARMMS(K,11),K=1,15)
      DO 101 I=1,NMMF
  101 WRITE (OP3,117) WORK1(I+N1),WORK1(I+LT1),(DMMFG(I,J),J=1,MXM)
      WRITE (OP3,130) (ARMMS(K,23),K=1,15)
```

```
      DO 102 I=1,NMMF
  102 WRITE (OP3,118) WORK1(I+N1),WORK1(I+LT1),(MMNC(I,J),J=1,MXM)
      WRITE (OP3,130) (ARMMS(K,12),K=1,15)
      WRITE (OP3,116) (NOR(I),ONAME(I),(SPLB(I,J),J=1,4),I=1,NSP)
      WRITE (OP3,130) (ARMMS(K,13),K=1,15)
      WRITE (OP3,111) (NOR(I),ONAME(I),(A(I,J),J=1,5),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,14),K=1,15)
      DO 103 I=1,MXP
  103 WRITE (OP3,115) IDICST(I),(ICST(I,J),J=1,MXN)
      WRITE (OP3,130) (ARMMS(K,15),K=1,15)
      WRITE (OP3,120) (NOR(I),ONAME(I),CINSP(I),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,16),K=1,15)
      WRITE (OP3,120) (NOR(I),ONAME(I),DISTB(I),I=1,NT)
      WRITE (OP3,130) (ARMMS(K,17),K=1,15)
      WRITE (OP3,120) (NOR(I),ONAME(I),DISTP(I),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,18),K=1,15)
      WRITE (OP3,120) (NOR(I),ONAME(I),ERCST(I),I=1,NT)
      WRITE (OP3,130) (ARMMS(K,19),K=1,15)
      WRITE (OP3,120) (NOR(I),ONAME(I),PRCST(I),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,20),K=1,15)
      WRITE (OP3,122) (NOR(I),ONAME(I),HCHG1(I),HCHG2(I),I=1,NSP)
      WRITE (OP3,130) (ARMMS(K,21),K=1,15)
      WRITE (OP3,114) (NOR(I),ONAME(I),SPRC(I),I=1,NSP)
      WRITE (OP3,130) (ARMMS(K,22),K=1,15)
      WRITE (OP3,114) (NOR(I),ONAME(I),MPDRM(I),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,26),K=1,15)
      WRITE (OP3,119) (WORK1(I+N1),WORK1(I+LT1),MMFC(I),I=1,NMMF)
      WRITE (OP3,130) (ARMMS(K,27),K=1,15)
      WRITE (OP3,119) (WORK1(I),WORK1(I+NT),SMFC(I),I=1,NSMF)
      WRITE (OP3,130) (ARMMS(K,28),K=1,15)
      WRITE (OP3,113) (NOR(I),ONAME(I),CL1CP(I),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,29),K=1,15)
      WRITE (OP3,114) (NOR(I),ONAME(I),MPDPM(I),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,30),K=1,15)
      WRITE (OP3,113) (NOR(I),ONAME(I),RMPC(I),I=1,NT)
      WRITE (OP3,130) (ARMMS(K,31),K=1,15)
      WRITE (OP3,114) (NOR(I),ONAME(I),SE(I),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,32),K=1,15)
      WRITE (OP3,114) (NOR(I),ONAME(I),DE(I),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,33),K=1,15)
      WRITE (OP3,114) (NOR(I),ONAME(I),IPPM(I),I=1,NSA1)
      WRITE (OP3,130) (ARMMS(K,34),K=1,15)
      WRITE (OP3,114) (NOR(I),ONAME(I),CL1RR(I),I=1,NSA1)
      WRITE (OP3,128) (ARMMS(K,36),K=1,15),AR,BR,AP,BP1,(BC2P(I),I=1,5),
     1(BC3P(I),I=1,4)
      WRITE (OP3,123) (ARMMS(K,37),K=1,15),RMGN,OCST,C2MGN,OCST2,SE2
      WRITE (OP3,123) (ARMMS(K,38),K=1,15),DISTD,DCHG1,ECHG,PMCHG
      WRITE (OP3,125) (ARMMS(K,40),K=1,15),(NOR(I),ONAME(I),CHGNC1(I),CH
     1GNC2(I),I=1,NSA1)
      WRITE (OP3,127) (ARMMS(K,41),K=1,15),(NOR(I),ONAME(I),GRBCNV(I),I=
     11,NSA1)
      WRITE (OP3,133) (ARMMS(K,42),K=1,15),(GRBIND(I),I=1,4)
      WRITE (OP3,129) (ARMMS(K,43),K=1,15),(NYID(I),CHGBT(I),CHGPT(I),CH
     1GHC(I),CHGPRC(I),I=1,5)
      WRITE (OP3,133) (ARMMS(K,44),K=1,15),(CHGPD(I),I=1,20)
      WRITE (OP3,124) (ARMMS(K,39),K=1,15),IPNARC,LBCHK,MPDC,IC1EF,IC2EF
     1,IPC2F,IGBEF,IDTEF,IPTEF,INCEF,IPDEF
      WRITE (OP3,132) (ARMMS(K,45),K=1,15),(IPRI(I),I=1,20),(IPRO(I),I=1
     1,20)
      WRITE (OP3,134)
```

```
...PRINT STATE BASE DATA (OPTIONAL)

      IF (ISTATE.LE.0) GO TO 144

      WRITE (OP3,135)
      WRITE (OP3,135) (ARMMD(K,1),K=1,15),(NOR(I),ONAME(I),OMC1P(I),I=NT
     16,NT1)
      WRITE (OP3,130) (ARMMD(K,2),K=1,15)
      WRITE (OP3,112) (NOR(I+NSP),ONAME(I+NSP),(CL1P(I,J),J=1,5),I=NT5,N
     1T3)
      WRITE (OP3,130) (ARMMD(K,3),K=1,15)
      WRITE (OP3,112) (NOR(I+NSP),ONAME(I+NSP),(BLEND(I,J),J=1,5),I=NT5,
     1NT3)
      WRITE (OP3,130) (ARMMD(K,4),K=1,15)
      WRITE (OP3,110) (NOR(I+NSP),ONAME(I+NSP),(TPSQ(I,J),J=1,4),I=NT5,N
     1T3)
      WRITE (OP3,130) (ARMMD(K,5),K=1,15)
      WRITE (OP3,110) (NOR(I+NSP),ONAME(I+NSP),(CL1Q(I,J),J=1,4),I=NT5,N
     1T3)
      WRITE (OP3,130) (ARMMD(K,6),K=1,15)
      WRITE (OP3,110) (NOR(I+NSP),ONAME(I+NSP),(CL2Q(I,J),J=1,4),I=NT5,N
     1T3)
      WRITE (OP3,130) (ARMMD(K,7),K=1,15)
      WRITE (OP3,111) (NOR(I+NSP),ONAME(I+NSP),(A(I,J),J=1,5),I=NT5,NT3)
      WRITE (OP3,130) (ARMMD(K,8),K=1,15)
      WRITE (OP3,120) (NOR(I),ONAME(I),DISTB(I),I=NT6,NT1)
      WRITE (OP3,130) (ARMMD(K,9),K=1,15)
      WRITE (OP3,120) (NOR(I+NSP),ONAME(I+NSP),DISTP(I),I=NT5,NT3)
      WRITE (OP3,130) (ARMMD(K,10),K=1,15)
      WRITE (OP3,120) (NOR(I),ONAME(I),ERCST(I),I=NT6,NT1)
      WRITE (OP3,130) (ARMMD(K,11),K=1,15)
      WRITE (OP3,120) (NOR(I+NSP),ONAME(I+NSP),PRCST(I),I=NT5,NT3)
      WRITE (OP3,130) (ARMMD(K,12),K=1,15)
      WRITE (OP3,114) (NOR(I+NSP),ONAME(I+NSP),MPDRM(I),I=NT5,NT3)
      WRITE (OP3,130) (ARMMD(K,13),K=1,15)
      WRITE (OP3,113) (NOR(I-NSMF),ONAME(I-NSMF),SMFC(I),I=NT7,NT8)
      WRITE (OP3,130) (ARMMD(K,14),K=1,15)
      WRITE (OP3,113) (NOR(I+NSP),ONAME(I+NSP),CL1CP(I),I=NT5,NT3)
      WRITE (OP3,130) (ARMMD(K,15),K=1,15)
      WRITE (OP3,114) (NOR(I+NSP),ONAME(I+NSP),MPDPM(I),I=NT5,NT3)
      WRITE (OP3,130) (ARMMD(K,16),K=1,15)
      WRITE (OP3,113) (NOR(I),ONAME(I),RMPC(I),I=NT6,NT1)
      WRITE (OP3,130) (ARMMD(K,17),K=1,15)
      WRITE (OP3,114) (NOR(I+NSP),ONAME(I+NSP),SE(I),I=NT5,NT3)
      WRITE (OP3,130) (ARMMD(K,18),K=1,15)
      WRITE (OP3,114) (NOR(I+NSP),ONAME(I+NSP),DE(I),I=NT5,NT3)
      WRITE (OP3,130) (ARMMD(K,19),K=1,15)
      WRITE (OP3,114) (NOR(I+NSP),ONAME(I+NSP),CL1RR(I),I=NT5,NT3)
      WRITE (OP3,126) (ARMMD(K,20),K=1,15),(NOR(I+NSP),ONAME(I+NSP),CHGN
     1C1(I),CHGNC2(I),I=NT5,NT3)
      WRITE (OP3,127) (ARMMD(K,21),K=1,15),(NOR(I+NSP),CNAME(I+NSP),CRBC
     1NV(I),I=NT5,NT3)
      WRITE (OP3,130) (ARMMD(K,22),K=1,15)
      WRITE (OP3,137) (NOR(I+NT),ONAME(I+NT),(SSPMI(I,J,1),J=1,NT11),I=1
     1,NSA15)
      WRITE (OP3,130) (ARMMD(K,23),K=1,15)
      WRITE (OP3,137) (NOR(I+NT),ONAME(I+NT),(SSPMI(I,J,2),J=1,NT11),I=1
     1,NSA15)
      WRITE (OP3,130) (ARMMD(K,24),K=1,15)
```

```
      WRITE (OP3,137) (NOR(I+NT),ONAME(I+NT),(SSPMI(I,J,3),J=1,NT11),I=1
     1,NSA1S)
      WRITE (OP3,130) (ARMMD(K,25),K=1,15)
      WRITE (OP3,137) (NOR(I+NT),ONAME(I+NT),(SSPMI(I,J,4),J=1,NT11),I=1
     1,NSA1S)
      WRITE (OP3,130) (ARMMD(K,26),K=1,15)
      WRITE (OP3,137) (NOR(I+NT),ONAME(I+NT),(SSPMI(I,J,5),J=1,NT11),I=1
     1,NSA1S)
      WRITE (OP3,130) (ARMMD(K,27),K=1,15)
      WRITE (OP3,137) (NOR(I+NT),ONAME(I+NT),(SSPMI(I,J,6),J=1,NT11),I=1
     1,NSA1S)
      WRITE (OP3,130) (ARMMD(K,28),K=1,15)
      WRITE (OP3,137) (NOR(I+NT),ONAME(I+NT),(SSPMI(I,J,7),J=1,NT11),I=1
     1,NSA1S)
      WRITE (OP3,130) (ARMMD(K,29),K=1,15)
      WRITE (OP3,137) (NOR(I+NT),ONAME(I+NT),(SSPMI(I,J,8),J=1,NT11),I=1
     1,NSA1S)
      WRITE (OP3,130) (ARMMD(K,30),K=1,15)
      WRITE (OP3,139) ((IDXB(I,J),J=1,12),I=1,MS)
      WRITE (OP3,130) (ARMMD(K,31),K=1,15)
      WRITE (OP3,140) (UNS(J),J=1,4)
      WRITE (OP3,130) (ARMMD(K,32),K=1,15)
      WRITE (OP3,143) (UNRS(I),I=1,MS)
      WRITE (OP3,130) (ARMMD(K,33),K=1,15)
      WRITE (OP3,143) UNUT
      WRITE (OP3,130) (ARMMD(K,34),K=1,15)
      WRITE (OP3,141) UNPC,UNFPHC,UNPMC
...PRINT GRADE B DATA

      IF (IMFGB.LE.0) GO TO 144

      WRITE (OP3,130) (ARMMD(K,35),K=1,15)
      WRITE (OP3,140) ((B(I,J),J=1,4),I=1,MS)
      DO 104 KK=1,4
         WRITE (OP3,130) (ARMMD(K,35+KK),K=1,15)
  104 WRITE (OP3,140) ((BIMP(KK,I,J),J=1,4),I=1,MIMP)
      DO 105 KK=1,5
         WRITE (OP3,130) (ARMMD(K,39+KK),K=1,15)
  105 WRITE (OP3,140) ((CCKK,I,J),J=1,4),I=1,MC)
      WRITE (OP3,130) (AMMFG(K,3),K=1,15)
      DO 106 I=1,5
  106 WRITE (OP3,141) (RPB(I,J),J=1,5)
      DO 107 KK=1,6
         WRITE (OP3,130) (AMMFG(K,3+KK),K=1,15)
  107 WRITE (OP3,140) ((SS(KK,I,J),J=1,4),I=1,MS)
      WRITE (OP3,130) (AMMFG(K,10),K=1,15)
      WRITE (OP3,143) (IPC(I),I=1,MS)
      WRITE (OP3,131) (AMMFG(K,11),K=1,15)
      WRITE (OP3,143) (BBE(I),I=1,MS)
      WRITE (OP3,130) (AMMFG(K,12),K=1,15)
      WRITE (OP3,143) (PBE(I),I=1,MC)
      WRITE (OP3,139) (AMMFG(K,13),K=1,15)
      WRITE (OP3,141) ((BTRANS(I,J),J=1,5),I=1,MSI)
      WRITE (OP3,130) (AMMFG(K,14),K=1,15)
      WRITE (OP3,143) (ECHGI(I),I=1,4),(PCHGI(I),I=1,4)
      WRITE (OP3,130) (AMMFG(K,15),K=1,15)
      WRITE (OP3,142) ((CHGMC(I,J),J=1,5),I=1,5)
      WRITE (OP3,130) (AMMFG(K,16),K=1,15)
      WRITE (OP3,142) ((SIDX(I,J),J=1,4),I=1,3)
```

```
      WRITE (OP3,130) (AMMFG(K,17),K=1,15)
      WRITE (OP3,142) (RSS(J),J=1,MS)
      WRITE (OP3,130) (AMMFG(K,18),K=1,15)
      WRITE (OP3,141) (CF(I),I=1,5)
      WRITE (OP3,130) (AMMFG(K,19),K=1,15)
      WRITE (OP3,141) (BMKP(I),I=1,5),(BRCST(I),I=1,5)
      WRITE (OP3,130) (AMMFG(K,20),K=1,15)
      WRITE (OP3,141) ((BTCST(I,J),J=1,5),I=1,2)
      WRITE (OP3,130) (AMMFG(K,21),K=1,15)
      WRITE (OP3,141) BFPHC,BPMC,BOPC
      WRITE (OP3,138)

...PRINT  FORMATS

  108 FORMAT (1X,31H********** BASE DATA **********,////)
  109 FORMAT (1X,15A5)
  110 FORMAT (1X/(1X,I3,3X,A10,4X,4F15.0))
  111 FORMAT (1X/(1X,I3,3X,A10,4X,5F11.1))
  112 FORMAT (1X/(1X,I3,3X,A10,4X,5F11.0))
  113 FORMAT (1X/(1X,I3,3X,A10,4X,F15.0))
  114 FORMAT (1X/(1X,I3,3X,A10,4X,F15.3))
  115 FORMAT (1X,I3,20X,9I6)
  116 FORMAT (1X/(1X,I3,3X,A10,4X,4F8.2))
  117 FORMAT (1X,A3,3X,A10,4X,10F8.0)
  118 FORMAT (1X,A3,3X,A10,4X,10I8)
  119 FORMAT (1X/(1X,A3,3X,A10,4X,F10.0))
  120 FORMAT (1X/(1X,I3,3X,A10,4X,F8.0))
  121 FORMAT (1X,15A5//(1X,2I5,3X,A10,10X,A3,3X,A10,15X,F5.0,5X,F5.0))
  122 FORMAT (1X/(1X,I3,3X,A10,4X,2F11.0))
  123 FORMAT (////1X,15A5//(10X,F8.3))
  124 FORMAT (////1X,15A5//(1X,15I2))
  125 FORMAT (1X,I3,1X,A10,1X,15F7.0/(16X,15F7.0))
  126 FORMAT (////1X,15A5//(1X,I3,3X,A10,4X,2F10.3))
  127 FORMAT (////1X,15A5//(1X,I3,3X,A10,4X,F10.0))
  128 FORMAT (////1X,15A5//(10X,F8.3))
  129 FORMAT (////1X,15A5//(1X,I4,6X,4F8.3))
  130 FORMAT (////1X,15A5//)
  131 FORMAT (////1X,15A5//(10X,5I7))
  132 FORMAT (////1X,15A5//(1X,20I2))
  133 FORMAT (////1X,15A5//(10X,4F8.3))
  134 FORMAT (//1X,40H**********  END OF BASE DATA  **********)
  135 FORMAT (1X////,31H********** STATE DATA **********,////)
  136 FORMAT (1X,15A5/(1X,I3,2X,A10,F5.0))
  137 FORMAT (1X,(1X,I3,2X,A10,8F5.0))
  138 FORMAT (//1X,40H***END OF STATE AND GRADE B BASE DATA***)
  139 FORMAT (2X,18I4)
  140 FORMAT (1X/(10X,4F11.0))
  141 FORMAT (1X/(10X,5F8.0))
  142 FORMAT (1X/(10X,9F8.3))
  143 FORMAT (1X/(10X,F8.2))

  144 CONTINUE

...DETERMINE INTERNAL INDEX NUMBERS FOR MERGED ORDERS

      IF (IMR.LE.0) GO TO 150

      N1=0
      M2=0
      ISWTCH=0
```

```
      DO 149 I=1,IMR
         N1=N2+1
         N2=N2+IMRN(I)
      DO 149 J=N1,N2
         IF (ISWTCH.NE.0) GO TO 145
         ISWTCH=1
         GO TO 147
145      WRITE (OP3,146) IMRG(J-1),IMR
146   FORMAT (///5X,25H*** THE FOLLOWING NUMBER ,I3,35H IS NOT A VALID O
     1RDER NUMBER. FOUND,11H IN MERGER ,I2,19H SPECIFICATION. ***//)
         STOP
147      DO 148 K=1,NSA1
            IF (NOR(K).NE.IMRG(J)) GO TO 148
            ISWTCH=0
            IMRG(J)=K
            GO TO 149
148      CONTINUE
149   CONTINUE
150   IF (MPDC.EQ.1.AND.RMR.NE.1) WRITE (OP3,151)
      IF (MPDC.EQ.1.AND.PMR.NE.1) WRITE (OP3,152)
151   FORMAT (//1X,42HMAXIMUM QUARTERLY DECLINE IN SALES TO OWN ,/1X,51H
     1AREA BY PRODUCERS FIXED AT LEVELS SPECIFIED IN BASE,/1X,17H DATA S
     2ECTION 24.)
152   FORMAT (//1X,48HMAXIMUM QUARTERLY DECLINE IN PACKAGED MILK SALES,/
     11X,53H TO OWN AREA BY PROCESSORS FIXED AT LEVELS SPECIFIED ,/1X,25
     2H IN BASE DATA SECTION 28.)
      I=IC1EF+IC2EF+IPCEF+IGBEF+IBTEF+IPTEF+IHCEF+IPDEF
      IF (I.GT.0.AND.OPEXF.NE.1) WRITE (OP3,153)
153   FORMAT (1X,50H********** ONE OR MORE INDIVIDUAL EXOGENOUS  *****,/
     11X,51H******** FACTORS SELECTED TO VARY FROM BASE DATA **)
...SET EXOGENOUS FACTORS OPTIONS

      IF (OPEXF.NE.1) GO TO 154

      IC1EF=1
      IC2EF=1
      IPCEF=1
      IGBEF=1
      IBTEF=1
      IPTEF=1
      IHCEF=1
      IPDEF=1
154   CONTINUE
      DO 155 I=1,5
         IF (IHCEF.NE.1) CHGHC(I)=1.0
         IF (IBTEF.NE.1) CHGBT(I)=1.0
         IF (IPCEF.NE.1) CHGPRC(I)=1.0
         IF (IPTEF.NE.1) CHGPT(I)=1.0
         ECHBT(I)=CHGBT(I)
155   CONTINUE
      IF (ISUP7.EQ.1.OR.ISUP7.EQ.3) NCL2P=QCL2P(QCNT)
      IF (ISUP7.EQ.1.OR.ISUP7.EQ.3) NCL3P=QCL3P(QCNT)
      IF (ISUP7.NE.1.AND.ISUP7.NE.3.AND.NCL2P.EQ.0.0) NCL2P=BC2P(5)
      XCL2P=CEMGN*(BC2P(5)+QCNT2)
      XBP=NCL2P
      IF (ISUP7.NE.1.AND.ISUP7.NE.3.AND.NCL3P.EQ.0.0) NCL3P=BC3P(4)
      XBP3=NCL3P
      IF (PSE2.EQ.0.0) PSE2=SE2
      DO 156 I=1,NT3
```

```
      NRPR(I)=A(I,5)
      CPRCHG(I)=0.00

...INCREASE CLASS I CAPACITY BY AMOUNT OF RESERVE REQUIREMENT

      SCL1CP=SCL1CP+CL1CP(I)
      CL1CP(I)=(1.+CL1RR(I))*CL1CP(I)
      ISC1CP=ISC1CP+IFIX(CL1CP(I)+0.5)
      IF (I.GT.NSA1) GO TO 156
      APRREC(I,1)=0.
      APCL1(I,1)=0.
      AIAC1S(I,1)=0.
      ACL3Q(I,1)=0.
      ACL2Q(I,1)=0.
      IF (ISUP1.EQ.1) CHGCL1(I)=APMM(I,1)*0.01
      IF (IPDEF.NE.1.AND.I.LT.21) CHGPD(I)=1.0
156 CONTINUE
    IF (ISUP1.EQ.1) CHGCL4=CL2*0.01
    IF (ISUP1.EQ.1) CHGCL5=CL3*0.01
    JK=2*NT1
    DO 157 I=1,JK
157 WORK1(I)=0.0
    DO 158 I=2,5
      BNCL2P(I)=BC2P(I)
      BNCL3P(I)=BC3P(I-1)
      MIACL1(I-1)=0.
      MTPSQ(I)=0.
      MCL1Q(I)=0.
      MCL3Q(I)=0.
      MCL2Q(I)=0.
      BMRTLP(I)=0.
      BSTRNS(I)=0.
      BSQAC1(I)=0.
      SERCST(I)=0.
      SRMPC(I)=0.
      BMCL1P(I)=0.
158 CONTINUE

...
    DO 116 I=1,NT9
      DO 114 JK=1,NSA1
114   APMM(I,JK)=0.0
    IF(I.LE.NSA1)GO TO 1115
    DO 2115 J=1,4
2115 CL1Q(I,J)=IACL1(I,J)
1115  IF (ISUP7.GE.1) NCL1P(I)=QCL1P(I,QCNT)
    IF(ISUP7.LT.1.AND.NCL1P(I).EQ.0.0)NCL1P(I)=OMC1P(I)
      CL1P(I,1)=NCL1P(I)
116 CONTINUE

    DO 160 I=1,NSA1
      DO 159 JK=1,NT9
        APMM(JK,I)=0.0
159   CONTINUE
      IF (ISUP7.GE.1) NCL1P(I)=QCL1P(I,QCNT)
      IF (ISUP7.LT.1.AND.NCL1P(I).EQ.0.0) NCL1P(I)=OMC1P(I)
      CL1P(I,1)=NCL1P(I)
160 CONTINUE
    IF (ISTATE.LE.0) GO TO 163
    DO 162 I=NT5,NT3
```

```
      IF (ISTT.GT.1) NCL1P(I)=QCL1P(I,QCNT)
      IF (ISTT.LE.1.AND.NCL1P(I).EQ.0.0) NCL1P(I)=OMC1P(I+NSP)
      CL1P(I,1)=NCL1P(I)
      DO 161 J=1,4
         CL1Q(I,J)=IACL1(I,J)
161   CONTINUE
162 CONTINUE
163 CONTINUE

...OPTION TO USE IN AREA CLASS 1 SALES AS A DEMAND BASE

    DO 165 I=1,NSA1
      IF (OPCL1.EQ.1) GO TO 165
      DO 164 J=1,4
         IACL1(I,J)=CL1Q(I,J)
164   CONTINUE
165 CONTINUE

...CALCULATIONS REQUIRED FOR GRADE A REPORT WRITER FROM BASE DATA

    DO 166 N=1,10
      ICR(N)=ICR(N)+ICRS(N)
166 CONTINUE
    DO 168 I=1,NT9
      DO 167 J=2,5
         APMM(I,J-1)=(CL1Q(I,J-1)/TPSQ(I,J-1))*100.0
         APMM(I,5)=APMM(I,5)+APMM(I,J-1)/4.0
         XY=CL1CP(I)/(1.0+CL1RR(I))
         APMM(I,J+4)=(CL1Q(I,J-1)/XY)*100.0
         APMM(I,10)=APMM(I,10)+APMM(I,J+4)/4.0
         APMM(I,J+9)=(A(I,J)*23.2558)/RMGN
         APMM(I,15)=APMM(I,15)+APMM(I,J+9)/4.0
         APMM(I,16)=APMM(I,16)+CL1P(I,J)/4.0
         APMM(I,17)=APMM(I,17)+BLEND(I,J)/4.0
         XCL3T=TPSQ(I,J-1)-(CL1Q(I,J-1)+CL2Q(I,J-1))
         APMM(I,J+19)=XCL3T
         ACL2Q(I,1)=ACL2Q(I,1)+CL2Q(I,J-1)
         ACL3Q(I,1)=ACL3Q(I,1)+XCL3T
         APRREC(I,1)=APRREC(I,1)+TPSQ(I,J-1)
         APCL1(I,1)=APCL1(I,1)+CL1Q(I,J-1)
         AIAC1S(I,1)=AIAC1S(I,1)+IACL1(I,J-1)
         BTPSQ(I,J-1)=TPSQ(I,J-1)
         BIAC1(I,J-1)=IACL1(I,J-1)
         NCL2Q(I,J-1)=CL2Q(I,J-1)
         IF (I.GT.NSA1) GO TO 167
         BMRTLP(J)=BMRTLP(J)+A(I,J)*IACL1(I,J-1)*23.2558
         SERCST(J)=SERCST(J)+TPSQ(I,J-1)*ERCST(I)
         SRMPC(J)=SRMPC(J)+TPSQ(I,J-1)*RMPC(I)
         MCL3Q(J)=MCL3Q(J)+XCL3T
         MCL2Q(J)=MCL2Q(J)+CL2Q(I,J-1)
         MIACL1(J-1)=MIACL1(J-1)+IACL1(I,J-1)
         MTPSQ(J)=MTPSQ(J)+TPSQ(I,J-1)
         MCL1Q(J)=MCL1Q(J)+CL1Q(I,J-1)
         BMCL1P(J)=BMCL1P(J)+CL1P(I,J)*CL1Q(I,J-1)
167   CONTINUE
      IF (I.GT.NSA1) GO TO 168
      ASCL2Q(1)=ASCL2Q(1)+ACL2Q(I,1)
      ASCL3Q(1)=ASCL3Q(1)+ACL3Q(I,1)
      ASPCL1(1)=ASPCL1(1)+APCL1(I,1)
      ASIAC1(1)=ASIAC1(1)+AIAC1S(I,1)
```

```
      ERCST(I)=ERCST(I)-ACST
      ASPRRC(1)=ASPRRC(1)+APRREC(I,1)
168 CONTINUE
    IF (ISTATE.LE.0) GO TO 170
    DO 169 I=NT6,NT1
169 ERCST(I)=ERCST(I)-ACST

...SET VARIABLES FROM BASE DATA TO BE USED IN COMPARATIVE
   REPORTS IN WORK1 ARRAY

170 IF (NIC.EQ.0) GO TO 172
    DO 171 J=1,4
      JX=J+20
    CALL OSET (J+5,0,NIC,ICR,NT9,TPSQ(1,J),CL1Q(1,J),NCL2Q(1,J),APMM(1
   1,JX),APMM(1,J),CL1P(1,J+1),BLEND(1,J+1),APMM(1,J+5),APMM(1,J+10),I
   2ACL1(1,J),WORK1,NT9)
171 CONTINUE
    CALL OSET (10,0,NIC,ICR,NT9,APRREC(1,1),APCL1(1,1),ACL2D(1,1),ACL3
   1Q(1,1),APMM(1,5),APMM(1,16),APMM(1,17),APMM(1,10),APMM(1,15),AIAC1
   2S(1,1),WORK1,NT9)
172 CONTINUE
    DO 173 I=1,NMMF
173 SMMFC=SMMFC+MMFC(I)
    DO 174 I=1,NSMF
174 SSMFC=SSMFC+SMFC(I)
    TSMFC=SSMFC+SMMFC
    DO 175 I=2,5
      N1=(I-2)*150
      BMCL1U(I)=(MCL1Q(I)/MTPSQ(I))*100.0
      BMCL1P(I)=BMCL1P(I)/MCL1Q(I)
      BSVP(I)=MCL1Q(I)*BMCL1P(I)+MCL2Q(I)*BNCL2P(I)+MCL3Q(I)*BNCL3P(I
   1  )
      BMBLEN(I)=BSVP(I)/MTPSQ(I)
      BSNFP(I)=BMBLEN(I)-SERCST(I)/MTPSQ(I)-PMCHG
      BSVROD(I)=BSNFP(I)-SRMPC(I)/MTPSQ(I)
      BMRTLP(I)=BMRTLP(I)/(MIACL1(I-1)*23.2558)
      BWFRPS(I)=BMRTLP(I)-BMCL1P(I)/23.2558
      BCEXP(I)=BMRTLP(I)*MIACL1(I-1)*23.2558
      BSMUCP(I)=(MCL1Q(I)/SCL1CP)*100.0
      BSVFRP(I)=BWFRPS(I)*MIACL1(I-1)*23.2558
      BSMFGU(I)=(MCL3Q(I)/TSMFC)*100.0
      AMC1U(1)=AMC1U(1)+BMCL1U(I)/4.
      AMC1P(1)=AMC1P(1)+BMCL1P(I)/4.
      AMC2P(1)=AMC2P(1)+BNCL2P(I)/4.
      AMC3P(1)=AMC3P(1)+BNCL3P(I)/4.
      AMBLND(1)=AMBLND(1)+BMBLEN(I)/4.
      AVP(1)=AVP(1)+BSVP(I)
      ASNFP(1)=ASNFP(1)+BSNFP(I)/4.
      ASRODC(1)=ASRODC(1)+BSVROD(I)/4.
      ASFRPS(1)=ASFRPS(1)+BSVFRP(I)
      ACEXP(1)=ACEXP(1)+BCEXP(I)
      AMRTL(1)=AMRTL(1)+BMRTLP(I)/4.
      AWFRPS(1)=AWFRPS(1)+BWFRPS(I)/4.
      AMUCP(1)=AMUCP(1)+BSMUCP(I)/4.
      ASMFGU(1)=ASMFGU(1)+BSMFGU(I)/4.

...WRITE BASE DATA TO BE USED BY REPORT WRITER FOR QUARTERLY
   COMPARATIVE SUMMARY REPORTS - DAMFCLC

      WRITE (OP2) MTPSQ(I),MIACL1(I-1),MCL2Q(I),MCL3Q(I),BMCL1U(I),BM
```

```
     1   CL1P(I),BNCL2P(I),BNCL3P(I),BMBLEN(I),BSUP(I),BSNFP(I),BSVROD(I
     2   ),BSVFRP(I),BCEXP(I),BNRTLP(I),BWFRPS(I),BSMUCP(I),BSMFGU(I),BS
     3   TRNS(I),SFPCST,DTCST,DFPCST,DSOAC1(I),TMCST,TRMPC

...WRITE BASE DATA FOR GRADE B REPORT WRITER - DRW2

         IF (IMFGB.NE.0) WRITE (OP8) BMBLEN(I),BNCL3P(I),BSUP(I),BSVROD(
     1   I),BCEXP(I)

...STORE DATA IN WORK1 ARRAY

         REWIND OP2
         READ (OP2) (WORK1(N1+IJK),IJK=1,25)
         REWIND OP2
 175 CONTINUE

...BASE YEAR DATA (ANNUAL) FOR COMPARATIVE SUMMARY REPORT - DAMPCLC

      WRITE (OP2) ASPRRC(1),ASFCL1(1),ASCL2D(1),ASCL3Q(1),AMC1U(1),AMC1P
     1(1),AMC2P(1),AMC3P(1),AMBLND(1),AVP(1),ASNFP(1),ASRODC(1),ASFRPS(1
     2),ACEXP(1),AMRTL(1),AWFRPS(1),AMUCP(1),ASMFGU(1),ASTRNS(1),ASFPCS,
     3ADTCST,ADFPCS,ASOAC1(1),ATMCST,ATRMPC

...CALCULATE UNREG. VARIABLES AND MFG. PRODUCTION
   AND WRITE TO REPORT WRITERS - DRW1 AND DRW2

      IF (ISTATE.EQ.0) GO TO 180

      DO 179 K=1,4
      KK=K+1
      UNCEXP=0.0
      DO 178 I=1,MS
         UNC1P=0.0
         UNNRP=0.0
         UNNBP=0.0
         NIXB=0.0
         APMM(I,K)=0.0
         APMM(I+9,K)=0.0
         APMM(I+18,K)=0.0
         DO 176 J=1,12
            IXB=IDXB(I,J)
            IF (IXB.EQ.0) GO TO 177
            UNC1P=UNC1P+CL1P(IXB,KK)
            UNNRP=UNNRP+NRPR(IXB)
            NIXB=NIXB+1
            APMM(I,K)=APMM(I,K)+TPSQ(IXB,K)
            APMM(I+9,K)=APMM(I+9,K)+CL1Q(IXB,K)
            IF (IGBEF.EQ.1) APMM(I+18,K)=APMM(I+18,K)-GRBCNU(IXB)*GRB
     1      IND(K)
 176     CONTINUE
 177     UNC1P=UNC1P/FLOAT(NIXB)
         UNNRP=UNNRP/FLOAT(NIXB)
         UNCBP(I,K)=UNC1P*UNUT+BC3P(K)*(1.0-UNUT)
         UNNBP=UNCBP(I,K)-UNFPHC-UNFMC
         UNREG=UNS(K)*UNRS(I)
         UNC1S=UNREG*UNUT
         UNCEXP=UNCEXP+UNNRP*UNC1S
         UNVP=UNCBP(I,K)*UNREG
         UNRODC=UNNBP-UNFC
         APMM(I+18,K)=APMM(I+18,K)+APMM(I,K)-APMM(I+9,K)+B(I,K)+UNREG
```

```
     1      -UNC1S

            WRITE (OP1) UNREG,UNC1S,UNGBP(I,K),UNNBP,UNRODC
            WRITE (OP8) UNREG,UNC1S,UNGBP(I,K),UNVP,UNRODC
 178    CONTINUE

        WRITE (OP8) UNCEXP
 179 CONTINUE

 180 WRITE (OP8) TITLE,NYBASE,NY,NQ,QRB,ICRB,((APMM(I,J),I=1,MS),J=1,4)
     1,((APMM(II,JJ),II=10,18),JJ=1,4),B,((APMM(K,L),K=19,27),L=1,4),BIM
     2P,BS,C,((RPB(I,J),I=1,5),J=2,5),BPC,BMKP,CF,BFPHC,BPMC,BOPC,CHGPD,
     3IPDEF,CHGHC

...STORE ANNUAL DATA IN WORK1 ARRAY

     REWIND OP2
     N1=N1+150
     READ (OP2) (WORK1(N1+IJK),IJK=1,25)
     REWIND OP2

...DETERMINE CLASS1 PRICE AT SUPPLY PLANTS

     DO 181 I=1,NSP
        CL1SP(I)=NCL1P(I+NW)
 181 CL1P(I,2)=CL1SP(I)

...CALCULATE BASE INTERCEPT VALUES FOR DEMAND FUNCTIONS

     DO 182 I=1,NT9
     DO 182 J=1,4
        IF (DE(I).EQ.0.0) A(I,J)=IACL1(I,J)
 182 IF (DE(I).NE.0.0) A(I,J)=IACL1(I,J)/(A(I,J)**DE(I))

...CALCULATE BASE CLASS 2 RETAIL PRICES

     DO 183 I=1,5
        BBC3P(I)=BC3P(I)
 183 BC2P(I)=C2MGN*(BC2P(I)+OCST2)

...CALCULATE BASE UNIT TRANSPORTATION COSTS

     K=0
     DO 185 I=1,NT
        DO 184 J=1,NSA1
           IF (I.LE.NMMF.AND.J.LE.MXM) DMMFG(I,J)=TRANSM(I,J)
           IF (I.LE.NSA1) PDMI(I,J)=TRANSP(I,J,K)
 184    SPMI(I,J)=TRANSB(I,J,K)
 185 IF (I.LE.NDM) MMDM(I)=TRANSD(I)

...CALCULATE BASE UNIT TRANSPORTATION COSTS: STATES

     IF (ISTATE.LE.0) GO TO 190
     DO 189 K=1,7,2
     DO 189 I=1,NSA1S
        DO 188 J=1,NT11
           DO 187 K1=1,NSA1
              IF (K.GE.5) GO TO 186
              IF (IFIX(SSPMI(I,J,K)).NE.K1) GO TO 187
```

```
                SSPMI(I,J,K+1)=TRANSB(I,J,K)
                GO TO 188
  185           CONTINUE
                IF (IFIX(SSPMI(I,J,K)).NE.K1) GO TO 187
                SSPMI(I,J,K+1)=TRANSP(I,J,K)
  187       CONTINUE
  188     CONTINUE
  189 CONTINUE
  190 CONTINUE

...WRITE TRANSPORTATION COST MATRIX FOR USE IN SUBROUTINE TCOST

      TEMP=-1.0
      TEMPI=0.0
      K=1
      DO 200 J=1,NT9
         IF (ISTATE.EQ.0) GO TO 199
         IF (J.GT.NSA1) GO TO 193

...STATE SUPPLY TO F.O. PROCESSOR

         K=1
         DO 192 M1=1,NSA1S
            IST=0
            DO 191 M2=1,NT11
               IF (IFIX(SSPMI(M1,M2,K)).NE.J) GO TO 191
               IST=1
               SPACE2(M1)=SSPMI(M1,M2,K+1)
               GO TO 192
  191       CONTINUE
            IF (IST.EQ.0) SPACE2(M1)=TEMP
  192    CONTINUE
         WRITE (OP7) (SPMI(I,J),I=1,NSA1),(SPACE2(M),M=1,NSA1S)
         GO TO 200

...STATE PROCESSOR TO F.O. SUPPLY

  193    K=3
         JJ=J-NSA1
         DO 195 M1=1,NSA1
            IST=0
            DO 194 M2=1,NT11
               IF (IFIX(SSPMI(JJ,M2,K)).NE.M1) GO TO 194
               IST=1
               SPACE2(M1)=SSPMI(JJ,M2,K+1)
               GO TO 195
  194       CONTINUE
            IF (IST.EQ.0) SPACE2(M1)=TEMP
  195    CONTINUE

...STATE PROCESSOR TO STATE SUPPLY

         JM1=JJ+NT
         DO 198 M1=NT6,NT1
            IF (M1.EQ.JM1) GO TO 197
            IST=0
            DO 196 M2=1,NT11
               IF (IFIX(SSPMI(JJ,M2,K)).NE.M1) GO TO 196
               IST=1
               SPACE2(M1-NSP)=SSPMI(JJ,M2,K+1)
```

```
            GO TO 198
 196        CONTINUE
            IF (IST.EQ.0) SPACE2(M1-NSP)=TEMP
            GO TO 198
 197        SPACE2(J)=TEMP1
 198     CONTINUE
         WRITE (OP7) (SPACE2(I),I=1,NTS)
         GO TO 200

...FEDERAL ORDER ONLY

 199     WRITE (OP7) (SPMI(I,J),I=1,NSA1)
 200 CONTINUE

...WRITE OUT BLOCK COMMON FOR SOLVER - DAMPSLV

      REWIND OP5
      WRITE (OP5) (WORK2(I),I=1,IWORK2),(WORK4(J),J=1,IWORK4),(WORK5(K),
     1K=1,IWORK5),(WORK6(L),L=1,IWORK6),WORK7,IMFGB,(WORK8(M),M=1,IWORK8
     2),(WORK9(N),N=1,IWORK9),(WORK10(II),II=1,IWORK0),(WORK11(JJ),JJ=1,
     3IWORK7),IMRG,BLDIF,CHGCL1,OCL1P,OCL2P,OCL3P,CL1P,TITLE,(WORK12(KK)
     4,KK=1,IWORKA)

...WRITE BLANK COMMON FOR COMP. REPORTS IN REPORT WRITER - DRW1

      REWIND OP2
      WRITE (OP2) WORK1,WORK4,WORK5,WORK6,NYCNT,WORK8,WORK9,WORK10,WORK1
     13,WORK11

      STOP
      END
      SUBROUTINE OSET (OT,NYR,NIC,ICR,NSA1,PRREC,PCL1,PCL2,TCL3,CL1UT,NC
     1L1P,BLEND,UTCP,TCCWT,CQC1D,WORK1,NT9)

...SUBROUTINE OSET


...COMPARATIVE REPORT DATA PLACED IN WORK1 ARRAY

      DIMENSION ICR(10), NO(5), PRREC(1), PCL1(1), PCL2(1), TCL3(1), CL1
     1UT(1), NCL1P(1), BLEND(1), UTCP(1), TCCWT(1), CQC1D(1), WORK1(1)

      REAL NCL1P
      INTEGER OT

.....N1,NO(1),NO(2),NO(3),NO(4),NO(5)/1,751,2101,3451,
                                      4801,6151/

     N=750+(NYR*NT9)+((OT-6)*(6*NT9))
     DO 1 I=1,NIC
   1 NO(I)=N+(I-1)*(30*NT9)
     KJ=0
     DO 13 M=1,10
        IF (ICR(M).EQ.0) GO TO 13
        KJ=KJ+1
        DO 12 I=1,NSA1
           NN=NO(KJ)+I
           GO TO (2,3,4,5,6,7,8,9,10,11), M
   2       WORK1(NN)=PRREC(I)
```

```
            GO TO 12
    3       WORK1(NN)=PCL1(I)
            GO TO 12
    4       WORK1(NN)=PCL2(I)
            GO TO 12
    5       WORK1(NN)=TCL3(I)
            GO TO 12
    6       WORK1(NN)=CL1UT(I)
            GO TO 12
    7       WORK1(NN)=NCL1P(I)
            GO TO 12
    8       WORK1(NN)=BLEND(I)
            GO TO 12
    9       WORK1(NN)=UTCP(I)
            GO TO 12
   10       WORK1(NN)=TCCWT(I)
            GO TO 12
   11       WORK1(NN)=CQC1D(I)
   12     CONTINUE
   13 CONTINUE
      RETURN

      END
      FUNCTION GCL1P(BP,DIFF,DIST)

...GENERATE CLASS I PRICES USING BASE PRICE AND LOCATION DIFFERENTIAL
   A LOCATION DIFFERENTIAL

      GCL1P=BP+DIFF*DIST
      RETURN

      END
      FUNCTION TRANSB(I,J,K)

...TRANSPORTATION COST TO PROCESSING CENTERS

      COMMON /BLK1/ SPMI(61,45),DMMFG(27,10),LMMFG(27,10),MMNC(27,10),PD
     1MI(45,45),MPDRM(59),MPDPM(59),IPPM(45),NARC(15),SPLB(16,4),DISTB(7
     25),DISTP(59),NOR(75),ONAME(75),QSPR(16),HCHG1(16),MMDM(19),CHGPT(5
     3),CHGBT(5),AR,BR,AP,BP1,IBTEF,IPTEF,NSX1,NSPX,A(59,5),DE(59),CHGNC
     42(59),CHGNC1(59),IC1EF,BC2P(5),CL20(59,4),PSE2,IC2EF,BIAC1(59,4),D
     5ISTD,DCHG1,SSPMI(14,8,8)
      COMMON /BLK2/ RDA(5),NSP,NSA1,NSMF,NDM,NMMF,NMFGT,BIGI,IMR,IMRN(11
     1)
      COMMON /BLK8/ NYCNT
      COMMON /BLK9/ NW,NSN,NT,NPN,NNN,NMN,NMM,NMD,NDP,NMS,NTN

      REAL MPDRM,MPDPM,IPPM,MMDM

      TRACESUBSCRIPTS

      TRANSB=-1.0
      IF (K.GT.0) GO TO 2
      IF (SPMI(I,J).GT.DISTB(I).OR.SPMI(I,J).LT.0.0) GO TO 1
      TRANSB=AR+BR*SPMI(I,J)
      IF (SPMI(I,J).GT.DISTD.AND.I.LE.NSX1) TRANSB=TRANSB+DCHG1
    1 IF (I.EQ.J) TRANSB=0.
      IF (I.GT.NSX1.AND.I.EQ.(J+NSPX)) TRANSB=0.
      GO TO 3
    2 CONTINUE
```

```
      IF ((SSPMI(I,J,K+1).GT.DISTB(I+NT)).OR.(SSPMI(I,J,K).LT.0.0)) GO T
     10 3
      TRANSB=AR+BR*SSPMI(I,J,K+1)
      IF (SSPMI(I,J,K+1).GT.DISTD) TRANSB=TRANSB+DCHG1
      IF (SSPMI(I,J,K+1).EQ.0.) TRANSB=0.
    3 CONTINUE
      RETURN

      END
      FUNCTION TRANSM(I,J)

...TRANSPORTATION COST MANUFACTURING CENTERS

      COMMON /BLK1/ SPMI(61,45),DMMFG(27,10),LMMFG(27,10),MMNC(27,10),PD
     1MI(45,45),MPDRM(59),MPDPM(59),IPPM(45),NARC(15),SPLB(16,4),DISTB(7
     25),DISTP(59),NOR(75),ONAME(75),QSPR(16),HCHG1(16),MMDM(19),CHGPT(5
     3),CHGBT(5),AR,BR,AP,BP1,IBTEF,IPTEF,NSX1,NSPX,A(59,5),DE(59),CHGNC
     42(59),CHGNC1(59),IC1EF,BC2P(5),CL20(59,4),PSE2,IC2EF,BIAC1(59,4),D
     5ISTD,DCHG1,SSPMI(14,8,8)
      COMMON /BLK8/ NYCNT

      REAL MPDRM,MPDPM,IPPM,MMDM

      TRANSM=AR+BR*DMMFG(I,J)
      IF (MMNC(I,J).EQ.0) TRANSM=0.
      RETURN

      END
      FUNCTION TRANSD(I)

...TRANSPORTATION COST MULTIPLE MFG. DUMMY

      COMMON /BLK1/ SPMI(61,45),DMMFG(27,10),LMMFG(27,10),MMNC(27,10),PD
     1MI(45,45),MPDRM(59),MPDPM(59),IPPM(45),NARC(15),SPLB(16,4),DISTB(7
     25),DISTP(59),NOR(75),ONAME(75),QSPR(16),HCHG1(16),MMDM(19),CHGPT(5
     3),CHGBT(5),AR,BR,AP,BP1,IBTEF,IPTEF,NSX1,NSPX,A(59,5),DE(59),CHGNC
     42(59),CHGNC1(59),IC1EF,BC2P(5),CL20(59,4),PSE2,IC2EF,BIAC1(59,4),D
     5ISTD,DCHG1,SSPMI(14,8,8)
      COMMON /BLK8/ NYCNT

      REAL MPDRM,MPDPM,IPPM,MMDM

      TRANSD=AR+BR*MMDM(I)
      RETURN

      END
      FUNCTION TRANSP(I,J,K)

...TRANSPORTATION COST PACKAGED MILK

      COMMON /BLK1/ SPMI(61,45),DMMFG(27,10),LMMFG(27,10),MMNC(27,10),PD
     1MI(45,45),MPDRM(59),MPDPM(59),IPPM(45),NARC(15),SPLB(16,4),DISTB(7
     25),DISTP(59),NOR(75),ONAME(75),QSPR(16),HCHG1(16),MMDM(19),CHGPT(5
     3),CHGBT(5),AR,BR,AP,BP1,IBTEF,IPTEF,NSX1,NSPX,A(59,5),DE(59),CHGNC
     42(59),CHGNC1(59),IC1EF,BC2P(5),CL20(59,4),PSE2,IC2EF,BIAC1(59,4),D
     5ISTD,DCHG1,SSPMI(14,8,8)
      COMMON /BLK2/ RDA(5),NSP,NSA1,NSMF,NDM,NMMF,NMFGT,BIGI,IMR,IMRN(11
     1)
      COMMON /BLK8/ NYCNT
      COMMON /BLK9/ NW,NSN,NT,NPN,NNN,NYN,NMM,NMD,NDP,NMS,NTN
```

```
      REAL MPDRM,MPDPM,IPPM,MMDM

      TRANSP=-1.0
      IF (K.GT.0) GO TO 2
      IF (PDMI(I,J).GT.DISTP(I).OR.PDMI(I,J).LT.0.0) GO TO 1
      TRANSP=AP+BP1*PDMI(I,J)
    1 IF (I.EQ.J) TRANSP=0.
      GO TO 3
    2 CONTINUE
      IF ((SSPMI(I,J,K+1).GT.DISTP(I+NSA1)).OR.(SSPMI(I,J,K).LT.0.0)) GO
     1 TO 3
      TRANSP=AP+BP1*SSPMI(I,J,K+1)
      IF (SSPMI(I,J,K+1).EQ.0.) TRANSP=0.
    3 CONTINUE
      RETURN

      END
      FUNCTION CTIME(T1)

...CTIME ROUTINE FOR 6000, 7000 SERIES CDC

      CALL SECOND (T1)
      CTIME=-T1
      RETURN

      END
```

DAMPSLV

DAMPSLV, listed on the following pages, includes ten subroutines--NETGEN, PREP, NETGENB, NARCW, FIXUPA, COMP, MRGE, RESET, RESETB, and GNETA; and seven functions--NTPSQ, CL1D, CL2D, GRADEB, RIMPC, CMMP, and UNREG. GNETA is based on GNET, an algrorithm designed to solve large scale transshipment networks. GNET is copywrited by Gordon H. Bradley and Gerald G. Brown; for further details, contact Bradley or Brown at the Department of Operations Research, Naval Postgraduate School, Monterey, California, 93940.

Program flow is illustrated in Figure 2. Once all the necessary data is read from DAMPSIN, the main program calls NETGEN. NETGEN sets up the stage one network. GNETA is called by NETGEN to solve the network. GNETA1 and GNETA2 are entry points in GNETA. GNETA1 sets up the costs and restrictions on arcs. GNETA2 solves the network, once it is specified. RESET and RESET1, an entry point in RESET, are called to assemble the solution results.

Program control returns to the main program, which then calls COMP. COMP takes results from NETGEN and RESET and prepares results for DAMPCLC and DRW2 and also reinitializes variables for the next quarterly run. MRGE is called from COMP to calculate blend prices for each regulated market. If the Merge Option is invoked, MRGE also makes the necessary merger calculatons.

If the Grade B option is invoked, PREP is called from COMP. (If PREP is not called, control returns to the main program and the cycle through NETGEN and COMP is repeated until all quarters are run.) PREP controls the Grade B part of the model; model parameters are set and supplies and demands are calculated. PREP calls NETGENB to set up the stage two network. NETGENB calls GNETA to solve the network, and RESETB is called from GNETA to assemble the results. In the first quarter, NETGENB also calls NARCW, which writes network parameters to the output file. Control returns to PREP, which then calls FIXUPA. FIXUPA calculates ending cheese stocks and butter and nonfat dry milk production for stage three. Control returns again to PREP, whereupon NETGENC, an entry point in NETGENB, is called. NETGENC sets up the stage three network and calls GNETA to solve it. GNETA calls RESETB to assemble the results. Control returns to PREP, whereupon FIXUPB is called. FIXUPB, and entry point in FIXUPA, calculates ending stocks for stage three. Control returns to PREP and then to COMP. The procedure is repeated for as many quarters as are requested.

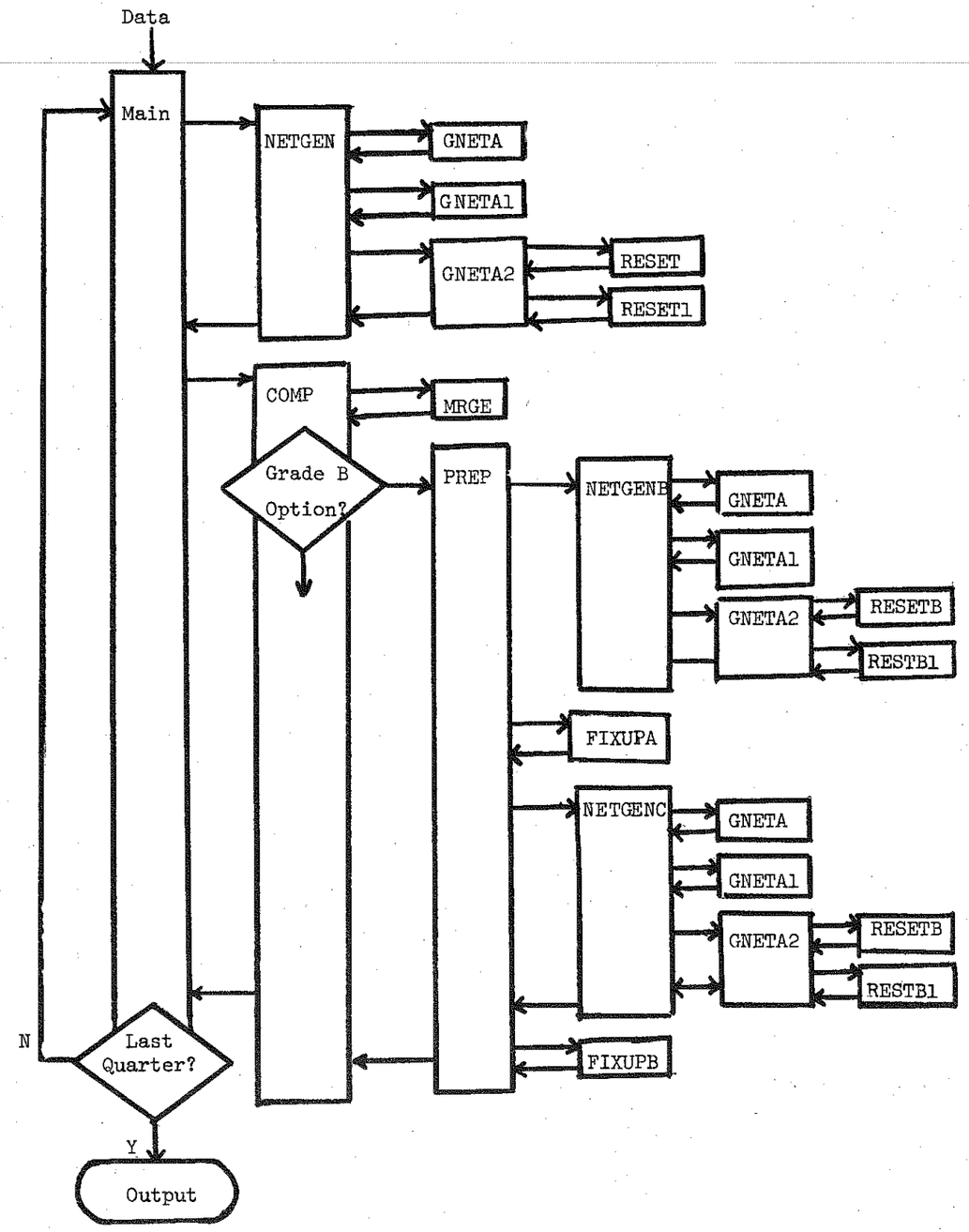

Figure 2. Basic Program Flow in DAMPSLV.

```
      PROGRAM DAMPSLV (INPUT=130,OUTPUT=130,TAPE6=OUTPUT,TAPE5=INPUT,TAP
     1E10=130,TAPE13=130,TAPE42=130,TAPE16=130)
C*****************************************************************
C       .... DAMPSLV IS THE SECOND PROGRAM OF DAMPS ....
C     DAMPSLV SETS UP AND SOLVES THE TRANSSHIPMENT PROBLEM
C     AND PASSES DATA TO DAMPCLC AND THE REPORT WRITERS -
C     DRW1 AND DRW2.  DAMPSLV WAS WRITTEN BY D.R. MARTELLA,
C     A.M. NOVAKOVIC, AND J.E. FRATT.
C*****************************************************************
      DIMENSION WORK2(11619)
      DIMENSION WORK4(24), WORK5(890), WORK6(45), WORK8(11)
      DIMENSION WORK9(407), WORK10(852), WORK11(18)
      DIMENSION WORK12(767)
C
C    WORK2 = TOTAL SIZE OF COMMON IN BLK1
C    WORK4 = TOTAL SIZE OF COMMON IN BLK2
C    WORK5 = TOTAL SIZE OF COMMON IN BLK5 LESS ICMEF
C    WORK6 = TOTAL SIZE OF COMMON IN BLK7
C    WORK8 = TOTAL SIZE OF COMMON IN BLK9
C    WORK9 = TOTAL SIZE OF COMMON IN BLK10
C    WORK10 = TOTAL SIZE OF COMMON IN BLK11
C    WORK11 = TOTAL SIZE OF COMMON IN BLK12
C    WORK12 = TOTAL SIZE OF COMMON IN BLK14
C
      COMMON /BLK1/ SPMI(61,45),DMMFG(27,10),LMMFG(27,10),MMNC(27,10),PD
     1MI(45,45),MPDRM(59),MPDPM(59),IPPM(45),NARC(15),SFLB(16,4),DISTB(7
     25),DISTP(59),NOR(75),ONAME(75),QSFR(16),HCHG1(16),MMDM(19),CHGPT(5
     3),CHGBT(5),AR,BR,AP,BP1,IBTEF,IPTEF,NSX1,NSPX,A(59,5),DE(59),CHGNC
     42(59),CHGNC1(59),IC1EF,DC2P(5),CL2C(59,4),PSE2,IC2EF,BIAC1(59,4),D
     5ISTD,DCHG1,SSPMI(14,8,8),SPACE3(3594)
      COMMON /BLK2/ RBA(5),NSP,NSA1,NSMF,NDM,NMMF,NMFGT,BIGI,IMR,IMRN(11
     1)
      COMMON /BLK5/ CPRCHG(59),BTPSD(59,4),BLEND(59,6),SE(59),GRBIND(4),
     1GRBCNV(59),ICDEF,CDTSP(59),QSPL1(59),ICMEF
      COMMON /BLK7/ NAD,NOD,MXC,NNODES,IPRI(20),IPRO(20),QCNT1,OP4,KGNET
      COMMON /BLK8/ NYCNT,IMFGB,OP2,OP3,OP5,OP6,OP7
      COMMON /BLK9/ NW,NSN,NT,NPN,NNN,NMN,NMM,NMD,NDP,NMS,NTN
      COMMON /BLK10/ MMFC(27),CL1CP(59),CL1SP(16),IR(61),CHGHC(5),CHGPD(
     120),ERCST(75),SPRC(16),IDMG1(26),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
     2XC,NNOD,NNNE,NNND,ISTPS,NYRSC,NYBASE,QT,QCNT,NB,NIC,ISUP1,ISUP7,NS
     3PM,NSC,NSK,IHCEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL2,ISC1CP,CHGCL3,ACST,
     4PMCHG,RMGN,OCST2,C2MGN,RMR,PCR,PMR,MCR,QPCL1,LBCHK,IPNARC,SCL1CP,T
     55MFC,XBP,XBP3,MPDC,TIME2,TIME3,TIME7
      COMMON /BLK11/ NCL1P(59),CL1RR(59),IWORK2,START4,QCST,ILI(45),CHGP
     1RC(5),TRANSR(59),QACL1T(59),CINSP(59),PMCST(59),PRCST(59),ICST(5,1
     20),HCHG2(16),MXN,IPCEF,CQC2D(59),CQC1D(59),NRFR(59),XCL2P,DTCST,IW
     30RK3,SFPCST,DFPCST,TRMPC,TMCST,RMFC(75),EFRR(59)
      COMMON /BLK12/ ISTATE,MMP,NCA1S,NGMFS,NT1,NT2,NT3,NT4,NPN1,NDP1,NT
     1N1,NT5,NT6,NT7,NT8,NT9,NT10,NT11
      COMMON /BLK13/ IMRG(59),BLDIF(59),CHGCL1(59),QCL1P(59,20),QCL2P(20
     1),QCL3P(20),CL1F(59,5),TITLE,SPOPS(16),GRC1(59),PCL1(59),TCL3(59),
     2PRREC(59),VP(59),VPMRG(20),PRRECM(20),BLNDMR(20),VPAMRG(10),PRECAM
     3(10),BLANR(20)
      COMMON /BLK14/ IDXB(9,12),UNR3(9),B(9,4),BIMP(4,2,4),C(5,5,4),RPD(
     15,5),BS(6,9,4),DPC(9),BSE(9),DSE(5),BTRANS(11,5),EBC3P(5),ECHGI(4)
     2,PCHGI(4),NRPB(5),CHGMC(5,5),SIDX(3,4),RSS(9),CF(5),DMKP(5),BRCST(
```

```
      35),BNF(2),BTCST(2,5),ISS,UNUT,UNPC,DGSC(20),IMPHLD,UNS(4),UNGBP(9,
      44),UNFPHC,UNPMC,ECHBT(5),BFPHC

       INTEGER QR,QT,QCNT,QCNT1,CR,PCR,PMR,RMR,RDA,OPEXF,OPCL1,OP1,OP2,OP
      13,OP4,OP5,OP6,OP7,BIGI

       REAL NFP,IACL1,MPDRM,MMFC,MPDFM,IPPM,NCL2Q,MCL2Q,MCL3Q,NRPR,NCL1P,
      1MFGS,MFGM,IACL1S,MTPSQ,MCL1Q,ICHG,MOCC,MOPC,MPPC,MRTLP,NCL2P,MBLEN
      2D,MCL1P,MCL1U,MIACL1,MMDM,ICP,NCL3,NCL3P,NTPSQ,MMFG

       EQUIVALENCE (SPMI(1),WORK2(1))
       EQUIVALENCE (RDA(1),WORK4(1)), (CPRCHG(1),WORK5(1)), (NAD,WORK6(1)
      1), (NYCNT,WORK7), (NW,WORK8(1)), (MMFC(1),WORK9(1)), (NCL1P(1),WOR
      2K10(1)), (ISTATE,WORK11(1)), (IDXB(1),WORK12(1))

       DATA MODL/2H  /

...SET PARAMETERS FOR WORK ARRAYS

       IWORK2=8025
       IWORK4=24
       IWORK5=890
       IWORK6=45
       IWORK8=11
       IWORK9=407
       IWORK1=852
       IWORK0=18
       IWORK7=767

       IWORK2=SIZE OF ARRAY WORK2

       IP1=10
       IP2=5
       OP2=16
       OP3=6
       OP4=6
       OP5=10
       OP6=13
       OP7=42

       IP1=INPUT FROM DAMPSIN
       IP2=ALL OTHER INPUT
       OP2=OUTPUT TO GRADE A REPORT WRITER - DRW1
       OP3=OUTPUT FROM DAMPSLV
       OP4=OUTPUT FROM GNET
       OP5=SCRATCH FILE FOR BLK1
       OP6=SCRATCH FILE - OUTPUT TO DAMPCLC
       OP7=OUTPUT TO GRADE B REPORT WRITER - DRW2

       REWIND IP1
       READ (IP1) (WORK2(I),I=1,IWORK2),(WORK4(J),J=1,IWORK4),(WORK5(K),K
      1=1,IWORK5),(WORK6(L),L=1,IWORK6),WORK7,IMFGB,(WORK8(M),M=1,IWORK8)
      2,(WORK9(N),N=1,IWORK9),(WORK10(II),II=1,IWORK1),(WORK11(JJ),JJ=1,I
      3WORK0),IMRG,BLDIF,CHGCL1,QCL1P,QCL2P,QCL3P,CL1P,TITLE,(WORK12(KK),
      4KK=1,IWORK7)

       ICMEF=IC2EF

       IWORK2=11619
       WRITE (OP3,1) TITLE
```

```
    1 FORMAT (1H1,19X,15HDECISION NAME -,1X,A6/20X,22(1H=))

...MAIN LOOP

      DO 3 IDO=1,NO

      START5=CTIME(T1)

         IF (QCNT.EQ.1) GO TO 2
         REWIND OP5
         READ (OP5) (WORK2(I),I=1,IWORK2)
    2    CONTINUE

         CALL NETGEN

      TIME4=START4-CTIME(T1)
      START6=CTIME(T1)
      TIME6=START6-CTIME(T1)

         CALL COMP

      WRITE(OP3,6380) TIME1,TIME2,TIME3,TIME4,TIME5,TIME6,TIME7

    3 CONTINUE

      STOP
      END
      SUBROUTINE NETGEN

...GENERATE TRANSSHIPMENT PROBLEM AS A CAPACITATED NETWORK

      DIMENSION WORK2(11619)

      COMMON /BLK1/ SPMI(61,45),DMMFG(27,10),LMMFG(27,10),MMNC(27,10),PD
     1MI(45,45),MPDRM(59),MPDPM(59),IPPM(45),NARC(15),SPLB(16,4),DISTB(7
     25),DISTP(59),NOR(75),ONAME(75),QSPR(16),HCHG1(16),MMDM(19),CHGPT(5
     3),CHGBT(5),AR,BR,AP,BP1,IBTEF,IPTEF,NSX1,NSPX,A(59,5),DE(59),CHGNC
     42(59),CHGNC1(59),IC1EF,BC2P(5),CL20(59,4),PSE2,IC2EF,BIAC1(59,4),D
     5ISTD,DCHG1,SSPMI(14,8,8),SPACE3(3594)
      COMMON /BLK2/ RDA(5),NSP,NSA1,NSMF,NDM,NMMF,NMFGT,BIGI,IMR,IMRN(11
     1)
      COMMON /BLK5/ CPRCHG(59),BTPSQ(59,4),BLEND(59,6),SE(59),GRBIND(4),
     1GRBCNV(59),IGBEF,COTSP(59),QSPL1(59),ICMEF
      COMMON /BLK7/ NAD,NOD,MXC,NNODES,IPRI(20),IPRO(20),QCNT1,OP4,KGNET
      COMMON /BLK8/ NYCNT,IMFGB,OP2,OP3,OP5,OP6,OP7
      COMMON /BLK9/ NW,NSN,NT,NPN,NNN,NMN,NMM,NMD,NDP,NMS,NTN
      COMMON /BLK10/ MMFC(27),CL1CP(59),CL1SP(16),IR(61),CHGHC(5),CHGPD(
     120),ERCST(75),SPRC(16),IDMG1(26),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
     2XC,NNOD,NNNE,NNND,ISTPS,NYRDC,NYBASE,QT,QCNT,NQ,NIC,ISUP1,ISUP7,NS
     3FM,NSC,NSK,IHCEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL2,ISC1CP,CHGCL3,ACST,
     4PMCHG,RMGN,QCST2,C2MGN,RMR,PCR,PMR,MCR,QPCL1,LBCHK,IPNARC,SCL1CP,T
     55MFC,XBP,XBP3,MPDC,TIME2,TIME3,TIME7
      COMMON /BLK11/ NCL1P(59),CL1RR(59),IWORK2,START4,QCST,ILI(45),CHGP
     1RC(5),TRANSR(59),QACL1T(59),CINSP(59),PMCST(59),PRCST(59),ICST(5,1
     20),HCHG2(16),MXN,IPCEF,COC2D(59),COC1D(59),NRPR(59),XCL2P,DTCST,IW
     30RK3,SFPCST,DFPCST,TRMPC,TMCST,RMPC(75),EFRR(59)
      COMMON /BLK12/ ISTATE,MXP,NSA1S,NSMFS,NT1,NT2,NT3,NT4,NPN1,NDP1,NT
     1N1,NT5,NT6,NT7,NT8,NT9,NT10,NT11
```

```
      EQUIVALENCE (SPMI(1),WORK2(1))

      INTEGER QR,QT,QCNT,QCNT1,CR,PCR,PMR,RMR,RDA,OPEXF,OPCL1,OP1,OP2,OP
     13,OP5,OP6,OP7,OP4,BIGI

      REAL NFP,IACL1,MPDRM,MMFC,MPDPM,IPPM,NCL2Q,MCL2Q,MCL3Q,NRPR,NCL1P,
     1MFGS,MFGM,IACL1S,MTPSQ,MCL1Q,ICHG,MOCC,MOPC,MPPC,MRTLP,NCL2P,MBLEN
     2D,MCL1P,MCL1U,MIACL1,MMDM,ICP,NCL3,NCL3P,NTPSQ,MMFG

...SET MXC,NOD AS REQUIRED FOR GNET, INITIALIZE VARIABLES, ETC.

