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STREAM TABLE PROGRAM

USER'S MANUAL

AND

PROGRAM DOCUMENT

MAY, 1981

Prepared for:

NASA/George C. Marshall Space Flight Center
Huntsville Computer Complex

Prepared by:

Computer Sciences Corporation
Engineering Systems Department
Project Development and Systems Support Section
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(Organization(s) that prepared this report:)

COMPUTER SCIENCES CORPORATION
This program was designed to be an editor for the Lewis Chemical Equilibrium program input files and is used for storage, manipulation and retrieval of the large amount of data required. The files are based on the facility name, case number, and table number. The data is easily recalled by supplying the sheet number to be displayed. The retrieval basis is a "sheet" where "sheet" is defined to be all of the individual flow streams which comprise a given portion of a coal gasification system. A "sheet" may cover more than one page of output tables. The program allows for the insertion of a new table, revision of existing tables, deletion of existing tables or the printing of selected tables.

No calculations are performed. Only pointers are used to keep track of the data. The process is done interactively with a TEKTRONIX 4000 series terminal and the UNIVAC 1100/82. A copy of the program also resides on the Honeywell SIGMA V System.
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1.0 INTRODUCTION

1.1 PURPOSE

The STREAM program was developed for the purpose of quick retrieval of stored data in sheets. The retrieval basis is a "sheet" where "sheet" is defined to be all of the individual flow streams which comprise a given portion of a coal gasification system. A "sheet" may cover more than one page of output tables.

The sheets can be revised or deleted. Once a change has been made, this change is reflected in all of the flow streams.

The final results are displayed, one sheet at a time, in the form of a table. The program was written for the UNIVAC 1100/82 and the Univac control language is used in this document. To run the program on the Honeywell Sigma V, only the control cards need to be changed.

The STREAM Program was developed for the Computer Services Organization (AH53) in support of activities in the Coal Gasification Task Team (PF15) under NASA contract NAS8-31640.

1.2 MSFC FORM 3559

See the following page.
NAME OF REQUESTER (24 characters):
Tom French

TELEPHONE NUMBER:
453-4024

ORGANIZATION (4 characters):
PA01

NAME OF PROJECT (30 characters):
TVA Coal Gasification

DATE OF REQUEST:
8/8/80

JOB TITLE (24 characters):
TVA Coal Gasification

JOB DESCRIPTION (300 characters):
Provide flow sheet graphics; absorption, stripping, and distillation column design; facility and equipment sizing and plant layout; startup procedure timelines; and analyses of cost and economics, material and energy balance, combustion equilibrium for the TVA Coal Gasification facility.

FISCAL YEAR RESOURCES PLAN

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<th>1ST. QTR</th>
<th>2ND. QTR</th>
<th>3RD. QTR</th>
<th>4TH. QTR</th>
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<th>COST</th>
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TOTAL COST: $111,837.50

NAME OF PROGRAMMER/ANALYST (24 characters):
Mike Fagye

NAME OF MONITOR (24 characters):
R. Martin

NAME OF MANAGER (24 characters):
Mike Fagye

ORGANIZATION:
653

TELEPHONE NUMBER:
3-2294

ORGANIZATION:
AH33

COMMENTS:
Scientific/Engineering

ORIGINAL PAGE IS OF POOR QUALITY
1.3 RELATED PROJECTS

The Related Projects include the Timeline Resource Analysis Program (TRAP) and the CEC Lewis Program.
2.0 PROBLEM TASK DESCRIPTION

The STREAM Program is a bookkeeping program which allows the user easy access to a table of output.

The user has the option to define a new table. After a table has been defined, this existing table can be revised or deleted. One can also print existing tables with the option of printing one or all of the sheets dealing with a particular facility name, case number, and table number. Once the printing option has been selected, the user has the option to print more individual sheets and to print more tables with a different facility name, case and table number.
3.0 METHOD OF SOLUTION

The STREAM Program is designed with pointers used to output the tables. These pointers are used with three different files. The names of these files are 14, 16, and 20.

To add a new table, the user selects option one in the main menu. After this selection has been made, the user is asked to supply the facility name with an A8 format, the case number and the table number both in I1 formats. Then, this information is used for the different files. File 14 contains:

- NNAME: number of facilities
- ICOILM: pointer of columns
- ICHAIN: chain of column pointers
- TNAME: facility name
- NPTR: counter of pointers
- TCASE: case name
- TTABLE: table number
- TSHEET: sheet number

File 16 contains:

- IPTR: counter pointer to columns
- SYSNAM: system label
- DRAWN: drawn by
- ENGR: engineer's name
- APPR: approved by
- DATE: is current date

of which DRAWN, ENGR, APPR are optional to the output page.

File 20 contains:

- COLNAM: column name or stream number
- COLDES: stream description
- COLVAR: actual numerical data for output tables
- CXTR: component name and formula
- XTR: compound molecular weight and moles/hour

To revise, the user first has to write the facility name, case and table number. The existence of the table is verified; then, the sheet number is input and verified. After that, the original data is located. The system data can be changed by choosing that option which results in the new item being keyed in. When this is completed, the entire record is written back to file 16. Column data can then be changed in a likewise manner. To change moles/hour for the compounds, the entire column of data must be keyed in for each compound. After this process is completed, the information is written
back to file 20. The user is able to edit as much as he likes without going back to the main menu.

To delete, it is the same process of adding except in reverse. The user can delete an entire case, table, sheet and column. Once the user decides which one is to be deleted, then the respective pointers are updated.

To output tables, the user must again input the facility name, case and table number to be used as pointers to sheet data. The user can output one sheet at this time or all of the sheets if desired. If more than one sheet is desired, but not all, the user must again input the sheet number to be output. The user has the option to output more tables before returning to the main menu.

One thing to keep in mind is that the pointers used start out from the largest category down to the smallest. In this case, it is the facility name, case number, table number, sheet number and finally, the column number or name.
4.0 PROGRAM DESCRIPTION

4.1 OPERATING ENVIRONMENT

4.1.1 Hardware

- The program was first written for the UNIVAC 1100-82.

- Core Requirements
  The amount of core memory required for the program to run on the UNIVAC 1100-82 is 13853.

- Magnetic Tapes
  On the UNIVAC 1100/82, the number of nine track magnetic tape units required is one.

- Mass Storage Requirements for the assignment of the files:
  (a) STREAM is catalogued:
      @CAT,P CGS, F/64/TRK/128
  (b) files 14, 16, 20 are assigned:
      @CAT,P 14,F/2/TRK/4
      @CAT,P 16, F/1/POS/2
      @CAT,P 20, F/2/POS/4
      respectively.

4.1.2 Software

- Operating System - The host operating system will be a UNIVAC 1100/82 Executive, level 9R1.

- The program is written in ASCII Fortran on the UNIVAC.

- Demand, interactive is how the processing mode used to execute

- Library Subroutines include:
  SYS*MSFC$.

4.2 PROGRAM SPECIFICATIONS

If the user wants to retrieve information already existing, all the user needs to do is to input the facility name, case number, table number, and sheet number and the correct sheets will be displayed. But if the sheet does not exist, the user will need to define new sheet data which require stream name, stream description, moles per hour for the different compounds, special compounds, and the different totals.
4.3 SUBROUTINES

A list of all the subroutines and their main function are given below.

1) CHECK - checks for a duplicate column name and if found will flag as an error.

2) CNAME - user will input stream name, isolate multiplier and remove N, (, and).

3) COLUMN - write stream description and column data for compounds, special compounds, weight, temperature, pressure PSIA, gas molecular weight, power in kilowatts and BTU per hour.

4) CSHEET - changes sheet information which includes drawn by, engineer, approved by, and date.

5) DEFINE - reads in sheet data, column data and stores the information on the file.

6) DELETE - will delete entire facility, case, table, sheet or column data, and will update all pointers.

7) EDIT - user will select basic table, check existence of table, and used as a driver to change sheet and column data.

8) FILE - used to create a new file data to create first records, to adjust multiplier column, to write new column data and to update the chain of column pointers.

9) INIT - defines files 14, 16, 20.

10) MAIN - main driver of program

11) MENU - main menu of program to either define new table, revise existing table, delete existing table or print selected table.

12) OPDATA - used if user wishes to input drawn by, the engineer's name or approved by.

13) OUTPUT - will display all of the related output in table form.

14) PSELECT - user will determine which table, sheets to be output; an option will enable him to print more sheets and tables.
15) SELECT - user will input facility name, case and table number.

16) SHEET - user will input sheet number and system label.

17) SHTNUM - user writes the number sheets (1-16) to be printed.
5.0 OPERATING INSTRUCTIONS

5.1 DECK SETUP

This program was designed to run interactively. Here are some of the commands that make it easier for the user.

- to copy program from tape to file
  ```
  @RUN...
  @ASG,TF PUR., U9S, tape number
  @COPY,G PUR., TPF$.
  @ADD,L BOOT
  ```

After this sequence, the user is able to execute the program. BOOT will catalog file CGS,14, 16, 20, will assign them to the user's run and will copy information from tape to file.

- to get on once files are copied from tape
  ```
  @ADD,L GETON
  ```
  will assign files to user's run once they are cataloged.

- to make hard-copy print-out of program
  ```
  @ADD,L COPY
  ```

- to remap
  ```
  @ADD,L MAP
  ```
  will pack, prep and remap

- to make a new tape with new information
  ```
  @ADD,L UPDATE
  ```
  will assign a new tape, copy information to tape, and will give you a new tape number.

- to execute program
  ```
  @XQT XQT
  ```
5.1.1 Input

5.1.1.1 Magnetic Tapes

For file 14:

NNAME is dimensioned (1)
ICOLM is dimensioned (1)
ICHAIN is dimensioned (1)
TNAME is dimensioned (2,4)

For file 16, the format is:

IPTR is dimensioned (9,2)
SYSNAM is dimensioned (20A4)
DRAWN is dimensioned (4A4)

For file 20, the format is:

NPTR is dimensioned (4)
TNAME is dimensioned (16,32)

The assigned tape is called STREAM and was made with a TF (labeled tape) option on the assign card. The Tape Assign Card is as follows:

@ASG,TF STREAM, U9S,SAVT. . . CGS STREAM Table

5.1.1.2 File Requirements

The file set-up requirements are:

1) for file 14, the mass storage requirement is one record with a maximum length of 575 characters.
2) for file 16, there are 512 records, each with a maximum length of 52 characters.
3) For file 20, there are 5120 records, each with a maximum length of 74 characters.

