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CENTRAL DATA PROCESSING SYSTEM (CDPS) USERS MANUAL -
SOLAR HEATING AND COOLING PROGRAM

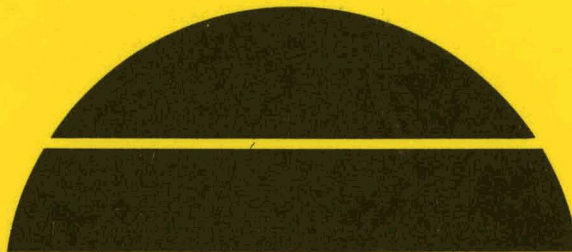
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For the U. S. Department of Energy



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Solar Energy

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16. ABSTRACT <p>The Central Data Processing System (CDPS) provides the software and data base management system required to assess the performance of solar heating and cooling systems installed at multiple remote sites. The instrumentation data associated with these systems is collected, processed, and presented in a form which supports continuity of performance evaluation across all applications. The CDPS consists of three major elements: communication interface computer, central data processing computer, and performance evaluation data base.</p> <p>The CDPS Users Manual identifies users of the performance data base, procedures for operation, and guidelines for software maintenance. The manual also defines the output capabilities of the CDPS in support of external users of the system.</p>			
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Appendix A - User's Manual for Plot Capability

1.0 SCOPE

The purpose of this document is to:

- (1) Identify users of the CDPS Performance Data Base.
- (2) Define procedures for operation of the CDPS.
- (3) Provide guidelines to be followed in maintenance of the CDPS software.
- (4) Define the output capabilities of the CDPS in support of external users of the system.

2.0 APPLICABLE DOCUMENTS

In understanding this CDPS and its capabilities, the following documents are required:

- (1) CDPS Software Performance Specification Document (IBM No. 76W-0060).
- (2) CDPS Hardware Performance Specification Document (7933190).
- (3) MSFC Data Systems Plan.
- (4) Solar Heating and Cooling Instrumentation Installation Plan.
- (5) CDPS Development Plan.

Documents applicable to each specific user group are referenced in subsequent sections of this document.

3.0 ROLE OF CDPS IN SOLAR HEATING AND COOLING PROGRAM

The CDPS, located at IBM's FSD facility in Huntsville, Alabama, provides the resources required to assess the performance of solar heating and cooling systems installed at 60 remote sites. These remote sites consist of residential, commercial, government, and educational types of buildings, and the solar heating and cooling systems can be hot-water, space heating, cooling, and combinations thereof. The instrumentation data associated with these systems will vary according to the application and must be collected, processed, and presented in a form which supports continuity of performance evaluation across all applications. In addition, data must be maintained for historical purposes and for detailed analysis.

In supporting the overall program objectives, the CDPS satisfies the following functional requirements:

Data Collection - The CDPS daily collects instrumentation data from all remote sites via standard voice-grade 1200 Baud telephone lines. In addition, non-instrumentation data available from MSFC, ERDA, HUD, etc., which is needed in performing overall system evaluation, is collected via manual means.

Data Processing - The CDPS accepts raw data, as collected by the data collection function, and performs the data processing functions required to transform the raw data into processed information for use in system evaluation/analysis activities. The CDPS also provides the resources to maintain a performance evaluation data base, containing both raw data and processed information, for use in support of performance analysts.

Data Archiving - To provide capability for detailed analyses of system performance and to maintain data for historical purposes, the CDPS provides the capabilities to archive data collected and processed during the program. Both raw data and processed data is retained on magnetic tape, and formal reports are archived in a library.

Data Distribution - In addition to collection, processing, and archiving of data, the CDPS provides the essential function of distributing the data to the appropriate organizations. Distribution is in the form of printed reports, data plots, and magnetic tapes.

Systems Analysis Simulation - An essential capability in assessing the performance of solar heating and cooling systems is the ability to predict performance for correlation with operational performance. The CDPS provides the resources needed in support of this simulation activity and provides capabilities for automated correlation of predicted and actual performance.

As shown in figure 3-1, the CDPS consists of three major elements - communication interface computer, central data processing computer, and performance evaluation data base. These three elements provide the capabilities required to satisfy the functions mentioned above.

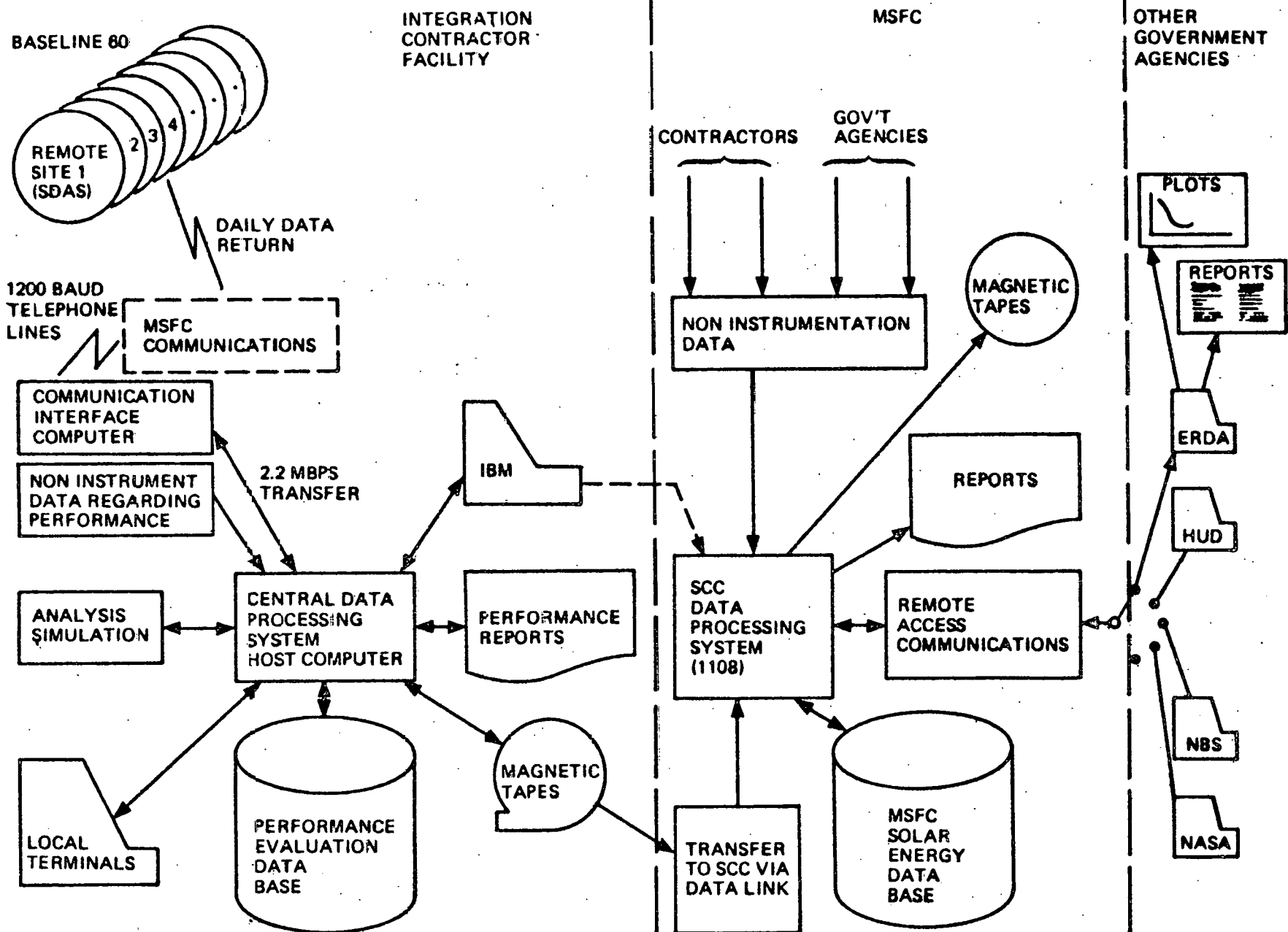


Figure 3-1. Role of Central Data Processing System

4.0 CDPS OPERATIONAL ENVIRONMENT

The CDPS must satisfy the processing and user support requirements resulting from daily data collection from all remote sites. To provide data to analysts by the beginning of first shift each day, an operations procedure has been established and is discussed in the following paragraphs. A pictorial representation of the operations flow is shown in Figure 4-1.

4.1 DATA COLLECTION

SDAS data collection will occur during the evening hours (beginning at 2000). The collecting will continue until approximately 2330 (60 sites require approximately 3.5 hours) and upon completion, will be transferred via data link to the S/370-145 (requires 30 seconds). Computer operator intervention will be performed at the start of data collection time period to initiate the System 7 software. During the data collection time period, the communication interface computer console will be monitored for indications of telecommunications progress in contacting and receiving data from the SDAS equipment. In the event of communications difficulties, effort will be undertaken to resolve the problem during the hours dedicated to data collection. The communication operations personnel will be guided in the problem resolution by directions from the S/7 software analyst. The operator will, as required, interface with the MSFC Telecommunications Systems Status Center (TSSC) for resolution of communications difficulties.

4.2 DATA PROCESSING

Data processing on the host computer will occur between the hours of midnight and 0700 each day in order to provide error reports and summary reports and performance reports for SIMS analysts at the beginning of first shift (0800). The Input Processing portion of the CDPS software system will be executed, upon completion of data communication and retrieval by the Communication Interface computer, and will process the forwarded data from the System/7. All processed data containing no errors will be converted into engineering units, performance calculations performed, and data made ready for insertion into the performance evaluation data bank. Errors encountered during processing will be flagged such that erroneous data will not be entered into the data base, and error messages/reports will be provided for analysts.

4.3 DATA BASE PROCESSING

Upon completion of the Input Processing phase, the Data Base/User Support software will be executed in a batch environment under control of computer operations personnel. This processing will be accomplished in a manner to satisfy data availability requirements and output distribution.

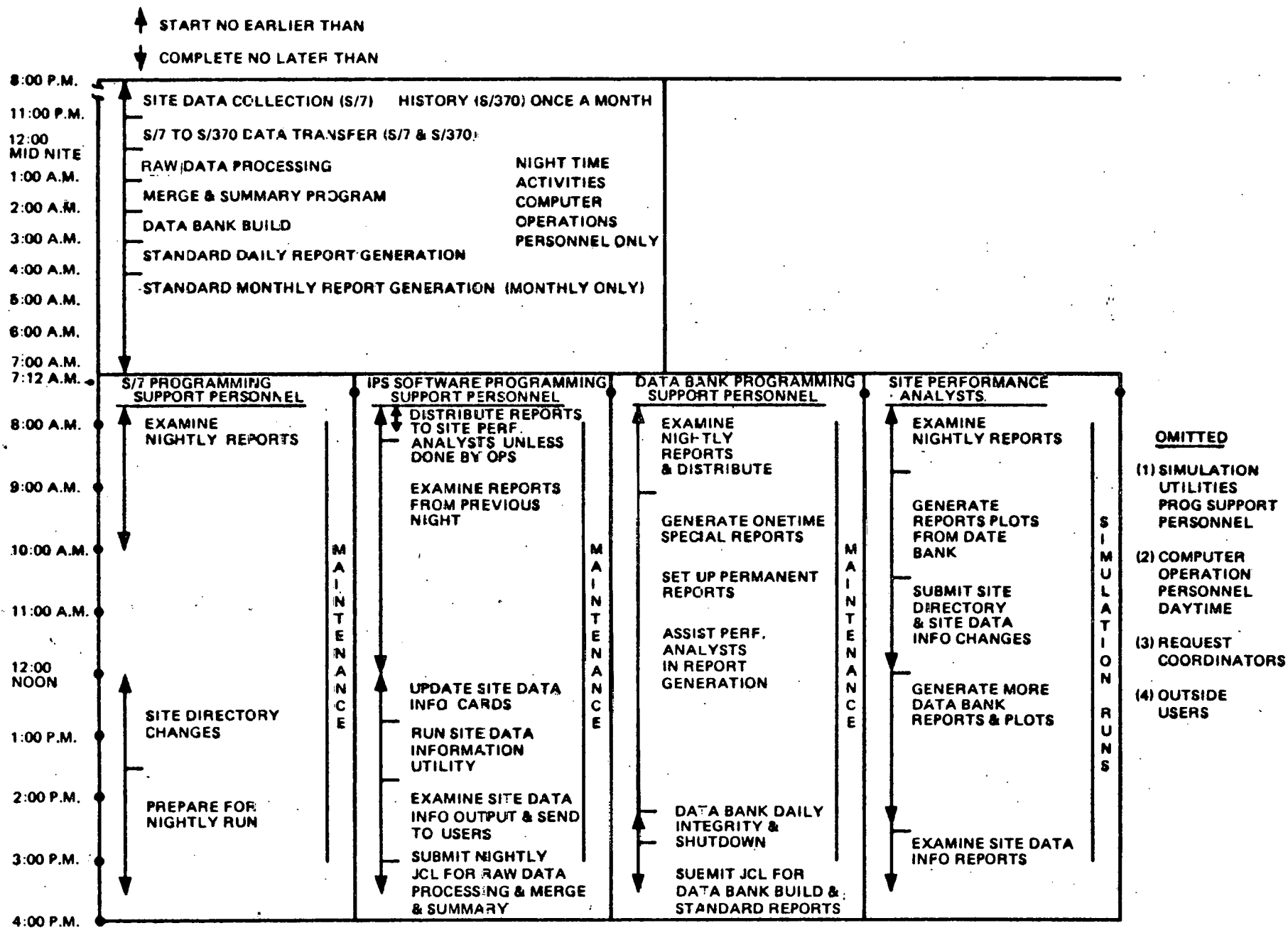


Figure 4-1. Summary Chart of CDPS Daily Operations

To ensure timely completion, a high priority will be assigned to the processing of input data and will be monitored by operations personnel. If conflicts occur, the processing will be assigned the highest priority and will override any other processing.

Archiving of data will be provided through the use of software within the host computer. Raw data, processed data, and performance reports will be maintained within the computing facility and will be distributed as required for analysis/storage.