      MXC=SMXC
      NOD=NNOD
      NAD=NNND
      NNODES=NNNE
      KGNET=0
      KKEY=QT-5
      WRITE (OP3,63) KKEY,NYRBC
      WRITE (OP3,74)
      ISTPS=0
      ISCL1D=0
      NARCS=0
      DO 1 I=1,NSP
    1 QSPR(I)=1.0
      DO 2 I=1,15
         NARC(I)=0
         IF (I.GT.5) GO TO 2
         RDA(I)=0
    2 CONTINUE

...CALCULATE SUPPLY , CLASS I-II DEMAND

      DO 3 I=1,NT9
         CQTSP(I)=NTPSQ(I,QT)
         CQC1D(I)=CL1D(I,QT)
    3 CQC2D(I)=CL2D(I,QT)

...SET ARCS BETWEEN SUPER SOURCE AND SUPPLY NODES AND ARCS
   BETWEEN SUPPLY NODES AND DUMMY SUPPLY NODES

      START2=CTIME(T1)

      CALL GNETA
      KKEY=0
      DO 11 I=1,NSN
         RDA(1)=NSC
         RDA(2)=I
         IF (I.GT.NT2) GO TO 6
         IF (I.GT.NT1) GO TO 7
         IF (I.GT.NT) GO TO 5
         IF (I.GT.NSA1) GO TO 4
         RDA(4)=IFIX(CQTSP(I)+0.5)
         IF (I.GT.NW) RDA(4)=IFIX((1.-SPRC(I-NW))*CQTSP(I)+0.5)
         ISTPS=ISTPS+RDA(4)
         NARC(1)=NARC(1)+1
         GO TO 10
    4    RDA(4)=IFIX(SPRC(I-NSA1)*CQTSP(I-NSP)+0.5)
         ISTPS=ISTPS+RDA(4)
         NARC(1)=NARC(1)+1
         GO TO 10
```

```
   5    IF (ISTATE.LE.0) GO TO 11
        NARC(1)=NARC(1)+1

...SUPER SOURCE TO STATE SUPPLIES

        RDA(4)=IFIX(COTSP(I-NSP)+0.5)
        ISTPS=ISTPS+RDA(4)
        GO TO 10
   6    IF (ISTATE.LE.0) GO TO 11

...SUPPLY NODE TO DUMMY SUPPLY - STATE

        NARC(2)=NARC(2)+1
        RDA(1)=I-NT3
        XR=FLOAT(DCNT)*MPDRM(I-NT1)
        XK=COTSP(I-NT1)
        RDA(5)=IFIX((1.-XR)*XK+0.5)
        GO TO 9
   7    CONTINUE
        NARC(2)=NARC(2)+1
        RDA(1)=I-NT1
        IF (RMR.EQ.1) GO TO 10
        XS=0.0
        XR=FLOAT(DCNT)*MPDRM(I-NT1)
        IF (MPDC.EQ.1) XR=MPDRM(I-NT1)
        XK=COTSP(I-NT1)
        IF ((I-NT1).LE.NW) GO TO 8
        NP=I-NT1-NW
        XS=SPRC(NP)*XK
        XK=(1.-SPRC(NP))*XK
        XS=SPLB(NP,QT-5)*XS
   8    RDA(5)=IFIX((1.-XR)*XK+0.5)

...OPTIONAL LOWER BOUND CHECK

   9    IF (LBCHK.NE.1) GO TO 10
        XC=XS+FLOAT(RDA(5))
        IF (XC.LE.CL1CP(I-NT1).OR.PCR.EQ.1) GO TO 10
        XXX=(FLOAT(RDA(5))+XS)-CL1CP(I-NT1)
        IF (XS.GT.0.0) QSPR(NP)=XS/XC
        RDA(5)=IFIX(CL1CP(I-NT1))
        IF (XS.GT.0.0) RDA(5)=IFIX(CL1CP(I-NT1)*(1.0-XS/XC))
        JKK=I-NT1
        IF (KKEY.EQ.0) WRITE (OP3,64)
        KKEY=1
        WRITE (OP3,65) NOR(JKK),ONAME(JKK),XXX
  10    CONTINUE
        CALL GNETA1
  11 CONTINUE

...SET ARCS BETWEEN PROCESSING NODES AND (DIRECT SHIP) SUPPLY NODES

     KKEY=0
     DO 25 I=1,NT3
        I1=I+NSN
        I3=I+NSP
        IF (I.GT.NSA1) GO TO 21
        IF (I.GT.NW) IYP=IFIX(CL1SP(I-NW)+HCHG1(I-NW)+0.5)
        DO 14 J=1,NSA1
           IF (I.EQ.J) GO TO 14
```

```
...OMIT ARC IF DISTANCE FROM SUPPLY NODE TO PROCESSING NODE IS
   GREATER THAN SPECIFIED MAXIMUM

          IF (SPMI(J,I).LT.0.0) GO TO 14

...ADD INSPECTION COSTS WHERE APPLICABLE

          XIC=0.0
          IF (CINSP(I).LE.0.0) GO TO 13
          XIC=CINSP(I)
          ICI=ILI(I)
          DO 12 KJ=1,MXN
             IF (J.EQ.ICST(ICI,KJ)) XIC=0.0
   12     CONTINUE
   13     RDA(1)=J
          RDA(2)=I1
          XYN=CHGHC(NYCNT)*ERCST(J)
          XYM=CHGBT(NYCNT)*SPMI(J,I)
          RDA(3)=IFIX((NCL1P(I)+BLEND(J,5)-BLEND(I,5)+XYM+XIC-XYN)+0.5
        1 )

...PRICE DIRECT SHIPPED MILK FROM OTHER ORDERS AT LEAST 1 CENT
   ABOVE CLASS I PRICE FOR OWN AREA DIRECT SHIPPED MILK

          IF (RDA(3).LE.IFIX(NCL1P(I)+1.5)) RDA(3)=IFIX(NCL1P(I)+0.5)+
        1 2
          CALL GNETA1
          NARC(3)=NARC(3)+1
   14   CONTINUE

...SET ARCS BETWEEN PROCESSING NODES AND SUPPLY PLANT NODES

          DO 19 J=1,NSP
             K2=J+NSA1
             IF (SPMI(K2,I).LT.0.0) GO TO 19
             RDA(1)=K2
             RDA(2)=I1
             IF (K2.NE.I3) GO TO 15
             RDA(3)=IYP
             RDA(5)=SPLB(J,0T-5)*SPRC(J)*COTSP(J+NW)*QSPR(J)
             IF (FLOAT(RDA(5)).LE.CL1CP(I).OR.PCR.EQ.1) GO TO 18
             XXX=FLOAT(RDA(5))-CL1CP(I)
             RDA(5)=IFIX(CL1CP(I))
             IF (KKEY.EQ.0) WRITE (OP3,66)
             KKEY=1
             WRITE (OP3,65) NOR(I3),ONAME(I3),XXX
             GO TO 18

...ADD INSPECTION COSTS WHERE APPLICABLE

   15        XIC=0.0
             IF (CINSP(I).LE.0.0) GO TO 17
             XIC=CINSP(I)
             ICI=ILI(I)
             DO 16 KJ=1,MXN
                IF (K2.EQ.ICST(ICI,KJ)+NSP) XIC=0.0
   16        CONTINUE
   17        XYM=CHGBT(NYCNT)*SPMI(K2,I)
             RDA(3)=IFIX(CL1SP(J)+XYM+XIC+HCHG2(J)+0.5)
```

```
...PRICE SUPPLY PLANT MILK FROM OTHER ORDERS AT LEAST 1 CENT ABOVE
   PRICE OF SUPPLY PLANT MILK IN OWN ORDER

          IF (RDA(3).EQ.IYP) WRITE (6,67)
          IF (RDA(3).EQ.IYP) RDA(3)=RDA(3)+1
 18       CONTINUE
          CALL GNETA1
          NARC(4)=NARC(4)+1
 19    CONTINUE

...STATE SUPPLY TO F.O. PROCESSING

       IF (ISTATE.NE.1) GO TO 24
       RDA(2)=I1
       DO 20 J=1,NSA1S
       DO 20 K=1,NT11
          IJK=IFIX(SSPMI(J,K,1))
          IF (IJK.NE.I) GO TO 20
          RDA(1)=J+NT
          XYN=CHGHC(NYCNT)*ERCST(J+NT)
          XYM=CHGBT(NYCNT)*SSPMI(J,K,2)
          RDA(3)=IFIX((NCL1P(I)+BLEND(J+NT,5)-BLEND(I,5)+XYM-XYN)+0.5)
          IF (RDA(3).LE.IFIX(NCL1P(I)+1.5)) RDA(3)=IFIX(NCL1P(I)+0.5)+
    1     2
          CALL GNETA1
          NARC(3)=NARC(3)+1
 20    CONTINUE
       GO TO 24
 21    IF (ISTATE.LT.0) GO TO 25

...STATE ^ F.O. SUPPLY TO STATE PROCESSING

       RDA(2)=I1
       J=I-NSA1
       DO 23 K=1,NT11
          IJK=IFIX(SSPMI(J,K,3))
          IF (IJK.LE.0) GO TO 23
          IF (ISTATE.NE.1.AND.IJK.LE.NT) GO TO 23
          JKL=IJK-NSP
          IF (JKL.EQ.I) GO TO 23
          IF (IJK.GT.NSA1.AND.IJK.LE.NT) GO TO 22
          RDA(1)=IJK
          XYN=CHGHC(NYCNT)*ERCST(IJK)
          XYM=CHGBT(NYCNT)*SSPMI(J,K,4)
          IF (JKL.LE.NSA1) JKL=IJK
          RDA(3)=IFIX((NCL1P(I)+BLEND(JKL,5)-BLEND(I,5)+XYM-XYN)+0.5)
          IF (RDA(3).LE.IFIX(NCL1P(I)+1.5)) RDA(3)=IFIX(NCL1P(I)+0.5)+
    1     2
          CALL GNETA1
          NARC(3)=NARC(3)+1
          GO TO 23

...F.O. SUPPLY PLANT TO STATE PROCESSING

 22       RDA(1)=IJK
          XYM=CHGBT(NYCNT)*SSPMI(J,K,4)
          RDA(3)=IFIX(CL1SP(IJK-NSA1)+HCHG1(IJK-NSA1)+XYM+0.5)
          IF (XYM.EQ.0.0) RDA(3)=RDA(3)+1
          CALL GNETA1
```

```
          NARC(4)=NARC(4)+1
 23    CONTINUE
       RDA(1)=I+NT1
       RDA(2)=I1
       RDA(3)=IFIX(NCL1P(I)+0.5)
       CALL GNETA1
       NARC(5)=NARC(5)+1
       GO TO 25

...SET ARCS BETWEEN PROCESSING NODES AND DUMMY SUPPLY NODES

 24    RDA(1)=NT1+I
       RDA(2)=I1
       RDA(3)=IFIX(NCL1P(I)+0.5)
       CALL GNETA1
       NARC(5)=NARC(5)+1
 25 CONTINUE

...SET ARCS BETWEEN (SINGLE) MANUFACTURING NODES AND SUPPLY NODES

    DO 26 I=1,NSMF
       RDA(2)=I+NPN
       N2=2
       K1=IDMG1(I)
       IF (K1.GT.NW) N2=3
    DO 26 J=1,N2
       IF (J.EQ.1) K2=K1
       IF (J.EQ.2.AND.N2.EQ.3) K2=K1+NSP
       IF (J.EQ.2.AND.N2.EQ.2.OR.J.EQ.3.AND.N2.EQ.3) K2=K1+NT1
       RDA(1)=K2
       RDA(3)=IFIX(NCL3P+0.5)
       CALL GNETA1
       NARC(6)=NARC(6)+1
 26 CONTINUE
    IF (ISTATE.LE.0) GO TO 28
    DO 27 I=1,NSMFS
       RDA(2)=I+NPN1
    DO 27 J=1,2
       RDA(1)=I+NT
       IF (J.EQ.2) RDA(1)=I+NT2
       RDA(3)=IFIX(NCL3P+0.5)
       CALL GNETA1
       NARC(6)=NARC(6)+1
 27 CONTINUE

...SET ARCS BETWEEN (SINGLE) MANUFACTURING NODE DUMMY AND
   AND SUPPLY NODES

 28 RDA(2)=NMN
    DO 29 I=1,NSMF
       RDA(1)=IDMG1(I)
       RDA(3)=IFIX((NCL3P+ECHG)+0.5)
       CALL GNETA1
       NARC(7)=NARC(7)+1
 29 CONTINUE
    IF (ISTATE.LE.0) GO TO 31
    DO 30 I=1,NSMFS
       RDA(1)=I+NT
       RDA(3)=IFIX(NCL3P+ECHG+0.5)
       CALL GNETA1
```

```
      NARC(7)=NARC(7)+1
30 CONTINUE
31 DO 32 I=1,NSMF
      IF (IDMG1(I).LE.NW) GO TO 32
      RDA(1)=IDMG1(I)+NSP
      RDA(3)=IFIX((NCL3P+ECHG)+0.5)
      CALL GNETA1
      NARC(7)=NARC(7)+1
32 CONTINUE
   DO 33 I=1,NSMF
      RDA(1)=IDMG1(I)+NT1
      RDA(3)=IFIX((NCL3P+ECHG)+0.5)
      CALL GNETA1
      NARC(7)=NARC(7)+1
33 CONTINUE
   IF (ISTATE.LE.0) GO TO 35
   DO 34 I=1,NSNFS
      RDA(1)=I+NT2
      RDA(3)=IFIX(NCL3P+ECHG+0.5)
      CALL GNETA1
      NARC(7)=NARC(7)+1
34 CONTINUE

...SET ARCS BETWEEN (MULTIPLE) MANUFACTURING NODES AND SUPPLY NODES

35 DO 37 I=1,NMNF
      RDA(2)=I+NMN
      K4=1
      DO 36 J=1,MXN
         K1=LMMFG(I,J)
         IF (K1.LE.0) GO TO 37
         N2=2
         IF (K1.GT.NW) N2=3
      DO 36 K=1,N2
         IF (K.EQ.1) K2=K1
         IF (K.EQ.2.AND.N2.EQ.3) K2=K1+NSP
         IF (K.EQ.2.AND.N2.EQ.2.OR.K.EQ.3.AND.N2.EQ.3) K2=K1+NT1
         RDA(1)=K2
         XYM=DMMFG(I,K4)*CHGBT(NYCNT)
         RDA(3)=IFIX((NCL3P*XYM)+0.5)
         CALL GNETA1
         NARC(8)=NARC(8)+1
         IF (K.EQ.2.OR.K.EQ.3) K4=K4+1
36    CONTINUE
37 CONTINUE

...SET ARCS BETWEEN (MULTIPLE) MANUFACTURING NODE DUMMY AND
   AND SUPPLY NODES

   DO 38 I=1,NDN
      RDA(2)=NMD
      K1=IDMG2(I)
      N2=2
      IF (K1.GT.NW) N2=3
   DO 38 J=1,N2
      IF (J.EQ.1) K2=K1
      IF (J.EQ.2.AND.N2.EQ.3) K2=K1+NSP
      IF (J.EQ.2.AND.N2.EQ.2.OR.J.EQ.3.AND.N2.EQ.3) K2=K1+NT1
      RDA(1)=K2
      XYM=CHGBT(NYCNT)*MMDM(I)
```

```
      RDA(3)=IFIX((NCL3P+XYM)+0.5)
      CALL GNETA1
      NARC(9)=NARC(9)+1
 38 CONTINUE

...SET ARCS BETWEEN DUMMY PROCESSING NODES AND PROCESSING NODES

    DO 39 I=1,NSA1
      RDA(1)=NSM+I
      RDA(2)=NMD+I
      IF (PCR.NE.1) RDA(4)=IFIX(CL1CP(I)+0.5)
      CALL GNETA1
      NARC(10)=NARC(10)+1
 39 CONTINUE
    IF (ISTATE.LE.0) GO TO 41
    DO 40 I=1,NSA1S
      RDA(1)=I+NT4
      RDA(2)=I+NDP
      RDA(4)=IFIX(CL1CP(I+NSA1)+0.5)
      CALL GNETA1
      NARC(10)=NARC(10)+1
 40 CONTINUE

...SET ARCS BETWEEN FINAL DEMAND NODES AND DUMMY PROCESSING NODES

 41 KKEY=0
    DO 47 J=1,NSA1
      RDA(2)=J+NDP1
      DO 45 I=1,NSA1
        IF (PDMI(I,J).LT.0.0) GO TO 45

...ADD INSPECTION COSTS WHERE APPLICABLE

        XIC=0.0
        IF (I.EQ.J) GO TO 43
        IF (CINSP(J).LE.0.0) GO TO 43
        XIC=CINSP(J)
        ICI=ILI(J)
        DO 42 KJ=1,MXN
          IF (I.EQ.ICST(ICI,KJ)) XIC=0.0
 42     CONTINUE
 43     RDA(1)=I+NMD
        XRS=CHGPRC(NYCNT)*PRCST(I)
        XYM=CHGPT(NYCNT)*PDMI(I,J)
        RDA(3)=IFIX(XRS+XYM+XIC+0.5)
        XP=(1.-FLOAT(QCNT)*MPDPM(I))
        IF (OPCL1.EQ.1) XP=IPPM(I)-FLOAT(QCNT)*MPDPM(I)
        IF (OPCL1.EQ.1.AND.MPDC.EQ.1) XP=IPPM(I)-MPDPM(I)
        IF (OPCL1.NE.1.AND.MPDC.EQ.1) XP=1.0-MPDPM(I)
        XK=CQC1D(J)*(1.+CL1RR(J))
        XK=IFIX(XK+0.5)
        IF (I.EQ.J.AND.PMR.NE.1) RDA(5)=IFIX(XP*XK)
        IF (PCR.EQ.1) GO TO 44
        IF (RDA(5).LE.IFIX(CL1CP(I))) GO TO 44
        XXX=FLOAT(RDA(5))-CL1CP(I)
        RDA(5)=IFIX(CL1CP(I))
        IF (KKEY.EQ.0) WRITE (OP3,68)
        KKEY=1
        WRITE (OP3,65) NOR(I),ONAME(I),XXX
 44     CONTINUE
```

```
          CALL GNETA1
          NARC(11)=NARC(11)+1
 45    CONTINUE

...STATE PROCESSING TO F.O. DEMAND

       IF (ISTATE.NE.1) GO TO 47
       DO 46 K=1,NSA1S
       DO 46 L=1,NT11
          IJK=IFIX(SSPMI(K,L,5))
          IF (IJK.NE.J) GO TO 46
          RDA(1)=K+NDP
          XRS=CHGPRC(NYCNT)*PRCST(K+NSA1)
          XYM=CHGPT(NYCNT)*SSPMI(K,L,6)
          RDA(3)=IFIX(XRS+XYM+0.5)
          CALL GNETA1
          NARC(11)=NARC(11)+1
 46    CONTINUE
 47 CONTINUE

...F.O. ^ STATE PROCESSING TO STATE DEMAND

    IF (ISTATE.LE.0) GO TO 51
    DO 50 J=1,NSA1S
       KEY=0
       RDA(2)=J+NTN
       DO 50 K=1,NT11
          IJK=IFIX(SSPMI(J,K,7))
          IF (IJK.LT.0.AND.KEY.EQ.1) GO TO 50
          IF (KEY.EQ.1) GO TO 49
          IF (IJK.GT.0.AND.IJK.LT.J+NT) GO TO 49
          RDA(1)=J+NDP
          KEY=1
          XRS=CHGPRC(NYCNT)*PRCST(J+NSA1)
          RDA(3)=IFIX(XRS+0.5)
          XP=(1.-FLOAT(QCNT)*MPDPM(J+NSA1))
          XK=(COC1D(J+NSA1)*(1.+CL1RR(J+NSA1)))
          XK=IFIX(XK+0.5)
          IF (PMR.NE.1) RDA(5)=IFIX(XP*XK)
          IF (PCR.EQ.1) GO TO 48
          IF (RDA(5).LE.IFIX(CL1CP(J+NSA1))) GO TO 48
          RDA(5)=IFIX(CL1CP(J+NSA1))
 48       CALL GNETA1
          NARC(11)=NARC(11)+1
          IF (IJK.LE.0) GO TO 50
 49       CONTINUE
          IF (ISTATE.GT.1.AND.IJK.LE.NSA1) GO TO 50
          IF (IJK.GT.NSA1) IJK=IJK-NSP
          JKL=IJK+NTN
          RDA(1)=JKL
          XRS=CHGPRC(NYCNT)*PRCST(IJK)
          XYM=CHGPT(NYCNT)*SSPMI(J,K,8)
          RDA(3)=IFIX(XRS+XYM+0.5)
          CALL GNETA1
          NARC(11)=NARC(11)+1
 50 CONTINUE

...SET ARCS BETWEEN MANUFACTURING SINK NODE AND ALL MANUFACTURING
   NODES
```

```
 51 NP1=NSMF+1
    DO 52 I=1,NP1
       RDA(1)=NPN+I
       IF (I.GT.NSMF) RDA(1)=NMN
       RDA(2)=NMS
       IF (I.LE.NSMF.AND.MCR.NE.1) RDA(4)=SMFC(I)
       CALL GNETA1
       NARC(12)=NARC(12)+1
 52 CONTINUE
    IF (ISTATE.LE.0) GO TO 54
    DO 53 I=1,NSMFS
       RDA(1)=I+NPN1
       RDA(2)=NMS
       RDA(4)=IFIX(SMFC(I+NSMF))
       CALL GNETA1
       NARC(12)=NARC(12)+1
 53 CONTINUE
 54 NP2=NMMF+1
    DO 55 I=1,NP2
       RDA(1)=NMN+I
       RDA(2)=NMS
       IF (I.LE.NMMF.AND.MCR.NE.1) RDA(4)=MMFC(I)
       CALL GNETA1
       NARC(13)=NARC(13)+1
 55 CONTINUE

...SET ARCS BETWEEN SUPER SINK AND FINAL DEMAND NODES

    DO 56 I=1,NSA1
       XK=COC1D(I)*(1.+CL1RR(I))
       RDA(1)=NDP1+I
       RDA(2)=NSK
       RDA(4)=IFIX(XK+0.5)
       ISCL1D=ISCL1D+RDA(4)
       CALL GNETA1
       NARC(14)=NARC(14)+1
 56 CONTINUE
    IF (ISTATE.LE.0) GO TO 58
    DO 57 I=1,NSA1S
       RDA(1)=I+NTN
       RDA(2)=NSK
       XK=COC1D(I+NSA1)*(1.+CL1RR(I+NSA1))
       RDA(4)=IFIX(XK+0.5)
       ISCL1D=ISCL1D+RDA(4)
       CALL GNETA1
       NARC(14)=NARC(14)+1
 57 CONTINUE

...STOP IF TOTAL DEMAND IS GREATER THAN TOTAL SUPPLY OR TOTAL
   PROCESSING CAPACITY

 58 WRITE (OP3,69) ISCL1D,ISTPS
    IF (QCNT.EQ.1) WRITE (OP3,70) SCL1CP,ISC1CP,SSMFC,SMMFC
    SMD1=FLOAT(ISCL1D-ISTPS)
    IF (ISCL1D.GT.ISC1CP.AND.PCR.NE.1) GO TO 59
    IF (SMD1.LE.0.0) GO TO 60
    WRITE (OP3,71) SMD1
    STOP 11
 59 XK=ISCL1D-ISC1CP
    WRITE (OP3,72) XK
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```
      STOP 12
   60 CONTINUE

...SET ARC BETWEEN SUPER SINK AND MANUFACTURING SINK

      RDA(1)=NMS
      RDA(2)=NSK
      NARC(15)=NARC(15)+1
      RDA(4)=ISTPS-ISCL1D
      DO 61 I=1,15
   61 NARCS=NARCS+NARC(I)
      IF (IPNARC.NE.1.OR.QCNT.NE.1) GO TO 62
      WRITE (OP3,73) (NARC(I),I=1,15),NARCS
   62 CONTINUE
      CALL GNETA1

      REWIND OP5
      WRITE (OP5) (WORK2(I),I=1,IWORK2)

      TIME2=START2-CTIME(T1)

      CALL GNETA2
      RETURN

...FORMATS

   63 FORMAT (//21X,7HQUARTER,I2,1X,4HYEAR,I5/21X,19(1H=))
   64 FORMAT (1H0,40HTHE SUM OF (OWN AREA) DIRECT SHIPPED AND,/1H0,43HSU
     1PPLY PLANT SHIPPING REQUIREMENTS EXCEEDS ,/1H0,31H(OWN AREA) PROCE
     2SSING CAPACITY.,/1H0,37HTOTAL SHIPPING REQUIRMENTS HAVE BEEN ,/1H0
     3,33HSET EQUAL TO PROCESSING CAPACITY BY ,/1H0,36HPROPORTIONAL REDU
     4CTION OF EACH TYPE ,/1H0,23HOF SHIPPING REQUIRMENT.,8X,4HAREA,8X,2
     57HEXCESS AMOUNT (THOUS. LBS.)/8X,4(1H-),8X,15(1H-))
   65 FORMAT (2X,I3,2X,A10,F14.0)
   66 FORMAT (1H0,41HSUPPLY PLANT SHIPPING REQUIREMENT EXCEEDS,36H PROCE
     1SSING CAPACITY IN ITS OWN AREA/1X,58H**** SHIPPING REQUIREMENT SET
     2 EQUAL TO PROCESSING CAPACITY,5H ****/8X,4HAREA,8X,25HEXCESS AMOUN
     3T (THOUS. LBS.)/8X,4(1H-),8X,15(1H-))
   67 FORMAT (1X,32HSUPPLY PLANT TIE BREAKER INVOKED)
   68 FORMAT (1H0,43HOWN AREA PACKAGED MILK SALES REQUIREMENT EXCEEDS,20
     1H PROCESSING CAPACITY/1X,54H**** REQUIREMENT SET EQUAL TO PROCESSI
     2NG CAPACITY ****/8X,4HAREA,8X,27HEXCESS AMOUNT (THOUS. LBS.)/8X,4(
     31H-),8X,15(1H-))
   69 FORMAT (//1X,42HTOTAL CLASS I DEMAND + REQUIRED RESERVE = ,I15,4X,
     111HTHOUS. LBS.,/1X,42HTOTAL SUPPLY                        = ,I
     215,4X,11HTHOUS. LBS.)
   70 FORMAT (///1X,40HTOTAL PROCESSING CAPACITY              = ,F15.0,4
     1X,11HTHOUS. LBS.,/1X,40HTOTAL PROCESSING CAPACITY + RESERVE   = ,I
     214,5X,11HTHOUS. LBS.,////1X,28HTOTAL MANUFACTURING CAPACITY,/1X,16
     3HSINGLE      = ,F15.0,4X,11HTHOUS. LBS.,/1X,16HMULTIPLE      = ,
     4F15.0,4X,11HTHOUS. LBS.)
   71 FORMAT (1X,38HTOTAL DEMAND EXCEEDS TOTAL SUPPLY BY,I15,3X,11HTHOUS
     1. LBS.)
   72 FORMAT (1X,28HTOTAL CLASS I DEMAND EXCEEDS/1X,36HTOTAL CLASS I PRO
     1CESSING CAPACITY BY,F15.0,3X,11HTHOUS. LBS.)
   73 FORMAT (///1H0,29HNUMBER OF ARCS IN EACH SECTOR//1X,12HARCS BETWEE
     1N,//13X,23HSUPER SOURCE AND SUPPLY NODES,20X,I10/13X,42HDIRECT SHI
     2PPED AND DIRECT SHIPPED DUMMY NODES,4X,I10/13X,35HDIRECT SHIPPED A
     3ND PROCESSING NODES,14X,I10/13X,33HSUPPLY PLANT AND PROCESSING NOD
     4ES,16X,I10/13X,41HDIRECT SHIPPED DUMMY AND PROCESSING NODES,6X,I10
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     5/13X,37HSUPPLY AND SINGLE MANUFACTURING NODES,12X,I10/13X,40HSUPPL
     6Y AND SINGLE MANUFACTURING NODE  DU,3HMMY,6X,I10/13X,37HSUPPLY NOD
     7ES AND MULTIPLE MANUFACTURI,8HNG NODES,4X,I10/13X,32HSUPPLY NODES
     8AND MULTIPLE MANUFA,18HCTURING NODE DUMMY,I9/13X,25HPROCESSING NOD
     9ES AND DUMM,18HY PROCESSING NODES,6X,I10/13X,21HDUMMY PROCESSING N
     *ODE,18HS AND DEMAND NODES,10X,I10/13X,20HSINGLE MANUFACTURING,2SH
     *NODES AND MANUFACTURING SINK,I10/13X,14HMULTIPLE MANUF,37HACTURING
     * NODES AND MANUFACTURING SINK,I8/13X,27HDEMAND NODES AND SUPER SIN
     *K,22X,I10/13X,33HMANUFACTURING SINK AND SUPER SINK,16X,I10//3X,17H
     *TOTAL NO. OF ARCS,42X,I10///)
  74 FORMAT (/1X,14HGRADE A MARKET,/1X,14(1H-))

      END
      SUBROUTINE PREP

...PREP CONTROLS EXECUTION OF MANUFACTURING MILK SECTION OF DAMPS

      COMMON /BLK1/ CQMFG(9),CQIMP(4,2),CQBS(2,3,9),CQC(5,5),CQBNS(2,9),
     1NARC(15),BMMD1(31,15),BPOP(31),BPRR(15),BMMD2(58,10),POPB(58),PRRB
     2(10),RESID(18,2),RESIDC(18,2),RESIDG(18,2),CHEESE(9),WK2(9),WK1(9)
     3,CQB(9),CQUREG(9),CQUC1S(9),CQUGBP(9),CQUC1P(9),CQUNBP(9),CQUROD(9
     4),CQUVP(9),CQUNRP(9),CQES(6,9),TRCS1,TRCS2,CINV(9,3),BNINV(2,9),SP
     5ACE(4224),SPACE1(5376)
      COMMON /BLK5/ CPRCHG(59),BTPSQ(59,4),BLEND(59,6),SE(59),GRBIND(4),
     1GRBCNV(59),IGBEF,CQTSP(59),QSPL1(59),ICMEF
      COMMON /BLK7/ NAD,NOD,MXC,NNODES,IPRI(20),IPRO(20),QCNT1,OP4,KGNET
      COMMON /BLK8/ NYCNT,IMFGB,OP2,OP3,OP5,OP6,OP7
      COMMON /BLK10/ MMFC(27),CL1CP(59),CL1SP(16),IR(61),CHGHC(5),CHGPD(
     120),ERCST(75),SPRC(16),IDMG1(26),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
     2XC,NNOD,NNNE,NNND,ISTPS,NYRBC,NYBASE,QT,QCNT,NQ,NIC,ISUP1,ISUP7,NS
     3PM,NSC,NSK,IMCEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL2,ISC1CP,CHGCL3,ACST,
     4PMCHG,RMGN,OCST2,C2MGN,RMR,PCR,PMR,MCR,OPCL1,LBCHK,IPNARC,SCL1CP,T
     5SMFC,XBP,XBP3,MPDC,TIME2,TIME3,TIME7
      COMMON /BLK11/ NCL1P(59),CL1RR(59),IWORK2,START4,OCST,ILI(45),CHGP
     1RC(5),TRANSR(59),OACL1T(59),CINSP(59),PMCST(59),PRCST(59),ICST(5,1
     20),HCHG2(16),MXN,IPCEF,CQC2D(59),CQC1D(59),NRPR(59),XCL2P,DTCST,IW
     30RK3,SFPCST,DFPCST,TRMPC,TMCST,RMPC(75),EFRR(59)
      COMMON /BLK14/ IDXB(9,12),UNRS(9),B(9,4),BIMP(4,2,4),C(5,5,4),RPB(
     15,5),BS(6,9,4),BPC(9),BSE(9),BDE(5),BTRANS(11,5),BBC3P(5),BCHGI(4)
     2,PCHGI(4),NRPB(5),CHGMC(5,5),SIDX(3,4),RSS(9),CF(5),BMKP(5),BRCST(
     35),BNF(2),BTCST(2,5),ISS,UNUT,UNPC,DGSC(20),IMPHLD,UNS(4),UNGBP(9,
     444),UNFPHC,UNPMC,ECHBT(5),BFPHC
      COMMON /BLK15/ MS,MIMP,MC,M1,M2,M3,M4,M5,M6,M7,M8,M9,M10,M11,M12,M
     113,M14,M15,M16,M17,M18,M19,M20,M21,M22,M23,M24,M25,M26,M27,M28,M29
     2,M30,M31,M32,M33,M34,M35,M36,M37,M38

      INTEGER QR,QT,QCNT,QCNT1,CR,PCR,PMR,RMR,RDA,OPEXF,OPCL1,OP1,OP2,OP
     13,OP5,OP6,OP7,OP4,BIGI

      REAL NFP,IACL1,MPDRM,MMFC,MPDPM,IPPM,NCL2Q,MCL2Q,MCL3Q,NRPR,NCL1P,
     1MFGS,MFGM,IACL1S,MTPSQ,MCL1G,ICHG,MOCC,MOPC,MPPC,MRTLP,NCL2P,MBLEN
     2D,MCL1P,MCL1U,MIACL1,MMDM,ICP,NCL3,NCL3P,NTPSQ,MMFG,NRPB

      DATA RESID/36*0.0/,RESIDC/36*0.0/,RESIDG/36*0.0/

...SET GRADE B MODEL PARAMETERS

      MS=9
      MIMP=2
      MC=5
```

```
...STAGE 1

      M1=MS+1
      M2=MS+MIMP
      M3=M2+1
      M4=M2+MIMP
      M5=M4+1
      M6=M4+MS
      M7=M6+1
      M8=M6+MS
      M9=M8+1
      M10=M8+MC
      M11=M10+1
      M12=M10+MC
      M13=M12+1
      M14=M12+MC
      M15=M14+1
      M16=M15+1
      M17=M16+1

...STAGE 2

      M18=MS+1
      M19=MS+MIMP
      M20=M19+1
      M21=M19+MS
      M22=M21+1
      M23=M21+MS
      M24=M23+1
      M25=M23+MS
      M26=M25+1
      M27=M25+MIMP
      M28=M27+1
      M29=M27+MS
      M30=M29+1
      M31=M29+MS
      M32=M31+1
      M33=M31+MC
      M34=M33+1
      M35=M33+MC
      M36=M35+1
      M37=M36+1
      M38=M37+1

...COMPUTE MFG. PRODUCTION BY REGIONS

      CQUCEX=0.0
      DO 3 I=1,MS
         CQMFG(I)=0.0
         WK1(I)=0.0
         WK2(I)=0.0
         CQUC1P(I)=0.0
         CQUNRP(I)=0.0
         NIXB=0
         DO 1 J=1,12
            IXB=IDMB(I,J)
            IF (IXB.EQ.0) GO TO 2
            CQUC1P(I)=CQUC1P(I)+NCL1P(IXB)
            CQUNRP(I)=CQUNRP(I)+NRPR(IXB)
```

```
          NIXB=NIXB+1
          WK1(I)=WK1(I)+CQTSP(IXB)
          WK2(I)=WK2(I)+CQC1D(IXB)
          IF (IGBEF.EQ.1) CQMFG(I)=CQMFG(I)-FLOAT(NYCNT)*GRBCNV(IXB)*G
     1    RBIND(QT-5)
    1  CONTINUE
    2  CQUC1P(I)=CQUC1P(I)/FLOAT(NIXB)
       CQUNRP(I)=CQUNRP(I)/FLOAT(NIXB)
       CQUGBP(I)=CQUC1P(I)*UNUT+NCL3P*(1.0-UNUT)
       CQUNBP(I)=CQUGBP(I)-UNFPHC*CHGHC(NYCNT)-UNPMC
       CQUREG(I)=UNREG(I)
       CQUC1S(I)=CQUREG(I)*UNUT
       CQUCEX=CQUCEX+CQUNRP(I)*CQUC1S(I)
       CQUUP(I)=CQUGBP(I)*CQUREG(I)
       U1=1.0
       IF (IPDEF.EQ.1) U1=CHGPD(QCNT)-1.0
       CQUROD(I)=CQUNBP(I)-UNPC*U1
       CQB(I)=GRADEB(I)+CQMFG(I)
       CQMFG(I)=CQB(I)+WK1(I)-WK2(I)+CQUREG(I)*(1.0-UNUT)
    3 CONTINUE

...WRITE UNREGULATED VARIABLES TO GRADE A REPORT WRITER - DRW1

       WRITE (OP2) CQUREG,CQUC1S,CQUGBP,CQUNBP,CQUROD

...COMPUTE NEW RETAIL PRICES FOR MANUFACTURED PRODUCTS

       NRPB(1)=(NCL2P+BRCST(1))*BMKP(1)
       NRPB(2)=(NCL3P+BRCST(2))*BMKP(2)
       NRPB(3)=(NCL3P+BRCST(3))*BMKP(3)
       NRPB(4)=((NCL3P*BNF(1))+BRCST(4))*BMKP(4)/CF(4)
       NRPB(5)=((NCL3P*BNF(2))+BRCST(5))*BMKP(5)/CF(5)

...CALCULATE IMPORTS, BEGINNING STOCKS, AND CONSUMPTION, BY REGION

...IMPORTS

       DO 4 I=1,4
       DO 4 J=1,MIMP
          CQIMP(I,J)=RIMPC(I,J)
    4  CONTINUE

...BEGINNING STOCKS (IF ISS=0 GOVT STOCKS ARE NOT RECYCLED)

       DO 5 K=1,2
       DO 5 I=1,3
       DO 5 J=1,MS
          II=I
          IF (K.EQ.2) II=I+3
          CQBS(K,I,J)=BS(II,J,4)
          IF (ISS.EQ.0.AND.K.EQ.2) CQBS(K,I,J)=0.5*BS(II,J,4)
    5  CONTINUE

...CONSUMPTION (PLUS MFD. STOCKS REQUIREMENT)

       DO 6 I=1,5
       DO 6 J=1,MC
          CQC(I,J)=CMMP(I,J)
          IF (I.EQ.2) CQC(I,J)=CQC(I,J)*(1.0+SIDX(1,QT-5))
          IF (I.GE.4) CQC(I,J)=CQC(I,J)*(1.0+SIDX(I-2,QT-5))
```

```
 6 CONTINUE

   CALL NETGNB

   CALL FIXUPA

   CALL NETGNC

   CALL FIXUPB

...OUTPUT DATA FOR REPORT WRITER - DRW2

   DO 7 I=1,6
   DO 7 K=1,MS
      COES(I,K)=BS(I,K,4)
 7 CONTINUE

   DO 8 I=2,5
   DO 8 J=1,MC
      CQC(I,J)=CMMP(I,J)
 8 CONTINUE

   WRITE (OP7) WK1,CQB,WK2,COMFG,CQIMP,COES,CQC,NRPB,CQUREG,CQUC1S,CQ
  1UGBP,CQUVP,CQUROD,CQUCEX,BMMD1,BMMD2,TRCS1,TRCS2

   RETURN

   END
   SUBROUTINE NETGNB

...NETGENB GENERATES GRADE B TRANSSHIPMENT PROBLEM FOR GNET
   THE PROBLEM IS SOLVED IN TWO STAGES.  IN STAGE ONE, A NETWORK
   IS GENERATED FOR CLASS II, CHEESE, AND MISCELLANEOUS CLASS III
   PRODUCTS.  IN STAGE TWO (NETGENC), A NETWORK IS GENERATED FOR
   BUTTER AND NONFAT DRY MILK.

    COMMON /BLK1/ COMFG(9),CQIMP(4,2),CQBS(2,3,9),CQC(5,5),CQBNS(2,9),
   1NARC(15),BMMD1(31,15),BPOP(31),BPRR(15),BMMD2(58,10),POPB(58),PRRB
   2(10),RESID(18,2),RESIDC(18,2),RESIDG(18,2),CHEESE(9),WK2(9),WK1(9)
   3,CQB(9),CQUREG(9),CQUC1S(9),CQUGBP(9),CQUC1P(9),CQUNBP(9),CQUROD(9
   4),CQUVP(9),CQUNRP(9),COES(6,9),TRCS1,TRCS2,CINV(9,3),BNINV(2,9),SP
   5ACE(4224),SPACE1(5376)
    COMMON /BLK2/ RDA(5),NSP,NSA1,NSMF,NDM,NMMF,NMFGT,BIGI,IMR,IMRN(11
   1)
    COMMON /BLK5/ CPRCHG(59),BTPSQ(59,4),BLEND(59,6),SE(59),GRBIND(4),
   1GRBCNV(59),IGREF,CQTSP(59),QSPL1(59),ICMEF
    COMMON /BLK7/ NAD,NOD,MXC,NNODES,IPRI(20),IPRO(20),QCNT1,OP4,KGNET
    COMMON /BLK8/ NYCNT,IMFGB,OP2,OP3,OP5,OP6,OP7
    COMMON /BLK10/ MMFC(27),CL1CP(39),CL1SP(16),IR(61),CHGHC(5),CHGPD(
   120),ERCST(75),SPRC(16),IDMG1(26),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
   2XC,NNOD,NNNE,NNND,ISTPS,NYRBC,NYBASE,QT,QCNT,NQ,NIC,ISUP1,ISUP7,NS
   3PM,NSC,NSK,IHCEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL2,ISC1CP,CHGCL3,ACST,
   4PMCHG,RMGN,QCST2,C2MGN,RMR,PCR,PMR,MCR,OPCL1,LBCHK,IPNAPC,SCL1CP,T
   5SMFC,XBP,XBP3,MPDC,TIME2,TIME3,TIME7
    COMMON /BLK14/ IDXB(9,12),UNRS(9),B(9,4),BIMP(4,2,4),C(5,5,4),RPB(
   15,5),BS(6,9,4),BPC(9),BSE(9),BDE(5),BTRANS(11,5),BBC3P(5),BCHGI(4)
   2,CHMGI(4),NRPB(5),CHGMC(5,5),SIDX(3,4),RSS(9),CF(5),BMKP(5),BRCST(
   3?,BMP(9),BTCST(2,5),TSS,UNUT,UNPC,DGSC(20),IMFHLD,UNS(4),UNGBP(9,
   4?,UMPC,ECHBT(5),BFPNC
        MG,MIM?,MC,M1,M2,M3,M4,M5,MS,M7,M8,M9,M10,M11,M12,M
```

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      113,M14,M15,M16,M17,M18,M19,M20,M21,M22,M23,M24,M25,M26,M27,M28,M29
      2,M30,M31,M32,M33,M34,M35,M36,M37,M38

       INTEGER QR,QT,QCNT,QCNT1,CR,PCR,PMR,RMR,RDA,OPEXF,OPCL1,OP1,OP2,OP
      13,OP5,OP6,OP7,OP4,BIGI

       REAL NFP,IACL1,MPDRM,MMFC,MPDPM,IPPM,NCL2Q,MCL2Q,MCL3Q,NRPR,NCL1P,
      1MFGS,MFGM,IACL1S,MTPSQ,MCL1Q,ICHG,MOCC,MOPC,MPPC,MRTLP,NCL2P,MBLEN
      2D,MCL1P,MCL1U,MIACL1,MMDM,ICP,NCL3,NCL3P,NTPSQ,MMFG

...SET PARAMETERS REQUIRED FOR GNET AND RESETB

       MXC=425
       NOD=51
       NAD=1000
       NNODES=47
       KGNET=1

       DO 1 I=1,15
          NARC(I)=0
          IF (I.GT.5) GO TO 1
          RDA(I)=0
      1 CONTINUE

**********  STAGE 1  **********

...SET ARCS FROM SUPER SOURCE TO SUPPLY, IMPORTS, AND STOCKS

       ISPS=0
       IDMS=0
       CALL GNETA
       DO 7 J=1,M8
          RDA(1)=M16
          RDA(2)=J
          IF (J.GT.M5) GO TO 2
          RDA(4)=IFIX(CQMFG(J)+0.5)
          ISPS=ISPS+RDA(4)
          GO TO 6
      2   IF (J.GT.M2) GO TO 3
          RDA(4)=IFIX(CQIMP(1,J-M5)+0.5)
          ISPS=ISPS+RDA(4)
          GO TO 6
      3   IF (J.GT.M4) GO TO 4
          RDA(4)=IFIX(CQIMP(2,J-M2)+0.5)
          ISPS=ISPS+RDA(4)
          GO TO 6
      4   IF (J.GT.M6) GO TO 5
          RDA(4)=IFIX(CQBS(1,1,J-M4)+0.5)
          ISPS=ISPS+RDA(4)
          GO TO 6
      5   RDA(4)=IFIX(CQBS(2,1,J-M6)+0.5)
          ISPS=ISPS+RDA(4)
      6   NARC(1)=NARC(1)+1
          CALL GNETA1
      7 CONTINUE

...SET ARCS TO CLASS II CONSUMPTION FROM SUPPLY

       DO 8 J=M9,M10
       DO 8 I=1,M5
```

```
      RDA(1)=I
      RDA(2)=J
      RDA(3)=IFIX((((BTCST(1,1)+BTCST(2,1)*BTRANS(I,J-M8))/CF(1))*ECH
     1  BT(NYCNT))+0.5)
      NARC(2)=NARC(2)+1
      CALL GNETA1
    8 CONTINUE

...SET ARCS TO CHEESE CONSUMPTION FROM SUPPLY AND CHEESE IMPORTS
   AND COMMERCIAL AND GOVERNMENT STOCKS

      DO 10 J=M11,M12
      RDA(2)=J
      DO 9 I=1,M2
         RDA(1)=I
         RDA(3)=IFIX((((BTCST(1,2)+BTCST(2,2)*BTRANS(I,J-M10))/CF(2))
     1      *ECHBT(NYCNT))+0.5)
         IF (I.LT.M1) RDA(3)=RDA(3)+1
         NARC(3)=NARC(3)+1
         CALL GNETA1
    9 CONTINUE
      DO 10 I=M5,M8
      RDA(1)=I
      II=I-M4
      IF (I.GE.M7) II=I-M6
      RDA(3)=IFIX((((BTCST(1,2)+BTCST(2,2)*BTRANS(II,J-M10))/CF(2))*E
     1  CHBT(NYCNT))+0.5)
      NARC(3)=NARC(3)+1
      CALL GNETA1
   10 CONTINUE

...SET ARCS TO MISC. III CONSUMPTION FROM SUPPLY AND III IMPORTS

      DO 12 J=M13,M14
      RDA(2)=J
      DO 11 I=1,M5
         RDA(1)=I
         RDA(3)=IFIX((((BTCST(1,3)+BTCST(2,3)*BTRANS(I,J-M12))/CF(3))
     1      *ECHBT(NYCNT))+0.5)
         NARC(4)=NARC(4)+1
         CALL GNETA1
   11 CONTINUE
      DO 12 I=M3,M4
      RDA(1)=I
      RDA(3)=IFIX((((BTCST(1,3)+BTCST(2,3)*BTRANS(I-M2+M5,J-M12))/CF(
     1  3))*ECHBT(NYCNT))+0.5)
      NARC(4)=NARC(4)+1
      CALL GNETA1
   12 CONTINUE

...SET ARCS TO RESIDUAL SINK FROM SUPPLY AND COMM. AND GOVT. STOCKS

      RDA(2)=M15
      DO 13 I=1,M5
      RDA(1)=I
      NARC(5)=NARC(5)+1
      CALL GNETA1
   13 CONTINUE
      DO 14 I=M5,M8
      RDA(1)=I
```

```
      NARC(6)=NARC(6)+1
      CALL GNETA1
   14 CONTINUE

...SET ARCS TO SUPER SINK FROM CLASS II, CHEESE, AND MISC. CLASS III
   DEMANDS AND RESIDUAL SINK

      DO 19 I=M9,M15
         RDA(1)=I
         RDA(2)=M17
         IF (I.GT.M10) GO TO 15
         RDA(4)=IFIX(CQC(1,I-M8)+0.5)
         IDMS=IDMS+RDA(4)
         GO TO 18
   15    IF (I.GT.M12) GO TO 16
         RDA(4)=IFIX(CQC(2,I-M10)+0.5)
         IDMS=IDMS+RDA(4)
         GO TO 18
   16    IF (I.GT.M14) GO TO 17
         RDA(4)=IFIX(CQC(3,I-M12)+0.5)
         IDMS=IDMS+RDA(4)
         GO TO 18
   17    RDA(4)=ISPS-IDMS
   18    NARC(7)=NARC(7)+1
         CALL GNETA1
   19 CONTINUE
      IF (QCNT.EQ.1) CALL NARCW (NARC,OP3)
      CALL GNETA2

      RETURN

      ENTRY NETGNC

****************  STAGE 2  ****************

...SET PARAMETERS AND PERFORM COMPUTATIONS FOR STAGE TWO

      MXC=1700
      NOD=73
      NAD=2000
      NNODES=69
      KGNET=2

      DO 20 L=1,5
         RDA(L)=0
   20 CONTINUE

...SET ARCS FROM SUPER SOURCE TO BUTTER AND NFDM SUPPLIES, IMPORTS,
   AND COMMERCIAL AND GOVERNMENT STOCKS.

      ISPS=0
      IDMS=0
      CALL GNETA
      DO 29 J=1,M31
         RDA(1)=M37
         RDA(2)=J
         IF (J.GT.MS) GO TO 21
         RDA(4)=IFIX(CQBNS(1,J)+0.5)
         ISPS=ISPS+RDA(4)
         GO TO 28
```

```
21    IF (J.GT.M19) GO TO 22
      RDA(4)=IFIX(COIMP(3,J-MS)+0.5)
      ISPS=ISPS+RDA(4)
      GO TO 28
22    IF (J.GT.M21) GO TO 23
      RDA(4)=IFIX(COBS(1,2,J-M19)+0.5)
      ISPS=ISPS+RDA(4)
      GO TO 28
23    IF (J.GT.M23) GO TO 24
      RDA(4)=IFIX(COBS(2,2,J-M21)+0.5)
      ISPS=ISPS+RDA(4)
      GO TO 28
24    IF (J.GT.M25) GO TO 25
      RDA(4)=IFIX(COENS(2,J-M23)+0.5)
      ISPS=ISPS+RDA(4)
      GO TO 28
25    IF (J.GT.M27) GO TO 26
      RDA(4)=IFIX(COIMP(4,J-M25)+0.5)
      ISPS=ISPS+RDA(4)
      GO TO 28
26    IF (J.GT.M29) GO TO 27
      RDA(4)=IFIX(COBS(1,3,J-M27)+0.5)
      ISPS=ISPS+RDA(4)
      GO TO 28
27    RDA(4)=IFIX(COBS(2,3,J-M29)+0.5)
      ISPS=ISPS+RDA(4)
28    NARC(8)=NARC(8)+1
      CALL GNETA1
29 CONTINUE

...SET ARCS TO BUTTER CONSUMPTION FROM BUTTER SUPPLY, IMPORTS,
   AND COMMERCIAL AND GOVERNMENT STOCKS

      DO 33 J=M32,M33
         RDA(2)=J
      DO 33 I=1,M23
         RDA(1)=I
         IF (I.GE.M20) GO TO 30
         RDA(3)=IFIX(((BTCST(1,4)+BTCST(2,4)*BTRANS(I,J-M31))*ECHBT(NYCN
     1   T))+0.5)
         GO TO 32
30       IF (I.GE.M22) GO TO 31
         RDA(3)=IFIX(((BTCST(1,4)+BTCST(2,4)*BTRANS(I-M19,J-M31))*ECHBT(
     1   NYCNT))+0.5)
         GO TO 32
31       RDA(3)=IFIX(((BTCST(1,4)+BTCST(2,4)*BTRANS(I-M21,J-M31))*ECHBT(
     1   NYCNT))+0.5)
32       NARC(9)=NARC(9)+1
         CALL GNETA1
33 CONTINUE

...SET ARCS TO NFDM CONSUMPTION FROM NFDM SUPPLY, IMPORTS, AND
   COMMERCIAL AND GOVERNMENT STOCKS

      DO 37 J=M34,M35
         RDA(2)=J
      DO 37 I=M24,M31
         RDA(1)=I
         IF (I.GE.M28) GO TO 34
         RDA(3)=IFIX(((BTCST(1,5)+BTCST(2,5)*BTRANS(I-M23,J-M33))*ECHBT(
```

```
     1   NYCNT))+0.5)
         GO TO 36
    34   IF (I.GE.M30) GO TO 35
         RDA(3)=IFIX(((BTCST(1,5)+BTCST(2,5)*BTRANS(I-M27,J-M33))*ECHBT(
     1   NYCNT))+0.5)
         GO TO 36
    35   RDA(3)=IFIX(((BTCST(1,5)+BTCST(2,5)*BTRANS(I-M29,J-M33))*ECHBT(
     1   NYCNT))+0.5)
    36   NARC(10)=NARC(10)+1
         CALL GNETA1
    37 CONTINUE

...SET ARCS TO RESIDUAL SINK FROM SUPPLIES AND STOCKS

       RDA(2)=M36
       DO 38 I=1,MS
          RDA(1)=I
          NARC(11)=NARC(11)+1
          CALL GNETA1
    38 CONTINUE
       DO 39 I=M20,M23
          RDA(1)=I
          NARC(12)=NARC(12)+1
          CALL GNETA1
    39 CONTINUE
       DO 40 I=M24,M25
          RDA(1)=I
          NARC(13)=NARC(13)+1
          CALL GNETA1
    40 CONTINUE
       DO 41 I=M28,M31
          RDA(1)=I
          NARC(14)=NARC(14)+1
          CALL GNETA1
    41 CONTINUE

...SET ARCS TO SUPER SINK FROM BUTTER AND NFDM DEMAND AND RESIDUAL SINK

       DO 45 I=M32,M36
          RDA(1)=I
          RDA(2)=M38
          IF (I.GT.M33) GO TO 42
          RDA(4)=IFIX(CQC(4,I-M31)+0.5)
          IDMS=IDMS+RDA(4)
          GO TO 44
    42    IF (I.GT.M35) GO TO 43
          RDA(4)=IFIX(CQC(5,I-M33)+0.5)
          IDMS=IDMS+RDA(4)
          GO TO 44
    43    RDA(4)=ISPS-IDMS
    44    NARC(15)=NARC(15)+1
          CALL GNETA1
    45 CONTINUE
       IF (QCNT.EQ.1) CALL NARCW (NARC,OP3)
       CALL GNETA2
       RETURN

       END
       SUBROUTINE NARCW (NARC,OP3)
```

...WRITE OUT NUMBER OF ARCS BY SECTOR AND TOTAL NUMBER

```
      COMMON /BLK7/ NAD,NOD,MXC,NNODES,IPRI(20),IPRO(20),QCNT1,OP4,KGNET
      DIMENSION NARC(15)
      INTEGER OP3
      NRC=0
      IF (KGNET.EQ.2) GO TO 4
      DO 1 I=1,7
         NRC=NRC+NARC(I)
    1 CONTINUE
      WRITE (OP3,2)
    2 FORMAT (///1X,29HNUMBER OF ARCS IN EACH SECTOR//)
      WRITE (OP3,3) (NARC(I),I=1,7),NRC
    3 FORMAT (5X,15H--- STAGE 1 ---//1X,12HARCS BETWEEN//10X,29HSUPER SO
     1URCE AND SUPPLY NODES,21X,I10/10X,51HCLASS II CONSUMPTION REGIONS
     2AND SUPPLIES          ,I9/10X,33HCHEESE CONSUMPTION TO SUPPLY AND
     3STOCKS,11X,I10/10X,40HCIII CONSUMPTION TO SUPPLIES AND IMPORTS,10X
     4,I10/10X,42HRESIDUAL SINK FROM SUPPLY REGIONS         ,8X,I10/10X,
     542HRESIDUAL SINK FROM COMM. AND GOVT. STOCKS ,8X,I10/10X,50HCII,CH
     6EESE,CIII DEMAND AND RESIDUAL TO SUPER SINK ,I10//14X,20HTOTAL NUM
     7BER OF ARCS,26X,I10//)
      RETURN
    4 DO 5 J=8,15
         NRC=NRC+NARC(J)
    5 CONTINUE
      WRITE (OP3,2)
      WRITE (OP3,6) (NARC(I),I=8,15),NRC
    6 FORMAT (5X,15H--- STAGE 2 ---//1X,12HARCS BETWEEN//10X,46HSUPER SO
     1URCE TO BUTTER,NFDM,IMPORTS,AND STOCKS,4X,I10/10X,48HBUTTER DEMAND
     2 FROM SUPPLIES, IMPORTS, AND STOCKS,2X,I10/10X,47HNFDM DEMANDS FRO
     3M SUPPLIES, IMPORTS, AND STOCKS,3X,I10/10X,43HRESIDUAL SINK FROM B
     4UTTER SUPPLY REGIONS    ,7X,I10/10X,39HRESIDUAL SINK FROM BUTTER ST
     5OCKS         ,11X,I10/10X,38HRESIDUAL SINK FROM NFDM SUPPLY REGIONS,
     612X,I10/10X,38HRESIDUAL SINK FROM NFDM STOCKS          ,11X,I10/10X
     7,47HBUTTER, NFDM DEMANDS AND RESIDUAL TO SUPER SINK,3X,I10//14X,20
     8HTOTAL NUMBER OF ARCS,26X,I10)
      RETURN

      END
      SUBROUTINE FIXUPA
```