5.1.1.3 Other

For all the input to be given by the user is explained in the reference test case

5.1.1.4 Sample Control Runstream

See the following page.
TO EXECUTE PROGRAM, LINES UNDERLINED INDICATE INPUT FROM USER.
5.1.2 Output

All of the output consists of one basic output page. This is all dependent on the facility name, case name, and table case that the user desires.

5.1.2.1 Magnetic Tapes

If the user makes changes and wants to retain the change, he can make a new tape by assigning a nine track tape and copying the files to this tape.

5.1.2.2 Sample Output

(See attached Output pages).

The number of Output pages will depend on how many the user desires. After each page is printed, a pause statement will appear and will give the user a chance to look at the Output or to make a hard copy before he continues.

5.1.2.3 Other

The output is done interactively with a TEKTRONIX 4000 series terminal. After the headings are printed, a list of components with their molecular weight and abbreviations are listed. These components are then listed with the number of these components that are needed to make up the process listed in the STREAM description.
<table>
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<tr>
<th>NAME</th>
<th>FORMULA</th>
<th>MOL-WT</th>
<th>LB MOLES/HR</th>
</tr>
</thead>
<tbody>
<tr>
<td>HYDROGEN</td>
<td>H2</td>
<td>2.02</td>
<td>16.67 + 05 16.67 + 05</td>
</tr>
<tr>
<td>CARBON MONOXIDE</td>
<td>CO</td>
<td>28.01</td>
<td>80000 + 02 80000 + 02</td>
</tr>
<tr>
<td>CARBON DIOXID</td>
<td>CO2</td>
<td>44.01</td>
<td>80000 + 02 80000 + 02</td>
</tr>
<tr>
<td>METHANE</td>
<td>CH4</td>
<td>16.04</td>
<td></td>
</tr>
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<td>16.67 + 05 16.67 + 05</td>
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<td></td>
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<td>ARGON</td>
<td>AR</td>
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<td></td>
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<td>C=O</td>
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<tr>
<td>CARBON DISULFIDE</td>
<td>CS2</td>
<td>76.14</td>
<td></td>
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<td>SO2</td>
<td>64.06</td>
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<tr>
<td>CHLORINE</td>
<td>Cl</td>
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<td>TOTAL GAS/LIQUID</td>
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<tr>
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<td></td>
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<td>16.75 + 05 16.75 + 05</td>
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<td>16.75 + 05 16.75 + 05</td>
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<td>16.75 + 05 16.75 + 05</td>
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<td></td>
</tr>
<tr>
<td>PRESSURE, PSIA</td>
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<td></td>
<td></td>
</tr>
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<td>POWER, KW (BTU/HR)</td>
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<tr>
<td>COMPONENTS</td>
<td>FORMULA</td>
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<td>LB/HR</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------</td>
<td>--------</td>
<td>-------</td>
</tr>
<tr>
<td>HYDROGEN</td>
<td>H2</td>
<td>2.02</td>
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<tr>
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<td>CO</td>
<td>28.01</td>
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</tr>
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<tr>
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</tr>
<tr>
<td>CARBON DISULFIDE</td>
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<td>76.14</td>
<td></td>
</tr>
<tr>
<td>SULFUR DIOXIDE</td>
<td>SO2</td>
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<td></td>
</tr>
<tr>
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<td>NO</td>
<td>38.01</td>
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<tr>
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<td>Cl</td>
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**TOTAL DRY WATER**

| WATER | 18.02 | 60190.05 | 32660.05 | 32660.05 | 23500.07 | 23500.07 | 31080.05 | 1675.05 | 12375.05 |

**TOTAL WET**

| 60190.05 | 32660.05 | 32660.05 | 23500.07 | 23500.07 | 31080.05 | 1675.05 | 12375.05 |

**TOTAL GAS/ LIQUID**

| 17430.07 | 57633.06 | 57633.06 | 53100.08 | 53100.08 | 87310.06 | 46950.06 | 39050.06 |

**COAL**

| 17430.07 | 57633.06 | 57633.06 | 53100.08 | 53100.08 | 87310.06 | 46950.06 | 39050.06 |

**TEMPERATURE, DGF**

| 60000.00 | 10000.00 | 10200.00 | 82900.00 | 10300.00 | 82900.00 | 13500.00 | 22100.00 |

**PRESSURE, PSIA**

| 14700.00 | 14700.00 | 14700.00 | 14700.00 | 14700.00 | 14700.00 | 14700.00 | 14700.00 |

**GAS/LIQUID RATIO, LB/MB**

| 88000.00 | 88000.00 | 88000.00 | 88000.00 | 88000.00 | 88000.00 | 88000.00 | 88000.00 |

**POWER, kw (BTU/HR)**

| 88000.00 | 88000.00 | 88000.00 | 88000.00 | 88000.00 | 88000.00 | 88000.00 | 88000.00 |

**PAUSE 000000**
### NASA GEORGE C MARSHALL SPACE FLIGHT CENTER
HUNTSVILLE, ALABAMA
COAL GASIFICATION TASK TEAM
COAL GASIFICATION STREAM & UTILITY TABLE

**MODULE SYSTEM**
- **STREAM NUMBER:** LD9 1-3
- **STREAM DESCRIPTION:** SLURRY

**GASIFICATION SYSTEM (A)**
- **NAME:** HP
- **COMMENTS:** BFW

**SHEET 3 OF 10**

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**TOTAL WET WATER**
- **MOL-UT:** 12375+05

**TOTAL GAS/LIQUID**
- **MOL-UT:** 68380+06

**COAL**
- **MOL-UT:** 13333+06

**ASH**
- **MOL-UT:** 13333+06

**CARBON**
- **MOL-UT:** 13333+06

**TOTAL SOLIDS**
- **MOL-UT:** 13333+06

**TOTAL STREAM**
- **MOL-UT:** 13333+06

**TEMPERATURE, DEG F**
- **NAME:** | **MOL-UT:** | **LB/LS-MOL** | **POWER, KW (BTU/HR)**

**PRESSURE, PSIA**
- **NAME:** | **MOL-UT:** | **LB/LS-MOL** | **POWER, KW (BTU/HR)**

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| TEMPERATURE, Deg F | 153000  |
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| Coal Ash          | 13870   |
| Carbon Ash        | 67840   |
| Coal Total Solids | 483111  |
| Coal Total Stream | .48311  |
| Power kW (BTU/HR) | .153000  |
| Power kW (BTU/HR) | 764700  |
| Power kW (BTU/HR) | 08000   |

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| Coal Total Solids | 483111  |
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</tr>
<tr>
<td>Argon</td>
</tr>
<tr>
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</tr>
<tr>
<td>Carbonyl Sulfide</td>
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<tr>
<td>Carbon Disulfide</td>
</tr>
<tr>
<td>Sulfur Dioxide</td>
</tr>
<tr>
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<tr>
<td>Hydrogen Cyanide</td>
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<td>Hydrogen Chloride</td>
</tr>
<tr>
<td>Nitrous Oxide</td>
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<tr>
<td>Chlorine</td>
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<td>Propylene</td>
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<tr>
<td>Sulfur</td>
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**TOTAL DRY WATER**

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<tr>
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<th>Activity</th>
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</thead>
<tbody>
<tr>
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<td>2.9224E+05</td>
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**TOTAL WET WATER**

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<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
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**TOTAL GAS/ LIQUID**

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<tbody>
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<td>Coal Ash</td>
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**TOTAL SOLIDS**

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**TOTAL STREAM**

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**Temperature (Deg F)**

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**Pressure (PSIA)**

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**GAS/LIQ MOLE WEIGHT (LB/LB-MOL)**

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**Power (W)**

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</table>

TOTAL DRY WATER H2O 18.02

TOTAL NET

TOTAL GAS/LIQUID

COAL ASH

CARBON TOTAL SOLIDS TOTAL STREAM

TEMPERATURE, DEG F

PRESSURE, PSIA

GAS/LIQ MOL WEIGHT, LB/LB-MOL

POWER, KU (BTU/HR)

PAUSE 00000 >
5.1.3 Test Case

To execute the program:

@XQT XQT

Once this has happened, a Stream and Utility Table Menu appears with the following options:

1) Define New Table
2) Revise Existing Table
3) Delete Existing Table
4) Print Selected Table
5) Save Revision

1) If the user chooses to define a new table, he chooses option number one. Then, the user is asked to write the facility name in an A8 format, the case number and table number, both in an I1 format. The user is then asked to write the sheet number in an I2 format with leading zeroes. If the user wants sheet number two, he must insert '02' and not just 2. A two will give user sheet number 20. The user is asked to give the data in format MM/DD/YY. The System Label is to be written in an A76 format. There are two asterisks given to define the limits of the system label.

An answer of 'YES' will allow the user to put optional data in. The optional data includes 'drawn by', 'engineer's name' and 'approved by'. A return of the carriage will allow the user to skip these questions.

Next, the stream name will be asked for in an A8 format. A stream description will be asked for in the form of four lines with a maximum of 9 characters per line. Again, the limits of the nine characters per line are indicated by two asterisks. Centering of each line is not needed for the line because the program itself will take care of the centering of lines for the user.

Finally, the user is asked for the moles per hour for the twenty-one compounds in a F-type format. If a zero is wanted, all the user has to do is to hit the carriage return. If the user wants to use special compounds, answer yes. A carriage return will allow the user to bypass the questions. If special compounds are required, the user needs to input the compound name in an A16 format, compound formula in an A8 format, the compound molecular weight in any F-type format, and moles per hour in any F-type format. This loop is continued until the user desires no more special compounds. The last information is the totals, temperature, pressure PS1A, gas molecular weight and power kilowatt BTU per hour.

5-16
At this time, the user can input more column data and the process will start over. If not, the user can input more column, sheet data or can even input a new facility name, case name, and table name. If all of the answers are no, then the user returns to the main menu.

2) To revise existing tables, the user again is asked to input facility name, case number, table number, and sheet number. If the sheet number is less than 10, the user is required to use leading zeroes.

The user can then change the system name, drawn by name, engineer's name, approved by, or change the data. If none of the above require a change, the user will continue. If the user wants to change a particular column, he will insert the column number which he wants. The system will ask him to write the desired information again.