4.4 USER SUPPORT

User support will require that the data base management software allow ready access to the data base contents via local terminals and support batch job access to data for special analysis activities. When the IBM performance analyst requires a terminal capability to access the performance evaluation data base the computer operations personnel will, upon request, initiate the terminal processing capability of the NIPS software.

4.5 DATA BASE MAINTENANCE

In addition to the daily scheduled updating of the Performance Evaluation Data Base with input from the Input Processing Software there will be the capability to perform selected maintenance on an as required basis.

4.5.1 Error Correction

Error conditions on data fields within the data base corrected during first shift will be entered into the data base via local terminals (for small data volume) or via batch job submission. Upon completion of error correction, the performance evaluation data within the data base will be formatted and written to magnetic tape for transfer to the MSFC Solar Energy Data Base.

4.5.2 Non-Instrumentation Data Handling

Data elements to be added to the data base which are not gathered by the SDAS and processed in the CDPS, such as site location, site equipment availability, weather data, etc., will be entered into the data base via terminal or batch mode using the NIPS File Maintenance capability. This will allow for text type data to become part of the data base and available for reporting purposes.

5.0 DEFINITION OF CDPS USERS

This section provides a brief description of CDPS users and their functions. Detailed information about user functions can be found in subsequent sections of this document.

CDPS Software Support Personnel - Responsible for maintenance of CDPS Software and for continual evaluation of software performance during daily operations. Includes the following support personnel:

- (1) Communication Interface Programmer(s)/Analyst
- (2) Input Processing Programmer(s)/Analyst
- (3) Data Base Maintenance Programmer(s)/Analyst

Computer Operations Support Personnel - Responsible for:

- (1) Operation of the CDPS configurations during daily data collection and processing
- (2) Maintenance of archived/backup data on magnetic tape
- (3) Production of daily/monthly/seasonal/annual reports as requested by Report Distribution Personnel.

Site Performance Analysts - Responsible for:

- (1) Providing site descriptive data for establishing data base entry for site.
- (2) Review/analyze daily reports produced from operational data.
- (3) Provide calibration/conversion data for processing of operational data.

Data Request Coordinators - Responsible for:

- (1) Interface with internal/external CDPS users
- (2) Coordinate activities required to satisfy user requests
- (3) Coordinate changes to CDPS hardware/software to ensure that requested capabilities are achieved

6.0 CDPS SOFTWARE USER GUIDELINES

As was stated in Section 5, the CDPS software users will consist of a Communication Interface Programmer(s)/Analyst, and Input Processing Programmer(s)/Analyst, and a Data Base Maintenance Programmer(s)/Analyst. This section of the user's manual addresses the user information required in accomplishing those Programmer/Analyst functions.

6.1 COMMUNICATION INTERFACE PROGRAMMER(s)/ANALYST USER GUIDELINES

User guidelines for the Communication Interface Programmer(s)/Analyst have been structured to address each area of responsibility. These areas are:

- (1) Software maintenance
- (2) Generation of S/7 load library
- (3) Communication error analysis
- (4) Remote site troubleshooting
- (5) Site directory maintenance
- (6) System/7 - S/370-145 Interface

The procedures/guidelines to be used in performing these tasks are discussed in the following paragraphs.

6.1.1 Applicable Documents

Document Name

IBM System/7 Teleprocessing Multiplexer (GA34-1510-1)

IBM System/7 Functional Characteristics (GA34-0003-6)

IBM System/7 Sensor Based Control Adapter (SBCA) General Information Manual (GA34-1512-0)

IBM System/7 7431 Serial Printer (SY34-0520-1)

Data Auxiliary Set 801 (Automatic Calling Unit) Interface Specification (Western Electric)

Data Set 202C - Type Reference Guide (Western Electric)

APG/7 Question Forms and Messages (SH2D-9535)

IBM System/7 Operator's Guide (GA34-0007-4)

A Guide to Host APG/7 Operations (SH20-9503-2)

The APG/7 Encyclopedia (SH20-9510-1)

MTMT Operation Manual

6.1.2 Software Maintenance

The Communication Interface Software Source Statements, written in APG/7 language are resident on disk on the S/370-145 Computer. The disk data set containing the operational program is named FHVLG31A. SIMS and is accessible via MTMT within the IBM Huntsville Facility. The APG/7 compiler is resident within the S/370-145. The procedures to be used in maintaining the communication interface software are described below.

The overall software structure is shown in figure 6-1 and is comprised of a nucleus and application program.

6.1.2.1 Application Program Source Statement Maintenance

The Source Statements for the communication interface software must be retained on Disk Data Set SYSL.SYS7.MACLIB. This data set must be written to a temporary file for dating and testing prior to release for operational use. Source statements and update transactions for previous released versions must be written to magnetic tape and retained for record purposes and/or recovery in the event of loss of the operational program statements on disk. Upon completion of testing of changes, the new source statements must be written to the operational Disk Data Set and a date of replacement applied to the Data Set for reference purposes. This procedure is pictorially shown in figure 6-2.

6.1.2.2 Nucleus Generation

The Nucleus Program is comprised of System Programs provided by the APG/7 compiler and is created on the S/370-145 through a compilation/link edit activity. The communication interface software package utilizes several separate nucleus programs:

<u>Function</u>	<u>Name</u>
Operational Site Data Collection	W7SDCC
Support of Site Data Collection	W7 EXEC
Manual Testing of Sites	W7 TEST
Support of Data Transfer to S/370-145	LAB/7

Procedures for generation of a System/7 nucleus are shown in figure 6-3. The capabilities to be provided by the nucleus can be selected via input parameters.