...UPDATES AND COMPUTES VALUES FROM STAGE 1 OF NETGENB

```
      COMMON /BLK1/ CQMFG(9),CQIMP(4,2),CQBS(2,3,9),CQC(5,5),CQBNS(2,9),
     1NARC(15),BMMD1(31,15),BPOP(31),BPRR(15),BMMD2(58,10),POPB(58),PRRB
     2(10),RESID(18,2),RESIDC(18,2),RESIDG(18,2),CHEESE(9),WK2(9),WK1(9)
     3,CQB(9),CQUREG(9),CQUC1S(9),CQUCBP(9),CQUC1P(9),CQUNBP(9),CQUROD(9
     4),CQUUP(9),CQUNRP(9),CQES(6,9),TRCS1,TRCS2,CINV(5,3),BNINV(2,9),DS
     5(4,9),SPACE(4189),SPACE1(5376)
      COMMON /BLK10/ MMFC(27),CL1CP(59),CL1SP(16),IR(61),CHGHC(5),CHGPD(
     120),ERCST(75),SPRD(16),IDMG1(25),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
     2XC,NNOD,NNNE,NNND,ISTPS,NYRDC,NYBASE,QT,QCNT,NO,NIC,ISUP1,ISUP7,NS
     3PM,NSC,NSK,IMCEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL2,ISC1CP,CHGCL3,ACST,
     4PMCHG,RMGN,OCSY2,CEMGN,RMR,PIR,PMR,MCR,OPCL1,LBCHK,IPNARC,SCL1CP,T
     5SMFC,XBP,XBP3,MPDC,TIME2,TINCR,TIME7
      COMMON /BLK14/ IDXS(9,12),UNRS(9),B(9,4),BIMP(4,2,4),C(5,5,4),RPB(
     15,5),BS(6,9,4),BPC(9),BSE(9),BDE(5),BTRANG(11,5),BBCSP(5),BCHGI(4)
     2,PCHGI(4),NRPB(5),CHGMC(5,5),SIDX(3,4),RSS(9),CF(5),BMKP(5),BRCST(
     35),BNF(2),BTCST(2,5),ISS,UNUT,UNPC,DGSC(20),IMPHLB,UNS(4),UNGBP(9,
     44),UNFPHC,UNPMC,ECNBT(5),BFPHC
```

```
      COMMON /BLK15/ MS,MIMP,MC,M1,M2,M3,M4,M5,M6,M7,M8,M9,M10,M11,M12,M
     113,M14,M15,M16,M17,M18,M19,M20,M21,M22,M23,M24,M25,M26,M27,M28,M29
     2,M30,M31,M32,M33,M34,M35,M36,M37,M38

      INTEGER QT,QCNT

C...COMPUTE DESIRED STOCK LEVELS

      DO 1 J=1,MS
         DS(4,J)=RSS(J)*DGSC(QCNT)
    1 CONTINUE

C...COMPARE OLD CHEESE STOCK CARRYOVER WITH DESIRED STOCKS

      DO 3 J=1,MS
         PRINT 2, (CINV(J,L),L=1,3),RESIDC(J,1),RESIDG(J,1),RESID(J,1)
    2 FORMAT (/5X,7HREMAINS,6F12.0)
    3 CONTINUE
      PRINT 19
      DO 7 J=1,MS
         DS(1,J)=0.0
         DO 4 L=1,3
            DS(1,J)=DS(1,J)+CINV(J,L)
    4    CONTINUE
         D1=0.0
         D2=0.0
         BS(1,J,4)=CINV(J,2)+RESIDC(J,1)
         BS(4,J,4)=CINV(J,3)+RESIDG(J,1)
         D1=DS(1,J)-BS(1,J,4)
         IF (D1.GT.0.0) GO TO 5
         RESID(J,1)=RESID(J,1)+CINV(J,1)
         BS(1,J,4)=DS(1,J)
         BS(4,J,4)=BS(4,J,4)-D1
         GO TO 7
    5    D2=D1-BS(4,J,4)
         IF (D2.GT.0.0) GO TO 6
         BS(1,J,4)=BS(1,J,4)+D1
         BS(4,J,4)=BS(4,J,4)-D1
         RESID(J,1)=RESID(J,1)+CINV(J,1)
         GO TO 7
    6    BS(1,J,4)=BS(1,J,4)+BS(4,J,4)+D2
         BS(4,J,4)=0.0
         RESID(J,1)=RESID(J,1)+CINV(J,1)-D2
    7 CONTINUE
      DO 9 J=1,MS
         D4=0.0
         D4=DS(4,J)-BS(4,J,4)
         IF (D4.LT.0.0) GO TO 9
         RESID(J,1)=RESID(J,1)-D4
         IF (RESID(J,1).LT.0.0) GO TO 8
         BS(4,J,4)=BS(4,J,4)+D4
         GO TO 9
    8    D4=D4+RESID(J,1)
         BS(4,J,4)=BS(4,J,4)+D4
         RESID(J,1)=0.0
         PRINT 15, J
    9 CONTINUE
      PRINT 19
      PRINT 20, (BS(1,J,4),J=1,MS)
      PRINT 19
```

```
      PRINT 16, (DS(4,J),J=1,MS)
      PRINT 20, (BS(4,J,4),J=1,MS)
      PRINT 19
      PRINT 18, (RESID(I,1),I=1,9)

...COMPUTE BUTTER AND NFDM PRODUCTION FOR STAGE TWO

      CFC=CF(2)/100.0
      CH1=0.08165
      FL1=0.0029
      DO 10 J=1,MS
         COBNS(1,J)=RESID(J,1)*CF(4)/127.0+CH1*CHEESE(J)*CFC+FL1*WK2(J)
         COBNS(2,J)=RESID(J,1)*CF(5)/170.0
   10 CONTINUE

      DO 11 I=1,18
      DO 11 J=1,2
         RESID(I,J)=0.0
         RESIDC(I,J)=0.0
         RESIDG(I,J)=0.0
   11 CONTINUE

      RETURN

      ENTRY FIXUPB

...UPDATES AND COMPUTES VALUES FROM STAGE 2 OF NETGENB

...COMPARE OLD BUTTER AND NFDM CARRYOVER WITH DESIRED COMM. STOCKS

      DO 12 I=2,3
      DO 12 J=1,MS
         BS(I,J,4)=BNINV(I-1,J)
         JJ=J
         IF (I.EQ.3) JJ=J+MS
         II=I+3
         BS(II,J,4)=RESIDG(JJ,2)+RESIDC(JJ,2)+RESID(JJ,2)
   12 CONTINUE

      DO 13 I=1,18
      DO 13 J=1,2
         RESID(I,J)=0.0
         RESIDC(I,J)=0.0
         RESIDG(I,J)=0.0
   13 CONTINUE

      DO 14 I=2,3
         PRINT 17, I,(BS(I,J,4),J=1,MS)
         II=I+3
         PRINT 17, II,(BS(II,J,4),J=1,MS)
         PRINT 19
   14 CONTINUE

   15 FORMAT (5X,54HDESIRED GOVT. STOCK EXCEEDS AVAILABLE SUPPLY IN REGI
     1ON,I3)
   16 FORMAT (5X,14HDESIRED STOCKS,9F10.0)
   17 FORMAT (5X,I2,2X,14HENDING STOCKS ,9F10.0)
   18 FORMAT (/5X,14HSURPLUS MILK =,9F12.0)
   19 FORMAT (1H0)
   20 FORMAT (5X,14HENDING STOCKS ,9F10.0)
```

```
      RETURN

      END
      SUBROUTINE COMP

...CALCULATE OUTPUT FOR REPORT WRITER

      COMMON /BLK1/ RMMD(59,59),SPOPD(59),PRROD(59),TRNSRD(59),TRMC(59),
     1RMMS(16,59),PRRD(59),CL3SP(16),CL3DS(59),PRRS(16),CL1SLS(59),IACL1
     2S(59),PMM(59,59),OACL1S(59),MMFG(75,42)
      COMMON /BLK2/ RDA(5),NSP,NSA1,NSMF,NDM,NMMF,NMFGT,BIGI,IMR,IMRN(11
     1)
      COMMON /BLK5/ CPRCHG(59),BTPSQ(59,4),BLEND(59,6),SE(59),GRBIND(4),
     1GRBCNV(59),IGBEF,CQTSP(59),QSPL1(59),ICMEF
      COMMON /BLK7/ NAD,NOD,MXC,NNODES,IPRI(20),IPRO(20),QCNT1,OP4,KGNET
      COMMON /BLK8/ NYCNT,IMFGB,OP2,OP3,OP5,OP6,OP7
      COMMON /BLK9/ NW,NSN,NT,NPN,NNN,NMN,NMM,NMD,NDP,NMS,NTN
      COMMON /BLK10/ MMFC(27),CL1CP(59),CL1SP(16),IR(61),CHGHC(5),CHGPD(
     120),ERCST(75),SPRC(16),IDMG1(26),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
     2XC,NNOD,NNNE,NNND,ISTPS,NYRBC,NYBASE,QT,QCNT,NQ,NIC,ISUP1,ISUP7,NS
     3PM,NSC,NSK,IHCEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL2,ISC1CP,CHGCL3,ACST,
     4PMCHG,RMGN,OCST2,C2MGN,RMR,PCR,PMR,MCR,OPCL1,LBCHK,IPNARC,SCL1CP,T
     59MFC,XBP,XBP3,MPDC,TIME2,TIME3,TIME7
      COMMON /BLK11/ NCL1P(59),CL1RR(59),IWORK2,START4,OCST,ILI(45),CHGP
     1RC(5),TRANSR(59),OACL1T(59),CINSP(59),PMCST(59),PRCST(59),ICST(5,1
     20),HCHG2(16),MXN,IPCEF,CQC2D(59),CQC1D(59),NRPR(59),XCL2P,DTCST,IW
     30RK3,SFPCST,DFPCST,TRMPC,TMCST,RMPC(75),EFRR(59)
      COMMON /BLK12/ ISTATE,MXP,NSA1S,NSMFS,NT1,NT2,NT3,NT4,NPN1,NDP1,NT
     1N1,NT5,NT6,NT7,NT8,NT9,NT10,NT11
      COMMON /BLK13/ IMRG(59),BLDIF(59),CHGCL1(59),QCL1P(59,20),QCL2P(20
     1),QCL3P(20),CL1P(59,5),TITLE,SPOPS(16),GRC1(59),PCL1(59),TCL3(59),
     2PRREC(59),VP(59),VPMRG(20),PRRECM(20),BLNDMR(20),VPAMRG(10),PRECAM
     3(10),BLAMR(20)
      COMMON /BLK14/ IDXB(9,12),UNRS(9),B(9,4),BIMP(4,2,4),C(5,5,4),RPB(
     15,5),BS(6,9,4),BPC(9),BSE(9),BDE(5),BTRANS(11,5),BBC3P(5),BCHGI(4)
     2,PCHGI(4),NRPB(5),CHGMC(5,5),SIDX(3,4),RSS(9),CF(5),BMKP(5),BRCST(
     35),BNF(2),BTCST(2,5),ISS,UNUT,UNPC,DGSC(20),IMPHLD,UNS(4),UNGBP(9,
     44),UNFPHC,UNPMC,ECHBT(5),BFPHC

      DIMENSION W1(11619), W2(890), W3(852), W4(2104)

      INTEGER QR,QT,QCNT,QCNT1,CR,PCR,PMR,RMR,RDA,OPEXF,OPCL1,OP1,OP2,OP
     13,OP5,OP6,OP7,OP4,BIGI

      REAL NFP,IACL1,MPDRM,MMFC,MPDPM,IPPM,NCL2Q,MCL2Q,MCL3Q,NRPR,NCL1P,
     1NFGS,MFGM,IACL1S,MTPSQ,MCL1Q,ICHG,MOCC,MOPC,MPPC,MRTLP,NCL2P,MBLEN
     2D,MCL1P,MCL1U,MIACL1,MMDM,ICP,NCL3,NCL3P,NTPSQ,MMFG

      EQUIVALENCE (RMMD(1),W1(1)), (CPRCHG(1),W2(1)), (NCL1P(1),W3(1)),
     1(IMRG(1),W4(1))

...(RE)INTIALIZE QUARTERLY SUMMATION VARIABLES
      START3=CTIME(T1)

      DO 1 I=1,NT9
    1 NRPR(I)=0.0
      TMCP=0.0
      SMC2Q=0.0
      SVCL1=0.0
```

```
...(RE)INITALIZE ANNUAL SUMMATION VARIABLES

      IF (QT.NE.6) GO TO 3
      DO 2 I=1,10
         VPAMRG(I)=0.0
         PRECAM(I)=0.0
         BLAMR(I)=0.0
    2 BLAMR(I+10)=0.0
    3 CONTINUE
      DO 4 I=1,NSP
    4 SPOPS(I)=0.0

...CALCULATE EFFFECTIVE RESERVE FOR PROCESSING CENTERS
   ADJUST COSTS AND MOVEMENTS ACCORDINGLY

      DO 5 I=1,NT9
         EFRR(I)=0.0
         IF (CL1SLS(I).NE.0.0) EFRR(I)=(IACL1S(I)+OACL1S(I))/CL1SLS(I)
         TRANSR(I)=TRANSR(I)*(EFRR(I))
         TRNSRD(I)=TRNSRD(I)*(EFRR(I))
         TRMC(I)=TRMC(I)*(EFRR(I))
      DO 5 J=1,NSP
         IF ((I-NW).EQ.J) GO TO 5
         TMOP=TMOP+RMMS(J,I)
         XYZ=RMMS(J,I)*(EFRR(I))
         SPOPS(J)=SPOPS(J)+XYZ
         CL3SP(J)=CL3SP(J)+RMMS(J,I)-XYZ
    5 CONTINUE

...CALCULATE MARKET POOL AND BLEND PRICE
      DO 9 I=1,NT9
         GRC1(I)=IACL1S(I)+OACL1S(I)
         EFRR1=1.0
         IF (CL1SLS(I).NE.0.0) EFRR1=1.-GRC1(I)/CL1SLS(I)
         IF (I.GT.NW.AND.I.LE.NSA1) GO TO 6
         PCL1(I)=(PRROD(I)+PRRD(I))*(1.0-EFRR1)
         RRC3=(PRROD(I)+PRRD(I))-PCL1(I)
         VCL1=PCL1(I)*NCL1P(I)
         GRC3=CL3DS(I)
         VTP1=0.
         GO TO 7
    6    XYZ=(PRROD(I)+PRRD(I)+PRRS(I-NW))*(1.0-EFRR1)
         PCL1(I)=SPOPS(I-NW)+XYZ
         RRC3=(PRROD(I)+PRRD(I)+PRRS(I-NW))-XYZ
         GRC3=CL3SP(I-NW)+CL3DS(I)
         WXYZ=PRRS(I-NW)*(1.0-EFRR1)
         VCL1=(PCL1(I)-(WXYZ+SPOPS(I-NW)))*NCL1P(I)
         VTP1=(CL1SP(I-NW))*(WXYZ+SPOPS(I-NW))
    7    XY=GRC3+RRC3
         TCL3(I)=XY
         QCL2=OQC2D(I)
         IF (TCL3(I).GT.QCL2) GO TO 8
         SMC20=SMC20+QCL2-TCL3(I)
         QCL2=TCL3(I)
    8    TCL3(I)=TCL3(I)-QCL2
         PRREC(I)=XY+PCL1(I)
         VCL1=VTP1+VCL1
         IF (I.LE.NSA1) SVCL1=SVCL1+VCL1
         VP(I)=VCL1+QCL2*NCL2P+TCL3(I)*NCL3P
```

```
 9 CONTINUE

   CALL MRGE (BLEND,VP,PRREC,IMRG,VPMRG,PRRECM,BLNDMR,VPAMRG,PRECAM,B
  1LAMR,NT3,PCL1,BLDIF,NT9)
   DO 10 I=1,NT9
      IF (GRC1(I).EQ.0.0) TRMC(I)=0.0
      IF (GRC1(I).NE.0.0) TRMC(I)=(TRMC(I)+TRNSRD(I))/GRC1(I)
10 CONTINUE
   DO 12 I=1,NT9
      DO 11 J=1,NT9
11    NRPR(I)=NRPR(I)+TRMC(J)*PMM(J,I)
      NRPR(I)=NRPR(I)+PMCST(I)

      CL1D1=IFIX(CQC1D(I)+0.5)
      IF (CL1D1.NE.0.0) GO TO 12
      CL1D1=1.0
12 NRPR(I)=(NRPR(I)*RMGN)/(CL1D1*23.2558)

...WRITE TO DAMPCLC

    WRITE (OP6) W1,W2,W3,W4,SMC20,SVCL1

    IF (IMFGB.NE.0) CALL PREP

...NEW DATA FOR NEXT SOLUTION

    TIME7=START7-CTIME(T1)

    IF (QCNT.EQ.NQ) GO TO 14
    DO 13 I=1,NT9
       IF (ISUP1.NE.1.AND.ISUP7.LT.1) NCL1P(I)=CL1P(I,1)+CHGCL1(I)*FLO
    1  AT(QCNT)
       IF (ISUP7.GE.1) NCL1P(I)=QCL1P(I,QCNT+1)
       IF (ISUP1.EQ.1.AND.ISUP7.LT.1) NCL1P(I)=(1.+FLOAT(QCNT)*CHGCL1(
    1  I))*CL1P(I,1)
       IF (NCL1P(I).LT.0.0) NCL1P(I)=0.0
       IF (I.LE.NW.OR.I.GT.NSA1) GO TO 13
       IF (ISUP1.NE.1.AND.ISUP7.LT.1) CL1SP(I-NW)=CL1P(I-NW,2)+CHGCL1(
    1  I)*FLOAT(QCNT)
       IF (ISUP7.GE.1) CL1SP(I-NW)=QCL1P(I,QCNT+1)
       IF (ISUP1.EQ.1.AND.ISUP7.LT.1) CL1SP(I-NW)=(1.+FLOAT(QCNT)*CHGC
    1  L1(I))*CL1P(I-NW,2)
       IF (CL1SP(I-NW).LT.0.0) CL1SP(I-NW)=0.0
13 CONTINUE

...CALCULATE NEW CLASS 2 , CLASS 3 PRICES

    XYN=OCST2
    IF (IPCEF.EQ.1) XYN=CHGPRC(NYCNT)*OCST2
    XCL2P=C2MGN*(NCL2P+XYN)
    IF (ISUP1.EQ.1) NCL2P=(1.+FLOAT(QCNT)*CHGCL2)*XBP
    IF (ISUP1.EQ.1) NCL3P=(1.+FLOAT(QCNT)*CHGCL3)*XBP3
    IF (ISUP1.NE.1.AND.ISUP7.NE.1.AND.ISUP7.NE.3) NCL2P=XBP+CHGCL2*FLO
   1AT(QCNT)
    IF (ISUP1.NE.1.AND.ISUP7.NE.1.AND.ISUP7.NE.3) NCL3P=XBP3+CHGCL3*FL
   1OAT(QCNT)
    IF (ISUP7.EQ.1.OR.ISUP7.EQ.3) NCL2P=QCL2P(QCNT+1)
    IF (ISUP7.EQ.1.OR.ISUP7.EQ.3) NCL3P=QCL3P(QCNT+1)
    IF (NCL2P.LT.0.0) NCL2P=0.0
    IF (NCL3P.LT.0.0) NCL3P=0.0
14 CONTINUE

...REINITIALIZE DATA BASE WITH CURRENT QUARTER DATA

    SUMXX=0.0
    SUMCP=0.0
```

```
      DO 17 I=1,NT9
         QSPL1(I)=CQTSP(I)
         IABCD=IFIX(CQTSP(I)+0.5)
         XX=PRREC(I)-FLOAT(IABCD)
         IF (I.LE.NW.OR.I.GT.NSA1) GO TO 15
         X1=IFIX((1.0-SPRC(I-NW))*CQTSP(I)+0.5)
         X2=IFIX(SPRC(I-NW)*CQTSP(I)+0.5)
         SPRC(I-NW)=X2/PRREC(I)
         XX=PRREC(I)-(X1+X2)
   15    CONTINUE

         IF (BTPSQ(I,QT-5).GT.0.0) CPRCHG(I)=CPRCHG(I)+XX/BTPSQ(I,QT-5)
         IF (BTPSQ(I,QT-5).EQ.0.0.AND.PRREC(I).GT.0.0) BTPSQ(I,QT-4)=PRR
        1EC(I)

         BLEND(I,5)=0.0
         XPR1=0.0
         XPR=RMPC(I)
         IF (I.GT.NSA1) XPR=RMPC(I+NSP)
         IF (I.LE.NW.OR.I.GT.NSA1) GO TO 16
         XPR=SPRC(I-NW)*RMPC(I+NSP)+(1.-SPRC(I-NW))*RMPC(I)
   16    IF (IPDEF.EQ.1) XPR1=CHGPD(QCNT)*XPR-XPR
         IF (BLEND(I,6).GT.XPR1) BLEND(I,5)=BLEND(I,6)-XPR1
         IF (PRREC(I).EQ.0.0.OR.BLEND(I,5).EQ.0.0) CPRCHG(I)=0.0
   17 CONTINUE

...INCREMENT QUARTER COUNTERS

      QCNT=QCNT+1
      QCNT1=QCNT
      QT=QT+1
      IF (QT.NE.10) GO TO 18
      NYRBC=NYRBC+1
      NYCNT=NYCNT+1
      QT=6
   18 CONTINUE
      RETURN

      END
      SUBROUTINE MRGE (BLEND,VP,PRREC,IMRG,VPMRG,PRRECM,BLNDMR,VPAMRG,PR
     1ECAM,BLAMR,MSA1,PCL1,BLDIF,NT9)

...CALCULATE BLEND PRICE FOR ORDERS

      COMMON /BLK2/ RDA(5),NSP,NSA1,NSMF,NDM,NMMF,NMFGT,BIGI,IMR,IMRN(11
     1)
      DIMENSION BLEND(MSA1,6), VP(MSA1), PRREC(MSA1), IMRG(MSA1), VPMRG(
     120), PRRECM(20), BLNDMR(20), VPAMRG(10), PRECAM(10), BLAMR(20), PC
     2L1(MSA1), BLDIF(MSA1)

      DO 1 I=1,NT9
         BLEND(I,6)=0.0
         IF (PRREC(I).NE.0.0) BLEND(I,6)=VP(I)/PRREC(I)
    1 CONTINUE
      IF (IMR.LE.0) RETURN
      N1=0
      N2=0
      DO 4 I=1,IMR
         N1=N2+1
         N2=N2+IMRN(I)
         N4=I+10
         VPMRG(I)=0.0
         VPMRG(N4)=0.0
         PRRECM(I)=0.0
         PRRECM(N4)=0.0
```

```
      DO 2 J=N1,N2
         N3=IMRG(J)
         WT=0.0
         IF (IMRN(11).GT.0) WT=BLDIF(N3)
         VPMRG(N4)=VPMRG(N4)+WT*PRREC(N3)
         PRRECM(N4)=PRRECM(N4)+PCL1(N3)
         VPMRG(I)=VPMRG(I)+VP(N3)
    2  PRRECM(I)=PRRECM(I)+PRREC(N3)
      BLNDMR(I)=0.0
      BLNDMR(N4)=0.0
      IF (PRRECM(I).LE.0.0) GO TO 3
      BLNDMR(I)=VPMRG(I)/PRRECM(I)
      BLNDMR(N4)=(PRRECM(N4)/PRRECM(I))*100.0
    3  VPAMRG(I)=VPAMRG(I)+PRRECM(N4)
      PRECAM(I)=PRECAM(I)+PRRECM(I)
      BLAMR(I)=BLAMR(I)+(BLNDMR(I)/4.0)
      BLAMR(N4)=BLAMR(N4)+(BLNDMR(N4)/4.0)
    DO 4 K=N1,N2
      N3=IMRG(K)
      WT=0.0
      IF (IMRN(11).GT.0) WT=BLDIF(N3)
      BLEND(N3,6)=0.0
      IF (PRRECM(I).NE.0.0) BLEND(N3,6)=((VPMRG(I)-VPMRG(N4))/PRRECM(
     1   I))+WT
    4 CONTINUE
    RETURN

    END
    REAL FUNCTION NTPSQ(I,QT)
...SUPPLY FUNCTION(S)

      COMMON /BLK5/ CPRCHG(59),BTPSQ(59,4),BLEND(59,6),SE(59),GRBIND(4),
     1GRBCNV(59),IGBEF,CQTSP(59),QSPL1(59),ICMEF
      COMMON /BLK8/ NYCNT,IMFGB,OP2,OP3,OP5,OP6,OP7

      INTEGER QT

      NTPSQ=0.0
      IF (BLEND(I,5).EQ.0.0) RETURN
      X1=0.0
      IF (IGBEF.EQ.1) X1=FLOAT(NYCNT)*(GRBCNV(I)*GRBIND(QT-5))
      B1=BTPSQ(I,QT-5)+CPRCHG(I)*BTPSQ(I,QT-5)
      IF (SE(I).GT.0.0.AND.BLEND(I,QT-5).GT.0.0) GO TO 1
      NTPSQ=B1+X1
      GO TO 2
    1 A1=B1/BLEND(I,QT-5)**SE(I)
      NTPSQ=A1*(BLEND(I,5)**SE(I))+X1
    2 IF (NTPSQ.LT.0.0) NTPSQ=0.0
      RETURN

      END
      FUNCTION CL1D(I,QT)
...CLASS I DEMAND FUNCTION(S)

      COMMON /BLK1/ SPMI(61,45),DMMFG(27,10),LMMFG(27,10),MMNC(27,10),PD
     1MI(45,45),MPDRM(59),MPDPM(59),IPPM(45),NARC(15),SPLB(16,4),DISTB(7
     25),DISTP(59),NOR(75),ONAME(75),QSPR(16),HCHG1(16),MMDM(19),CHGPT(5
     3),CHGBT(5),AR,BR,AP,BP1,IBTEF,IPTEF,NSX1,NSPX,A(59,5),DE(59),CHGNC
```

```
     42(59),CHGNC1(59),IC1EF,BC2P(5),CL2Q(59,4),PSE2,IC2EF,BIAC1(59,4),D
     5ISTD,DCHG1,SSPMI(14,8,8),SPACE3(3594)
      COMMON /BLK11/ NCL1P(59),CL1RR(59),IWORK2,START4,OCST,ILI(45),CHGP
     1RC(5),TRANSR(59),OACL1T(59),CINSP(59),PMCST(59),PRCST(59),ICST(5,1
     20),HCHG2(16),MXN,IPCEF,CQC2D(59),CQC1D(59),NRPR(59),XCL2P,DTCST,IW
     3ORK3,SFPCST,DFPCST,TRMPC,TMCST,RMPC(75),EFRR(59)
      COMMON /BLK8/ NYCNT,IMFGB,OP2,OP3,OP5,OP6,OP7

      REAL MPDRM,MPDPM,IPPM,MMDM,NCL1P,NRPR
      INTEGER QT,QCNT

      X1=BIAC1(I,QT-5)*((CHGNC1(I))*FLOAT(NYCNT))
      IF (IC1EF.NE.1) X1=0.0
      CL1D=A(I,QT-5)+X1
      IF (DE(I).NE.0.0) CL1D=(A(I,QT-5)*NRPR(I)**DE(I))+X1
      IF (CL1D.LT.0.0) CL1D=0.0
      RETURN

      END
      FUNCTION CL2D(I,QT)

...CLASS II DEMAND FUNCTIONS

      COMMON /BLK1/ SPMI(61,45),DMMFG(27,10),LMMFG(27,10),MMNC(27,10),PD
     1MI(45,45),MPDRM(59),MPDPM(59),IPPM(45),NARC(15),SPLB(16,4),DISTB(7
     25),DISTP(59),NOR(75),ONAME(75),QSPR(16),HCHG1(16),MMDM(19),CHGPT(5
     3),CHGBT(5),AR,BR,AP,BP1,IBTEF,IPTEF,NSX1,NSPX,A(59,5),DE(59),CHGNC
     42(59),CHGNC1(59),IC1EF,BC2P(5),CL2Q(59,4),PSE2,IC2EF,BIAC1(59,4),D
     5ISTD,DCHG1,SSPMI(14,8,8),SPACE3(3594)
      COMMON /BLK11/ NCL1P(59),CL1RR(59),IWORK2,START4,OCST,ILI(45),CHGP
     1RC(5),TRANSR(59),OACL1T(59),CINSP(59),PMCST(59),PRCST(59),ICST(5,1
     20),HCHG2(16),MXN,IPCEF,CQC2D(59),CQC1D(59),NRPR(59),XCL2P,DTCST,IW
     3ORK3,SFPCST,DFPCST,TRMPC,TMCST,RMPC(75),EFRR(59)
      COMMON /BLK8/ NYCNT,IMFGB,OP2,OP3,OP5,OP6,OP7

      REAL MPDRM,MPDPM,IPPM,MMDM,NCL1P,NRPR
      INTEGER QCNT,QT

      X1=CL2Q(I,QT-5)*(CHGNC2(I))*FLOAT(NYCNT)
      IF (IC2EF.NE.1) X1=0.0
      IF (PSE2.NE.0.0) GO TO 1
      CL2D=CL2Q(I,QT-5)+X1
      GO TO 2
    1 BC2=CL2Q(I,QT-5)/(BC2P(QT-5)**PSE2)
      CL2D=BC2*XCL2P**PSE2+X1
    2 IF (CL2Q(I,QT-5).EQ.0.0) CL2D=0.0
      IF (CL2D.LT.0.0) CL2D=0.0
      RETURN

      END
      FUNCTION GRADEB(I)

...GRADE B MILK SUPPLY

      COMMON /BLK8/ NYCNT,IMFGB,OP2,OP3,OP5,OP6,OP7
      COMMON /BLK10/ MMFC(27),CL1CP(59),CL1SP(16),IR(61),CHGHC(5),CHGPD(
     120),ERCST(75),SPRC(16),IDMG1(26),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
     2XC,NNOD,NNNE,NNND,ISTPS,NYRBC,NYBASE,QT,QCNT,NQ,NIC,ISUP1,ISUP7,NS
     3PM,NSC,NSK,IHCEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL2,ISC1CP,CHGCL3,ACST,
     4PMCHG,RMGN,OCST2,C2MGN,RMR,PCR,PMR,MCR,OPCL1,LBCHK,IPNARC,SCL1CP,T
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```
     5SMFC,XBP,XBP3,MPDC,TIME2,TIME3,TIME7
      COMMON /BLK14/ IDXB(9,12),UNRS(9),B(9,4),BIMP(4,2,4),C(5,5,4),RPB(
     15,5),BS(6,9,4),BPC(9),BSE(9),BDE(5),BTRANS(11,5),BBC3P(5),BCHGI(4)
     2,PCHGI(4),NRPB(5),CHGMC(5,5),SIDX(3,4),RSS(9),CF(5),BMKP(5),BRCST(
     35),BNF(2),BTCST(2,5),ISS,UNUT,UNPC,DGSC(20),IMPHLD,UNS(4),UNGBP(9,
     44),UNFPHC,UNPMC,ECHBT(5),BFPHC

      INTEGER QT,QCNT
      REAL NCL3P

      GRADEB=0.0
      IF (NCL3P.EQ.0.0) RETURN
      GBPB=BBC3P(QT-5)
      GBP=NCL3P
      IF (IPDEF.EQ.1) GBP=GBP-BPC(I)*(CHGPD(QCNT)-1.0)
      IF (BSE(I).GT.0.0.AND.GBPB.GT.0.0) GO TO 1
      GRADEB=B(I,QT-5)
      GO TO 2
    1 GRADEB=B(I,QT-5)/GBPB**BSE(I)*GBP**BSE(I)
    2 IF (GRADEB.LT.0.0) GRADEB=0.0
      RETURN

      END
      FUNCTION RIMPC(I,J)

...IMPORTS OF MFG MILK PRODUCTS

      COMMON /BLK8/ NYCNT,IMFGB,OP2,OP3,OP5,OP6,OP7
      COMMON /BLK10/ MMFC(27),CL1CP(59),CL1SP(16),IR(61),CHGHC(5),CHGPD(
     120),ERCST(75),SPRC(16),IDMG1(26),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
     2XC,NNOD,NNNE,NNND,ISTPS,NYRBC,NYBASE,QT,QCNT,NQ,NIC,ISUP1,ISUP7,NS
     3PM,NSC,NSK,IHCEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL2,ISC1CP,CHGCL3,ACST,
     4PMCHG,RMGN,OCST2,C2MGN,RMR,PCR,PMR,MCR,OPCL1,LBCHK,IPNARC,SCL1CP,T
     5SMFC,XBP,XBP3,MPDC,TIME2,TIME3,TIME7
      COMMON /BLK14/ IDXB(9,12),UNRS(9),B(9,4),BIMP(4,2,4),C(5,5,4),RPB(
     15,5),BS(6,9,4),BPC(9),BSE(9),BDE(5),BTRANS(11,5),BBC3P(5),BCHGI(4)
     2,PCHGI(4),NRPB(5),CHGMC(5,5),SIDX(3,4),RSS(9),CF(5),BMKP(5),BRCST(
     35),BNF(2),BTCST(2,5),ISS,UNUT,UNPC,DGSC(20),IMPHLD,UNS(4),UNGBP(9,
     44),UNFPHC,UNPMC,ECHBT(5),BFPHC

      INTEGER QT

      IF (IMPHLD.NE.0) GO TO 1
      RIMPC=(BIMP(I,J,QT-5)+BCHGI(I))*(1.0+PCHGI(I))
      GO TO 2
    1 BIMP(I,J,QT-5)=(BIMP(I,J,QT-5)+BCHGI(I))*(1.0+PCHGI(I))
      RIMPC=BIMP(I,J,QT-5)
    2 IF (RIMPC.LT.0.0) RIMPC=0.0
      RETURN

      END
      FUNCTION CMMP(I,J)

...CONSUMPTION OF MFG MILK PRODUCTS

      COMMON /BLK5/ CPRCHG(59),BTPSQ(59,4),BLEND(59,6),SE(59),GRBIND(4),
     1GRBCNV(59),IGBEF,CQTSP(59),QSPL1(59),ICMEF
      COMMON /BLK8/ NYCNT,IMFGB,OP2,OP3,OP5,OP6,OP7
      COMMON /BLK10/ MMFC(27),CL1CP(59),CL1SP(16),IR(61),CHGHC(5),CHGPD(
     120),ERCST(75),SPRC(16),IDMG1(26),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
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     2XC,NNOD,NNNE,NNND,ISTPS,NYRBC,NYBASE,QT,QCNT,NQ,NIC,ISUP1,ISUP7,NS
     3PM,NSC,NSK,IHCEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL2,ISC1CP,CHGCL3,ACST,
     4PMCHG,RMGN,OCST2,C2MGN,RMR,PCR,PMR,MCR,OPCL1,LBCHK,IPNARC,SCL1CP,T
     5SMFC,XBP,XBP3,MPDC,TIME2,TIME3,TIME7
      COMMON /BLK14/ IDXB(9,12),UNRS(9),B(9,4),BIMP(4,2,4),C(5,5,4),RPB(
     15,5),BS(6,9,4),BPC(9),BSE(9),BDE(5),BTRANS(11,5),BBC3P(5),BCHGI(4)
     2,PCHGI(4),NRPB(5),CHGMC(5,5),SIDX(3,4),RSS(9),CF(5),BMKP(5),BRCST(
     35),BNF(2),BTCST(2,5),ISS,UNUT,UNPC,DGSC(20),IMPHLD,UNS(4),UNGBP(9,
     44),UNFPHC,UNPMC,ECHBT(5),BFPHC

      REAL NRPB
      INTEGER QT

      X1=C(I,J,QT-5)*CHGMC(I,J)*FLOAT(NYCNT)
      IF (ICMEF.NE.1) X1=0.0
      IF (BDE(I).NE.0.0) GO TO 1
      CMMP=C(I,J,QT-5)+X1
      GO TO 2
    1 CMMP=C(I,J,QT-5)/RPB(I,QT-5)**BDE(I)*NRPB(I)**BDE(I)+X1
    2 IF (CMMP.LT.0.0) CMMP=0.0
      RETURN

      END
      FUNCTION UNREG(I)

...UNREGULATED MILK SUPPLY

      COMMON /BLK1/ CQMFG(9),CQIMP(4,2),CQBS(2,3,9),CQC(5,5),CQBNS(2,9),
     1NARC(15),BMMD1(31,15),BPOP(31),BPRR(15),BMMD2(58,10),POPB(58),PRRB
     2(10),RESID(18,2),RESIDC(18,2),RESIDG(18,2),CHEESE(9),WK2(9),WK1(9)
     3,CQB(9),CQUREG(9),CQUC1S(9),CQUGBP(9),CQUC1P(9),CQUNBP(9),CQUROD(9
     4),CQUVP(9),CQUNRP(9),CQES(6,9),TRCS1,TRCS2,SPACE(4269),SPACE1(5376
     5)
      COMMON /BLK8/ NYCNT,IMFGB,OP2,OP3,OP5,OP6,OP7
      COMMON /BLK10/ MMFC(27),CL1CP(59),CL1SP(16),IR(61),CHGHC(5),CHGPD(
     120),ERCST(75),SPRC(16),IDMG1(26),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
     2XC,NNOD,NNNE,NNND,ISTPS,NYRBC,NYBASE,QT,QCNT,NQ,NIC,ISUP1,ISUP7,NS
     3PM,NSC,NSK,IHCEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL2,ISC1CP,CHGCL3,ACST,
     4PMCHG,RMGN,OCST2,C2MGN,RMR,PCR,PMR,MCR,OPCL1,LBCHK,IPNARC,SCL1CP,T
     5SMFC,XBP,XBP3,MPDC,TIME2,TIME3,TIME7
      COMMON /BLK14/ IDXB(9,12),UNRS(9),B(9,4),BIMP(4,2,4),C(5,5,4),RPB(
     15,5),BS(6,9,4),BPC(9),BSE(9),BDE(5),BTRANS(11,5),BBC3P(5),BCHGI(4)
     2,PCHGI(4),NRPB(5),CHGMC(5,5),SIDX(3,4),RSS(9),CF(5),BMKP(5),BRCST(
     35),BNF(2),BTCST(2,5),ISS,UNUT,UNPC,DGSC(20),IMPHLD,UNS(4),UNGBP(9,
     44),UNFPHC,UNPMC,ECHBT(5),BFPHC

      INTEGER QT,QCNT

      IF (CQUGBP(I).EQ.0.0) RETURN
      UP=CQUGBP(I)
      IF (IPDEF.EQ.1) UP=UP-UNPC*(CHGPD(QCNT)-1.0)
      IF (BSE(I).GT.0.0.AND.UNGBP(I,QT-5).GT.0.0) GO TO 1
      UNREG=UNRS(I)*UNS(QT-5)
      GO TO 2
    1 UNREG=(UNRS(I)*UNS(QT-5))/UNGBP(I,QT-5)**BSE(I)*UP**BSE(I)
    2 IF (UNREG.LT.0.0) UNREG=0.0

      RETURN

      END
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      SUBROUTINE RESET
...STORE OPTIMAL NETWORK FLOWS FOR USE BY COMP
      COMMON /BLK1/ RMMD(59,59),SPOPD(59),PRROD(59),TRNSRD(59),TRMC(59),
     1RMMS(16,59),PRRD(59),CL3SP(16),CL3DS(59),PRRS(16),CL1SLS(59),IACL1
     2S(59),PMM(59,59),OACL1S(59),MMFG(75,42)
      COMMON /BLK2/ RDA(5),NSP,NSA1,NSMF,NDM,NMMF,NMFGT,BIGI,IMR,IMRN(11
     1)
      COMMON /BLK9/ NW,NSN,NT,NPN,NNN,NMN,NMM,NMD,NDP,NMS,NTN
      COMMON /BLK10/ MMFC(27),CL1CP(59),CL1SP(16),IR(61),CHGHC(5),CHGPD(
     120),ERCST(75),SPRC(16),IDMG1(26),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
     2XC,NNOD,NNNE,NNND,ISTPS,NYRBC,NYBASE,QT,QCNT,NQ,NIC,ISUP1,ISUP7,NS
     3PM,NSC,NSK,IHCEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL2,ISC1CP,CHGCL3,ACST,
     4PMCHG,RMGN,OCST2,C2MGN,RMR,PCR,PMR,MCR,OPCL1,LBCHK,IPNARC,SCL1CP,T
     5SMFC,XBP,XBP3,MPDC,TIME2,TIME3,TIME7
      COMMON /BLK11/ NCL1P(59),CL1RR(59),IWORK2,START4,OCST,ILI(45),CHGP
     1RC(5),TRANSR(59),OACL1T(59),CINSP(59),PMCST(59),PRCST(59),ICST(5,1
     20),HCHG2(16),MXN,IPCEF,CQC2D(59),CQC1D(59),NRPR(59),XCL2P,DTCST,IW
     30RK3,SFPCST,DFPCST,TRMPC,TMCST,RMPC(75),EFRR(59)
      COMMON /BLK8/ NYCNT,IMFGB,OP2,OP3,OP5,OP6,OP7
      COMMON /BLK12/ ISTATE,MXP,NSA1S,NSMFS,NT1,NT2,NT3,NT4,NPN1,NDP1,NT
     1N1,NT5,NT6,NT7,NT8,NT9,NT10,NT11

      REAL MFGM,MFGS,IACL1S,NCL1P,MMFG,NRPR,NCL3P
      INTEGER RDA,BIGI,OP1,OP2,OP3,OP5,OP6,OP7,QT,QCNT,RMR,PCR,PMR,OPCL1

      START4=CTIME(T1)

      DO 3 I=1,NT1
         IF (I.GT.NT3) GO TO 2
         DO 1 J=1,NT3
            RMMD(I,J)=0.
            PMM(I,J)=0.
            IF (I.GT.NSP) GO TO 1
            RMMS(I,J)=0.
1        CONTINUE
         SPOPD(I)=0.
         PRROD(I)=0.
         TRNSRD(I)=0.
         TRANSR(I)=0.0
         OACL1T(I)=0.0
         PMCST(I)=0.0
         TRMC(I)=0.
         PRRD(I)=0.
         CL3DS(I)=0.
         OACL1S(I)=0.
         IACL1S(I)=0.
         CL1SLS(I)=0.
         IF (I.GT.NSP) GO TO 2
         PRRS(I)=0.
         CL3SP(I)=0.0
2        CONTINUE
      DO 3 J=1,NT10
3     MMFG(I,J)=0.0
      TMCST=0.0
      RETURN

      ENTRY RESET1
      IF (RDA(1).LE.NSA1.AND.RDA(2).LE.NT2) RETURN
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      IF (RDA(1).GT.NT.AND.RDA(1).LE.NT1.AND.RDA(2).LE.NSN) RETURN
      IF (RDA(2).GT.NPN) GO TO 13
      IF (RDA(1).LE.NSA1) GO TO 5
      IF (RDA(1).GT.NT.AND.RDA(1).LT.NT1) GO TO 4
      IF (RDA(1).GT.NSA1.AND.RDA(1).LE.NT) GO TO 7
      IF (RDA(1).GT.NT1.AND.RDA(1).LE.NSN) GO TO 12
...FLOWS FROM DIRECT SHIPPED NODES TO PROCESSING NODES
    4 K1=RDA(1)-NSP
      GO TO 6
    5 K1=RDA(1)
    6 K2=RDA(2)-NSN
      RMMD(K1,K2)=FLOAT(RDA(4))
      SPOPD(K1)=SPOPD(K1)+FLOAT(RDA(4))
      PRROD(K2)=PRROD(K2)+FLOAT(RDA(4))
      TRMC(K2)=TRMC(K2)+FLOAT(RDA(4))*FLOAT(RDA(3))
      RETURN
...FLOWS FROM SUPPLY PLANT NODES TO PROCESSING NODES
    7 K1=RDA(1)
      K2=RDA(2)-NSN
      K3=K1-NSA1
      K4=RDA(1)-NSP
      IF (K2.NE.K4) GO TO 8
      TRMC(K2)=TRMC(K2)+FLOAT(RDA(3))*FLOAT(RDA(4))
      PRRS(K3)=PRRS(K3)+FLOAT(RDA(4))
      GO TO 11
    8 WXYZ=FLOAT(RDA(3))
      XIC=0.0
      IF (CINSP(K2).EQ.0.0) GO TO 10
      XIC=CINSP(K2)
      IC1=ILI(K2)
      DO 9 I=1,MXN
    9 IF (ICST(IC1,I).EQ.K4) XIC=0.0
   10 TRCST=WXYZ-NCL1P(K4)-HCHG2(K3)-XIC
      TRANSR(K2)=TRANSR(K2)+FLOAT(RDA(4))*TRCST
      TRNSRD(K2)=TRNSRD(K2)+WXYZ*FLOAT(RDA(4))
   11 RMMS(K3,K2)=FLOAT(RDA(4))
      RETURN
...FLOWS FROM DUMMY SUPPLY NODES TO PROCESSING NODES
   12 K1=RDA(1)-NT1
      K2=RDA(2)-NSN
      RMMD(K1,K2)=RMMD(K1,K2)+FLOAT(RDA(4))
      PRRD(K2)=PRRD(K2)+FLOAT(RDA(4))
      TRMC(K2)=TRMC(K2)+FLOAT(RDA(4))*FLOAT(RDA(3))
      RETURN
   13 IF (RDA(2).EQ.NMS) RETURN
      IF (RDA(2).GT.NMD) GO TO 19
      K2=RDA(2)-NPN
      IF (RDA(2).GT.NPN1.AND.RDA(2).LT.NMN) K2=K2+2
      IH1=RDA(1)
      IF (RDA(2).EQ.NMN) K2=NMD-NMN
      IF (RDA(2).GT.NMN) K2=RDA(2)-NMN
      IF (RDA(1).LE.NSA1) GO TO 15
      IF (RDA(1).GT.NT.AND.RDA(1).LE.NT1) GO TO 14
      IF (RDA(1).GT.NSA1.AND.RDA(1).LE.NT) GO TO 17
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      IF (RDA(1).GT.NT1.AND.RDA(1).LE.NSN) GO TO 18
...FLOWS FROM DIRECT SHIPPED NODES TO MANUFACTURING NODES
   14 K1=RDA(1)-NSP
      GO TO 16
   15 K1=RDA(1)
   16 CL3DS(K1)=CL3DS(K1)+FLOAT(RDA(4))
      MMFG(IH1,K2)=MMFG(IH1,K2)+FLOAT(RDA(4))
      TMCST=TMCST+(FLOAT(RDA(3))-IFIX(NCL3P+0.5))*FLOAT(RDA(4))
      RETURN
...FLOWS FROM SUPPLY PLANT NODES TO MANUFACTURING NODES
   17 K1=RDA(1)-NSP
      CL3SP(K1-NW)=CL3SP(K1-NW)+FLOAT(RDA(4))
      MMFG(IH1,K2)=MMFG(IH1,K2)+FLOAT(RDA(4))
      TMCST=TMCST+(FLOAT(RDA(3))-IFIX(NCL3P+0.5))*FLOAT(RDA(4))
      RETURN
...FLOWS FROM DUMMY SUPPLY NODES TO MANUFACTURING NODES
   18 K1=RDA(1)-NT1
      K11=K1
      IF (RDA(1).GT.NT2) K11=RDA(1)-NT3
      CL3DS(K1)=CL3DS(K1)+FLOAT(RDA(4))
      MMFG(K11,K2)=MMFG(K11,K2)+FLOAT(RDA(4))
      TMCST=TMCST+(FLOAT(RDA(3))-IFIX(NCL3P+0.5))*FLOAT(RDA(4))
      RETURN
   19 IF (RDA(2).GT.NDP1) GO TO 20
...FLOWS FROM PROCESSING NODES TO DUMMY PROCESSING NODES
      K1=RDA(1)-NSN
      CL1SLS(K1)=FLOAT(RDA(4))
      RETURN
...FLOWS FROM DUMMY PROCESSING NODES TO FINAL DEMAND NODES
   20 K1=RDA(1)-NMD
      K2=RDA(2)-NDP1
      IF (K1.NE.K2) GO TO 21
      AK=FLOAT(RDA(4))/(1.0+CL1RR(K2))
      IACL1S(K1)=AK
      PMM(K1,K2)=AK
      XRT=CHGPRC(NYCNT)*OCST
      PMCST(K2)=PMCST(K2)+(FLOAT(RDA(3))+XRT)*AK
      RETURN
   21 AK=FLOAT(RDA(4))/(1.0+CL1RR(K2))
      PMM(K1,K2)=AK
      OACL1S(K1)=OACL1S(K1)+AK
      XIC=0.0
      IF (K2.GT.NSA1) GO TO 23
      IF (CINSP(K2).EQ.0.0) GO TO 23
      XIC=CINSP(K2)
      IC2=ILI(K2)
      DO 22 I=1,MXN
   22 IF (ICST(IC2,I).EQ.K1) XIC=0.0
   23 XRT=CHGPRC(NYCNT)*OCST
      XRS=CHGPRC(NYCNT)*PRCST(K1)
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      TRCST=FLOAT(RDA(3))-XRS-XIC
      OACL1T(K1)=OACL1T(K1)+TRCST*AK
      PMCST(K2)=PMCST(K2)+(FLOAT(RDA(3))+XRT)*AK
      RETURN

      END
      SUBROUTINE RESETB

...STORES NETWORK FLOWS

      COMMON /BLK1/ CQMFG(9),CQIMP(4,2),CQB5(2,3,9),CQC(5,5),CQBNS(2,9),
     1NARC(15),BMMD1(31,15),BPOP(31),BPRR(15),BMMD2(58,10),POPB(58),PRRB
     2(10),RESID(18,2),RESIDC(18,2),RESIDG(18,2),CHEESE(9),WK2(9),WK1(9)
     3,CQB(9),CQUREG(9),CQUC1S(9),CQUGBP(9),CQUC1P(9),CQUNBP(9),CQUROD(9
     4),CQUUP(9),CQUNRP(9),CQES(6,9),TRCS1,TRCS2,CINV(9,3),BNINV(2,9),SP
     5ACE(4224),SPACE1(5376)
      COMMON /BLK2/ RDA(5),NSP,NSA1,NSMF,NDM,NMMF,NMFGT,BIGI,IMR,IMRN(11
     1)
      COMMON /BLK7/ NAD,NOD,MXC,NNODES,IPRI(20),IPRO(20),QCNT1,OP4,KGNET
      COMMON /BLK10/ MMFC(27),CL1CP(59),CL1SP(16),IR(61),CHGHC(5),CHGPD(
     120),ERCST(75),SPRC(16),IDMG1(26),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
     2XC,NNOD,NNNE,NNND,ISTPS,NYRBC,NYBASE,QT,QCNT,NQ,NIC,ISUP1,ISUP7,NS
     3PM,NSC,NSK,IHCEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL2,ISC1CP,CHGCL3,ACST,
     4PMCHG,RMGN,OCST2,C2MGN,RMR,PCR,PMR,MCR,OPCL1,LBCHK,IPNARC,SCL1CP,T
     5SMFC,XBP,XBP3,MPDC,TIME2,TIME3,TIME7
      COMMON /BLK14/ IDXB(9,12),UNRS(9),B(9,4),BIMP(4,2,4),C(5,5,4),RPB(
     15,5),BS(6,9,4),BPC(9),BSE(9),BDE(5),BTRANS(11,5),BBC3P(5),BCHGI(4)
     2,PCHGI(4),NRPB(5),CHGMC(5,5),SIDX(3,4),RSS(9),CF(5),BMKP(5),BRCST(
     35),BNF(2),BTCST(2,5),ISS,UNUT,UNPC,DGSC(20),IMPHLD,UNS(4),UNGBP(9,
     44),UNFPHC,UNPMC,ECHBT(5),BFPHC
      COMMON /BLK15/ MS,MIMP,MC,M1,M2,M3,M4,M5,M6,M7,M8,M9,M10,M11,M12,M
     113,M14,M15,M16,M17,M18,M19,M20,M21,M22,M23,M24,M25,M26,M27,M28,M29
     2,M30,M31,M32,M33,M34,M35,M36,M37,M38

      INTEGER QR,QT,QCNT,QCNT1,CR,PCR,PMR,RMR,RDA,OPEXF,OPCL1,OP1,OP2,OP
     13,OP5,OP6,OP7,OP4,BIGI

      REAL NFP,IACL1,MPDRM,MMFC,MPDPM,IPPM,NCL2Q,MCL2Q,MCL3Q,NRPR,NCL1P,
     1MFGS,MFGM,IACL1S,MTPSQ,MCL1Q,ICHG,MOCC,MOPC,MPPC,MRTLP,NCL2P,MBLEN
     2D,MCL1P,MCL1U,MIACL1,MMDM,ICP,NCL3,NCL3P,NTPSQ,MMFG

      IF (KGNET.NE.1) GO TO 4
      DO 1 J=1,15
         BPRR(J)=0.0
      DO 1 I=1,31
         BPOP(I)=0.0
    1 BMMD1(I,J)=0.0
      DO 2 I=1,2
      DO 2 J=1,18
         RESID(J,I)=0.0
         RESIDC(J,I)=0.0
    2 RESIDG(J,I)=0.0
      TRCS1=0.0
      DO 3 L=1,3
      DO 3 J=1,9
         CINV(J,L)=0.0
    3 CONTINUE

      RETURN
```

```
    4 DO 5 I=1,10
        PRRB(I)=0.0
      DO 5 J=1,58
        POPB(J)=0.0
    5 BMMD2(J,I)=0.0
      TRCS2=0.0
      DO 6 J=1,9
      DO 6 I=1,2
        BNINV(I,J)=0.0
    6 CONTINUE

      RETURN

**************  STAGE 1 ****************

      ENTRY RESTB1
      IF (RDA(2).GE.M17) RETURN
      IF (RDA(1).LE.MS.AND.RDA(2).GT.M8) GO TO 7
      IF (RDA(1).GT.MS.AND.RDA(1).LE.M4) GO TO 11
      IF (RDA(1).GT.M4.AND.RDA(1).LE.M6) GO TO 12
      IF (RDA(1).GT.M6.AND.RDA(1).LE.M8) GO TO 15

...FLOWS FROM MILK SUPPLY TO DEMANDS

    7 K1=RDA(1)
      K2=RDA(2)-M8
      IF (RDA(2).EQ.M15) GO TO 10
      BMM1=FLOAT(RDA(4))
      IF (RDA(2).LT.M11.OR.RDA(2).GT.M12) GO TO 8
      BMM1=BMM1/(1.0+SIDX(1,QT-5))
      CINV(K1,1)=CINV(K1,1)+FLOAT(RDA(4))-BMM1
    8 BMMD1(K1,K2)=BMM1
      BPOP(K1)=BPOP(K1)+FLOAT(RDA(4))
      BPRR(K2)=BPRR(K2)+FLOAT(RDA(4))
      TRCS1=TRCS1+FLOAT(RDA(3))*BMM1
      IF (RDA(2).GE.M11.AND.RDA(2).LE.M12) GO TO 9

      RETURN

    9 CHEESE(K1)=CHEESE(K1)+FLOAT(RDA(4))

      RETURN

   10 RESID(K1,KGNET)=RESID(K1,KGNET)+FLOAT(RDA(4))

      RETURN

...IMPORTS TO DEMANDS

   11 K1=RDA(1)
      K2=RDA(2)-M8
      BMMD1(K1,K2)=FLOAT(RDA(4))
      BPOP(K1)=BPOP(K1)+FLOAT(RDA(4))
      BPRR(K2)=BPRR(K2)+FLOAT(RDA(4))
      TRCS1=TRCS1+FLOAT(RDA(3)*RDA(4))

      RETURN

...COMM. STOCKS TO DEMANDS
```

```
 12 K1=RDA(1)
    K2=RDA(2)-M8
    IF (RDA(2).EQ.M15) GO TO 14
    BMM1=FLOAT(RDA(4))
    IF (RDA(2).LT.M11.OR.RDA(2).GT.M12) GO TO 13
    BMM1=BMM1/(1.0+SIDX(1,QT-5))
    CINV(K1-M4,2)=CINV(K1-M4,2)+FLOAT(RDA(4))-BMM1
 13 BMMD1(K1,K2)=BMM1
    BPOP(K1)=BPOP(K1)+FLOAT(RDA(4))
    BPRR(K2)=BPRR(K2)+FLOAT(RDA(4))
    TRCS1=TRCS1+FLOAT(RDA(3))*BMM1

    RETURN

 14 K1=K1-M4
    RESIDC(K1,KGNET)=RESIDC(K1,KGNET)+FLOAT(RDA(4))

    RETURN

...GOVT. STOCKS TO DEMANDS

 15 K1=RDA(1)
    K2=RDA(2)-M8
    IF (RDA(2).EQ.M15) GO TO 17
    BMM1=FLOAT(RDA(4))
    IF (RDA(2).LT.M11.OR.RDA(2).GT.M12) GO TO 16
    BMM1=BMM1/(1.0+SIDX(1,QT-5))
    CINV(K1-M6,3)=CINV(K1-M6,3)+FLOAT(RDA(4))-BMM1
 16 BMMD1(K1,K2)=BMM1
    BPOP(K1)=BPOP(K1)+FLOAT(RDA(4))
    BPRR(K2)=BPRR(K2)+FLOAT(RDA(4))
    TRCS1=TRCS1+FLOAT(RDA(3))*BMM1

    RETURN

 17 K1=K1-M6
    RESIDG(K1,KGNET)=RESIDG(K1,KGNET)+FLOAT(RDA(4))

    RETURN

********************  STAGE 2  ******************

    ENTRY RESTB2
    IF (RDA(2).GE.M38) RETURN
    IF (RDA(1).LE.M23) GO TO 18
    IF (RDA(1).GT.M23.AND.RDA(1).LT.M36) GO TO 21

...BUTTER SUPPLIES TO BUTTER DEMANDS

 18 K1=RDA(1)
    K2=RDA(2)-M31
    IF (RDA(2).EQ.M36) GO TO 20
    BMM2=FLOAT(RDA(4))
    IF (RDA(1).GE.M18.AND.RDA(1).LE.M19) GO TO 19
    BMM2=BMM2/(1.0+SIDX(2,QT-5))
    KK=K1
    IF (K1.GE.M20) KK=K1-M19
    IF (K1.GE.M22) KK=K1-M21
    BNINV(1,KK)=BNINV(1,KK)+FLOAT(RDA(4))-BMM2
 19 BMMD2(K1,K2)=BMM2
```

```
      POPB(K1)=POPB(K1)+FLOAT(RDA(4))
      PRRB(K2)=PRRB(K2)+FLOAT(RDA(4))
      TRCS2=TRCS2+FLOAT(RDA(3))*BMM2

      RETURN

   20 IF (RDA(1).LE.MS) RESID(K1,KGNET)=RESID(K1,KGNET)+FLOAT(RDA(4))
      IF (RDA(1).GT.M19.AND.RDA(1).LE.M21) RESIDC(K1-M19,KGNET)=RESIDC(K
     11-M19,KGNET)+FLOAT(RDA(4))
      IF (RDA(1).GT.M21) RESIDG(K1-M21,KGNET)=RESIDG(K1-M21,KGNET)+FLOAT
     1(RDA(4))

      RETURN

...NFDM SUPPLIES TO DEMANDS

   21 K1=RDA(1)
      K2=RDA(2)-M31
      IF (RDA(2).EQ.M36) GO TO 23
      BMM2=FLOAT(RDA(4))
      IF (RDA(1).GE.M26.AND.RDA(1).LE.M27) GO TO 22
      BMM2=BMM2/(1.0+SIDX(3,QT-5))
      KK=K1-M23
      IF (K1.GE.M28) KK=K1-M27
      IF (K1.GE.M30) KK=K1-M29
      BNINV(2,KK)=BNINV(2,KK)+FLOAT(RDA(4))-BMM2
   22 BMMD2(K1,K2)=BMM2
      POPB(K1)=POPB(K1)+FLOAT(RDA(4))
      PRRB(K2)=PRRB(K2)+FLOAT(RDA(4))
      TRCS2=TRCS2+FLOAT(RDA(3))*BMM2

      RETURN

   23 IF (RDA(1).LE.M25) RESID(K1-M21,KGNET)=RESID(K1-M21,KGNET)+FLOAT(R
     1DA(4))
      IF (RDA(1).GT.M27.AND.RDA(1).LE.M29) RESIDC(K1-M27+MS,KGNET)=RESID
     1C(K1-M27+MS,KGNET)+FLOAT(RDA(4))
      IF (RDA(1).GT.M29) RESIDG(K1-M27,KGNET)=RESIDG(K1-M27,KGNET)+FLOAT
     1(RDA(4))

      RETURN

      END
      FUNCTION CTIME(T1)

...CTIME ROUTINE FOR 6000, 7000 SERIES CDC

      CALL SECOND (T1)
      CTIME=-T1
      RETURN

      END
      SUBROUTINE GNETA

...SOLVE CAPACITATED TRANSSHIPMENT PROBLEM

C*********************************************************************
C  BASED ON GNET, COPYRIGHT 1975 BY
C     GORDON H. BRADLEY, NAVAL POSTGRADUATE SCHOOL, MONTEREY, CA 93940
C     GERALD G. BROWN, NAVAL POSTGRADUATE SCHOOL, MONTEREY, CA 93940
```

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****

DAMPCLC

DAMPCLC, listed on the following pages, does calculations used primarily by DRW1. Annual sums and various percentages and absolute changes are computed. The subroutine COMP does most calculations. The subroutine TCOST computes aggregate transportation and production costs. The subroutine OSET prepares a table for DRW1 and is identical to OSET in DAMPSIN. Though they have the same name, COMP in DAMPCLC is different from COMP in DAMPSLV, both are descendants of a subroutine called COMP used in FMMOPS.

```
      PROGRAM DAMPCLC (INPUT,OUTPUT,TAPE9,TAPE12,TAPE13,TAPE17,TAPE18,TA
     1PE19,TAPE43)

C*****************************************************************
C          .... DAMPCLC IS THE THIRD PROGRAM OF DAMPS ....
C     DAMPCLC READS DATA FROM DAMPSIN AND RESULTS FROM DAMPSCL
C     AND MAKES CALCULATIONS FOR THE REPORT WRITERS - DRW1.AND
C     DRW2.  DAMPCLC WAS WRITTEN BY D.R. MARTELLA, J.E. PRATT,
C     AND A.M. NOVAKOVIC.
C
C*****************************************************************

      COMMON SPACE1(9600),ABLEND(59),ACEXP(2),ACHGC1(45),ACHGC2(45),ACHG
     1C3(45),ACHGPR(45),ACHIAC(45),ACL1P(59),ACL1UT(59),ACL2D(59,2),ACL3
     2D(59,2),AFRPS(59),AGRC1(45),AIAC1S(59,2),AMBLND(2),AMC1P(2),AMC1U(
     32),AMC2P(2),AMC3P(2),AMRTL(2),AMUCP(2),ANFP(45),AOAC1T(45),APCL1(5
     49,2),APRREC(59,2),ARODC(45),ARPR(59),ASCL2D(2),ASCL3Q(2),ASFRPS(2)
     5,ASIAC1(2),ASMFGU(2),ASNFP(2),ASOAC1(2),ASPCL1(2),ASPRRC(2),ASRODC
     6(2),ASTRNS(2),ATCCWT(59),ATMMC(53),ATRANS(45),ATRMC(45),AUMCP(53),
     7AUTCP(59),AUP(2),AWFRPS(2),BCEXP(5),BC3P(5),BLDIF(59),BMBLEN(5),BM
     8CL1P(5),BMCL1U(5),BMRTLP(5),BNCL2P(5),BNCL3P(5),BP(20),BPS(20),BSM
     9FGU(5),BSMGP(5),BSNFP(5),BSOAC1(5),BSTRNS(5),BSVFRP(5),BSVP(5),BS
     *VROD(5),BWFRPS(5),CHGCL1(59),CHGCL0(45),CHGCL2(45),CHGCL3(45),CHGI
     *AC(45),CHGPR(45),CL1P(59,5),CL1Q(59,4),CL1UT(59),FRPS(59),IACL1(5
     *9,4),ICR(45),IDICST(5),IMRG(59),MCL1Q(5),MCL2Q(5),MCL3Q(5),MIACL1(
     *4),MR(5),MTPSQ(5),NCL2Q(59,4),NFP(45),NYID(5),OMC1P(75),PCL2(59),Q
     *CL1P(59,20),QCL2P(20),QCL3P(20),QR(20),RODC(45),SAD(14,4),SERCST(5
     *),SRMPC(5),TCCWT(59),TMMC(53),TPSQ(59,4),UMCP(53),UTCP(59),IRR(59)
     *,BLAMR(20),BLNDMR(20),VP(59),VPAMRG(10),VPMRG(20),PRECAM(10),PRREC
     *M(20),PRREC(59),SPOPS(16),TCL3(59),PCL1(59),GRC1(59),ARMMD(59,59),
     *ARMMS(16,59),AMMFG(75,42),APMM(59,59)
      COMMON /BLK1/ WORK2(11619)
      COMMON /BLK2/ WORK3(24)
      COMMON /BLK5/ WORK4(890)
      COMMON /BLK7/ WORK5(45)
      COMMON /BLK8/ NYCNT
      COMMON /BLK9/ WORK6(11)
      COMMON /BLK10/ MMFC(27),CL1CP(59),CL1SP(16),IR(61),CHGHC(5),CHGPD(
     120),ERCST(75),SPRC(16),IDMG1(29),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
     2XC,NNOD,NNNE,NNND,ISTPS,NYRBC,NYBASE,QT,QCNT,NQ,NIC,ISUP1,ISUP7,NS
     3PM,NSC,NSK,INCEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL4,ISC1CP,CHGCL5,ACST,
     4PMCHG,RMGN,OCST2,C2MGN,RMR,PCR,PMR,MCR,OPCL1,LBCHK,IPNARC,SCL1CP,T
     5SMFC,XBP,XBP3,MPDC,OP1,OP2,OP6,OP7,OP8
      COMMON /BLK11/ WORK8(852),WORK10(10),SMC20,SVCL1
      COMMON /BLK12/ ISTATE,MXP,NSA1S,NSMFS,NT1,NT2,NT3,NT4,NPN1,NDP1,NT
     1N1,NT5,NT6,NT7,NT8,NT9,NT10,NT11

      DIMENSION WORK1(14992), WORK7(407), WORK9(18)

      INTEGER QR,QT,QCNT,QCNT1,CR,PCR,PMR,RMR,RDA,OPEXF,OPCL1,OP1,OP2,OP
     13,OP5,OP6,OP7,OP8,OP4,DIGI
      REAL NFP,IACL1,MPDRM,MMFC,MPDPM,IPPM,NCL2Q,MCL2Q,MCL3Q,NRPR,NCL1P,
     1MFGS,MFGM,IACL1S,MTPSQ,MCL1Q,ICHG,MOCC,MOPC,MPPC,MRTLP,NCL2P,MBLEN
     2D,MCL1P,MCL1U,MIACL1,MMDM,ICP,NCL3,NCL3P,NTPSQ,MMFG

      EQUIVALENCE (SPACE1(1),WORK1(1)), (MMFC(1),WORK7(1)), (ISTATE,WORK
     19(1))

...SET LOGICAL FILE PARAMETERS
```

```
      IP1=9
      IP2=13
      OP1=17
      OP2=18
      OP6=19
      OP7=12
      OP8=43

...   IP1=INPUT FROM DAMPSIN
...   IP2=QUARTERLY INPUT FROM DAMPSLV
...   OP1=OUTPUT TO GRADE A REPORT WRITER - DRW1
...   OP2=SCRATCH FILE FOR TCOST COMMON
...   OP6=SCRATCH FILE FOR TCOST
...   OP7=TCOST MILEAGE MATRIX FROM GAPSIN
...   OP8=OUTPUT TO GRADE B REPORT WRITER - DRW2

      READ (IP1) WORK1,WORK3,WORK4,WORK5,NYCNT,WORK6,WORK7,WORK8,WORK10,
     1WORK9

....MAIN LOOP

      DO 1 IDID=1,NQ
         READ (IP2) WORK2,WORK4,WORK8,IMRG,BLDIF,CHGCL1,QCL1P,QCL2P,QCL3
     1   P,CL1P,TITLE,SPOPS,GRC1,PCL1,TCL3,PRREC,VP,VPMRG,PRRECM,BLNDMR,
     2   VPAMRG,PRECAM,BLAMR,SMC20,SVCL1

         CALL COMP

    1 CONTINUE

....WRITE DATA FOR  COMPARATIVE REPORTS

      J2=0
      NIC2=NIC+1
      DO 2 I=1,NIC2
         J1=J2
         IF (I.EQ.1) J2=J1+750
         IF (I.GT.1) J2=J1+(30*NTS)
         J1=J1+1
         IF (I.GT.1.AND.NIC.EQ.0) STOP 2155
    2 WRITE (OP1) (WORK1(IJK),IJK=J1,J2)

      STOP

      END
      SUBROUTINE COMP

...CALCULATE OUTPUT FOR REPORT WRITER

      DIMENSION WORK3(6982)

      WORK3=SIZE OF COMMON IN TCOST

      COMMON SPACE1(9600),ABLEND(59),ACEXP(2),ACHGC1(45),ACHGC2(45),ACHG
     1C3(45),ACHGPR(45),ACHIAC(45),ACL1P(59),ACL1UT(59),ACL2D(59,2),ACL3
     2Q(59,2),AFRPS(59),AGRC1(45),AIAC1S(59,2),AMBLND(2),AMC1P(2),AMC1U(
     32),AMC2P(2),AMC3P(2),ANRTL(2),AMUCP(2),ANFP(45),AOAC1T(45),APCL1(5
     49,2),APRREC(59,2),ARODC(45),ARPR(59),ASCL2D(2),ASCL3Q(2),ASFRPS(2)
     5,ASIAC1(2),ASMFGU(2),ASNFP(2),ASOAC1(2),ASPCL1(2),ASPRRC(2),ASRODC
```

```
6(2),ASTRNS(2),ATCCWT(59),ATMMC(53),ATRANS(45),ATRMC(45),AUMCP(53),
7AUTCP(59),AVP(2),AWFRPS(2),BCEXP(5),BC3P(5),BLDIF(59),BMBLEN(5),BM
8CL1P(5),BMCL1U(5),BMRTLP(5),BNCL2P(5),BNCL3P(5),BP(20),BPS(20),BSM
9FGU(5),BSMUCP(5),BSNFP(5),BSOAC1(5),BSTRNS(5),BSVFRP(5),BSVP(5),BS
*VROD(5),BWFRPS(5),CHGCL1(59),CHGCL0(45),CHGCL2(45),CHGCL3(45),CHGI
*AC(45),CHGPRR(45),CL1P(59,5),CL1Q(59,4),CL1UT(59),FRPS(59),IACL1(5
*9,4),ICR(10),IDICST(5),IMRC(59),MCL10(5),MCL20(5),MCL30(5),MIACL1(
*4),MR(5),MTPCO(5),NCL20(59,4),NFP(45),NYID(5),OMC1P(75),PCL2(59),Q
*CL1P(59,20),QCL2P(20),QCL3P(20),QR(20),RODC(45),SAD(14,4),SERCST(5
*),SRMPC(5),TCCWT(59),TMMC(53),TPSQ(59,4),UMCP(53),UTCP(59),IRR(59)
*,BLAMR(20),BLNDMR(20),VP(59),VPAMRG(10),VPMRG(20),PRECAM(10),PRREC
*M(20),PRREC(59),SPOPS(16),TCL3(59),PCL1(59),GRC1(59),ARMMD(59,59),
*ARMMS(16,59),AMMFG(75,42),APMM(59,59)
 COMMON /BLK1/ RMMD(59,59),SPOPD(59),PRROD(59),TRANSR(59),TRMC(59),
1RMMS(16,59),PRRD(59),CL3SP(16),CL3DS(59),PRRS(16),CL1SLS(59),IACL1
25(59),PMM(59,59),QACL1S(59),MMFG(75,42)
 COMMON /BLK2/ RDA(5),NSP,NSA1,NSMF,NDM,NMMF,NMFGT,BIGI,IMR,IMRN(11
1)
 COMMON /BLK5/ CPRCHG(59),BTPSQ(59,4),BLEND(59,6),SE(59),GRBIND(4),
1GRBCNV(59),IGBEF,CQTSP(59),QSPL1(59)
 COMMON /BLK7/ NAD,NOD,MXC,NNODES,IPRI(20),IPRO(20),QCNT1
 COMMON /BLK8/ NYCNT
 COMMON /BLK9/ NW,NSN,NT,NPN,NNN,NMN,NMM,NMD,NDP,NMS,NTN
 COMMON /BLK10/ MMFC(27),CL1CP(59),CL1SP(16),IR(61),CHGHC(5),CHGPD(
120),ERCST(75),SPRC(16),IDMG1(26),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
2XC,NNOD,NNNE,NNMD,ISTPS,NYREC,NYBASE,QT,QCNT,NQ,NIC,ISUP1,ISUP7,NS
3PM,NSC,NSK,IMDEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL4,ISC1CP,CHGCL5,ACST,
4PMCHG,RMQN,QCST2,C2MQN,RMR,PCR,PMR,MCR,QPCL1,LBCHK,IPNARC,SCL1CP,T
5SMFC,XBP,XBP3,MPDC,QP1,QP2,QP6,QP7,QP8
 COMMON /BLK11/ NCL1P(59),CL1RR(59),IWORK2,START4,QCST,ILI(45),CHGP
1RC(5),TRANSQ(59),QACL1T(59),CINSP(59),PMCST(59),PRCST(59),ICST(5,1
20),HCHG2(16),MXN,IPCEF,CQC2D(59),CQC1D(59),NRPR(59),XCL2P,DTCST,IW
30RK3,SFPCST,DFPCST,TRMPC,TMCST,RMPC(75),EFRR(59),ADTCST,ASFPCS,ADF
4PCS,ATMCST,ATRMPC,ECHBT(5),SMC2Q,SUCL1
 COMMON /BLK12/ ISTATE,MXP,NSA1S,NSMFS,NT1,NT2,NT3,NT4,NPN1,NDP1,NT
1N1,NT5,NT6,NT7,NT8,NT9,NT10,NT11

 INTEGER QR,QT,QCNT,QCNT1,CR,PCR,PMR,RMR,RDA,QPEXF,QPCL1,QP1,QP2,QP
13,QP5,QP6,QP7,QP8,QP4,BIGI

 REAL NFP,IACL1,MPDRM,MMFC,MPDPM,IPPM,NCL20,MCL20,MCL30,NRPR,NCL1P,
1MFGS,MFGM,IACL1S,MTPSQ,MCL1Q,ICHG,MQCC,MQPC,MPPC,MRTLP,NCL2P,MBLEN
2D,MCL1P,MCL1U,MIACL1,MMDM,ICP,NCL3,NCL3P,NTPSQ,MMFG
 EQUIVALENCE (SPACE1(1),WORK3(1))


...(RE)INTIALIZE QUARTERLY SUMMATION VARIABLES
    START3=CTIME(T1)

    TRACESUBSCRIPTS

    DO 1 I=1,NSA1
  1 IRR(I)=IR(I)
    DO 2 I=NT5,NT3
  2 IRR(I)=I
    STRMC=0.0
    STCCWT=0.0
    SMPC=0.0
    MCL1U=0.0
    SMUCP=0.0
```

```
      STRNSR=0.0
      XCSOA=0.0
      XCTRNS=0.
      CSTRNS=0.
      CSOAC1=0.
      SOAC1T=0.0
      SNFP=0.0
      SGRC1=0.0
      MOCC=0.0
      MPPC=0.0
      MOPC=0.0
      SSOPC=0.0
      SCL1D=0.0
      SCL2D=0.0
      SCL3D=0.0
      SPRREC=0.0
      SPCLI=0.0
      VBLEND=0.0
      SVP=0.0
      SVRODC=0.0
      SVFRPS=0.0
      SMSP=0.0
      SMSPD=0.0
      SMDS=0.0
      SMDSD=0.0
      CEXP=0.0
      TMOP=0.0
      DO 3 I=1,NSPM
    3 TMMC(I)=0.0
...(RE)INITALIZE ANNUAL SUMMATION VARIABLES
      IF (QT.NE.6) GO TO 8
      DO 4 I=1,NT9
         AIAC1S(I,2)=0.0
         APCLI(I,2)=0.0
         APRREC(I,2)=0.0
         ATCCNT(I)=0.0
         AUTCP(I)=0.0
         ABLEND(I)=0.
         ACL1P(I)=0.
         ACL1UT(I)=0.
         ACL2D(I,2)=0.
         ACL3D(I,2)=0.
         ARPR(I)=0.0
         AFRPS(I)=0.0
         IF (I.GT.NSA1) GO TO 4
         ATRANS(I)=0.0
         AOAC1T(I)=0.0
         ANFP(I)=0.
         ARODC(I)=0.
         ATRNC(I)=0.
         AGRC1(I)=0.0
    4 CONTINUE
      DO 5 I=1,NT1
      DO 5 J=1,NT10
    5 AMMFG(I,J)=0.0
      DO 6 I=1,NT9
      DO 6 J=1,NT9
         ARMMD(I,J)=0.
```

```
      APMM(I,J)=0.
      IF (I.GT.NSP) GO TO 6
      ARMMS(I,J)=0.
6 CONTINUE
  AMC1U(2)=0.
  ASIAC1(2)=0.
  ASPRRC(2)=0.
  ASPCL1(2)=0.
  ASCL2D(2)=0.
  ASCL3Q(2)=0.
  AMC1P(2)=0.
  AMC2P(2)=0.
  AMC3P(2)=0.
  AMBLND(2)=0.
  AUP(2)=0.
  AENFP(2)=0.
  ASRODC(2)=0.
  ASFRPS(2)=0.
  ACEXP(2)=0.
  AMRTL(2)=0.
  ALFRPS(2)=0.
  AMUCP(2)=0.
  ASMFGU(2)=0.
  ASTRNS(2)=0.
  ASDAC1(2)=0.
  XCHATR=0.
  XCHASO=0.
  CHASTR=0.
  CHASOA=0.
  ASMPC=0.
  AMDCC=0.
  ATMOP=0.
  AMPPC=0.
  AMOPC=0.
  ASOPC=0.
  AMC2U=0.
  ASTRNC=0.
  ASTCCW=0.
  ASTRNO=0.
  ASDAC0=0.
  ASGRC1=0.0
  ASMSP=0.0
  ASMSPD=0.0
  ASMDS=0.0
  ASMDSD=0.0
  ATMFGM=0.0
  ATMCST=0.0
  ATMFGU=0.0
  DO 7 I=1,NSPM
     ATMMC(I)=0.0
7 AUMCP(I)=0.0
8 CONTINUE
  SFR1=0.0
  VEL1=0.0
  SUP1=0.0
  SVR1=0.0
  CEN1=0.0

...CALCULATE QUARTERLY INFORMATION ON MOVEMENTS AND COSTS
```

```
      DO 11 I=1,NT9
         WCL1P=0.0
         DO 9 J=1,NT9
    9    WCL1P=WCL1P+NCL1P(J)*PMM(J,I)
         CL1D1=IFIX(CQC1D(I)+0.5)
         IF (CL1D1.NE.0.0) WCL1P=WCL1P/(CL1D1*23.2558)
         IF (CL1D1.EQ.0.0) WCL1D=WCL1D/23.2558
         FRPS(I)=NRPR(I)-WCL1P
         AFRPS(I)=AFRPS(I)+FRPS(I)/4.
         ARPR(I)=ARPR(I)+NRPR(I)/4.

...PROCESSING CENTER REPORT

         IF (GRC1(I).EQ.0.0) TRANS0(I)=0.0
         IF (GRC1(I).NE.0.0) TRANS0(I)=TRANS0(I)/GRC1(I)
         IF (GRC1(I).EQ.0.0) DACL1T(I)=0.0
         IF (GRC1(I).NE.0.0) DACL1T(I)=DACL1T(I)/GRC1(I)
         XRS=PRCST(I)+DCST
         IF (IPCEF.EQ.1) XRS=CHGPRC(NYCNT)*(PRCST(I)+DCST)
         TCCWT(I)=TRMC(I)+DACL1T(I)+XRS
         IF (GRC1(I).EQ.0.0) TCCWT(I)=0.0
         UTCP(I)=0.0
         IF (CL1CP(I).NE.0.0) UTCP(I)=((GRC1(I)*(1.+CL1RR(I)))/CL1CP(I))
    1    *100.
         CL1UT(I)=0.0
         IF (PRREC(I).NE.0.0) CL1UT(I)=(PCL1(I)/PRREC(I))*100.
         AIAC1S(I,2)=AIAC1S(I,2)+CL1D1
         CL2D2=PRREC(I)-(TCL3(I)+PCL1(I))
         ACL2D(I,2)=ACL2D(I,2)+CL2D2
         ACL3D(I,2)=ACL3D(I,2)+TCL3(I)
         ATCCWT(I)=ATCCWT(I)+TCCWT(I)/4.
         AUTCP(I)=AUTCP(I)+UTCP(I)/4.
         ABLEND(I)=ABLEND(I)+BLEND(I,6)/4.
         ACL1P(I)=ACL1P(I)+NCL1P(I)/4.
         ACL1UT(I)=ACL1UT(I)+CL1UT(I)/4.
         APCL1(I,2)=APCL1(I,2)+PCL1(I)
         APRREC(I,2)=APRREC(I,2)+PRREC(I)

...PACKAGE MILK MOVEMENTS

         SMPC=SMPC+IACL1S(I)
         MOCC=MOCC+GRC1(I)-IACL1S(I)

... MILK MOVEMENTS FROM SUPPLY PLANTS

         IF (I.GT.NW.AND.I.LT.NT6) SSOPC=SSOPC+PRRS(I-NW)

... MILK MOVEMENTS FROM SUPPLY AREAS

         MPPC=MPPC+PRRD(I)
         MOPC=MOPC+SPOPD(I)
         IF (I.GT.NSA1) GO TO 10
         CEXP=CEXP+NRPR(I)*CL1D1*23.2558
         SUFRPS=SUFRPS+FRPS(I)*CL1D1*23.2558
         GO TO 11
   10    XGH=1.0
         IF (IHCEF.EQ.1) XGH=CHGHC(NYCNT)
         XPR=1.0
         IF (IPDEF.EQ.1) XPR=CHGPD(QCNT)
         XRDDC=BLEND(I,6)-XGH*(ERCST(I+NSP)+ACST)-PMCHG-XPR*RMPC(I+NSP)
```

```
      IF (BLEND(I,6).EQ.0.0) XRODC=0.0
      SUR1=SUR1+XRODC
      SPR1=SPR1+PRREC(I)
      VBL1=VBL1+PRREC(I)*BLEND(I,6)
      SUP1=SUP1+VP(I)
      CEX1=CEX1+NRPR(I)*CL1D1*23.2558
   11 CONTINUE
      DO 14 I=1,NSA1
      CHGIAC(I)=0.0
      CL1D1=IFIX(CGC1D(I)+0.5)
      IF (IACL1(I,QT-5).NE.0.0) CHGIAC(I)=((CL1D1-IACL1(I,QT-5))/IACL
     1  1(I,QT-5))*100.
```