If the user wants to continue, the names of the columns are listed. The user will write the number of the column to be changed in Il format. Then, the user will write the stream name in an A8 format. After a match is found, the following information is then changed: the stream description, the moles/hour for the compounds, special components, and conditions. The user does not have an option to change any part of it, but has to input all of the information.

The user has the choices to change more column data, sheet data or the change facility name/case/table.

3) To delete existing data, the user has a choice of deleting the entire facility, case, table, sheet or column. After the user has decided upon which one he desires, the program will remove name and update all of the pointers. The user will continue and can delete as many columns, sheets, tables, cases or facility names.

4) To output the tables, the user has to first input the facility name, case number, and table number. The user must know the sheet number to be printed. Again, if the sheet number is less than 10, leading zeroes must be used. If all of the sheets are to be printed dealing with that facility name, case number, and table number, the user needs to input a 99. The user has the option to print more individual sheets or to process more tables.
5.1.3.1 Test Case Listing

See the following pages.
STREAM AND UTILITY TABLE MENU

1 - DEFINE NEW TABLE
2 - REVISE EXISTING TABLE
3 - DELETE EXISTING TABLE
4 - PRINT SELECTED TABLE
5 - SAVE REVISION

PRESS RETURN TO EXIT

INPUT CHOICE IN II FORMAT
WRITE FACILITY NAME IN ABC FORMAT

WRITE CASE NUMBER IN I1 FORMAT

WRITE TABLE NUMBER IN I1 FORMAT

WRITE SHEET(1-16) NUMBER TO BE PRINT IN I8 FORMAT. USING LEADING ZEROES
USE 99 IF ALL SHEETS ARE REQUIRED
TO CHANGE EXISTING DATA: IN THIS CASE,
COLUMN DATA WAS CHANGED.

ORIGINAL PAGE IS OF POOR QUALITY.
ANSWER YES IF SPECIAL COMPOUNDS ARE REQUIRED

T O T L  D R Y

H2O

T O T L  W E T

H2S

T O T L  G A S

C2H6

C3H8

S

WRITE FOLLOWING CONDITIONS IN ANY F-TYPE FORMAT
ZEROS MAY BE ENTERED A BLANKS

9738

PRES PSIA

647

GAS MOL-LT

18

POWER KU(+), BTU/HR(-)

WRITE NUMBER OF COLUMNS TO BE CHANGED IN II FORMAT

0

ANSWER YES TO EDIT MORE SHEET DATE

ANSWER YES TO EDIT NEW FACILITY NAME/CASE/ TABLE
1 - DELETE ENTIRE FACILITY
2 - DELETE ENTIRE CASE
3 - DELETE ENTIRE TABLE
4 - DELETE ENTIRE SHEET
5 - DELETE ENTIRE COLUMN
RETURN TO CONTINUE

WRITE CHANGE TYPE IN II FORMAT

WRITE FACILITY NAME IN AB FORMAT

WRITE CASE NUMBER IN II FORMAT

WRITE TABLE NUMBER IN II FORMAT

WRITE SHEET NUMBER IN II FORMAT WITH LEADING ZEROS

WRITE NUMBER OF THE COLUMN TO BE DELETED USING II FORMAT

ANSWER YES TO DELETE MORE COLUMNS

WRITE CHANGE TYPE IN II FORMAT
WRITE FACILITY NAME IN A8 FORMAT

WRITE CASE NUMBER IN I1 FORMAT

WRITE TABLE NUMBER IN I1 FORMAT

WRITE SHEET NUMBER IN I8 FORMAT WITH LEADING ZEROS

WRITE STREAM NAME IN A8 FORMAT

WRITE STREAM DESCRIPTION IN 4 LINES OF 9 CHARACTERS EACH

WITHIN THE LIMITS INDICATED

TEST CASE

WRITE THE ROLLS/HR FOR THE FOLLOWING COMPOUNDS IN F-TYPE FORMAT.
ZEROES MAY BE ENTERED AS BLANKS

H2
CO
CO2
CH4
H2O
O2
Ar
H2S
CS2
SO2
NH3
HCN
HCL
NO
CL
C2H4
C2H6
C3H8
C3H6
S
ANSWER YES IF SPECIAL COMPOUNDS ARE REQUIRED

WRITE COMPOUND NAME IN AB FORMAT

WRITE COMPOUND FORMULA IN AB FORMAT

WRITE COMPOUND MOLECULAR WEIGHT IN ANY F-TYPE FORMAT

WRITE MOLES/HP IN ANY F-TYPE FORMAT

ANSWER YES IF SPECIAL COMPOUNDS ARE REQUIRED

TOTAL DRY

H2O

TOTAL WET

TOTAL GAS

COAL

ASH

CARBON

TOTAL SLDs

TOTAL STRM

WRITE FOLLOWING CONDITIONS IN ANY F-TYPE FORMAT

ZEROS MAY BE ENTERED AS BLANKS

TEMP DEG. F

PRESSURE PSIA

GAS RATE UT

POWER KW (+) BTU/HR (-)

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ANSWER YES TO INPUT MORE COLUMN DATA

ANSWER YES TO INPUT MORE SHEET DATA

ANSWER YES TO INPUT NEW FACILITY NAME/CASE/TABLE
6.0 SOURCE CODE LISTING

See the following pages.
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SEVIGNBINZOB*CGS(1).A
1 Lib Sys*MSFCFIN$.A
2 In TPFS.REWORK
3 Not TPFS.MAIN

@HDG.P BOOT

@PRT.S BOOT
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<tr>
<td>2</td>
<td>ACAT, P 14, F/2/TRK/4</td>
</tr>
<tr>
<td>3</td>
<td>ACAT, P 16, F/2/P05/2</td>
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<td>4</td>
<td>ACAT, P 20, F/2/P05/2</td>
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<tr>
<td>5</td>
<td>BASG, A CGS</td>
</tr>
<tr>
<td>6</td>
<td>BASG, A 14</td>
</tr>
<tr>
<td>7</td>
<td>BASG, A 16</td>
</tr>
<tr>
<td>8</td>
<td>BASG, A 20</td>
</tr>
<tr>
<td>9</td>
<td>COPY TPFS, CGS</td>
</tr>
<tr>
<td>10</td>
<td>COPY, G PUR, 14</td>
</tr>
<tr>
<td>11</td>
<td>COPY, G PUR, 16</td>
</tr>
<tr>
<td>12</td>
<td>COPY, G PUR, 20</td>
</tr>
<tr>
<td>13</td>
<td>FREE PUR</td>
</tr>
<tr>
<td>14</td>
<td>FREE TPFS</td>
</tr>
<tr>
<td>15</td>
<td>USE TPFS, CGS</td>
</tr>
</tbody>
</table>

@MDG, P CHECK

APRT, S CHECK

FRPUPR 28R1H1 136 574T11 01/14/81 08:53:37
SEVIGNBIN208*CGS(1).CHECK

1   SUBROUTINE CHECK(COLNAM,TSHEET,ITABLE,IOUT,ITOP)
2    INTEGER TSHEET
3    COMMON /TSHEET/TSHEET(16,32)
4    COMMON /IOUT/JOUT,JIN
5    DIMENSION IPTR(9,2)
6    CHARACTER BNAME(2)
7    CHARACTER COLNAM(2)
8    IF (ITABLE.EQ.0) GO TO 350
9    IF (ITABLE.LT.0) ITABLE=-ITABLE
10   IF (MOD(ITABLE,2).EQ.1) GO TO 10
11   N1=ITABLE-1
12   N2=ITABLE
13   GO TO 20
14   20 N1=ITABLE
15   N2=N1+1
16   DO 320 KK=N1,N2
17     DO 320 J=1,16
18       JS=TSHEET(J,KK)
19       IF (JS.EQ.0) GO TO 320
20       READ (16,JS) IPTR
21     DO 318 J=1,9
22       J1=IPTR(J,1)
23       IF (J1.EQ.0) GO TO 318
24       READ (20,J1) BNAME
25     DO 316 K=1,2
26   316 CONTINUE
27   318 CONTINUE
28   WRITE (*,9000) J1
29   9000 FORMAT (' MATCH AT',16)
30     ICOL=IPTR(J,1)
31     IF (ICOL.EQ.TSHEET.AND.KK.EQ.ITABLE) GO TO 340
32   340 GO TO 350
33   330 CONTINUE
34   320 CONTINUE
35   330 CONTINUE
36   GO TO 350
37   340 IF (ITOP.EQ.2) GO TO 350
38   WRITE (*,342)
39   342 FORMAT (2*** THIS COLUMN NAME ALREADY EXISTS FOR A GIVEN',
40     'X' FACILITY NAME/Case/FILE/TABLE/SHEET'/
41     XBX,'USE EDIT MENU TO CHANGE')
42   GO TO 360
43   350 ITOP=2
44   360 CONTINUE
45   RETURN
46   END

%HDG P CNAME

%PRT S CNAME
FURPUR 28RI11 E36 874T11 01/14/81 08:53:38
SUBROUTINE CNAME(COLNAME,MULT)
COMMON /IOUT/JOUT,JIN
CHARACTER COLNAME*,(2)
CHARACTER ADUM*,(4,2),SDUM*=8
EQUIVALENCE (ADUM*,SDUM*)
CHARACTER BLANK*,DUM*,1BLNKB*,ND*,N9*
CHARACTER IYY*,1ZZ*
CHARACTER IA*,1Z*,1IP*,1RP*
DATA BLANK/" ",BLNK/" "/
DATA IA*/A*/I2,*,,ILP*/" "/,IRP*/" "/,ND*/D*,N9*/9*/
WRITE (JOUT,10)
10 FORMAT (5X,'WRITE STREAM NAME IN AB FORMAT ')
11 READ (JIN,17,ERR=11) ADUM
12 FORMAT (2A4)
13 C ISOLATE ANY MULTIPLIER
14 MULT=1
15 IZZ=SUBSTR(ADUM(1),1,1)
16 IF (IZZ.GE.IA.AND.IZz.LE.I2z) GO TO 30
17 IF (IZZ.LE.ND.OR.IZZ.GT.N9) GO TO 8
18 IYY=SUBSTR(ADUM(1),2,1)
19 IF (IYY.NE.ILP) GO TO 8
20 DECODE(20,ADUM) MULT
21 C REMOVE RI
22 SDUM*:SUBSTR(ADUM,3,6)
23 SDUM*:SUBSTR(ADUM,7,2)
24 C REMOVE FINAL I
25 DO 22 I=8,1,-1
26 SDUM*:SUBSTR(ADUM,I,1)
27 IF (SDUM*.NE.1RP) GO TO 22
28 SDUM*:SUBSTR(ADUM,I,1)
29 SDUM*:SUBSTR(ADUM,1,1)
30 GO TO 30
31 22 CONTINUE
32 GO TO 8
33 DO 32 I=1,2
34 32 COLNAME(I)=ADUM(I)
35 RETURN
36 END