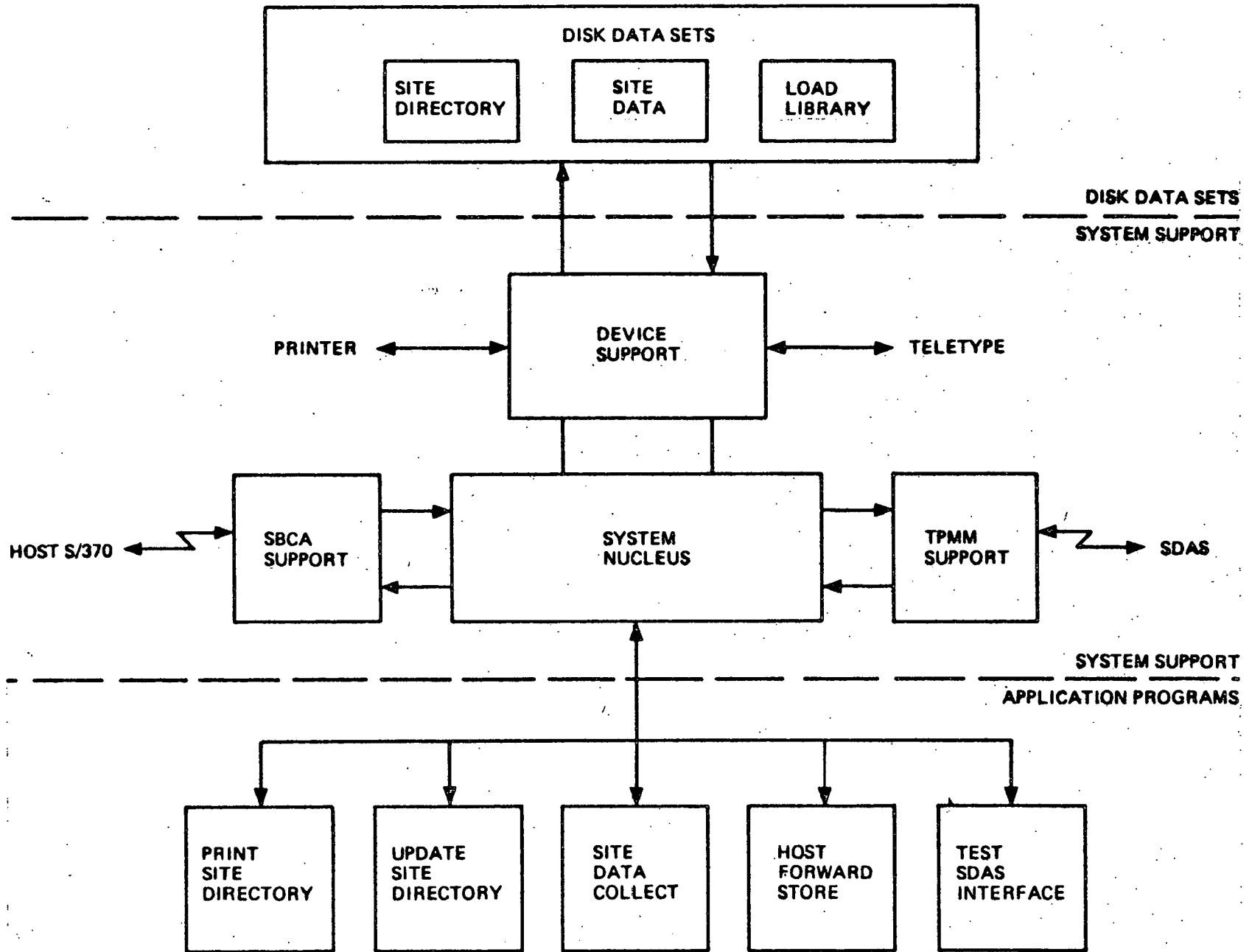


Figure 6-1. Communications Interface Software Design

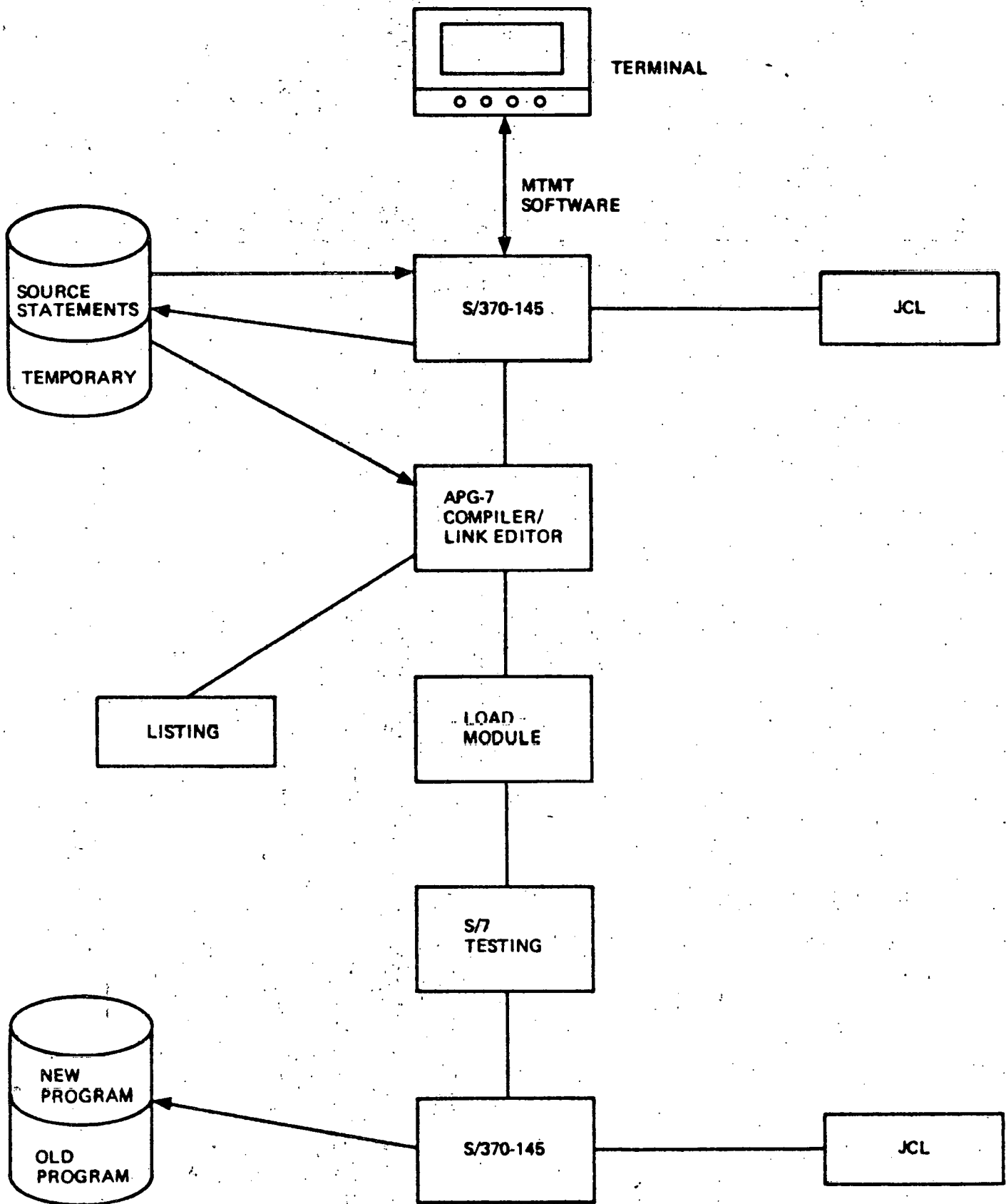


Figure 6-2. Application Program Maintenance

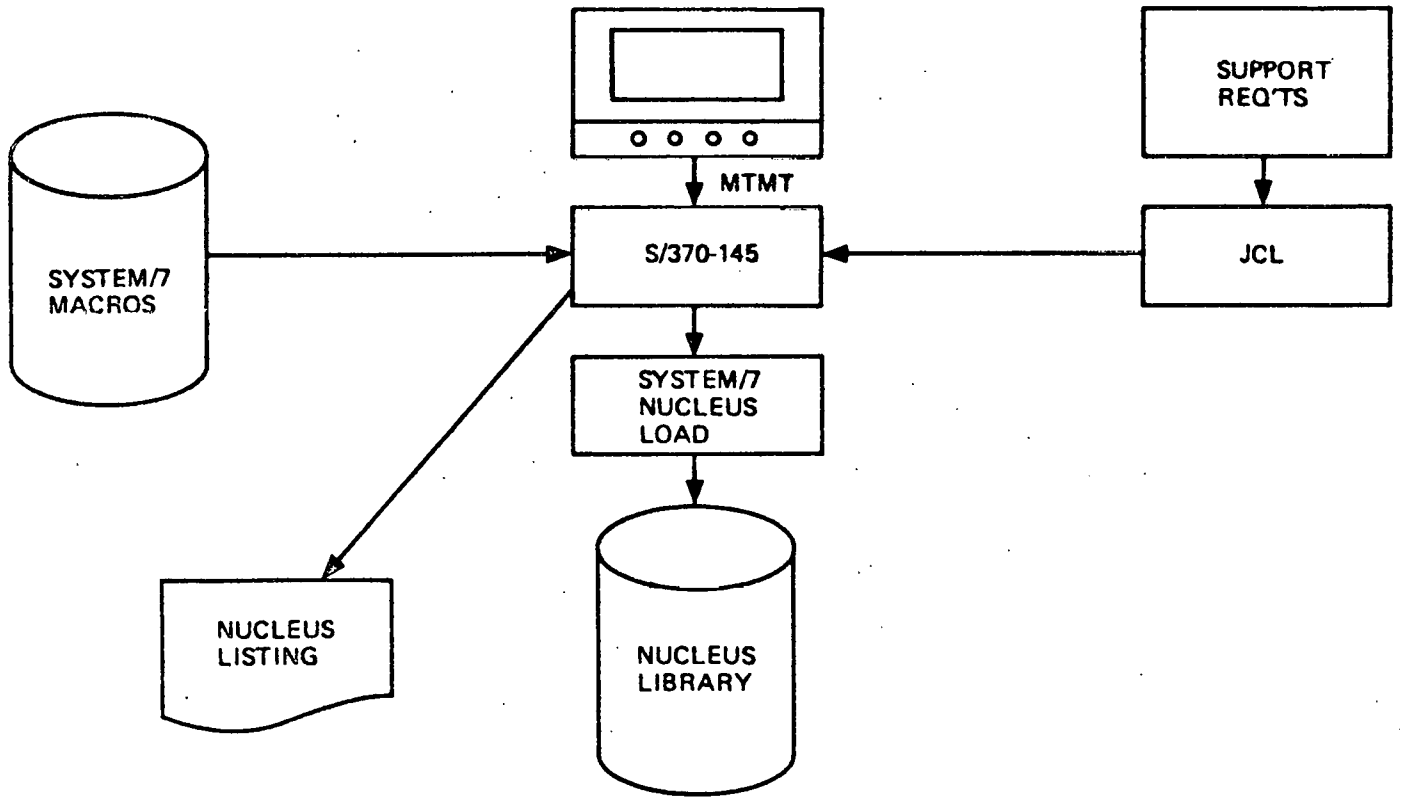


Figure 6-3. Nucleus Generation Procedure

6.1.2.3 Application Programs Compilation

Application Program Compilation is performed on the S/370-145 utilizing the APG/7 compiler. Input to the compiler consists of the source statements resident on the S/370-145 disk. Output of the compiler is a program listing and a load module for the System/7 computer. Input and output parameters are specified via Job Control Language (JCL) Statements. A representative JCL setup for compiling an application procedure is found in "A Guide to Host APG/7 Operations."

6.1.2.4 Nucleus Compilation

Nucleus capabilities are selected via control cards enclosed within the JCL Statements. Information regarding nucleus generation is found in IBM documents "APG/7 Question Forms and Messages" and "A Guide to Host APG/7 Operations."

6.1.2.5 System/7 Load Module Creation

System/7 Load Modules are created on the S/370-145 through use of the APG/7 link editor. Input to the link editor consists of the nucleus program load module and the application programs load modules. Output of the link editor is a load module which contains all programs required to execute on the System/7 with all program linkages resolved. Details of the module creation procedure are given in "A Guide to Host APG/7 Operations."

6.1.3 System/7 Load Library Generation

The System/7 load library will be resident on the System/7 disk and will be comprised of the System/7 load modules generated on the S/370-145. To generate the library, the load modules must be transferred from the S/370-145 to the System/7 via the Sensor Based Control Adapter (SBCA), catalogued on the System/7, and written to System/7 disk.

The procedures to be followed in generation of the load library are given below:

<u>S/370-145 Action</u>	<u>System/7 Action</u>
EXECUTE Program 'SBCUPROG'	IPL S/7 to Fixed Disk (F4)
	LOAD Program 'PGMLOAD'
	REPLY '\$\$\$SYS7ID'
	REPLY '.SIM'
	REPLY '[PROGRAM NAME DESIRED], R4'
STOP 'SBCUPRDG'	

Table 6.0

<u>TPMM ERROR CODES</u>	<u>DESCRIPTION OF ERROR</u>
* 2	I/O Parameter list busy
* 3	Invalid control word
4	Data set check <ul style="list-style-type: none"> o Loss of Data Set Ready during a read o Loss of Carrier Detect during a read o Loss of Clear to Send during a write o ACU not ready during a dial
* 5	Line closed
* 6	Invalid line number
7	Data overrun <ul style="list-style-type: none"> o Character interrupt occurred before previous character serviced
8	System/7 XIO error
9	Timeout between characters
15	Timeout (no reply)
16	BCH error in command frame
*17	I/O area overrun
*32	Invalid buffer count
34	Data set not ready
40	BCH errors detected in data

*Software Error - Program Stop

System/7 SDAS Communication Error Definitions

6.1.7 System/7 - S/370-145 Interface

The software utilized within the System/7 to communicate with the S/370-145 consists of several different programs dependent upon the type of transfer. Table 6-1 contains a correlation of data transfer requirements and corresponding System/7 software.

Table 6.1 -

<u>Data Transfer Requirements</u>	<u>System/7 Software</u>
System/7 Load Modules	PGM Load
Remote Site Operational Data	Host Forward Store

System/7 load module transfer is used in creation of the System/7 Load Library. Procedures for operation are discussed in paragraph 6.1.3.

The "Host Forward Store" software is contained within the load library and provides the capabilities to format data collected from remote sites and transfer the data to the S/370-145 for processing. Procedures for execution of this software and error conditions/corrective actions are described below:

- (1) Insure that 'SBCU PROG' has been initiated in Host
- (2) Via 5028 IPL from System/7 fixed disk
- (3) After System/7 prints '>', enter '\$L'
- (4) After System/7 prints 'PGM (NAME, IODA):', enter 'HFS'
- (5) After System/7 prints 'SCCU PROG STARTED ON HOST?', enter 'Y'
- (6) Upon completion of transfer of data, System/7 will print 'HFS ENDED 'DATE/TIME'

6.2 INPUT PROCESSING PROGRAMMER/ANALYST USER GUIDELINES

The Input Processing Programmer/Analyst will have the following areas of responsibility:

- (1) Source Statement Maintenance
- (2) Input Processing Report Analysis
- (3) Job Control Language (JCL) Statements
- (4) Maintenance of the Site Data Description File

The user guidelines associated with the above areas of responsibility are discussed in subsequent paragraphs.

6.2.1 Applicable Documents

The following documents are required in order to perform the functions of the Input Processing Programmer/Analyst.

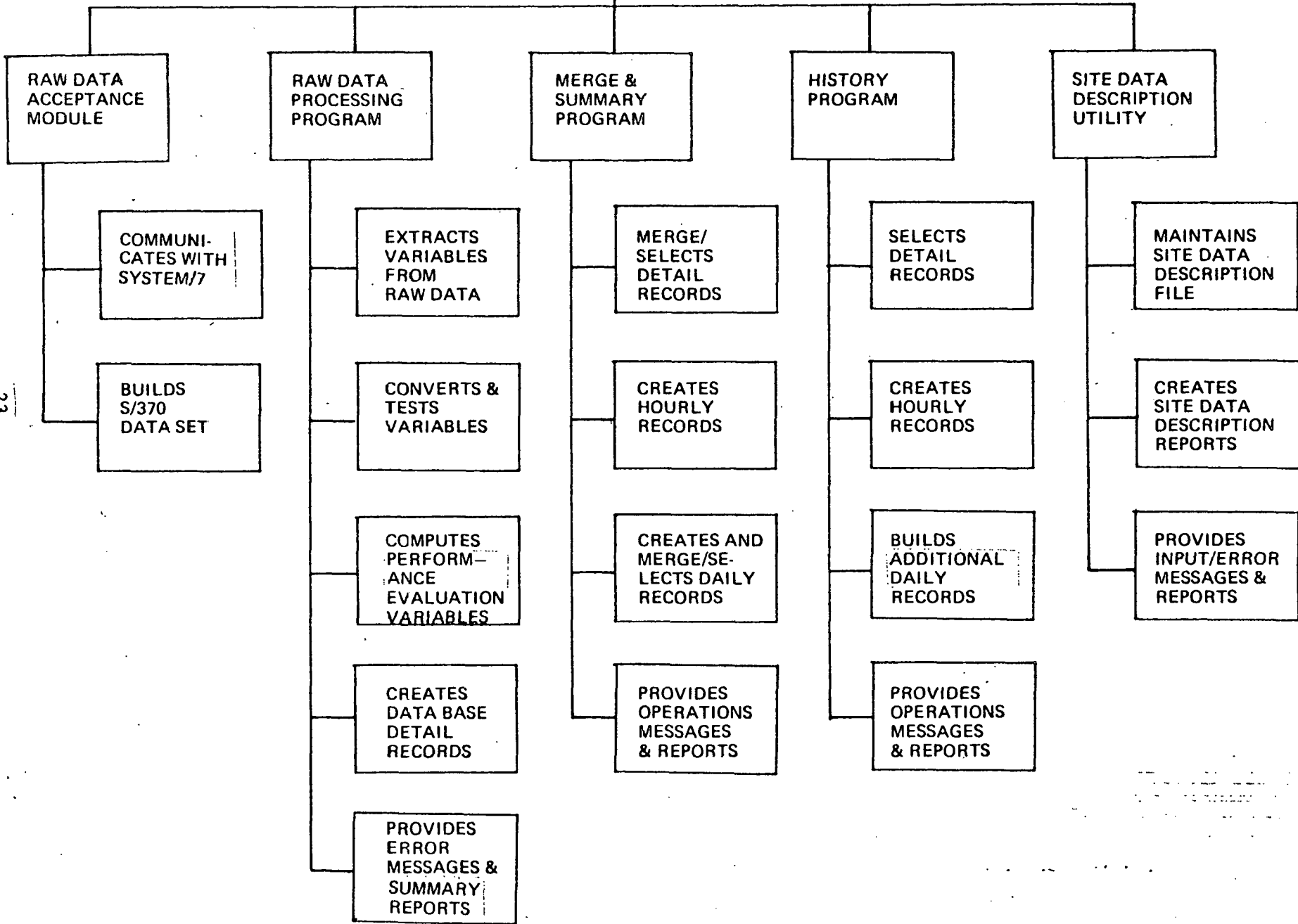
<u>Document Name</u>	<u>Number</u>
CDPS Software Performance Specification	IBM No. 7933251
CDPS Software Design Document	
PL/I Reference Manual	IBM GC28-8201
PL/I Programmer's Guide	IBM GC28-6594
JCL Manual	IBM GC28-6539
OS Utilities Manual	IBM GC28-6586

6.2.2 Software Maintenance

As shown in figure 6.2-1, the Input Processing Software consists of five major elements (site data description utility, site data acceptance, raw data processing, merge and summary, and history). The source statements, (except for the Site Data Acceptance Module) written in PL/I language, reside on disk within the S/370-145 in partitioned data set "SIMSIPS.SOURCE." The compiler utilized in creation of load modules for the Input Processing Software is the resident PL/I compiler within the S/370-145.

The load modules for the input processing software will be maintained on disk for use in processing of incoming data. Backup versions of the load modules will be saved on magnetic tape for backup in the event of loss of data on disk.

INPUT
PROCESSING
SOFTWARE



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Figure 6.2-1. Input Processing Software System Design

Updating of the Source Statements and creation of new operational load modules will be controlled by procedures as specified in the CDPS Development Plan. Changes to source must be approved prior to implementation, and utilization of new operational load modules will occur only after testing of changes has been completed. Previous versions of both source and load modules, with identification of changes, will be maintained.

Source update can be accomplished through either the MTMT update capability or the use of the IEBUPDATE capability. All transactions made to create a new input processing load module must be recorded and maintained.

The compilation of input processing software will be controlled via Job Control Language (JCL) statements. Set-ups for compilation and link edit of the input processing software are shown in figure 6.2-2.

A significant portion of Input Processing Software maintenance will be the implementation of performance evaluation equations supplied by performance analysts. The equations will be site dependent.

6.2.3 Input Processing Report Analysis

The input processing software produces the following reports during its operational utilization:

- Raw Data Processing Reports
- Merge and Summary Reports
- History Reports

Description of these reports and actions required of the programmer/analyst are discussed below:

6.2.3.1 Raw Data Processing Analyses

Raw Data Processing provides the following:

- Varying levels of site raw data processing summaries (see figure 6.2-3).
- An overall raw data processing summary (see figure 6.2-4).
- Detail record prints (see figure 6.2-5).
- Possibly, error messages for sites for which site raw data processing summaries were not requested. These will be interspersed with the site summary reports.

The detail included within these reports is under control of the Performance Analyst through input to the software.

A list of error messages and possible causes or corrective actions is provided in table 6.2-1.