...CONSUMPTION REPORT

```
      CL31=TPS0(I,QT-5)-(CL1Q(I,QT-5)+NCL2Q(I,QT-5))
      CL2D2=PRREC(I)-(TCL3(I)+PCL1(I))
      SCL2D=SCL2D+CL2D2
      SCL3Q=SCL3Q+TCL3(I)
      SCL1D=SCL1D+CL1D1
      STRMC=STRMC+TRMC(I)*GRC1(I)
      STCCWT=STCCWT+TCCWT(I)*GRC1(I)
```

...MILK PRODUCTION REPORT

```
      XGH=ERCST(I)+ACST
      IF (I.LE.NW) GO TO 12
      XGH=SPRC(I-NW)*ERCST(I+NSP)+(1.-SPRC(I-NW))*(ERCST(I)+ACST)
   12 IF (IHCEF.EQ.1) XGH=CHGHC(NYCNT)*XGH
      NFP(I)=BLEND(I,6)-XGH-PMCHG
      IF (BLEND(I,6).EQ.0.0) NFP(I)=0.0
      XPR=RMPC(I)
      IF (I.LE.NW) GO TO 13
      XPR=SPRC(I-NW)*RMPC(I+NSP)+(1.-SPRC(I-NW))*RMPC(I)
   13 IF (IPDEF.EQ.1) XPR=CHSPD(QCNT)*XPR
      RODC(I)=NFP(I)-XPR
      IF (BLEND(I,6).EQ.0.0) RODC(I)=0.0
```

...FEDERAL ORDER REPORT

```
      CHGCL0(I)=0.0
      IF (CL1Q(I,QT-5).GT.0.0) CHGCL0(I)=((PCL1(I)-CL1Q(I,QT-5))/CL1Q
     1  (I,QT-5))*100.
      CHGCL2(I)=0.0
      IF (NCL2Q(I,QT-5).GT.0.0) CHGCL2(I)=((CL2D2-NCL2Q(I,QT-5))/NCL2
     1  Q(I,QT-5))*100.
      CHGCL3(I)=0.0
      IF (CL31.GT.0.0) CHGCL3(I)=((TCL3(I)-CL31)/CL31)*100.
      CHGPRR(I)=0.0
      IF (TPSQ(I,QT-5).NE.0.0) CHGPRR(I)=((PRREC(I)-TPSQ(I,QT-5))/TPS
     1  Q(I,QT-5))*100.
```

...ADDITIONAL COMPUTATIONS REQUIRED FOR ANNUAL REPORT

```
      ATRMC(I)=ATRMC(I)+TRMC(I)/4.
      ATRANS(I)=ATRANS(I)+TRANSQ(I)/4.
      AQAC1T(I)=AQAC1T(I)+QACL1T(I)/4.
      ANFP(I)=ANFP(I)+NFP(I)/4.
      ARODC(I)=ARODC(I)+RODC(I)/4.
      AGRC1(I)=AGRC1(I)+GRC1(I)
```

```
...SUMMARY REPORT

      SOAC1T=SOAC1T+OACL1T(I)*GRC1(I)
      SPRREC=SPRREC+PRREC(I)
      SPCL1=SPCL1+PCL1(I)
      VBLEND=VBLEND+PRREC(I)*BLEND(I,6)
      SVP=SVP+VP(I)
      SVRODC=SVRODC+RODC(I)*PRREC(I)
      SGRC1=SGRC1+GRC1(I)
      SNFP=SNFP+PRREC(I)*NFP(I)
      STRNSR=STRNSR+TRANSO(I)*GRC1(I)
      IF (QT.NE.9) GO TO 14
      ACHGC2(I)=0.0
      IF (ACL2D(I,1).GT.0.0) ACHGC2(I)=((ACL2D(I,2)-ACL2D(I,1))/ACL2D
     1  (I,1))*100.
      ACHGC3(I)=0.0
      IF (ACL3Q(I,1).GT.0.0) ACHGC3(I)=((ACL3Q(I,2)-ACL3Q(I,1))/ACL3Q
     1  (I,1))*100.
      ACHGC1(I)=0.0
      IF (APCL1(I,1).GT.0.0) ACHGC1(I)=((APCL1(I,2)-APCL1(I,1))/APCL1
     1  (I,1))*100.0
      IF (APRREC(I,1).NE.0.0) ACHGPR(I)=((APRREC(I,2)-APRREC(I,1))/AP
     1  RREC(I,1))*100.
      IF (AIAC1S(I,1).NE.0.0) ACHIAC(I)=((AIAC1S(I,2)-AIAC1S(I,1))/AI
     1  AC1S(I,1))*100.
   14 CONTINUE
      ASGRC1=ASGRC1+SGRC1
      IF (SPRREC+SPR1.EQ.0.0) GO TO 15
      SVR1=(SVRODC+SVR1)/(SPRREC+SPR1)
      VBL1=(VBLEND+VBL1)/(SPRREC+SPR1)
      GO TO 16
   15 SVR1=0.0
      VBL1=0.0
   16 CEX1=CEX1+CEXP
      SVP1=SVP1+SVP

...MANUFACTURING MOVEMENTS AND CENTER REPORT

      SMFGU=SCL3Q
      DO 24 I=1,NT1
         II=I
         IF (I.GT.NSA1.AND.I.LT.NT6) II=I-NSP
         DO 17 J=1,NSMF
            IF (IDMG1(J).EQ.II) TMMC(J)=TMMC(J)+MMFG(I,J)

...ADDITIONAL COMPUTATIONS FOR REPORT WRITER

   17    CONTINUE
         DO 18 K=1,NDM
            IF (IDMG2(K).EQ.II) GO TO 19
   18    CONTINUE
         GO TO 21
   19    DO 20 L=1,NMMF
   20    TMMC(L+NSMF)=TMMC(L+NSMF)+MMFG(I,L)
   21 DO 24 J=1,NMFGT
         IF (I.LE.NSA1.OR.I.GT.NT) GO TO 22
         IF (I.GT.NSA1.AND.I.LT.NT6) GO TO 23
         GO TO 24
   22    IF (J.LT.NMFGT) SMDS=SMDS+MMFG(I,J)
```

```
      IF (J.EQ.NMFGT) SMDSD=SMDSD+MMFG(I,J)
      GO TO 24
   23 IF (J.LT.NMFGT) SMSP=SMSP+MMFG(I,J)
      IF (J.EQ.NMFGT) SMSPD=SMSPD+MMFG(I,J)
   24 CONTINUE
      DO 25 I=1,NTS
      DO 25 J=1,NSP
      IF ((I-NW).EQ.J) GO TO 25
      TMOP=TMOP+RMMS(J,I)
   25 CONTINUE
      TMFGM=SMDS+SMSP
      TMFGU=(TMFGM/TSMFC)*100.
      ATMFGM=ATMFGM+TMFGM
      ATMFGU=ATMFGU+TMFGU/4.
      DO 26 I=1,NSPM
      UMCP(I)=0.0
      IF (TMMC(I).LE.0.0) GO TO 25
      IF (I.LE.NSMF) UMCP(I)=(TMMC(I)/SMFC(I))*100.
      IF (I.GT.NSMF) UMCP(I)=(TMMC(I)/MMFC(I-NSMF))*100.
   26 CONTINUE
      DO 27 I=1,NSPM
      AUMCP(I)=AUMCP(I)+UMCP(I)/4.
      ATMMC(I)=ATMMC(I)+TMMC(I)
   27 CONTINUE
      IF (TSMFC.EQ.0.0) SMFGU=0.0
      IF (TSMFC.NE.0.0) SMFGU=(SMFGU/TSMFC)*100.
      IF (SGRC1.EQ.0.0) STRNSD=0.0
      IF (SGRC1.NE.0.0) STRNSD=STRNSR/SGRC1
      IF (SPRREC.EQ.0.0) SVRODC=0.0
      IF (SPRREC.NE.0.0) SVRODC=SVRODC/SPRREC
      IF (SGRC1.EQ.0.0) STRMC=0.0
      IF (SGRC1.NE.0.0) STRMC=STRMC/SGRC1
      IF (SGRC1.EQ.0.0) STCCWT=0.0
      IF (SGRC1.NE.0.0) STCCWT=STCCWT/SGRC1
      ASTRMC=ASTRMC+STRMC/4.
      ASTCCW=ASTCCW+STCCWT/4.
      IF (SCL1CP.EQ.0.0) SMUCP=0.0
      IF (SCL1CP.NE.0.0) SMUCP=(SGRC1/SCL1CP)*100.
      IF (SPRREC.EQ.0.0) SNFP=0.0
      IF (SPRREC.NE.0.0) SNFP=SNFP/SPRREC
      IF (SCL1D.EQ.0.0) WFRPS=0.0
      IF (SCL1D.NE.0.0) WFRPS=SVFRPS/(SCL1D*23.2558)
      IF (SGRC1.EQ.0.0) SOAC1D=0.0
      IF (SGRC1.NE.0.0) SOAC1D=SOAC1T/SGRC1
      IF (SPRREC.EQ.0.0) MCL1U=0.0
      IF (SPRREC.NE.0.0) MCL1U=(SPCL1/SPRREC)*100.
      IF (SPCL1.EQ.0.0) MCL1P=0.0
      IF (SPCL1.NE.0.0) MCL1P=SVCL1/SPCL1
      IF (SPRREC.EQ.0.0) MBLEND=0.0
      IF (SPRREC.NE.0.0) MBLEND=VBLEND/SPRREC
      IF (SCL1D.EQ.0.0) MRTLP=0.0
      IF (SCL1D.NE.0.0) MRTLP=CEXP/(SCL1D*23.2558)
      CMCL2=0.0
      IF (MCL2Q(QT-4).NE.0.0) CMCL2=((SCL2D-MCL2Q(QT-4))/MCL2Q(QT-4))*10
     10.
      CMCL3=0.0
      IF (MCL3Q(QT-4).NE.0.0) CMCL3=((SCL3D-MCL3Q(QT-4))/MCL3Q(QT-4))*10
     10.
      CIAC1=0.0
      IF (MIACL1(QT-5).NE.0.0) CIAC1=((SCL1D-MIACL1(QT-5))/MIACL1(QT-5))
```

```
1*100.
 CSPREC=0.0
 IF (MTPSQ(QT-4).NE.0.0) CSPREC=((SPRREC-MTPSQ(QT-4))/MTPSQ(QT-4))*
1100.
 CSPCL1=0.0
 IF (MCL1Q(QT-4).NE.0.0) CSPCL1=((SPCL1-MCL1Q(QT-4))/MCL1Q(QT-4))*1
100.
 CMCL1U=0.0
 IF (BMCL1U(QT-4).NE.0.0) CMCL1U=((MCL1U-BMCL1U(QT-4))/BMCL1U(QT-4)
1)*100.
 CMCL1P=0.0
 IF (BMCL1P(QT-4).NE.0.0) CMCL1P=((MCL1P-BMCL1P(QT-4))/BMCL1P(QT-4)
1)*100.
 CCL2P=0.0
 IF (BNCL2P(QT-4).NE.0.0) CCL2P=((NCL2P-BNCL2P(QT-4))/BNCL2P(QT-4))
1*100.
 CCL3P=0.0
 IF (BNCL3P(QT-4).NE.0.0) CCL3P=((NCL3P-BNCL3P(QT-4))/BNCL3P(QT-4))
1*100.
 CMBLEN=0.0
 IF (BMBLEN(QT-4).NE.0.0) CMBLEN=((MBLEND-BMBLEN(QT-4))/BMBLEN(QT-4
1))*100.
 CSVP=0.0
 IF (BSVP(QT-4).NE.0.0) CSVP=((SVP-BSVP(QT-4))/BSVP(QT-4))*100.
 CSNFP=0.0
 IF (BSNFP(QT-4).NE.0.0) CSNFP=((SNFP-BSNFP(QT-4))/BSNFP(QT-4))*100
1.
 CSVROD=0.0
 IF (BSVROD(QT-4).NE.0.0) CSVROD=((SVRODC-BSVROD(QT-4))/BSVROD(QT-4
1))*100.
 CSVFRP=0.0
 IF (BSVFRP(QT-4).NE.0.0) CSVFRP=((SVFRPS-BSVFRP(QT-4))/BSVFRP(QT-4
1))*100.
 CCEXP=0.0
 IF (BCEXP(QT-4).NE.0.0) CCEXP=((CEXP-BCEXP(QT-4))/BCEXP(QT-4))*100
1.
 CMRTLP=0.0
 IF (BMRTLP(QT-4).NE.0.0) CMRTLP=((MRTLP-BMRTLP(QT-4))/BMRTLP(QT-4)
1)*100.
 CWFRPS=0.0
 IF (BWFRPS(QT-4).NE.0.0) CWFRPS=((WFRPS-BWFRPS(QT-4))/BWFRPS(QT-4)
1)*100.
 CMUCP=0.0
 IF (BSMUCP(QT-4).NE.0.0) CMUCP=((SMUCP-BSMUCP(QT-4))/BSMUCP(QT-4))
1*100.
 CSMFGU=0.0
 IF (BSMFGU(QT-4).NE.0.0) CSMFGU=((SMFGU-BSMFGU(QT-4))/BSMFGU(QT-4)
1)*100.
 IF (QCNT.LE.4) GO TO 28
 CSTRNS=0.0
 IF (BSTRNS(QT-4).NE.0.0) CSTRNS=((STRNSR-BSTRNS(QT-4))/BSTRNS(QT-4
1))*100.
 CSOAC1=0.0
 IF (BSOAC1(QT-4).NE.0.0) CSOAC1=((SOAC1T-BSOAC1(QT-4))/BSOAC1(QT-4
1))*100.
28 CONTINUE
 XCSPRC=SPRREC-MTPSQ(QT-4)
 XCSPC1=SPCL1-MIACL1(QT-5)
 XCMC2=SCL2D-MCL2Q(QT-4)
 XCMC3=SCL3Q-MCL3Q(QT-4)
```

```
      IF (J.EQ.NMFGT) SMDSD=SMDSD+MMFG(I,J)
      GO TO 24
   23 IF (J.LT.NMFGT) SMSP=SMSP+MMFG(I,J)
      IF (J.EQ.NMFGT) SMSPD=SMSPD+MMFG(I,J)
   24 CONTINUE
      DO 25 I=1,NTS
      DO 25 J=1,NSP
      IF ((I-NW).EQ.J) GO TO 25
      TMOP=TMOP+RMMS(J,I)
   25 CONTINUE
      TMFGM=SMDS+SMSP
      TMFGU=(TMFGM/TSMFC)*100.
      ATMFGM=ATMFGM+TMFGM
      ATMFGU=ATMFGU+TMFGU/4.
      DO 26 I=1,NSPM
      UMCP(I)=0.0
      IF (TMMC(I).LE.0.0) GO TO 26
      IF (I.LE.NSMF) UMCP(I)=(TMMC(I)/SMFC(I))*100.
      IF (I.GT.NSMF) UMCP(I)=(TMMC(I)/MMFC(I-NSMF))*100.
   26 CONTINUE
      DO 27 I=1,NSPM
      AUMCP(I)=AUMCP(I)+UMCP(I)/4.
      ATMMC(I)=ATMMC(I)+TMMC(I)
   27 CONTINUE
      IF (TSMFC.EQ.0.0) SMFGU=0.0
      IF (TSMFC.NE.0.0) SMFGU=(SMFGU/TSMFC)*100.
      IF (SGRC1.EQ.0.0) STRNSD=0.0
      IF (SGRC1.NE.0.0) STRNSD=STRNSR/SGRC1
      IF (SPRREC.EQ.0.0) SURODC=0.0
      IF (SPRREC.NE.0.0) SURODC=SURODC/SPRREC
      IF (SGRC1.EQ.0.0) STRMC=0.0
      IF (SGRC1.NE.0.0) STRMC=STRMC/SGRC1
      IF (SGRC1.EQ.0.0) STCCWT=0.0
      IF (SGRC1.NE.0.0) STCCWT=STCCWT/SGRC1
      ASTRMC=ASTRMC+STRMC/4.
      ASTCCW=ASTCCW+STCCWT/4.
      IF (SCL1CP.EQ.0.0) SMUCP=0.0
      IF (SCL1CP.NE.0.0) SMUCP=(SGRC1/SCL1CP)*100.
      IF (SPRREC.EQ.0.0) SNFP=0.0
      IF (SPRREC.NE.0.0) SNFP=SNFP/SPRREC
      IF (SCL1D.EQ.0.0) WFRPS=0.0
      IF (SCL1D.NE.0.0) WFRPS=SVFRPS/(SCL1D*23.2558)
      IF (SGRC1.EQ.0.0) SOAC1D=0.0
      IF (SGRC1.NE.0.0) SOAC1D=SOAC1T/SGRC1
      IF (SPRREC.EQ.0.0) MCL1U=0.0
      IF (SPRREC.NE.0.0) MCL1U=(SPCL1/SPRREC)*100.
      IF (SPCL1.EQ.0.0) MCL1P=0.0
      IF (SPCL1.NE.0.0) MCL1P=SVCL1/SPCL1
      IF (SPRREC.EQ.0.0) MBLEND=0.0
      IF (SPRREC.NE.0.0) MBLEND=VBLEND/SPRREC
      IF (SCL1D.EQ.0.0) MRTLP=0.0
      IF (SCL1D.NE.0.0) MRTLP=CEXP/(SCL1D*23.2558)
      CMCL2=0.0
      IF (MCL2Q(QT-4).NE.0.0) CMCL2=((SCL2D-MCL2Q(QT-4))/MCL2Q(QT-4))*10
     10.
      CMCL3=0.0
      IF (MCL3Q(QT-4).NE.0.0) CMCL3=((SCL3D-MCL3Q(QT-4))/MCL3Q(QT-4))*10
     10.
      CIAC1=0.0
      IF (MIACL1(QT-5).NE.0.0) CIAC1=((SCL1D-MIACL1(QT-5))/MIACL1(QT-5))
```

```
1*100.
 CSPREC=0.0
 IF (MTPSQ(QT-4).NE.0.0) CSPREC=((SPRREC-MTPSQ(QT-4))/MTPSQ(QT-4))*
1100.
 CSPCL1=0.0
 IF (MCL1Q(QT-4).NE.0.0) CSPCL1=((SPCL1-MCL1Q(QT-4))/MCL1Q(QT-4))*1
100.
 CMCL1U=0.0
 IF (BMCL1U(QT-4).NE.0.0) CMCL1U=((MCL1U-BMCL1U(QT-4))/BMCL1U(QT-4)
1)*100.
 CMCL1P=0.0
 IF (BMCL1P(QT-4).NE.0.0) CMCL1P=((MCL1P-BMCL1P(QT-4))/BMCL1P(QT-4)
1)*100.
 CCL2P=0.0
 IF (BNCL2P(QT-4).NE.0.0) CCL2P=((NCL2P-BNCL2P(QT-4))/BNCL2P(QT-4))
1*100.
 CCL3P=0.0
 IF (BNCL3P(QT-4).NE.0.0) CCL3P=((NCL3P-BNCL3P(QT-4))/BNCL3P(QT-4))
1*100.
 CMBLEN=0.0
 IF (BMBLEN(QT-4).NE.0.0) CMBLEN=((MBLEND-BMBLEN(QT-4))/BMBLEN(QT-4
1))*100.
 CSVP=0.0
 IF (BSVP(QT-4).NE.0.0) CSVP=((SVP-BSVP(QT-4))/BSVP(QT-4))*100.
 CSNFP=0.0
 IF (BSNFP(QT-4).NE.0.0) CSNFP=((SNFP-BSNFP(QT-4))/BSNFP(QT-4))*100
1.
 CSVROD=0.0
 IF (BSVROD(QT-4).NE.0.0) CSVROD=((SVRODC-BSVROD(QT-4))/BSVROD(QT-4
1))*100.
 CSVFRP=0.0
 IF (BSVFRP(QT-4).NE.0.0) CSVFRP=((SVFRPS-BSVFRP(QT-4))/BSVFRP(QT-4
1))*100.
 CCEXP=0.0
 IF (BCEXP(QT-4).NE.0.0) CCEXP=((CEXP-BCEXP(QT-4))/BCEXP(QT-4))*100
1.
 CMRTLP=0.0
 IF (BMRTLP(QT-4).NE.0.0) CMRTLP=((MRTLP-BMRTLP(QT-4))/BMRTLP(QT-4)
1)*100.
 CWFRPS=0.0
 IF (BWFRPS(QT-4).NE.0.0) CWFRPS=((WFRPS-BWFRPS(QT-4))/BWFRPS(QT-4)
1)*100.
 CMUCP=0.0
 IF (BSMUCP(QT-4).NE.0.0) CMUCP=((SMUCP-BSMUCP(QT-4))/BSMUCP(QT-4))
1*100.
 CSMFGU=0.0
 IF (BSMFGU(QT-4).NE.0.0) CSMFGU=((SMFGU-BSMFGU(QT-4))/BSMFGU(QT-4)
1)*100.
 IF (QCNT.LE.4) GO TO 28
 CSTRNS=0.0
 IF (BSTRNS(QT-4).NE.0.0) CSTRNS=((STRNSR-BSTRNS(QT-4))/BSTRNS(QT-4
1))*100.
 CSOAC1=0.0
 IF (BSOAC1(QT-4).NE.0.0) CSOAC1=((SOAC1T-BSOAC1(QT-4))/BSOAC1(QT-4
1))*100.
28 CONTINUE
 XCSPRC=SPRREC-MTPSQ(QT-4)
 XCSPC1=SPCL1-MIACL1(QT-5)
 XCMC2=SCL2D-MCL2Q(QT-4)
 XCMC3=SCL3D-MCL3Q(QT-4)
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      XCMC1U=MCL1U-BMCL1U(QT-4)
      XCMC1P=MCL1P-BMCL1P(QT-4)
      XCHC2P=MCL2P-BMCL2P(QT-4)
      XCHC3P=MCL3P-BMCL3P(QT-4)
      XCMMB=MBLEND-BMBLEN(QT-4)
      XCSUP=SUP-BSUP(QT-4)
      XCMFP=SMFP-BSMFP(QT-4)
      XCRDC=SURODC-BSURDD(QT-4)
      XCFRP=SUFRPS-BSUFRP(QT-4)
      XCEXP=CEXP-BCEXP(QT-4)
      XCMRTP=MRTLP-BMRTLP(QT-4)
      XCWFR=WFRPS-BWFRPS(QT-4)
      XCUCP=SMUCP-BSMUCP(QT-4)
      XCMFU=SMFGU-BSMFGU(QT-4)
      IF (QCNT.LE.4) GO TO 29
      XCTRNS=STRNSR-BSTRNS(QT-4)
      XCSOA=SOAC1T-BSOAC1(QT-4)
   29 CONTINUE
      ATMCST=ATMCST+TMCST
      ASIAC1(2)=ASIAC1(2)+SCL1D
      ASPRRC(2)=ASPRRC(2)+SPRREC
      ASPCL1(2)=ASPCL1(2)+SPCL1
      ASCL2D(2)=ASCL2D(2)+SCL2D
      ASCL3D(2)=ASCL3D(2)+SCL3D
      ASMFP(2)=ASMFP(2)+SMFP/4.
      AWFRPS(2)=AWFRPS(2)+WFRPS/4.
      ASMFGU(2)=ASMFGU(2)+SMFGU/4.
      ASTRNS(2)=ASTRNS(2)+STRNSR
      ASTRND=ASTRND+STRNSD/4.
      ASOAC1(2)=ASOAC1(2)+SOAC1T
      ASOACD=ASOACD+SOAC1D/4.
      AMUCP(2)=AMUCP(2)+SMUCP/4.
      AMC1U(2)=AMC1U(2)+MCL1U/4.
      AMC1P(2)=AMC1P(2)+MCL1P/4.
      AMBLND(2)=AMBLND(2)+MBLEND/4.
      AVP(2)=AVP(2)+SVP
      ASRODC(2)=ASRODC(2)+SURODC/4.
      ASFRPS(2)=ASFRPS(2)+SUFRPS
      ACEXP(2)=ACEXP(2)+CEXP
      AMRTL(2)=AMRTL(2)+MRTLP/4.
      AMC2P(2)=AMC2P(2)+MCL2P/4.
      AMC3P(2)=AMC3P(2)+MCL3P/4.
      AMC2D=AMC2D+SMC2D
      IF (QT.NE.9) GO TO 32
      CHASCD=0.0
      IF (AMC1U(1).NE.0.0) CHASCD=((AMC1U(2)-AMC1U(1))/AMC1U(1))*100.
      CHAMC1=0.0
      IF (AMC1P(1).NE.0.0) CHAMC1=((AMC1P(2)-AMC1P(1))/AMC1P(1))*100.
      CHAMC2=0.0
      IF (AMC2P(1).NE.0.0) CHAMC2=((AMC2P(2)-AMC2P(1))/AMC2P(1))*100.
      CHAMC3=0.0
      IF (AMC3P(1).NE.0.0) CHAMC3=((AMC3P(2)-AMC3P(1))/AMC3P(1))*100.
      CHABLN=0.0
      IF (AMBLND(1).NE.0.0) CHABLN=((AMBLND(2)-AMBLND(1))/AMBLND(1))*100
     1.
      CHAUP=0.0
      IF (AUP(1).NE.0.0) CHAUP=((AUP(2)-AUP(1))/AUP(1))*100.
      CHASMF=0.0
      IF (ASMFP(1).NE.0.0) CHASMF=((ASMFP(2)-ASMFP(1))/ASMFP(1))*100.
      CHASRD=0.0
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      IF (ASRODC(1).NE.0.0) CHASRD=((ASRODC(2)-ASRODC(1))/ASRODC(1))*100
     1.
      CHASFG=0.0
      IF (ASMFGU(1).NE.0.0) CHASFG=((ASMFGU(2)-ASMFGU(1))/ASMFGU(1))*100
     1.
      CHAFRP=0.0
      IF (ASFRPS(1).NE.0.0) CHAFRP=((ASFRPS(2)-ASFRPS(1))/ASFRPS(1))*100
     1.
      CHACEX=0.0
      IF (ACEXP(1).NE.0.0) CHACEX=((ACEXP(2)-ACEXP(1))/ACEXP(1))*100.
      CHAMRT=0.0
      IF (AMRTL(1).NE.0.0) CHAMRT=((AMRTL(2)-AMRTL(1))/AMRTL(1))*100.
      CHAWRP=0.0
      IF (AWFRPS(1).NE.0.0) CHAWRP=((AWFRPS(2)-AWFRPS(1))/AWFRPS(1))*100
     1.
      CHAUCP=0.0
      IF (AMUCP(1).NE.0.0) CHAUCP=((AMUCP(2)-AMUCP(1))/AMUCP(1))*100.
      IF (QCNT.LE.4) GO TO 30
      CHASTR=0.0
      IF (ASTRNS(1).NE.0.0) CHASTR=((ASTRNS(2)-ASTRNS(1))/ASTRNS(1))*100
     1.
      CHASOA=0.0
      IF (ASOAC1(1).NE.0.0) CHASOA=((ASOAC1(2)-ASOAC1(1))/ASOAC1(1))*100
     1.
   30 CONTINUE
      XCHAPR=ASPRRC(2)-ASPRRC(1)
      XCHAPC=ASIAC1(2)-ASIAC1(1)
      XCHAC2=ASCL2D(2)-ASCL2D(1)
      XCHAC3=ASCL3Q(2)-ASCL3Q(1)
      XCHAU=AMC1U(2)-AMC1U(1)
      XCHAC1=AMC1P(2)-AMC1P(1)
      XCHA2=AMC2P(2)-AMC2P(1)
      XCHA3=AMC3P(2)-AMC3P(1)
      XCHABL=AMBLND(2)-AMBLND(1)
      XCHAUP=AUP(2)-AUP(1)
      XCHANF=ASNFP(2)-ASNFP(1)
      XCHARD=ASRODC(2)-ASRODC(1)
      XCHAFR=ASFRPS(2)-ASFRPS(1)
      XCHACE=ACEXP(2)-ACEXP(1)
      XCHAMR=AMRTL(2)-AMRTL(1)
      XCHAWF=AWFRPS(2)-AWFRPS(1)
      XCHACP=AMUCP(2)-AMUCP(1)
      XCHAGU=ASMFGU(2)-ASMFGU(1)
      IF (QCNT.LE.4) GO TO 31
      XCHATR=ASTRNS(2)-ASTRNS(1)
      XCHASO=ASOAC1(2)-ASOAC1(1)
   31 CONTINUE
      CHASPR=0.0
      IF (ASPRRC(1).NE.0.0) CHASPR=((ASPRRC(2)-ASPRRC(1))/ASPRRC(1))*100
     1.
      CHASPC=0.0
      IF (ASPCL1(1).NE.0.0) CHASPC=((ASPCL1(2)-ASPCL1(1))/ASPCL1(1))*100
     1.
      CHASC1=0.0
      IF (ASIAC1(1).NE.0.0) CHASC1=((ASIAC1(2)-ASIAC1(1))/ASIAC1(1))*100
     1.
      CHASC2=0.0
      IF (ASCL2D(1).NE.0.0) CHASC2=((ASCL2D(2)-ASCL2D(1))/ASCL2D(1))*100
     1.
      CHASC3=0.0
```

```
      IF (ASCL3Q(1).NE.0.0) CHASC3=((ASCL3Q(2)-ASCL3Q(1))/ASCL3Q(1))*100
     1.
   32 CONTINUE

...SUM INDIVIDUAL MOVEMENTS FOR ANNUAL REPORT

      DO 33 I=1,NT9
      DO 33 J=1,NT9
         ARMMD(I,J)=ARMMD(I,J)+RMMD(I,J)
         APMM(I,J)=APMM(I,J)+PMM(I,J)
         IF (I.GT.NSP) GO TO 33
         ARMMS(I,J)=ARMMS(I,J)+RMMS(I,J)
   33 CONTINUE
      DO 36 I=1,NT1
      DO 36 J=1,NT10
         IF (I.LE.NSA1.OR.I.GT.NT) GO TO 34
         IF (I.GT.NSA1.AND.I.LT.NT6) GO TO 35
         GO TO 36
   34    IF (J.LT.NMFGT) ASMDS=ASMDS+MMFG(I,J)
         IF (J.EQ.NMFGT) ASMDSD=ASMDSD+MMFG(I,J)
         GO TO 36
   35    IF (J.LT.NMFGT) ASMSP=ASMSP+MMFG(I,J)
         IF (J.EQ.NMFGT) ASMSPD=ASMSPD+MMFG(I,J)
   36 AMMFG(I,J)=AMMFG(I,J)+MMFG(I,J)
      ASOPC=ASOPC+SSOPC
      ATMOP=ATMOP+TMOP
      AMPPC=AMPPC+MPPC
      AMOPC=AMOPC+MOPC
      ASMPC=ASMPC+SMPC
      AMOCC=AMOCC+MOCC
      DO 37 I=1,NT9
   37 PCL2(I)=PRREC(I)-(TCL3(I)+PCL1(I))

      REWIND OP6
      WRITE (OP6) WORK3
      CALL TCOST

...WRITE TO GRADE B REPORT WRITER - DRW2

      IF (ISTATE.NE.0) WRITE (OP8) SVP1,SVR1,VBL1,CEX1,NCL3P

      REWIND OP6
      READ (OP6) WORK3

      TIME3=START3-CTIME(T1)
...STORE QUARTERLY DATA FOR VARIABLES TO BE USED IN COMPARATIVE
   REPORTS IN WORK1 ARRAY

      IF (NIC.NE.0) CALL QSET (QT,NYCNT,NIC,ICR,NT9,PRREC,PCL1,PCL2,TCL3
     1,CL1UT,NCL1P,BLEND(1,6),UTCP,TCCWT,CGC1D,SPACE1,NT9)

...STORE QUARTERLY DATA TO BE USED IN COMPARATIVE SUMMARY REPORTS

      WRITE (OP2) SPRREC,SPCL1,SCL2D,SCL3Q,MCL1U,MCL1P,NCL2P,NCL3P,MBLEN
     1D,SVP,SNFP,SVRODC,SUFRPS,CEXP,MRTLP,WFRPS,SMUCP,SMFGU,STRNSR,SFPCS
     2T,DTCST,DFPCST,SOAC1T,TMCST,TRMPC

      N1=25+(NYCNT-1)*25+(QT-6)*150
      REWIND OP2
      READ (OP2) (SPACE1(N1+IJK),IJK=1,25)
```

```
      REWIND OP2

      START7=CTIME(T1)

...PRINT QUARTERLY REPORT IF REQUESTED

      IF (QR(QCNT).LT.1) GO TO 40
      IF (QR(QCNT).EQ.3) GO TO 39

...MERGED ORDER REPORT

      IF (IMR.LE.0) GO TO 38
      WRITE (OP1) (PRRECM(I),PRRECM(I+10),BLNDMR(I+10),BLNDMR(I),I=1,IMR
     1)

...SUMMARY REPORT

   38 WRITE (OP1) QT,NYRBC,SPRREC,XCSPRC,CSPREC,SPCL1,XCSPC1,CIAC1,SCL2D
      1,XCMC2,CMCL2,SCL3G,XCMC3,CMCL3,MCL1U,XCMC1U,CMCL1U,MCL1P,XCMC1P,CM
      2CL1P,NCL2P,XCHC2P,CCL2P,NCL3P,XCHC3P,CCL3P,MBLEND,XCHMB,CMBLEN,SVP
      3,XCSVP,CSVP,SNFP,XCNFP,CSNFP,SVRODC,XCRDC,CSVROD,SVFRPS,XCFRP,CSVF
      4RP,CEXP,XCEXP,CCEXP,MRTLP,XCMRTP,CMRTLP,WFRPS,XCWFR,CWFRPS,SMUCP,X
      5CUCP,CMUCP,SMFGU,XCMFU,CSMFGU,STRNSR,XCTRNS,CSTRNS,SOAC1T,XCSOA,CS
      6OAC1
      IF (QR(QCNT).EQ.4) GO TO 40

...FEDERAL ORDER REPORT

      WRITE (OP1) (PRREC(IR(I)),CHGPRR(IR(I)),CL1UT(IR(I)),NCL1P(IR(I)),
     1NCL2P,NCL3P,BLEND(IR(I),6),I=1,NSA1),SPRREC,CSPREC,MCL1U,MCL1P,NCL
     22P,NCL3P,MBLEND
      WRITE (OP1) (PCL1(IR(I)),CHGCL0(IR(I)),PCL2(IR(I)),CHGCL2(IR(I)),T
     1CL3(IR(I)),CHGCL3(IR(I)),I=1,NSA1),SPCL1,SCL2D,SCL3G,CSPCL1,CMCL2,
     2CMCL3,SMC2G

...MILK PRODUCTION REPORT

      WRITE (OP1) (PRREC(IR(I)),CHGPRR(IR(I)),BLEND(IR(I),6),NFP(IR(I)),
     1RODC(IR(I)),I=1,NSA1),SPRREC,CSPREC,MBLEND,SNFP,SVRODC

...PROCESSING CENTER REPORT

      WRITE (OP1) (GRC1(IR(I)),UTCP(IR(I)),TRMC(IR(I)),TRANSO(IR(I)),DAC
     1L1T(IR(I)),TCCWT(IR(I)),I=1,NSA1),SMUCP,STRMC,STRNSD,SOAC1D,STCCWT
     2,SGRC1


...MANUFACTURING CENTER REPORT

      WRITE (OP1) (TMMC(I),UMCP(I),I=1,NSPM),TMFGM,TMFGU


...CONSUMPTION REPORT

      WRITE (OP1) (COC1D(IR(I)),CHGIAC(IR(I)),NRPR(IR(I)),FRPS(IR(I)),I=
     11,NSA1),SCL1D,CIAC1,MRTLP,WFRPS
      IF (QR(QCNT).GT.1) GO TO 40


... MILK MOVEMENTS TO PROCESSING CENTERS FROM DIRECT SHIPPERS
```

```
 39 WRITE (OP1) ((RMMD(IRR(I),IRR(J)),J=1,NT9),I=1,NT9),MPPC,MOPC

...MILK MOVEMENTS TO PROCESSING CENTERS FROM SUPPLY PLANTS

     WRITE (OP1) ((RMMS(I,IRR(J)),J=1,NT9),I=1,NSP),SSOPC,TMOP

...MILK MOVEMENTS TO MANUFACTURING CENTERS FROM DIRECT SHIPPERS

     WRITE (OP1) ((MMFG(I,J),J=1,NT10),I=1,NSA1),((MMFG(I,J),J=1,NT10),
    1I=NTS,NT1),SMDS,SMDSD

...MILK MOVEMENTS TO MANUFACTURING CENTERS FROM SUPPLY PLANTS

     WRITE (OP1) ((MMFG(I+NSA1,J),J=1,NT10),I=1,NSP),SMSP,SMSPD

...PACKAGED MILK MOVEMENTS

     WRITE (OP1) ((PMM(IRR(I),IRR(J)),J=1,NT9),I=1,NT9),SMPC,MOCC
 40 CONTINUE

...NEW DATA FOR NEXT SOLUTION

     TIME7=START7-CTIME(T1)

     IF (QCNT.EQ.NQ) GO TO 42

     DO 41 I=1,NT9
        IF (ISUP1.NE.1.AND.ISUP7.LT.1) NCL1P(I)=CL1P(I,1)+CHGCL1(I)*FLO
    1   AT(QCNT)
        IF (ISUP7.GE.1) NCL1P(I)=QCL1P(I,QCNT+1)
        IF (ISUP1.EQ.1.AND.ISUP7.LT.1) NCL1P(I)=(1.+FLOAT(QCNT)*CHGCL1(
    1   I))*CL1P(I,1)
        IF (NCL1P(I).LT.0.0) NCL1P(I)=0.0
        IF (I.LE.NW.OR.I.GT.NSA1) GO TO 41
        IF (ISUP1.NE.1.AND.ISUP7.LT.1) CL1SP(I-NW)=CL1P(I-NW,2)+CHGCL1(
    1   I)*FLOAT(QCNT)
        IF (ISUP7.GE.1) CL1SP(I-NW)=QCL1P(I,QCNT+1)
        IF (ISUP1.EQ.1.AND.ISUP7.LT.1) CL1SP(I-NW)=(1.+FLOAT(QCNT)*CHGC
    1   L1(I))*CL1P(I-NW,2)
        IF (CL1SP(I-NW).LT.0.0) CL1SP(I-NW)=0.0
 41 CONTINUE
 42 CONTINUE

...REINITIALIZE DATA BASE WITH CURRENT QUARTER DATA

     SUMXX=0.0
     SUMCP=0.0

     DO 45 I=1,NT9
        QSPL1(I)=CQTSP(I)
        IABCD=IFIX(CQTSP(I)+0.5)
        XX=PRREC(I)-FLOAT(IABCD)
        IF (I.LE.NW.OR.I.GT.NSA1) GO TO 43
        X1=IFIX((1.0-SPRC(I-NW))*CQTSP(I)+0.5)
        X2=IFIX(SPRC(I-NW)*CQTSP(I)+0.5)
        SPRC(I-NW)=X2/PRREC(I)
```

```
      XX=PRREC(I)-(X1+X2)
43    CONTINUE

      SUMXX=SUMXX+XX

      IF (BTPSQ(I,QT-5).GT.0.0) CPRCHG(I)=CPRCHG(I)+XX/BTPSQ(I,QT-5)
      IF (BTPSQ(I,QT-5).EQ.0.0.AND.PRREC(I).GT.0.0) BTPSQ(I,QT-4)=PRR
     1EC(I)

      SUMCP=SUMCP+CPRCHG(I)

      IACL1(I,QT-5)=CQC1D(I)
      TPSQ(I,QT-5)=PRREC(I)
      CL1Q(I,QT-5)=PCL1(I)
      NCL2Q(I,QT-5)=PRREC(I)-(TCL3(I)+PCL1(I))
      BLEND(I,5)=0.0
      XPR1=0.0
      XPR=RMPC(I)
      IF (I.GT.NSA1) XPR=RMPC(I+NSP)
      IF (I.LE.NW.OR.I.GT.NSA1) GO TO 44
      XPR=SPRC(I-NW)*RMPC(I+NSP)+(1.-SPRC(I-NW))*RMPC(I)
44    IF (IPDEF.EQ.1) XPR1=CHGPD(QCNT)*XPR-XPR
      IF (BLEND(I,6).GT.XPR1) BLEND(I,5)=BLEND(I,6)-XPR1
      IF (PRREC(I).EQ.0.0.OR.BLEND(I,5).EQ.0.0) CPRCHG(I)=0.0
45 CONTINUE

   MTPSQ(QT-4)=SPRREC
   MCL1Q(QT-4)=SPCL1
   MIACL1(QT-5)=SCL1D
   MCL2Q(QT-4)=SCL2D
   MCL3Q(QT-4)=SCL3Q
   BMCL1U(QT-4)=MCL1U
   BMCL1P(QT-4)=MCL1P
   BNCL2P(QT-4)=NCL2P
   BNCL3P(QT-4)=NCL3P
   BMBLEN(QT-4)=MBLEND
   BSUP(QT-4)=SUP
   BSNFP(QT-4)=SNFP
   BSUROD(QT-4)=SURODC
   BSUFRP(QT-4)=SUFRPS
   BCEXP(QT-4)=CEXP
   BMRTLP(QT-4)=MRTLP
   BWFRPS(QT-4)=WFRPS
   BSMUCP(QT-4)=SMUCP
   BSMFGU(QT-4)=SMFGU
   BSTRNS(QT-4)=STRNSR
   BSOAC1(QT-4)=SOAC1T

...CALCULATE NEW CLASS 2 , CLASS 3 PRICES

      XYN=OCST2
      IF (IPCEF.EQ.1) XYN=CHGPRC(NYCNT)*OCST2
      XCL2P=C2MGN*(NCL2P+XYN)
      IF (ISUP1.EQ.1) NCL2P=(1.+FLOAT(QCNT)*CHGCL4)*XBP
      IF (ISUP1.EQ.1) NCL3P=(1.+FLOAT(QCNT)*CHGCL5)*XBP3
      IF (ISUP1.NE.1.AND.ISUP7.NE.1.AND.ISUP7.NE.3) NCL2P=XBP+CHGCL4*FLO
     1AT(QCNT)
      IF (ISUP1.NE.1.AND.ISUP7.NE.1.AND.ISUP7.NE.3) NCL3P=XBP3+CHGCL5*FL
     1OAT(QCNT)
      IF (ISUP7.EQ.1.OR.ISUP7.EQ.3) NCL2P=OCL2P(QCNT+1)
```

```
      IF (ISUP7.EQ.1.OR.ISUP7.EQ.3) NCL3P=QCL3P(QCNT+1)
      IF (NCL2P.LT.0.0) NCL2P=0.0
      IF (NCL3P.LT.0.0) NCL3P=0.0

...INCREMENT QUARTER COUNTERS

      QCNT=QCNT+1
      QCNT1=QCNT
      QT=QT+1
      IF (QT.NE.10) GO TO 50

...STORE DATA (ANNUAL) FOR VARIABLES TO BE USED IN COMPARATIVE
   REPORTS IN WORK1 ARRAY

       IF (NIC.NE.0) CALL OSET (QT,NYCNT,NIC,ICR,NTS,AFRREC(1,2),APCL1(1,
      12),ACL2D(1,2),ACL3Q(1,2),ACL1UT,ACL1P,ABLEND,AUTCP,ATCCWT,AIAC1S(1
      2,2),SPACE1,NTS)

...STORE (ANNUAL) DATA TO BE USED IN COMPARATIVE SUMMARY REPORTS

       WRITE (OP2) ASPRRC(2),ASPCL1(2),ASCL2D(2),ASCL3Q(2),AMC1U(2),AMC1P
      1(2),AMC2P(2),AMC3P(2),AMBLND(2),AVP(2),ASNFP(2),ASRODC(2),ASFRPS(2
      2),ACEXP(2),AMRTL(2),AWFRPS(2),AMUCP(2),ASMFGU(2),ASTRNS(2),ASFPCS,
      3ADTCST,ADFPCS,ASOAC1(2),ATMCST,ATRMPC
       REWIND OP2
       N1=N1+150
       READ (OP2) (SPACE1(N1+IJK),IJK=1,25)
       REWIND OP2

...PRINT ANNUAL REPORT IF REQUESTED

      IF (MR(NYRBC-NYBASE).LT.1) GO TO 48
      IF (MR(NYRBC-NYBASE).EQ.3) GO TO 47

...MERGED ORDER REPORT

       IF (IMR.LE.0) GO TO 46
       WRITE (OP1) (PRECAM(I),VPAMRG(I),BLAMR(I+10),BLAMR(I),I=1,IMR)

...SUMMARY REPORT

  46 WRITE (OP1) NYRBC,ASPRRC(2),XCHAPR,CHASPR,ASPCL1(2),XCHAPC,CHASC1,
     1ASCL2D(2),XCHAC2,CHASC2,ASCL3Q(2),XCHAC3,CHASC3,AMC1U(2),XCHAU,CHA
     2SC0,AMC1P(2),XCHAC1,CHAMC1,AMC2P(2),XCHA2,CHAMC2,AMC3P(2),XCHA3,CH
     3AMC3,AMBLND(2),XCHABL,CHABLN,AVP(2),XCHAVP,CHAVP,ASNFP(2),XCHANF,C
     4HASNF,ASRODC(2),XCHARD,CHASRD,ASFRPS(2),XCHAFR,CHAFRP,ACEXP(2),XCH
     5ACE,CHACEX,AMRTL(2),XCHAMR,CHAMRT,AWFRPS(2),XCHAWF,CHAWRP,AMUCP(2)
     6,XCHACP,CHAUCP,ASMFGU(2),XCHAGU,CHASFG,ASTRNS(2),XCHATR,CHASTR,ASO
     7AC1(2),XCHASO,CHASOA
       IF (MR(NYRBC-NYBASE).EQ.4) GO TO 48

...FEDERAL ORDER REPORT

       WRITE (OP1) (APRREC(IR(I),2),ACHGPR(IR(I)),ACL1UT(IR(I)),ACL1P(IR(
      1I)),AMC2P(2),AMC3P(2),ABLEND(IR(I)),I=1,NSA1),ASPRRC(2),CHASPR,AMC
      21U(2),AMC1P(2),AMC2P(2),AMC3P(2),AMBLND(2)
       WRITE (OP1) (APCL1(IR(I),2),ACHGC1(IR(I)),ACL2D(IR(I),2),ACHGC2(IR
      1(I)),ACL3Q(IR(I),2),ACHGC3(IR(I)),I=1,NSA1),ASPCL1(2),ASCL2D(2),AS
      2CL3Q(2),CHASPC,CHASC2,CHASC3,AMC2D
```

```
...MILK PRODUCTION REPORT

      WRITE (OP1) (APRREC(IR(I),2),ACHGPR(IR(I)),ABLEND(IR(I)),ANFP(IR(I
     1)),ARDDC(IR(I)),I=1,NSA1),ASPRRC(2),CHASPR,AMBLND(2),ASNFP(2),ASRD
     2DC(2)

...PROCESSING CENTER REPORT

      WRITE (OP1) (AGRC1(IR(I)),AUTCP(IR(I)),ATRMC(IR(I)),ATRANS(IR(I)),
     1ADAC1T(IR(I)),ATCCWT(IR(I)),I=1,NSA1),AMUCP(2),ASTRMC,ASTRNO,ASDAC
     20,ASTCCW,ASGRC1

...MANUFACTURING CENTER REPORT

      WRITE (OP1) (ATMMC(I),AUMCP(I),I=1,NSPM),ATMFGM,ATMFGU

...CONSUMPTION REPORT

      WRITE (OP1) (AIAC1S(IR(I),2),ACHIAC(IR(I)),ARPR(IR(I)),AFRPS(IR(I)
     1),I=1,NSA1),ASIAC1(2),CHASC1,AMRTL(2),AWFRPS(2)
      IF (MR(NYRBC-NYBASE).GT.1) GO TO 48

...MILK MOVEMENTS TO PROCESSING CENTERS FROM DIRECT SHIPPERS

   47 WRITE (OP1) ((ARMMD(IRR(I),IRR(J)),J=1,NT9),I=1,NT9),AMPPC,AMOPC

...MILK MOVEMENTS TO PROCESSING CENTERS FROM SUPPLY PLANTS

      WRITE (OP1) ((ARMMS(I,IRR(J)),J=1,NT9),I=1,NSP),ASOPC,ATMOP

...MILK MOVEMENTS TO MANUFACTURING CENTERS FROM DIRECT SHIPPERS

      WRITE (OP1) ((AMMFG(I,J),J=1,NT10),I=1,NSA1),((AMMFG(I,J),J=1,NT10
     1),I=NT6,NT1),ASMDS,ASMDSD

...MILK MOVEMENTS TO MANUFACTURING CENTERS FROM SUPPLY PLANTS

      WRITE (OP1) ((AMMFG(I+NSA1,J),J=1,NT10),I=1,NSP),ASMSP,ASMSPD

...PACKAGE MILK MOVEMENTS

      WRITE (OP1) ((APMM(IRR(I),IRR(J)),J=1,NT9),I=1,NT9),ASMPC,AMOCC
   48 CONTINUE

...REINITIALIZE ANNUAL VARIABLES

      NYRBC=NYRBC+1
      NYCNT=NYCNT+1
      DO 49 I=1,NT9
         AIAC1S(I,1)=AIAC1S(I,2)
         APCL1(I,1)=APCL1(I,2)
         APRREC(I,1)=APRREC(I,2)
         ACL2D(I,1)=ACL2D(I,2)
```

```
      ACL3Q(I,1)=ACL3Q(I,2)
49 CONTINUE
   AMC1U(1)=AMC1U(2)
   AMC1P(1)=AMC1P(2)
   AMC2P(1)=AMC2P(2)
   AMC3P(1)=AMC3P(2)
   AMBLND(1)=AMBLND(2)
   AVP(1)=AVP(2)
   ASNFP(1)=ASNFP(2)
   ASRODC(1)=ASRODC(2)
   ASFRPS(1)=ASFRPS(2)
   ACEXP(1)=ACEXP(2)
   AMRTL(1)=AMRTL(2)
   AWFRPS(1)=AWFRPS(2)
   AMUCP(1)=AMUCP(2)
   ASMFGU(1)=ASMFGU(2)
   ASTRNS(1)=ASTRNS(2)
   ASOAC1(1)=ASOAC1(2)
   ASIAC1(1)=ASIAC1(2)
   ASPRRC(1)=ASPRRC(2)
   ASPCL1(1)=ASPCL1(2)
   ASCL2D(1)=ASCL2D(2)
   ASCL3Q(1)=ASCL3Q(2)
   QT=6
50 CONTINUE
   RETURN

   END
   SUBROUTINE TCOST
...CALCULATE AGGREGATE TRANSPORTATION AND PRODUCTION COSTS

    COMMON DSPMI(59,59),RMMA(59,59)

    DSPMI=SIZE OF RMMD
    RMMA =SIZE OF RMMD

    COMMON /BLK1/ RMMD(59,59),SPOPD(59),PRROD(59),TRANSR(59),TRMC(59),
   1RMMS(16,59),PRRD(59),CL3SP(16),CL3DS(59),PRRS(16),CL1SLS(59),IACL1
   2S(59),PMM(59,59),OACL1S(59),MMFG(75,42)
    COMMON /BLK2/ RDA(5),NSP,NSA1,NSMF,NDM,NMMF,NMFGT,BIGI
    COMMON /BLK5/ CPRCHG(59),BTPSQ(59,4),BLEND(59,6),SE(59),GRBIND(4),
   1GRBCNV(59),IGBEF,CQTSP(59),QSPL1(59)
    COMMON /BLK9/ NW,NSN,NT,NPN,NNN,NMN,NMM,NMD,NDP,NMS,NTN
    COMMON /BLK8/ NYCNT
    COMMON /BLK10/ MMFC(27),CL1CP(59),CL1SP(16),IR(61),CHGHC(5),CHGPD(
   120),ERCST(75),SPRC(16),IDMG1(26),IDMG2(19),SMFC(40),SSMFC,SMMFC,SM
   2XC,NNOD,NNNE,NNND,ISTPS,NYRBC,NYBASE,QT,QCNT,NQ,NIC,ISUP1,ISUP7,NS
   3PM,NSC,NSK,IHCEF,IPDEF,ECHG,NCL2P,NCL3P,CHGCL4,ISC1CP,CHGCL5,ACST,
   4PMCHG,RMGN,OCST2,C2MGN,RMR,PCR,PMR,MCR,OPCL1,LBCHK,IPNARC,SCL1CP,T
   5SMFC,XBP,XBP3,MPDC,OP1,OP2,OP6,OP7,OP8
    COMMON /BLK11/ NCL1P(59),CL1RR(59),IWORK2,START4,OCST,ILI(45),CHGP
   1RC(5),TRANSQ(59),QACL1T(59),CINSP(59),PMCST(59),PRCST(59),ICST(5,1
   20),HCHG2(16),MXN,IPCEF,COC2D(59),COC1D(59),NRPR(59),XCL2P,DTCST,IW
   3ORK3,SFPCST,DFPCST,TRMPC,TMCST,RMFC(75),EFRR(59),ADTCST,ASFPCS,ADF
   4PCS,ATMCST,ATRMPC,ECHBT(5),SMC2Q,SVCL1
    COMMON /BLK12/ ISTATE,MXP,NSA1S,NSMFS,NT1,NT2,NT3,NT4,NPN1,NDP1,NT
   1N1,NT5,NT6,NT7,NT8,NT9,NT10,NT11
```

```
      INTEGER RDA,OP1,OP2,OP5,OP6,OP7,OPS,QT,QCNT,RMR,PCR,PMR,OPCL1
      REAL IACL1S,MMFG

      IF (QT.NE.6) GO TO 1
      ADTCST=0.0
      ASFPCS=0.0
      ADFPCS=0.0
      ATRMPC=0.0
    1 DTCST=0.0
      SFPCST=0.0
      DFPCST=0.0
      TRMPC=0.0
      REWIND OP7
      IF (QCNT.LE.1) GO TO 2
      READ (OP7) ((DSPMI(I,J),I=1,NT9),J=1,NT9)
      READ (OP7) ((RMMA(I,J),I=1,NT9),J=1,NT9)
      GO TO 5
    2 DO 3 J=1,NT9
    3 READ (OP7) (DSPMI(I,J),I=1,NT9)
      DO 4 I=1,NT9
      DO 4 J=1,NT9
    4 RMMA(J,I)=RMMD(J,I)
    5 DO 8 I=1,NT9
        IF (I.GT.NW) SFPCST=SFPCST+CQTSP(I)*SPRC(I-NW)*(ERCST(I+NSP)*CH
     1  GHC(NYCNT))
        IJK=I
        IF (I.GT.NSA1) IJK=I+NSP
        DFPCST=DFPCST+RMMD(I,I)*(ERCST(IJK)+ACST)*CHGHC(NYCNT)
        DO 6 K=1,NMFGT
           TRMPC=TRMPC+MMFG(IJK,K)*RMPC(IJK)*CHGPD(QCNT)
    6   DFPCST=DFPCST+MMFG(IJK,K)*(ERCST(IJK)+ACST)*CHGHC(NYCNT)
        QPCS1=1.0
        IF (QSPL1(I).GT.0.0) QPCS1=1.0+((CQTSP(I)-QSPL1(I))/QSPL1(I))
        IF (QCNT.EQ.1) GO TO 8
        RMMA(I,I)=RMMD(I,I)
        DO 7 J=1,NT9
           IF (J.EQ.I) GO TO 7
           ADJ1=0.0
           ADJ1=QPCS1*RMMA(J,I)
           IF (ADJ1.GT.0.0) RMMA(I,I)=RMMA(I,I)-ADJ1
           RMMA(J,I)=ADJ1+RMMD(J,I)
    7   CONTINUE
    8 CONTINUE
      JCOL=1
      DO 9 I=1,NT9
        IF (I.EQ.NT9) GO TO 10
        JCOL=JCOL+1
      DO 9 J=JCOL,NT9
        DIFF1=RMMA(I,J)-RMMA(J,I)
        RMMA(J,I)=0.0
        RMMA(I,J)=0.0
        IF (DIFF1.GT.0.0) RMMA(I,J)=DIFF1
        IF (DIFF1.LT.0.0) RMMA(J,I)=ABS(DIFF1)
    9 CONTINUE
   10 CONTINUE
      DO 11 I=1,NT9
        IF (I.GT.NW.AND.I.LE.NSA1) TRMPC=TRMPC+RMPC(I+NSP)*CQTSP(I)*SPR
     1  C(I-NW)*CHGPD(QCNT)
        IJK=I
        IF (I.GT.NSA1) IJK=I+NSP
```

```
      DO 11 J=1,NT9
         IF (I.NE.J) DTCST=DTCST+(DSPMI(I,J)+ACST)*RMMA(I,J)*ECHBT(NYCNT
     1   )
   11 TRMPC=TRMPC+RMPC(IJK)*RMMA(I,J)*CHGPD(QCNT)
      ADTCST=ADTCST+DTCST
      ASFPCS=ASFPCS+SFPCST
      ADFPCS=ADFPCS+DFPCST
      ATRMPC=ATRMPC+TRMPC
      REWIND OP7
      WRITE (OP7) ((DSPMI(I,J),I=1,NT9),J=1,NT9)
      WRITE (OP7) ((RMMA(I,J),I=1,NT9),J=1,NT9)
      RETURN

      END
      SUBROUTINE OSET (QT,NYR,NIC,ICR,NSA1,PRREC,PCL1,PCL2,TCL3,CL1UT,NC
     1L1P,BLEND,UTCP,TCCNT,CQC1D,WORK1,NT9)

...SUBROUTINE OSET


...COMPARATIVE REPORT DATA PLACED IN WORK1 ARRAY

      DIMENSION ICR(10), NO(5), PRREC(1), PCL1(1), PCL2(1), TCL3(1), CL1
     1UT(1), NCL1P(1), BLEND(1), UTCP(1), TCCNT(1), CQC1D(1), WORK1(1)

      REAL NCL1P
      INTEGER QT

.....N1,NO(1),NO(2),NO(3),NO(4),NO(5)/1,751,2101,3451,
                                      4801,6151/
   N=750+(NYR*NT9)+((QT-6)*(6*NT9))
   DO 1 I=1,NIC
 1 NO(I)=N+(I-1)*(30*NT9)
   KJ=0
   DO 13 M=1,10
      IF (ICR(M).EQ.0) GO TO 13
      KJ=KJ+1
      DO 12 I=1,NSA1
         NN=NO(KJ)+I
         GO TO (2,3,4,5,6,7,8,9,10,11), M
 2       WORK1(NN)=PRREC(I)
         GO TO 12
 3       WORK1(NN)=PCL1(I)
         GO TO 12
 4       WORK1(NN)=PCL2(I)
         GO TO 12
 5       WORK1(NN)=TCL3(I)
         GO TO 12
 6       WORK1(NN)=CL1UT(I)
         GO TO 12
 7       WORK1(NN)=NCL1P(I)
         GO TO 12
 8       WORK1(NN)=BLEND(I)
         GO TO 12
 9       WORK1(NN)=UTCP(I)
         GO TO 12
10       WORK1(NN)=TCCNT(I)
         GO TO 12
11       WORK1(NN)=CQC1D(I)
```

```
 12    CONTINUE
 13 CONTINUE
    RETURN

    END
    FUNCTION CTIME(T1)

...CTIME ROUTINE FOR 6000, 7000 SERIES CDC

    CALL SECOND (T1)
    CTIME=-T1
    RETURN

    END
```

DRW1

DRW1, listed on the following pages, reports results from stage one of DAMPS. Some of these results are aggregated and used in DRW2, as well. DRW1 will list the input form and print the following reports, both quarterly and annually, as requested:

1. Summary Report
2. Comparative Summary Report
3. Federal Order Report
4. Federal Order Report - Sales
5. Milk Production Report
6. Processing Center Report
7. Manufacturing Center Report
8. Consumption Report
9. Raw Milk Movements from Direct Ship Supply Areas to Processing Centers
10. Raw Milk Movements from Supply Plants to Processing Centers
11. Raw Milk Movements from Direct Ship Supply Areas to Manufacturing Centers
12. Raw Milk Movements from Supply Plants to Processing Centers
13. Packaged Milk Movements from Processing Centers to Consumption Centers
14. Comparative Reports
    a. Producers Receipts
    b. Class I Sales
    c. Class II Sales
    d. Class III Sales
    e. Class I Utilization
    f. Class I Price
    g. Blend Price
    h. Processing Capacity Utilization
    i. Total Processing Cost
    j. In-Area Class I Sales
15. Merged Order Report
16. Unregulated Grade A Report