@HOG,P  COLUMN

@PR,S  COLUMN
FURPUR 28RH11 E53 54T11 01/14/81 08:53:39
SUBROUTINE COLUMN(COLDES,COLVAR,CXR,CXTR)

CHARACTER COLDES*)
DIMENSION COLDES(12)
DIMENSION COLVAR(36)
COMMON JOUT,JOUT,JIN
CHARACTER PROMPT#,COND#12
DIMENSION PROMPT#(301),COND#(51)
CHARACTER BLANK#,DDUM#
DIMENSION XR(2,3)
CHARACTER CXTR#(16,3)
CHARACTER YES#(4),YYES#*
CHARACTER BDUM#(3),TDM#9
EQUIVALENCE (BDUM#1,TDM#9)
DATA BLANK"/'
DATA YYES"/'
DATA (PROMPT#1),I=1,301/
L'H2","CO","CO2","CH4","N2","O2","AR","H2S";
L'CO2","CS2","SO2","NH3","HCN","HCL","NO","CL",
L'C2H4","C2H6","C3H6","C3H8","C5","TOL","DRY","M2O",
L'TOT WET","TOT GAS","COAL","ASH","CARBON","TOT SLD",
L'TOT STRM"/
DATA (COND#1),I=1,51/
L'TEMP DEG,"F","FRES PSIA","GAS MOL-WT",
L'POWER KW","BTU/HR-1"/
DO 10 K=1,6
DO 10 J=1,3
10 CXTR#(K,J)=
DO 20 K=1,2
DO 20 J=1,3
20 WRITE(JOUT,20)
WRITE(JOUT,20)
20 FORMAT(5X,'WRITE STREAM DESCRIPTION IN 4 LINES OF 9 CHARACTERS *
L'Each/8X,'WITHIN THE LIMITS INDICATED'//IX,"",9X,"")
DO 26 I=1,12,3
26 READ (JIN,27,ERR=21) BDUM
27 FORMAT(2AN,41)
DO 38 K=9,1,-1
38 BDUM=SUBSTR(TDUM,K,1)
IF (BDUM .NE. BLANK) GO TO 224
30 IX=IX+1
32 222 CONTINUE
33 IF (IX.LE.1) GO TO 227
34 IX=IX/2
35 IX=IX/2
36 SUBSTR(TDUM,1,IX1)=SUBSTR(TDUM,1,IX1)
37 DO 225 K=1,IX
38 SUBSTR(TDUM,K,1)=SUBSTR(BDUM,K,1)
39 225 CONTINUE
40 DO 227 K=1,3
41 COLDES(K+1-1)=BDUM(K)
42 226 CONTINUE
43 WRITE(JOUT,27)
44 IF (IX.LE.1) GO TO 227
45 IX=IX/2
46 SUBSTR(TDUM,1,IX1)=SUBSTR(TDUM,1,IX1)
47 DO 225 K=1,IX
48 SUBSTR(TDUM,K,1)=SUBSTR(BLANK,K,1)
49 225 CONTINUE
50 DO 227 K=1,3
51 226 COLDES(K+1-1)=BDUM(K)
52 26 CONTINUE
53 WRITE(JOUT,27)
54 27 FORMAT(5X,'WRITE THE MOLES/HR FOR THE FOLLOWING *
55 L'COMPOUNDS IN F-TYPE FORMAT.'//8X,'ZEROES MAY BE *
56 L'ENTERED AS BLANKS")
DO 40 I=1,30  
WRITE (JOUT,30) PROMPT(III)
30 FORMAT(5X,A8)
31 READ (JIN,32,ERR=31) COLVAR(II)
32 FORMAT(F15.0)
33 IF (I.NE.21) GO TO 40
34 IXX=1
35 240 WRITE (JOUT,41)
36 41 FORMAT (5X,'ANSWER YES IF SPECIAL COMPOUNDS ARE REQUIRED')
37 42 FORMAT (5X,'WRITE COMPOUND NAME IN A6 FORMAT')
38 43 FORMAT (5X,'WRITE COMPOUND FORMULA IN A8 FORMAT')
39 44 FORMAT (5X,'WRITE MOLECULAR WEIGHT IN ANY F-TYPE FORMAT')
40 45 FORMAT (5X,'WRITE FOLLOWING CONDITIONS IN ANY F-TYPE FORMAT')
41 46 FORMAT (5X,'WRITE OXYGEN CONTENT IN ANY F-TYPE FORMAT')
42 47 FORMAT (5X,'WRITE OXYGEN CONTENT IN ANY F-TYPE FORMAT')
43 48 FORMAT (5X,'WRITE OXYGEN CONTENT IN ANY F-TYPE FORMAT')
44 49 FORMAT (5X,'WRITE OXYGEN CONTENT IN ANY F-TYPE FORMAT')
45 50 FORMAT (2A4)
46 WRITE (JOUT,52)
47 52 FORMAT (5X,'WRITE OXYGEN CONTENT IN ANY F-TYPE FORMAT')
48 53 FORMAT (5X,'WRITE OXYGEN CONTENT IN ANY F-TYPE FORMAT')
49 54 FORMAT (5X,'WRITE OXYGEN CONTENT IN ANY F-TYPE FORMAT')
50 55 FORMAT (5X,'WRITE OXYGEN CONTENT IN ANY F-TYPE FORMAT')
51 56 FORMAT (5X,'WRITE OXYGEN CONTENT IN ANY F-TYPE FORMAT')
52 57 FORMAT (5X,'WRITE OXYGEN CONTENT IN ANY F-TYPE FORMAT')
53 58 FORMAT (5X,'WRITE OXYGEN CONTENT IN ANY F-TYPE FORMAT')
54 59 FORMAT (5X,'WRITE OXYGEN CONTENT IN ANY F-TYPE FORMAT')
55 60 FORMAT (5X,A12)
56 61 READ (JIN,32,ERR=61) COLVAR(30-I)
57 70 CONTINUE
58 WRITE (JOUT,60) COND(II)
59 DO 70 I=1,3
60 FORMAT(5X,A12)
61 READ (JIN,32,ERR=61) COLVAR(30-I)
62 CONTINUE
63 WRITE (JOUT,60) COND(4),COND(5)
64 80 FORMAT(5X,A12)
65 81 READ (JIN,32,ERR=81) COLVAR(34)
66 COLVAR(35)=IXX-1
67 RETURN
68 END

AMOG,P COPY

APRT,S COPY
SUBROUTINE CSHEET(ISTABLE,1SHEET,IPTR,SYSNAM,DRAWN,ENGR,APPR,DATE)

COMMON/JOUT/JOUT,JIN

INTEGER 1SHEET
CHARACTER DATE(4),SYSNAM(4),DRAWN(4),ENGR(4),APPR(4)
DIMENSION DATE(1),SYSNAM(21),DRAWN(4),ENGR(4),APPR(4)
COMMON/ISTEET/ISTEET(16,32)

DIMENSION IPTR(9,2)

WRITE(JOUT,10)
10 FORMAT(5X,'WRITE SHEET NUMBER IN 12 FORMAT WITH LEADING ZEROS')

READ(JIN,12,ERR=11) 1SHEET
12 FORMAT(32)

IF(ISTEET(1SHEET,MTABLE),GT,0) GO TO 20

WRITE(JOUT,16)
16 FORMAT(* *** SHEET NUMBER DOES NOT EXIST ***)

GO TO 8

LOCATE ORIGINAL DATA

READ(16,'J3') IPR,SYSNAM,DRAWN,ENGR,APPR,DATE

WRITE(JOUT,30)
30 FORMAT(* 1-CHANGE SYSTEM NAME /

C 2-CHANGE DRAWN BY NAME /

C 3-CHANGE ENGR NAME /

C 4-CHANGE APPR NAME /

C 5-CHANGE DATE /

C 6-RETURN TO CONTINUE *)

IOP=0

READ(JIN,34,ERR=32)IOP
34 FORMAT(11)

IF(IOP.GT.5) GO TO 32

IF (IOP.EQ.0) GO TO 100

GO TO (140,50,60,70,80),IOP

SYSTEM NAME

WRITE(JOUT,92)
92 FORMAT(5X,'WRITE SYSTEM LABEL IN A76 FORMAT WITHIN THE LIMITS'

C INDICATED*/1X,'*','76X,76')

READ(JIN,94,ERR=93)(SYSNAM(I),I=1,19)
94 FORMAT(19A4)

GO TO 24

DRAWN BY

WRITE(JOUT,52)
52 FORMAT(5X,'WRITE DRAWN BY= NAME IN A16 FORMAT')

READ(JIN,54,ERR=53)DRAWN
54 FORMAT(48A4)

GO TO 24

ENGINEER

WRITE(JOUT,62)
62 FORMAT(5X,'WRITE =ENGR= NAME IN A16 FORMAT')