Raw Data Processing Program

```
// EXEC PLIFC,  
// PARM,PL1='STMT,XREF,ATR,NEST,MACRO,SORMGIN=(2,72,1),LINECNT=060'  
// PL1.SYSLIB DD DSN=SIMSIPS.SOURCE,DISP=SHR  
// PL1.SYSIN DD DISP=SHR,DSN=SIMSIPS.SOURCE(IPSRW)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(PROCCARD)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(ISTREAM)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(PROCCARD)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(SCANSEP)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(PROCCARD)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(CVTEST)  
// EXEC USERLIB,COND.IEWL=(8,LT)  
// IEWL.SYSLMOD DD DSN=SIMSIPS.LOADLIB,DISP=(OLD,KEEP)  
// IEWL.RESERVE DD DSN=SIMSIPS.LOADLIB,DISP=(OLD,KEEP)  
// IEWL.SYSIN DD *  
NAME SIMSROPP(R)  
/*
```

Merge and Summary Program

```
// EXEC PLIFC,  
// PARM,PL1='STMT,XREF,ATR,NEST,MACRO,SORMGIN=(2,72,1),LINECNT=060'  
// PL1.SYSLIB DD DSN=SIMSIPS.SOURCE,DISP=SHR  
// PL1.SYSIN DD DISP=SHR,DSN=SIMSIPS.SOURCE(MERGSUM)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(PROCCARD)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(MERGSEL)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(PROCCARD)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(GENHRLY)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(PROCCARD)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(GENDALY)  
// EXEC USERLIB,COND.IEWL=(8,LT)  
// IEWL.SYSLMOD DD DSN=SIMSIPS.LOADLIB,DISP=(OLD,KEEP)  
// IEWL.RESERVE DD DSN=SIMSIPS.LOADLIB,DISP=(OLD,KEEP)  
// IEWL.SYSIN DD *  
NAME SIMSMRGSTR)  
/*
```

History Program

```
// EXEC PLIFC,  
// PARM,PL1='STMT,XREF,ATR,NEST,MACRO,SORMGIN=(2,72,1),LINECNT=060'  
// PL1.SYSLIB DD DSN=SIMSIPS.SOURCE,DISP=SHR  
// PL1.SYSIN DD DISP=SHR,DSN=SIMSIPS.SOURCE(HISTORY)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(PROCCARD)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(HSELECT)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(PROCCARD)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(HGNHRLY)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(PROCCARD)  
// DD DISP=SHR,DSN=SIMSIPS.SOURCE(HGNDALY)  
// EXEC USERLIB,COND.IEWL=(8,LT)  
// IEWL.SYSLMOD DD DSN=SIMSIPS.LOADLIB,DISP=(OLD,KEEP)  
// IEWL.RESERVE DD DSN=SIMSIPS.LOADLIB,DISP=(OLD,KEEP)  
// IEWL.SYSIN DD *  
NAME SIMSHIST(R)  
/*
```

Figure 6.2-2. Setups to Compile and Link Input Processing Software (Page 1 of 2)

Site Data Description Utility

```

// EXEC PLIFC,
//   PARM,PLI='STMT,XREF,ATR,NEST,MACRO,SORMGIN=(2,72,1),LINECNT=060'
//PLI.SYSLIB DD DSN=SIMSIPS.SOURCE,DISP=SHR
//PLI.SYSIN DD DISP=SHR,DSN=SIMSIPS.SOURCE(IPS IDUP)
// EXEC USERLIB,COND.(IEWL=18,LT)
//IEWL.SYSLMOD DD DSN=SIMSIPS.LOADLIB,DISP=(OLD,KEEP)
//IEWL.RESERVE DD DSN=SIMSIPS.LOADLIB,DISP=(OLD,KEEP)
//IEWL.SYSIN DD *
//   NAME SIMSSDU1(R)
/*

```

Save Utilities

```

// EXEC PLIFC,
//   PARM,PLI='STMT,XREF,ATR,NEST,MACRO,SORMGIN=(2,72,1),LINECNT=060'
//PLI.SYSLIB DD DSN=SIMSIPS.SOURCE,DISP=SHR
//PLI.SYSIN DD DISP=SHR,DSN=SIMSIPS.SOURCE(SAVE1)
// EXEC USERLIB,COND.(IEWL=18,LT)
//IEWL.SYSLMOD DD DSN=SIMSIPS.LOADLIB,DISP=(OLD,KEEP)
//IEWL.RESERVE DD DSN=SIMSIPS.LOADLIB,DISP=(OLD,KEEP)
//IEWL.SYSIN DD *
//   NAME SIMSSAV1(R)
/*

```

```

// EXEC PLIFC,
//   PARM,PLI='STMT,XREF,ATR,NEST,MACRO,SORMGIN=(2,72,1),LINECNT=060'
//PLI.SYSLIB DD DSN=SIMSIPS.SOURCE,DISP=SHR
//PLI.SYSIN DD DISP=SHR,DSN=SIMSIPS.SOURCE(SAVE2)
// EXEC USERLIB,COND.(IEWL=18,LT)
//IEWL.SYSLMOD DD DSN=SIMSIPS.LOADLIB,DISP=(OLD,KEEP)
//IEWL.RESERVE DD DSN=SIMSIPS.LOADLIB,DISP=(OLD,KEEP)
//IEWL.SYSIN DD *
//   NAME SIMSSAV2(R)
/*

```

```

// EXEC PLIFC,
//   PARM,PLI='STMT,XREF,ATR,NEST,MACRO,SORMGIN=(2,72,1),LINECNT=060'
//PLI.SYSLIB DD DSN=SIMSIPS.SOURCE,DISP=SHR
//PLI.SYSIN DD DISP=SHR,DSN=SIMSIPS.SOURCE(SAVE3)
// EXEC USERLIB,COND.(IEWL=18,LT)
//IEWL.SYSLMOD DD DSN=SIMSIPS.LOADLIB,DISP=(OLD,KEEP)
//IEWL.RESERVE DD DSN=SIMSIPS.LOADLIB,DISP=(OLD,KEEP)
//IEWL.SYSIN DD *
//   NAME SIMSSAV3(R)
/*

```

Figure 6.2-2. Setups to Compile and Link Input Processing Software (Page 2 of 2)

Table 6.2-1. Raw Data Processing Error Messages (Sheet 2 of 6)

<p>Message: HIGHEST SEVERITY LEVEL _____</p> <p>Error Level: Not applicable Subroutine: IPSRAW (Main)</p> <p>Explanation: If 16, terminal error encountered. If 12, processing failed for one or more sites. If 10, one or more data blocks rejected. If 8, one or more scans rejected. If 4, one or more individual variable readings rejected. If 0, no data rejected.</p>
<p>Message: UNEXPECTED END OF FILE OF RAW DATA WHILE SEPARATING RAW DATA OF SITE _____ INTO DATA AND FLAG STREAMS.</p> <p>Error Level: 16 Subroutine: STREAM</p> <p>Explanation: Site id record must have a bad value in its counters or some raw data has been lost. Consult with System/7 programmers for possible error explanation.</p>
<p>Message: SCANSEP: END OF FILE READING DATAFIL. PROCESSING STOPPED FOR SITE _____</p> <p>Error Level: 12 Subroutine: SCANSEP</p> <p>Explanation: End-of-site indication not found in the data records for the site. If BCH error count for the site was not zero then probably a noise problem made an End-of-block or End-of-site unrecognizable.</p>
<p>Message: SCANSEP. END OF FILE READING FLAGFIL. PROCESSING STOPPED FOR SITE _____</p> <p>Error Level: 12 Subroutine: SCANSEP</p> <p>Explanation: Normally accompanies an 'END OF FILE READING DATAFIL' message and is part of the same problem.</p>
<p>Message: SCANSEP. A COMMAND FRAME HAS ILLEGAL CODE AND NO BCH ERROR. PROCESSING STOPPED FOR SITE ID _____</p> <p>Error Level: 12 Subroutine: SCANSEP</p> <p>Explanation: Either raw data has wrong format or the scan separation routine has gotten lost processing noisy data. Look at site BCH error count and consult with System/7 programmer for problem explanation.</p>

Table 6.2-1. Raw Data Processing Error Messages (Sheet 4 of 6)

<p>Message: SCANSEP: COMMAND WITH BCH ERROR AND ILLEGAL CODE ASSUMED TO BE END OF SITE. SITE ID = _____</p> <p>Error Level: 10 Subroutine: SCANSEP</p> <p>Explanation: Similar to BCH error in command with End-of-site command code.</p>
<p>Message: SCANSEP: BCH ERROR IN END OF BLOCK OR START OF SCAN. DECODED AS END OF BLOCK. SITE ID = _____</p> <p>Error Level: 8 Subroutine: SCANSEP</p> <p>Explanation: Trying to correctly process noisy data. Six or more characters of 'FF' imply End-of-block. If wrong probably will get lost in the scan separation process.</p>
<p>Message: SCANSEP: BCH ERROR IN END OF BLOCK OR START OF SCAN DECODED AS START OF SCAN AND SCAN DROPPED. SITE ID = _____</p> <p>Error Level: 8 Subroutine: SCANSEP</p> <p>Explanation: Trying to process noisy data. If data does not contain at least 6 bytes of 'FF' as in End-of-Block it is treated as Start-of-Scan. The scan is dropped because of uncertain time.</p>
<p>Message: CNVTEST: BAD SCAN POINTER FOR SITE _____. PROCESSING FOR SITE STOPPED.</p> <p>Error Level: 12 Subroutine: CNVTEST</p> <p>Explanation: Bad information in the Site Data Description file. Change values on the Site Data Information form and/or change the Site Data Description Utility.</p>
<p>Message: CNVTEST: BAD NIPS POINTER FOR SITE _____. PROCESSING FOR SITE STOPPED.</p> <p>Error Level: 12 Subroutine: CNVTEST</p> <p>Explanation: Bad information in the Site Data Description file. Change values on the Site Data Information form and/or change the Site Data Description Utility.</p>

Table 6.2-1. Raw Data Processing Error Messages (Sheet 5 of 6)

<p>Message: IN CNVTEST HAVE SITE ID MISMATCH. SITE-DATA-INFO. SITE-ID = _____ SCAN SITE-ID = _____ NIPS-INPUT. SITE-ID = _____ PROCESSING TERMINATED.</p> <p>Error Level: 16 Subroutine: CNVTEST</p> <p>Explanation: Should never happen. Look for a software problem.</p>
<p>Message: CNVTEST: ILLEGAL CONVERSION TYPE IN SITE DATA INFO. PROCESSING STOPPED FOR SITE ID _____</p> <p>Error Level: 12 Subroutine: CNVTEST</p> <p>Explanation: Bad information in the Site Data Description file. Change values on the Site Data Information form and/or change the Site Data Description Utility.</p>
<p>Message: VARIABLE _____ OUT OF LIMITS AT TIME _____ MINIMUM = _____ MAXIMUM = _____ VALUE = _____</p> <p>Error Level: None Subroutine: CNVTEST</p> <p>Explanation: Engineering units value of variable is outside of performance analyst specified limits.</p>
<p>Message: VARIABLE _____ HAS BCH ERROR AT TIME _____</p> <p>Error Level: None Subroutine: CNVTEST</p> <p>Explanation: A BCH flag error affects the portion of the raw data from which the variables data was extracted. The value could be wrong.</p>
<p>Message: VARIABLE _____ CHANGED TOO FAST AT TIME _____</p> <p>Error Level: None Subroutine: CNVTEST</p> <p>Explanation: Change between successive values of a variable exceeds performance analyst specified limits.</p>
<p>Message: VARIABLE _____ REJECTED AT TIME _____</p> <p>Error Level: 4 Subroutine: CNVTEST</p> <p>Explanation: Variable failed two or more tests (out-of-limits, BCH error, or changing-too-fast) and value was rejected.</p>

Table 6.2-1. Raw Data Processing Error Messages (Sheet 6 of 6)

Message: CNVTEST: BAD OP CODE IN ENGINEER EQUATIONS. PROCESSING STOPPED FOR SITE _____
Error Level: 12 Subroutine: CNVTEST
Explanation: Bad computed variable equation in Site Data Description file. Change data on Site Data Information form and/or change the Site Data Description Utility.
Message: VARIABLE _____ HAS CONSTANT VALUE _____
Error Level: None Subroutine: CNVTEST
Explanation: A variable which performance analyst has specified must change had a constant value throughout one batch of raw input. Indicates a possible problem in the site data collection hardware.