Reports 1 through 8 and 14h through 14j are exclusively for Federal Orders. Movements reports 9 through 13 are for state regulated areas as well as Federal Orders. Comparative Reports 14a through 14g can be obtained for state regulated areas and Federal Orders. Details on the contents of these reports and how they are obtained are available in Novakovic, et al. (8).

```
      PROGRAM DRW1 (INPUT,OUTPUT,TAPE4,TAPE8,TAPE6=OUTPUT,TAPE2=INPUT,TA
     1PE16,TAPE17)

C*********************************************************************
C          .... DRW1 IS THE FOURTH PROGRAM OF DAMPS ....
C     DRW1 IS THE GRADE A REPORT WRITER FOR DAMPS.  DRW1 WAS
C     WRITTEN BY D.R. MARTELLA, J.E. PRATT, AND A.M. NOVAKOVIC.
C
C*********************************************************************

      INTEGER QR,CR,QT,YEND,QCNT

      DIMENSION A(75), B(59), C(59), D(59), E(59), F(59), G(59), H(59),
     1AA(59,59), NOR(75), ONAME(75), II(59), QR(20), MR(5), MFG(33), IR(
     261), ICR(10), ICRS(10), MFID(70), MFNAME(70), BB(53), CC(53), NY2(
     36), IMRN(11), IMRG(59), JPLT(10), III(59), CMP(2,2), QRB(5), ICRB(
     414), MFN(14), DGSC(20), UNREG(9), UNC1S(9), UNGBP(9), UNRODC(9), U
     5NNBP(9), IXT(3), NAME(9), AUNREG(6,9), AUNC1S(6,9), AUNGBP(6,9), A
     6UNNBP(6,9), AUNROD(6,9)

      DATA JPLT/1,2,4,5,9,12,15,5,17,0/
      DATA KN1,KN2,KN3,KN4/1,7,8,9/
      DATA CMP/10HFEDERAL OR,4HDERS,10H STATE ORD,4HERS /
      DATA MFN/3HMAL,3HMCA,3HMME,3HMMA,3HMMT,3HMNV,3HMNY,3HMNC,3HMND,3HM
     1PA,3HMSC,3HMVT,3HMVA,3HMWY/
      DATA NAME/9HNORTHEAST,9HCORN BELT,9HLAKE      ,9HSOUTHEAST,9HS.CENT
     1RAL,9HPRAIRIE  ,9HMOUNTAIN ,9HSOUTHWEST,9HNORTHWEST/

      EQUIVALENCE (A(1),AA(1,44)),(B(1),AA(1,43)),(C(1),AA(1,42)),
     1(D(1),AA(1,41)),(E(1),AA(1,40)),(F(1),AA(1,39)),
     1(G(1),AA(1,38)),(BB(1),AA(1,36)),(CC(1),AA(1,34))

      NSA1=45 ; NSP=16 ; NT=61 ; NSMF=26 ; NMMF=27 ; NMFGT=28 ; NDM=19

      MS=9
      NIN1=8
      NIN2=17
      NIN3=16
      NOUT1=6
      NOUT2=4
      REWIND NOUT2
      YEND=0
      NVLD=0
      IPLT=0
      QCNT=1
      QT=1
      IPAG=0
      SCALE1=0.001
      SCALE2=0.01
      SCALE3=0.0001

C READ PARAMETERS FOR PLOT VARIABLES

      READ (2,149) (II(J),J=1,14)
      IF (EOF(2)) 3,1,3
    1 DO 2 I=5,14
    2 JPLT(I-4)=II(I)
      KN1=II(1)
      KN2=II(2)
```

```
      KN3=II(3)
      KN4=II(4)
    3 CONTINUE

*****************************************************
P A R T  I  - INPUT FROM GAPSIN
*****************************************************

      READ (NIN1,END=999) DNUM,NY,QR,MR,CR,ISTATE,NSA1,NSA1S,NSP,ICR,ICR
     1S,NIC,ISUP7,NSMF,NMMF,NT,NT1,NT2,NT3,NT4,NT5,NT6,NT7,NT8,NT9,NT10,
     2NT11,NDM,NMFGT,NY2(1),IMR,MODL,IMFGB

      IF (IMR.GT.0) READ (NIN1) (IMRN(I),I=1,IMR),IMRT,(IMRG(J),J=1,IMRT
     1),IMRN(11),BLWT,(A(K),K=1,NSA1)

      ISUP7=ISUP7-1
      NQ=NY*4
      NSPM=NSMF+NMMF
      NSPM2=NSPM+2
      NSPM3=NSPM+3
      NSPM4=NSPM+4
      NSPMA=NSPM3+NSA1S
      NSMF1=NSMF+1
      NSMF2=NSMF+2
      NDM1=NDM+(NT9-NSA1)
      NMFG1=NMFGT+(NT9-NSA1)
      IF (MR(1).LT.1.OR.MR(1).GT.2) MULD=1
      IF (NY.EQ.5) IPLT=1

*****************************************
  PRINT INPUT FORM
*****************************************

      READ (NIN1,END=999) (IR(I),NOR(I),ONAME(I),I=1,NT),(MFG(J),J=1,NDM
     1),(MFID(I),MFNAME(I),I=1,NSPM3)
      DO 4 I=NSPM4,NSPMA
         IJ=I-NSPM3
         MFID(I)=MFN(IJ)
         MFG(IJ+19)=NSA1+IJ
    4 CONTINUE
      IF (ISTATE.GT.0) READ (NIN1,END=999) (NOR(I),ONAME(I),I=NT6,NT1)
      IF (IMR.LE.0) GO TO 9
      IPAG=IPAG+1
      WRITE (NOUT1,150) MODL,IPAG,DNUM
      WRITE (NOUT1,151) IMR
      MRN=0
      MRS=0
      DO 5 I=1,IMR
         MRS=MRN+1
         MRNN=IMRN(I)
         MRN=MRN+MRNN
    5 WRITE (NOUT1,152) I,MRNN,(IMRG(J),J=MRS,MRN)
      IF (IMRN(11).LE.0) GO TO 9
      IF (IMRN(11).EQ.1) WRITE (NOUT1,153) BLWT
      IF (IMRN(11).NE.1) WRITE (NOUT1,154)
      DO 8 I=1,IMRT
         KK=0
         DO 6 K=1,NSA1
            IF (NOR(K).NE.IMRG(I)) GO TO 6
            KK=K
```

```
      GO TO 7
 6    CONTINUE
      IF (KK.EQ.0) GO TO 999
 7    IF (ABS(A(KK)).EQ.0.0) A(KK)=0.0
      A(KK)=A(KK)*SCALE2
 8 WRITE (NOUT1,155) NOR(KK),ONAME(KK),A(KK)
 9 READ (NIN1,END=999) (A(I),B(I),C(I),I=1,NSA1)
   IF (ISTATE.GT.0) READ (NIN1,END=999) (A(I),B(I),C(I),I=NT5,NT3),(I
  1XT(I),I=1,3)
   ISTT=1+IXT(1)+2*IXT(2)+3*IXT(3)
   READ (NIN1,END=999) (H(J),J=1,6),(II(I),I=1,2)
   DO 10 I=2,6
      H(I)=H(I)*SCALE2
10 NY2(I)=NY2(1)+I-1
   NY1=NY+NY2(1)
   H(1)=H(1)*SCALE2
   DO 11 I=1,4
      IF (QR(I).LT.1.OR.QR(I).GT.2) NVLD=1
      IF (ABS(H(I)).EQ.0.0) H(I)=0.0
      IF (I.GT.2) GO TO 11
      IF (IABS(II(I)).EQ.0) II(I)=0
11 CONTINUE
   DO 12 I=1,NSA1
      IF (ABS(A(I)).EQ.0.0) A(I)=0.0
      IF (ABS(B(I)).EQ.0.0) B(I)=0.0
      IF (ABS(C(I)).EQ.0.0) C(I)=0.0
      A(I)=A(I)*SCALE2
      C(I)=C(I)*SCALE2
      IF (ISUP7.GT.0) B(I)=0.0
      IF (ISUP7.GT.0) C(I)=0.0
      IF (ISTATE.EQ.0) GO TO 12
      IF (I.GT.NSA1S) GO TO 12
      IF (ABS(A(I+NSA1)).EQ.0.0) A(I+NSA1)=0.0
      IF (ABS(B(I+NSA1)).EQ.0.0) B(I+NSA1)=0.0
      IF (ABS(C(I+NSA1)).EQ.0.0) C(I+NSA1)=0.0
      A(I+NSA1)=A(I+NSA1)*SCALE2
      C(I+NSA1)=C(I+NSA1)*SCALE2
      IF (ISTT.GT.1) B(I+NSA1)=0.0
      IF (ISTT.GT.1) C(I+NSA1)=0.0
      B(I+NSA1)=B(I+NSA1)*SCALE2
12 B(I)=B(I)*SCALE2
   IPAG=IPAG+1
   WRITE (NOUT1,150) MODL,IPAG,DNUM
   WRITE (NOUT1,156)
   WRITE (NOUT1,157) (NOR(I),ONAME(I),A(I),B(I),C(I),I=1,NSA1)
   IPAG=IPAG+1
   IF (ISTATE.EQ.0) GO TO 13
   WRITE (NOUT1,150) MODL,IPAG,DNUM
   WRITE (NOUT1,158)
   WRITE (NOUT1,157) (NOR(I+NSP),ONAME(I+NSP),A(I),B(I),C(I),I=NT5,NT
  13)
   IPAG=IPAG+1
13 WRITE (NOUT1,159) NY2(1),MODL,IPAG,DNUM,(H(I),I=1,6)
   WRITE (NOUT1,160) (NY2(I),I=2,6),MR
   WRITE (NOUT1,161) (QR(I),QR(I+4),QR(I+8),QR(I+12),QR(I+16),I=1,4)
   WRITE (NOUT1,162) NY1,(II(I),I=1,2),NY2(1)

*********************************************
  PRINT INPUT FORM - PART II
*********************************************
```

```
      READ (NIN1,END=999) (A(I),B(I),C(I),D(I),E(I),F(I),I=1,NSA1)
      READ (NIN1,END=999) (H(I),I=1,4),(II(I),I=10,14),(II(I),I=1,6),(II
     1(I),I=15,18)
      DO 14 I=7,9
   14 II(I)=0
      IF (ISUP7.EQ.0) GO TO 15
      II(ISUP7+6)=1
   15 DO 16 I=1,NSA1
         IF (ABS(A(I)).EQ.0.0) A(I)=0.0
         IF (ABS(B(I)).EQ.0.0) B(I)=0.0
         IF (ABS(C(I)).EQ.0.0) C(I)=0.0
         IF (ABS(D(I)).EQ.0.0) D(I)=0.0
         IF (ABS(E(I)).EQ.0.0) E(I)=0.0
         IF (ABS(F(I)).EQ.0.0) F(I)=0.0
         IF (ISUP7.GT.0) A(I)=0.0
         D(I)=D(I)*SCALE2
         E(I)=E(I)*SCALE2
         F(I)=F(I)*100.0
         IF (I.GT.14) GO TO 16
         IF (IABS(II(I)).EQ.0) II(I)=0
         IF (I.GT.10) GO TO 16
         IF (IABS(ICR(I)).EQ.0) ICR(I)=0
         IF (I.GT.4) GO TO 16
         IF (ABS(H(I)).EQ.0.0) H(I)=0.0
   16 CONTINUE
      IPAG=IPAG+1
      WRITE (NOUT1,150) MODL,IPAG,DNUM
      WRITE (NOUT1,163) (II(I),I=1,6)
      IF (ISTATE.GT.0) WRITE (NOUT1,164) (II(I),I=15,18)
      WRITE (NOUT1,165) (II(I),I=7,9)
      IF (ISTATE.GT.0) WRITE (NOUT1,166) (IXT(I),I=1,3)
      IF (ISTATE.GT.0) IPAG=IPAG+1
      IF (ISTATE.GT.0) WRITE (NOUT1,150) MODL,IPAG,DNUM
      WRITE (NOUT1,167) H(3),H(4),(II(I),I=10,14),(ICR(J),J=1,10)
      IF (ISTATE.GT.0) WRITE (NOUT1,168) (ICRS(J),J=1,10)

C*****************************************
C  PRINT INPUT FORM - PART III
C*****************************************

      IF (IMFGB.EQ.0) GO TO 17
      READ (NIN1,END=999) QRB,ICRB,ISS,DCSC,IMPHLD
      IPAG=IPAG+1
      WRITE (NOUT1,150) MODL,IPAG,DNUM
      WRITE (NOUT1,169) (DCSC(I),I=1,20)
      WRITE (NOUT1,170) ISS,IMPHLD,(QRB(I),I=1,5),(ICRB(J),J=1,14)

C*****************************************
C   PRINT OPTIONAL FEDERAL INPUT FORMS
C*****************************************

      IPAG=IPAG+1
      WRITE (NOUT1,171) MODL,IPAG,DNUM
      WRITE (NOUT1,172) (NOR(I),ONAME(I),A(I),B(I),C(I),D(I),E(I),F(I),I
     1=1,NSA1)
      WRITE (NOUT1,173) H(1),H(2)

C*****************************************
C  PRINT 20 QUARTERS OF PRICES - F.O.
```

```
*****************************************
  17 IF (ISUP7.LT.1) GO TO 25
     NQ1=NQ+1
     NQ3=NY+35
     NQ4=NY+16
     IF (ISUP7.GT.1) GO TO 20
     NQ2=NQ1+NQ-1
     READ (NIN1,END=999) ((AA(I,J),I=1,NSA1),J=1,NQ),(H(K),H(K+5),H(K+1
    10),H(K+15),K=1,NY),(H(J+20),H(J+25),H(J+30),H(J+35),J=1,NY)

  SCALE TO MIL LBS AND $

     CALL SCLE (NSA1,NQ,AA,SCALE2)
     DO 18 I=1,NQ3
  18 H(I)=H(I)*SCALE2
     DO 19 I=1,NY
        IJK=(I-1)*4+1
        KLM=NY2(1)+I
        IPAG=IPAG+1
        WRITE (NOUT1,174) MODL,IPAG,DNUM,KLM
     DO 19 J=1,NSA1
  19 WRITE (NOUT1,175) NOR(J),ONAME(J),AA(J,IJK),AA(J,IJK+1),AA(J,IJK+2
    1),AA(J,IJK+3)
     IPAG=IPAG+1
     WRITE (NOUT1,176) MODL,IPAG,DNUM
     WRITE (NOUT1,177) (NY2(I+1),H(I),H(I+5),H(I+10),H(I+15),I=1,NY)
     WRITE (NOUT1,178) (NY2(I+1),H(I+20),H(I+25),H(I+30),H(I+35),I=1,NY
    1)
     GO TO 25

*****************************************
PRINT GENERATED PRICE SURFACE - F.O.
*****************************************

  20 READ (NIN1,END=999) ((AA(I,J),I=1,NSA1),J=1,NQ)
     CALL SCLE (NSA1,NQ,AA,SCALE2)
     IF (ISUP7.EQ.3) GO TO 21
     READ (NIN1,END=999) (H(I),I=1,3)
     H(1)=H(1)*SCALE2
     IPAG=IPAG+1
     WRITE (NOUT1,179) MODL,IPAG,DNUM,H(3),H(2),H(1)
     GO TO 23
  21 READ (NIN1,END=999) (H(I),H(I+5),H(I+10),H(I+15),I=1,NY),H(NQ4),(A
    1(I),A(I+5),A(I+10),A(I+15),I=1,NY),(A(I+20),A(I+25),A(I+30),A(I+35
    2),I=1,NY)
     DO 22 I=1,NQ3
        IF (I.LT.NQ4) H(I)=H(I)*SCALE2
  22 A(I)=A(I)*SCALE2
     IPAG=IPAG+1
     WRITE (NOUT1,180) MODL,IPAG,DNUM,H(NQ4),(NY2(I+1),H(I),H(I+5),H(I+
    110),H(I+15),I=1,NY)
     WRITE (NOUT1,177) (NY2(I+1),A(I),A(I+5),A(I+10),A(I+15),I=1,NY)
     WRITE (NOUT1,178) (NY2(I+1),A(I+20),A(I+25),A(I+30),A(I+35),I=1,NY
    1)
  23 DO 24 I=1,NY
        IJK=(I-1)*4+1
        KLM=NY2(1)+I
        IPAG=IPAG+1
        WRITE (NOUT1,181) MODL,IPAG,DNUM,KLM
```

```
      DO 24 J=1,NSA1
   24 WRITE (NOUT1,175) NOR(J),ONAME(J),AA(J,IJK),AA(J,IJK+1),AA(J,IJK+2
     1),AA(J,IJK+3)

*****************************************
   PRINT OPTIONAL STATE INPUT FORMS
*****************************************

   25 IF (ISTATE.LT.1) GO TO 34
      READ (NIN1,END=999) (A(I),B(I),C(I),F(I),I=NT5,NT3)
      IPAG=IPAG+1
      DO 26 I=NT5,NT3
         IF (ABS(A(I)).EQ.0) A(I)=0.0
         IF (ABS(B(I)).EQ.0) B(I)=0.0
         IF (ABS(C(I)).EQ.0) C(I)=0.0
         IF (ABS(F(I)).EQ.0) F(I)=0.0
   26 CONTINUE
      WRITE (NOUT1,182) MODL,IPAG,DNUM
      WRITE (NOUT1,183) (NOR(I+NSP),ONAME(I+NSP),A(I),B(I),C(I),F(I),I=N
     1T5,NT3)

*****************************************
  PRINT 20 QUARTERS OF PRICES - S.O.
*****************************************

      IF (ISTT.LE.1) GO TO 33
      NQ1=NQ+1
      NQ3=NY+35
      NQ4=NY+16
      NQ2=NQ1+NQ-1
      READ (NIN1,END=999) ((AA(I,J),I=NT5,NT3),J=1,NQ)
      CALL SOLE (NT3,NQ,AA,SCALE2)
      IF (ISTT.GT.2) GO TO 28
      DO 27 I=1,NY
         IJK=(I-1)*4+1
         KLM=NY2(1)+I
         IPAG=IPAG+1
         WRITE (NOUT1,184) MODL,IPAG,DNUM,KLM
      DO 27 J=NT5,NT3
   27 WRITE (NOUT1,185) NOR(J+NSP),ONAME(J+NSP),AA(J,IJK),AA(J,IJK+1),AA
     1(J,IJK+2),AA(J,IJK+3)
      IF (ISTT.LT.3) GO TO 33

*****************************************
PRINT GENERATED PRICE SURFACE - S.O.
*****************************************

   28 IF (I14B.NE.1) GO TO 29
      READ (NIN1,END=999) (H(I),I=1,3)
      H(1)=H(1)*SCALE2
      IPAG=IPAG+1
      WRITE (NOUT1,186) MODL,IPAG,DNUM,H(3),H(2),H(1)
      GO TO 31
   29 READ (NIN1,END=999) (H(I),H(I+5),H(I+10),H(I+15),I=1,NY),H(NQ4)
      DO 30 I=1,NQ4-1
         H(I)=H(I)*SCALE2
   30 CONTINUE
      IPAG=IPAG+1
      WRITE (NOUT1,187) MODL,IPAG,DNUM,H(NQ4),(NY2(I+1),H(I),H(I+5),H(I+
     110),H(I+15),I=1,NY)
```

```
 31 DO 32 I=1,NY
       IJK=(I-1)*4+1
       KLM=NY2(1)+I
       IPAG=IPAG+1
       WRITE (NOUT1,188) MODL,IPAG,DNUM,KLM
    DO 32 J=NT5,NT3
 32 WRITE (NOUT1,185) NOR(J+NSP),ONAME(J+NSP),AA(J,IJK),AA(J,IJK+1),AA
   1(J,IJK+2),AA(J,IJK+3)

*****************************************
  READ UNREGULATED BASE DATA
*****************************************

 33 IF (ISTATE.GT.0) READ (NIN1,END=999) UNUT

*************************************************
    PRINT QUARTERLY REPORT IF REQUESTED
*************************************************

 34 YEND=YEND+1
    NYRBG=YEND+NY2(1)
 35 IF (QR(QCNT).LT.1) GO TO 66

*****************************************
  CHECK TO SEE IF ONLY MOVEMENTS ARE WANTED
*****************************************

    IF (QR(QCNT).EQ.3) GO TO 52

*****************************************
    MERGED ORDER REPORT
*****************************************

    IF (IMR.LE.0) GO TO 38

    READ(NIN2)(PRRECM(I),PRRECM(I+10),BLNDMR(I+10)),BLNDMR(I),I=1,IMR)

    READ (NIN2,END=999) (A(I),B(I),C(I),D(I),I=1,IMR)
    DO 36 I=1,IMR
       A(I)=A(I)*SCALE1
       B(I)=B(I)*SCALE1
 36 D(I)=D(I)*SCALE2
    IPAG=IPAG+1
    WRITE (NOUT1,189) DNUM,IPAG,QT,NYRBG
    N1=0
    N2=0
    DO 37 I=1,IMR
       N1=N2+1
       N2=N2+IMRN(I)
       WRITE (NOUT1,190) I,A(I),B(I),C(I),D(I)
       WRITE (NOUT1,191) (IMRG(J),J=N1,N2)
 37 WRITE (NOUT1,192)

                  *****************************************
                              SUMMARY REPORT
                  *****************************************
  READ(NIN2)QT,NYRBC,SPRREC,XCSPRC,CSPREC,SPCL1,XCSPC1,CIAC1,
 1SCL2D,XCMC2,CMCL2,SCL3Q,XCMC3,CMCL3,MCL1U,XCMC1U,CMCL1U,
 2MCL1P,XCMC1P,CMCL1P,NCL2P,XCMC2P,CCL2P,NCL3P,XCHC3P,CCL3P,
 3MBLEND,XCHMB,CMBLEND,SVP,XCSVP,CSVP,SNFP,XCNFP,CSNFP,
```

```
     4SVRODC,XCRDC,CSVRODC,SVFRPS,XCFRP,CSVFRPS,CEXP,XCEXP,CCEXP,
     5MRTLP,XCMRTP,CMRTLP,WFRPS,XCWFR,CWFRPS,SMUCP,XCUCP,CMUCP,
     6SMFGU,XCMFU,CSMFGU,STRNSR,XCTRNS,CSTRNSR,SOAC1T,XCSOA,CSOAC1T

  38 READ (NIN2,END=999) QT,NYRBG,(A(I),B(I),C(I),I=1,20)
     QT=QT-5

                              SCALE TO MIL LBS AND $

     DO 39 I=1,4
        A(I)=A(I)*SCALE1
  39 B(I)=B(I)*SCALE1
     DO 41 I=6,14
        IF (I.EQ.10) GO TO 40
        IF (I.GT.12) GO TO 40
        A(I)=A(I)*SCALE2
        B(I)=B(I)*SCALE2
        GO TO 41
  40    A(I)=A(I)*SCALE3
        B(I)=B(I)*SCALE3
  41 CONTINUE
     DO 42 I=19,20
        A(I)=A(I)*SCALE3
  42 B(I)=B(I)*SCALE3
     IPAG=IPAG+1
     WRITE (NOUT1,193) DNUM,IPAG,QT,NYRBG
     WRITE (NOUT1,194) (A(I),B(I),C(I),I=1,20)

                  ****************************************
                CHECK TO SEE IF SUMMARY IS ALL THAT IS WANTED
                  ****************************************

     IF (QR(QCNT).EQ.4) GO TO 66

                  ****************************************
                           FEDERAL ORDER REPORT - 1
                  ****************************************
     READ(NIN2)(PRREC(IR(I)),CHGPRR(IR(I)),CL1UT(IR(I)),
    1NCL1P(IR(I)),NCL2P,NCL3P,BLEND(IR(I),6),I=1,NSA1),
    2SFRREC,CSPRES,MCL1U,MCL1P,NCL2P,NCL3P,MBLEND

     READ (NIN2,END=999) (A(I),B(I),C(I),D(I),E(I),F(I),G(I),I=1,NSA1),
    1(H(I),I=1,7)

                              SCALE TO MIL LBS AND $

     DO 43 I=1,NSA1
        A(I)=A(I)*SCALE1
        D(I)=D(I)*SCALE2
        E(I)=E(I)*SCALE2
        F(I)=F(I)*SCALE2
  43 G(I)=G(I)*SCALE2
     H(1)=H(1)*SCALE1
     DO 44 I=4,7
  44 H(I)=H(I)*SCALE2
     IPAG=IPAG+1
     WRITE (NOUT1,195) DNUM,IPAG,QT,NYRBG
     WRITE (NOUT1,196) (NOR(I),ONAME(I),A(I),B(I),C(I),D(I),E(I),F(I),G
    1(I),I=1,NSA1)
     WRITE (NOUT1,197) (H(I),I=1,7)
```

```
               ******************************************
                FEDERAL ORDER REPORT - 2 (SALES)
               ******************************************
 READ(NIN2)(PCL1(IR(I)),CHGCL1S(IR(I)),PCL2(IR(I)),
1CHGCL2D(IR(I)),TCL3(IR(I)),CHGCL3Q(IR(I)),I=1,NSA1),
2SPCL1,SCL2D,SCL3Q,CSPCL1,CMCL2,CMCL3,SMC20

 READ (NIN2,END=999) (A(I),B(I),C(I),D(I),E(I),F(I),I=1,NSA1),(H(I)
1,I=1,7)

                   SCALE TO MIL LBS AND $

 DO 45 I=1,NSA1
    A(I)=A(I)*SCALE1
    C(I)=C(I)*SCALE1
45 E(I)=E(I)*SCALE1
 H(1)=H(1)*SCALE1
 H(3)=H(3)*SCALE1
 H(2)=H(2)*SCALE1
 H(7)=H(7)*SCALE1
 IPAG=IPAG+1
 WRITE (NOUT1,198) DNUM,IPAG,QT,NYRBG
 WRITE (NOUT1,199) (NOR(I),ONAME(I),A(I),B(I),C(I),D(I),E(I),F(I),I
1=1,NSA1)
 WRITE (NOUT1,200) (H(I),I=1,7)
               ******************************************
                    MILK PRODUCTION REPORT
               ******************************************
 READ(NIN2)(PRREC(IR(I)),CHGPRR(IR(I)),BLEND(IR(I),6),
1NFP(I),RODC(IR(I)),I=1,NSA1),SPRREC
2CSPREC,MBLEND,SNFP,SVRODC

 READ (NIN2,END=999) (A(I),B(I),C(I),D(I),E(I),I=1,NSA1),(H(I),I=1,
15)

                   SCALE TO MIL LBS AND $

 DO 46 I=1,NSA1
    C(I)=C(I)*SCALE2
    D(I)=D(I)*SCALE2
    E(I)=E(I)*SCALE2
46 A(I)=A(I)*SCALE1
 H(1)=H(1)*SCALE1
 DO 47 I=3,5
47 H(I)=H(I)*SCALE2
 IPAG=IPAG+1
 WRITE (NOUT1,201) DNUM,IPAG,QT,NYRBG
 WRITE (NOUT1,202) (NOR(I),ONAME(I),A(I),B(I),C(I),D(I),E(I),I=1,NS
1A1)
 WRITE (NOUT1,203) (H(I),I=1,5)
               ******************************************
                      PROCESSING REPORT
               ******************************************
 READ(NIN2)(GRC1(IR(I)),UTCP(IR(I)),TRMC(IR(I)),TRANSRP(IR(I)),
1OALC1T(I),TCCWT(IR(I)),I=1,NSA1),
2SMUCP,STRMC,STRNSD,SOAC1D,STCCWT,SGRC1
```

```
      READ (NIN2,END=999) (A(I),B(I),C(I),D(I),E(I),F(I),I=1,NSA1),(H(I)
     1,I=1,6)

                              SCALE TO MIL LBS AND $

      DO 48 I=1,NSA1
         A(I)=A(I)*SCALE1
         C(I)=C(I)*SCALE2
         D(I)=D(I)*SCALE2
         E(I)=E(I)*SCALE2
   48 F(I)=F(I)*SCALE2
      H(2)=H(2)*SCALE2
      H(3)=H(3)*SCALE2
      H(4)=H(4)*SCALE2
      H(5)=H(5)*SCALE2
      H(6)=H(6)*SCALE1
      IPAG=IPAG+1
      WRITE (NOUT1,204) DNUM,IPAG,QT,NYRBG
      WRITE (NOUT1,205) (NOR(I),ONAME(I),A(I),B(I),C(I),D(I),E(I),F(I),I
     1=1,NSA1)
      WRITE (NOUT1,206) (H(I),I=1,6)

                  ********************************************
                       MANUFACTURING CENTER REPORT
                  ********************************************
      READ(NIN2)(TMMC(I),UMCP(I),I=1,NSPM),SCL3Q,SMFGU

      READ (NIN2,END=999) (BB(I),CC(I),I=1,NSPM),H(1),H(2)

                              SCALE TO MIL LBS

      DO 49 I=1,NSPM
   49 BB(I)=BB(I)*SCALE1
      H(1)=H(1)*SCALE1
      IPAG=IPAG+1
      WRITE (NOUT1,207) DNUM,IPAG,QT,NYRBG
      DO 50 I=1,NSPM2
         IA=I
         IF (I.EQ.NSMF1.OR.I.EQ.NSMF2) GO TO 50
         IF (I.GT.NSMF2) IA=I-2
         IF (BB(IA).EQ.0.0) GO TO 50
         WRITE (NOUT1,208) MFID(I),MFNAME(I),BB(IA),CC(IA)
   50 CONTINUE
      WRITE (NOUT1,209) H(1),H(2)

                  ********************************************
                            CONSUMPTION REPORT
                  ********************************************
      READ(NIN2)(CIACL1(IR(I)),CHGIAC1(IR(I)),
     1NRPR(I),FRPS(IR(I)),I=1,NSA1),SCL1D,CIAC1,MRTLP,WFRPS

      READ (NIN2,END=999) (A(I),B(I),C(I),D(I),I=1,NSA1),(H(I),I=1,4)

                              SCALE TO MIL LBS AND $

      DO 51 I=1,NSA1
   51 A(I)=A(I)*SCALE1
      H(1)=H(1)*SCALE1
      IF (NY.EQ.1) WRITE (NOUT2) (C(I),I=1,NSA1)
      IPAG=IPAG+1
```

```
      WRITE (NOUT1,210) DNUM,IPAG,QT,NYRBG
      WRITE (NOUT1,211) (NOR(I),ONAME(I),A(I),B(I),C(I),D(I),I=1,NSA1)
      WRITE (NOUT1,212) (H(I),I=1,4)

                  ****************************************
                    CHECK TO SEE IF MOVEMENTS ARE WANTED
                  ****************************************

      IF (QR(QCNT).GT.1) GO TO 66

                  ****************************************
                    RAW MILK MOVEMENTS FROM SUPPLY AREAS 1
                  ****************************************
      READ(NIN2)((RMMD(IR(I),IR(J)),J=1,NT9),I=1,NT9),MPPC,MOPC

   52 READ (NIN2,END=999) ((AA(I,J),J=1,NT9),I=1,NT9),(H(I),I=1,2)

                              SCALE TO MIL LBS AND $

      DO 53 I=1,2
   53 H(I)=H(I)*SCALE1
      IPAG=IPAG+1
      WRITE (NOUT1,213) DNUM,IPAG,QT,NYRBG
      DO 55 I=1,NT9
         IJ=I
         IF (I.GT.NSA1) IJ=I+NSP
         IK=0
         DO 54 K=1,NT9
            AA(I,K)=AA(I,K)*SCALE1
            IF (AA(I,K).LE.0.0) GO TO 54
            IK=IK+1
            II(IK)=K
            III(IK)=K
            IF (K.GT.NSA1) III(IK)=K+NSP
   54    CONTINUE
         IF (IK.LE.0) GO TO 55
         WRITE (NOUT1,214) NOR(IJ),(NOR(III(J)),AA(I,II(J)),J=1,IK)
   55 CONTINUE
      WRITE (NOUT1,215) (H(I),I=1,2)

                  ****************************************
                    RAW MILK MOVEMENTS TO SUPPLY PLANTS 1
                  ****************************************
      READ(NIN2)((RMMS(I,IR(J)),J=1,NT9),I=1,NSP),SSOPC,TMOP

      READ (NIN2,END=999) ((AA(I,J),J=1,NT9),I=1,NSP),H(1),H(2)

                              SCALE TO MIL LBS

      H(1)=H(1)*SCALE1
      H(2)=H(2)*SCALE1
      IPAG=IPAG+1
      WRITE (NOUT1,216) DNUM,IPAG,QT,NYRBG
      DO 57 I=1,NSP
         IK=0
         DO 56 K=1,NT9
            AA(I,K)=AA(I,K)*SCALE1
            IF (AA(I,K).LE.0.0) GO TO 56
            IK=IK+1
            II(IK)=K
```

```
          III(IK)=K
          IF (K.GT.NSA1) III(IK)=K+NSP
56      CONTINUE
        IF (IK.LE.0) GO TO 57
        WRITE (NOUT1,214) NOR(I+NSA1),(NOR(III(J)),AA(I,II(J)),J=1,IK)
57    CONTINUE
      WRITE (NOUT1,217) H(1),H(2)

                  ****************************************
               RAW MILK MOVEMENTS TO MANUFACTURING CENTERS 2
                  ****************************************
      READ(NIN2)((MMFG(I,J),J=1,NT10),I=1,NSA1),
     1((MMFG(I,J),J=1,NT10),I=NT6,NT1),SMDS,SMDSD

      READ (NIN2,END=999) ((AA(I,J),J=1,NT10),I=1,NSA1),((AA(I,J),J=1,NT
     110),I=NT5,NT3),H(1),H(2)

                              SCALE TO MIL LBS AND $

      IPAG=IPAG+1
      WRITE (NOUT1,218) DNUM,IPAG,QT,NYRBG
      H(1)=H(1)*SCALE1
      H(2)=H(2)*SCALE1
      DO 60 I=1,NT9
         IJK=IR(I)
         IF (I.GT.NSA1) IJK=I
         IJ=I
         IF (I.GT.NSA1) IJ=I+NSP
         IK=0
         IKNT=0
         DO 58 J=1,NDM1
            IF (IJK.NE.MFG(J)) GO TO 58
            IKNT=NSMF2
58       CONTINUE
         DO 59 K=1,NMFG1
            AA(IJK,K)=AA(IJK,K)*SCALE1
            IF (AA(IJK,K).LE.0.0) GO TO 59
            IF (IKNT.EQ.K) IKNT=NSMF2
            IK=IK+1
            II(IK)=K
            KKK=K+IKNT
            IF (I.GT.NSA1.AND.K.LE.NMFGT) KKK=K
            II(IK+NSMF2)=KKK
59       CONTINUE
         IF (IK.LE.0) GO TO 60
         WRITE (NOUT1,219) NOR(IJ),(MFID(II(J+NSMF2)),AA(IJK,II(J)),J=1,
     1   IK)
60    CONTINUE
      WRITE (NOUT1,220) H(1),H(2)

                  ****************************************
            SUPPLY PLANT MILK MOVEMENTS TO MANUFACTURING CENTERS
                  ****************************************
      READ(NIN2)((MMFG(I+NSA1,J),J=1,NT10),I=1,NSP),SMSP,SMSPD

      READ (NIN2,END=999) ((AA(I,J),J=1,NT10),I=1,NSP),H(1),H(2)

                              SCALE TO MIL LBS

      IPAG=IPAG+1
```

```
      WRITE (NOUT1,221) DNUM,IPAG,QT,NYRBG
      H(1)=H(1)*SCALE1
      H(2)=H(2)*SCALE1
      DO 63 I=1,NSP
         IK=0
         IKNT=0
         DO 61 J=1,NT9
            JJ=J
            IF (J.GT.NSA1) JJ=J+NSP
            IJK=J
            IF (J.LE.NSA1) IJK=IR(J)
         DO 61 KK=1,NDM1
            IF (NOR(I+NSA1).EQ.NOR(JJ).AND.IJK.EQ.MFG(KK)) IKNT=NSMF2
61       CONTINUE
         DO 62 K=1,NT10
            AA(I,K)=AA(I,K)*SCALE1
            IF (AA(I,K).LE.0.0) GO TO 62
            IF (IKNT.EQ.K) IKNT=NSMF2
            IK=IK+1
            II(IK)=K
            KKK=K+IKNT
            II(IK+NSMF2)=KKK
62       CONTINUE
         IF (IK.LE.0) GO TO 63
         WRITE (NOUT1,219) NOR(I+NSA1),(MFID(II(J+NSMF2)),AA(I,II(J)),J=
     1   1,IK)
63    CONTINUE
      WRITE (NOUT1,220) H(1),H(2)

                  ******************************************
                           PACKAGED MILK MOVEMENTS
                  ******************************************
      READ(NIN2)((PMM(I,J),J=1,NT9),I=1,NT9),SMPC,MOCC

      READ (NIN2,END=999) ((AA(I,J),J=1,NT9),I=1,NT9),H(1),H(2)

                              SCALE TO MILL LBS

      H(1)=H(1)*SCALE1
      H(2)=H(2)*SCALE1
      IPAG=IPAG+1
      WRITE (NOUT1,222) DNUM,IPAG,QT,NYRBG
      DO 65 I=1,NT9
         IJ=I
         IF (I.GT.NSA1) IJ=I+NSP
         IK=0
         DO 64 K=1,NT9
            AA(I,K)=AA(I,K)*SCALE1
            IF (AA(I,K).LE.0.0) GO TO 64
            IK=IK+1
            II(IK)=K
            III(IK)=K
            IF (K.GT.NSA1) III(IK)=K+NSP
64       CONTINUE
         IF (IK.LE.0) GO TO 65
         WRITE (NOUT1,214) NOR(IJ),(NOR(III(J)),AA(I,II(J)),J=1,IK)
65    CONTINUE
      WRITE (NOUT1,223) H(1),H(2)
66    CONTINUE
```

```
C*****************************************
C READ UNREGULATED DATA; SCALE AND SUM DATA
C*****************************************

      IF (ISTATE.EQ.0.OR.IMFGB.EQ.0) GO TO 69
      READ (NIN3,END=999) UNREG,UNC1S,UNGBP,UNNBP,UNRODC
      DO 67 K=1,MS
         UNREG(K)=UNREG(K)*SCALE1
         UNC1S(K)=UNC1S(K)*SCALE1
         UNGBP(K)=UNGBP(K)*SCALE2
         UNNBP(K)=UNNBP(K)*SCALE2
         UNRODC(K)=UNRODC(K)*SCALE2
         AUNREG(YEND+1,K)=AUNREG(YEND+1,K)+UNREG(K)
         AUNC1S(YEND+1,K)=AUNC1S(YEND+1,K)+UNC1S(K)
         AUNGBP(YEND+1,K)=AUNGBP(YEND+1,K)+UNGBP(K)/4.
         AUNNBP(YEND+1,K)=AUNNBP(YEND+1,K)+UNNBP(K)/4.
         AUNROD(YEND+1,K)=AUNROD(YEND+1,K)+UNRODC(K)/4.
   67 CONTINUE
      IF (QR(QCNT).EQ.0.OR.QR(QCNT).GE.3) GO TO 69

C*****************************************
C    UNREGULATED QTRLY GRADE A REPORT
C*****************************************

      W3=0.
      W2=W3
      W1=W2
      S2=W1
      S1=S2
      IPAG=IPAG+1
      WRITE (NOUT1,224) DNUM,IPAG,QT,NYRBG
      WRITE (NOUT1,225)
      DO 68 I=1,MS
         WRITE (NOUT1,226) NAME(I),UNREG(I),UNC1S(I),UNGBP(I),UNNBP(I),U
     1   NRODC(I)
         S1=S1+UNREG(I)
         S2=S2+UNC1S(I)
         W1=W1+UNGBP(I)
         W2=W2+UNNBP(I)
   68 W3=W3+UNRODC(I)
      W1=W1/FLOAT(MS)
      W2=W2/FLOAT(MS)
      W3=W3/FLOAT(MS)
      WRITE (NOUT1,227) S1,S2,W1,W2,W3,UNUT
   69 QT=QT+1
      QCNT=QCNT+1
      IF (QT.NE.5) GO TO 35
      QT=1

C*****************************************************
C          PRINT ANNUAL REPORT IF REQUESTED
C*****************************************************

      IF (MR(YEND).LT.1) GO TO 101

C*****************************************
C CHECK TO SEE IF ONLY MOVEMENTS ARE WANTED
C*****************************************

      IF (MR(YEND).EQ.3) GO TO 86
```

```
                    ****************************************
                                MERGED ORDER REPORT
                    ****************************************

      IF (IMR.LE.0) GO TO 72

      READ(NIN2)(PRECAM(I),UPAMRG(I),BLAMR(I+10),BLAMR(I),I=1,IMR)

      READ (NIN2,END=999) (A(I),B(I),C(I),D(I),I=1,IMR)
      DO 70 I=1,IMR
         A(I)=A(I)*SCALE1
         B(I)=B(I)*SCALE1
   70 D(I)=D(I)*SCALE2
      IPAG=IPAG+1
      WRITE (NOUT1,228) DNUM,IPAG,NYRBG
      N1=0
      N2=0
      DO 71 I=1,IMR
         N1=N2+1
         N2=N2+IMRN(I)
         WRITE (NOUT1,190) I,A(I),B(I),C(I),D(I)
         WRITE (NOUT1,191) (IMRG(J),J=N1,N2)
   71 WRITE (NOUT1,192)

                    ****************************************
                                SUMMARY REPORT
                    ****************************************

      READ(NIN2)NYRBG,ASPRRC(2),XCHAPR,CHASPR,ASPCL1(2),XCHAPC,CHASC1,
     1ASCL2D(2),XCHAC2,CHASC2,ASCL3Q(2),XCHAC3,CHASC3,AMC1U(2),
     2XCHAU,CHASC1U,AMC1P(2),XCHAC1,CHAMC1P,AMC2P(2),XCHA2,CHAMC2P,
     3AMC3P(2),XCHA3,CHAMC3P,AMBLND(2),XCHABLN,CHABLND,AUP(2),
     4XCHAUP,CHAUP,ASNFP(2),ACHANFP,CHASNFP,ASRODC(2),XCHARDC,
     5CHASRDC,ASFRPS(2),XCHAFRP,CHAFRPS,ACEXP(2),XCHACEX,CHACEXP,
     6AMRTL(2),XCHAMRT,CHAMRTL,AWFRPS(2),XCHAWF,CHAWRPS,AMUCP(2),
     7XCHACP,CHAUCP,ASMFGU)2,XCHAGU,CHASFGU,ASTRNSR(2),XCHATR,
     8CHASTRN,ASOAC1T(2),XCHASO,CHASOA

   72 READ (NIN2,END=999) NYRBG,(A(I),B(I),C(I),I=1,20)

                              SCALE TO MIL LBS AND $

      DO 73 I=1,4
         A(I)=A(I)*SCALE1
   73 B(I)=B(I)*SCALE1
      DO 75 I=6,14
         IF (I.EQ.10) GO TO 74
         IF (I.GT.12) GO TO 74
         A(I)=A(I)*SCALE2
         B(I)=B(I)*SCALE2
         GO TO 75
   74    A(I)=A(I)*SCALE3
         B(I)=B(I)*SCALE3
   75 CONTINUE
      DO 76 I=19,20
         A(I)=A(I)*SCALE3
   76 B(I)=B(I)*SCALE3
      IPAG=IPAG+1
      WRITE (NOUT1,229) DNUM,IPAG,NYRBG
      WRITE (NOUT1,194) (A(I),B(I),C(I),I=1,20)
```

```
C*****************************************
C     CHECK TO SEE IF SUMMARY IS ALL THAT IS WANTED
C*****************************************

      IF (MR(YEND).EQ.4) GO TO 101

C*****************************************
C           FEDERAL ORDER REPORT - 1
C*****************************************
      READ(NIN2)(APRREC(IR(I),2),ACHGPRR(IR(I)),ACL1UT(IR(I)),
     1ACL1P(IR(I)),AMC2P(2),AMC3P(2),ABLEND(IR(I)),I=1,NSA1),
     2ASPRRC(2),CHASPR,AMC1U(2),AMC1P(2),AMC2P(2),AMC3P(2),AMBLND(2)

      READ (NIN2,END=999) (A(I),B(I),C(I),D(I),E(I),F(I),G(I),I=1,NSA1),
     1(H(I),I=1,7)

C                SCALE TO MIL LBS AND $

      DO 77 I=1,NSA1
         A(I)=A(I)*SCALE1
         D(I)=D(I)*SCALE2
         E(I)=E(I)*SCALE2
         F(I)=F(I)*SCALE2
   77 G(I)=G(I)*SCALE2
      H(1)=H(1)*SCALE1
      DO 78 I=4,7
   78 H(I)=H(I)*SCALE2
      IPAG=IPAG+1
      WRITE (NOUT1,230) DNUM,IPAG,NYRBG
      WRITE (NOUT1,198) (NOR(I),ONAME(I),A(I),B(I),C(I),D(I),E(I),F(I),G
     1(I),I=1,NSA1)
      WRITE (NOUT1,197) (H(I),I=1,7)

C*****************************************
C           FEDERAL ORDER REPORT - 2 (SALES)
C*****************************************
      READ(NIN2)(APCL1(IR(I),2),ACHGC1S(IR(I)),ACL2D(IR(I),2),
     1ACHGC2D(IR(I)),ACL3D(IR(I),2),ACHGC3D(IR(I)),I=1,NSA1),
     2ASPCL1(2),ASCL2D(2),ASCL3D(2),CHASPC,CHASC2,CHASC3,AMC2D

      READ (NIN2,END=999) (A(I),B(I),C(I),D(I),E(I),F(I),I=1,NSA1),(H(I)
     1,I=1,7)

C                SCALE TO MIL LBS AND $

      DO 79 I=1,NSA1
         A(I)=A(I)*SCALE1
         C(I)=C(I)*SCALE1
   79 E(I)=E(I)*SCALE1
      H(1)=H(1)*SCALE1
      H(3)=H(3)*SCALE1
      H(2)=H(2)*SCALE1
      H(7)=H(7)*SCALE1
      IPAG=IPAG+1
      WRITE (NOUT1,231) DNUM,IPAG,NYRBG
      WRITE (NOUT1,199) (NOR(I),ONAME(I),A(I),B(I),C(I),D(I),E(I),F(I),I
     1=1,NSA1)
      WRITE (NOUT1,200) (H(I),I=1,7)
```

```
C*****************************************
C                MILK PRODUCTION REPORT
C*****************************************
      READ(NIN2)(AFRREC(IR(I)),ACHGFRR(IR(I)),
     1ABLEND(IR(I)),ANFP(IR(I)),ARODC(IR(I)),I=1,NSA1),
     2ASPRRC(2),CHASPR,AMBLND(2),ASNFP(2),ASRODC(2)

      READ (NIN2,END=999) (A(I),B(I),C(I),D(I),E(I),I=1,NSA1),(H(I),I=1,
     15)

C                SCALE TO MIL LBS AND $

      DO 80 I=1,NSA1
         C(I)=C(I)*SCALE2
         D(I)=D(I)*SCALE2
         E(I)=E(I)*SCALE2
   80 A(I)=A(I)*SCALE1
      H(1)=H(1)*SCALE1
      DO 81 I=3,5
   81 H(I)=H(I)*SCALE2
      IPAG=IPAG+1
      WRITE (NOUT1,232) DNUM,IPAG,NYRBG
      WRITE (NOUT1,202) (NOR(I),ONAME(I),A(I),B(I),C(I),D(I),E(I),I=1,NS
     1A1)
      WRITE (NOUT1,203) (H(I),I=1,5)

C*****************************************
C                PROCESSING REPORT
C*****************************************
      READ(NIN2)(AGRC1(IR(I)),AUTCP(IR(I)),ATRMC(IR(I)),
     1ATRANSR(IR(I)),AOAC1T(IR(I)),ATCCWT(IR(I)),I=1,NSA1),
     2AMUCP(2),ASTRMC,ASTRNSD,ASOAC1D,ASTCCWT,ASGRC1

      READ (NIN2,END=999) (A(I),B(I),C(I),D(I),E(I),F(I),I=1,NSA1),(H(I)
     1,I=1,6)

C                SCALE TO MIL LBS AND $

      DO 82 I=1,NSA1
         A(I)=A(I)*SCALE1
         C(I)=C(I)*SCALE2
         D(I)=D(I)*SCALE2
         E(I)=E(I)*SCALE2
   82 F(I)=F(I)*SCALE2
      H(2)=H(2)*SCALE2
      H(3)=H(3)*SCALE2
      H(4)=H(4)*SCALE2
      H(5)=H(5)*SCALE2
      H(6)=H(6)*SCALE1

      IPAG=IPAG+1
      WRITE (NOUT1,233) DNUM,IPAG,NYRBG
      WRITE (NOUT1,205) (NOR(I),ONAME(I),A(I),B(I),C(I),D(I),E(I),F(I),I
     1=1,NSA1)
      WRITE (NOUT1,206) (H(I),I=1,6)

C*****************************************
C             MANUFACTURING CENTER REPORT
C*****************************************
      READ(NIN2)(ATMMC(I),AUMCP(I),I=1,NSPM),ASCL3Q(2),ASMFGU(2)
```

```
      READ (NIN2,END=999) (BB(I),CC(I),I=1,NSPM),H(1),H(2)

                              SCALE TO MIL LBS

      DO 83 I=1,NSPM
   83 BB(I)=BB(I)*SCALE1
      H(1)=H(1)*SCALE1
      IPAG=IPAG+1
      WRITE (NOUT1,234) DNUM,IPAG,NYRBG
      DO 84 I=1,NSPM2
         IA=I
         IF (I.EQ.NSMF1.OR.I.EQ.NSMF2) GO TO 84
         IF (I.GT.NSMF2) IA=I-2
         IF (BB(IA).EQ.0.0) GO TO 84
         WRITE (NOUT1,208) MFID(I),MFNAME(I),BB(IA),CC(IA)
   84 CONTINUE
      WRITE (NOUT1,209) H(1),H(2)

                  ******************************************
                              CONSUMPTION REPORT
                  ******************************************
      READ(NIN2)(AIAC1S(IR(I)),ACH1AC1(IR(I)),ARPR(IR(I)),
     1AFRPS(IR(I)),I=1,NSA1),ASIAC1(2),CHASC1,AMRTL,AWFRPS(2)

      READ (NIN2,END=999) (A(I),B(I),C(I),D(I),I=1,NSA1),(H(I),I=1,4)

                              SCALE TO MIL LBS AND $

      DO 85 I=1,NSA1
   85 A(I)=A(I)*SCALE1
      H(1)=H(1)*SCALE1
      IF (NY.EQ.1) WRITE (NOUT2) (C(I),I=1,NSA1)
      IPAG=IPAG+1
      WRITE (NOUT1,235) DNUM,IPAG,NYRBG
      WRITE (NOUT1,211) (NOR(I),ONAME(I),A(I),B(I),C(I),D(I),I=1,NSA1)
      WRITE (NOUT1,212) (H(I),I=1,4)

                  ******************************************
                    CHECK TO SEE IF MOVEMENTS ARE WANTED
                  ******************************************

      IF (MR(YEND).GT.1) GO TO 101

                  ******************************************
                    RAW MILK MOVEMENTS FROM SUPPLY AREAS 1
                  ******************************************
      READ(NIN2)((ARMMD(IR(I),IR(J)),J=1,NT9),I=1,NT9),AMPPC,MOPC

   86 READ (NIN2,END=999) ((AA(I,J),J=1,NT9),I=1,NT9),(H(I),I=1,2)

                              SCALE TO MIL LBS AND $

      DO 87 I=1,2
   87 H(I)=H(I)*SCALE1
      IPAG=IPAG+1
      WRITE (NOUT1,236) DNUM,IPAG,NYRBG
      DO 89 I=1,NT9
         IJ=I
         IF (I.GT.NSA1) IJ=I+NSP
```

```
      IK=0
      DO 88 K=1,NT9
         AA(I,K)=AA(I,K)*SCALE1
         IF (AA(I,K).LE.0.0) GO TO 88
         IK=IK+1
         II(IK)=K
         III(IK)=K
         IF (K.GT.NSA1) III(IK)=K+NSP
88    CONTINUE
      IF (IK.LE.0) GO TO 89
      WRITE (NOUT1,214) NOR(IJ),(NOR(III(J)),AA(I,II(J)),J=1,IK)
89 CONTINUE
   WRITE (NOUT1,215) (H(I),I=1,2)

                  ****************************************
                    RAW MILK MOVEMENTS TO SUPPLY PLANTS 1
                  ****************************************
   READ(NIN2)((ARMMS(IR(I),IR(J)),J=1,NT9),I=1,NSP),ASOPC,ATMOP

   READ (NIN2,END=999) ((AA(I,J),J=1,NT9),I=1,NSP),H(1),H(2)

                                SCALE TO MIL LBS

   H(1)=H(1)*SCALE1
   H(2)=H(2)*SCALE1
   IPAG=IPAG+1
   WRITE (NOUT1,237) DNUM,IPAG,NYRBG
   DO 91 I=1,NSP
      IK=0
      DO 90 K=1,NT9
         AA(I,K)=AA(I,K)*SCALE1
         IF (AA(I,K).LE.0.0) GO TO 90
         IK=IK+1
         II(IK)=K
         III(IK)=K
         IF (K.GT.NSA1) III(IK)=K+NSP
90    CONTINUE
      IF (IK.LE.0) GO TO 91
      WRITE (NOUT1,214) NOR(I+NSA1),(NOR(III(J)),AA(I,II(J)),J=1,IK)
91 CONTINUE
   WRITE (NOUT1,217) H(1),H(2)

                  ****************************************
                RAW MILK MOVEMENTS TO MANUFACTURING CENTERS 2
                  ****************************************
   READ(NIN2)((AMMFG(I,J),J=1,NT10),I=1,NSA1),
  1((AMMFG(I,J),J=1,NT10),I=NT6,NT1),ASMDS,ASMDSD

   READ (NIN2,END=999) ((AA(I,J),J=1,NT10),I=1,NSA1),((AA(I,J),J=1,NT
  110),I=NT5,NT3),H(1),H(2)

                              SCALE TO MIL LBS AND $

   IPAG=IPAG+1
   WRITE (NOUT1,238) DNUM,IPAG,NYRBG
   H(1)=H(1)*SCALE1
   H(2)=H(2)*SCALE1
   DO 94 I=1,NT9
      IJK=I
      IF (I.LE.NSA1) IJK=IR(I)
```

```
      IJ=I
      IF (I.GT.NSA1) IJ=I+NSP
      IK=0
      IKNT=0
      DO 92 J=1,NDM1
         IF (IJK.EQ.MFG(J)) IKNT=NSMF2
92    CONTINUE
      DO 93 K=1,NMFG1
         AA(IJK,K)=AA(IJK,K)*SCALE1
         IF (AA(IJK,K).LE.0.0) GO TO 93
         IF (IKNT.EQ.K) IKNT=NSMF2
         IK=IK+1
         II(IK)=K
         KKK=K+IKNT
         IF (I.GT.NSA1.AND.K.LE.NMFGT) KKK=K
         II(IK+NSMF2)=KKK
93    CONTINUE
      IF (IK.LE.0) GO TO 94
      WRITE (NOUT1,219) NOR(IJ),(MFID(II(J+NSMF2)),AA(IJK,II(J)),J=1,
     1  IK)
94  CONTINUE
    WRITE (NOUT1,220) H(1),H(2)

                ****************************************
              SUPPLY PLANT MOVEMENTS TO MANUFACTURING CENTERS
                ****************************************
    READ(NIN2)((AMMFG(I+NSA1,J),J=1,NT10),I=1,NSP),ASMSP,ASMSPD

    READ (NIN2,END=999) ((AA(I,J),J=1,NT10),I=1,NSP),H(1),H(2)

                              SCALE TO MIL LBS

    IPAG=IPAG+1
    WRITE (NOUT1,239) DNUM,IPAG,NYRBG
    H(1)=H(1)*SCALE1
    H(2)=H(2)*SCALE1
    DO 97 I=1,NSP
       IK=0
       IKNT=0
       DO 95 J=1,NT9
          JJ=J
          IF (J.GT.NSA1) JJ=J+NSP
          IJK=J
          IF (J.LE.NSA1) IJK=IR(J)
       DO 95 KK=1,NDM1
          IF (NOR(I+NSA1).EQ.NOR(JJ).AND.IJK.EQ.MFG(KK)) IKNT=NSMF2
95     CONTINUE
       DO 96 K=1,NT10
          AA(I,K)=AA(I,K)*SCALE1
          IF (AA(I,K).LE.0.0) GO TO 96
          IF (IKNT.EQ.K) IKNT=NSMF2
          IK=IK+1
          II(IK)=K
          KKK=K+IKNT
          II(IK+NSMF2)=KKK
96     CONTINUE
       IF (IK.LE.0) GO TO 97
       WRITE (NOUT1,219) NOR(I+NSA1),(MFID(II(J+NSMF2)),AA(I,II(J)),J=
     1  1,IK)
97  CONTINUE
```

```
      WRITE (NOUT1,220) H(1),H(2)

                  ****************************************
                        PACKAGED MILK MOVEMENTS
                  ****************************************
      READ(NIN2)((APMM(IR(I),IR(J)),J=1,NT9),I=1,NT9),ASMPC,AMOCC

      READ (NIN2,END=999) ((AA(I,J),J=1,NT9),I=1,NT9),H(1),H(2)

                              SCALE TO MILL LBS

      DO 98 I=1,NT9
      DO 98 J=1,NT9
   98 AA(I,J)=AA(I,J)*SCALE1
      H(1)=H(1)*SCALE1
      H(2)=H(2)*SCALE1
      IPAG=IPAG+1
      WRITE (NOUT1,240) DNUM,IPAG,NYRBG
      DO 100 I=1,NT9
         IJ=I
         IF (I.GT.NSA1) IJ=I+NSP
         IK=0
         DO 99 K=1,NT9
            IF (AA(I,K).LE.0.0) GO TO 99
            IK=IK+1
            II(IK)=K
            III(IK)=K
            IF (K.GT.NSA1) III(IK)=K+NSP
   99    CONTINUE
         IF (IK.LE.0) GO TO 100
         WRITE (NOUT1,214) NOR(IJ),(NOR(III(J)),AA(I,II(J)),J=1,IK)
  100 CONTINUE
      WRITE (NOUT1,223) H(1),H(2)
  101 CONTINUE

                  ****************************************
            READ UNREGULATED BASE DATA; SCALE AND SUM DATA
                  ****************************************

      IF (ISTATE.EQ.0.OR.IMFGB.EQ.0) GO TO 106
      IF (YEND.GT.1) GO TO 104
      DO 102 J=1,4
      DO 102 K=1,MS
         READ (NIN1,END=999) UNREG(K),UNC1S(K),UNGBP(K),UNNBP(K),UNRODC(
     1   K)
         UNREG(K)=UNREG(K)*SCALE1
         UNC1S(K)=UNC1S(K)*SCALE1
         UNGBP(K)=UNGBP(K)*SCALE2
         UNNBP(K)=UNNBP(K)*SCALE2
         UNRODC(K)=UNRODC(K)*SCALE2
         AUNREG(1,K)=AUNREG(1,K)+UNREG(K)
         AUNC1S(1,K)=AUNC1S(1,K)+UNC1S(K)
         AUNGBP(1,K)=AUNGBP(1,K)+UNGBP(K)/4.
         AUNNBP(1,K)=AUNNBP(1,K)+UNNBP(K)/4.
         AUNROD(1,K)=AUNROD(1,K)+UNRODC(K)/4.
  102 CONTINUE

                  ****************************************
                      UNREGULATED GRADE A BASE REPORT
                  ****************************************
```

```
      W3=0.
      W2=W3
      W1=W2
      S2=W1
      S1=S2
      IPAG=IPAG+1
      NYBASE=NYRBG-1
      WRITE (NOUT1,241) DNUM,IPAG,NYBASE
      WRITE (NOUT1,225)
      DO 103 I=1,MS
         WRITE (NOUT1,226) NAME(I),AUNREG(1,I),AUNC1S(1,I),AUNGBP(1,I),A
     1   UNNBP(1,I),AUNROD(1,I)
         S1=S1+AUNREG(1,I)
         S2=S2+AUNC1S(1,I)
         W1=W1+AUNGBP(1,I)
         W2=W2+AUNNBP(1,I)
  103 W3=W3+AUNROD(1,I)
      W1=W1/FLOAT(MS)
      W2=W2/FLOAT(MS)
      W3=W3/FLOAT(MS)
      WRITE (NOUT1,227) S1,S2,W1,W2,W3,UNUT

                  ********************************************
                      UNREGULATED ANNUAL GRADE A REPORT
                  ********************************************

  104 CONTINUE

                IF(MR(YEND).EQ.0.OR.MR(YEND).GE.3) GO TO 203
      IPAG=IPAG+1
      WRITE (NOUT1,241) DNUM,IPAG,NYRBG
      WRITE (NOUT1,225)
      W3=0.
      W2=W3
      W1=W2
      S2=W1
      S1=S2
      DO 105 I=1,MS
         WRITE (NOUT1,226) NAME(I),AUNREG(YEND+1,I),AUNC1S(YEND+1,I),AUN
     1   GBP(YEND+1,I),AUNNBP(YEND+1,I),AUNROD(YEND+1,I)
         S1=S1+AUNREG(YEND+1,I)
         S2=S2+AUNC1S(YEND+1,I)
         W1=W1+AUNGBP(YEND+1,I)
         W2=W2+AUNNBP(YEND+1,I)
  105 W3=W3+AUNROD(YEND+1,I)
      W1=W1/FLOAT(MS)
      W2=W2/FLOAT(MS)
      W3=W3/FLOAT(MS)
      WRITE (NOUT1,227) S1,S2,W1,W2,W3,UNUT
  106 IF (YEND.NE.NY) GO TO 34

                  ********************************************
                      RESET DATA FOR VALIDATION PROCESS
                  ********************************************

      IF (NY.NE.1) GO TO 108
      IF (NVLD.EQ.1) GO TO 108
      REWIND NOUT2
```

```
      DO 107 J=1,5
  107 READ (NOUT2,END=999) (AA(I,J+5),I=1,NSA1)
      CALL SCLE (NSA1,10,AA,10.0)
      REWIND NOUT2
      WRITE (NOUT2,242) DNUM
      CALL OUTX (NSA1,AA,IR,NOR,NT,NOUT2,0)
  108 CALL SCLE (NT9,NTS,AA,0.0)
      IF (NY.NE.1) WRITE (NOUT2,242) DNUM

                  ******************************************
                     READ DATA FOR COMPARATIVE SUMMARY
                  ******************************************

      READ (NIN2,END=999) (((AA(I1,J),I1=1,25),(AA(I2,J+5),I2=1,25),(AA(
     1I3,J+10),I3=1,25),(AA(I4,J+15),I4=1,25),(AA(I5,J+20),I5=1,25),(AA(
     2I6,J+25),I6=1,25)),J=1,5)
      DO 109 I=1,4
      DO 109 J=1,30
  109 AA(I,J)=AA(I,J)*SCALE1
      DO 113 I=6,14
         IF (I.EQ.10) GO TO 111
         IF (I.GT.12) GO TO 111
         DO 110 J=1,30
  110    AA(I,J)=AA(I,J)*SCALE2
         GO TO 113
  111    DO 112 J=1,30
  112    AA(I,J)=AA(I,J)*SCALE3
  113 CONTINUE
      DO 114 I=19,25
      DO 114 J=1,30
  114 AA(I,J)=AA(I,J)*SCALE3
      IF (IPLT.NE.1) GO TO 116
      DO 115 I=KN1,KN2
         CALL OUTY (NSA1,AA,NOUT2,JPLT(I))
  115 CONTINUE
  116 DO 117 I=1,5
         IPAG=IPAG+1
         IF (I.LT.5) WRITE (NOUT1,243) DNUM,IPAG,I,(NY2(KN),KN=1,6)
         IF (I.EQ.5) WRITE (NOUT1,244) DNUM,IPAG,(NY2(KN),KN=1,6)
  117 WRITE (NOUT1,245) (AA(K,I),AA(K,I+5),AA(K,I+10),AA(K,I+15),AA(K,I+
     120),AA(K,I+25),K=1,25)

                  ******************************************
                  READ DATA FOR VARIABLES IN COMPARATIVE REPORTS
                  ******************************************

      IF (ISTATE.GT.0) ISTATE=2
      IF (ISTATE.LE.0) ISTATE=1
      IF (NIC.EQ.0) GO TO 148
      IF (KN3.EQ.0.OR.KN4.EQ.0) IPLT=0
      KJ=0
      DO 146 IJK=1,NIC
         N1=KJ+1
         DO 118 M=N1,10
            IF (ICR(M).EQ.0.AND.ICRS(M).EQ.0) GO TO 118
            KJ=M
            GO TO 119
  118    CONTINUE
  119    READ (NIN2,END=999) (((AA(I1,J),I1=1,NT9),(AA(I2,J+5),I2=1,NT9)
     1   ,(AA(I3,J+10),I3=1,NT9),(AA(I4,J+15),I4=1,NT9),(AA(I5,J+20),I5=
```

```
     2   1,NT9),(AA(I6,J*25),I6=1,NT9)),J=1,5)
         GO TO (120,124,128,130,132,134,136,140,142,144), KJ

                        ****************************************
                                    PRODUCER RECEIPTS