READ(JIN,54,ERR=63)ENGR
63 GO TO 24

GO TO 24
```fortran
&FIN.S  DEFINE
             FTN 9R1H2#01/14/81-0815319.

1. SUBROUTINE DEFINE(IER)
2. COMMON /LIMIT/ NNAME,ICOLM,ICHAIN,JCOLM,JCHAIN
3. CHARACTER TNAME*4
4. INTEGER ICASE,ITABLE,TSHET
5. COMMON /NAME/ TNAME(2,4),NPTR(4)
6. COMMON /ICASE/ TCASE(16)
7. COMMON /TSHET/ TSHET(16,32)
8. COMMON /TSHEET/ TSHEET(16,32)
9. IER=0
10. DEFINE FILE 19(1,575,V,JDATA)
11. DEFINE FILE 16(512,52,V,JCHAIN)
12. DEFINE FILE 201(120,74,V,JCOLM)
13. FIND(14*1)
14. READ(14*1),ERR=100) NNAME,ICOLM,ICHAIN,TNAME,NPTR,
15. ICASE,ITABLE,TSHET
16. ICOLM=1
17. ICHAIN=1
18. RETURN
19. 100 IER=1
20. RETURN
21. END

ENDFTN 13 IBANK 47 DBANK 577 COMMON

3HDG.P DEFINE
```
<table>
<thead>
<tr>
<th>Line</th>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>SUBROUTINE DEFINE</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>COMMON /IOUT/JOUT,JIN</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>CHARACTER NAME4,ENGR4,APPR4</td>
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</tr>
<tr>
<td>4</td>
<td>DIMENSION NAME4(D),ENGR4(D),APPR4(D)</td>
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<tr>
<td>5</td>
<td>CHARACTER DATE4,SYSNAM4</td>
<td></td>
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<tr>
<td>6</td>
<td>DIMENSION DATE4,SYSNAM4(20)</td>
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<tr>
<td>7</td>
<td>CHARACTER COLNAME4,COLDES4</td>
<td></td>
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<tr>
<td>8</td>
<td>DIMENSION COLNAME4(COLDES12)</td>
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<tr>
<td>9</td>
<td>DIMENSION COLVAR36</td>
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</tr>
<tr>
<td>10</td>
<td>DIMENSION XTR(2,3)</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>CHARACTER YES4,YYES4</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>DATA YES /*YES */</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>C DETERMINE OVERALL CONDITIONS</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>10 CALL SELECTNAM,ICASE,ITABNO,NTABLE</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>C READ IN SHEET DATA</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>20 CALL SHEET(ISHEET,DAT,SYSNAM,NTABLE)</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>IF(NTABLE GT 0) GO TO 30</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>C DETERMINE OPTIONAL DATA</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>30 CALL ODATA(DRAWN,ENGR,APPR)</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>C READ IN COLUMN DATA</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>32 CALL FileNAM,ICASE,ITABNO,DRAWN,ENGR,APPR,YES4,YYES4,NTABLE</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>C STORE COLUMN DATA</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>40 FORMAT(5X,'ANSWER YES TO INPUT MORE COLUMN DATA')</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>40 READ(JIN,102,ERR=101) YYES</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>50 FORMAT(44)</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>IF(YYES EQ YES) GO TO 30</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>WRITE(JOUT,110)</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>60 FORMAT(5X,'ANSWER YES TO INPUT MORE SHEET DATA')</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>70 READ(JIN,102,ERR=111) YYES</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>80 FORMAT(44)</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>IF(YYES EQ YES) GO TO 20</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>WRITE(JOUT,120)</td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>90 FORMAT(5X,'ANSWER YES TO INPUT NEW FACILITY NAME/ICASE/NTABLE')</td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>100 READ(JIN,102,ERR=121) YYES</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>110 IF(YYES EQ YES) GO TO 10</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>RETURN</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>END</td>
<td></td>
</tr>
</tbody>
</table>

END FTN 60 IBANK 272 DDANK 2 COMMON
SUBROUTINE DELETE

COMMON /IOUT/, JOUT, JIN
COMMON /TLIMIT/, NAME, COLN, CHAIN
CHARACTER TNAME(*), NAME(1:2), BLANK(
INTEGER TCASE, TTABLE, TSHEET
COMMON /NAME/, TNAME(*), NPI(4)
COMMON /TCASE/, TCASE(16)
COMMON /TTABLE/, TTABLE(32)
COMMON /TSHEET/, TSHEET(16, 32)
DIMENSION IPIR(9, 2)
CHARACTER COLNAM(42)
CHARACTER SYSSNAME(21), DRAWN(4), ENGREN(4), APPREN(4), DATE(42)
CHARACTER YES(9, 9)
DATA BLANK/* */
DATA YES/* YES */
WRITE(JOUT, 10)
FORMAT(*)
C' 1 - DELETE ENTIRE FACILITY'
C' 2 - DELETE ENTIRE CASE'
C' 3 - DELETE ENTIRE TABLE'
C' 4 - DELETE ENTIRE SHEET'
C' 5 - DELETE ENTIRE COLUMN'
C' RETURN TO CONTINUE'
WRITE(JOUT, 14)
FORMAT(5X, 'WRITE CHANGE TYPE IN II FORMAT')
READ(JIN, 16, ERR=1610P)
FORMAT(11)
IF(IOP.GT.5)GO TO 12
IF(IOP.EQ.0)GO TO 140
C
FACILITY NAME
WRITE(JOUT, 22)
FORMAT(5X, 'WRITE FACILITY NAME IN AB Format')
READ(JIN, 24, ERR=231)NAM
FORMAT(2A4)
DO 26 I=1, NNAME
IF(NAME(I).NE.TNAME(1, I))GO TO 26
IF(NAME(I).NE.TNAME(2, I))GO TO 26
GO TO 28
CONTINUE
GO TO 20
C
REMOVE NAME AND UPDATE ALL POINTERS
IF(IOP.GT.1)GO TO 40
TNAME(1, I)=BLANK
TNAME(2, I)=BLANK
IP=NPI(1)
NPIR(I)=1
I=1
10=TCASE(IP+1)
TCASE(I-1+1)=0
J=1
K=1
10=TTABLE(IP+1)
TTABLE(10-1+J)=0
K=1
IS=TSHEET(K, IR)
IF(IS.EQ.0)GO TO 39
DEMO

DELETE

TSHEET(K,IR)=0

READ(I6*15)IPTR,SYNAME,DRAWN,ENGR,APPRT,DATE

IF (IR.GT.1) IPTR(IR,1)=0

L=1

IF (L.LT.9) GO TO 38

WRITE(I6*15)IPTR,SYNAME,DRAWN,ENGR,APPRT,DATE

WRITE(I6,900115,IPTR)

K=K+1

IF (K.LT.16) GO TO 36

J=J+1

IF (J.LT.2) GO TO 34

I=I+1

IF (I.LT.4) GO TO 32

IF (IOP.NE.4) GO TO 204

WRITE(JOUT,200)

200 FORMAT (5X,'ANSWER YES TO DELETE MORE SHEETS')

READ(JIN,202) YES

202 FORMAT (A4)

IF (YES.EQ.'YES') GO TO 80

GO TO 8

IF (IOP.NE.3) GO TO 208

WRITE(JOUT,206)

206 FORMAT (5X,'ANSWER YES TO DELETE MORE TABLES')

READ(JIN,202) YES

IF (YES.EQ.'YES') GO TO 60

GO TO 8

IF (IOP.NE.2) GO TO 8

WRITE(JOUT,210)

210 FORMAT (5X,'ANSWER YES TO DELETE MORE CASES')

READ(JIN,202) YES

IF (YES.EQ.'YES') GO TO 40

GO TO 8

C

42 FORMAT(5X,'WRITE CASE NUMBER IN II FORMAT')

43 READ(JIN,16,ERR=53)ICASE

NCASE=NPTR(I1)-1+ICASE

10: TCASE=NCASE

IF (I.EQ.0) GO TO 40

IF (I.OP.GT.16) GO TO 60

I CASE=NCASE+10

I=4

GO TO 33

C

62 FORMAT(5X,'WRITE TABLE NUMBER IN II FORMAT')

63 READ(JIN,16,ERR=63)ITABNO

NTABNO=IQ-1+ITABNO

IR=TABLE(NTABNO)

IF (IR.EQ.0) GO TO 60

IF (IOP.GT.16) GO TO 80

TABLE(NTABNO)=0

I=4
DELETE

J=2
GO TO 35

C REMOVED SHEET AND UPDATE ALL POINTERS

80 WRITE(JOUT,82)
82 FORMAT(IS,WRITE SHEET NUMBER IN I2 FORMAT WITH LEADING ZEROS)
83 READ(JIN,84,ERR=831)SHEET
84 FORMAT(I2)
85 IF(SHEET.EQ.0)GO TO 80
86 IF(IOP.GT.4)GO TO 100
87 IF(SHEET.EQ.0)GO TO 100
88 READ(I6*IS)IPTR,SYSNAM,DRAWN,ENGR,APPR,DATE
89 J=2
90 K=16
GO TO 37

C REMOVED COLUMN AND UPDATE POINTERS

100 READ(I6*IS)IPTR,SYSNAM,DRAWN,ENGR,APPR,DATE
101 DO 110 M=1,9
102 J=IPTR(M,1)
103 IF(J.IEQ.0)GO TO 110
104 READ(I20*J)COLNAM
105 WRITE(JOUT,106)M,COLNAM
106 FORMAT(I5,2A4)
107 110 CONTINUE
110 WRITE(JOUT,114)
114 FORMAT(IS,*WRITE NUMBER OF THE COLUMN TO BE DELETED*)
115 C USING II FORMAT*)
116 READ(JIN,16,ERR=115)IX
117 IF(IX.EQ.0)GO TO 120
118 IPTR(IX,1:0)
119 WRITE(JOUT,116)
120 FORMAT(IS,*ANSWER YES TO DELETE MORE COLUMNS*)
121 READ(JIN,202)YES
122 IF(YES.EQ.0)GO TO 112
123 120 WRITE(I6*IS)IPTR,SYSNAM,DRAWN,ENGR,APPR,DATE
124 WRITE(6,900)IS,IPTR
125 900 FORMAT(I5,**",2(I5))
126 GO TO 8
127 WRITE(14*1)NNAME,ICOLM,ICHAIN,
128 X TNAM,NPTR,TCASE,TTABLE,TSHEET
129 RETURN
130 END