Table 6.2-2. Merge and Summary Error Messages (Sheet 1 of 2)

<p>Message: SORT COMPLETION CODE _____</p> <p>Subroutine: MERGSUM (Main) prints message to indicate return code from sort routine.</p> <p>Explanation: Completion code 0 means successful. Any other code means not successful. Examine sort messages for problem indication.</p>
<p>Message: MERGE SELECT COMPLETION CODE _____</p> <p>Subroutine: MERGSUM (Main) prints message to indicate return code from Merge Select routine.</p> <p>Explanation: Completion code 0 means successful. Any other code means not successful. A previous message should indicate reason for failure.</p>
<p>Message: GENERATE HOURLY COMPLETION CODE _____</p> <p>Subroutine: MERGSUM (Main) prints message to indicate return code from Generate Hourly Records routine.</p> <p>Explanation: Completion code 0 means successful. Any other code means not successful. A previous message should indicate reason for failure.</p>
<p>Message: GENERATE DAILY COMPLETION CODE _____</p> <p>Subroutine: MERGSUM (Main) prints message to indicate return code from Generate Daily Records routine.</p> <p>Explanation: Completion code 0 means successful. Any other code means not Successful. A previous message should indicate reason for failure.</p>
<p>Message: TOTAL MERGE & SUMMARY COMPLETION CODE _____</p> <p>Subroutine: MERGSUM (Main)</p> <p>Explanation: Completion code zero means successful. Any other code means not successful. A previous message should indicate reason for failure.</p>
<p>Message: FOR SITE _____ A RECORD IN ADDED DETAIL RECS HAS TIME<= THE TIME OF THE LAST OLD DETAIL RECORD FOR THE SITE.</p> <p>Subroutine: MERGSEL</p> <p>Explanation: Incorrect job setup.</p>

Table 6.2-2. Merge and Summary Error Messages (Sheet 2 of 2)

<p>Message: FOR SITE _____ A HISTORICAL DAILY RECORD HAS TIME _____ GREATER THAN HISTORY TIME _____</p> <p>Subroutine: GENDALY</p> <p>Explanation: Incorrect job setup.</p>
<p>Message: OLD DETAIL RECORD FILE HAS WRONG LEVEL. PROCESSING STOPPED.</p> <p>Subroutine: MERGSEL</p> <p>Explanation: Incorrect job setup. Old detail record file is wrong.</p>
<p>Message: ADDED DETAIL RECORD FILE HAS WRONG LEVEL. PROCESSING STOPPED.</p> <p>Subroutine: MERGSEL</p> <p>Explanation: Incorrect job setup. Added detail record file is wrong. (SORTIN)</p>
<p>Message: SELECTED DETAIL RECORDS USED TO GENERATE HOURLY RECORDS HAVE WRONG LEVEL. PROCESSING STOPPED.</p> <p>Subroutine: GENHRLY</p> <p>Explanation: Either incorrect job setup or a software problem in MERGSEL or GENHRLY.</p>
<p>Message: HOURLY RECORDS USED TO GENERATE DAILY RECORDS HAVE WRONG LEVEL. PROCESSING STOPPED.</p> <p>Subroutine: GENDALY</p> <p>Explanation: Either incorrect job setup or a software problem in GENHRLY or GENDALY.</p>
<p>Message: HISTORICAL DAILY RECORDS HAVE WRONG LEVEL. PROCESSING STOPPED.</p> <p>Subroutine: GENDALY</p> <p>Explanation: Incorrect job setup. Also could be caused by a software problem in the History Program Generate Daily Records Routine.</p>

INPUT PROCESSING SYSTEM. CONVERSION OF RAW INPUT TO DETAIL RECORDS BEGUN FOR SOAS 029

PUN TIME 77/11/15 23.40

SDAS CLOCK BASE TIME 77/09/01 11.20.17
 PREV SOAS CLOCK BASE TIME 77/09/01 11.20.32
 #RAW_DATA RECORDS 80 #RAW_DATA BYTES 16376 #BCH_ERRORS 0

STREAM PROCESSING COMPLETED WITH ERROR CODE 0
 SCANSEP
 DATA BLOCKS TOT: 22 OUTPUT: 22 REJECTED: 0
 SCANS TOT: 242 OUTPUT: 242 REJECTED: 0

#RAW_DATA BYTES EXPECTED: 16376 ACTUAL: 16376
 SCANSEP PROCESSING COMPLETED WITH ERROR CODE 0

CNVTEST
 TIME OF PREV LAST SCAN 77/11/14 01.56.00
 TIME OF FIRST SCAN 77/11/14 02.01.05

VARIABLE CH21 HAS CONSTANT VALUE 0.000
 VARIABLE CH24 HAS CONSTANT VALUE 0.000

TIME OF LAST SCAN 77/11/14 23.36.01
 #_OF_SCANS_OUTPUT 242

ANALYSIS BY VARIABLES

VARIABLE	#OUT_OF_LIMITS	#BCH_ERRORS	#CHNG_TOO_FAST	#REJECTED	MIN_VALUE	MIN_VALUE TIME	MAX_VALUE	MAX VALUE TIME
CH01	0	0	0	0	0.000	77/11/14 02.01.05	0.000	77/11/14 02.18.41
CH15	0	0	0	0	12.317	77/11/14 05.33.21	331.495	77/11/14 23.25.21
CH25	0	0	0	0	0.000	77/11/14 02.06.25	3.132	77/11/14 09.38.41
CH13	0	0	0	0	0.000	77/11/14 02.06.25	3.484	77/11/14 07.46.41
CH17	0	0	0	0	14.819	77/11/14 22.58.41	15.445	77/11/14 02.01.05
CH19	0	0	0	0	0.000	77/11/14 02.01.05	4.686	77/11/14 12.08.01
CH21	0	0	0	0	0.000	77/11/14 02.01.05	0.000	77/11/14 02.01.05
CH07	0	0	0	0	0.000	77/11/14 02.01.05	253.714	77/11/14 10.58.41
CH27	0	0	0	0	0.000	77/11/14 02.01.05	2.000	77/11/14 02.37.13
CH31	0	0	0	0	0.000	77/11/14 02.06.25	2.000	77/11/14 03.09.21
CH14	0	0	0	0	0.000	77/11/14 09.22.41	8.593	77/11/14 11.20.01
CH19	0	0	0	0	6.696	77/11/14 13.06.41	51.000	77/11/14 02.01.05
CH02	0	0	0	0	4.106	77/11/14 15.52.01	49.583	77/11/14 08.13.21
CH04	0	0	0	0	0.000	77/11/14 02.01.05	22.483	77/11/14 07.52.01
CH06	0	0	0	0	0.000	77/11/14 05.44.01	48.485	77/11/14 22.32.01
CH22	0	0	0	0	0.880	77/11/14 08.02.41	39.541	77/11/14 09.22.41
CH24	0	0	0	0	0.000	77/11/14 02.01.05	0.000	77/11/14 02.01.05
CH16	0	0	0	0	49.384	77/11/14 05.44.01	80.039	77/11/14 13.12.01
CH12	0	0	0	0	65.973	77/11/14 06.58.41	133.812	77/11/14 11.04.01
CH23	0	0	0	0	91.584	77/11/14 23.30.41	130.880	77/11/14 11.04.01
CH09	0	0	0	0	55.344	77/11/14 06.00.01	185.601	77/11/14 09.17.21
CH20	0	0	0	0	124.819	77/11/14 23.04.01	154.731	77/11/14 02.01.05
CH26	0	0	0	0	87.282	77/11/14 23.20.01	139.482	77/11/14 08.34.41
CH28	0	0	0	0	71.251	77/11/14 22.48.01	153.167	77/11/14 07.52.01
CH08	0	0	0	0	92.757	77/11/14 08.13.21	135.181	77/11/14 02.01.05
CH32	0	0	0	0	108.201	77/11/14 05.33.21	203.802	77/11/14 07.41.21
CH30	0	0	0	0	62.405	77/11/14 05.22.41	85.533	77/11/14 11.14.41
CH10	0	0	0	0	56.002	77/11/14 06.37.21	155.855	77/11/14 14.05.21
CH29	0	0	0	0	0.000	77/11/14 02.42.41	6.452	77/11/14 11.04.01
CH11	0	0	0	0	0.000	77/11/14 02.01.05	105.100	77/11/14 10.42.41
CH03	0	0	0	0	0.000	77/11/14 02.01.05	114.439	77/11/14 08.18.41
CH05	0	0	0	0	0.000	77/11/14 02.01.05	255.274	77/11/14 08.02.41

CNVTEST PROCESSING COMPLETED WITH ERROR CODE 0

DATA FOR SOAS 029 PROCESSED WITH HIGHEST ERROR CODE 0

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Figure 6.2-3. Sample Raw Data Processing Site Summary Report

RAW DATA PROCESSING SUMMARY

RUN TIME 77/10/31 11.57

EXPLANATION OF ERROR CODES

- 16 = TERMINAL ERROR
- 12 = SDAS REJECTED
- 10 = A BLOCK OF DATA REJECTED
- 8 = A SCAN REJECTED
- 4 = DATA VALUE REJECTED

SDAS_ID	ERROR_CODE	FIRST_SCAN_TIME	LAST_SCAN_TIME	#SCANS_OUTPUT
013	8	77/10/27 22.39.26	77/10/29 19.38.06	776
019	8	77/10/27 23.12.28	77/10/30 20.32.29	776
029	8	77/10/27 21.48.27	77/10/30 19.08.27	771
015	8	77/10/28 01.37.24	77/10/31 00.28.20	798
016	8	77/10/28 01.27.04	77/10/31 00.23.36	763
022	10	77/10/28 00.14.04	77/10/30 02.38.04	141
024	8	77/10/28 00.09.53	77/10/30 23.46.54	775
028	8	77/10/28 02.01.05	77/10/31 02.08.33	812
030	8	77/10/28 00.21.17	77/10/31 00.20.17	912
031	8	77/10/28 01.23.42	77/10/31 01.08.04	919
034	12	77/10/28 01.51.24	77/10/30 20.25.54	150
010	8	77/10/28 01.01.33	77/10/30 15.05.01	271
010	8	00/00/00 00.00.00	00/00/00 00.00.00	0
011	8	77/10/29 12.12.13	77/10/31 20.51.08	184
040	8	77/10/28 03.44.53	77/10/31 04.37.12	816
041	8	77/10/28 16.12.27	77/10/30 13.12.11	243
041	8	77/10/28 15.17.31	77/10/30 13.49.30	182
041	8	77/10/28 03.56.25	77/10/31 05.17.29	818
044	8	77/10/28 07.25.42	77/10/31 11.14.00	763
045	8	77/10/28 03.41.27	77/10/28 20.30.59	161
046	12	77/10/28 03.52.57	77/10/31 06.30.13	840
050	4	77/10/28 03.06.53	77/10/31 04.59.25	832
048	8	77/10/28 08.31.40	77/10/31 05.56.12	791
049	8	77/10/28 04.50.50	77/10/31 07.27.15	840
053	4			

TOTAL #SCANS_OUTPUT 14134

TOTAL NUMBER OF SDASS PROCESSED 24
 NUMBER OF SDASS PROCESSED SUCCESSFULLY 22
 NUMBER OF SDASS FOR WHICH PROCESSING FAILED 2
 HIGHEST ERROR CODE 12

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Figure 6.2-4. Sample Raw Data Processing Overall Summary Report

6.2.3.2 Merge and Summary Reports

The merge and summary process generates the following reports:

- A summary of completion codes for the various merge and summary phases (see figure 6.2-6)
- A detail record report (see figure 6.2-7)
- An hourly record report (see figure 6.2-8)
- A daily record report (see figure 6.2-9)

Definition of error messages and possible causes or corrective actions is shown in table 6.2-2.

6.2.3.3 History Processing Reports

History processing generates the following reports:

- A page of completion codes for history program phases (see figure 6.2-10)
- A detail record report (see figure 6.2-11)
- An hourly record report (see figure 6.2-12)
- A daily record report (see figure 6.2-13)

Definition of completion codes/error messages and explanations is given in table 6.2-3.

6.2.4 Job Control Language (JCL) Statements

The Input Processing Programmer/Analyst must provide the Job Control Language statements (JCL) required for correct execution of the software in the operational environment. Figures 6.2-14 through 6.2-16 provide representative JCL procedures (PROCS) for execution of each of the regularly scheduled input processing software production jobs.

6.2.4.1 Nightly IPS Production Run

This run, which is executed every night, includes Raw Data Processing, Merge and Summary, and saving several disk files on tape.

DETAIL RECORD PRINT FOR SOAS 013 SITE 022 SUBTYPE 1

RUN TIME 77/10/27 11.00

PAGE 2

YR/MO/DA	HR.MN.SC	CH01	CH02	CH03	CH04	CH05	CH06	CH07	CH08	CH09	CH10
		CH11	CH12	CH13	CH14	CH15	CH16	CH17	CH18	CH19	CH20
		CH21	CH22	CH23	CH24	CH25	CH26	CH27	CH28	CH29	CH30
		CH31	CH32	CH33	CH34	CH35	CH36	CH37	CH38	CH39	CH40
		CH41	CH42	CH43	CH44	CH45	CH46	CH47	CH48		
77/10/25	23.33.56	0.000	41.016	0.000	18.164	0.937	52.051	0.000	360.352	137.422	13.23
		1.787	10.742	1.553	12.843	1810.764	9.424	0.000	3.760	0.000	6.73
		0.000	13.428	0.000	14.355	0.000	8.301	69.375	62.988	12.654	84.29
		74.687	72.910	0.000	0.000	0.000	89.961	11.892	196.211	10.099	195.03
		10.252	194.648	152.031	139.766	206.172	198.750	83.193	81.289		
77/10/25	23.35.16	0.000	42.920	0.000	17.578	0.918	51.660	0.000	375.977	136.836	13.18
		1.799	10.492	0.674	18.648	73.543	5.957	0.000	0.000	0.000	6.39
		0.000	4.297	0.000	15.918	0.000	8.008	70.195	62.441	0.000	83.51
		73.926	75.068	0.000	0.000	0.000	89.570	12.062	196.016	0.000	194.84
		10.252	155.039	159.985	138.984	209.883	202.852	84.590	81.797		
77/10/25	23.44.36	0.000	46.240	0.000	18.895	0.918	51.367	0.000	386.719	135.664	13.08
		1.828	10.303	0.454	18.652	58.790	5.957	0.000	0.000	0.000	8.69
		0.000	0.000	0.000	15.331	0.000	4.590	69.375	63.125	0.000	83.32
		74.180	77.100	0.000	0.000	0.000	89.766	12.006	195.625	0.000	194.64
		10.386	195.430	158.516	139.180	210.273	203.438	85.859	79.766		
77/10/25	23.45.56	0.000	46.387	0.000	18.113	0.879	51.074	0.000	394.531	135.273	12.79
		1.787	10.254	0.545	15.694	55.924	5.225	0.000	0.000	0.000	5.32
		0.000	0.000	0.000	16.016	0.000	2.246	67.734	60.527	0.000	83.12
		73.799	77.734	0.000	0.000	0.000	89.180	11.949	195.430	0.000	194.64
		10.319	195.039	156.953	138.984	209.297	202.070	86.621	81.289		
77/10/25	23.55.16	0.000	46.777	0.000	15.430	0.879	50.781	0.000	405.273	134.688	12.84
		1.775	10.359	0.574	13.457	33.577	6.543	0.000	0.000	0.000	8.49
		0.000	0.000	0.000	15.527	0.000	0.098	68.145	60.391	0.000	82.53
		73.926	77.988	0.000	0.000	0.000	88.984	12.062	195.625	0.000	194.45
		10.184	195.234	154.805	138.398	210.859	203.828	86.875	81.543		
77/10/26	00.00.36	0.000	47.168	0.000	14.551	0.879	50.488	0.000	414.063	134.492	12.45
		1.793	9.814	0.574	18.596	27.150	5.615	0.000	0.000	0.000	8.05
		0.000	0.000	0.000	15.233	0.000	0.000	67.324	61.211	0.000	81.95
		73.926	76.973	0.000	0.000	0.000	88.789	12.118	195.625	0.000	194.64
		10.386	195.234	153.347	138.203	210.078	202.070	87.383	82.305		
77/10/26	00.05.56	0.000	47.021	0.000	13.379	0.625	50.098	0.000	423.828	133.711	12.15
		0.023	9.766	0.000	18.408	13.298	4.834	0.000	0.000	0.000	4.39
		0.000	0.000	0.000	15.282	0.000	0.000	67.324	60.254	0.000	81.75
		73.926	77.227	0.000	0.000	0.000	88.594	1.649	195.430	0.000	194.64
		0.000	195.039	151.680	137.813	205.586	196.211	87.764	82.686		