                        ****************************************

   120   IF (NY.EQ.1) CALL OUTX (NSA1,AA,IR,NOR,NT,NOUT2,1)
         CALL SCLE (NT9,30,AA,SCALE1)
         IF (IPLT.NE.1) GO TO 122
         DO 121 I=KN3,KN4
            KPLT=IR(JPLT(I))
            CALL OUTY (NSA1,AA,NOUT2,KPLT)
   121   CONTINUE
   122   DO 123 K=1,ISTATE
            IF (K.EQ.1.AND.ICR(KJ).LE.0) GO TO 123
            IF (K.GT.1.AND.ICRS(KJ).LE.0) GO TO 123
            NSA2=1+(K-1)*NSA1
            NSA3=NSA1+(K-1)*NSA1S
         DO 123 I=1,5
            IPAG=IPAG+1
            IF (I.LT.5) WRITE (NOUT1,248) DNUM,IPAG,(CMP(J,K),J=1,2),I,(
     1      NY2(KN),KN=1,6)
            IF (I.EQ.5) WRITE (NOUT1,247) DNUM,IPAG,(CMP(J,K),J=1,2),(NY
     1      2(KN),KN=1,6)
            CALL RITE (I,NSA2,NSA3,K,IR,NOR,ONAME,AA,0,NOUT1)
   123   CONTINUE
         GO TO 146

                        ****************************************
                                    CLASS I SALES
                        ****************************************

   124   IF (NY.EQ.1) CALL OUTX (NSA1,AA,IR,NOR,NT,NOUT2,1)
         CALL SCLE (NT9,30,AA,SCALE1)
         IF (IPLT.NE.1) GO TO 126
         DO 125 I=KN3,KN4
            KPLT=IR(JPLT(I))
            CALL OUTY (NSA1,AA,NOUT2,KPLT)
   125   CONTINUE
   126   DO 127 K=1,ISTATE
            IF (K.EQ.1.AND.ICR(KJ).LE.0) GO TO 127
            IF (K.GT.1.AND.ICRS(KJ).LE.0) GO TO 127
            NSA2=1+(K-1)*NSA1
            NSA3=NSA1+(K-1)*NSA1S
         DO 127 I=1,5
            IPAG=IPAG+1
            IF (I.LT.5) WRITE (NOUT1,248) DNUM,IPAG,(CMP(J,K),J=1,2),I,(
     1      NY2(KN),KN=1,6)
            IF (I.EQ.5) WRITE (NOUT1,249) DNUM,IPAG,(CMP(J,K),J=1,2),(NY
     1      2(KN),KN=1,6)
            CALL RITE (I,NSA2,NSA3,K,IR,NOR,ONAME,AA,0,NOUT1)
   127   CONTINUE
         GO TO 146

                        ****************************************
                                    CLASS II SALES
                        ****************************************

   128   IF (NY.EQ.1) CALL OUTX (NSA1,AA,IR,NOR,NT,NOUT2,1)
```

```
      CALL SCLE (NT9,30,AA,SCALE1)
      DO 129 K=1,ISTATE
         IF (K.EQ.1.AND.ICR(KJ).LE.0) GO TO 129
         IF (K.GT.1.AND.ICRS(KJ).LE.0) GO TO 129
         NSA2=1+(K-1)*NSA1
         NSA3=NSA1+(K-1)*NSA1S
      DO 129 I=1,5
         IPAG=IPAG+1
         IF (I.LT.5) WRITE (NOUT1,252) DNUM,IPAG,(CMP(J,K),J=1,2),I,(
     1   NY2(KN),KN=1,6)
         IF (I.EQ.5) WRITE (NOUT1,253) DNUM,IPAG,(CMP(J,K),J=1,2),(NY
     1   2(KN),KN=1,6)
         CALL RITE (I,NSA2,NSA3,K,IR,NOR,ONAME,AA,0,NOUT1)
  129 CONTINUE
      GO TO 146

                  ******************************************
                              CLASS III SALES
                  ******************************************

  130 IF (NY.EQ.1) CALL OUTX (NSA1,AA,IR,NOR,NT,NOUT2,1)
      CALL SCLE (NT9,30,AA,SCALE1)
      DO 131 K=1,ISTATE
         IF (K.EQ.1.AND.ICR(KJ).LE.0) GO TO 131
         IF (K.GT.1.AND.ICRS(KJ).LE.0) GO TO 131
         NSA2=1+(K-1)*NSA1
         NSA3=NSA1+(K-1)*NSA1S
      DO 131 I=1,5
         IPAG=IPAG+1
         IF (I.LT.5) WRITE (NOUT1,254) DNUM,IPAG,(CMP(J,K),J=1,2),I,(
     1   NY2(KN),KN=1,6)
         IF (I.EQ.5) WRITE (NOUT1,255) DNUM,IPAG,(CMP(J,K),J=1,2),(NY
     1   2(KN),KN=1,6)
         CALL RITE (I,NSA2,NSA3,K,IR,NOR,ONAME,AA,0,NOUT1)
  131 CONTINUE
      GO TO 146

                  ******************************************
                              CLASS I UTILIZATION
                  ******************************************

  132 DO 133 K=1,ISTATE
         IF (K.EQ.1.AND.ICR(KJ).LE.0) GO TO 133
         IF (K.GT.1.AND.ICRS(KJ).LE.0) GO TO 133
         NSA2=1+(K-1)*NSA1
         NSA3=NSA1+(K-1)*NSA1S
      DO 133 I=1,5
         IPAG=IPAG+1
         IF (I.LT.5) WRITE (NOUT1,256) DNUM,IPAG,(CMP(J,K),J=1,2),I,(
     1   NY2(KN),KN=1,6)
         IF (I.EQ.5) WRITE (NOUT1,257) DNUM,IPAG,(CMP(J,K),J=1,2),(NY
     1   2(KN),KN=1,6)
         CALL RITE (I,NSA2,NSA3,K,IR,NOR,ONAME,AA,0,NOUT1)
  133 CONTINUE
      IF (NY.NE.1) GO TO 146
      CALL SCLE (NT3,10,AA,10.0)
      CALL OUTX (NSA1,AA,IR,NOR,NT,NOUT2,1)
      GO TO 146

                  ******************************************
```

```
                        CLASS I PRICE
                *****************************************

134     CALL SCLE (NT9,30,AA,SCALE2)
        DO 135 K=1,ISTATE
           IF (K.EQ.1.AND.ICR(KJ).LE.0) GO TO 135
           IF (K.GT.1.AND.ICRS(KJ).LE.0) GO TO 135
           NSA2=1+(K-1)*NSA1
           NSA3=NSA1+(K-1)*NSA1S
        DO 135 I=1,5
           IPAG=IPAG+1
           IF (I.LT.5) WRITE (NOUT1,258) DNUM,IPAG,(CMP(J,K),J=1,2),I,(
     1     NY2(KN),KN=1,6)
           IF (I.EQ.5) WRITE (NOUT1,259) DNUM,IPAG,(CMP(J,K),J=1,2),(NY
     1     2(KN),KN=1,6)
           CALL RITE (I,NSA2,NSA3,K,IR,NOR,ONAME,AA,1,NOUT1)
135     CONTINUE
        GO TO 146

                *****************************************
                           BLEND PRICE
                *****************************************

136     CALL SCLE (NT9,30,AA,SCALE2)
        IF (IPLT.NE.1) GO TO 138
        DO 137 I=KN3,KN4
           KPLT=IR(JPLT(I))
           CALL OUTY (NSA1,AA,NOUT2,KPLT)
137     CONTINUE
138     DO 139 K=1,ISTATE
           IF (K.EQ.1.AND.ICR(KJ).LE.0) GO TO 139
           IF (K.GT.1.AND.ICRS(KJ).LE.0) GO TO 139
           NSA2=1+(K-1)*NSA1
           NSA3=NSA1+(K-1)*NSA1S
        DO 139 I=1,5
           IPAG=IPAG+1
           IF (I.LT.5) WRITE (NOUT1,260) DNUM,IPAG,(CMP(J,K),J=1,2),I,(
     1     NY2(KN),KN=1,6)
           IF (I.EQ.5) WRITE (NOUT1,261) DNUM,IPAG,(CMP(J,K),J=1,2),(NY
     1     2(KN),KN=1,6)
           CALL RITE (I,NSA2,NSA3,K,IR,NOR,ONAME,AA,1,NOUT1)
139     CONTINUE
        GO TO 146

                *****************************************
                     PROCESSING CAPACITY UTILIZATION
                *****************************************

140     DO 141 K=1,ISTATE
           IF (K.EQ.1.AND.ICR(KJ).LE.0) GO TO 141
           IF (K.GT.1.AND.ICRS(KJ).LE.0) GO TO 141
           NSA2=1+(K-1)*NSA1
           NSA3=NSA1+(K-1)*NSA1S
        DO 141 I=1,5
           IPAG=IPAG+1
           IF (I.LT.5) WRITE (NOUT1,262) DNUM,IPAG,(CMP(J,K),J=1,2),I,(
     1     NY2(KN),KN=1,6)
           IF (I.EQ.5) WRITE (NOUT1,263) DNUM,IPAG,(CMP(J,K),J=1,2),(NY
     1     2(KN),KN=1,6)
           CALL RITE (I,NSA2,NSA3,K,IR,NOR,ONAME,AA,0,NOUT1)
```

```
141     CONTINUE
        GO TO 146

                ****************************************
                        TOTAL PROCESSING COST
                ****************************************

142     CALL SCLE (NT9,30,AA,SCALE2)
        DO 143 K=1,ISTATE
           IF (K.EQ.1.AND.ICR(KJ).LE.0) GO TO 142
           IF (K.GT.1.AND.ICRS(KJ).LE.0) GO TO 142
           NSA2=1+(K-1)*NSA1
           NSA3=NSA1+(K-1)*NSA1S
        DO 143 I=1,5
           IPAG=IPAG+1
           IF (I.LT.5) WRITE (NOUT1,264) DNUM,IPAG,(CMP(J,K),J=1,2),I,(
     1     NY2(KN),KN=1,6)
           IF (I.EQ.5) WRITE (NOUT1,265) DNUM,IPAG,(CMP(J,K),J=1,2),(NY
     1     2(KN),KN=1,6)
           CALL RITE (I,NSA2,NSA3,K,IR,NOR,ONAME,AA,1,NOUT1)
143     CONTINUE
        GO TO 146

                ****************************************
                        IN AREA CLASS I SALES
                ****************************************

144     CALL SCLE (NT9,30,AA,SCALE1)
        DO 145 K=1,ISTATE
           IF (K.EQ.1.AND.ICR(KJ).LE.0) GO TO 145
           IF (K.GT.1.AND.ICRS(KJ).LE.0) GO TO 145
           NSA2=1+(K-1)*NSA1
           NSA3=NSA1+(K-1)*NSA1S
        DO 145 I=1,5
           IPAG=IPAG+1
           IF (I.LT.5) WRITE (NOUT1,250) DNUM,IPAG,(CMP(J,K),J=1,2),I,(
     1     NY2(KN),KN=1,6)
           IF (I.EQ.5) WRITE (NOUT1,251) DNUM,IPAG,(CMP(J,K),J=1,2),(NY
     1     2(KN),KN=1,6)
           CALL RITE (I,NSA2,NSA3,K,IR,NOR,ONAME,AA,0,NOUT1)
145     CONTINUE
146  CONTINUE
     GO TO 148
999  WRITE (NOUT1,266)
148  CONTINUE

     STOP

                                FORMATS

149  FORMAT (14I3)
150  FORMAT (1H1,20X,29HINPUT FORM FOR DAMPS - MODEL ,A2,12X,5HPAGE ,I3
     1,1H./21X,31(1H-)/25X,15HDECISION NAME -,1X,A6/25X,22(1H=)//)
151  FORMAT (2X,32HTHE NUMBER OF PROPOSED MERGERS =,I3,1H.)
152  FORMAT (/2X,6HMERGER,I3,19H - NUMBER OF ORDERS,12H IN MERGER =,I3,
     11H./7X,13HORDER NUMBERS/7X,13(1H-)/(7X,15I4))
153  FORMAT (/23X,25HBLEND PRICE DIFFERENTIALS/23X,25(1H-)/2X,34HOPTION
     1 1 - LOCATION DIFFERENTIAL =,F8.4//2X,5HORDER,15X,5HBLEND/3X,3HNO.
     2,8X,4HNAME,5X,12HDIFFERENTIAL/3X,3H---,5X,10(1H-),2X,12(1H-))
154  FORMAT (/23X,25HBLEND PRICE DIFFERENTIALS/23X,25(1H-)/2X,40HOPTION
```

```
     1 2 - USER SPECIFIED DIFFERENTIALS.//2X,5HORDER,19X,5HBLEND/3X,3HNO
     2.,8X,4HNAME,5X,12HDIFFERENTIAL/3X,3H---,5X,10(1H-),2X,12(1H-))
  155 FORMAT (3X,I3,5X,A10,F11.4)
  156 FORMAT (2X,45H3.  CHANGE CLASS I PRICE LEVEL AND STRUCTURE./42X,5H
     1PRICE/33X,23(1H-)/9X,5HORDER,19X,4HLAST,3X,5HPROP.,4X,6HQUART./10X
     2,3HNO.,3X,4HNAME,6X,2(2X,5HPRICE),2X,9HABS.CHGE./10X,3(1H-),5X,10(
     31H-),5X,5(1H-),2X,5(1H-),2X,9(1H-))
  157 FORMAT (10X,I3,5X,A10,4X,F6.2,F7.2,F9.2)
  158 FORMAT (2X,47H3-S.  CHANGE CLASS I PRICE LEVEL AND STRUCTURE-,7HST
     1ATES./42X,5HPRICE/33X,23(1H-)/9X,5HSTATE,19X,4HLAST,3X,5HPROP.,4X,
     26HQUART./10X,3HNO.,8X,4HNAME,6X,2(2X,5HPRICE),2X,9HABS.CHGE./10X,3
     33(1H-),5X,10(1H-),5X,5(1H-),2X,5(1H-),2X,9(1H-))
  159 FORMAT (//4X,57HNOTE... LAST PRICE IS MINIMUM FEDERAL ORDER PRICE
     1FOR THE/12X,13H4TH QUARTER, ,I4,1H./1H1,19X,30HINPUT FORM FOR  DAM
     2PS - MODEL ,A2,11X,5HPAGE ,I3,1H./20X,32(1H-)/25X,15HDECISION NAME
     3 -,1X,A6/25X,22(1H=)//2X,33H4.  CHANGE CLASS II PRICE LEVEL -,15H
     4LAST PRICE = $,F5.2/6X,14HPROPOSED PRICE,F10.2,2X,21HQUARTERLY ABS
     5. CHANGE,F10.2//2X,49H5.  CHANGE CLASS III PRICE LEVEL - LAST PRIC
     6E = $,F5.2/6X,14HPROPOSED PRICE,F10.2,2X,21HQUARTERLY ABS. CHANGE,
     7F10.2/)
  160 FORMAT (2X,20H6.  REPORTS DESIRED.//6X,8HA. YEARS,1X,5(6X,I4)/15X,
     15(6X,4H----)/14X,5(8X,I2)/)
  161 FORMAT (6X,11HB. QUARTERS/11X,3H1ST,5(8X,I2)/11X,3H2ND,5(8X,I2)/11
     1X,3H3RD,5(8X,I2)/11X,3H4TH,5(8X,I2)/)
  162 FORMAT (2X,30H7.  LAST YEAR TO BE ANALYZED -,7X,I4//2X,36H8.  PRIN
     1T REPORT SHOWING BASE DATA -,I5//2X,34H9.  OPTION FOR EXOGENOUS FA
     2CTORS -,I7///4X,57HNOTE... LAST PRICE IS MINIMUM FEDERAL ORDER PRI
     3CE FOR THE/12X,13H4TH QUARTER, ,I4,1H.)
  163 FORMAT (1X,49H10.  DATA TO BE READ FROM SUPPLEMENTAL INPUT FORM,5H
     1 F-A.//9X,45HA.  READ PERCENTAGES FOR QUARTERLY CHANGES IN/13X,24H
     2CLASS I, II, III PRICES.,22X,I4//9X,29HB.  READ DEMAND ELASTICITIE
     3S.,21X,I4//9X,29HC.  READ SUPPLY ELASTICITIES.,21X,I4//9X,40HD.  R
     4EAD HANDLING CHARGES ON INTRA-ORDER/13X,23HSUPPLY PLANT SHIPMENTS.
     5,23X,I4//9X,40HE.  READ HANDLING CHARGES ON INTER-ORDER/13X,23HSUP
     6PLY PLANT SHIPMENTS.,23X,I4//9X,30HF.  READ RESERVE REQUIREMENTS.,
     720X,I4//)
  164 FORMAT (1X,54H11.  DATA TO BE READ FROM SUPPLEMENTAL INPUT FORM S-
     1A.//9X,45HA.  READ PERCENTAGES FOR QUARTERLY CHANGES IN/13X,24HCLA
     2SS I, II, III PRICES.,22X,I4//9X,29HB.  READ DEMAND ELASTICITIES.,
     321X,I4//9X,29HC.  READ SUPPLY ELASTICITIES.,21X,I4//9X,30HD.  READ
     4 RESERVE REQUIREMENTS.,20X,I4//)
  165 FORMAT (1X,45H12.  SUPPLEMENTAL PRICE INPUT, FEDERAL ORDER.//9X,42
     1HA.  READ QUARTERLY CLASS I, II, III PRICES/13X,14HFROM FORM F-B.,
     232X,I4//9X,30HB.  READ A CLASS I BASE PRICE,,18H QUARTERLY CHANGE,
     3/13X,35HAND LOCATION DIFFERENTIAL FROM FORM,5H F-C.,6X,I4//9X,42HC
     4.  READ QUARTERLY CLASS I BASE PRICES AND/13X,35HCLASS II, III PRI
     5CES FROM FORM F-D.,11X,I4//)
  166 FORMAT (1X,43H13.  SUPPLEMENTAL PRICE INPUT, STATE ORDER.//9X,43HA
     1.  READ QUARTERLY CLASS I, II, III, PRICES/13X,9HFROM FORM,5H S-B.
     2,32X,I4//9X,41HB.  READ A CLASS I BASE PRICE, QUARTERLY ,7HCHANGE,
     3/13X,40HAND LOCATION DIFFERENTIAL FORM FORM S-C.,6X,I4//9X,42HC.
     4READ QUARTERLY CLASS I BASE PRICES AND/13X,38HCLASS II AND III PRI
     5CES FROM FORM S-D.,8X,I4/)
  167 FORMAT (1X,39H14.  CHANGE CLASS II PRICE ELASTICITY -,18H BASE ELA
     1STICITY =,F6.2/6X,18HPROPOSED ELASTICITY,28X,F10.3//1X,53H15.  REM
     2OVE CLASS I PROCESSING CAPACITY RESTRICTION -,I9//1X,52H16.  REMOV
     3E MANUFACTURED MILK CAPACITY RESTRICTION -,I10//1X,44H17.  REMOVE
     4PACKAGED MILK FLOW RESTRICTION -,13X,I5//1X,39H18.  REMOVE RAW MIL
     5K FLOW RESTRICTION -,18X,I5//1X,36H19.  OPTION FOR CLASS I SALES B
     6ASE -,21X,I5//1X,33H20.  COMPARATIVE REPORTS DESIRED.,22H (MAXIMU
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     7M OF FIVE (5)/6X,27HCAN BE REQUESTED FOR A RUN)//9X,22HA. PRODUCER
     8 RECEIPTS -,I10/9X,18HB. CLASS I SALES -,I14/9X,19HC. CLASS II SAL
     9ES -,I13/9X,20HD. CLASS III SALES -,I12/9X,24HE. CLASS I UTILIZATI
     *ON -,I8/9X,18HF. CLASS I PRICE -,I14/9X,16HG. BLEND PRICE -,I16/9X
     *,24HH. PROCESSING CAP. USE -,I8/9X,26HI. TOTAL PROCESSING COST -,I
     *6/9X,26HJ. IN AREA CLASS I SALES -,I6/)
 168 FORMAT (1X,40H21.  COMPARATIVE REPORTS DESIRED-STATES.,22H  (MAXIM
     1UM OF FIVE (5)/6X,27HCAN BE REQUESTED FOR A RUN)//9X,22HA. PRODUCE
     2R RECEIPTS -,I10/9X,18HB. CLASS I SALES -,I14/9X,19HC. CLASS II SA
     3LES -,I13/9X,20HD. CLASS III SALES -,I12/9X,24HE. CLASS I UTILIZAT
     4ION -,I8/9X,18HF. CLASS I PRICE -,I14/9X,16HG. BLEND PRICE -,I16/9
     5X,24HH. PROCESSING CAP. USE -,I8/9X,26HI. TOTAL PROCESSING COST -,

     6I6/9X,26HJ. IN AREA CLASS I SALES -,I6)
 169 FORMAT (1X,41H22.  DESIRED GOVERNMENT STOCKS OF CHEESE.//26X,1HI,1
     10X,2HII,9X,3HIII,10X,2HIV/13X,4H1977,4F12.0/13X,4H1978,4F12.0/,13X
     2,4H1979,4F12.0/,13X,4H1980,4F12.0/13X,4H1981,4F12.0//)
 170 FORMAT (1X,40H23.  GOVERNMENT STOCKS RELEASED OPTION -,18X,I4//1X,
     127H24.  IMPORT CHANGE OPTION -,31X,I4//1X,35H25.  MANUFACTURING RE
     2PORTS DESIRED.//9X,18HA.  YEARLY REPORTS//13X,4HYEAR,8X,31H  1977
     3  1978  1979  1980  1981/28X,5(4(1H-),2X)//25X,5I6//9X,23HB.  COMP
     4ARATIVE REPORTS//13X,19HA.  GRADE B PROD. -,11X,I4/13X,21HB.  TOTA
     5L MFG PROD. -,I13/13X,20HC.  CLASS II CONS. -,10X,I4/13X,18HD.  CH
     6EESE CONS. -,12X,I4/13X,18HE.  BUTTER CONS. -,I16/13X,27HF.  NONFA
     7T DRY MILK CONS. -,I7/13X,27HG.  MISC. CLASS III CONS. -,I7/13X,20
     8HH.  END COMM CHEESE ,6HSTK. -,I8/13X,26HI.  END COMM BUTTER STK.
     9-,I8/13X,24HJ.  END COMM NFDM STK. -,I10/13X,26HK.  END GOVT CHEES
     *E STK. -,I8/13X,26HL.  END GOVT BUTTER STK. -,I8/13X,13HM.  END GO
     *VT ,11HNFDM STK. -,I10/13X,2HN.,28X,I4/)
 171 FORMAT (1H1,15X,38HSUPPLEMENTAL INPUT FOR  DAMPS - MODEL ,A2,7X,5H
     1PAGE ,I3,1H./16X,40(1H-)/32X,8HFORM F-A/32X,8(1H=)/25X,15HDECISION
     2 NAME -,1X,A6/25X,22(1H=)//19X,7HCLASS I,20X,5HHAND.,3X,5HHAND./20
     3X,5HPRICE,20X,6HCHARGE,2X,6HCHARGE/2X,5HORDER,11X,25HQUARTERLY  DE
     4MAND  SUPPLY,4X,3HOWN,4X,14HOTHER  RESERVE/3X,3HNO.,4X,4HNAME,4X,2
     55HPCT.CHGE.  ELAST.  ELAST.,2X,14HMARKET  MARKET,4X,4HREQ./3X,3(1H
     6-),4X,4(1H-),4X,9(1H-),4(2X,6H-------),2X,7(1H-))
 172 FORMAT (3X,I3,1X,A10,F8.2,F9.3,3F8.3,F9.1)
 173 FORMAT (1H0,2X,39HCLASS II PRICE QUARTERLY PERCENT CHANGE,F8.2/3X,
     140HCLASS III PRICE QUARTERLY PERCENT CHANGE,F7.2)
 174 FORMAT (1H1,15X,38HSUPPLEMENTAL INPUT FOR  DAMPS - MODEL ,A2,7X,5H
     1PAGE ,I3,1H./16X,40(1H-)/32X,8HFORM F-B/32X,8(1H=)/25X,15HDECISION
     2 NAME -,1X,A6/22X,25(1H=)//29X,14HCLASS I PRICES/29X,14(1H-)/30X,6
     3HYEAR -,1X,I4/30X,11(1H-)/37X,7HQUARTER/1X,5HORDER,17X,35(1H-)/2X,
     43HNO.,6X,4HNAME,9X,3H(1),7X,3H(2),7X,3H(3),7X,3H(4)/2X,3(1H-),3X,1
     50(1H-),4(5X,5H------))
 175 FORMAT (2X,I3,3X,A10,4F10.2)
 176 FORMAT (1H1,15X,37HSUPPLEMENTAL INPUT FOR DAMPS - MODEL ,A2,7X,5HP
     1AGE ,I3,1H./16X,40(1H-)/32X,8HFORM F-B/32X,8(1H=)/25X,15HDECISION
     2NAME -,1X,A6/22X,25(1H=)/)
 177 FORMAT (31X,19H- CLASS II PRICES -/31X,19(1H-)/37X,7HQUARTER/23X,3
     15(1H-)/9X,4HYEAR,11X,3H(1),7X,3H(2),7X,3H(3),7X,3H(4)/9X,4(1H-),5X
     2,4(5X,5H------)/9X,I4,5X,4F10.2/9X,I4,5X,4F10.2/9X,I4,5X,4F10.2/9X,
     3I4,5X,4F10.2/9X,I4,5X,4F10.2)
 178 FORMAT (//30X,20H- CLASS III PRICES -/30X,20(1H-)/37X,7HQUARTER/23
     1X,35(1H-)/9X,4HYEAR,11X,3H(1),7X,3H(2),7X,3H(3),7X,3H(4)/9X,4(1H-)
     2,5X,4(5X,5H------)/9X,I4,5X,4F10.2/9X,I4,5X,4F10.2/9X,I4,5X,4F10.2/
     39X,I4,5X,4F10.2/9X,I4,5X,4F10.2)
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179 FORMAT (1H1,15X,38HSUPPLEMENTAL INPUT FOR  DAMPS - MODEL ,A2,7X,5H
   1PAGE ,I3,1H./16X,40(1H-)/32X,8HFORM F-C/32X,8(1H=)/25X,15HDECISION
   2 NAME -,1X,A6/25X,22(1H=)//1X,28H17.  LOCATION DIFFERENTIAL -,10X,
   3F10.4//1X,37H18.  QUARTERLY CHANGE IN BASE PRICE -,1X,F10.2//1X,25
   4H19.  CLASS I BASE PRICE -,13X,F10.2)
180 FORMAT (1H1,15X,38HSUPPLEMENTAL INPUT FOR  DAMPS - MODEL ,A2,7X,5H
   1PAGE ,I3,1H./16X,40(1H-)/32X,8HFORM F-D/32X,8(1H=)/25X,15HDECISION
   2 NAME -,1X,A6/25X,22(1H=)//1X,28H17.  LOCATION DIFFERENTIAL -,10X,
   3F10.4//1X,29H18.  CLASS I, II, III PRICES.//29X,23H- CLASS I BASE
   4PRICES -/29X,23(1H-)/37X,7HQUARTER/23X,35(1H-)/9X,4HYEAR,11X,3H(1)
   5,7X,3H(2),7X,3H(3),7X,3H(4)/9X,4(1H-),5X,4(5X,5H-----)/9X,I4,5X,4F
   610.2/9X,I4,5X,4F10.2/9X,I4,5X,4F10.2/9X,I4,5X,4F10.2/9X,I4,5X,4F10
   7.2//)
181 FORMAT (1H1,13X,43HGENERATED PRICE SURFACE FOR  DAMPS - MODEL ,A2,
   15X,5HPAGE ,I3,1H./14X,45(1H-)/25X,15HDECISION NAME -,1X,A6/22X,25(
   21H=)//29X,14HCLASS I PRICES/29X,14(1H-)/30X,6HYEAR -,1X,I4/30X,11(
   31H-)/37X,7HQUARTER/1X,5HORDER,17X,35(1H-)/2X,3HNO.,6X,4HNAME,9X,3H
   4(1),7X,3H(2),7X,3H(3),7X,3H(4)/2X,3(1H-),3X,10(1H-),4(5X,5H-----))
182 FORMAT (1H1,15X,38HSUPPLEMENTAL INPUT FOR  DAMPS - MODEL ,A2,7X,5H
   1PAGE ,I3,1H./16X,40(1H-)/32X,8HFORM S-A/32X,8(1H=)/25X,15HDECISION
   2 NAME -,1X,A6/25X,22(1H=)//19X,7HCLASS I/20X,5HPRICE/2X,5HSTATE,11
   3X,25HQUARTERLY  DEMAND  SUPPLY,2X,7HRESERVE/3X,3HNO.,4X,4HNAME,4X,
   425HPCT.CHGE.  ELAST.  ELAST.,4X,4HREQ./3X,3(1H-),4X,4(1H-),4X,9(1H
   5-),2(2X,6H------),2X,7(1H-))
183 FORMAT (3X,I3,1X,A10,F8.2,F9.3,F8.3,F9.1)
184 FORMAT (1H1,15X,38HSUPPLEMENTAL INPUT FOR  DAMPS - MODEL ,A2,7X,5H
   1PAGE ,I3,1H./16X,40(1H-)/32X,8HFORM S-B/32X,8(1H=)/25X,15HDECISION
   2 NAME -,1X,A6/22X,25(1H=)//29X,14HCLASS I PRICES/29X,14(1H-)/30X,6
   3HYEAR -,1X,I4/30X,11(1H-)/37X,7HQUARTER/1X,5HORDER,17X,35(1H-)/2X,
   43HNO.,6X,4HNAME,9X,3H(1),7X,3H(2),7X,3H(3),7X,3H(4)/2X,3(1H-),3X,1
   50(1H-),4(5X,5H-----))
185 FORMAT (2X,I3,3X,A10,4F10.2)
186 FORMAT (1H1,15X,38HSUPPLEMENTAL INPUT FOR  DAMPS - MODEL ,A2,7X,5H
   1PAGE ,I3,1H./16X,40(1H-)/32X,8HFORM S-C/32X,8(1H=)/25X,15HDECISION
   2 NAME -,1X,A6/25X,22(1H=)//1X,28H17.  LOCATION DIFFERENTIAL -,10X,
   3F10.4//1X,37H18.  QUARTERLY CHANGE IN BASE PRICE -,1X,F10.2//1X,25
   4H19.  CLASS I BASE PRICE -,13X,F10.2)
187 FORMAT (1H1,15X,38HSUPPLEMENTAL INPUT FOR  DAMPS - MODEL ,A2,7X,5H
   1PAGE ,I3,1H./16X,40(1H-)/32X,8HFORM S-D/32X,8(1H=)/25X,15HDECISION
   2 NAME -,1X,A6/25X,22(1H=)//1X,28H17.  LOCATION DIFFERENTIAL -,10X,
   3F10.4//1X,20H18.  CLASS I PRICES.//29X,23H- CLASS I BASE PRICES -/
   429X,23(1H-)/37X,7HQUARTER/23X,35(1H-)/9X,4HYEAR,11X,3H(1),7X,3H(2)
   5,7X,3H(3),7X,3H(4)/9X,4(1H-),5X,4(5X,5H-----)/9X,I4,5X,4F10.2/9X,I
   64,5X,4F10.2/9X,I4,5X,4F10.2/9X,I4,5X,4F10.2/9X,I4,5X,4F10.2//)
188 FORMAT (1H1,13X,43HGENERATED PRICE SURFACE FOR  DAMPS - MODEL ,A2,
   15X,5HPAGE ,I3,1H./14X,45(1H-)/25X,15HDECISION NAME -,1X,A6/22X,25(
   21H=)//29X,14HCLASS I PRICES/29X,14(1H-)/30X,6HYEAR -,1X,I4/30X,11(
   31H-)/37X,7HQUARTER/1X,5HORDER,17X,35(1H-)/2X,3HNO.,6X,4HNAME,9X,3H
   4(1),7X,3H(2),7X,3H(3),7X,3H(4)/2X,3(1H-),3X,10(1H-),4(5X,5H-----))
189 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//23X,25HSUMMARY FOR ORDER MERGERS/23X,25(1H-)/27X,7HQUARTER,
   2I2,1X,4HYEAR,I5/27X,19(1H-)/65X,5HGROSS/34X,8HPRODUCER,3X,7HCLASS
   3I,3X,7HCLASS I,3X,5HBLEND/2X,6HMERGER,26X,8HRECEIPTS,4X,5HSALES,6X
   4,3HUSE,5X,5HPRICE/2X,6HNUMBER,26X,8HMIL.LBS.,3X,8HMIL.LBS.,4X,4HPC
   5T.,4X,5H$/CWT/3X,4H----,27X,8(1H-),3X,8(1H-),2X,7(1H-),3X,5(1H-))
190 FORMAT (3X,I3,7X,17HORDERS IN MERGER ,F12.1,F10.1,F9.1,F9.2)
191 FORMAT (9X,24(1H-)/(9X,6I4))
192 FORMAT (9X,24(1H-)/)
193 FORMAT (1H1,23X,15HDECISION NAME -,1X,A6,17X,5HPAGE ,I3,1H./24X,22
   1(1H=)//28X,14HSUMMARY REPORT/28X,14(1H-)/25X,7HQUARTER,I2,1X,4HYEA
   2R,I5/25X,19(1H-)/45X,4HTHIS,3X,20HCHANGE FROM YEAR AGO/44X,16HPERI
   30D  ABSOLUTE,2X,10HPERCENTAGE/44X,6(1H-),2X,8(1H-),2X,10(1H-))
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194 FORMAT (1X,31HPRODUCER RECEIPTS (MIL. POUNDS),8X,3F10.1//1X,27HCLA
   1SS I SALES (MIL. POUNDS),12X,3F10.1//1X,28HCLASS II SALES (MIL. PO
   2UNDS),11X,3F10.1//1X,29HCLASS III SALES (MIL. POUNDS),10X,3F10.1//
   31X,26HCLASS I UTILIZATION (PCT.),13X,3F10.1//1X,28HCLASS I PRICE (
   4$ - WT. AVE.),11X,2F10.2,F10.1//1X,29HCLASS II PRICE ($ - WT. AVE.
   5),10X,2F10.2,F10.1//1X,30HCLASS III PRICE ($ - WT. AVE.),9X,2F10.2
   6,F10.1//1X,32HGROSS BLEND PRICE ($ - WT. AVE.),7X,2F10.2,F10.1//1X
   7,24HVALUE OF POOL (THOUS. $),15X,2F10.0,F10.1//1X,29HNET FARM PRIC
   8E ($ - WT. AVE.),10X,2F10.2,F10.1//1X,36HRETURN OVER DIRECT COST (
   9$-WT. AVE.),3X,2F10.2,F10.1//1X,27HMARKETING MARGIN (THOUS. $),12X
   *,2F10.0,F10.1//1X,31HCONSUMER EXPENDITURE (THOUS. $),8X,2F10.0,F10
   *.1//1X,39HRETAIL PRICE (WT. AVE. - CTS. 1/2 GAL.),3F10.1//1X,39HFA
   *RM-RETAIL PRICE SPREAD (WT.AVE.-CTS.),3F10.1//1X,38HPROCESSING CAP
   *ACITY UTILIZATION (PCT.),1X,3F10.1//1X,32HMFG. CAPACITY UTILIZATIO
   *N (PCT.),7X,3F10.1//1X,35HRAW MILK TRANSPORTATION COST (000$),4X,2
   *F10.0,F10.1//1X,39HPACKAGED MILK TRANSPORTATION COST(000$),2F10.0,
   *F10.1)
195 FORMAT (1H1,23X,15HDECISION NAME -,1X,A6,17X,5HPAGE ,I3,1H./24X,22
   1(1H=)//25X,20HFEDERAL ORDER REPORT/25X,20(1H-)/26X,7HQUARTER,I2,1X
   2,4HYEAR,I5/26X,19(1H-)/28X,4HPCT.,18X,19HCLASS  CLASS  GROSS/18X,3
   31HPRODUCER CHANGE CLASS I CLASS I,3X,2HII,4X,3HIII,3X,5HBLEND/1X,5
   4HORDER,12X,14HRECEIPTS  FROM,4X,3HUSE,2X,4(2X,5HPRICE)/2X,3HNO.,5X
   5,4HNAME,4X,15HMIL.LBS. YR.AGO,8X,4HPCT.,2X,4(1X,6H$/CWT.)/2X,3(1H-
   6),2X,10(1H-),1X,8(1H-),1X,6(1H-),1X,7(1H-),1X,7(1H-),1X,6(1H-),1X,
   76(1H-),1X,6(1H-))
196 FORMAT (2X,I3,2X,A10,F9.1,F6.1,F8.1,F8.2,3F7.2)
197 FORMAT (18X,8(1H-)/4X,5HTOTAL,7X,F10.1,1X,5(1H-),3X,5(1H-),3X,5(1H
   1-),2X,5(1H-),2X,5(1H-),2X,5(1H-)/1X,16HWEIGHTED AVERAGE,8X,F7.1,F8
   2.1,F8.2,3F7.2)
198 FORMAT (1H1,23X,15HDECISION NAME -,1X,A6,17X,5HPAGE ,I3,1H./24X,22
   1(1H=)//21X,28HFEDERAL ORDER REPORT - SALES/21X,28(1H-)/25X,7HQUART
   2ER,I2,1X,4HYEAR,I5/25X,19(1H-)/28X,4HPCT.,14X,4HPCT.,15X,4HPCT./18
   3X,33HCLASS I  CHANGE  CLASS II  CHANGE,2X,17HCLASS III  CHANGE/1X,
   45HORDER,13X,5HSALES,4X,4HFROM,4X,5HSALES,5X,4HFROM,5X,5HSALES,5X,4
   5HFROM/2X,3HNO.,5X,4HNAME,4X,33HMIL.LBS. YR.AGO  MIL.LBS.  YR.AGO,3
   6X,16HMIL.LBS.  YR.AGO/2X,3(1H-),2X,10(1H-),1X,8(1H-),1X,6(1H-),2X,
   78(1H-),2X,6(1H-),2X,9(1H-),2X,6(1H-))
199 FORMAT (2X,I3,2X,A10,F8.1,F7.1,F10.1,F8.1,F11.1,F8.1)
200 FORMAT (18X,7(1H-),10X,7(1H-),12X,7(1H-)/4X,5HTOTAL,6X,F10.1,2X,5(
   11H-),F10.1,3X,5(1H-),F11.1,4X,5(1H-)/1X,16HWEIGHTED AVERAGE,7X,F8.
   21,10X,F8.1,12X,F8.1/1X,38HCLASS II SALES FROM NONORDER SOURCES :,F
   311.1)
201 FORMAT (1H1,18X,15HDECISION NAME -,1X,A6,22X,5HPAGE ,I3,1H./19X,22
   1(1H=)//19X,22HMILK PRODUCTION REPORT/19X,22(1H-)/21X,7HQUARTER,I2,
   21X,4HYEAR,I5/21X,19(1H-)/57X,6HRETURN/2X,6HSUPPLY,26X,4HPCT.,3X,5H
   3GROSS,4X,3HNET,5X,4HOVER/3X,4HAREA,14X,25HPRODUCTION  CHANGE  BLEN
   4D,4X,4HFARM,3X,6HDIRECT/4X,3HNO.,5X,4HNAME,6X,24HMIL. LBS.  YR.AGO
   5  PRICE,3X,5HPRICE,4X,4HCOST/4X,3(1H-),2X,10(1H-),2X,10(1H-),2X,6(
   61H-),2X,5(1H-),3X,5(1H-),3X,6(1H-))
202 FORMAT (4X,I3,2X,A10,F11.1,F8.1,3F8.2)
203 FORMAT (21X,9(1H-)/4X,5HTOTAL,10X,F11.1,4(3X,5H------)/1X,16HWEIGHT
   1ED AVERAGE,13X,F8.1,3F8.2)
204 FORMAT (1H1,23X,15HDECISION NAME -,1X,A6,17X,5HPAGE ,I3,1H./24X,22
   1(1H=)//23X,24HPROCESSING CENTER REPORT/23X,24(1H-)/26X,7HQUARTER,I
   22,1X,4HYEAR,I5/26X,19(1H-)/41X,3HRAW,5X,3HRAW,3X,8HPACKAGED/1X,10H
   3PROCESSING,9X,8HPACKAGED,2X,8HCAPACITY,3X,4HMILK,4X,4HMILK,4X,4HMI
   4LK,4X,5HTOTAL/2X,6HCENTER,14X,4HMILK,6X,3HUSE,4X,7HACQUIS.,2X,6HTR
   5ANS.,2X,6HTRANS.,4X,4HCOST/4X,3HNO.,5X,4HNAME,6X,5HSALES,5X,4HPCT.
   6,5X,4HCOST,4X,4HCOST,4X,4HCOST,4X,8HPER CWT./4X,3(1H-),2X,10(1H-),
   72X,6(1H-),4X,5(1H-),4X,6(1H-),2X,6(1H-),2X,6(1H-),3X,6(1H-))
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205 FORMAT (4X,I3,2X,A10,F8.1,F9.1,F9.2,2F8.4,F10.2)
206 FORMAT (31X,5(1H-),4X,5(1H-),3X,5(1H-),3X,5(1H-),5X,5(1H-)/1X,16HW
   1EIGHTED AVERAGE,3X,7(1H-),F9.1,F9.2,F8.4,F8.4,F10.2/4X,5HTOTAL,8X,
   2F10.1)
207 FORMAT (1H1,18X,15HDECISION NAME -,1X,A6,22X,5HPAGE ,I3,1H./19X,22
   1(1H=)//16X,27HMANUFACTURING CENTER REPORT/16X,27(1H-)/20X,7HQUARTE
   2R,I2,1X,4HYEAR,I5/20X,19(1H-)/23X,12HMANUFACTURED,5X,8HCAPACITY/1X
   3,6HCENTER,20X,4HMILK,8X,11HUTILIZATION/3X,2HID,8X,4HNAME,7X,10H(MI
   4L.LBS.),6X,9H(PERCENT)/3X,3(1H-),4X,10(1H-),5X,8(1H-),8X,7(1H-))
208 FORMAT (3X,A3,4X,A10,2X,F10.1,5X,F10.1)
209 FORMAT (23X,10(1H-)/6X,5HTOTAL,9X,F12.1,9X,7(1H-)/9X,7HAVERAGE,21X
   1,F10.1)
210 FORMAT (1H1,22X,15HDECISION NAME -,1X,A6,18X,5HPAGE ,I3,1H./23X,22
   1(1H=)//25X,18HCONSUMPTION REPORT/25X,18(1H-)/25X,7HQUARTER,I2,1X,4
   2HYEAR,I5/25X,19(1H-)/64X,4HFARM/1X,11HCONSUMPTION,13X,7HIN AREA,4X
   3,4HPCT.,7X,6HRETAIL,10X,6HRETAIL/3X,6HCENTER,16X,7HCLASS I,3X,6HCH
   4ANGE,4X,12HPRICE - CTS.,7X,5HPRICE/5X,3HNO.,6X,4HNAME,8X,5HSALES,4
   5X,22HYR.AGO     PER 1/2 GAL.,6X,6HSPREAD/5X,3(1H-),3X,10(1H-),3X,9(
   61H-),2X,6(1H-),5X,8(1H-),7X,8(1H-))
211 FORMAT (5X,I3,3X,A10,F11.1,F8.1,F13.1,F15.1)
212 FORMAT (25X,7(1H-),3X,5(1H-)/4X,5HTOTAL,11X,F12.1,F8.1,7X,6(1H-),9
   1X,6(1H-)/1X,16HWEIGHTED AVERAGE,24X,F12.1,F15.1)
213 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//27X,18HRAW MILK MOVEMENTS/10X,51HFROM DIRECT SHIP SUPPLY AR
   2EAS TO PROCESSING CENTERS/10X,51(1H-)/26X,7HQUARTER,I2,1X,4HYEAR,I
   35/26X,19(1H-)/3X,4HFROM/2X,5HORDER,20X,25HMOVEMENTS TO  (MIL. LBS.
   4)/3X,3HNO.,1X,5(2X,11HNO.  AMOUNT)/3X,3(1H-),2X,5(1X,12H---  -----
   5- ))
214 FORMAT (3X,I3,1X,5(I5,F8.1),(/7X,I5,F8.1,I5,F8.1,I5,F8.1,I5,F8.1,I
   15,F8.1))
215 FORMAT (1H0,45HTOTAL MOVEMENTS TO PRIMARY PROCESSING CENTERS,5X,10
   1H(MIL.LBS.),F10.1/1X,43HTOTAL MOVEMENTS TO OTHER PROCESSING CENTER
   2S,7X,10H(MIL.LBS.),F10.1)
216 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//27X,18HRAW MILK MOVEMENTS/16X,40HFROM SUPPLY PLANTS TO PROC
   2ESSING CENTERS/16X,40(1H-)/26X,7HQUARTER,I2,1X,4HYEAR,I5/26X,19(1H
   3-)/3X,4HFROM/2X,5HORDER,20X,25HMOVEMENTS TO  (MIL. LBS.)/3X,3HNO.,
   41X,5(2X,11HNO.  AMOUNT)/3X,3(1H-),2X,5(1X,12H---  ------ ))
217 FORMAT (1H0,45HTOTAL MOVEMENTS TO PRIMARY PROCESSING CENTERS,11H (
   1MIL.LBS.),F10.1/1X,43HTOTAL MOVEMENTS TO OTHER PROCESSING CENTERS,
   22X,11H (MIL.LBS.),F10.1)
218 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//27X,18HRAW MILK MOVEMENTS/9X,54HFROM DIRECT SHIP SUPPLY ARE
   2AS TO MANUFACTURING CENTERS/9X,54(1H-)/26X,7HQUARTER,I2,1X,4HYEAR,
   3I5/26X,19(1H-)/3X,4HFROM/2X,5HORDER,20X,25HMOVEMENTS TO  (MIL. LBS
   4.)/3X,3HNO.,1X,5(2X,11H ID  AMOUNT)/3X,3(1H-),2X,5(1X,12H---  ----
   5-- ))
219 FORMAT (3X,I3,1X,5(2X,A3,F8.1),(/7X,2X,A3,F8.1,2X,A3,F8.1,2X,A3,F8
   1.1,2X,A3,F8.1,2X,A3,F8.1))
220 FORMAT (1H0,40HTOTAL MOVEMENTS TO MANUFACTURING CENTERS,6X,11H (MI
   1L.LBS.),F10.1/1X,39HTOTAL MOVEMENTS TO OTHER MANUFACTURING ,18HCEN
   2TERS (MIL.LBS.),F10.1)
221 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//27X,18HRAW MILK MOVEMENTS/14X,43HFROM SUPPLY PLANTS TO MANU
   2FACTURING CENTERS/14X,43(1H-)/26X,7HQUARTER,I2,1X,4HYEAR,I5/26X,19
   3(1H-)/3X,4HFROM/2X,5HORDER,20X,25HMOVEMENTS TO  (MIL. LBS.)/3X,3HN
   40.,1X,5(2X,11H ID  AMOUNT)/3X,3(1H-),2X,5(1X,12H---  ------ ))
222 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//25X,23HPACKAGED MILK MOVEMENTS/13X,46HFROM PROCESSING CENTE
   2RS TO CONSUMPTION CENTERS/13X,46(1H-)/26X,7HQUARTER,I2,1X,4HYEAR,I
   35/26X,19(1H-)/3X,4HFROM/3X,5HORDER,20X,25HMOVEMENTS TO  (MIL. LBS.
   4)/3X,3HNO.,1X,5(2X,11HNO.  AMOUNT)/3X,3(1H-),2X,5(1X,12H---  -----
   5- ))
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223 FORMAT (1H0,51HTOTAL MOVEMENTS TO PRIMARY CONSUMPTION CENTERS (MIL
   1,6H.LBS.),F10.1/1X,51HTOTAL MOVEMENTS TO OTHER CONSUMPTION CENTERS
   2   (MIL,6H.LBS.),F10.1)
224 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,4HPAGE,I4,1H./25X,22(
   11H=)//23X,26HUNREGULATED GRADE A REPORT/23X,26(1H-)/26X,7HQUARTER,
   2I2,5H YEAR,I5)
225 FORMAT (26X,19(1H-)/65X,6HRETURN/43X,5HGROSS,6X,3HNET,8X,4HOVER/30
   1X,7HCLASS I,6X,2(4HFARM,7X),6HDIRECT/3X,6HREGION,7X,53HPRODUCTION
   2 CONSUMPTION    PRICE      PRICE      COST/3X,6(1H-),7X,43H--------
   3---  ----------          -----      -----,12H      ------/18X,2(7H(M LB
   4S),5X),3(7H($/CWT),4X)/)
226 FORMAT (3X,A9,2X,2(F12.1),3(4X,F7.2))
227 FORMAT (14X,2(4X,8(1H-))/3X,5HTOTAL,6X,2F12.1,3(4X,7(1H-))/3X,8HWT
   1D AVE.,27X,3(4X,F7.2)///////3X,22HCLASS I UTILIZATION = ,F5.2,8H P
   2ERCENT)
228 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//23X,25HSUMMARY FOR ORDER MERGERS/23X,25(1H-)/27X,8HANNUAL -
   2,1X,4HYEAR,I6/27X,19(1H-)/65X,5HGROSS/34X,8HPRODUCER,3X,7HCLASS I,
   33X,7HCLASS I,3X,5HBLEND/2X,6HMERGER,26X,8HRECEIPTS,4X,5HSALES,6X,3
   4HUSE,5X,5HPRICE/2X,6HNUMBER,26X,8HMIL.LBS.,3X,8HMIL.LBS.,4X,4HPCT.
   5,4X,5H$/CWT/3X,4H----,27X,8(1H-),3X,8(1H-),2X,7(1H-),3X,5(1H-))
229 FORMAT (1H1,23X,15HDECISION NAME -,1X,A6,17X,5HPAGE ,I3,1H./24X,22
   1(1H=)//28X,14HSUMMARY REPORT/28X,14(1H-)/25X,8HANNUAL -,1X,4HYEAR,
   2I6/25X,19(1H-)/45X,4HTHIS,3X,20HCHANGE FROM YEAR AGO/44X,16HPERIOD
   3  ABSOLUTE,2X,10HPERCENTAGE/44X,6(1H-),2X,8(1H-),2X,10(1H-))
230 FORMAT (1H1,23X,15HDECISION NAME -,1X,A6,17X,5HPAGE ,I3,1H./24X,22
   1(1H=)//25X,20HFEDERAL ORDER REPORT/25X,20(1H-)/26X,8HANNUAL -,1X,4
   2HYEAR,I6/26X,19(1H-)/28X,4HPCT.,18X,19HCLASS  CLASS  GROSS/18X,31H
   3PRODUCER CHANGE CLASS I CLASS I,3X,2HII,4X,3HIII,3X,5HBLEND/1X,5HO
   4RDER,12X,14HRECEIPTS  FROM,4X,3HUSE,2X,4(2X,5HPRICE)/2X,3HNO.,5X,4
   5HNAME,4X,15HMIL.LBS. YR.AGO,3X,4HPCT.,2X,4(1X,6H$/CWT.)/2X,3(1H-),
   62X,10(1H-),1X,8(1H-),1X,6(1H-),1X,7(1H-),1X,7(1H-),1X,6(1H-),1X,6(
   71H-),1X,6(1H-))
231 FORMAT (1H1,23X,15HDECISION NAME -,1X,A6,17X,5HPAGE ,I3,1H./24X,22
   1(1H=)//21X,28HFEDERAL ORDER REPORT - SALES/21X,28(1H-)/25X,8HANNUA
   2L -,1X,4HYEAR,I6/25X,19(1H-)/28X,4HPCT.,14X,4HPCT.,15X,4HPCT./18X,
   333HCLASS I  CHANGE  CLASS II  CHANGE,2X,17HCLASS III  CHANGE/1X,5H
   4ORDER,13X,5HSALES,4X,4HFROM,4X,5HSALES,5X,4HFROM,5X,5HSALES,5X,4HF
   5ROM/2X,3HNO.,5X,4HNAME,4X,33HMIL.LBS. YR.AGO MIL.LBS.  YR.AGO,3X,
   616HMIL.LBS.  YR.AGO/2X,3(1H-),2X,10(1H-),1X,8(1H-),1X,6(1H-),2X,8(
   71H-),2X,6(1H-),2X,9(1H-),2X,6(1H-))
232 FORMAT (1H1,18X,15HDECISION NAME -,1X,A6,22X,5HPAGE ,I3,1H./19X,22
   1(1H=)//19X,22HMILK PRODUCTION REPORT/19X,22(1H-)/21X,13HANNUAL - Y
   2EAR,I6/21X,19(1H-)/57X,6HRETURN/2X,6HSUPPLY,26X,4HPCT.,3X,5HGROSS,
   34X,3HNET,5X,4HOVER/3X,4HAREA,14X,25HPRODUCTION  CHANGE  BLEND,4X,4
   44HFARM,3X,6HDIRECT/4X,3HNO.,5X,4HNAME,6X,24HMIL. LBS.  YR.AGO PRIC
   5E,3X,5HPRICE,4X,4HCOST/4X,3(1H-),2X,10(1H-),2X,10(1H-),2X,6(1H-),2
   6X,5(1H-),3X,5(1H-),3X,6(1H-))
233 FORMAT (1H1,23X,15HDECISION NAME -,1X,A6,17X,5HPAGE ,I3,1H./24X,22
   1(1H=)//23X,24HPROCESSING CENTER REPORT/23X,24(1H-)/26X,13HANNUAL -
   2 YEAR,I6/26X,19(1H-)/36X,2(5X,3HRAW),3X,8HPACKAGED/1X,10HPROCESSIN
   3G,9X,8HPACKAGED,2X,8HCAPACITY,3X,4HMILK,4X,4HMILK,4X,4HMILK,4X,5HT
   4OTAL/2X,6HCENTER,14X,4HMILK,6X,3HUSE,4X,7HACQUIS.,2X,6HTRANS.,2X,6
   5HTRANS.,4X,4HCOST/4X,3HNO.,5X,4HNAME,6X,5HSALES,5X,4HPCT.,5X,4HCOS
   6T,4X,4HCOST,4X,4HCOST,4X,8HPER CWT./4X,3(1H-),2X,10(1H-),2X,6(1H-)
   7,4X,5(1H-),4X,6(1H-),2X,6(1H-),2X,6(1H-),3X,6(1H-))
234 FORMAT (1H1,18X,15HDECISION NAME -,1X,A6,22X,5HPAGE ,I3,1H./19X,22
   1(1H=)//16X,27HMANUFACTURING CENTER REPORT/16X,27(1H-)/21X,8HANNUAL
   2 -,1X,4HYEAR,I6/21X,19(1H-)/23X,12HMANUFACTURED,5X,8HCAPACITY/1X,6
   3HCENTER,20X,4HMILK,8X,11HUTILIZATION/3X,2HID,8X,4HNAME,7X,10H(MIL.
   4LBS.),6X,9H(PERCENT)/2X,4(1H-),4X,10(1H-),5X,8(1H-),8X,7(1H-))
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235 FORMAT (1H1,22X,15HDECISION NAME -,1X,A6,18X,5HPAGE ,I3,1H./23X,22
   1(1H=)//25X,18HCONSUMPTION REPORT/25X,18(1H-)/25X,8HANNUAL -,1X,4HY
   2EAR,I6/25X,19(1H-)/64X,4HFARM/1X,11HCONSUMPTION,13X,7HIN AREA,4X,4
   3HPCT.,7X,6HRETAIL,10X,6HRETAIL/3X,6HCENTER,16X,7HCLASS I,3X,6HCHAN
   4GE,4X,12HPRICE - CTS.,7X,5HPRICE/5X,3HNO.,6X,4HNAME,8X,5HSALES,4X,
   522HYR.AGO    PER 1/2 GAL.,6X,6HSPREAD/5X,3(1H-),3X,10(1H-),3X,9(1H
   6-),2X,6(1H-),5X,8(1H-),7X,8(1H-))
236 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//27X,18HRAW MILK MOVEMENTS/10X,51HFROM DIRECT SHIP SUPPLY AR
   2EAS TO PROCESSING CENTERS/10X,51(1H-)/26X,8HANNUAL -,1X,4HYEAR,I6/
   326X,19(1H-)/2X,5HORDER,20X,25HMOVEMENTS TO  (MIL. LBS.)/3X,3HNO.,1
   4X,5(2X,11HNO.  AMOUNT)/3X,3(1H-),2X,5(1X,12H---  ------ ))
237 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//27X,18HRAW MILK MOVEMENTS/16X,40HFROM SUPPLY PLANTS TO PROC
   2ESSING CENTERS/16X,40(1H-)/26X,8HANNUAL -,1X,4HYEAR,I6/26X,19(1H-)
   3/3X,4HFROM/2X,5HORDER,20X,25HMOVEMENTS TO  (MIL. LBS.)/3X,3HNO.,1X
   4,5(2X,11HNO.  AMOUNT)/3X,3(1H-),2X,5(1X,12H---  ------ ))
238 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//27X,18HRAW MILK MOVEMENTS/9X,54HFROM DIRECT SHIP SUPPLY ARE
   2AS TO MANUFACTURING CENTERS/9X,54(1H-)/26X,8HANNUAL -,1X,4HYEAR,I6
   3/26X,19(1H-)/2X,5HORDER,20X,25HMOVEMENTS TO  (MIL. LBS.)/3X,3HNO.,
   41X,5(2X,11H ID  AMOUNT)/3X,3(1H-),2X,5(1X,12H---  ------ ))
239 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//27X,18HRAW MILK MOVEMENTS/14X,43HFROM SUPPLY PLANTS TO MANU
   2FACTURING CENTERS/14X,43(1H-)/26X,8HANNUAL -,1X,4HYEAR,I6/26X,19(1
   3H-)/3X,4HFROM/2X,5HORDER,20X,25HMOVEMENTS TO  (MIL. LBS.)/3X,3HNO.
   4,1X,5(2X,11H ID  AMOUNT)/3X,3(1H-),2X,5(1X,12H---  ------ ))
240 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//25X,23HPACKAGED MILK MOVEMENTS/13X,46HFROM PROCESSING CENTE
   2RS TO CONSUMPTION CENTERS/13X,46(1H-)/26X,8HANNUAL -,1X,4HYEAR,I6/
   326X,19(1H-)/3X,4HFROM/3X,5HORDER,20X,25HMOVEMENTS TO  (MIL. LBS.)/
   43X,3HNO.,1X,5(2X,11HNO.  AMOUNT)/3X,3(1H-),2X,5(1X,12H---  ------
   5))
241 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,4HPAGE,I4,1H./25X,22(
   11H=)//23X,26HUNREGULATED GRADE A REPORT/23X,26(1H-)/26X,13HANNUAL
   2- YEAR,I6/)
242 FORMAT (1X,A6)
243 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//23X,26HCOMPARATIVE SUMMARY REPORT/23X,26(1H-)/31X,7HQUARTER
   2,I2/31X,9(1H-)/17X,6(5X,I4)/18X,6(3X,6H------))
244 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//23X,26HCOMPARATIVE SUMMARY REPORT/23X,26(1H-)/33X,6HANNUAL/
   233X,6(1H-)/17X,6(5X,I4)/18X,6(3X,6H------))
245 FORMAT (1X,17HPROD RECPTS (MPD),6F9.0//1X,17HCLSS I SLS  (MPD),6F9
   1.0//1X,17HCLSS II SLS (MPD),6F9.0//1X,17HCLSS III SLS(MPD),6F9.0//
   21X,17HCLSS I UTIL (PCT),6F9.1//1X,17HCLSS I PRICE  ($),6F9.2//1X,1
   37HCLSS II PRICE ($),6F9.2//1X,17HCLSS III PRICE($),6F9.2//1X,17HGR
   4S BLND PRICE($),6F9.2//1X,17HVLU OF POOL(000$),6F9.0//1X,17HNET FR
   5M PRICE ($),6F9.2//1X,17HRTRN OVER D.C.($),6F9.2//1X,17HMKTG MARGI
   6N(000$),6F9.0//1X,17HCONS EXPND (000$),6F9.0//1X,17HRETAIL PRICE(C
   7TS),6F9.1//1X,17HFM-RT P SPRD(CTS),6F9.1//1X,17HPROC CP UTIL(PCT),
   86F9.1//1X,17HMFG CP UTIL (PCT),6F9.1//1X,17HSP TRN CST (000$),6F9.
   90//1X,17HSP F-P CST (000$),6F9.0//1X,17HDS TRN CST (000$),6F9.0//1
   *X,17HDS F-P CST (000$),6F9.0//1X,17HPKG TRN CST(000$),6F9.0//1X,17
   *HMFG TRN CST(000$),6F9.0//1X,17HRM PROD CST(000$),6F9.0)
246 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/17X,38HCOMPARATIVE REPORT - PRODUCER
   2 RECEIPTS/17X,38(1H-)/31X,7HQUARTER,I2/31X,9(1H-)/1X,5HORDER,22X,1
   36H(MILLION POUNDS)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(
   41H-),1X,6(3X,6H------))
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247 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/17X,38HCOMPARATIVE REPORT - PRODUCER
   2 RECEIPTS/17X,38(1H-)/33X,6HANNUAL/33X,6(1H-)/1X,5HORDER,22X,16H(M
   3ILLION POUNDS)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(1H-)
   4,1X,6(3X,6H------))
248 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/19X,34HCOMPARATIVE REPORT - CLASS I
   2SALES/19X,34(1H-)/31X,7HQUARTER,I2/31X,9(1H-)/1X,5HORDER,22X,16H(M
   3ILLION POUNDS)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(1H-)
   4,1X,6(3X,6H------))
249 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/19X,34HCOMPARATIVE REPORT - CLASS I
   2SALES/19X,34(1H-)/33X,6HANNUAL/33X,6(1H-)/1X,5HORDER,22X,16H(MILLI
   3ON POUNDS)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(1H-),1X,
   46(3X,6H------))
250 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/15X,42HCOMPARATIVE REPORT - IN AREA
   2CLASS I SALES/15X,42(1H-)/31X,7HQUARTER,I2/31X,9(1H-)/1X,5HORDER,2
   32X,16H(MILLION POUNDS)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X
   4,10(1H-),1X,6(3X,6H------))
251 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/15X,42HCOMPARATIVE REPORT - IN AREA
   2CLASS I SALES/15X,42(1H-)/33X,6HANNUAL/33X,6(1H-)/1X,5HORDER,22X,1
   36H(MILLION POUNDS)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(
   41H-),1X,6(3X,6H------))
252 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/19X,35HCOMPARATIVE REPORT - CLASS II
   2 SALES/19X,35(1H-)/31X,7HQUARTER,I2/31X,9(1H-)/1X,5HORDER,22X,16H(
   3MILLION POUNDS)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(1H-
   4),1X,6(3X,6H------))
253 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/19X,35HCOMPARATIVE REPORT - CLASS II
   2 SALES/19X,35(1H-)/33X,6HANNUAL/33X,6(1H-)/1X,5HORDER,22X,16H(MILL
   3ION POUNDS)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(1H-),1X
   4,6(3X,6H------))
254 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/18X,36HCOMPARATIVE REPORT - CLASS II
   2I SALES/18X,36(1H-)/31X,7HQUARTER,I2/31X,9(1H-)/1X,5HORDER,22X,16H
   3(MILLION POUNDS)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(1H
   4-),1X,6(3X,6H------))
255 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/18X,36HCOMPARATIVE REPORT - CLASS II
   2I SALES/18X,36(1H-)/33X,6HANNUAL/33X,6(1H-)/1X,5HORDER,22X,16H(MIL
   3LION POUNDS)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(1H-),1
   4X,6(3X,6H------))
256 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/16X,40HCOMPARATIVE REPORT - CLASS I
   2UTILIZATION/16X,40(1H-)/31X,7HQUARTER,I2/31X,9(1H-)/1X,5HORDER,25X
   3,9H(PERCENT)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(1H-),1
   4X,6(3X,6H------))
257 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/16X,40HCOMPARATIVE REPORT - CLASS I
   2UTILIZATION/16X,40(1H-)/33X,6HANNUAL/33X,6(1H-)/1X,5HORDER,25X,9H(
   3PERCENT)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(1H-),1X,6(
   43X,6H------))
258 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/19X,34HCOMPARATIVE REPORT - CLASS I
   2PRICE/19X,34(1H-)/31X,7HQUARTER,I2/31X,9(1H-)/1X,5HORDER,22X,15H(D
   3OLLARS /CWT.)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(1H-),
   41X,6(3X,6H------))
```

```
259 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/19X,34HCOMPARATIVE REPORT - CLASS I
   2PRICE/19X,34(1H-)/33X,6HANNUAL/33X,6(1H-)/1X,5HORDER,22X,15H(DOLLA
   3RS /CWT.)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(1H-),1X,6
   4(3X,6H------))
260 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/20X,32HCOMPARATIVE REPORT - BLEND PR
   2ICE/20X,32(1H-)/31X,7HQUARTER,I2/31X,9(1H-)/1X,5HORDER,22X,15H(DOL
   3LARS /CWT.)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(1H-),1X
   4,6(3X,6H------))
261 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/20X,32HCOMPARATIVE REPORT - BLEND PR
   2ICE/20X,32(1H-)/33X,6HANNUAL/33X,6(1H-)/1X,5HORDER,22X,15H(DOLLARS
   3 /CWT.)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(1H-),1X,6(3
   4X,6H------))
262 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/12X,48HCOMPARATIVE REPORT - PROCESSI
   2NG CAP. UTILIZATION/12X,48(1H-)/31X,7HQUARTER,I2/31X,9(1H-)/1X,5HO
   3RDER,25X,9H(PERCENT)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,1
   40(1H-),1X,6(3X,6H------))
263 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/12X,48HCOMPARATIVE REPORT - PROCESSI
   2NG CAP. UTILIZATION/12X,48(1H-)/33X,6HANNUAL/33X,6(1H-)/1X,5HORDER
   3,25X,9H(PERCENT)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(1H
   4-),1X,6(3X,6H------))
264 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/15X,42HCOMPARATIVE REPORT - TOTAL PR
   2OCESSING COST/15X,42(1H-)/31X,7HQUARTER,I2/31X,9(1H-)/1X,5HORDER,2
   32X,15H(DOLLARS /CWT.)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,
   410(1H-),1X,6(3X,6H------))
265 FORMAT (1H1,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
   1(1H=)//29X,A10,A4/29X,14(1H-)/15X,42HCOMPARATIVE REPORT - TOTAL PR
   2OCESSING COST/15X,42(1H-)/33X,6HANNUAL/33X,6(1H-)/1X,5HORDER,22X,1
   35H(DOLLARS /CWT.)/2X,3HNO.,5X,4HNAME,3X,6(5X,I4)/2X,3(1H-),2X,10(1
   4H-),1X,6(3X,6H------))
266 FORMAT (1H1//////1X,70(1H*)/1X,70(1H*)/1X,70(1H*)/3(1X,5H*****,60X
   1,5H*****/),1X,5H*****,4X,52HRUN TERMINATED BEFORE REACHING TIME PE
   2RIOD SPECIFIED,4X,5H*****/3(1X,5H*****,60X,5H*****/),1X,70(1H*)/1X
   3,70(1H*)/1X,70(1H*))

    END
    SUBROUTINE SCLE (IN,JN,AA,SCALE)

                ****************************************
                 SCALE VARIABLES IN COMPARATIVE REPORTS
                ****************************************

    DIMENSION AA(59,59)
    DO 1 I=1,IN
    DO 1 J=1,JN
  1 AA(I,J)=SCALE*AA(I,J)
    RETURN

    END
    SUBROUTINE RITE (I,JM,JN,JO,IR,NOR,ONAME,AA,KW,NOUT1)

                ****************************************
                        WRITE COMPARATIVE REPORTS
                ****************************************
```

```
      DIMENSION IR(61), NOR(75), ONAME(75), AA(59,59)
      DO 2 J=JM,JN
         IJK=J
         IF (JO.LE.1) IJK=IR(J)
         IJ=J
         IF (JO.GT.1) IJ=J+16
         IF (KW.EQ.1) GO TO 1
         WRITE (NOUT1,3) NOR(IJ),ONAME(IJ),AA(IJK,I),AA(IJK,I+5),AA(IJK,
     1   I+10),AA(IJK,I+15),AA(IJK,I+20),AA(IJK,I+25)
         GO TO 2
    1    WRITE (NOUT1,4) NOR(IJ),ONAME(IJ),AA(IJK,I),AA(IJK,I+5),AA(IJK,
     1   I+10),AA(IJK,I+15),AA(IJK,I+20),AA(IJK,I+25)
    2 CONTINUE
    3 FORMAT (2X,I3,2X,A10,1X,6F9.1)
    4 FORMAT (2X,I3,2X,A10,1X,6F9.2)
      RETURN

      END
      SUBROUTINE OUTX (NT9,AA,IR,NOR,NT,NOUT2,NOPT)

                  ****************************************
                WRITE OUT PROJECTED DATA FOR VALIDATION PROCESS
                  ****************************************

      DIMENSION AA(NT9,NT9), IR(NT), NOR(NT)
      DO 2 I=1,NT9
         IF (NOPT.EQ.1) GO TO 1
         WRITE (NOUT2,3) NOR(I),(AA(I,J+5),J=1,5)
         GO TO 2
    1    WRITE (NOUT2,3) NOR(I),(AA(IR(I),J+5),J=1,5)
    2 CONTINUE
    3 FORMAT (1X,I3,1X,5F13.0)
      RETURN

      END
      SUBROUTINE OUTY (NT9,AA,NOUT2,I)

                  ****************************************
                    WRITE OUT PROJECTED DATA FOR PLOTTING
                  ****************************************

      DIMENSION AA(NT9,NT9)
      WRITE (NOUT2,1) (I,J,AA(I,J),AA(I,J+5),AA(I,J+10),AA(I,J+15),AA(I,
     1J+20),AA(I,J+25),J=1,5)
    1 FORMAT (2(1X,I2),6F11.2)
      RETURN

      END
```