@HODG, EDIT
CALL CNAME(COLNM, MULT)
57.        IPTR(IP, 2) = MULT
58.        ICOL = 0
59.        IP = 2
60.        CALL CHECK (COLNM, ISHEET, NTABLE, ICOL, IP)
61.        CALL COLUMN(COLDES, COLVAR, CXTR, XTR)
62.        IF (ICOL NE 0) J3 = ICOL
63.        IF (MULT, EQ, 1) GO TO 56
64.        DO 50 I = 1, 30
65.        DO 52 I = 1, 3
66.        50 COLVAR(I) = COLVAR(I) / MULT
67.        52 XTR(2, I) = XTR(2, I) / MULT
68.        56 WRITE (10, J1) COLNM, COLDES, COLVAR, CXTR, XTR
69.        58 J3 = ISHEET(ISHEET, NTABLE)
70.        WRITE (16, J3) IPTR, SYSNAM, DRAWN, ENGR, APPR, DATE
71.        GO TO 42
72.        60 WRITE (JOUT, 62)
73.        62 FORMAT (5X, 'ANSWER YES TO EDIT MORE SHEET DATE')
74.        63 READ (JIN, 64, ERR = 63) YES
75.        64 FORMAT (A4)
76.        IF (YES, EQ, YES) GO TO 20
77.        WRITE (JOUT, 72)
78.        72 FORMAT (5X, 'ANSWER YES TO EDIT NEW FACILITY NAME/CASE/ITABLE')
79.        73 READ (JIN, 64, ERR = 73) YES
80.        IF (YES, EQ, YES) GO TO 2
81. RETURN
82. END

END FTN 195 I8ANK 355 DBANK 577 COMMON

*HDG.P FILE
FILE

SUBROUTINE FILE (NAM, ICASE, I TABNO, DRAW, ENGR, APPR, ISHEET, NTABLE, 1)
COMMON /IOUT/ JOUT, JIN
COMMON /NAM**/ NAM(2), ICASE(2), DRAW(4), ENGR(4), APPR(4)
COMMON /DATE, SYNAM, COLNAME, COLDES, COLVAR, CTXT, ICT, ICOL, MULT)
COMMON /ICLIMT/ NAME, ICOLM, JCHAIN, JCM, JCHAIN
INTEGER TNAME**
COMMON /TNAM/ TNAME(2,4), NPT(n)
COMMON /TCASE/ TCASE(16)
COMMON /ITABLE/ ITABLE(102)
COMMON /ITABLE/ ITABLE(16, 32)
DIMENSION IPR(9, 2), JPR(4, 2)
DIMENSION XTR(2, 3)
CHARACTER EXTR**
IF (NNAME .EQ. 0) GO TO 100
C ADD SECOND AND SUBSEQUENT ENTRIES
DO 4 I = 1, NNAME
IF (NAME(1) .NE. NNAME(1, I)) GO TO 4
IF (NAME(2) .NE. NNAME(2, I)) GO TO 4
GO TO 6
C CONTINUE
C TREAT AS A NEW NAME IF NO MATCH WITH EXISTING NAME
GO TO 100
C CHECK FOR MATCHING CASE
IF (TCASE(NAME) .EQ. I) GO TO 110
NTABLE = TCASE(NAME) * I TABNO - 1
C CHECK FOR MATCHING TABLE
IF (ITABLE(NAME) .EQ. 0) GO TO 120
GO TO 124
C CREATE FIRST RECORDS
100 DO 104 I = 1, NNAME
IF (NPR(1) .LE. 0) GO TO 106
104 CONTINUE
106 TNAME(1, I) = NNAME(1)
TNAME(2, I) = NNAME(2)
IF (NPR(1) .EQ. 0) NNAME = NNAME + 1
NPR(1) = NPR(1) - 1
110 INPR = NPR(1)
NCASE = INPR + ICASE - 1
TCASE = TNAME(I) = TNAME(1, I) + 1
IPTR = TCASE(1)
NTABLE = ITABLE(I) - TABELNO - 1
C SEARCH FOR ALREADY EXISTING MATCH FOR COLUMN NAME
120 TTABLE = I TABLE(1)
C CONTINUE
124 J K = 0
DO 126 L = 1, 9
DO 126 K = 1, 2
JPR(I), K = 0
126 CONTINUE
128 K = 1, 2
2 56. 126 IPTR(JK,1)=1
57. J3=J3+1
58. IF (J3.EQ.0) GO TO 135
59. READ(16,J3)IPTR,SYRNAME,DRWAM,ENGR,APPR,DATE
60. C NEW COLUMN ONLY
61. 135 GO 136 L=1,9
1 62. DO 136 K=1,2
2 63. 136 IPTR(L,K)=IPTR(L,1)
4 64. DO 138 L=1,9
1 65. IF (IPTR(L,1).GT.0)GO TO 138
1 66. JK=1
1 67. GO TO 140
1 68. 138 CONTINUE
1 69. GO TO 140
1 70. C ADJUST MULTIPLIER COLUMN
1 71. 140 IF (MULT.EQ.1,OR,ICOL.NE.0) GO TO 148
72. DO 141 I=1,30
1 73. 141 COLVAR(I)=COLVAR(I)/MULT
74. IXX=COLVAR(15)
75. DO 144 I=1,IXX
1 76. 144 XTR(I,1)=XTR(I,1)/MULT
1 77. C WRITE NEW COLUMN DATA
1 78. 148 IF (ICOL.NE.0) GO TO 145
79. JCOLM=160+INTABLE-1+10*(ISHEET-1)*JN
80. J1=JCOLM
81. GO TO 149
82. 145 JCOLM=ICOL
83. J1=JCOLM
84. GO TO 142
85. 149 WRITE (20,JCOLM)SYRNAME,COLED,COVAR,CXTR,XTR
86. 142 IPTR(JK,1)=1
87. IPTR(JK,2)=MULT
88. C UPDATE CHAIN OF COLUMN POINTERS
89. 150 IF (JK.EQ.1) THEN
1 90. JCHAIN=16+INTABLE-1+ISHEET
1 91. J3=JCHAIN
1 92. WRITE(16,JCHAIN)IPTR,SYRNAME,DRWAM,ENGR,APPR,DATE
1 93. TSHEET=ISHEET,INTABLE=J3
1 94. GO TO 200
1 95. ELSE
1 96. J3=TSHEET(ISHEET,INTABLE)
1 97. WRITE(16,J3)IPTR,SYRNAME,DRWAM,ENGR,APPR,DATE
1 98. GO TO 200
1 99. END IF
1 100. C PRINT WARNING MESSAGE
1 101. 160 WRITE(JOUT,162)
1 102. 162 FORMAT(5X,*** ALL COLUMNS FILLED FOR THIS SHEET ***)
1 103. GO TO 200
1 104. C RETURN TO MENU LIST
1 105. 200 CONTINUE
1 106. WRITE(14,111)INNAME,ICOLM,JCHAIN,INNAME,NPTR,TCASE,INTABLE,TSHEET
1 107. WRITE(16,602)IPTR
1 108. 602 FORMAT(9I5)
1 109. WRITE(16,302) (TSHEET(I,INTABLE),I=1,161,ISHEET,INTABLE
1 110. 302 FORMAT(16f5.0)
1 111. RETURN
1 112. END
SEVIGNBINZD08*CGS(1), GETON

1  @ASG,A 14.
2  @ASG,A 16.
3  @ASG,A 20.
4  @FREE TPFS.
5  @USE TPFS,,CGS.

@HDG,P  INIT
SUBROUTINE INIT(IER)
COMMON /TLIMIT/ NNAME,ICOLM,ICHAIN
COMMON /NAME/ TNAME
COMMON /TCASE/ TTSHEET
COMMON /TCASE/ TTSHEET(4)
COMMON /TNAME/ TNAME(2,4),NPTR(4)
COMMON /ITABLE/ TTSHEET(16)
COMMON /ITABLE/ TTSHEET(16)
COMMON /TSHEET/ TSHEET(16,32)
COMMON /TSHEET/ TSHEET(16,32)
IER=0
DEFINE FILE 14(1,575,U,LJDATA)
DEFINE FILE 16(512,52,U,CHAIN)
DEFINE FILE 20(5120,74,U,ICOLM)
FIND(14*1)
READ(14,IER=100) NNAME,ICOLM,ICHAIN,TNAME,NPTR,
TCASE,ITABLE,TSHEET
WRITE (6,9000) NNAME,TNAME,NPTR,TCASE,ITABLE,TSHEET
9000 FORMAT (15/I,9(2A4)/414/1615/211615/1/32(1615/))
RETURN
100 IER=1
RETURN
END
BEGIN MAIN
  1. C CREATE
  2. C COAL GASIFICATION
  3. C STREAM AND UTILITY TABLE
  4. C COMMON /IOUT/ JOUT, JIN, JTABLE
  5. C DATA JTABLE /4/, JIN/5/, JOUT/6/
  6. C IOPSO
  7. C INITIALIZE POINTER TABLES
  8. C CALL INITIER
  9. C IF(IER .NE. 0) THEN
  10. C WRITE(JOUT, 2)
  11. C FORMAT('ERROR IN BASIC POINTER TABLES')
  12. C ELSE
  13. C CONTINUE
  14. C END IF
  15. C SELECT FROM MENU
  16. C 20 CALL MENU
  17. C 1000 CALL TIDYIUP
  18. C STOP
  19. C END

END MAIN

END FTN 17 IBANK 19 DBANK 3 COMMON

@PRN, S MAP
FURPUR 28R1H1 E36 S74T11 01/14/81 08:54:07

@PRN, S MAP
<table>
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<th>MAP</th>
<th>DATE 011481</th>
<th>PAGE 1</th>
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<td>SEVIGNBIN208*CGS(1).MAP</td>
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<td></td>
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<tr>
<td>1  @PACK CGS.</td>
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<tr>
<td>2  @PREP CGS.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3  @MAP,1 CGS.XMAP,CGS.XOT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4  LIB SYS**MSFCQ.</td>
<td></td>
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<td>5  a</td>
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<td></td>
</tr>
<tr>
<td>@HDG,P</td>
<td>MENU</td>
<td></td>
</tr>
</tbody>
</table>
      SUBROUTINE MENU
  2.      COMMON /JOUT/,JOUT,JIN,JTABLE
  3.      WRITE(JOUT,10)
  4.      10 FORMAT(10X,'STREAM AND UTILITY TABLE MENU''/
  5.      WRITE(JOUT,14)
  6.      14 FORMAT('1 - DEFINE NEW TABLE''/
  7.      WRITE(JOUT,18)
  8.      18 FORMAT('2 - REVISE EXISTING TABLE''/
  9.      WRITE(JOUT,22)
 10.      22 FORMAT('3 - DELETE EXISTING TABLE''/
 11.      WRITE(JOUT,26)
 12.      26 FORMAT('4 - PRINT SELECTED TABLE''/
 13.      WRITE(JOUT,30)
 14.      30 FORMAT('5 - SAVE REVISION''/
 15.      WRITE(JOUT,34)
 16.      34 FORMAT(5X,'PRESS RETURN TO EXIT''/
 17.      WRITE(JOUT,38)
 18.      38 FORMAT(5X,'INPUT-CHOICE IN 1-5 FORMAT''/
 19.      40 READ (JIN,N2,ERR=40) IND
 20.      42 FORMAT(11)
 21.      IF (IND.GT.5) GO TO 100
 22.      IF(IND.EQ.0) GO TO 1000
 23.      GO TO (100,200,300,400,500),IND
 24.      C DEFINE (AUD) NEW TABLES
 25.      100 CALL DEFINE
 26.      GO TO 2
 27.      C EDIT EXISTING TABLE
 28.      200 CALL EDIT
 29.      IUP=1
 30.      GO TO 2
 31.      C DELETE EXISTING TABLE
 32.      300 CALL DELETE
 33.      IUP=1
 34.      GO TO 2
 35.      C PRINT SELECTED TABLE
 36.      400 CALL SELECT
 37.      GO TO 2
 38.      500 GO TO 2
 39.      C SAVE REVISIONS
 40.      C 500 IUP=1
 41.      C GO TO 2
 42.      C
 43.      1000 RETURN
 44.      END