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Figure 6.2-5. Sample Raw Data Processing Detail Record Print

MONTH SELECTED 78/02
DAYS IN MONTH 28

SITE	SUBTYPE	-----DAILY-RECORDS-USED-----		
		FIRST DAY	LAST DAY	COUNT
022	1	78/02/01	78/02/28	24

TOTAL # MONTHLY PERF EVAL RECORDS = 1

TIME KEY ON MONTHLY RECORDS = 78/02/28 23.59.59

Figure 6.2-6. Sample Merge and Summary Completion Codes Report

RUN TIME 78/03/13 19.35
PAGE 1

REPORT ON DETAIL MEASUREMENT RECORDS													
SITE	SUBTYPE	ORIGIN:	FIRST TIME		LAST TIME		COUNT	DEST:	FIRST TIME	LAST TIME	COUNT		
022	1	PREVIOUS	00/00/00	00.00.00	00/00/00	00.00.00	0	ACTIVE	78/02/01	07.11.10	78/03/01	23.55.21	6568
		ADDED	78/02/01	07.11.10	78/03/01	23.55.21	6568	HISTORY	00/00/00	00.00.00	00/00/00	00.00.00	0
TOTALS		PREVIOUS					0	ACTIVE					6568
		ADDED					6568	HISTORY					0

SIMS DETAIL MEAS RECORDS PROCESSING SUCCESSFUL

Figure 6.2-7. Sample Merge and Summary Detail Records Reports

RUN TIME 78/03/13 19.44
PAGE 1

REPORT ON HOURLY PERF EVAL RECORDS													
SITE	SUBTYPE	ORIGIN:	FIRST TIME		LAST TIME		COUNT	DEST:	FIRST TIME	LAST TIME	COUNT		
022	1	PREVIOUS	00/00/00	00.00.00	00/00/00	00.00.00	0	ACTIVE	78/02/01	07.59.59	78/03/01	22.59.59	589
		GENERATED	78/02/01	07.59.59	78/03/01	22.59.59	589	HISTORY	00/00/00	00.00.00	00/00/00	00.00.00	0
TOTALS		PREVIOUS					0	ACTIVE					589
		GENERATED					589	HISTORY					0

SIMS HOURLY PERF EVAL RECORDS PROCESSING SUCCESSFUL.

Figure 6.2-8. Sample Merge and Summary Hourly Records Report

RUN TIME 78/03/13 19.47
PAGE 1

REPORT ON DAILY PERF EVAL RECORDS													
SITE	SUBTYPE	ORIGIN:	FIRST TIME		LAST TIME		COUNT	DEST:	FIRST TIME	LAST TIME	COUNT		
022	1	PREVIOUS	00/00/00	00.00.00	00/00/00	00.00.00	0	ACTIVE	78/02/01	23.59.59	78/02/28	23.59.59	24
		GENERATED	78/02/01	23.59.59	78/02/28	23.59.59	24	HISTORY	00/00/00	00.00.00	00/00/00	00.00.00	0
TOTALS		PREVIOUS					0	ACTIVE					24
		GENERATED					24	HISTORY					0

SIMS DAILY PERF EVAL PROCESSING SUCCESSFUL.

Figure 6.2-9. Sample Merge and Summary Daily Records Report

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Table 6.2-3. History Program Error Message (Sheet 1 of 3)

<p>Message: DETAIL RECORD SELECT COMPLETION CODE _____</p> <p>Subroutine: HISTORY (Main) prints message to indicate return code from routine HSELECT.</p> <p>Explanation: Completion code 0 means successful. Any other code means not successful, in which case a previous message should indicate a reason for the failure.</p>
<p>Message: GENERATE HOURLY RECORDS COMPLETION CODE _____</p> <p>Subroutine: HISTORY (Main) prints message to indicate return code from routine GENHRLY.</p> <p>Explanation: Completion code 0 means successful. Any other code means not successful, in which case a previous message should indicate a reason for the failure.</p>
<p>Message: GENERATE DAILY RECORDS COMPLETION CODE _____</p> <p>Subroutine: HISTORY (Main) prints message to indicate return code from routine GENDALY.</p> <p>Explanation: Completion code 0 means successful. Any other code means not successful, in which case a previous message should indicate a reason for the failure.</p>
<p>Message: TOTAL HISTORY PROGRAM COMPLETION CODE _____</p> <p>Subroutine: HISTORY (Main)</p> <p>Explanation: Completion code 0 means successful. Any other code means not successful and a previous message should indicate a reason for the failure.</p>
<p>Message: CONVERSION ERROR</p> <p>Subroutine: HISTORY (Main)</p> <p>Explanation: Most probable cause is faulty data or no data in the execution parameter. Make sure execution parameter begins with six numeric characters.</p>

Table 6.2-3. History Program Error Message (Sheet 2 of 3)

<p>Message: PARM CONTAINS IMPOSSIBLE HISTORY DATE</p> <p>Subroutine: HISTORY (Main)</p> <p>Explanation: Parameter must start with six characters specifying Year, Month, and Last Day in Month of the month being historied. Correct PARM and rerun.</p>
<p>Message: PARM INPUT FOR NEW HISTORY TIME IS NOT > OLD HISTORY TIME. OLD HISTORY TIME IS _____</p> <p>Subroutine: HISTORY (Main)</p> <p>Explanation: Trying to run without advancing the history date. Either PARM is wrong or the wrong data is in the History Date file.</p>
<p>Message: PARM INPUT FOR NEW HISTORY TIME _____ IS NOT < RUN TIME _____</p> <p>Subroutine: HISTORY (Main)</p> <p>Explanation: Bad execution parameter (PARM) or a bad system clock time.</p>
<p>Message: INPUT DETAIL RECORDS HAVE WRONG LEVEL. PROCESSING STOPPED.</p> <p>Subroutine: HSELECT</p> <p>Explanation: Incorrect job setup. Using wrong data in old detail record file.</p>
<p>Message: SELECTED DETAIL RECORDS USED TO GENERATE HOURLY RECORDS HAVE WRONG LEVEL. PROCESSING STOPPED.</p> <p>Subroutine: GENHRLY</p> <p>Explanation: Either incorrect job setup or a software problem in HISTORY or HSELECT.</p>
<p>Message: OLD HISTORICAL DAILY RECORDS HAVE WRONG LEVEL. PROCESSING STOPPED.</p> <p>Subroutine: GENDALY</p> <p>Explanation: Incorrect job setup. Using wrong data for old historical daily file (HSTDALY).</p>

Table 6.2-3. History Program Error Message (Sheet 3 of 3)

Message: HOURLY RECORDS USED TO GENERATE DAILY RECORDS HAVE WRONG LEVEL.
PROCESSING STOPPED.

Subroutine: GENDALY

Explanation: Incorrect job setup or a software error in HISTORY or GENHRLY.

Message: FOR SITE _____ AN OLD HISTORY DAILY RECORD HAS TIME _____ >
THE OLD HISTORY TIME.

Subroutine: GENDALY

Explanation: Incorrect job setup. The old history records (in file HSTDALY)
and the old history time do not agree. Perhaps a run was
aborted and data sets not restored correctly.

Message: AN ADDED DAILY RECORD HAS TIME _____ OUTSIDE THE CORRECT RANGE.

Subroutine: GENDALY

Explanation: A software problem in record selection criteria, storing time
in generated records, or in the test itself.

```

//STEPLIB DD DSN=SIMSIPS,LOADLIB,DISP=SHR
//RAWFILE DD DSN=SIMSIPS,RAWDATA,DISP=(OLD,KEEP)
//SITEDESC DD DSN=SIMSIPS,SITEINFO,FILE,DISP=(OLD,KEEP),DCB=DSORG=IS
//CONTEFF DD DSN=SIMSIPS,CONTEFF,DISP=(OLD,KEEP),DCB=DSORG=IS
//REJSCAN DD DSN=SIMSIPS,REJSCAN,DISP=MOD
//REJVARS DD DSN=SIMSIPS,REJVARS,DISP=MOD
//NIPSFIL DD DSN=SIMSIPS,ADDETL,DISP=(NEW,CATLG),UNIT=3330,
//VOL=SER=333004,SPACE=(TRK,40),
//DCB=(RECFM=FB,LRECL=355,BLKSIZE=6390)
//DATAFIL DD UNIT=SYSDA,SPACE=(TRK,(25,10)),
//DCB=(RECFM=FB,LRECL=1024,BLKSIZE=2048)
//FLAGFIL DD UNIT=SYSDA,SPACE=(TRK,(25,10)),
//DCB=(RECFM=FB,LRECL=1024,BLKSIZE=2048)
//SCANFIL DD UNIT=SYSDA,SPACE=(TRK,(25,10)),
//DCB=(RECFM=FB,LRECL=215,BLKSIZE=2150)
//SYSPRINT DD SYSOUT=A,UNIT=(SYSOUT,2),SPACE=(3520,(10,5)),
//DCB=(RECFM=VBA,LRECL=137,BLKSIZE=3520)
//REP2FIL DD SYSOUT=A,UNIT=(SYSOUT,2),SPACE=(3520,(10,5)),
//DCB=(RECFM=VBA,LRECL=137,BLKSIZE=3520)
//DETPRNT DD SYSOUT=A,UNIT=(SYSOUT,2),SPACE=(3520,(100,20)),
//DCB=(RECFM=FB,LRECL=137,BLKSIZE=3520)
//MERGSM EXEC PGM=SIMSMRGS,REGION=130K,TIME=05,COND=(10,LT,RAWPROC)
//STEPLIB DD DSN=SIMSIPS,LOADLIB,DISP=SHR
//SORTIN DD DSN=SIMSIPS,ADDETL,DISP=(OLD,KEEP)
//SORTOUT DD UNIT=SYSDA,SPACE=(TRK,40),
//DCB=(RECFM=FB,LRECL=355,BLKSIZE=6390)
//SYSOUT DD SYSOUT=A
//SORTWK01 DD UNIT=SYSDA,SPACE=(TRK,(200,100)),CONTIG)
//SORTWK02 DD UNIT=SYSDA,SPACE=(TRK,(200,100)),CONTIG)
//SORTWK03 DD UNIT=SYSDA,SPACE=(TRK,(200,100)),CONTIG)
//SORTWK04 DD UNIT=SYSDA,SPACE=(TRK,(200,100)),CONTIG)
//SORTWK05 DD UNIT=SYSDA,SPACE=(TRK,(200,100)),CONTIG)
//SORTWK06 DD UNIT=SYSDA,SPACE=(TRK,(200,100)),CONTIG)
//SORTLIB DD DSN=SYSL,SortLIB,DISP=SHR
//HISTFIL DD DSN=SIMSIPS,HISTDATE,DISP=(OLD,KEEP)
//OLDDETL DD DSN=SIMSIPS,DETAIL.CURRENT.&OLDDATE,DISP=(OLD,KEEP)
//HSTDALY DD DSN=SIMSIPS,DAILY.HISTORY,DISP=(OLD,KEEP)
//DETLOUT DD DSN=SIMSIPS,DETAIL.CURRENT.&DATE,UNIT=TAPE9,
//DISP=(NEW,CATLG,VOL=(,5),DCB=(RECFM=FB,LRECL=355,BLKSIZE=6390)
//HRLYOUT DD DSN=SIMSIPS,HOURLY.CURRENT,DISP=(NEW,CATLG),UNIT=3330,
//VOL=SER=333004,SPACE=(TRK,40),
//DCB=(RECFM=FB,LRECL=355,BLKSIZE=6390)
//DALYOUT DD DSN=SIMSIPS,DAILY.CURRENT,DISP=(NEW,CATLG),UNIT=3330,
//VOL=SER=333004,SPACE=(TRK,5),
//DCB=(RECFM=FB,LRECL=355,BLKSIZE=6390)
//REPTFIL DD SYSOUT=A,UNIT=(SYSOUT,2),SPACE=(3520,(10,5)),
//DCB=(RECFM=VBA,LRECL=137,BLKSIZE=3520)
//SYSPRINT DD SYSOUT=A,UNIT=(SYSOUT,2),SPACE=(3520,(10,5)),
//DCB=(RECFM=VBA,LRECL=137,BLKSIZE=3520)
//NITESAV EXEC PGM=SIMSSAVI,REGION=130K,TIME=02,
//COND=(10,LT,RAWPROC),(0,T,MERGSM))
//STEPLIB DD DSN=SIMSIPS,LOADLIB,DISP=SHR
//IN1 DD DSN=SIMSIPS,SITEINFO,FILE,DISP=(OLD,KEEP),DCB=DSORG=IS
//IN2 DD DSN=SIMSIPS,RAWDATA,DISP=(OLD,KEEP)
//IN3 DD DSN=SIMSIPS,ADDETL,DISP=(OLD,KEEP)
//IN4 DD DSN=SIMSIPS,CONTEFF,DISP=(OLD,KEEP),DCB=DSORG=IS
//IN5 DD DSN=SIMSIPS,REJSCAN,DISP=(OLD,KEEP)
//IN6 DD DSN=SIMSIPS,REJVARS,DISP=(OLD,KEEP)
//OUT1 DD DSN=SIMSIPS,SITEINFO,FILE.&DATE,DISP=(NEW,KEEP),UNIT=TAPE9,
//LABEL=(1,SL,RETPD=75),DCB=(RECFM=FB,LRECL=2218,BLKSIZE=6654)
//OUT2 DD DSN=SIMSIPS,RAWDATA.&DATE,DISP=(NEW,KEEP),UNIT=TAPE9,
//VOL=REF=*,OUT1,LABEL=(2,SL,RETPD=75),
//DCB=(RECFM=FB,LRECL=256,BLKSIZE=4096)
//OUT3 DD DSN=SIMSIPS,ADDETL.&DATE,DISP=(NEW,KEEP),UNIT=TAPE9,
//LABEL=(1,SL,RETPD=15),DCB=(RECFM=FB,LRECL=355,BLKSIZE=6390)
//OUT4 DD DSN=SIMSIPS,CONTEFF.&DATE,DISP=(NEW,KEEP),UNIT=TAPE9,
//VOL=REF=*,OUT3,LABEL=(2,SL,RETPD=15),
//DCB=(RECFM=FB,LRECL=377,BLKSIZE=3770)
//OUT5 DD DSN=SIMSIPS,REJSCAN.&DATE,DISP=(NEW,KEEP),UNIT=TAPE9,
//VOL=REF=*,OUT3,LABEL=(3,SL,RETPD=15),
//DCB=(RECFM=FB,LRECL=248,BLKSIZE=2480)
//OUT6 DD DSN=SIMSIPS,REJVARS.&DATE,DISP=(NEW,KEEP),UNIT=TAPE9,
//VOL=REF=*,OUT3,LABEL=(4,SL,RETPD=15),
//DCB=(RECFM=FB,LRECL=41,BLKSIZE=4100)
//SYSPRINT DD SYSOUT=A,UNIT=(SYSOUT,2),SPACE=(3520,(10,5)),
//DCB=(RECFM=VBA,LRECL=137,BLKSIZE=3520)