DRW2

DRW2, listed on the following pages, manipulates and reports results from stages two and three of DAMPS. Selected, aggregated results from stage one are also reported. The reports generated by DRW2 are as follows:

1. Supply and Utilization Report
2. Comparative Supply and Utilization Report
3. Summary Report
4. Comparative Summary Report
5. Movements Report
   a. Stage Two
   b. Stage Three
6. Comparative Reports
   a. Grade B Production
   b. Total Manufacturing Milk Production
   c. Class II Consumption
   d. Cheese Consumption
   e. Butter Consumption
   f. Nonfat Dry Milk Consumption
   g. Miscellaneous Class III Consumption
   h. Ending Commercial Cheese Stocks
   i. Ending Commercial Butter Stocks
   j. Ending Commercial Nonfat Dry Milk Stocks
   k. Ending Government Cheese Stocks
   l. Ending Government Butter Stocks
   m. Ending Government Nonfat Dry Milk Stocks

Movements reports are available only for quarters; all other reports contain quarterly and annual results. For further details on the content of these reports and how they are obtained, the reader is referred to Novakovic, et al. (8).

```
      PROGRAM DRW2 (INPUT,OUTPUT,TAPE6=OUTPUT,TAPE41,TAPE42,TAPE43)
C*****************************************************************
C     .... DRW2 IS THE FIFTH PROGRAM OF DAMPS ....
C   DRW2 IS THE REPORT WRITER FOR THE MANUFACTURING MILK SECTION OF
C     THE DAMPS SIMULATOR. DRW2 WAS WRITTEN BY A.M. NOVAKOVIC AND
C                          D.R. MARTELLA.
C*****************************************************************
      DIMENSION GAP(30,10), GAC(30,9), GBP(30,9), GMP(30,9), BIMP(30,4,2
     1), BS(30,6,9), BC(30,5,5), BNRP(30,5), W1(9), W2(9), W3(9), W4(9),
     2 W5(4,2), W6(6,9), W7(5,5), W8(5), NY2(6), NAME1(16), NAME2(3,14),
     3 NAME3(2,5), AA(30,9), BB(30,5), SU(30,18), QRB(5), ICRB(14), SUP(
     430), SURODC(30), BLEND(30), CEXP(30), CL3P(30), SUPB(30), RODCB(30
     5), SUPAM(30), RODCAM(30), PAM(30), CEXPB(30), CEXPAM(30), GEXP(30)
     6, GPTP(30), TCMP(30), BPC(9), BMKP(5), GNP(30,3), GPP(30,3), CF(5)
     7, CL3PN(30), BMM1(31,15), BMM2(58,10), UNREG(30,10), UNC1S(30,9),
     8UNGBP(30,10), UNUP(30,10), UNRODC(30,10), UNCEXP(30), W9(20), CHGP
     9D(30), CHGHC(5), TSTP(30)

      DATA BS/1620*0.0/,BC/750*0.0/,BIMP/240*0.0/,SU/510*0.0/,GAP/270*0.
     10/,GAC/270*0.0/,GBP/270*0.0/,GMP/270*0.0/,BNRP/150*0.0/,BLEND/30*0
     2.0/,CL3P/30*0.0/,SUP/30*0.0/,SURODC/30*0.0/,CEXP/30*0.0/,UNUP/300*
     30.0/,UNGBP/300*0.0/,UNRODC/300*0.0/,UNREG/300*0.0/,CHGPD/30*0.0/,G
     4EXP/30*0.0/,GNP/90*0.0/,RODCB/30*0.0/,CEXPB/30*0.0/,SUPB/30*0.0/
      DATA NAME1/10HNORTHEAST ,10HCORN BELT ,10HLAKE       ,10HSOUTHEAST
     1,10HS. CENTRAL,10HPRAIRIE   ,10HMOUNTAIN  ,10HSOUTHWEST ,10HNORTHW
     2EST ,10HEAST       ,10HWEST       ,10HNORTHEAST ,10HSOUTH     ,10HN.
     3 CENTRAL,10HWEST       ,10HPACIFIC   /
      DATA NAME2/10HTOTAL MFG ,10HMILK PRODU,5HCTION,10HCLASS II C,10HON
     1SUMPTION,5H     ,10HCHEESE CON,10HSUMPTION  ,5H      ,10HBUTTER CON
     2,10HSUMPTION  ,5H      ,10HNFDM CONSU,10HMPTION    ,5H      ,10HM. C
     3LASS I,10HII CONSUMP,5HTION ,10HENDING COM,10HM. CHEESE ,5HSTOCK,1
     40HENDING COM,10HM. BUTTER ,5HSTOCK,10HENDING CON,10HM. NFDM ST,5HO
     5CK  ,10HENDING GOV,10HT. CHEESE ,5HSTOCK,10HENDING GOV,10HT. BUTTE
     6R ,5HSTOCK,10HENDING GOV,10HT. NFDM ST,5HOCK  ,10HGR. B RETU,10HRN
     7 OVR DIR,5H COST,10HGRADE B MI,10HLK PRODUCT,5HION  /
      DATA NAME3/10H(MILLION P,7HOUNDS) ,10H(DOLLARS /,7H CWT.) ,10H(THO
     1USAND ,7HPOUNDS)/

      INTEGER QRB

        ...DEFINE MODEL PARAMETERS AND LOGICAL FILE PARAMETERS, ETC....

      MS=9
      MIMP=2
      MC=5
      NIN1=41
      NIN2=42
      NIN3=43
      NOUT=6
      SCALE1=0.001
      SCALE2=0.01
      SCALE3=0.0001
      IPAG=0
      BCRK=0.0
      BCRT=0.0

                    MS=NUMBER OF SUPPLY REGIONS
                  MIMP=NUMBER OF IMPORT REGIONS
```

```
C     MC=NUMBER OF DEMAND REGIONS
C    NIN1=INPUT FILE FROM DAMPSIN
C    NIN2=INPUT FILE FROM DAMPSLV
C    NIN3=INPUT FILE FROM DAMPCLC
C        NOUT=OUTPUT FILE

C...READ BASE DATA VARIABLES FROM DAMPSIN...

      DO 1 J=1,4
         READ (NIN1) BLEND(J),CL3P(J),SUP(J),SURODC(J),CEXP(J)
    1 CONTINUE

      DO 3 J=1,4
         DO 2 K=1,MS
            READ (NIN1) UNREG(J,K),UNC1S(J,K),UNGBP(J,K),UNUP(J,K),UNROD
     1      C(J,K)
    2    CONTINUE
         READ (NIN1) UNCEXP(J)
    3 CONTINUE

      READ (NIN1) DNUM,NY2(1),NY,NQ,ORB,ICRB,((GAP(J,K),K=1,MS),J=1,4),(
     1(GAC(J,K),K=1,MS),J=1,4),((GBP(J,K),K=1,MS),J=1,4),((GMP(J,K),K=1,
     2MS),J=1,4),(((BIMP(J,I,K),I=1,4),K=1,MIMP),J=1,4),(((BS(J,I,K),I=1
     3,6),K=1,MS),J=1,4),(((BC(J,I,K),I=1,5),K=1,MC),J=1,4),((BNRP(J,I),
     4I=1,5),J=1,4),BPC,BMKP,CF,BFPHC,BPMC,BOPC,W9,IPDEF,CHGHC

      REWIND NIN1

C...SET UP YEAR AND QUARTER MARKERS...

      DO 4 I=2,6
         NY2(I)=NY2(1)+I-1
    4 CONTINUE
      NY1=NY+1
      NOF=(NY+1)*5

C...SET W9 INTO CHGPD...

      DO 5 J=1,5
         CHGPD(J)=1.0
    5 CONTINUE
      DO 6 JI=2,NY1
         JL=JI*5
      DO 6 JJ=1,4
         JK=JJ+5*(JI-1)
         JM=JJ+4*(JI-2)
         CHGPD(JK)=W9(JM)
         CHGPD(JL)=CHGPD(JL)+CHGPD(JK)/4.0
    6 CONTINUE

C...READ CURRENT QUARTER VARIABLES FROM DAMPSLV...

      DO 10 J=6,NOF
         IF (J.EQ.10.OR.J.EQ.15.OR.J.EQ.20.OR.J.EQ.25.OR.J.EQ.30) GO TO
     1   10
         READ (NIN2) W1,W2,W3,W4,W5,W6,W7,W8,(UNREG(J,K),K=1,MS),(UNC1S(
     1   J,K),K=1,MS),(UNGBP(J,K),K=1,MS),(UNUP(J,K),K=1,MS),(UNRODC(J,K
     2   ),K=1,MS),UNCEXP(J),BMM1,BMM2,TRCS1,TRCS2
         WRITE (NIN1) BMM1,BMM2
         DO 7 K=1,MS
```

```
      GAP(J,K)=W1(K)
      GBP(J,K)=W2(K)
      GAC(J,K)=W3(K)
      GMP(J,K)=W4(K)+UNREG(J,K)-UNC1S(J,K)
   DO 7 I=1,6
      BS(J,I,K)=W6(I,K)
 7    CONTINUE
   DO 8 I=1,4
   DO 8 K=1,MIMP
      BIMP(J,I,K)=W5(I,K)
 8    CONTINUE
   DO 9 I=1,5
      BNRP(J,I)=W8(I)
   DO 9 K=1,MC
      BC(J,I,K)=W7(I,K)
 9    CONTINUE
   TCMP(J)=TRCS1+TRCS2
10 CONTINUE

                ...READ GRADE A VARIABLES FROM DAMPCLC...

   DO 11 I=6,NQF
      IF (I.EQ.10.OR.I.EQ.15.OR.I.EQ.20.OR.I.EQ.25.OR.I.EQ.30) GO TO
  1   11
      READ (NIN3) SUP(I),SURODC(I),BLEND(I),CEXP(I),CL3P(I)
11 CONTINUE

                              ...ANNUAL SUMMATION...

   DO 15 JI=1,NY1
      JL=JI*5
      JM=JL-1
   DO 15 JJ=1,4
      JK=JJ+5*(JI-1)
      DO 12 K=1,MS
         GAP(JL,K)=GAP(JL,K)+GAP(JK,K)
         GAC(JL,K)=GAC(JL,K)+GAC(JK,K)
         GBP(JL,K)=GBP(JL,K)+GBP(JK,K)
         GMP(JL,K)=GMP(JL,K)+GMP(JK,K)
         UNREG(JL,K)=UNREG(JL,K)+UNREG(JK,K)
         UNC1S(JL,K)=UNC1S(JL,K)+UNC1S(JK,K)
         UNUP(JL,K)=UNUP(JL,K)+UNUP(JK,K)
      DO 12 I=1,6
         BS(JL,I,K)=BS(JM,I,K)
12    CONTINUE
      DO 13 I=1,5
      DO 13 K=1,MC
         BC(JL,I,K)=BC(JL,I,K)+BC(JK,I,K)
13    CONTINUE
      DO 14 I=1,4
      DO 14 K=1,MIMP
         BIMP(JL,I,K)=BIMP(JL,I,K)+BIMP(JK,I,K)
14    CONTINUE
      TCMP(JL)=TCMP(JL)+TCMP(JK)
      SUP(JL)=SUP(JL)+SUP(JK)
      SURODC(JL)=SURODC(JL)+SURODC(JK)/4.0
      BLEND(JL)=BLEND(JL)+BLEND(JK)/4.0
      CEXP(JK)=CEXP(JK)+UNCEXP(JK)
      CEXP(JL)=CEXP(JL)+CEXP(JK)
      CL3P(JL)=CL3P(JL)+CL3P(JK)/4.0
```

```
15 CONTINUE

      ...REGIONAL SUMMATION AND CONVERT BUTTER AND NFDM TO M.E....

   DO 19 J=1,NQF
      DO 16 K=1,MS
         SU(J,1)=SU(J,1)+GAP(J,K)+UNREG(J,K)
         SU(J,2)=SU(J,2)+GBP(J,K)
         GAP(J,10)=GAP(J,10)+GAP(J,K)
         UNREG(J,10)=UNREG(J,10)+UNREG(J,K)
         UNVP(J,10)=UNVP(J,10)+UNVP(J,K)
      DO 16 I=1,6
         II=I+6
         SU(J,II)=SU(J,II)+ES(J,I,K)
16    CONTINUE
      DO 17 K=1,MC
         SU(J,13)=SU(J,13)+GAC(J,K)+UNC1S(J,K)
      DO 17 I=1,5
         II=I+13
         SU(J,II)=SU(J,II)+BC(J,I,K)
17    CONTINUE
      DO 18 K=1,MIMP
      DO 18 I=1,4
         II=I+2
         SU(J,II)=SU(J,II)+BIMP(J,I,K)
18    CONTINUE
      SU(J,5)=SU(J,5)*100.0/CF(4)
      SU(J,6)=SU(J,6)*100.0/CF(5)
      SU(J,8)=SU(J,8)*100.0/CF(4)
      SU(J,9)=SU(J,9)*100.0/CF(5)
      SU(J,11)=SU(J,11)*100.0/CF(4)
      SU(J,12)=SU(J,12)*100.0/CF(5)
      SU(J,17)=SU(J,17)*100.0/CF(4)
      SU(J,18)=SU(J,18)*100.0/CF(5)
19 CONTINUE

         ...COMPUTE UNREGULATED AVERAGE PRICE AND RETURN...

   DO 21 JI=1,NY1
      JL=JI*5
   DO 21 JJ=1,4
      JK=JJ+5*(JI-1)
      DO 20 K=1,MS
         UNGBP(JK,10)=UNGBP(JK,10)+UNGBP(JK,K)*UNREG(JK,K)/UNREG(JK,1
     1      0)
         UNRODC(JK,10)=UNRODC(JK,10)+UNRODC(JK,K)*UNREG(JK,K)/UNREG(J
     1      K,10)
20    CONTINUE
      UNGBP(JL,10)=UNGBP(JL,10)+UNGBP(JK,10)/4.0
      UNRODC(JL,10)=UNRODC(JL,10)+UNRODC(JK,10)/4.0
21 CONTINUE

   ...CONVERT CHEESE TO PROD. WT. AND ALL PRICES TO $/LB. OF PROD....

   DO 25 J=1,NQF
      DO 22 K=1,MS
         BS(J,1,K)=BS(J,1,K)*CF(2)/100.0
         BS(J,4,K)=BS(J,4,K)*CF(2)/100.0
22    CONTINUE
      DO 23 K=1,MC
```

```
            BC(J,2,K)=BC(J,2,K)*CF(2)/100.0
23       CONTINUE
         DO 24 K=1,MIMP
            BIMP(J,1,K)=BIMP(J,1,K)*CF(2)/100.0
24       CONTINUE
         BNRP(J,1)=BNRP(J,1)*SCALE3
         BNRP(J,3)=BNRP(J,3)*SCALE3
         BNRP(J,2)=(BNRP(J,2)/CF(2))/100.0
         BNRP(J,4)=BNRP(J,4)/100.0
         BNRP(J,5)=BNRP(J,5)/100.0
25    CONTINUE

                  ...COMPUTE WTD. AVE. ANNUAL RETAIL PRICES...

      DO 27 I=1,5
      DO 27 JI=1,NY1
      JL=JI*5
      DO 27 JJ=1,4
      JK=JJ+5*(JI-1)
      DO 26 K=1,MC
         BCRK=BCRK+BC(JK,I,K)
         BCRT=BCRT+BC(JL,I,K)
26    CONTINUE
      BNRP(JL,I)=BNRP(JL,I)+BNRP(JK,I)*BCRK/BCRT
      BCRK=0.0
      BCRT=0.0
27    CONTINUE

                  ************************************
                     SUPPLY AND UTILIZATION REPORTS
                  ************************************

                  ...WRITE SUPPLY AND UTILIZATION REPORT...

      DO 29 L=1,NY1
         LI=L-1
         IF (LI.EQ.0) GO TO 28
         IF (QRB(LI).NE.1.AND.QRB(LI).NE.2) GO TO 29
28       IPAG=IPAG+1
         WRITE (NOUT,112) DNUM,IPAG
         WRITE (NOUT,113) NY2(L)
         LM=(L-1)*5+1
         LN=L*5
         WRITE (NOUT,114) ((SU(LL,I),LL=LM,LN),I=1,18)
29    CONTINUE

            ...WRITE COMPARATIVE SUPPLY AND UTILIZATION REPORT...

      IPAG=IPAG+1
      WRITE (NOUT,112) DNUM,IPAG
      WRITE (NOUT,115) (NY2(L),L=2,6)
      WRITE (NOUT,114) ((SU(LL,I),LL=10,30,5),I=1,18)

                           **********************
                              SUMMARY REPORTS
                           **********************

                  ...COMPUTATIONS FOR SUMMARY REPORTS...

      CALL SCLE (1,NOF,DEXP,SCALE3)
```

```
      GNP(1,1)=-2500.
      GNP(1,2)=-25300.
      GNP(1,3)=199600.
      GNP(5,1)=-400.
      GNP(5,2)=14100.
      GNP(5,3)=-35200.
      DO 42 J=1,NOF
         BLEND(J)=(BLEND(J)*GAP(J,10)+UNGBP(J,10)*UNREG(J,10))/SU(J,1)
         SUP(J)=SUP(J)+UNUP(J,10)
         SUPB(J)=SUPB(J)+SU(J,2)*CL3P(J)
         SUPAM(J)=SUP(J)+SUPB(J)
         PAM(J)=(BLEND(J)*SU(J,1)+CL3P(J)*SU(J,2))/(SU(J,1)+SU(J,2))
         DO 30 I=1,5
         DO 30 L=1,MC
            CEXPB(J)=CEXPB(J)+BNRP(J,I)*BC(J,I,L)
30       CONTINUE
         CEXPAM(J)=CEXP(J)+CEXPB(J)
         DO 34 I1=1,3
            I2=I1+3
            IF (J.EQ.1.OR.J.EQ.5) GO TO 33
            DO 32 K=1,MS
               IF (J.EQ.10.OR.J.EQ.15.OR.J.EQ.20.OR.J.EQ.25.OR.J.EQ.30)
     1         GO TO 31
               GNP(J,I1)=GNP(J,I1)+BS(J,I2,K)-BS(J-1,I2,K)
               GO TO 32
31             GNP(J,I1)=GNP(J,I1)+BS(J,I2,K)-BS(J-5,I2,K)
32          CONTINUE
33          CONTINUE
            I3=I1+2
            IF (I1.EQ.1) I3=2
            GPP(J,I1)=BNRP(J,I3)/BMKP(I3)
            GEXP(J)=GEXP(J)+GPP(J,I1)*GNP(J,I1)
34       CONTINUE
         IF (J.EQ.1.OR.J.EQ.5) GO TO 38
         IF (J.EQ.10.OR.J.EQ.15.OR.J.EQ.20.OR.J.EQ.25.OR.J.EQ.30) GO TO
     1   35
         CNPME=SU(J,7)-SU(J-1,7)
         CNPB=SU(J,8)-SU(J-1,8)
         CNPN=SU(J,9)-SU(J-1,9)
         GO TO 36
35       CNPME=SU(J,7)-SU(J-5,7)
         CNPB=SU(J,8)-SU(J-5,8)
         CNPN=SU(J,9)-SU(J-5,9)
36       CCHK=CNPB*CNPN
         IF (CCHK.LT.0.0) GO TO 37
         IF (CNPB.LT.CNPN) CNPME=CNPME+CNPB
         IF (CNPN.LE.CNPB) CNPME=CNPME+CNPN
         GO TO 38
37       CNPME=CNPME+CNPB+CNPN
38       GNPME=GNP(J,1)*100.0/CF(2)
         GNPB=GNP(J,2)*100.0/CF(4)
         GNPN=GNP(J,3)*100.0/CF(5)
         GCHK=GNPB*GNPN
         IF (GCHK.LT.0.0) GO TO 39
         IF (GNPB.GT.GNPN) GNPME=GNPME+GNPB
         IF (GNPN.GE.GNPB) GNPME=GNPME+GNPN
         GO TO 40
39       GNPME=GNPME+GNPB+GNPN
40       GPTP(J)=GNPME/(SU(J,1)+SU(J,2))*100.0
         TSTP(J)=(CNPME+GNPME)/(SU(J,1)+SU(J,2))*100.0
```

```
      TPME=SU(J,1)+SU(J,2)
      IF (J.EQ.1) PRINT 121
      PRINT 41, CNPME,GNPME,TPME
41 FORMAT (1X,3HPME,3F14.0)
42 CONTINUE
   TSTP(1)=5.2
   TSTP(5)=1.7
   DO 43 J=5,NQF,5
      SUPB(J)=0.0
      SUPAM(J)=0.0
      CEXPB(J)=0.0
      CEXPAM(J)=0.0
      GEXP(J)=0.0
43 CONTINUE
   DO 45 JI=1,NY1
      JL=JI*5
      DO 44 JJ=1,4
         JK=JJ+5*(JI-1)
         SUPB(JL)=SUPB(JL)+SUPB(JK)
         SUPAM(JL)=SUPAM(JL)+SUPAM(JK)
         CEXPB(JL)=CEXPB(JL)+CEXPB(JK)
         CEXPAM(JL)=CEXPAM(JL)+CEXPAM(JK)
         GEXP(JL)=GEXP(JL)+GEXP(JK)
44    CONTINUE
      BLEND(JL)=SUP(JL)/SU(JL,1)
      CL3P(JL)=SUPB(JL)/SU(JL,2)
      PAM(JL)=SUPAM(JL)/(SU(JL,1)+SU(JL,2))
45 CONTINUE
   DO 47 J=1,NQF
      Y5=FLOAT(J)/4.0+0.76
      NY5=IFIX(Y5)
      CL3PN(J)=CL3P(J)-BFPHC*CHGHC(NY5)-BPMC
      DO 46 K=1,MS
         BPC1=BPC(K)
         IF (IPDEF.EQ.1) BPC1=BPC(K)*CHGPB(J)
         RODCB(J)=RODCB(J)+(CL3PN(J)-BPC1-BOPC)*GBP(J,K)/SU(J,2)
46    CONTINUE
      BPC1=0.0
      SVRODC(J)=(SVRODC(J)*GAP(J,10)+UNRODC(J,10)*UNREG(J,10))/SU(J,1
     1   )
      RODCAM(J)=(SVRODC(J)*SU(J,1)+RODCB(J)*SU(J,2))/(SU(J,1)+SU(J,2)
     1   )
47 CONTINUE

   CALL SCLE (1,NQF,BLEND,SCALE2)
   CALL SCLE (1,NQF,CL3P,SCALE2)
   CALL SCLE (1,NQF,PAM,SCALE2)
   CALL SCLE (1,NQF,SUP,SCALE3)
   CALL SCLE (1,NQF,SUPB,SCALE3)
   CALL SCLE (1,NQF,SUPAM,SCALE3)
   CALL SCLE (1,NQF,SVRODC,SCALE2)
   CALL SCLE (1,NQF,RODCB,SCALE2)
   CALL SCLE (1,NQF,RODCAM,SCALE2)
   CALL SCLE (1,NQF,TCMP,SCALE2)
   CALL SCLE (1,NQF,TCMF,SCALE1)

                        ...WRITE SUMMARY REPORT...

   DO 49 K=1,NY1
      KI=K-1
```

```
      IF (KI.EQ.0) GO TO 48
      IF (QRB(KI).NE.1.AND.QRB(KI).NE.2) GO TO 49
48    IPAG=IPAG+1
      WRITE (NOUT,112) DNUM,IPAG
      WRITE (NOUT,116) NY2(K)
      KM=(K-1)*5+1
      KN=K*5
      WRITE (NOUT,117) (BLEND(KK),KK=KM,KN),(CL3P(KK),KK=KM,KN),(PAM(
     1   KK),KK=KM,KN),(SUP(KK),KK=KM,KN),(SUPB(KK),KK=KM,KN),(SUPAM(KK)
     2   ,KK=KM,KN),(SURODC(KK),KK=KM,KN),(RODCB(KK),KK=KM,KN),(RODCAM(K
     3   K),KK=KM,KN),(TCMP(KK),KK=KM,KN),(CEXP(KK),KK=KM,KN),(CEXPB(KK)
     4   ,KK=KM,KN),(CEXPAM(KK),KK=KM,KN),(GEXP(KK),KK=KM,KN),(GPTP(KK),
     5   KK=KM,KN),(TSTP(KK),KK=KM,KN)
49 CONTINUE
```

...WRITE COMPARATIVE SUMMARY REPORT...

```
   IPAG=IPAG+1
   WRITE (NOUT,112) DNUM,IPAG
   WRITE (NOUT,118) (NY2(L),L=2,6)
   WRITE (NOUT,117) (BLEND(K),K=10,30,5),(CL3P(K),K=10,30,5),(PAM(K),
  1K=10,30,5),(SUP(K),K=10,30,5),(SUPB(K),K=10,30,5),(SUPAM(K),K=10,3
  20,5),(SURODC(K),K=10,30,5),(RODCB(K),K=10,30,5),(RODCAM(K),K=10,30
  3,5),(TCMP(K),K=10,30,5),(CEXP(K),K=10,30,5),(CEXPB(K),K=10,30,5),(
  4CEXPAM(K),K=10,30,5),(GEXP(K),K=10,30,5),(GPTP(K),K=10,30,5),(TSTP
  5(K),K=10,30,5)
```

```
                    ************************
                      COMPARATIVE REPORTS
                    ************************
```

...GRADE B MILK PRODUCTION...

```
   IF (ICRB(1).EQ.0) GO TO 51
   CALL SCLE (MS,NQF,GBP,SCALE1)
   J1=1
   IF (ICRB(1).EQ.2) J1=5
   DO 50 J=J1,5
      IPAG=IPAG+1
      IF (J.LT.5) WRITE (NOUT,119) DNUM,IPAG,(NAME2(K,14),K=1,3),J,(N
     1   AME3(K,3),K=1,2),(NY2(K),K=1,6)
      IF (J.EQ.5) WRITE (NOUT,120) DNUM,IPAG,(NAME2(K,14),K=1,3),(NAM
     1   E3(K,1),K=1,2),(NY2(K),K=1,6)
      CALL RITE (J,1,MS,0,NAME1,GBP,0,NOUT)
50 CONTINUE
```

...TOTAL MFG. MILK PRODUCTION...

```
51 IF (ICRB(2).EQ.0) GO TO 53
   CALL SCLE (MS,NQF,GMP,SCALE1)
   J1=1
   IF (ICRB(2).EQ.2) J1=5
   DO 52 J=J1,5
      IPAG=IPAG+1
      IF (J.EQ.1) WRITE (NOUT,121)
      IF (J.LT.5) WRITE (NOUT,119) DNUM,IPAG,(NAME2(K,1),K=1,3),J,(NA
     1   ME3(K,1),K=1,2),(NY2(K),K=1,6)
      IF (J.EQ.5) WRITE (NOUT,120) DNUM,IPAG,(NAME2(K,1),K=1,3),(NAME
     1   3(K,1),K=1,2),(NY2(K),K=1,6)
      CALL RITE (J,1,MS,0,NAME1,GMP,0,NOUT)
```

```
52 CONTINUE

                              ...CLASS II CONSUMPTION...

53 IF (ICRB(3).EQ.0) GO TO 56
   DO 54 K=1,MC
   DO 54 J=1,30
      BB(J,K)=BC(J,1,K)
54 CONTINUE
   CALL SCLE (MC,NQF,BB,SCALE1)
   J1=1
   IF (ICRB(3).EQ.2) J1=5
   DO 55 J=J1,5
      IPAG=IPAG+1
      IF (J.EQ.1) WRITE (NOUT,121)
      IF (J.LT.5) WRITE (NOUT,119) DNUM,IPAG,(NAME2(K,2),K=1,3),J,(NA
  1   ME3(K,1),K=1,2),(NY2(K),K=1,6)
      IF (J.EQ.5) WRITE (NOUT,120) DNUM,IPAG,(NAME2(K,2),K=1,3),(NAME
  1   3(K,1),K=1,2),(NY2(K),K=1,6)
      CALL RITE (J,1,MC,1,NAME1,BB,0,NOUT)
55 CONTINUE

                              ...CHEESE CONSUMPTION...

56 IF (ICRB(4).EQ.0) GO TO 59
   DO 57 K=1,MC
   DO 57 J=1,30
      BB(J,K)=BC(J,2,K)
57 CONTINUE
   CALL SCLE (MC,NQF,BB,SCALE1)
   J1=1
   IF (ICRB(4).EQ.2) J1=5
   DO 58 J=J1,5
      IPAG=IPAG+1
      IF (J.EQ.1) WRITE (NOUT,121)
      IF (J.LT.5) WRITE (NOUT,119) DNUM,IPAG,(NAME2(K,3),K=1,3),J,(NA
  1   ME3(K,1),K=1,2),(NY2(K),K=1,6)
      IF (J.EQ.5) WRITE (NOUT,120) DNUM,IPAG,(NAME2(K,3),K=1,3),(NAME
  1   3(K,1),K=1,2),(NY2(K),K=1,6)
      CALL RITE (J,1,MC,1,NAME1,BB,0,NOUT)
58 CONTINUE

                              ...BUTTER CONSUMPTION...

59 IF (ICRB(5).EQ.0) GO TO 62
   DO 60 K=1,MC
   DO 60 J=1,30
      BB(J,K)=BC(J,4,K)
60 CONTINUE
   CALL SCLE (MC,NQF,BB,SCALE1)
   J1=1
   IF (ICRB(5).EQ.2) J1=5
   DO 61 J=J1,5
      IPAG=IPAG+1
      IF (J.EQ.1) WRITE (NOUT,121)
      IF (J.LT.5) WRITE (NOUT,119) DNUM,IPAG,(NAME2(K,4),K=1,3),J,(NA
  1   ME3(K,1),K=1,2),(NY2(K),K=1,6)
      IF (J.EQ.5) WRITE (NOUT,120) DNUM,IPAG,(NAME2(K,4),K=1,3),(NAME
  1   3(K,1),K=1,2),(NY2(K),K=1,6)
      CALL RITE (J,1,MC,1,NAME1,BB,0,NOUT)
```

```
61 CONTINUE
                    ...NONFAT DRY MILK CONSUMPTION...

62 IF (ICRB(6).EQ.0) GO TO 65
   DO 63 K=1,MC
   DO 63 J=1,30
      BB(J,K)=BC(J,5,K)
63 CONTINUE
   CALL SCLE (MC,NQF,BB,SCALE1)
   J1=1
   IF (ICRB(6).EQ.2) J1=5
   DO 64 J=J1,5
      IPAG=IPAG+1
      IF (J.EQ.1) WRITE (NOUT,121)
      IF (J.LT.5) WRITE (NOUT,119) DNUM,IPAG,(NAME2(K,5),K=1,3),J,(NA
  1   ME3(K,1),K=1,2),(NY2(K),K=1,6)
      IF (J.EQ.5) WRITE (NOUT,120) DNUM,IPAG,(NAME2(K,5),K=1,3),(NAME
  1   3(K,1),K=1,2),(NY2(K),K=1,6)
      CALL RITE (J,1,MC,1,NAME1,BB,0,NOUT)
64 CONTINUE
                    ...MISC. CLASS III CONSUMPTION...

65 IF (ICRB(7).EQ.0) GO TO 68
   DO 66 K=1,MC
   DO 66 J=1,30
      BB(J,K)=BC(J,3,K)
66 CONTINUE
   CALL SCLE (MC,NQF,BB,SCALE1)
   J1=1
   IF (ICRB(7).EQ.2) J1=5
   DO 67 J=J1,5
      IPAG=IPAG+1
      IF (J.EQ.1) WRITE (NOUT,121)
      IF (J.LT.5) WRITE (NOUT,119) DNUM,IPAG,(NAME2(K,6),K=1,3),J,(NA
  1   ME3(K,1),K=1,2),(NY2(K),K=1,6)
      IF (J.EQ.5) WRITE (NOUT,120) DNUM,IPAG,(NAME2(K,6),K=1,3),(NAME
  1   3(K,1),K=1,2),(NY2(K),K=1,6)
      CALL RITE (J,1,MC,1,NAME1,BB,0,NOUT)
67 CONTINUE
                    ...ENDING COMMERCIAL CHEESE STOCK...

68 IF (ICRB(8).EQ.0) GO TO 71
   DO 69 K=1,MS
   DO 69 J=1,30
      AA(J,K)=BS(J,1,K)
69 CONTINUE
   CALL SCLE (MS,NQF,AA,SCALE1)
   J1=1
   IF (ICRB(8).EQ.2) J1=5
   DO 70 J=J1,5
      IPAG=IPAG+1
      IF (J.EQ.1) WRITE (NOUT,121)
      IF (J.LT.5) WRITE (NOUT,119) DNUM,IPAG,(NAME2(K,7),K=1,3),J,(NA
  1   ME3(K,1),K=1,2),(NY2(K),K=1,6)
      IF (J.EQ.5) WRITE (NOUT,120) DNUM,IPAG,(NAME2(K,7),K=1,3),(NAME
  1   3(K,1),K=1,2),(NY2(K),K=1,6)
      CALL RITE (J,1,MS,0,NAME1,AA,0,NOUT)
```

```
70 CONTINUE

                    ...ENDING COMMERCIAL BUTTER STOCKS...

71 IF (ICRB(9).EQ.0) GO TO 74
   DO 72 K=1,MS
   DO 72 J=1,30
      AA(J,K)=BS(J,2,K)
72 CONTINUE
   CALL SCLE (MS,NQF,AA,SCALE1)
   J1=1
   IF (ICRB(9).EQ.2) J1=5
   DO 73 J=J1,5
      IPAG=IPAG+1
      IF (J.EQ.1) WRITE (NOUT,121)
      IF (J.LT.5) WRITE (NOUT,119) DNUM,IPAG,(NAME2(K,8),K=1,3),J,(NA
  1   ME3(K,1),K=1,2),(NY2(K),K=1,6)
      IF (J.EQ.5) WRITE (NOUT,120) DNUM,IPAG,(NAME2(K,8),K=1,3),(NAME
  1   3(K,1),K=1,2),(NY2(K),K=1,6)
      CALL RITE (J,1,MS,0,NAME1,AA,0,NOUT)
73 CONTINUE

              ...ENDING COMMERCIAL NONFAT DRY MILK STOCKS...

74 IF (ICRB(10).EQ.0) GO TO 77
   DO 75 K=1,MS
   DO 75 J=1,30
      AA(J,K)=BS(J,3,K)
75 CONTINUE
   CALL SCLE (MS,NQF,AA,SCALE1)
   J1=1
   IF (ICRB(10).EQ.2) J1=5
   DO 76 J=J1,5
      IPAG=IPAG+1
      IF (J.EQ.1) WRITE (NOUT,121)
      IF (J.LT.5) WRITE (NOUT,119) DNUM,IPAG,(NAME2(K,9),K=1,3),J,(NA
  1   ME3(K,1),K=1,2),(NY2(K),K=1,6)
      IF (J.EQ.5) WRITE (NOUT,120) DNUM,IPAG,(NAME2(K,9),K=1,3),(NAME
  1   3(K,1),K=1,2),(NY2(K),K=1,6)
      CALL RITE (J,1,MS,0,NAME1,AA,0,NOUT)
76 CONTINUE

                    ...ENDING GOVERNMENT CHEESE STOCKS...

77 IF (ICRB(11).EQ.0) GO TO 80
   DO 78 K=1,MS
   DO 78 J=1,30
      AA(J,K)=BS(J,4,K)
78 CONTINUE
   CALL SCLE (MS,NQF,AA,SCALE1)
   J1=1
   IF (ICRB(11).EQ.2) J1=5
   DO 79 J=J1,5
      IPAG=IPAG+1
      IF (J.EQ.1) WRITE (NOUT,121)
      IF (J.LT.5) WRITE (NOUT,119) DNUM,IPAG,(NAME2(K,10),K=1,3),J,(N
  1   AME3(K,1),K=1,2),(NY2(K),K=1,6)
      IF (J.EQ.5) WRITE (NOUT,120) DNUM,IPAG,(NAME2(K,10),K=1,3),(NAM
  1   E3(K,1),K=1,2),(NY2(K),K=1,6)
      CALL RITE (J,1,MS,0,NAME1,AA,0,NOUT)
```

```
79 CONTINUE
                    ...ENDING GOVERNMENT BUTTER STOCKS...

80 IF (ICRB(12).EQ.0) GO TO 83
   DO 81 K=1,MS
   DO 81 J=1,30
      AA(J,K)=BS(J,5,K)
81 CONTINUE
   CALL SCLE (MS,NOF,AA,SCALE1)
   J1=1
   IF (ICRB(12).EQ.2) J1=5
   DO 82 J=J1,5
      IPAG=IPAG+1
      IF (J.EQ.1) WRITE (NOUT,121)
      IF (J.LT.5) WRITE (NOUT,119) DNUM,IPAG,(NAME2(K,11),K=1,3),J,(N
  1   AME3(K,1),K=1,2),(NY2(K),K=1,6)
      IF (J.EQ.5) WRITE (NOUT,120) DNUM,IPAG,(NAME2(K,11),K=1,3),(NAM
  1   E3(K,1),K=1,2),(NY2(K),K=1,6)
      CALL RITE (J,1,MS,0,NAME1,AA,0,NOUT)
82 CONTINUE
              ...ENDING GOVERNMENT NONFAT DRY MILK STOCKS...

83 IF (ICRB(13).EQ.0) GO TO 86
   DO 84 K=1,MS
   DO 84 J=1,30
      AA(J,K)=BS(J,6,K)
84 CONTINUE
   CALL SCLE (MS,NOF,AA,SCALE1)
   J1=1
   IF (ICRB(13).EQ.2) J1=5
   DO 85 J=J1,5
      IPAG=IPAG+1
      IF (J.EQ.1) WRITE (NOUT,121)
      IF (J.LT.5) WRITE (NOUT,119) DNUM,IPAG,(NAME2(K,12),K=1,3),J,(N
  1   AME3(K,1),K=1,2),(NY2(K),K=1,6)
      IF (J.EQ.5) WRITE (NOUT,120) DNUM,IPAG,(NAME2(K,12),K=1,3),(NAM
  1   E3(K,1),K=1,2),(NY2(K),K=1,6)
      CALL RITE (J,1,MS,0,NAME1,AA,0,NOUT)
85 CONTINUE
                                        ... ...

86 IF (ICRB(14).EQ.0) GO TO 88
   J1=1
   IF (ICRB(14).EQ.2) J1=5
   DO 87 J=J1,5
      IPAG=IPAG+1
      IF (J.EQ.1) WRITE (NOUT,121)
      IF (J.LT.5) WRITE (NOUT,119) DNUM,IPAG,(NAME2(K,13),K=1,3),J,(N
  1   AME3(K,2),K=1,2),(NY2(K),K=1,6)
      IF (J.EQ.5) WRITE (NOUT,120) DNUM,IPAG,(NAME2(K,13),K=1,3),(NAM
  1   E3(K,2),K=1,2),(NY2(K),K=1,6)
      CALL RITE (J,1,MS,0,NAME1,AA,1,NOUT)
87 CONTINUE

                    ...ENDING GOVERNMENT REPORTS
```

```
                                    **********************

      REWIND NIN1
      DO 106 I=1,NO
         READ (NIN1) BMM1,BMM2
         DO 90 II=1,58
            DO 89 J=1,5
               BMM2(II,J)=BMM2(II,J)*100.0/CF(4)
   89       CONTINUE
         DO 90 J=6,10
            BMM2(II,J)=BMM2(II,J)*100.0/CF(5)
   90    CONTINUE
         Y3=FLOAT(I)/4.0+0.76
         NY3=IFIX(Y3)
         IQ=I-4*(NY3-1)
         IF (QRB(NY3).NE.1.AND.QRB(NY3).NE.3) GO TO 106

                                    .....STAGE 1.....

         IPAG=IPAG+1
         WRITE (NOUT,112) DNUM,IPAG
         WRITE (NOUT,123) IQ,NY2(NY3+1),(NAME1(JJJ),JJJ=12,16)
         WRITE (NOUT,124)
         DO 91 J=1,9
            IF (ICHK(BMM1,31,15,J,1).LE.0) GO TO 91
            WRITE (NOUT,122) NAME1(J),(BMM1(J,K),K=1,5)
   91    CONTINUE
         WRITE (NOUT,125)
         DO 92 J=1,9
            IF (ICHK(BMM1,31,15,J,6).LE.0) GO TO 92
            WRITE (NOUT,122) NAME1(J),(BMM1(J,K),K=6,10)
   92    CONTINUE
         WRITE (NOUT,126)
         DO 93 J=10,11
            IF (ICHK(BMM1,31,15,J,6).LE.0) GO TO 93
            WRITE (NOUT,122) NAME1(J),(BMM1(J,K),K=6,10)
   93    CONTINUE
         WRITE (NOUT,127)
         DO 94 J=14,22
            JK=J-13
            IF (ICHK(BMM1,31,15,J,6).LE.0) GO TO 94
            WRITE (NOUT,122) NAME1(JK),(BMM1(J,K),K=6,10)
   94    CONTINUE
         WRITE (NOUT,128)
         DO 95 J=23,31
            JK=J-22
            IF (ICHK(BMM1,31,15,J,6).LE.0) GO TO 95
            WRITE (NOUT,122) NAME1(JK),(BMM1(J,K),K=6,10)
   95    CONTINUE
         WRITE (NOUT,129)
         DO 96 J=1,9
            IF (ICHK(BMM1,31,15,J,11).LE.0) GO TO 96
            WRITE (NOUT,122) NAME1(J),(BMM1(J,K),K=11,15)
   96    CONTINUE
         WRITE (NOUT,126)
         DO 97 J=12,13
            IF (ICHK(BMM1,31,15,J,11).LE.0) GO TO 97
            WRITE (NOUT,122) NAME1(J-2),(BMM1(J,K),K=11,15)
   97    CONTINUE
```

```
                                .....STAGE 2.....

      IPAG=IPAG+1
      WRITE (NOUT,112) DNUM,IPAG
      WRITE (NOUT,123) IQ,NY2(NY3+1),(NAME1(JJJ),JJJ=12,16)
      WRITE (NOUT,130)
      DO 98 J=1,9
         IF (ICHK(BMM2,58,10,J,1).LE.0) GO TO 98
         WRITE (NOUT,122) NAME1(J),(BMM2(J,K),K=1,5)
98    CONTINUE
      WRITE (NOUT,126)
      DO 99 J=10,11
         IF (ICHK(BMM2,58,10,J,1).LE.0) GO TO 99
         WRITE (NOUT,122) NAME1(J),(BMM2(J,K),K=1,5)
99    CONTINUE
      WRITE (NOUT,127)
      DO 100 J=12,20
         JK=J-11
         IF (ICHK(BMM2,58,10,J,1).LE.0) GO TO 100
         WRITE (NOUT,122) NAME1(JK),(BMM2(J,K),K=1,5)
100   CONTINUE
      WRITE (NOUT,128)
      DO 101 J=21,29
         JK=J-20
         IF (ICHK(BMM2,58,10,J,1).LE.0) GO TO 101
         WRITE (NOUT,122) NAME1(JK),(BMM2(J,K),K=1,5)
101   CONTINUE
      WRITE (NOUT,131)
      DO 102 J=30,38
         JK=J-29
         IF (ICHK(BMM2,58,10,J,6).LE.0) GO TO 102
         WRITE (NOUT,122) NAME1(JK),(BMM2(J,K),K=6,10)
102   CONTINUE
      WRITE (NOUT,126)
      DO 103 J=39,40
         JK=J-29
         IF (ICHK(BMM2,58,10,J,6).LE.0) GO TO 103
         WRITE (NOUT,122) NAME1(JK),(BMM2(J,K),K=6,10)
103   CONTINUE
      WRITE (NOUT,127)
      DO 104 J=41,49
         JK=J-40
         IF (ICHK(BMM2,58,10,J,6).LE.0) GO TO 104
         WRITE (NOUT,122) NAME1(JK),(BMM2(J,K),K=6,10)
104   CONTINUE
      WRITE (NOUT,128)
      DO 105 J=50,58
         JK=J-49
         IF (ICHK(BMM2,58,10,J,6).LE.0) GO TO 105
         WRITE (NOUT,122) NAME1(JK),(BMM2(J,K),K=6,10)
105   CONTINUE
106 CONTINUE
    PRINT 107
107 FORMAT (1H1)
    DO 108 J=1,NO
       PRINT 109, (BNRP(J,I),I=1,5)
108 CONTINUE
109 FORMAT (1X,4HBNRP,5F8.2)
    DO 110 J=1,NO
       PRINT 111, (GPP(J,IZ),IZ=1,3),(GNP(J,IY),IY=1,3)
```

```
  110 CONTINUE
  111 FORMAT (1X,3HGPP,3F8.2,5X,3HGNP,3F12.0)
      STOP

                                        ...FORMATS...

  112 FORMAT (1H1,24X,16HDECISION NAME - ,A6,16X,5HPAGE ,I3,1H./25X,22(1
     1H=)//)
  113 FORMAT (21X,29HSUPPLY AND UTILIZATION REPORT/19X,33(1H-)/24X,23H(T
     1HOUSAND POUNDS, M.E.)//20X,6HQTR. I,5X,7HQTR. II,3X,8HQTR. III,4X,
     27HQTR. IV,5X,I4/1X,15(1H-),5(3X,8(1H-))//)
  114 FORMAT (1X,11HMARKETINGS:/2X,7HGRADE A,7X,5F11.0/2X,7HGRADE B,7X,5
     1F11.0//1X,8HIMPORTS:/2X,6HCHEESE,8X,5F11.0/2X,12HM. CLASS III,2X,5
     2F11.0/2X,6HBUTTER,8X,5F11.0/2X,4HNFDM,10X,5F11.0//1X,15HEND COMM S
     3TOCK:/2X,6HCHEESE,8X,5F11.0/2X,6HBUTTER,8X,5F11.0/2X,4HNFDM,10X,5F
     411.0//1X,15HEND GOVT STOCK:/2X,6HCHEESE,8X,5F11.0/2X,6HBUTTER,8X,5
     5F11.0/2X,4HNFDM,10X,5F11.0//1X,12HCONSUMPTION:/2X,7HCLASS I,7X,5F1
     61.0/2X,8HCLASS II,6X,5F11.0/2X,6HCHEESE,8X,5F11.0/2X,12HM. CLASS I
     7II,2X,5F11.0/2X,6HBUTTER,8X,5F11.0/2X,4HNFDM,10X,5F11.0/////1X,5HN
     8OTE:,//3X,32HSUPPLY AND UTILIZATION WILL NOT ,32HBALANCE BECAUSE F
     9IGURES HAVE NOT/3X,17HBEEN ADJUSTED TO ,35HREFLECT JOINT PRODUCTIO
     *N OF BUTTER./)
  115 FORMAT (15X,41HCOMPARATIVE SUPPLY AND UTILIZATION REPORT/13X,45(1H
     1-)/24X,23H(THOUSAND POUNDS, M.E.)//14X,5(7X,I4)/1X,16(1H-),5(3X,8(
     21H-))//)
  116 FORMAT (28X,14HSUMMARY REPORT/26X,18(1H-)//20X,6HQTR. I,5X,7HQTR.
     1II,3X,8HQTR. III,4X,7HQTR. IV,5X,I4/1X,15(1H-),5(3X,8(1H-))//)
  117 FORMAT (1X,15HPRICES ($/CWT):/2X,7HGRADE A,7X,5F11.2/2X,7HGRADE B,
     17X,5F11.2/2X,8HALL MILK,6X,5F11.2//1X,14HGROSS VALUE OF/1X,16HFARM
     2 MKTGS (T$):/2X,7HGRADE A,7X,5F11.0/2X,7HGRADE B,7X,5F11.0/2X,8HAL
     3L MILK,6X,5F11.0//1X,15HRTRN OVR DIRECT/1X,13HCOST ($/CWT):/2X,7HG
     4RADE A,7X,5F11.2/2X,7HGRADE B,7X,5F11.2/2X,8HALL MILK,6X,5F11.2//1
     5X,13HTRANSP. COST,/1X,14HMFD PROD. (T$),1X,5F11.0//1X,16HCONS. EXP
     6. (T$):/2X,11HFLUID PROD.,3X,5F11.0/2X,10HMFD. PROD.,4X,5F11.0/2X,
     79HALL PROD.,5X,5F11.0//1X,15HGOVT. EXP. (T$),5F11.0//1X,15HGOVT. P
     8URCH. AS/1X,13HPCNT OF SALES,2X,5F11.1//1X,15HTOTAL PURCH. AS/1X,1
     93HPCNT OF SALES,2X,5F11.1)
  118 FORMAT (22X,26HCOMPARATIVE SUMMARY REPORT/20X,30(1H-)//14X,5(7X,I4
     1)/1X,16(1H-),5(3X,8(1H-))//)
  119 FORMAT (1H2,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
     1(1H=)//17X,21HCOMPARATIVE REPORT - ,2A10,A5/15X,50(1H-)/31X,7HQUAR
     2TER,I2/31X,9(1H-)/28X,A10,A7//9X,6HREGION,2X,6(5X,I4)/7X,10(1H-),1
     3X,6(3X,6H------))
  120 FORMAT (1H2,24X,15HDECISION NAME -,1X,A6,16X,5HPAGE ,I3,1H./25X,22
     1(1H=)//17X,21HCOMPARATIVE REPORT - ,2A10,A5/15X,50(1H-)/33X,6HANNU
     2AL/33X,6(1H-)/28X,A10,A7//9X,6HREGION,2X,6(5X,I4)/7X,10(1H-),1X,6(
     33X,6H------))
  121 FORMAT (1H8)
  122 FORMAT (2X,A10,5F12.0)
  123 FORMAT (29X,16HMOVEMENTS REPORT/29X,16(1H=)//25X,5HQUARTER -,I2,8H
     1 YEAR -,I5/25X,24(1H-)//12X,5(2X,A10)/12X,5(2X,10(1H-)))
  124 FORMAT (/36X,15HCLASS II DEMAND,/1X,12HMILK SUPPLY:)
  125 FORMAT (/37X,13HCHEESE DEMAND,/1X,12HMILK SUPPLY:)
  126 FORMAT (1X,8HIMPORTS:)
  127 FORMAT (1X,13HCOMM. STOCKS:)
  128 FORMAT (1X,13HGOVT. STOCKS:)
  129 FORMAT (/31X,22HMISC. CLASS III DEMAND,/1X,12HMILK SUPPLY:)
  130 FORMAT (/36X,13HBUTTER DEMAND,/1X,14HBUTTER SUPPLY:)
  131 FORMAT (/31X,22HNONFAT DRY MILK DEMAND,/1X,12HNFDM SUPPLY:)
```

```
      END
      FUNCTION ICHK(A,I,J,K,L)

                        ******************************
                          CHECK FOR ZERO MOVEMENTS
                        ******************************

      DIMENSION A(I,J)
      L1=L+4
      ICHK=0
      DO 1 II=L,L1
         IF (A(K,II).LE.0.0) GO TO 1
         ICHK=1
         RETURN
    1 CONTINUE
      RETURN

      END
      SUBROUTINE SCLE (IN,JN,AA,SCALE)

                  ***********************************************
                    SCALE VARIABLES IN COMPARATIVE REPORTS
                  ***********************************************

      DIMENSION AA(30,9)
      DO 1 I=1,IN
      DO 1 J=1,JN
    1 AA(J,I)=SCALE*AA(J,I)
      RETURN
      END
      SUBROUTINE RITE (J,IM,IN,IO,NAME,AA,KW,NOUT)

                        ******************************
                          WRITE COMPARATIVE REPORTS
                        ******************************

      DIMENSION NAME(16), AA(30,9)
      DO 2 I=IM,IN
         II=I
         IF (IO.EQ.1) II=I+11
         IF (KW.EQ.1) GO TO 1
         WRITE (NOUT,3) NAME(II),AA(J,I),AA(J+5,I),AA(J+10,I),AA(J+15,I)
     1   ,AA(J+20,I),AA(J+25,I)
         GO TO 2
    1    WRITE (NOUT,4) NAME(II),AA(J,I),AA(J+5,I),AA(J+10,I),AA(J+15,I)
     1   ,AA(J+20,I),AA(J+25,I)
    2 CONTINUE
    3 FORMAT (7X,A10,1X,6F9.1)
    4 FORMAT (7X,A10,1X,6F9.2)
      RETURN

      END
```

LIST OF MAJOR VARIABLES

Variable	Dimension	Location and Description
A	(59,5)	DAMPSIN, DAMPSLV: Initially used to store retail fluid milk prices. Later used to store intercept values for Class I demand functions. (59 orders, 5 quarters)
	(75)	DRW1: Work array (75 regulated production areas).
AA	(59,59)	DRW1: Work array (59 orders)
	(30,9)	DRW2: Work array (30 quarters and years, 9 unregulated production regions)
ABLEND	(59)	DAMPCLC: Simple average annual blend prices for current year by individual order areas (59 orders).
ACEXP	(2)	DAMPSIN, DAMPCLC: Aggregate consumer expenditure for current and previous years.
ACHGC1S	(45)	DAMPCLC: Annual percent change in federal order Class I sales (45 federal orders).
ACHGC2D	(45)	DAMPCLC: Annual percent change in federal order Class II consumption (45 federal orders).
ACHGC3Q	(45)	DAMPCLC: Annual percent change in federal order Class III consumption (45 federal orders).
ACHGPRR	(45)	DAMPCLC: Annual percent change in federal order total producer receipts (45 federal orders).
ACHIAC1	(45)	DAMPCLC: Annual percent change in federal order in-area Class I sales (45 federal orders).
ACL1P	(59)	DAMPCLC: Simple average annual Class I prices for federal and state orders (59 orders).
ACL1UT	(59)	DAMPCLC: Simple average annual Class I utilization in federal and state orders (59 orders).

Variable	Dimension	Location and Description
ACL2D	(59,2)	DAMPSIN, DAMPCLC: Annual Class II consumption in federal and state orders for current and previous years (59 orders, 2 years).
ACL3Q	(59,2)	DAMPSIN, DAMPCLC: Annual Class III consumption for federal and state orders for current and previous years. (59 orders, 2 years).
ACST		DAMPSIN, DAMPCLC: Raw milk assembly cost in federal orders.
ADFPCST		DAMPSIN, DAMPCLC: Aggregate annual transportation and assembly charges for direct-ship producers in federal orders.
ADTCST		DAMPSIN, DAMPCLC: Aggregate annual handling charges from direct-ship producers in federal orders to other federal orders.
AFRPS	(59)	DAMPCLC: Simple average annual farm-retail fluid milk price spread in federal and state orders (59 orders).
AGRC1	(45)	DAMPCLC: Annual Class I sales in federal order processing centers (45 federal orders).
AIAC1S	(2)	DAMPSIN, DAMPCLC: Average aggregate blend price in federal orders for current and previous years (2 years).
AMBLND	(2)	DAMPSIN, DAMPCLC: Average aggregate blend price in federal orders for current and previous years (2 years).
AMC1P	(2)	DAMPSIN, DAMPCLC: Average aggregate Class I price in federal orders for current and previous years (2 years).
AMC1U	(2)	DAMPSIN, DAMPCLC: Average aggregate Class I utilization in federal orders for current and previous years (2 years).
AMC20		DAMPCLC: Aggregate annual Class II products obtained from non-order sources in federal orders.
AMC2P	(2)	DAMPSIN, DAMPCLC: Average aggregate Class II price for current and previous years (2 years).

Variable	Dimension	Location and Description
AMC3P	(2)	DAMPSIN, DAMPCLC: Average aggregate Class III price for current and previous years (2 years).
AMMFG	(61,28)	DAMPSIN, DAMPCLC: Annual individual movements from federal order production to manufacturing centers. (61 production areas, 28 manufacturing areas).
AMOCC		DAMPCLC: Aggregate annual movements from federal order processing centers to other than own consumption centers.
AMOPC		DAMPCLC: Aggregate annual movements from federal order production centers to other than own processing center.
AMPPC		DAMPCLC: Aggregate annual movements from federal order production centers to own processing centers.
AMRTL	(2)	DAMPSIN, DAMPCLC: Aggregate annual average retail price of fluid products in federal orders for current and previous years (2 years).
AMUCP	(2)	DAMPSIN, DAMPCLC: Aggregate average utilization of federal order processing capacity for current and previous years (2 years).
ANFP	(45)	DAMPCLC: Average annual net farm price in federal orders (45 orders).
AOAC1T	(45)	DAMPCLC: Average annual packaged milk unit transportation cost in federal orders (45 orders).
AP		DAMPSIN: Intercept value for packaged milk transportation cost function.
APCL1	(59,2)	DAMPSIN, DAMPCLC: Class I receipts in federal and state orders for current and previous years (59 orders, 2 years).
APMM	(45,45)	DAMPSIN, DAMPCLC: Annual individual movements from federal order processing centers to consumption centers. Temporarily used to store other information in MAIN of DAMPSIN (45 orders).

Variable	Dimension	Location and Description
APPREC	(59,2)	DAMPSIN, DAMPCLC: Total producer receipts in federal and state orders for current and previous years (59 orders, 2 years).
AR		DAMPSIN, DAMPCLC: Intercept value for raw milk transportation cost function.
ARMMD	(45,45)	DAMPSIN, DAMPCLC: Annual individual movements from federal order direct-ship production centers to processing centers (45 orders).
ARMMS	(16,45)	DAMPSIN, DAMPCLC: Annual individual movements from federal order supply plants to processing centers. Temporarily used in MAIN of DAMPSIN to store labels for base data (16 plants, 45 orders).
ARODC	(45)	DAMPCLC: Annual average return over direct cost in federal orders (45 orders).
ARPR	(59)	DAMPCLC: Annual average retail price of fluid products in federal and state orders (59 orders).
ASCL2D	(2)	DAMPSIN, DAMPCLC: Aggregate federal order Class II sales net of sales from nonorder sources for current and previous years (2 years).
ASCL3Q	(2)	DAMPSIN, DAMPCLC: Aggregate federal order Class III sales for the current and previous years (2 years).
ASFPCST		DAMPSIN, DAMPCLC: Aggregate annual transportation and assembly charges for supply plant producers.
ASFRPS	(2)	DAMPSIN, DAMPCLC: Aggregate annual summation of the farm-retail fluid milk price spread multiplied by area Class I consumption in each federal order market for current and previous years (2 years).
ASGRC1		DAMPCLC: Aggregate annual total producer receipts.
ASIAC1	(2)	DAMPSIN, DAMPCLC: Aggregate federal order Class I consumption for current and previous years (2 years).

Variable	Dimension	Location and Description
ASMDS		DAMPCLC: Aggregate annual movements from the direct-ship federal order production centers to manufacturing centers.
ASMDSD		DAMPCLC: Aggregate annual movements from direct-ship federal order production centers to the manufacturing center dummies.
ASMFGU	(2)	DAMPSIN, DAMPCLC: Aggregate annual utilization of federal order manufacturing capacity for current and previous years (2 years).
ASMPC		DAMPCLC: Aggregate annual sales by federal order processors in their own consumption area.
ASMSP		DAMPCLC: Aggregate annual movements from supply plants to manufacturing centers.
ASMSPD		DAMPCLC: Aggregate annual movements from supply plants to manufacturing center dummies.
ASNFP	(2)	DAMPSIN, DAMPCLC: Aggregate average net farm price in federal orders for current and previous years (2 years).
ASOAC1D		DAMPCLC: Annual aggregate average unit packaged milk transportation cost in federal orders.
ASOAC1T	(2)	DAMPSIN, DAMPCLC: Aggregate total packaged milk transportation cost in federal orders for current and previous years (2 years).
ASOPC		DAMPCLC: Aggregate annual value of supply plant shipments to own area processors.
ASPCL1	(2)	DAMPSIN, DAMPCLC: Aggregate producer receipts used in Class I in federal orders for current and previous years (2 years).
ASPRRC	(2)	DAMPSIN, DAMPCLC: Aggregate total producer receipts in federal orders for current and previous years (2 years).
ASRODC	(2)	DAMPSIN, DAMPCLC: Aggregate average return over direct cost in federal orders for current and previous years (2 years).

Variable	Dimension	Location and Description
ASTCCWT		DAMPCLC: Aggregate average total per unit cost of Class I sales by processing center in federal orders for current and previous years (2 years).
ASTRMC		DAMPCLC: Aggregate annual average raw milk acquisition cost per unit of Class I sales in federal orders.
ASTRNSD		DAMPCLC: Aggregate annual average raw milk transportation cost per unit of Class I sales in federal orders.
ASTRNSR	(2)	DAMPSIN, DAMPCLC: Aggregate annual handling charges for supply plant milk shipped to other orders for the current year and the previous years (2 years).
ATCCWT	(59)	DAMPCLC: Average annual total per unit cost of Class I sales by individual federal and state order processors (59 orders).
ATMCST		DAMPSIN, DAMPCLC: Aggregate annual handling charges for milk shipped to federal order manufacturing plants outside of own orders.
ATMFGM		DAMPCLC: Aggregate annual movements from federal order production centers to manufacturing centers.
ATMFGU		DAMPCLC: Aggregate annual utilization of manufacturing capacity in federal orders.
ATMMC	(53)	DAMPCLC: Total milk received annually at each federal order manufacturing center (53 centers)
ATMOP		DAMPCLC: Total annual movements from supply plants to other area processing centers.
ATRANSR	(45)	DAMPCLC: Average annual raw milk transportation cost per unit of Class I sales in federal orders (45 orders).
ATRMC	(45)	DAMPCLC: Average annual raw milk acquisition cost per unit of Class I sales in federal orders (45 orders).
ATRMPC		DAMPSIN, DAMPCLC: Aggregate annual raw milk production costs in federal orders.

Variable	Dimension	Location and Description
AUMCP	(53)	DAMPCLC: Annual average utilization of individual manufacturing center capacity in federal orders (53 centers).
AUNCLS	(6,9)	DRW1: Annual sales of Class I products in unregulated Grade A regions (6 years, 9 regions).
AUNGBP	(6,9)	DRW1: Annual gross farm price of milk in unregulated Grade A regions (6 years, 9 regions).
AUNNBP	(6,9)	DRW1: Annual net farm price of milk in unregulated Grade A regions (6 years, 9 regions).
AUNREG	(6,9)	DRW1: Annual raw milk production in unregulated Grade A regions (6 years, 9 regions).
AUNRODC	(6,9)	DRW1: Annual returns over direct cost to farmers in unregulated Grade A regions (6 years, 9 regions).
AUTCP	(45)	DAMPCLC: Annual average utilization of Class I processing capacity in federal orders (45 orders).
AVP	(2)	DAMPSIN, DAMPCLC: Aggregate annual pool values in federal orders for current and previous years (2 years).
AWFRPS	(2)	DAMPSIN, DAMPCLC: Average aggregate annual farm-retail fluid milk price spread in federal orders for current and previous years (2 years).
B	(9,4)	DAMPSIN, DAMPSLV: Base Grade B milk production (9 regions, 4 quarters).
	(59)	DRW1: Work array (59 orders).
BB	(53)	DRW1: Work array (53 manufacturing areas).
	(30,5)	DRW2: Work array (30 quarters and years, 5 consumption regions)
BBC3P	(5)	DAMPSIN, DAMPSLV: Equals BC3P.
BC	(30,5,5)	DRW2: Manufactured milk product consumption (30 quarters, and years, 5 products, 5 regions).

Variable	Dimension	Location and Description
BCEXP	(5)	DAMPSIN, DAMPCLC: Aggregate consumer expenditure on fluid products in federal orders by quarter for current year.
BCHGI	(4)	DAMPSIN, DAMPSLV: Exogenous change in base import levels (4 products).
BC2P	(5)	DAMPSIN, DAMPSLV: Used to read in quarterly base Class II prices which are converted to retail level prices.
BC3P	(5)	DAMPSIN: Used to read in quarterly base Class III prices.
BCRK		DRW2: Total quarterly consumption of individual manufactured product; used to calculate weighted average retail prices.
BCRT		DRW2: Total annual consumption of individual manufactured product; used to calculate weighted average retail prices.
BDE	(5)	DAMPSIN, DAMPSLV: Regional demand elasticities for manufactured milk products (5 consumption regions).
BFPHC		DAMPSIN, DRW2: Farm to plant hauling costs for Grade B milk producers.
BIAC1	(59,4)	DAMPSIN, DAMPSLV: Quarterly federal and state order sales bases. Producer receipts used in Class I or in-area Class I sales (59 orders, 4 quarters).
BIMP	(4,2,4)	DAMPSIN, DAMPSLV: Base imports (4 products, 2 regions, 4 quarters).
	(30,4,2)	DRW2: Imports (30 quarters and years, 4 products, 2 regions).
BLAMR	(20)	DAMPSLV, DAMPCLC: 1-10 contains average annual blend prices for consolidated orders; 11-20 average annual Class I utilization for consolidated orders.
BLDIF	(59)	DAMPSIN, DAMPSLV, DAMPCLC: Blend price differentials for individual orders in consolidated orders (59 orders).

Variable	Dimension	Location and Description
BLEND	(59,6)	DAMPSIN, DAMPSLV, DAMPCLC: Quarterly blend prices for base, current, and previous quarters (59 orders, 6 quarters).
	(30)	DRW2: Average blend prices for all orders (30 quarters and years).
BLNDMR	(20)	DAMPSIN, DAMPCLC: 1-10 contains quarterly blend prices for consolidated orders; 11-20 contains quarterly Class I utilization for consolidated orders.
BLWT		DAMPSIN, DRW1: Location differential used to generate blend price differentials from distances.
BMBLEND	(5)	DAMPSIN, DAMPCLC: Quarterly average federal order blend price for current year (5 quarters).
BMCL1P	(5)	DAMPSIN, DAMPCLC: Quarterly average order Class I price for current year (5 quarters).
BMCL1U	(5)	DAMPSIN, DAMPCLC: Aggregate average order Class I utilization by quarter for current year.
BMKP	(5)	DAMPSIN, DAMPSLV, DRW2: Retail markup used in retail price formula for manufactured products (5 products).
BMMD1	(31,15)	DAMPSLV: Transportation costs, stage 2.
	(58,10)	DAMPSLV: Transportation costs, stage 3.
BMM1	(31,15)	DRW2: Transportation cost work array, stage 2; same as BMMD1.
BMM2	(58,10)	DRW2: Transportation cost work array, stage 3; same as BMMD2.
BMRTLP	(5)	DAMPSIN, DAMPCLC: Quarterly average order retail prices of fluid milk for current year (5 quarters).
BNCL2P	(5)	DAMPSIN, DAMPCLC: Quarterly Class II prices for current year (5 quarters).
BNCL3P	(5)	DAMPSIN, DAMPCLC: Quarterly Class III prices for current year (5 quarters).

Variable	Dimension	Location and Description
BNF	(2)	DAMPSIN, DAMPSLV: Contains retail price function weights on the farm price of milk used to jointly produce butter and nonfat dry milk (2 products).
BNINV	(2,9)	DAMPSIN, DAMPSLV: Ending commercial stocks of butter and nonfat dry milk by regions. (2 products, 9 regions).
BNRP	(30,5)	DRW2: Retail prices for manufactured products. (30 quarters and years, 5 products).
BOPC		DAMPSIN, DRW2: Miscellaneous charges to Grade B milk producers.
BP	(20)	DAMPSIN: Up to 20 quarters of Class I base prices for federal orders.
BPC	(9)	DAMPSIN, DAMPSLV, DRW2: Direct cost of producing Grade B milk (9 regions).
BPC1		DRW2: BPC adjusted for exogenous changes in costs; BPC only equals base costs in DRW2.
BPMC		DAMPSIN, DRW2: Grade B milk producer marketing charges.
BPOP	(31)	DAMPSLV: Current quarter movements from supply nodes in stage 2 (31 supply nodes).
BPRR	(15)	DAMPSLV: Current quarter movements to demand nodes in stage 2 (15 demand nodes).
BPS	(20)	DAMPSIN: Contains up to 20 quarters of Class I base prices for state orders (20 quarters).
BP1		DAMPSIN: Slope coefficient for packaged milk transportation cost function.
BR		DAMPSIN: Slope coefficient for raw milk transportation cost function.
BRCST	(5)	DAMPSIN, DAMPSLV: Wholesale margin used in retail price functions for manufactured products (5 products).