END FIN 71 IBANK 120 DBANK 3 COMMON

AMDGP OPDATA

APRT,S OPDATA
FURPUR 2BR111 E36 ST4111 01/14/81 08:59:11
SUBROUTINE OPDATA(DRAWN, ENGR, APPR)

CHARACTER DRAWN*4, ENGR*4, APPR*4

DIMENSION DRAWN(1), ENGR(1), APPR(1)

COMMON /JOUT/JOUT, JIN

CHARACTER YES*4, YYES*4, BLANK*4

DATA YYES/*YES ' ', BLANK/* /

DO 2 I=1,4

DRAWN(I)=BLANK

ENGR(I)=BLANK

APPR(I)=BLANK

2 CONTINUE

WRITE(JOUT,10)

10 FORMAT(5X, 'ANSWER YES IF OPTIONAL DATA IS TO BE ENTERED'

11 READ(JIN,12,ERR=11) YES

12 FORMAT(4H)

13 IF (YES .EQ. YYES) THEN

14 WRITE(JOUT,20)

20 FORMAT(5X, 'WRITE **DRAWN BY** NAME IN A16 FORMAT'

21 READ(JIN,22,ERR=21) DRAWN

22 FORMAT(4H)

23 WRITE(JOUT,30)

30 FORMAT(5X, 'WRITE **ENGR** NAME IN A16 FORMAT'

31 READ(JIN,22,ERR=31) ENGR

32 WRITE(JOUT,40)

40 FORMAT(5X, 'WRITE **APPROVED BY** NAME IN A16 FORMAT'

41 READ(JIN,22,ERR=41) APPR

ELSE

CONTINUE

END IF

RETURN

END
```
55    FORMAT ('**SYSTEM**',X,*X,4X,**'**')
56    FORMAT ('**FACILITY**:*X,5X,**'**')
57    FORMAT ('**DATE**:*X,**'**')
58    FORMAT ('**RACK**:*X,**'**')
59    FORMAT ('**CASE**:*X,**'**')
60    FORMAT ('**RUN**:*X,**'**')
61    FORMAT ('**DESCRIPTION**:*X,**'**')
62    FORMAT ('**PROCESS**:*X,**'**')
63    FORMAT ('**COMMENTS**:*X,**'**')
64    FORMAT ('**D2**:*X,**'**')
65    FORMAT ('**D3**:*X,**'**')
66    FORMAT ('**D4**:*X,**'**')
67    FORMAT ('**D5**:*X,**'**')
68    FORMAT ('**D6**:*X,**'**')
69    FORMAT ('**D7**:*X,**'**')
70    FORMAT ('**D8**:*X,**'**')
71    FORMAT ('**D9**:*X,**'**')
72    FORMAT ('**D10**:*X,**'**')
73    FORMAT ('**D11**:*X,**'**')
74    FORMAT ('**D12**:*X,**'**')
75    FORMAT ('**D13**:*X,**'**')
76    FORMAT ('**D14**:*X,**'**')
77    FORMAT ('**D15**:*X,**'**')
78    FORMAT ('**D16**:*X,**'**')
79    FORMAT ('**D17**:*X,**'**')
80    FORMAT ('**D18**:*X,**'**')
81    FORMAT ('**D19**:*X,**'**')
82    FORMAT ('**D20**:*X,**'**')
83    FORMAT ('**D21**:*X,**'**')
84    FORMAT ('**D22**:*X,**'**')
85    FORMAT ('**D23**:*X,**'**')
86    FORMAT ('**D24**:*X,**'**')
87    FORMAT ('**D25**:*X,**'**')
88    FORMAT ('**D26**:*X,**'**')
89    FORMAT ('**D27**:*X,**'**')
90    FORMAT ('**D28**:*X,**'**')
91    FORMAT ('**D29**:*X,**'**')
92    FORMAT ('**D30**:*X,**'**')
93    FORMAT ('**D31**:*X,**'**')
94    FORMAT ('**D32**:*X,**'**')
95    FORMAT ('**D33**:*X,**'**')
96    FORMAT ('**D34**:*X,**'**')
97    FORMAT ('**D35**:*X,**'**')
98    FORMAT ('**D36**:*X,**'**')
99    FORMAT ('**D37**:*X,**'**')
100   FORMAT ('**D38**:*X,**'**')
101   FORMAT ('**D39**:*X,**'**')
102   FORMAT ('**D40**:*X,**'**')
103   FORMAT ('**D41**:*X,**'**')
104   FORMAT ('**D42**:*X,**'**')
105   FORMAT ('**D43**:*X,**'**')
106   FORMAT ('**D44**:*X,**'**')
107   FORMAT ('**D45**:*X,**'**')
108   FORMAT ('**D46**:*X,**'**')
109   FORMAT ('**D47**:*X,**'**')
110   FORMAT ('**D48**:*X,**'**')
111   FORMAT ('**D49**:*X,**'**')
112   FORMAT ('**D50**:*X,**'**')
```

**Note:** The text appears to be a segment of a programming code, likely for a simulation or scientific analysis, involving variables and data manipulation. The context and full code would require a deeper understanding of the specific application.
170. 130 FORMAT(I4, "METHANE")
171. WRITE(IOUT, 140) (ACOLVRK(J), J=1, M)
172. 140 FORMAT(I4, "NITROGEN")
173. WRITE(IOUT, 150) (ACOLVRK(J), J=1, M)
174. 150 FORMAT(I4, "OXYGEN")
175. WRITE(IOUT, 160) (ACOLVRK(J), J=1, M)
176. 160 FORMAT(I4, "ARGON")
177. WRITE(IOUT, 170) (ACOLVRK(J), J=1, M)
178. 170 FORMAT(I4, "HYDROGEN SULFIDE")
179. WRITE(IOUT, 180) (ACOLVRK(J), J=1, M)
180. 180 FORMAT(I4, "CARBONYL SULFIDE")
181. WRITE(IOUT, 190) (ACOLVRK(J), J=1, M)
182. 190 FORMAT(I4, "CARBON DISULFIDE")
183. WRITE(IOUT, 200) (ACOLVRK(J), J=1, M)
184. 200 FORMAT(I4, "SULFUR DIOXIDE")
185. WRITE(IOUT, 210) (ACOLVRK(J), J=1, M)
186. 210 FORMAT(I4, "AMMONIA")
187. WRITE(IOUT, 220) (ACOLVRK(J), J=1, M)
188. 220 FORMAT(I4, "HYDROGEN CYANIDE")
189. WRITE(IOUT, 230) (ACOLVRK(J), J=1, M)
190. 230 FORMAT(I4, "HYDROGEN CHLORIDE")
191. WRITE(IOUT, 240) (ACOLVRK(J), J=1, M)
192. 240 FORMAT(I4, "NITROUS OXIDE")
193. WRITE(IOUT, 250) (ACOLVRK(J), J=1, M)
194. 250 FORMAT(I4, "CHLORINE")
195. WRITE(IOUT, 260) (ACOLVRK(J), J=1, M)
196. 260 FORMAT(I4, "ETHYLENE")
197. WRITE(IOUT, 270) (ACOLVRK(J), J=1, M)
198. 270 FORMAT(I4, "ETHANE")
199. WRITE(IOUT, 280) (ACOLVRK(J), J=1, M)
200. 280 FORMAT(I4, "PROPYLENE")
201. WRITE(IOUT, 290) (ACOLVRK(J), J=1, M)
202. 290 FORMAT(I4, "PROPANE")
203. WRITE(IOUT, 300) (ACOLVRK(J), J=1, M)
204. 300 FORMAT(I4, "SULFUR")
205. 300 CONTINUE
206. JMAX=0
207. DO 1310 J=1, M
208. IXX=COLVAR(J, 1)
209. IF (IXX.EQ.0) GO TO 1310
210. IF (IXX.GT.JMAX) JMAX=IXX
211. K-IXX
212. XTR2(K,J)=XTR2(K,J)*PR(1,J)
213. ENCODE(62, DUM) XTR2(K,J)
214. SUBSTR(XTR2(K,J), 1, 4)=SUBSTR(DUM, 1, 4)
215. SUBSTR(XTR2(K,J), 1, 4)=SUBSTR(DUM, 1, 4)
216. SUBSTR(XTR2(K,J), 1, 4)=SUBSTR(DUM, 1, 4)
217. SUBSTR(XTR2(K,J,K), 1, 4)=SUBSTR(DUM, 1, 4)
218. 1310 CONTINUE
219. IF (JMAX.EQ.0) GO TO 308
220. DO 1320 I=1, JMAX
221. DO 1314 J=1, M
222. IF (IXTR(I,J).NE.BLANK) GO TO 1316
223. 1314 CONTINUE
224. 1316 CONTINUE
225. WRITE (OUT, 111) (IXTR(K), K=1, 6), XTR1(I, 1, 1)
226. X (IXTR(K), K=1, 1, J=1, M)
OUTPU T