```

Figure 6.2-14. JCL Procedure for Nightly IPS Production Run

```

//HISTORY EXEC PGM=SIMSHIST, REGION=130K, TIME=10
//STEPLIB DD DSN=SIMSIPS.LOADLIB, DISP=SHR
//HISTFIL DD DSN=SIMSIPS.HISTDATE, DISP=(OLD,KEEP)
//OLDDETL DD DSN=SIMSIPS.DETAIL.CURRENT.&OLDDATE, DISP=(OLD,KEEP)
//HSTCALY DD DSN=SIMSIPS.DAILY.OLDHIST, DISP=(OLD,KEEP)
//DETLOUT DD DSN=SIMSIPS.DETAIL.HISTORY.&MONTH, UNIT=TAPE9, VOL=(,,5),
// DISP=(NEW,CATLG), LABEL=(1,SL,EXPDT=85365),
// DCB=(RECFM=FB, LRECL=355, BLKSIZE=6390)
//HRLYOUT DD DSN=SIMSIPS.HOURLY.HISTORY.&MONTH, UNIT=TAPE9,
// DISP=(NEW,CATLG), LABEL=(1,SL,EXPDT=85365),
// DCB=(RECFM=FB, LRECL=355, BLKSIZE=6390)
//DALYOUT DD DSN=SIMSIPS.DAILY.HISTORY, DISP=(NEW,CATLG), UNIT=3330,
// VOL=SER=333004, SPACE=(TRK,5),
// DCB=(RECFM=FB, LRECL=355, BLKSIZE=6390)
//SYSPRINT DD SYSOUT=A, UNIT=(SYSOUT,2), SPACE=(3520,(10,5)),
// DCB=(RECFM=VBA, LRECL=137, BLKSIZE=3520)
//REPTFIL DD SYSOUT=A, UNIT=(SYSOUT,2), SPACE=(3520,(10,5)),
// DCB=(RECFM=VBA, LRECL=137, BLKSIZE=3520)
//HISTS AV EXEC PGM=SIMSAV2, REGION=130K, TIME=5, COND=(0,LT,HISTORY)
//STEPLIB DD DSN=SIMSIPS.LOADLIB, DISP=SHR
//IN1 DD DSN=SIMSIPS.HISTDATE, DISP=SHR
//IN2 DD DSN=SIMSIPS.DAILY.HISTORY, DISP=SHR
//OUT1 DD DSN=SIMSIPS.HISTDATE.&MONTH, UNIT=TAPE9, DISP=(NEW,KEEP),
// LABEL=(1,SL,EXPDT=85365), DCB=(RECFM=FB, LRECL=25, BLKSIZE=250)
//OUT2 DD DSN=SIMSIPS.DAILY.HISTORY.&MONTH, UNIT=TAPE9, DISP=(NEW,KEEP),
// VOL=REF=*.OUT1, LABEL=(2,SL,EXPDT=85365),
// DCB=(RECFM=FB, LRECL=355, BLKSIZE=6390)
//SYSPRINT DD SYSOUT=A, UNIT=(SYSOUT,2), SPACE=(3520,(10,5)),
// DCB=(RECFM=VBA, LRECL=137, BLKSIZE=3520)
//DELT DD DSN=SIMSIPS.DAILY.OLDHIST, DISP=(OLD,DELETE)

```

Figure 6.2-15. JCL Procedure for IPS History Production Run

```

//TAPECOPY EXEC PGM=TAPECOPY,REGION=124K,TIME=5
//SYSPRINT DD SYSOUT=A,UNIT=(SYSOUT,2),SPACE=(3520,(5,5))
//SYSABEND DD SYSOUT=A,SPACE=(1632,(4,300)),UNIT=(SYSOUT,2)
//INPUT DD DSN=IN COPY,DISP=(OLD,KEEP),UNIT=(TAPE9,,DEFER),
// LABEL=(1,SL),VOL=SER=XXXX1
//OUTPUT DD DSN=OUT COPY,DISP=(NEW,KEEP),UNIT=(TAPE9,,DEFER),
// LABEL=(1,SL,EXPT=85365)
//COPYREJS EXEC PGM=SIMSAPV3,REGION=130K,TIME=3
//STEPLIB DD DSN=SIMSIPS.LOADLIB,DISP=SHR
//SYSPRINT DD SYSOUT=A,UNIT=(SYSOUT,2),SPACE=(3520,(10,5)),
// DCB=(RECFM=VBA,LRECL=137,BLKSIZE=3520)
//IN1 DD DSN=SIMSIPS.REJSCAN,DISP=(OLD,KEEP)
//IN2 DD DSN=SIMSIPS.REJVARS,DISP=(OLD,KEEP)
//OUT1 DD DSN=SIMSIPS.REJSCAN.EMONTH,UNIT=TAPE9,DISP=(NEW,KEEP),
// LABEL=(1,SL,EXPT=85365),DCB=(RECFM=FB,LRECL=248,BLKSIZE=4960)
//OUT2 DD DSN=SIMSIPS.REJVARS.EMONTH,UNIT=TAPE9,DISP=(NEW,KEEP),
// LABEL=(2,SL,EXPT=85365),DCB=(RECFM=FB,LRECL=41,BLKSIZE=4100),
// VOL=REF=*.OUT1
//DELTREJS EXEC PGM=IEHPRGM,REGION=60K,TIME=(,5),COND=(0,LT,COPYREJS)
//SYSPRINT DD SYSOUT=A
//DELT1 DD DSN=SIMSIPS.REJSCAN,DISP=(OLD,DELETE)
//DELT2 DD DSN=SIMSIPS.REJVARS,DISP=(OLD,DELETE)
//SYSIN DD DUMMY,DCB=(BLKSIZE=80)
//ALLOCREJ EXEC PGM=IEHPRGM,REGION=60K,TIME=(,5),
// COND=(0,LT,COPYREJS),(0,LT,DELTREJS)
//SYSPRINT DD SYSOUT=A
//ALLOCL1 DD DSN=SIMSIPS.REJSCAN,DISP=(NEW,CATLG),UNIT=3330,
// VOL=SER=333004,SPACE=(TRK,20),
// DCB=(RECFM=FB,LRECL=248,BLKSIZE=4960)
//ALLOCL2 DD DSN=SIMSIPS.REJVARS,DISP=(NEW,CATLG),UNIT=3330,
// VOL=SER=333004,SPACE=(TRK,30),
// DCB=(RECFM=FB,LRECL=41,BLKSIZE=4100)
//SYSIN DD DUMMY,DCB=(BLKSIZE=80)

```

Figure 6.2-16. JCL Procedure for Run to Group Raw Data and Save Rejected Data

```

//PSIMSTAP JOB (ACCT INFO),MSGLEVEL=1,CLASS=8
// EXEC SIMSTAPP,MONTH=JAN77
//TAPECOPY.SYSIN DD *
FILES=1,REEL=XXXX01 X
DSNAME=SIMSIPS.SITEINFO.FILE.D770101 X
FILES=1 X
DSNAME=SIMSIPS.RAWDATA.D770101 X
RUN=YES,FILES=1,REEL=XXXX02 X
DSNAME=SIMSIPS.SITEINFO.FILE.D770102 X
FILES=1 X
DSNAME=SIMSIPS.RAWDATA.D770102 X
RUN=YES,FILES=1,REEL=XXXX03 X
DSNAME=SIMSIPS.SITEINFO.FILE.D770103 X
FILES=1 X
DSNAME=SIMSIPS.RAWDATA.D770103 X
:
:
:
RUN=YES,FILES=1,REEL=XXXX31 X
DSNAME=SIMSIPS.SITEINFO.FILE.D770131 X
FILES=1 X
DSNAME=SIMSIPS.RAWDATA.D770131 X
/*

```

Figure 6.2-17. Sample Setup for Run to Group Raw Data and Save Rejected Data

Figure 6.2-14 contains a representative JCL procedure for the nightly IPS production run. A sample deck setup for the nightly IPS run follows:

```
//PSIMSIPS Job (acct.), CLASS=C
// EXEC SIMSIPNP, DATE=D760704, OLDDATE=D760703
//
```

DATE specifies the day (year, month, and day in month) on which the run is submitted. OLDDATE specifies the day of the previous run. The sample setup above would be correct for the run submitted July 4, 1976 for execution on the night of July 4 - July 5, 1976.

NOTE: In support of S/7 to S/370 data transfer and nightly IPS execution the following data sets should be deleted each afternoon:

```
SIMSIPS.RAWDATA
SIMSIPS.HOURLY.CURRENT
SIMSIPS.DAILY.CURRENT
SIMSIPS.ADDDETL
```

SIMSIPS.RAWDATA should be preallocated after being deleted.

6.2.4.2 History Production Run

The history production run is executed on a monthly basis after all data for all sites for the month has been processed and merged into the data base. (If all sites are called daily then the January run might be made the night of February 2 - February 3). The history production run includes executing the history program.

Figure 6.2-15 contains a representative JCL procedure for the history production run. A sample deck setup for the run follows:

```
//PSIMSHST Job (acct.), CLASS=B
// EXEC SIMSHSTP, PARM='770131JANUARY1977',
// MONTH=JAN77, OLDDATA=D770201
```

The sample setup above would be correct for a history run for the month of January 1977 run the night of February 2 - February 3. PARM should contain the year, month, last day in the month of the history month plus a spelled out name of the history month. MONTH should contain a semi-spelled-out version of the history month 'JAN77', 'FEB77', etc. OLDDATA should contain character D plus yesterday's year, month, and day in month.

NOTE: As preparation for the history production run, data set SIMSIPS.DAILY.HISTORY should be renamed SIMSIPS.DAILY.OLDHIST.

6.2.4.3 Run to Group Raw Data and Save Rejected Data

This run groups many tapes of raw data and site data description files onto one tape. It also saves the contents of the rejected scan and rejected variable files on a permanent tape and reinitializes the rejected files.

The job is run once a month. It is normally submitted on the first day of a month and run during the night between the 1st and 2nd days in the month.

Figure 6.2-16 contains a representative JCL procedure (PROC) for this run. Figure 6.2-17 contains a sample deck setup for the run.

The sample setup is for the January 1977 run which would be submitted the afternoon of February 1. Symbolic parameter MONTH should specify the just completed month e.g. 'JAN77', 'FEB77', etc. The tapecopy Sysin cards should specify the copying of all the site information/raw data tapes for the month. Tape reel numbers and DSnames must be supplied.

6.2.5 Site Description File Maintenance

Maintenance of the Site Data Description file includes:

- Making changes to the site data information card file in accordance with input received from site performance analysts.
- Running the Site Data Description utility to update the Site Data Description file.
- Examining printout from the Site Data Description Utility.
- Maintaining current listing of file contents.

Changing the Site Data Information Card File

The Site Data Information Card file is a PDS (DSNAME is SIMSIPS.SITEINFO.CARDS) with one member for each active site. The member for site XXXXX is named SITxxxxx. The member for a site contains one general information card (A-card) for the site and one card (B-card) for each measurement (i.e., parameter recorded) at the site. Add, replace, or delete subcodes 'A', 'R', or 'D' must be placed in column 7 of the A-cards. The order must be A-card, then B-cards. Formats of cards are shown in figure 6.2-18. Instructions on completion of cards are contained in Section 8.2 of this document.

Either MIMT or IEBUPDTE may be used for UPDATE; however, a record of all changes must be maintained.

PAGE 1 = GENERAL INFORMATION
DATE: _____
NEW, CHANGE, OR DELETE (CIRCLE)
SIGNATURE: _____

SITE DATA INFORMATION

TO CHANGE ANY INFORMATION ON THIS PAGE, COMPLETE ALL ITEMS EXCEPT CARD CODE. TO DELETE A SITE, FILL IN SITE ID AND DATE, CIRCLE 'DELETE' AND COMPLETE SIGNATURE.