Variable	Dimension	Location and Description
BS	(6,9,4)	DAMPSIN, DAMPSLV: Ending commercial and government stocks (6 stocks, (3 products-2 types), 9 regions, 4 quarters).
	(30,6,9)	DRW2: Ending commercial and government stocks. (30 quarters and years, 6 stocks, 9 regions).
BSE	(9)	DAMPSIN, DAMPSLV: Grade B milk price elasticities of supply (9 regions).
BSMFGU	(5)	DAMPSIN, DAMPCLC: Quarterly aggregate utilization of order manufacturing capacity for current year (5 quarters).
BSMUCP	(5)	DAMPSIN, DAMPCLC: Quarterly aggregate utilization of order Class I processing capacity for current year (5 quarters).
BSNFP	(5)	DAMPSIN, DAMPCLC: Quarterly aggregate average net farm price in federal orders for current year (5 quarters).
BSOAC1T	(5)	DAMPSIN, DAMPCLC: Quarterly aggregate total packaged milk transportation costs in orders for current year (5 quarters).
BSTRNSR	(5)	DAMPSIN, DAMPCLC: Quarterly aggregate total raw milk transportation costs in orders for current year (5 quarters).
BSVFRPS	(5)	DAMPSIN, DAMPCLC: Quarterly aggregate value of the summation of the product of farm-retail fluid milk price spread and Class I consumption in orders for current years (5 quarters).
BSVP	(5)	DAMPSIN, DAMPCLC: Quarterly aggregate order pool values for current year (5 quarters).
BSVRODC	(5)	DAMPSIN, DAMPCLC: Quarterly aggregate average return over direct cost in orders for current year (5 quarters).
BTCST	(2,5)	DAMPSIN, DAMPSLV: Manufactured milk product transportation cost parameters (intercept and slope, 5 products).

Variable	Dimension	Location and Description
BTPSQ	(59,4)	DAMPSIN, DAMPSLV, DAMPCLC: Quarterly total producer receipts in federal and state orders for base year (59 orders, 4 quarters).
BTRANS	(11,5)	DAMPSIN, DAMPSLV: Mileages between supply and demand centers in stages two and three (11 supply centers, 5 demand centers).
BWFRPS	(5)	DAMPSIN, DAMPCLC: Quarterly aggregate average farm-retail fluid milk price spread in orders for current year (5 quarters).
C	(5,5,4)	DAMPSIN, DAMPSLV: Manufactured milk product consumption in base year, (5 products, 5 regions, 4 quarters).
	(59)	DRW1: Work array (59 orders).
CC	(53)	DRW1: Work array (53 manufacturing centers).
CCEXP		DAMPCLC: Percent change in consumer expenditure on fluid products in federal orders from same quarter a year ago.
CCHK		DRW2: Used to determine which procedure is to be used to add commercial stocks together.
CCL2P		DAMPCLC: Percent change in Class II price from same quarter a year ago.
CCL3P		DAMPCLC: Percent change in Class III price from same quarter a year ago.
CEXP		DAMPCLC: Current quarter aggregate consumer expenditure on fluid products in federal orders.
	(30)	DRW2: Consumer expenditure for fluid products (30 quarters and years).
CEXPAM	(30)	DRW2: Consumer expenditure on all milk products (30 quarters and years).
CEXPB	(30)	DRW2: Consumer expenditure on manufactured milk products (30 quarters and years).
CEX1		DAMPSLV: Current quarter aggregate consumer expenditure on fluid products in federal and state orders.

Variable	Dimension	Location and Description
CF	(5)	DAMPSIN, DAMPSLV, DRW2: Conversion factors for manufactured milk products in pounds of product per 100 pounds of milk (5 products).
CHABLND		DAMPCLC: Percent change in annual average federal order blend price from a year ago.
CHAEXP		DAMPCLC: Annual percent change in aggregate federal order consumer expenditure on fluid products from a year ago.
CHAFRPS		DAMPCLC: Annual percent change in ASFRPS from a year ago.
CHAMC1P		DAMPCLC: Annual percent change in AMC1P from a year ago.
CHAMC2P		DAMPCLC: Annual percent change in AMC2P from a year ago.
CHAMC3P		DAMPCLC: Annual percent change in AMC3P from a year ago.
CHAMRTL		DAMPCLC: Annual percent change in AMRTL from a year ago.
CHASC1		DAMPCLC: Annual percent change in ASIAC1 from a year ago.
CHASC1U		DAMPCLC: Annual percent change in AMC1U from a year ago.
CHASC2		DAMPCLC: Annual percent change in ASCL2D from a year ago.
CHASC3		DAMPCLC: Annual percent change in ASCL3Q from a year ago.
CHASFGU		DAMPCLC: Annual percent change in ASMFGU from a year ago.
CHASNFP		DAMPCLC: Annual percent change in ASNFP from a year ago.
CHASOA		DAMPCLC: Annual percent change in ASOAC1T from a year ago.
CHASPC		DAMPCLC: Annual percent change in ASPCL1 from a year ago.

Variable	Dimension	Location and Description
CHASPR		DAMPCLC: Annual percent change in ASPRRC from a year ago.
CHASRDC		DAMPCLC: Annual percent change in ASRODC from a year ago.
CHASTRN		DAMPCLC: Annual percent change in ASTRNSR from a year ago.
CHAUCP		DAMPCLC: Annual percent change in AMUCP from a year ago.
CHAVP		DAMPCLC: Annual percent change in AVP from a year ago.
CHAWRPS		DAMPCLC: Annual percent change in AWFRPS from a year ago.
CHEESE	(9)	DAMPSLV: Current quarter cheese sales by each production region (9 regions).
CHGBP		DAMPSIN: Quarterly change in federal order Class I base price.
CHGBPS		DAMPSIN: Quarterly change in state order Class I base price.
CHGBT	(5)	DAMPSIN, DAMPSLV: Annual index for exogenous change in raw milk transportation costs.
CHGCL1P	(59)	DAMPSIN, DAMPSLV, DAMPCLC: Quarterly change in federal and state order Class I prices. (59 orders).
CHGCL1S	(45)	DAMPCLC: Percent change in federal order producer receipts used in Class I from same quarter a year ago (45 orders).
CHGCL2D	(45)	DAMPCLC: Percent change in federal order producer receipts used in Class II same quarter a year ago. (45 orders).
CHGCL2P		DAMPSIN, DAMPSLV, DAMPCLC: Quarterly change in Class II price, as read from user input form.
CHGCL3P		DAMPSIN, DAMPSLV, DAMPCLC: Quarterly change in Class III price, as read from user input form.

Variable	Dimension	Location and Description
CHGCL3Q	(45)	DAMPCLC: Percent change in federal order producer receipts used in Class III from same quarter a year ago (45 orders).
CHGHC	(5)	DAMPSIN, DAMPSLV, DAMPCLC, DRW2: Annual index for exogenous change in raw milk hauling cost (5 years).
CHGIAC1	(45)	DAMPCLC: Percent change in federal order Class I consumption from same quarter a year ago (45 orders).
CHGMC	(5,5)	DAMPSIN, DAMPSLV: Exogenous percent change in consumption of manufactured products by region (5 products, 5 regions).
CHGNC1Q	(45)	DAMPSIN, DAMPSLV: Quarterly exogenous percentage change in federal order Class I consumption (45 orders).
CHGCN2Q	(45)	DAMPSIN, DAMPSLV: Quarterly exogenous percentage change in federal order Class II consumption (45 orders).
CHGPD	(20)	DAMPSIN, DAMPSLV, DAMPCLC: Quarterly exogenous change index for raw milk production costs (20 quarters).
	(30)	DRW2: 1-5 equals 1, 6-9 equals 1-4 in CHGPD of DAMPSIN, 10 equals average of 6-9, 11-14 equals 5-8 in CHGPD of DAMPSIN, 15 equals average of 11-14, and so on up to 26-29 equals 17-20 in CHGPD of DAMPSIN, 30 equals average of 26-29 (30 years and quarters).
CHGPRC	(5)	DAMPSIN, DAMPSLV, DAMPCLC: Annual exogenous change index for Class I processing costs (5 years).
CHGPRR	(45)	DAMPCLC: Percent change in total federal order producer receipts from same quarter a year ago (45 orders).
CHGPT	(5)	DAMPSIN: Annual index for exogenous change in packaged milk unit transportation cost (5 years).
CH1		DAMPSLV: Amount of butter produced as whey cream by-product from production of one pound of cheese.

Variable	Dimension	Location and Description
CIAC1		DAMPCLC: Aggregate percent change in federal order Class I consumption from same quarter a year ago.
CINSP	(59)	DAMPSIN, DAMPSLV: Inspection costs for federal and state orders (59 orders).
CINV	(9,3)	DAMPSLV: Inventory demand for commercial cheese stocks based on movements from raw milk production, beginning commercial stocks, and beginning government stocks nodes (9 regions, 3 node types).
CL1CP	(59)	DAMPSIN, DAMPSLV, DAMPCLC: Federal and state order Class I processing capacity (59 orders).
CL1P	(59,5)	DAMPSIN, DAMPSLV, DAMPCLC: Initially used to store base year Class I prices in DAMPSIN. Later used to store proposed Class I prices from primary input form (59 orders, 5 quarters).
CL1Q	(59,4)	DAMPSIN, DAMPCLC: Quarterly producer receipts used in Class I for current year (59 orders, 4 quarters).
CL1RR	(59)	DAMPSIN, DAMPSLV, DAMPCLC: Percentage federal and state order Class I required reserve (59 orders).
CL1SLS	(59)	DAMPSLV: Actual, optimal network flow through federal and state order processing centers in current year (59 orders).
CL1SP	(16)	DAMPSIN, DAMPSLV, DAMPCLC: Class I price for supply plants by market (16 plants).
CL1UT	(59)	DAMPCLC: Current quarter federal and state order percent Class I utilization (59 orders).
CL2		DAMPSIN: Quarterly percentage change in Class II price.
CL2Q	(59,4)	DAMPSIN, DAMPSLV: Quarterly base federal and state order producer receipts used in Class II (59 orders).
CL3		DAMPSIN: Quarterly percentage change in Class III price.

Variable	Dimension	Location and Description
CL3DS	(59)	DAMPSLV: Current quarter shipments from federal and state order direct-ship production centers to manufacturing centers (59 orders).
CL3P	(30)	DRW2: Quarterly Class III price (30 quarters and years).
CL3PN	(30)	DRW2: Quarterly net Grade B milk price (30 quarters and years).
CL3SP	(16)	DAMPSLV: Current quarter milk shipments from supply plants to manufacturing centers (16 plants).
CMBLEND		DAMPCLC: Percent change in MBLEND from same quarter a year ago.
CMCL1P		DAMPCLC: Percent change in BMCL1P from same quarter a year ago.
CMCL1U		DAMPCLC: Percent change in BMCL1U from same quarter a year ago.
CMCL2		DAMPCLC: Percent change in aggregate federal order Class II consumption from same quarter a year ago.
CMCL3		DAMPCLC: Percent change in aggregate federal order Class III consumption from same quarter a year ago.
CMRLTP		DAMPCLC: Percent change in aggregate federal order retail price of fluid products from same quarter a year ago
CMP	(2,2)	DRW1: Labels for federal and state order Comparative Reports.
CMUCP		DAMPCLC: Percent change in SMUCP from same quarter a year ago.
CNPB		DRW2: Quarterly net purchases of butter for commercial stocks.
CNPME		DRW2: Quarterly net purchases of all products for commercial stocks, measured in milk equivalent.
CNPN		DRW2: Quarterly net purchases of nonfat dry milk for commercial stocks.

Variable	Dimension	Location and Description
CPRCHG	(59)	DAMPSIN, DAMPSLV, DAMPCLC: Change in federal and state order direct-ship producer receipts as a percentage of base direct-ship reciepts (59 orders).
CQB	(9)	DAMPSLV: Current quarter production of Grade B milk by region (9 regions).
CQBNS	(2,9)	DAMPSLV: Current quarter production of butter and nonfat dry milk by regions (2 products. 9 regions).
CQBS	(2,3,3)	DAMPSLV: Current quarter beginning commercial and government stocks of manufactured products by region (commercial or government, 3 products, 9 regions).
CQC	(5,5)	DAMPSLV: Current quarter consumption of manufactured products by region (5 products, 5 regions).
CQC1D	(59)	DAMPSLV, DAMPCLC: Current quarter federal and state order Class I consumption (59 orders).
CQC2D	(59)	DAMPSLV: Current quarter federal and state order Class II consumption (59 orders).
CQES	(6,9)	DAMPSLV: Current quarter ending commercial and government stocks of manufactured products by region (6 stocks, 9 regions).
CQIMP	(4,2)	DAMPSLV: Current quarter imports of manufactured products by region (4 products, 2 regions).
CQMFG	(9)	DAMPSLV: Milk available for manufacturing in the current quarter by region (9 regions).
CQTSP	(59)	DAMPSLV, DAMPCLC: Current quarter federal and state order raw milk production (59 orders).
CQUCEXP		DAMPSLV: Current quarter consumer expenditure on fluid products in unregulated Grade A milk regions.
CQUC1P	(9)	DAMPSLV: Current quarter "Class I" prices in unregulated Grade A milk regions (9 regions).

Variable	Dimension	Location and Description
CQUC1S	(9)	DAMPSLV: Current quarter sales of fluid products in unregulated Grade A milk regions (9 regions).
CQUGBP	(9)	DAMPSLV: Current quarter gross farm prices of unregulated Grade A milk (9 regions).
CQUNBP	(9)	DAMPSLV: Current quarter net farm prices of unregulated Grade A milk (9 regions).
CQUN P	(9)	DAMPSLV: Current quarter retail prices of fluid products in unregulated Grade A milk regions (9 regions).
CQUREG	(9)	DAMPSLV: Current quarter milk production in unregulated Grade A milk regions (9 regions).
CQURODC	(9)	DAMPSLV: Current quarter returns over direct cost of producing milk in unregulated Grade A milk regions (9 regions).
CQUVP	(9)	DAMPSLV: Current quarter gross producer returns in unregulated Grade A milk regions (9 regions).
CR		DAMPSIN, DRW1: Used to determine which input forms are to be read.
CSMFGU		DAMPCLC: Percent change in SMFGU from same quarter a year ago.
CSNFP		DAMPCLC: Percent change in SNFP from same quarter a year ago.
CSOAC1T		DAMPCLC: Percent change in SOAC1T from same quarter a year ago.
CSPCL1		DAMPCLC: Percent change in SPCL1 from same quarter a year ago.
CSPREC		DAMPCLC: Percent change in SPRREC from same quarter a year ago.
CSTRNSR		DAMPCLC: Percent change in STRNSR from same quarter a year ago.
CSVFRPS		DAMPCLC: Percent change in SVFRPS from same quarter a year ago.
CSVP		DAMPCLC: Percent change in SVP from same quarter a year ago.
CSVRODC		DAMPCLC: Percent change in SVRODC from same quarter a year ago.

Variable	Dimension	Location and Description
CWFRPS		DAMPCLC: Percent change in WFRPS from same quarter a year ago.
C2MGN		DAMPSIN, DAMPSLV, DAMPCLC: Class II retail margin.
D	(59)	DRW1: Work array (59 orders).
DCHG1		DAMPSIN: Extra charge on direct-ship raw milk moving over DIST miles.
DE	(59)	DAMPSIN, DAMPSLV: Fluid milk product demand elasticities in all orders (59 orders).
DFPCST		DAMPSIN, DAMPCLC: Aggregate quarterly transportation and assembly charges for direct-ship producers.
DGSC	(20)	DAMPSIN, DAMPSLV, DRW1: Desired government stocks of cheese (20 quarters).
DIFF		DAMPSIN: Coefficient used to generate federal order Class I prices from a base price.
DIFFS		DAMPSIN: Coefficient used to generate state order Class I prices from a base price.
DIST		DAMPSIN: Used to pass distances to GCL1P for generating federal order Class I prices from a base price.
DISTB	(75)	DAMPSIN: Maximum shipping distances for raw milk (75 direct-ship and supply plant areas).
DISTD		DAMPSIN: Maximum distance direct-ship milk can move without incurring extra charge DCHG1.
DISTP	(59)	DAMPSIN: Maximum shipping distances for packaged milk by order areas (59 orders).
DISTS		DAMPSIN: Used to pass distances to GCL1P for generating state order Class I prices from a base price.
DMMFG	(27,10)	DAMPSIN, DAMPSLV: Initially contains distances from production centers to multiple manufacturing centers, in DAMPSIN. Then used to store unit transportation costs (27 manufacturing areas, up to 10 production areas).

Variable	Dimension	Location and Description
DNUM		DRW1, DRW2: Decision or experiment name, same as TITLE.
DS	(4,9)	DAMPSLV: Desired quarterly government stocks of cheese; see DGSC (4 quarters, 9 regions).
DTCST		DAMPSIN, DAMPCLC: Aggregate quarterly handling charges for direct-ship producers to other orders.
E	(59)	DRW1: Work array (59 orders).
ECHBT	(5)	DAMPSIN, DAMPSLV: Annual index for exogenous change in raw milk transportation costs (see CHGBT (5 years)).
ECHG		DAMPSIN, DAMPSLV: Extra per unit charge on milk moving to single manufacturing dummy.
EFPR	(59)	DAMPSLV: Effective reserve for federal and state order processing plants for the current quarter (45 orders).
EFRR1		DAMPSLV: Effective reserve for federal and state order processing plants.
ERCST	(75)	DAMPSIN, DAMPSLV, DAMPCLC: Initially contains assembly plus end-of-route cost. Later used to store end-of-route cost only. (75 production areas).
F	(59)	DRW1: Work array (59 orders).
FL1		DAMPSLV: Amount of butter produced from cream as by-product from production of one pound of fluid milk products.
FRPS	(59)	DAMPCLC: Current quarter federal and state order farm-retail fluid milk price spread (59 orders).
G	(59)	DRW1: Work array (59 orders).
GAC	(30,9)	DRW2: Fluid product consumption in all sectors (30 quarters and years, 9 regions).
GAP	(30,9)	DRW2: Production of Grade A milk in all sectors (30 quarters and years, 9 regions).

Variable	Dimension	Location and Description
GBP	(30,9)	DRW2: Production of Grade B milk (30 quarters and years, 9 regions).
GCHK		DRW2: Used to determine which procedure is to be used to add government stocks together.
GEXP	(30)	DRW2: Net government expenditures on dairy products (30 quarters and years).
GMP	(30,9)	DRW2: Milk available for manufacturing from all sectors (30 quarters and years, 9 regions).
GNP	(30,3)	DRW2: Government net purchases of cheese, butter and nonfat dry milk (30 quarters and years, 3 products).
GNPB		DRW2: Quarterly net purchases of butter for government stocks.
GNPME		DRW2: Quarterly net purchases of all products for government stocks, measured in milk equivalent.
GNPN		DRW2: Quarterly net purchases of nonfat dry milk for government stocks.
GPP	(30,3)	DRW2: Government purchase prices for manufactured product, equals retail price less retail markup, i.e., a wholesale price (30 quarters and years, 3 products).
GPTP	(30)	DRW2: Net government purchases as a percent of total production (30 quarters and years).
GRBCNV	(59)	DAMPSIN, DAMPSLV: Annual quantities of Grade B milk which are added to orders using a quarterly index, if exogenous factors vary (59 orders).
GRBIND	(4)	DAMPSIN, DAMPSLV: Quarterly Grade B conversion indices (4 quarters).
GRC1	(59)	DAMPSLV, DAMPCLC: Current quarter federal and state order packaged milk sales (59 orders).
H	(59)	DRW1: Work array (59 orders).

Variable	Dimension	Location and Description
HCHG1	(16)	DAMPSIN, DAMPSLV: Intra-market supply plant handling charge (16 plants).
HCHG2	(16)	DAMPSIN, DAMPSLV: Inter-market supply plant handling charge (16 plants).
IACL1	(59,4)	DAMPSIN, DAMPCLC: Quarterly federal and state order Class I consumption for current year (59 orders, 4 quarters).
IACL1S	(59)	DAMPSLV, DAMPCLC: Current quarter federal and state order Class I consumption for current year (59 orders, 4 quarters).
IBTEF		DAMPSIN: Annual index for exogenous changes in unit raw milk transportation costs.
ICMEF		DAMPSLV: Equal IC2EF.
ICR	(10)	DAMPSIN, DAMPCLC, DRW1: Used to specify which federal order comparative reports are to be printed (10 reports).
ICRB	(14)	DAMPSIN, DRW1, DRW2: Used to specify which manufacturing market comparative reports are to be printed (14 reports).
ICRS	(10)	DAMPSIN, DRW1: Used to specify which state order comparative reports are to be printed (10 reports).
ICST	(5,10)	DAMPSIN, DAMPSLV: Array containing node numbers for areas able to ship at zero inspection cost to areas having inspection costs.
IC1EF		DAMPSIN, DAMPSLV: If equal to 1, then Class I exogenous factors vary.
IC2EF		DAMPSIN, DAMPSLV: If equal to 1, then Class II exogenous factors vary.
IDICST	(5)	DAMPSIN: Node numbers of areas with inspection costs (5 areas).
IDMG1	(26)	DAMPSIN, DAMPSLV, DAMPCLC: Node numbers of federal order production centers linked to single manufacturing centers (26 centers).

Variable	Dimension	Location and Description
IDMG2	(19)	DAMPSIN, DAMPSLV, DAMPCLC: Node numbers of federal order production centers linked to multiple manufacturing centers (19 production centers).
IDMS		DAMPSLV: Accumulates total demand in networks two and three.
IDXB	(9,12)	DAMPSIN, DAMPSLV: Index numbers to aggregate regulated Grade A milk areas by unregulated regions (9 regions, up to 12 areas per region).
IGBEF		DAMPSIN, DAMPSLV: If IGBEF equals 1, Grade B milk converts to Grade A and is added to Grade A milk production on a quarterly basis.
IHCEF		DAMPSIN, DAMPCLC: If IHCEF equals 1, ERCST varies exogenously by CHGHC each quarter.
II	(59)	DRW1: Work array (59 orders).
III	(59)	DRW1: Work array (59 orders).
ILI	(45)	DAMPSIN, DAMPSLV: Used as a row incrementer for ICST (45 federal orders).
IMFGB		DAMPSIN, DAMPSLV, DRW1: If not equal to 0, unregulated regions are included in the model.
IMPHLD		DAMPSIN, DAMPSLV: If equal to 1, imports vary exogenously each year according to PCHGI, if equal to 0 imports vary only initially by PCHGI.
IMR		DAMPSIN, DAMPSLV, DAMPCLC, DRW1: The value for the number of proposed mergers.
IMRB		DAMPSIN: The value for the option used for defining blend price differentials.
IMRG	(59)	DAMPSIN, DAMPSLV, DRW1: Federal and state order numbers for orders in proposed mergers (59 orders).
IMRN	(11)	DAMPSIN, DAMPSLV, DRW1: Numbers of orders in each of the consolidations (11 consolidations).

Variable	Dimension	Location and Description
IMRT		DAMPSIN, DRW1: The value for the total number of orders being consolidated.
IPAG		DRW1, DRW2: Page number.
IPCEF		DAMPSIN, DAMPSLV, DAMPCLC: If IPCEF equals 1, market processing costs vary exogenously by CHGPRC per quarter.
IPDEF		DAMPSIN, DAMPSLV, DAMPCLC, DRW2: If IPDEF equals 1, direct milk production costs vary exogenously by CHGPD per quarter.
IPNARC		DAMPSIN, DAMPSLV: If IPNARC equals 1, number or arcs in each sector of each network is printed in quarter 1.
IPPM	(45)	DAMPSIN, DAMPSLV: Initial percentage of sales federal order processor must make in own area. Used if in-area Class I sales are used as a sales base (45 federal orders).
IPRI	(20)	DAMPSIN, DAMPSLV: Quarterly print options for displaying arc input, if equal to 1, arc input is printed (20 quarters).
IPRO	(20)	DAMPSIN, DAMPSLV: Quarterly print options for displaying arc output, if equal to 1, arc output is printed (20 quarters).
IPRTB		DAMPSIN: If IPRTB equals 1, model base data is printed.
IPTEF		DAMPSIN: If IPTEF equals 1, unit packaged milk transportation costs vary exogenously by CHGPT per quarter.
IP1		DAMPSIN: Tape 8, first (federal order) base data file. DAMPSLV: Tape 10, input file from DAMPSIN (OP5). DAMPCLC: Tape 9, input file from DAMPSIN (OP2).
IP2		DAMPSIN: Tape 5, input file from federal order input forms (on cards).

Variable	Dimension	Location and Description
IP2		DAMPSLV: Tape 5, input file (on cards). DAMPCLC: Tape 13, input file from DAMPSLV (OP6).
IP3		DAMPSIN: Tape 10, second (state and Grade B) base data file.
IP4		DAMPSIN: Tape 5, input file from state order and Grade B input forms (on cards).
IR	(61)	DAMPSIN, DAMPCLC, DRW1: Node (index) numbers for each federal order production area (61 production areas).
IRR	(59)	DAMPCLC: Node (index) numbers for each direct-ship production area (59 federal and state orders).
ISCL1D		DAMPSLV: Aggregate Class I consumption plus reserve requirement for current quarter.
ISC1CP		DAMPSIN, DAMPSLV: Aggregate fluid milk processing capacity for current quarter.
ISS		DAMPSIN, DAMPSLV, DRW1: Government stocks release option.
ISPS		DAMPSLV: Accumulates total supply in networks two and three.
ISTATE		DAMPSIN, DAMPSLV, DAMPCLC, DRW1: State order option (see input form).
ISTPS		DAMPSLV: Aggregate raw milk supply for current quarter.
ISUP1-ISUP9		DAMPSIN, DAMPCLC, DRW1, DRW2: Contains user input form options 10a-f and 12a-c.
IWORK1-IWORK13		DAMPSIN, DAMPSLV: The number of elements in common blocks and WORK arrays, see internal documentation at beginning of programs for details.
IXT	(3)	DRW1: User input form options 13a-c.
I12A-I12D		DAMPSIN: Input form options 12a-d.
I13A-I13C		DAMPSIN: Input form options 13a-c.

Variable	Dimension	Location and Description
JPLT	(10)	DRW1: CDC plot routine option.
KGNET		DAMPSLV: If equal to 1, it implies stage 2; if equal to 2, it implies stage 3.
LBCHK		DAMPSIN, DAMPSLV: If LBCHK equals 1, total raw milk shipping requirements to own area are limited to own area Class I processing capacity.
LMMFG	(27,10)	DAMPSIN, DAMPSLV: Node numbers of federal order production areas linked to multiple manufacturing areas (27 multiple manufacturing areas, up to 10 production areas).
MBLEND		DAMPCLC: Current quarter aggregate average federal order blend price.
MC		DAMPSIN, DAMPSLV, DRW2: Number of manufactured product consumption regions.
MCL1P		DAMPCLC: Current quarter aggregate average federal order Class I price.
MCL1Q	(5)	DAMPSIN, DAMPCLC: Current quarter aggregate Class I receipts (5 quarters).
MCL1U		DAMPCLC: Current quarter aggregate average utilization of Class I capacity in federal orders.
MCL2Q	(5)	DAMPSIN, DAMPCLC: Current quarter aggregate Class II receipts (5 quarters).
MCL3Q	(5)	DAMPSIN, DAMPCLC: Current quarter aggregate Class III receipts (5 quarters).
MCR		DAMPSIN, DAMPSLV: If MCR equals 1, individual manufacturing center capacity is unlimited.
MFG	(33)	DRW1: Same as IDMG2.
MFID	(70)	DRW1: Manufacturing center numbers (70 centers).
MFN	(14)	DRW1: State order single manufacturing center names (14 names).

Variable	Dimension	Location and Description
MFNAME	(70)	DRW1: Manufacturing center names (70 centers).
MIACL1	(4)	DAMPSIN, DAMPCLC: Current quarter aggregate Class I consumption (4 quarters).
MIMP		DAMPSIN, DAMPSLV, DRW2: Number of import regions.
MMDM	(19)	DAMPSIN, DAMPSLV: Initially contains mileages from production areas to multiple manufacturing dummies in DAMPSIN. Later used to store unit transportation costs (19 production areas).
MMFC	(27)	DAMPSIN, DAMPSLV, DAMPCLC: Capacities for multiple manufacturing centers (27 centers).
MMFG	(75,42)	DAMPSLV, DAMPCLC: Current quarter individual movements from production centers to manufacturing centers (75 production centers, 42 manufacturing centers).
MMNC	(27,10)	DAMPSIN: Used to indicate which shipments from production centers to manufacturing centers occur at zero transportation cost (27 manufacturing centers, 10 production centers).
MOCC		DAMPCLC: Current quarter aggregate movements from processing centers to other than own consumption centers.
MODL		DAMPSIN, DRW1: Model number, e.g. DAMPS, Model A.
MOPC		DAMPCLC: Current quarter aggregate movements from production centers to other than own processing centers.
MPDC		DAMPSIN, DAMPSLV: If equal to 1, the amount of milk free to move in a quarter from production or processing centers to other than own areas is limited according to percentage specified in sections 28 or 24 of base data.
MPDPM	(59)	DAMPSIN, DAMPSLV: Quarterly, percentage decline which can occur in processor own area sales. Applies if PMR does not equal 1. (59 orders).

Variable	Dimension	Location and Description
MPDRM	(59)	DAMPSIN, DAMPSLV: Quarterly percentage decline which can occur in direct-ship production shipments to own area. Applies if RMR does not equal 1.(59 orders).
MPPC		DAMPCLC: Quarterly aggregate movements from production centers to own processing centers.
MR	(5)	DAMPSIN, DAMPCLC, DRW1: Print options for federal order reports (5 reports).
MRTLP		DAMPCLC: Aggregate average retail price for fluid products for current quarter.
MS		DAMPSIN, DAMPSLV, DRW1, DRW2: Number of Grade B milk production regions.
MSI		DAMPSIN: MS+MIMP.
MTPSQ	(5)	DAMPSIN, DAMPCLC: Aggregate total producer receipts for current quarter.
MXM		DAMPSIN: Equal to number of columns in arrays LMMFG, DMMFG, MMNC.
MXN		DAMPSIN, DAMPSLV: Equal to number of columns in array ICST.
MXP		DAMPSIN: Equal to number of rows in array ICST.
M1		DAMPSLV: First cheese import center node number.
M2		DAMPSLV: Last cheese import center node number.
M3		DAMPSLV: First miscellaneous Class III products import center node number.
M4		DAMPSLV: Last miscellaneous Class III products import center node number.
M5		DAMPSLV: First beginning commercial cheese stock center node number.
M6		DAMPSLV: Last beginning commercial cheese stock center node number.

Variable	Dimension	Location and Description
M7		DAMPSLV: First beginning government cheese stock center node number.
M8		DAMPSLV: Last beginning government cheese stock center node number.
M9		DAMPSLV: First Class II products consumption center node number.
M10		DAMPSLV: Last Class II products consumption center node number.
M11		DAMPSLV: First cheese consumption center node number.
M12		DAMPSLV: Last cheese consumption center node number.
M13		DAMPSLV: First miscellaneous Class III products consumption center node number.
M14		DAMPSLV: Last miscellaneous Class III products consumption center node number.
M15		DAMPSLV: Residual Sink node number for stage two.
M16		DAMPSLV: Super Source node number for stage two.
M17		DAMPSLV: Super Sink node number for stage two.
M18		DAMPSLV: First butter import center node number.
M19		DAMPSLV: Last butter import center node number.
M20		DAMPSLV: First commercial butter stock center node number.
M21		DAMPSLV: Last commercial butter stock center node number.
M22		DAMPSLV: First government butter stock center node number.
M23		DAMPSLV: Last government butter stock center node number.

Variable	Dimension	Location and Description
M24		DAMPSLV: First nonfat dry milk production center node number.
M25		DAMPSLV: Last nonfat dry milk production center node number.
M26		DAMPSLV: First nonfat dry milk import center node number.
M27		DAMPSLV: Last nonfat dry milk import center node number.
M28		DAMPSLV: First commercial nonfat dry milk stock center node number.
M29		DAMPSLV: Last commercial nonfat dry milk stock center node number.
M30		DAMPSLV: First government nonfat dry milk sector center node number.
M31		DAMPSLV: Last government nonfat dry milk sector center node number.
M32		DAMPSLV: First butter consumption center node number.
M33		DAMPSLV: Last butter consumption center node number.
M34		DAMPSLV: First nonfat dry milk consumption center node number.
M35		DAMPSLV: Last nonfat dry milk consumption center node number.
M36		DAMPSLV: Residual Sink node number for stage three.
M37		DAMPSLV: Super Source node number for stage three.
M38		DAMPSLV: Super Sink node number for stage three.
NAD		DAMPSIN, DAMPSLV: Parameter for GNETA. Specifies maximum number of arcs excluding connections to super source and super sink.
NAME	(9)	DRW1: Supply region names (9 regions).

Variable	Dimension	Location and Description
NAME1	(16)	DRW2: Supply, import, and manufactured milk demand regions names (16 regions).
NAME2	(3,14)	DRW2: Comparative Reports titles (14 reports).
NAME3	(3,5)	DRW2: Quantity and price units for tables.
NARC	(15)	DAMPSLV: Number of arcs in each arc category.
NARCS		DAMPSLV: Total number of arcs generated in a network.
NCL1P	(59)	DAMPSIN, DAMPSLV, DAMPCLC: Current quarter federal and state order Class I price (59 orders).
NCL2P		DAMPSIN, DAMPSLV, DAMPCLC: Current quarter Class II price.
NCL2Q	(59,4)	DAMPSIN, DAMPCLC: Quarterly federal and state order Class II receipts for current year (59 orders, 4 quarters).
NCL3P		DAMPSIN, DAMPSLV, DAMPCLC: Current quarter Class III price.
NDM		DAMPSIN, DAMPSLV, DAMPCLC, DRW1: Number of federal order production centers connected to multiple manufacturing centers.
NDP		DAMPSIN, DAMPSLV: Number of last federal order dummy processing node.
NDP1		DAMPSIN, DAMPSLV: Number of last state order processing node.
NFP	(45)	DAMPCLC: Current quarter net farm price in federal orders (45 orders).
NIC		DAMPSIN, DAMPCLC, DRW1: Number of federal and state order comparative reports to be printed.
NIN1		DRW1: Tape 8, input file from DAMPSIN(IP1). DRW2: Tape 41, input file from DAMPSIN(OP8).
NIN2		DRW1: Tape 17, input file from DAMPCLC(OP1). DRW2: Tape 42, input file from DAMPSLV(OP7).

Variable	Dimension	Location and Description
NIN3		DRW1: Tape 16, input file from DAMPSLV(OP2).
		DRW2: Tape 43, input file from DAMPCLC(OP8).
NIXB		DAMPSIN, DAMPSLV: Number of regulated areas in unregulated regions.
NMD		DAMPSIN, DAMPSLV: Node number for multiple manufacturing area dummy.
NMFGT		DAMPSIN, DAMPCLC, DRW1: Equal to 1 greater than the larger of NMMF or NSMF.
NMM		DAMPSIN: Node number of last multiple manufacturing area.
NMMF		DAMPSIN, DAMPSLV, DAMPCLC, DRW1: Number of multiple manufacturing areas.
NMN		DAMPSIN, DAMPSLV: Node number of single manufacturing area dummy.
NMS		DAMPSIN, DAMPSLV: Node number of manufacturing sink.
NNN		DAMPSIN: Node number of last federal order single manufacturing area.
NNND		DAMPSIN, DAMPSLV: Equals NAD.
NNNE		DAMPSIN, DAMPSLV: Equals NNODES.
NNOD		DAMPSIN, DAMPSLV: Equal to array size for node length arrays in GNETA.
NNODES		DAMPSIN, DAMPSLV: Equal to actual number of nodes in largest network.
NOD		DAMPSLV: Equal to NNOD.
NOR	(75)	DAMPSIN, DAMPSLV, DRW1: Contains order numbers (75 orders).
NOUT		DRW2: Tape 6, printed output file.
NOUT1		DRW1: Tape 6, printed output file.
NOUT2		DRW1: Tape 4, output file for plotting routine.

Variable	Dimension	Location and Description
NPN		DAMPSIN, DAMPSLV: Node number of last state order processing center.
NPN1		DAMPSIN, DAMPSLV: Node number of last federal order single manufacturing center.
NQ		DAMPSIN, DAMPSLV, DAMPCLC, DRW1, DRW2: Total number of quarters to be run, equals 4·NY.
NQF		DRW2: (NY+1)5, number of quarters and years simulated plus 4 base quarters and 1 base year.
NRPB	(5)	DAMPSLV: Current quarter retail price of manufactured products (5 products).
NRPR	(59)	DAMPSIN, DAMPSLV, DAMPCLC: Current quarter federal and state order retail priee of fluid products (59 orders).
NSA1		DAMPSIN, DAMPSLV, DAMPCLC, DRW1: Number of federal orders.
NSA1S		DAMPSIN, DAMPSLV, DRW1: Number of state orders.
NSC		DAMPSIN, DAMPSLV: Super Source node number, stage 1.
NSK		DAMPSIN, DAMPSLV: Super Sink node number, stage 1.
NSMF		DAMPSIN, DAMPSLV, DAMPCLC, DRW1: Number of federal order single manufacturing centers.
NSMFS		DAMPSIN, DAMPSLV: Number of state order single manufacturing centers.
NSMF1		DRW1: Equals NSMF+1.
NSMF2		DRW1: Equals NSMF+2.
NSN		DAMPSIN, DAMPSLV: Last direct-ship dummy production area with supply plant milk.
NSP		DAMPSIN, DAMPSLV, DAMPCLC, DRW1: Number of federal order production areas with supply plant milk.

Variable	Dimension	Location and Description
NSPM		DAMPSIN, DAMPCLC, DRW1: Number of single plus multiple manufacturing areas.
NSPMA		DRW1: Equals NSPM3 + NSA1S.
NSPM2		DRW1: Equals NSPM + 2.
NSPM3		DAMPSIN, DRW1: Equals NSPM + 3.
NSPM4		DRW1: Equals NSPM + 4.
NSPX		DAMPSIN: Equals NSP.
NSX1		DAMPSIN: Equals NSA1.
NT		DAMPSIN, DAMPSLV, DAMPCLC, DRW1: Node number of last supply plant and total number of federal order direct-ship and supply plant areas.
NTN		DAMPSIN, DAMPSLV: Node number of last federal order consumption center.
NTN1		DAMPSIN: Node number of last state order consumption center.
NT1		DAMPSIN, DAMPSLV, DAMPCLC, DRW1: Node number of last state order direct-ship production center and total number of direct-ship and supply plant centers.
NT2		DAMPSIN, DAMPSLV, DRW1: Node numbers of last federal order direct-ship dummy.
NT3		DAMPSIN, DAMPSLV, DAMPCLC, DRW1: Total number of federal and state order processing centers.
NT4		DAMPSIN, DAMPSLV, DRW1: Node number of last federal order processing center.
NT5		DAMPSIN, DAMPCLC, DRW1: Node number of first federal order supply plant center.
NT6		DAMPSIN, DAMPCLC, DRW1: Node number of first state order direct-ship production center.
NT7		DAMPSIN, DRW1: NSMF + 1.

Variable	Dimension	Location and Description
NT8		DAMPSIN, DRW1: Total number of federal and state order single manufacturing centers.
NT9		DAMPSIN, DAMPSLV, DAMPCLC, DRW1: Total number of federal and state order areas.
NT10		DAMPSIN, DAMPCLC, DRW1: Equal to 1 plus the number of state order single manufacturing centers and the larger of NMMF or NSMF, i.e., NMFGT + NSMFS.
NT11		DAMPSIN, DAMPSLV, DRW1: Equals maximum number of links between a state order and other orders.
NW		DAMPSIN, DAMPSLV, DAMPCLC: Node number of last direct-ship production area without supply plant milk.
NY		DAMPSIN, DRW1, DRW2: Length of model run in years.
NYBASE		DAMPSIN, DAMPCLC, DRW1: Model base year.
NYCNT		DAMPSIN, DAMPSLV: Year counter, varies from 1 to 5.
NYID	(5)	DAMPSIN: Contains NYBASE + 1 to NYBASE + 5, i.e., the years that can be simulated.
NYRBC		DAMPSIN, DAMPSLV, DAMPCLC: Varies from NYBASE + 1 to NYBASE + 5, i.e., a simulation year.
NY2	(6)	DRW1, DRW2: Year label (base year plus up to 5 simulation years).
OACL1S	(59)	DAMPSLV: Current quarter out-of-area sales by federal and state processing centers (59 centers).
OACL1T	(59)	DAMPSLV, DAMPCLC: Current quarter cost of transportation corresponding to OACL1S by federal and state order processing center (59 orders).
OCST		DAMPSIN, DAMPSLV, DAMPCLC: Other costs associated with processing Class I milk.

Variable	Dimension	Location and Description
OCST2		DAMPSIN, DAMPSLV, DAMPCLC: Other costs associated with the production of Class II products in federal and state orders.
OMC1P	(75)	DAMPSIN: Distances used to generate a set of Class I prices from a Class I base price (75 production centers).
ONAME	(75)	DAMPSIN, DAMPSLV, DRW1: Contains federal and state production center names (75 centers).
OPCL1	(75)	DAMPSIN, DAMPSLV: If OPCL1 equals 1, in-area sales are used as a Class I sales base.
OPEXF		DAMPSIN: If OPEXF equals 1, all exogenous factors vary.
OP1		DAMPSIN: Tape 8, output file to DRW1.
		DAMPCLC: Tape 17, output file to DRW1.
OP2		DAMPSIN: Tape 9, output file to DAMPCLC.
		DAMPSLV: Tape 16, output file to DRW1.
		DAMPCLC: Tape 18, scratch file.
OP3		DAMPSIN: Tape 6, printed output file.
		DAMPSLV: Tape 6, printed output file from all subprograms except GNETA.
OP4		DAMPSLV: Tape 6, printed output file from GNETA.
OP5		DAMPSIN: Tape 10, output file to DAMPSLV.
		DAMPSLV: Tape 10, scratch file.
OP6		DAMPSLV: Tape 13, output file to DAMPCLC.
		DAMPCLC: Tape 19, scratch file.
OP7		DAMPSIN: Tape 12, output file to DAMPCLC.
		DAMPSLV: Tape 42, output file to DRW2.
		DAMPCLC: Tape 12, input file from DAMPSIN.

Variable	Dimension	Location and Description
OP8		DAMPSIN: Tape 41, output file to DRW2.
		DAMPCLC: Tape 43, output file to DRW2.
PAM	(30)	DRW2: Gross farm price of all milk (30 quarters and years).
PCHGI	(4)	DAMPSIN, DAMPSLV: Annual, percentage change in imports (4 products).
PCL1	(59)	DAMPSLV, DAMPCLC: Current quarter producer receipts used in Class I (59 orders).
PCL2	(59)	DAMPCLC: Current quarter producer receipts used in Class II by market (59 orders).
PCR		DAMPSIN, DAMPSLV: If PCR equals 1, processing capacity is unlimited for all processing centers.
PDMI	(45,45)	DAMPSIN, DAMPSLV: Initially contains mileages from federal order processing to consumption centers in DAMPSIN. Then used to store unit transportation costs (45 orders).
PMCHG		DAMPSIN, DAMPSLV: Single producer marketing charge applicable to all areas.
PMCST	(59)	DAMPSLV: Used to store data for use in calculation of current quarter federal and state order fluid product retail prices (59 orders).
PMM	(59,59)	DAMPSLV, DAMPCLC: Current quarter individual package milk movements from processing to consumption centers (59 orders).
PMR		DAMPSIN, DAMPSLV: If PMR equals 1, processors are not constrained to make any sales in their own area.
POPB	(58)	DAMPSLV: Current quarter total product flows from each butter and nonfat dry milk production, import, and stocks center (58 centers).

Variable	Dimension	Location and Description
PRCST	(59)	DAMPSIN, DAMPSLV, DAMPCLC: Current quarter federal and state order processing cost (59 orders).
PRECAM	(10)	DAMPSLV, DAMPCLC: Total producer receipts for each consolidated order for the current year (10 consolidations).
PRRB	(10)	DAMPSLV: Current quarter total product flows to each butter and nonfat dry milk consumption center (10 consumption centers).
PRRD	(59)	DAMPSLV, DAMPCLC: Current quarter movements from direct-ship production areas to own area processors (59 orders).
PRREC	(59)	DAMPSLV, DAMPCLC: Current quarter total producer receipts (59 orders).
PRRECM	(20)	DAMPSLV, DAMPCLC: 1-10 contains the total producer receipts for each consolidated order for the current quarter; 11-20 contains the total Class I sales for each consolidated order for the current year.
PRROD	(59)	DAMPSLV: Current quarter processing center receipts of direct-ship milk from other than own area (59 order processing centers).
PRRS	(16)	DAMPSLV, DAMPCLC: Current quarter processing center receipts from own area supply plants (16 plants).
PSE2		DAMPSIN, DAMPSLV: Federal and state order Class II demand function price elasticity.
QCL1P	(59,20)	DAMPSIN, DAMPSLV, DAMPCLC: Quarterly Class I prices if read in by user or generated from a base price (59 orders, 20 quarters).
QCL2P	(20)	DAMPSIN, DAMPSLV, DAMPCLC: Quarterly Class II prices, if read in by user (20 quarters).
QCL3P	(20)	DAMPSIN, DAMPSLV, DAMPCLC: Quarterly Class III prices, if read in by user (20 quarters).
QCNT		DAMPSIN, DAMPSLV, DAMPCLC, DRW1: Quarter counter, varies from 1 to NY times 4.

Variable	Dimension	Location and Description
QCNT1		DAMPSIN, DAMPSLV, DAMPCLC: Equals CCNT.
QR	(20)	DAMPSIN, DAMPCLC, DRW1: Quarterly options for federal order output (20 quarters).
QRB	(5)	DAMPSIN, DRW1, DRW2: Grade B report writer options from input form for each simulation year (5 years).
QSPL1	(59)	DAMPSLV, DAMPCLC: Current quarter federal and state order production; see CQTSP (59 orders).
QSPR	(16)	DAMPSLV: Equals the percentage that the supply plant shipping requirement is of the sum of the federal order direct-ship to own-area shipping requirement plus the supply plant shipping requirement (16 plants).
QT		DAMPSIN, DAMPSLV, DAMPCLC, DRW1: Counter, varies from 6 to 9.
RDA	(5)	DAMPSLV: Used to pass arc and node information to GNETA ("from" node number, "to" node number, unit cost, upper bound, lower bound).
RESID	(18,2)	DAMPSLV: Movements from production nodes to the residual sink in stages two or three (up to 18 regions, raw milk or butter and nonfat dry milk production nodes).
RESIDC	(18,2)	DAMPSLV: Movements from commercial stocks nodes to the residual sink in stages two or three (up to 18 regions, cheese or butter and nonfat dry milk stocks).
RESIDG	(18,2)	DAMPSLV: Movements from government stocks nodes to the residual sink (up to 18 regions, cheese or butter and nonfat dry milk stocks).
RMGN		DAMPSIN, DAMPSLV: Retail margin for packaged (fluid) milk.
RMMA	(59,59)	DAMPCLC: Accumulated movements from direct-ship production centers to processing centers (59 production and 59 processing areas)

Variable	Dimension	Location and Description
RMMD	(59,59)	DAMPSLV, DAMPCLC: Current quarter individual movements from direct-ship production centers to processing centers (59 production centers, 59 processing centers).
RMMS	(16,59)	DAMPSLV, DAMPCLC: Current quarter individual movements from supply plants to processing centers (16 plants, 59 orders).
RMPC	(75)	DAMPSIN, DAMPSLV, DAMPCLC: Direct raw milk production cost by federal and state production centers (75 production centers).
RMR		DAMPSIN, DAMPSLV: If RMR equals 1, production centers are not constrained to ship milk to their own processing center.
RODC	(45)	DAMPCLC: Current quarter returns over direct cost to milk producers in federal order areas (45 orders).
RODCAM	(30)	DRW2: Returns over direct cost to all producers of milk (30 quarters and years).
RODCB	(30)	DRW2: Returns over direct cost to all producers of Grade B milk (30 quarters and years).
RPB	(5,5)	DAMPSIN, DAMPSLV: Base year retail prices of manufactured milk products (5 products, 5 quarters).
RSS	(9)	DAMPSIN, DAMPSLV: Percentage of total government cheese stock held in each region (9 regions).
SAD	(14,4)	DAMPSIN: Data from input form S-A (14 states, 4 categories of data).
SCALE1		DRW1, DRW2: Scales data by 0.001.
SCALE2		DRW1, DRW2: Scales data by 0.01.
SCALE3		DRW1, DRW2: Scales data by 0.0001.
SCL1CP		DAMPSIN, DAMPSLV, DAMPCLC: Aggregate federal order Class I processing capacity inflated by reserve requirements.
SCL1D		DAMPCLC: Current quarter aggregate federal order Class I consumption.

Variable	Dimension	Location and Description
SCL2D		DAMPCLC: Current quarter aggregate federal order Class II consumption.
SCL3Q		DAMPCLC: Current quarter aggregate federal order Class III consumption.
SE	(59)	DAMPSIN, DAMPSLV: Federal and state order milk production center price elasticities of supply (59 orders).
SERCST	(5)	DAMPSIN: Used in calculations for report writer from base year data.
SE2		DAMPSIN: Class II price elasticity of demand.
SFPCST		DAMPSIN, DAMPCLC: Aggregate quarterly transportation and assembly charges for supply plant producers.
SGRC1		DAMPCLC: Current quarter aggregate federal order Class I sales.
SIDX	(3,4)	DAMPSIN, DAMPSLV: Indices of seasonal inventory demands for commercial stocks as a percentage of regional sales (3 products, 4 quarters).
SMC20		DAMPSLV, DAMPCLC: Aggregate federal order Class II sales made from nonorder sources for current quarter.
SMDS		DAMPCLC: Current quarter aggregate shipments from federal order direct-ship production areas to manufacturing centers.
SMDSD		DAMPCLC: Current quarter aggregate shipments from federal order direct-ship production areas to manufacturing center dummies.
SMFC	(40)	DAMPSIN, DAMPSLV, DAMPCLC: Single manufacturing center capacities (26 centers).
SMFGU		DAMPCLC: Current quarter percent utilization of aggregate federal order manufacturing capacity.

Variable	Dimension	Location and Description
SMMFC		DAMPSIN, DAMPSLV: Aggregate multiple manufacturing center capacity.
SMPC		DAMPSLV: Current quarter aggregate sales by federal order processors in their own area.
SMSP		DAMPSLV: Current quarter aggregate shipments from supply plants to manufacturing centers.
SMSPD		DAMPCLC: Current quarter aggregate movemovements from federal order supply plants to manufacturing center dummies.
SMUCP		DAMPCLC: Current quarter aggregate federal order percentage utilization of Class I processing capacity.
SMXC		DAMPSIN, DAMPSLV: Used to pass MXC to GNETA.
SNFP		DAMPSIN, DAMPSLV: Current quarter aggregate federal order average net farm price.
SOAC1D		DAMPCLC: Current quarter aggregate federal order average per unit transportation costs on out-of-area packaged milk sales.
SOAC1T		DAMPCLC: Current quarter aggregate federal order transportation costs on out-of-area packaged milk sales.
SPCL1		DAMPCLC: Current quarter aggregate federal order producer receipts used in Class I.
SPLB	(16,4)	DAMPSIN, DAMPSLV: Federal order supply plant shipping requirements by quarter (16 plants, 4 quarters).
SPMI	(61,45)	DAMPSIN, DAMPSLV: Initially contains mileages between federal order production centers and processing centers in DAMPSIN. Then used to store unit transportation costs (61 production centers, 45 processing centers).

Variable	Dimension	Location and Description
SPOPD	(59)	DAMPSLV, DAMPCLC: Current quarter movements from direct-ship production centers to processing centers (59 production centers).
SPOPS		DAMPSLV, DAMPCLC: Current quarter movements from supply plants to other area processing centers (16 plants).
SPRC	(16)	DAMPSIN, DAMPSLV, DAMPCLC: Current quarter percentage that supply plant supply is of total supply in areas with supply plant milk (16 plants).
SPRREC		DAMPCLC: Current quarter aggregate federal order producer receipts.
SRMPC	(5)	DAMPSIN: Used in calculations for report writer from base year data.
SSMFC		DAMPSIN, DAMPSLV: Aggregate federal order single manufacturing center capacity.
SSPMI	(14,8,8)	DAMPSIN, DAMPSLV: Initially contains indices of possible links between state and federal order areas in DAMPSIN; distances are later replaced by unit transportation costs. Types of links permitted are as follows: state order production to federal order processing, federal and state order production to state order processing, state order processing to federal order consumption, federal and state order processing to state consumption (14 states up to 8 links, indices and distances for each of 4 types of linkages).
SSOPC		DAMPCLC: Current quarter aggregate shipments from supply plants to own processing centers.
STCCWT		DAMPCLC: Current quarter aggregate federal order average unit cost on Class I sales.
STRMC		DAMPCLC: Current quarter aggregate federal order average unit raw milk acquisition cost.
STRNSD		DAMPCLC: Current quarter aggregate federal order average unit raw milk transportation cost to processing centers.

Variable	Dimension	Location and Description
STRNSR		DAMPCLC: The aggregate quarterly handling charges for supply plant milk shipped to other orders.
SU	(30,18)	DRW2: Results for Summary Reports in DRW2. (30 quarters and years, 18 variables).
SVCL1		DAMPSLV, DAMPCLC: Current quarter aggregate value of movements from direct-ship production centers to processing centers.
SVFRPS		DAMPCLC: Current quarter aggregate federal order value of farm-retail fluid milk price spread multiplied by Class I consumption.
SVP		DAMPCLC: Current quarter aggregate federal order pool value.
	(30)	DRW2: Gross returns to Grade A milk producers in regulated areas, see SVP1 (30 quarters and years).
SVPAM	(30)	DRW2: Gross returns to all milk producers (30 quarters and years).
SVPB	(30)	DRW2: Gross returns to Grade B milk producers (30 quarters and years).
SVP1		DAMPCLC: Current quarter aggregate federal and state order pool value.
SVRODC		DAMPCLC: Current quarter aggregate average return over direct cost to producers in federal orders.
	(30)	DRW2: Aggregate average return over direct cost to all producers in federal and state orders, see SVR1 (30 quarters and years).
SVR1		DAMPCLC: Current quarter aggregate average return over direct cost to producers in federal and state orders.
TCCWT	(59)	DAMPCLC: Quarterly total unit Class I cost by processing center (59 orders).
TCL3	(59)	DAMPSLV, DAMPCLC: Current quarter Class III receipts (59 orders).

Variable	Dimension	Location and Description
TCMP	(30)	DRW2: Aggregate, quarterly transportation costs for all manufactured products (30 quarters and years).
TITLE		DAMPSIN, DAMPSLV, DAMPCLC: Same as DNUM.
TMCST		DAMPSIN, DAMPSLV, DAMPCLC: Aggregate quarterly handling charges for milk shipped to federal order manufacturing plants in other orders.
TMFGM		DAMPCLC: Current quarter aggregate movements from federal order production centers to manufacturing centers.
TMFGU		DAMPCLC: Current quarter aggregate federal order percentage utilization of manufacturing center capacity.
TMMC	(53)	DAMPCLC: Current quarter milk received at each federal order manufacturing center (53 centers).
TMOP		DAMPSLV, DAMPCLC: Current quarter aggregate movements from supply plants to other area processors.
TPME		DRW2: Total milk production.
TPSQ	(59,4)	DAMPSIN, DAMPCLC: Quarterly producer receipts for current year (59 orders, 4 quarters).
TRANSRD	(59)	DAMPSLV: Quarterly acquisition cost to processing centers for milk from supply plants (59 centers).
TRANSRP	(59)	DAMPSLV, DAMPCLC: Quarterly transportation cost to processing centers for milk received from supply plants (59 centers).
TRCS1		DAMPSLV, DRW2: Current quarter aggregate transportation cost in stage 2.
TRCS2		DAMPSLV, DRW2: Current quarter aggregate transportation cost in stage 3.
TRMC	(59)	DAMPSLV, DAMPCLC: Current quarter acquisition cost for raw milk by processing center (59 centers).

Variable	Dimension	Location and Description
TRMPC		DAMPSIN, DAMPCLC: Aggregate federal order quarterly raw milk production costs.
TSMFC		DAMPSIN, DAMPCLC: Aggregate federal order manufacturing center capacity.
TSTP	(30)	DRW2: Total commercial and government stocks as a percent of total milk production (30 quarters and years).
UMCP	(53)	DAMPCLC: Current quarter percent utilization of federal order manufacturing center capacity (53 centers).
UNCEXP		DAMPSIN: Current quarter total consumer expenditure on fluid products in unregulated Grade A milk regions in the base year.
	(30)	DRW2: Aggregate quarterly consumer expenditures on fluid products in unregulated Grade A regions (30 quarters and years).
UNC1P		DAMPSIN: Average price paid to producers in unregulated Grade A milk regions for milk used for fluid purposes.
UNC1S		DAMPSIN: Quarterly base year total sales of fluid products in unregulated Grade A milk regions.
	(9)	DRW1: Current quarter sales of fluid products in unregulated Grade A milk regions (9 regions)
	(30,9)	DRW2: Consumption of fluid products in unregulated Grade A milk regions (30 quarters and years, 9 regions).
UNFPHC		DAMPSIN, DAMPSLV: Farm to plant hauling cost for unregulated Grade A milk producers.
UNGBP	(9,4)	DAMPSIN, DAMPSLV: Base year quarterly gross farm prices of Grade A milk in unregulated regions (9 regions, 4 quarters).
	(9)	DRW1: Current quarter gross farm prices of Grade A milk in unregulated regions (9 regions).

Variable	Dimension	Location and Description
UNGBP	(30,10)	DRW2: Gross farm prices of Grade A milk in unregulated regions (30 quarters and years, 9 regions plus average for all regions).
UNNBP		DAMPSIN: Quarterly base year average net farm price of Grade A milk in unregulated regions, i.e., gross price less direct production costs.
	(9)	DRW1: Current quarter net farm price of Grade A milk in unregulated regions (9 regions).
UNNRP		DAMPSIN: Quarterly base year average retail price of fluid products in unregulated Grade A milk regions.
UNPC		DAMPSIN, DAMPSLV: Direct cost of producing Grade A milk in unregulated regions.
UNPMC		DAMPSIN, DAMPSLV: Unregulated Grade A milk producer marketing charge.
UNREG		DAMPSIN: Quarterly base year production of Grade A milk in unregulated regions.
	(9)	DRW1: Current quarter production of Grade A milk in unregulated regions.
	(30,10)	DRW2: Production of Grade A milk in unregulated regions (30 quarters and years, 9 regions plus total of all regions).
UNRODC		DAMPSIN; Quarterly base year average returns over direct costs to producers of Grade A milk in unregulated regions.
	(9)	DRW1: Current quarter returns over direct costs to producers of Grade A milk in unregulated regions (9 regions).
	(30,10)	DRW2: Returns over direct costs to producers of Grade A milk in unregulated regions (30 quarters and years, 9 regions plus average of all regions).

Variable	Dimension	Location and Description
UNRS	(9)	DAMPSIN, DAMPSLV: Percentage of total production of unregulated Grade A milk in each unregulated region (9 regions).
UNS	(4)	DAMPSIN, DAMPSLV: Aggregate, base year production of Grade A milk in all unregulated regions (4 quarters).
UNUT		DAMPSIN, DAMPSLV, DRW1: Percentage of Grade A milk produced in unregulated regions that is consumed as fluid milk products.
UNVP		DAMPSIN: Quarterly average base year gross returns to producers of Grade A milk in unregulated regions.
	(30,10)	DRW2: Gross returns to producers of Grade A milk in unregulated regions (30 quarters and years, 9 regions plus sum of all regions).
UTCP	(59)	DAMPSLV: Current quarter percent utilization of Class I processing capacity by processing center (59 centers).
VP	(59)	DAMPSLV, DAMPCLC: Current quarter order pool values (59 orders).
VPAMRG	(10)	DAMPSLV, DAMPCLC: Total Class I sales for each consolidated order for the current year (10 consolidations).
VPMRG	(20)	DAMPSLV, DAMPCLC: 1-10 contains the value of the pool for each of the consolidated orders for the current quarter; 11-20 contains the total transportation charges for each of the consolidated orders for the current quarter.
WCL1D		DAMPCLC: Current quarter average federal order Class I demand.
WCL1P		DAMPCLC: Current quarter weighted average federal order Class I price.
WFRPS		DAMPCLC: Current quarter aggregate federal order average farm-retail fluid milk price spread.

Variable	Dimension	Location and Description
WK1	(9)	DAMPSLV: Work array (9 regions).
WK2	(9)	DAMPSLV: Work array (9 regions).
WORK1	(14992)	DAMPSIN, DAMPCLC: Work array equal to the size of common in GNETA.
WORK2	(8025)	DAMPSIN: Work array equal to the size of common in BLK1.
	(11619)	DAMPSLV, DAMPCLC: Work array equal to the size of common in BLK1.
WORK3	(24)	DAMPCLC: Work array equal to the size of common in TCOST, BLK2 (same as WORK4 in DAMPSIN and DAMPSLV).
WORK4	(24)	DAMPSIN, DAMPSLV: Work array equal to size of common in BLK2 (same as WORK3).
	(890)	DAMPCLC: Work array equal to size of common in BLK5 (same as WORK5 in DAMPSIN and DAMPSLV).
WORK5	(890)	DAMPSIN, DAMPSLV: Work array equal to size of common in BLK5 (same as WORK4 in DAMPCLC).
	(45)	DAMPCLC: Work array equal to size of common in BLK7 (same as WORK6 in DAMPSIN and DAMPSLV).
WORK6	(45)	DAMPSIN, DAMPSLV: Work array equal to size of common in BLK7 up to and including QCNT1 (same as WORK5 in DAMPCLC).
	(11)	DAMPCLC: Work array equal to size of common in BLK9 (same as WORK8 in DAMPSIN and DAMPSLV).
WORK7	(407)	DAMPCLC: Work array (same as WORK9 in DAMPSIN and DAMPSLV).
WORK8	(11)	DAMPSIN, DAMPSLV: Work array equal to size of common in BLK9 (same as WORK6 in DAMPCLC).
	(852)	DAMPCLC: Work array (same as WORK10 in DAMPSIN AND DAMPSLV).
WORK9	(407)	DAMPSIN, DAMPSLV: Work array equal to size of common in BLK10 (same as WORK7).
	(18)	DAMPCLC: Work array (same as WORK11).

Variable	Dimension	Location and Description
WORK10	(852)	DAMPSIN, DAMPSLV: Work array equal to size of common in BLK11 up to and including EFRR (same as WORK8 in DAMPCLC).
	(10)	DAMPCLC: Work array (same as WORK13 in DAMPSIN and DAMPSLV).
WORK11	(18)	DAMPSIN, DAMPSLV: Work array equal to size of common in BLK12 (same as WORK9 in DAMPCLC).
WORK12	(767)	DAMPSIN, DAMPSLV: Work array equal to size of common in BLK14.
WORK13	(10)	DAMPSIN: Equal to size of common in BLK11 after EFRR, see WORK10 (same as WORK10 in DAMPCLC).
W1	(11619)	DAMPSLV: Work array equal to size of common in BLK1, see WORK2.
	(9)	DRW2: Quarterly Grade A milk production in unregulated areas (9 supply regions).
W2	(890)	DAMPSLV: Work array equal to size of common in BLK5, see WORK5.
	(9)	DRW2: Quarterly Grade B milk production (9 supply regions).
W3	(852)	DAMPSLV: Work array equal to size of common in BLK11, see WORK10.
	(9)	DRW2: Quarterly fluid products consumption (9 regions).
W4	(2104)	DAMPSLV: Work array equal to size of common in BLK13.
	(9)	DRW2: Quarterly Grade A milk from regulated areas used in manufacturing (9 supply regions).
W5	(4,2)	DRW2: Quarterly imports (4 products, 2 import regions).
W6	(6,9)	DRW2: Quarterly ending stocks (3 products and 2 stock types, 9 regions).
W7	(5,5)	DRW2: Quarterly manufactured products consumption (5 products, 5 consumption regions),

Variable	Dimension	Location and Description
W8	(5)	DRW2: Quarterly retail prices of manufactured products (5 products).
W9	(20)	DRW2: Equals CHGPD in DAMPSIN (20 quarters).
XBP		DAMPSIN, DAMPSLV, DAMPCLC: Starting quarter Class II price.
XBP3		DAMPSIN, DAMPSLV, DAMPCLC: Starting quarter Class III price.
XCEXP		DAMPCLC: Change in CEXP from same quarter a year ago.
XCFRP		DAMPCLC: Change in SVFRPS from same quarter a year ago.
XCHABLN		DAMPCLC: Annual change in AMBLND from a year ago.
XCHACEX		DAMPCLC: Annual change in ACEXP from a year ago.
XCHACP		DAMPCLC: Annual change in AMUCP from a year ago.
XCHAC1		DAMPCLC: Annual change in AMC1P from a year ago.
XCHAC2		DAMPCLC: Annual change in ASCL2D from a year ago.
XCHAC3		DAMPCLC: Annual change in ASCL3Q from a year ago.
XCHAFRP		DAMPCLC: Annual change in ASFRPS from a year ago.
XCHAGU		DAMPCLC: Annual change in ASMFGU from a year ago.
XCHAMRT		DAMPCLC: Annual change in AMRTL from a year ago.
XCHANFP		DAMPCLC: Annual change in ASNFP from a year ago.

Variable	Dimension	Location and Description
XCHAPC		DAMPCLC: Annual change in ASIAC1 from a year ago.
XCHAPR		DAMPCLC: Annual change in ASPRRC from a year ago.
XCHARDC		DAMPCLC: Annual change in ASRODC from a year ago.
XCHASO		DAMPCLC: Annual change in ASOAC1T from a year ago.
XCHATR		DAMPCLC: Annual change in ASTRNSR from same quarter a year ago.
XCHAU		DAMPCLC: Annual change in AMC1U from a year ago.
XCHAVP		DAMPCLC: Annual change in AVP from a year ago.
XCHAWF		DAMPCLC: Annual change in AWFRPS from a year ago.
XCHA2		DAMPCLC: Annual change in AMC2P from a year ago.
XCHA3		DAMPCLC: Annual change in AMC3P from a year ago.
XCHC2P		DAMPCLC: Quarterly change in NCL2P from same quarter a year ago.
XCHC3P		DAMPCLC: Change in NCL3P from same quarter a year ago.
XCHMB		DAMPCLC: Change in MBLND from same quarter a year ago.
XCL2P		DAMPSIN, DAMPSLV, DAMPCLC: Current quarter Class II price, used in demand function CL2D.
XCMC1P		DAMPCLC: Change in MCL1P from same quarter a year ago.
XCMC1U		DAMPCLC: Change in MCL1U from same quarter a year ago.

Variable	Dimension	Location and Description
XCMC2		DAMPCLC: Change in SCL2D from same quarter a year ago.
XCMC3		DAMPCLC: Change in SCL3Q from same quarter a year ago.
XCMFU		DAMPCLC: Change in SMFGU from same quarter a year ago.
XCMRTP		DAMPCLC: Change in MRTLP from same quarter a year ago.
XCNFP		DAMPCLC: Change in SNFP from same quarter a year ago.
XCRDC		DAMPCLC: Change in SVRODC from same quarter a year ago.
XCSOA		DAMPCLC: Change in SOAC1T from same quarter a year ago.
XCSPC1		DAMPCLC: Change in SPCL1 from same quarter a year ago.
XCSPRC		DAMPCLC: Change in SPRREC from same quarter a year ago.
XCSVP		DAMPCLC: Change in SVP from same quarter a year ago.
XCTRNS		DAMPCLC: Change in STRNSR from same quarter a year ago.
XCUCP		DAMPCLC: Change in SMUCP from same quarter a year ago.
XCWFR		DAMPCLC: Change in WFRPS from same quarter a year ago.
YEND		DRW1: Year counter, varies from 1 to maximum number of year simulated.

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