1 227. 1312 FORMAT (1X,4AN,2X,2AN,F5.2,1X,9(2AN,A3))
1 228. 1320 CONTINUE
1 229. 308 1X=3-JMAX
1 230. DO 1322 I=1,I
1 231. WRITE (JOUT,1324)
1 232. 1324 FORMAT ("")
1 233. 1322 CONTINUE
234. WRITE (JOUT,310) (ACOLVRK(J,241),J=1,31),J=1,10FNUM
235. WRITE (JOUT,320) (ACOLVRK(J,231),K=1,31),J=1,10FNUM
236. FORMAT (1X, 4AN, 2X, 2AN, F5.2, 1X, 9(2AN, A3))
237. 320 FORMAT (1X, 'WATER', 1X, 10F2.0, 1X, 9(2AN, A3))
238. WRITE (JOUT,330) (ACOLVRK(K,241),K=1,31),J=1,10FNUM
239. 330 FORMAT(5X, 10F2.0, 1X, 9(2AN, A3))
240. WRITE (JOUT,326)
241. 326 FORMAT(3X)
242. 324 FORMAT(1X, 'TOTAL WET', 1X, 9(2AN, A3))
243. 323 CONTINUE
244. WRITE (JOUT,340) (ACOLVRK(J,251),K=1,31),J=1,10FNUM
245. 340 FORMAT(5X, 10F2.0, 1X, 9(2AN, A3))
246. WRITE (JOUT,350) (ACOLVRK(J,261),K=1,31),J=1,10FNUM
247. 350 FORMAT(1X, 'CARBON', 1X, 9(2AN, A3))
248. WRITE (JOUT,360) (ACOLVRK(J,271),K=1,31),J=1,10FNUM
249. 360 FORMAT(1X, 'ASH', 1X, 9(2AN, A3))
250. WRITE (JOUT,365) (ACOLVRK(J,281),K=1,31),J=1,10FNUM
251. 365 FORMAT(1X, 'TEMPERATURE', 1X, 10F2.0, 1X, 9(2AN, A3))
252. WRITE (JOUT,370) (ACOLVRK(J,291),K=1,31),J=1,10FNUM
253. 370 FORMAT(1X, 'PRESSURE', 1X, 10F2.0, 1X, 9(2AN, A3))
254. WRITE (JOUT,380) (ACOLVRK(J,301),K=1,31),J=1,10FNUM
255. 380 FORMAT(1X, 'SOLID', 1X, 10F2.0, 1X, 9(2AN, A3))
256. WRITE (JOUT,390) (ACOLVRK(J,311),K=1,31),J=1,10FNUM
257. 390 FORMAT(1X, 'POWER', 1X, 10F2.0, 1X, 9(2AN, A3))
258. 400 FORMAT(1X, 'POWER', 1X, 10F2.0, 1X, 9(2AN, A3))
259. 410 FORMAT(1X, 'GAS/LIQUID', 1X, 10F2.0, 1X, 9(2AN, A3))
260. WRITE (JOUT,410) (ACOLVRK(J,331),K=1,31),J=1,10FNUM
261. 420 FORMAT(1X, 'MOLE WEIGHT', 1X, 10F2.0, 1X, 9(2AN, A3))
262. WRITE (JOUT,430) (ACOLVRK(J,341),K=1,31),J=1,10FNUM
263. 430 FORMAT(1X, 'GAS/LIQUID', 1X, 10F2.0, 1X, 9(2AN, A3))
264. CONTINUE
265. 500 IF (IALL .EQ. 0) GO TO 520
266. IF (ISHEET=ISHEET+1)
267. IF (ISHEET,GT,16) GO TO 520
268. GO TO 16
269. 520 RETURN
270. END

END FIN 914 IBANK 3896 DBANK 575 COMMON

APRT5 PSELECT

APRT5 PSELECT

APRT5 PSELECT

APRT5 PSELECT
SUBROUTINE PSELET
COMMON /JOUT,JOUT,FIN
CHARACTER NAM(4)
DIMENSION NAM(2)
CHARACTER YES,N,N
DATA YES/'YES' /
C DETERMINE OVERALL TABLE
2 CALL SELECT(NAM,ICASE,ITABNO)
C SELECT ONE SHEET OR ALL SHEETS
4 CALL SHNUM(ISHEET)
IER=0
CALL OUTPUT(NAM,ICASE,ITABNO,ISHEET,IER)
IF(IER .EQ. 11) GO TO 2
WRITE(JOUT,10)
10 FORMAT('ANSWER YES TO PRINT MORE INDIVIDUAL SHEETS')
11 READ(JIN,12,ERR=11)YES
12 FORMAT(4)
IF(YES.EQ.YES)GO TO 4
WRITE(JOUT,20)
20 FORMAT(5X,'ANSWER YES TO PROCESS MORE TABLES')
21 READ(JIN,12,ERR=21)YES
22 IF(YES.EQ.YES) GO TO 2
RETURN
END
SUBROUTINE SELECT(NAM, ICASE, ITABNO, LTABLE)
COMMON /JOUT/ JOUT, JIN
COMMON /LIMIT/NNAME
CHARACTER TNAME(4)
INTEGER ICASE, ITABLE
COMMON /NAME/TNAME(2, 41), NPTR(4)
COMMON /ICASE/TABLE(16)
COMMON /ITABLE/TABLE(32)
CHARACTER NAME(4)
DIMENSION NAM(2)
WRITE(JOUT, 10)
10 FORMAT(5X, 'WRITE FACILITY NAME IN A8 FORMAT')
11 READ(JIN), 12, ERR=11) NAM
12 FORMAT(24X)
13 WRITE(JOUT, 20)
16 FORMAT(5X, 'WRITE CASE NUMBER IN I1 FORMAT')
17 READ(JIN), 22, ERR=21) ICASE
18 FORMAT(111)
19 WRITE(JOUT, 30)
20 FORMAT(5X, 'WRITE TABLE NUMBER IN I1 FORMAT')
21 READ(JIN), 32, ERR=31) ITABNO
22 FORMAT(111)
23 LTABLE=0
24 IF(INAME .EQ. 0) RETURN
25 DO 36 I=1, NNAME
26 IF(INAM(I).NE.TNAME(1, I)) GO TO 36
27 IF(INAM(I).NE.TNAME(2, I)) GO TO 36
28 GO TO 38
29 CONTINUE
30 RETURN
31 NCASE=NPTR(I)-1+ICASE
32 IF(ICASE(NCASE), EQ. 0) RETURN
33 NTABLE=CASE+CASE(1)-1+ITABNO
34 IF(TABLE(NTABLE), EQ. 0) RETURN
35 LTABLE=NTABLE
36 RETURN
37 END
SUBROUTINE SHEET(ISHEET, DATE, SYSNAME, NTABLE)

INTEGER ISHEET
COMMON /TSHEET/TSHEET(16,32)
COMMON /OUT/JOUT, JIN
CHARACTER SYSNAME(4), DATE(4)
DIMENSION SYSNAME(20), DATE(2)

WRITE(JOUT,10)
10 FORMAT(5X,'WRITE SHEET NUMBER IN 12 FORMAT WITH LEADING ZEROS')
11 READ(JIN,12,ERR=11) ISHEET
12 FORMAT(12)
11 IF(SYSNAME(1:4),EQ.,0) GO TO 14
12 IF(ISHEET(ISHEET, NTABLE),EQ.,0) THEN
13 NTABLE=-NTABLE
14 ELSE
15 RETURN
16 END IF
17 WRITE(JOUT, 20)
20 FORMAT(5X,'WRITE DATE IN FORMAT MM/DD/YY')
21 READ(JIN, 22, ERR=21) DATE
22 FORMAT(2A4)
21 WRITE(JOUT, 30)
30 FORMAT(5X,'WRITE SYSTEM LABEL IN 476 FORMAT WITHIN THE LIMITS')
31 READ(JIN, 32, ERR=31) (SYSNAME(I),I=1;19)
32 FORMAT(19A4)
26 SYSNAME(20)=*
27 RETURN
28 END

END FTN 72 IBANK 137 DBANK 514 COMMON

BNDG,P SHTNUM

BPRT,5 SHTNUM
FUPPUR 26R1H1 E36 SHT11 01/14/81 08:54:31
SUBROUTINE SHTNUM(ISHEET)
   COMMON /IOUT/ JOUT, JIN
   WRITE(JOUT,10)
   10 FORMAT(5X,'WRITE SHEET(1-16) NUMBER TO BE PRINTED IN 12 FORMAT',\
      L, USING LEADING ZEROS',/\n      1X,'USE 99 IF ALL SHEETS ARE REQUIRED')
   READ(JIN,12,ERR=11) ISHEET
   12 FORMAT(12)
   RETURN
END

8H05P UPDATE

8PRT.S UPDATE
FURPUR 20R1H1 E36 57471 01/19/81 08:54:32
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@MDG,P XMAP

@PR1,S XMAP
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APPENDIX A

DOCUMENTATION CHECKLIST
# DOCUMENTATION CHECKLIST

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<td>(d) Card Punch</td>
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<tr>
<td>(f) Drum/Disc</td>
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<td>(g) Other</td>
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<td>(3) Operator Instruction Card</td>
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</table>
(4) Magnetic Tape Save Labels
(5) Computer Time Requirements

b. Input
(1) Cards
(2) Magnetic Tapes
(3) Drum/Disc
(4) Other

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c. Output
(1) Cards
(2) Magnetic Tapes
(3) Drum/Disc
(4) Printout
(5) Plots
(6) Other

d. Restrictions and/or Limitations

e. Diagnostics

f. Test Case

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9. Symbols

10. References

11. Appendices
   a. Documentation Checklist
   b. Documentation Approval
   c. Other

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A-3
APPENDIX B

DOCUMENTATION APPROVAL
DOCUMENTATION APPROVAL

Documentation Prepared By:

Kathy Hiles
Name (Typed)
MTSB
Title
CSC 453 0918
Organization and Telephone No.
5-22-81
Date

Documentation Approved By:
(Supervisor of Person Preparing Documentation)

Dave Johnson
Name (Typed)
Section Manager
Title
CSC 453-0620
Organization and Telephone No.
5-26-81
Date

Documentation Approved By:
Huntsville Computer Complex
(Project Officer or Monitor)

Van McAuley
Name (Typed)
Mathematician
Title
AU 32 453-2254
Organization Telephone No.
5-28-81
Date