- 49
- 1 — — — 5 SITE ID (EXAMPLE 00043)
- A
6 7 CARD CODES (RESERVED FOR FILE MAINTENANCE TECHNICIAN USE)
- 8 9 SYSTEM TYPE ('HC' = HEATING & COOLING, 'H# = HEATING, OR 'HW' = HOT WATER)
- 10 11 PRINT LEVEL ('12' = MOST DETAILED LEVEL INCLUDES PRINT OF DETAIL RECORDS,
'08' = NORMAL LEVEL, '04' = LESS DETAIL THAN NORMAL,
'00' = NO PRINTING)
- 12 13 SCAN LEVEL (NO. OF BYTES OF DATA IN ONE SCAN. DO NOT INCLUDE TIME BYTES).
- 14 TIME ZONE ('E' = EASTERN, 'C' = CENTRAL, 'M' = MOUNTAIN, 'P' = PACIFIC)
- 15 — — — 19 COLLECTOR AREA (SQUARE FEET, RIGHT JUSTIFY)

Figure 6.2-18. Site Data Information Forms (Page 1 of 3)

SITE

CARD CODE B

SITE DATA INFORMATION

IF NEW COMPLETE ALL INFO ABOUT ALL MEASUREMENTS AND
 LINE THROUGH NON-EXISTENT MEASUREMENTS.
 IF CHANGE COMPLETE ALL INFO ABOUT A NEW OR CHANGED MEASUREMENT
 LINE THROUGH TO DELETE A MEASUREMENT.

PG 2 PART 1 OF MEASUREMENT 1

DATE: _____

NEW OR CHANGE (CIRCLE)

RESP SIG _____

MEASUREMENT DESCRIPTIVE NAME	MEAS CODED NAME	BYTE POS IN SCAN 1 = 1st BYTE TIME	LENGTH IN SCAN 1 OR 2	CONVERSION INFORMATION				UNIT OF CONVERTED VALUE	TESTING INFORMATION				
				T Y P E	TYPE MAY BE L = LINEAR, Q = QUADRATIC, T = THIRD ORDER OR D = DISCRETE. IF 1 IS RAW BIT VALUE SEE FORMULAS BELOW TO COMPLETE CONVERTED VALUE CV				UNITS OF COMPUTED VALUE			*TO TEST FOR FROZEN STATE	
					A	B	C		D	MIN VALUE	MAX VALUE		MAXIMUM CHANGE BETWEEN READINGS
WIND DIRECTION	D001							0 FROM N					
COLLECTOR CIRC PUMP POWER	EP101							KW					
HW ELEC AUX POWER	EP300							KW					
HW CIRC PUMP POWER	EP301							KW					
HTG ELEC AUX POWER	EP400							KW					
HTG LOOP CIRC PUMP POWER	EP401							KW					
BLDG FAN POWER	EP402							KW					
HEAT PUMP COMPRESS POWER	EP403							KW					
ABSORP CHILLER OPEN POWER	EP501							KW					
HW AUX FUEL FLOW	F300							FT3/MIN					
HTG AUX FUEL FLOW	F400							FT3/MIN					
COOLING AUX FUEL FLOW	F500							FT3/MIN					
TOTAL RADIATION	I001							KGTU/HR					
DIFFUSE RADIATION	I002							KGTU/HR					
OUTDOOR DB TEMPERATURE	T001							OF					
COLLECTOR INLET TEMPERATURE	T100							OF					
STORAGE INLET TEMPERATURE	T101							OF					
COLLECTOR ABSORBER TEMP	T102							OF					
STORAGE MEDIA AVG TEMP	T200							OF					
STORAGE AMBIENT TEMP	T201							OF					
MAKEUP WATER TEMP	T300							OF					
HX INLET TEMP	T301							OF					
LOAD RETURN TEMP	T400							OF					
LOAD HX INLET TEMP	T500							OF					
COOLING TOWER INLET TEMP	T501							OF					
BLDG RETURN AIR DB TEMP	T600							OF					
BLDG RETURN AIR WB TEMP	T601							OF					
BLDG SUPPLY AIR WB TEMP	T602							OF					

KEYPUNCH SITE ID +
 CARD CODE OR ALL CARDS

TYPE

L: CV = A + BI
 Q: CV = A + BI + CI²
 T: CV = A + BI + CI² + DI³

TYPE

D: CV = $\begin{cases} 1, & \text{IF } A \leq I \leq B \\ 0 & \text{OTHERWISE} \end{cases}$

IF NEW COMPLETE ALL INFO ABOUT ALL MEASUREMENTS AND
 LINE THROUGH NON-EXISTENT MEASUREMENTS.
 IF CHANGE COMPLETE ALL INFO ABOUT A NEW OR CHANGED MEASUREMENT
 LINE THROUGH TO DELETE A MEASUREMENT.

MEASUREMENT DESCRIPTIVE NAME	MEAS CODED NAME	BYTE POS IN SCAN 1 = 1st BYTE TIME	LENGTH IN SCAN 1 OR 2	CONVERSION INFORMATION				UNITS OF CONVERTED VALUE	TESTING INFORMATION				
				TYPE	TYPE MAY BE L = LINEAR, Q = QUADRATIC, T = THIRD ORDER OR D = DISCRETE. IF 1 IS RAW BIT VALUE SEE FORMULAS BELOW TO COMPLETE CONVERTED VALUE CV				UNITS OF COMPUTED VALUE			*TO TEST FOR FROZEN STATE	
					A	B	C		D	MIN VALUE	MAX VALUE		MAXIMUM CHANGE BETWEEN READINGS
COLLECTOR TEMP DIFF	TD100							°F					
STORAGE TEMP DIFF (C&TS)	TD101							°F					
STORAGE TEMP DIFF (HWS)	TD300							°F					
HX TEMP DIFF	TD301							°F					
LOAD HX TEMP DIFF	TD302							°F					
STORAGE TEMP DIFF (HTS)	TD400							°F					
AUXILIARY TEMP DIFF	TD401							°F					
LOAD HX TEMP DIFF (HTS)	TD402							°F					
LOAD HX TEMP DIFF (SCS)	TD500							°F					
COOLING TOWER TEMP DIFF	TD501							°F					
SUPPLY/RETURN AIR TEMP DIFF	TD600							°F					
WIND VELOCITY	W100							MPH					
COLLECTOR FLOW RATE	W100							GAL/MIN					
CIRCULATION FLOW RATE (HWS)	W300							GAL/MIN					
LOAD FLOW RATE	W301							GAL/MIN					
CIRCULATION FLOW RATE (HTS)	W400							GAL/MIN					
LOAD HX FLOW RATE	W500							GAL/MIN					
COOLING TOWER FLOW RATE	W501							GAL/MIN					
BLDG AIR FLOW RATE	W600							FT3/MIN					
CONDENSATE FLOW	W601							FT3/MIN					
SPARE	SP01							--					
SPARE	SP02							--					
SPARE	SP03							--					
SPARE	SP04							--					
SPARE	SP05							--					
SPARE	SP06							--					
SPARE	SP07							--					
SPARE	SP08							--					
SPARE	SP09							--					
SPARE	SP10							--					

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KEYPUNCH SITE ID +
 CARD CODE OR ALL CARDS

TYPE
 L: CV = A + BI
 Q: CV = A + BI + CI²
 T: CV = A + BI + CI² + DI³

TYPE
 D: CV = $\begin{cases} 1, \text{ IF } A < I < B \\ 0 \text{ OTHERWISE} \end{cases}$

Figure 6-2-18 Site Data Information Forms (Page 3 of 3)

Running the Site Data Description Utility

Figure 6.2-19 contains the JCL procedure for executing the Site Data Description utility. Figure 6.2-20 contains a sample deck setup for executing the procedure. The date parameter is used to specify the year, month, and day of the run. 'OPTION=OLD' means this is a normal run updating the Site Data Description File. 'OPTION=NEW' would be used for a run creating a new Site Data Description File. 'OPTION=PRINT' specifies a run to print the contents of the file. 'OPTION=OLD' is a default parameter. SYSIN should include, concatenated together, the members of the site data information card file for all sites whose information is to be added, changed, or deleted.

Examining Printout from the Site Data Description Utility

Site Data Description Utility printout includes:

- An overall summary page (see figure 6.2-21)
- A print of card images and errors detected in the cards for each site for which information was added or changed. (see figure 6.2-22)
- Printouts of new or replacement site data description records which were placed in the site data description file (see figure 6.2-23)
NOTE: The Site Data Description Utility can be run in a print only mode in which all records in the Site Data Description file are printed.
- Possible messages about sites being deleted or cards out of place.

Error condition/messages and corrective actions are shown in table 6.2-4.

Maintain Current Listing of File Content

A Site Description File Maintenance Notebook must be maintained which contains the current contents of each entry in the file. A history of all changes must be included in the notebook. Upon completion of each update cycle, the resulting listing must be added to the notebook.

Copies of current contents listing must be provided to Performance Analysts.

```

// PROC OPTION=OLD, DAYS=0360, DATE=DATE
//SAVE EXEC PGM=PDSAD69U, REGION=78K, TIME=2
//SYSPRINT DD SYSOUT=A
//SYSUT1A DD DSN=SIMSIPS.SITEINFO.CARDS, DISP=SHR
//SYSUT2A DD DSN=SIMSIPS.SITEINFO.CARDS.&DATE, DISP=(NEW,KEEP),
// UNIT=TAPE9, LABEL=(1,SL,RETPD=&DAYS),
// DCB=(RECFM=FB, LRECL=80, BLKSIZE=3200)
//SYSIN DD UNIT=SYSDA, SPACE=(TRK,10)
//SDDU EXEC PGM=SIMSSDDU, REGION=130K, TIME=5, PARM='&OPTION'
//STEPLIB DD DSN=SIMSIPS.LOADLIB, DISP=SHR
//SITEID DD DSN=SIMSIPS.SITEINFO.FILE, DISP=(OLD,KEEP), DCB=DSORG=IS
//RPTPRNT DD SYSOUT=A, DCB=(RECFM=VBA, LRECL=137, BLKSIZE=3520)
//TOTRPT DD SYSOUT=A, DCB=(RECFM=VBA, LRECL=137, BLKSIZE=3520)
//SYSPRINT DD SYSOUT=A, DCB=(RECFM=VBA, LRECL=137, BLKSIZE=3520)

```

Figure 6.2-19. JCL Procedure for Site Data Description Utility

```

// JOB (ACCT INFO), CLASS=B
// EXEC SIMSSDDU, DATE=D760930, OPTION=OLD
//SDDU.SYSIN DD DSN=SIMSIPS.SITEINFO.CARDS(SIT00003)
// DD DSN=SIMSIPS.SITEINFO.CARDS(SIT00007)
// DD DSN=SIMSIPS.SITEINFO.CARDS(SIT00010)
//

```

Figure 6.2-20. Sample Setup for Site Data Description Utility

SDAS DATA INFORMATION FILE UTILITY PROGRAM
TOTALS REPORT FOR ALL SDASS

PAGE : 1
DATE : 12/12/77
TIME : 0850

SDAS ID	RUN PURPOSE	#ERRORS	STATUS
047	REPLACING A SDAS	0	** SUCCESSFUL **

1 TOTAL SDASS PROCESSED

1 TOTAL GOOD SDASS

0 TOTAL BAD SDASS

***** PROCESSING COMPLETE *****

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Figure 6.2-21. Sample Site Data Description Utility Site Totals Report

SDAS DATA INFORMATION FILE UTILITY PROGRAM
 UTILITY RUN FOR PURPOSE OF ** REPLACING A SDAS **
 SDAS ID 032

PAGE 3
 DATE : 09/29/77
 TIME : 1344

***** CARD IMAGES AND ERROR MESSAGES *****

032BCH48	952L0.0	1.0	C.0	0.0	0.0	1023.	1023.	SP031
032BCH04	072L0	+0488281E-07	0.	0.	0	50	+50.000	*TD100
032BCH05	112L0	+0976562E-07	C.	0.	0	100	+100.00	*TD101
032BCH34	672L0	+0976562E-07	0.	0.	0	100	+100.00	*TD300
032BCH10	192L-20	+1367187E-07	C.	0.	-20	120	+140.00	*T001
032BCH02	032L30	+1953125E-07	0.	0.	30	230	+200.00	*T100
032BCH12	232L3C	+1953125E-07	0.	0.	30	230	+200.00	*T101
032BCH20	352L30	+4101562E-07	C.	0.	30	450	+420.00	*T102
032BCH14	212L3C	+1953125E-07	0.	0.	30	230	+200.00	*T200
032BCH16	312L3C	+1953125E-07	C.	0.	30	230	+200.00	*T201
032BCH18	352L3C	+1953125E-07	0.	0.	30	230	+200.00	*T202
032BCH08	152L30	+1269531E-07	C.	0.	30	160	+130.00	*T300
032BCH15	292L+C000000E-07	+1000000E-06	0.	0.	0	10	+10.000	*W100
032BCH05	092R0.	+5561913E-07	0.	0.	0	10.1	+10.100	*W301

TOTAL B-CARDS PROCESSED = 48

END OF SDAS INFORMATION FILE UPDATE FOR SDAS #032

Figure 6.2-22. Sample SDDU Card Images/Error Messages Report

GENERAL INFORMATION REPORT

SDAS_ID 063
 PRINT_LEVEL 12
 SCAN_LENGTH 192
 TIME_ZONE C
 TIME_ZONE_OFFSET 0
 SITE_ID 025
 SUB_TYPE 5
 REV_LEVEL -
 REV_TIME 77/12/16 13.54
 SITE_NAME RANDOLPH AFB
 ANALYST_NAME UNKNOWN
 ENGINEER_NAME UNKNOWN

CODED MEASUREMENTS REPORT

MEASUREMENT	SCAN POS	LEN	NIPS PDS	CONV TYPE	CONV #1	CONV #2	CONV #3	CONV #4	MINIMUM VALUE	MAXIMUM VALUE	MAXIMUM CHANGE	MUST CHNG?
CH01 CAL18	1	2	1	L	0.000000	1.000000	0.000000	0.00000E+00	0.00000	1024.00000	1023.000000	YES
CH64 D001	127	2	64	L	0.000000	0.351906	0.000000	0.00000E+00	0.00000	468.00000	468.000000	YES
CH65 EP101	129	2	65	L	0.000000	0.039101	0.000000	0.00000E+00	0.00000	52.00000	52.000000	YES
CH71 EP311	141	2	71	L	0.000000	0.003910	0.000000	0.00000E+00	0.00000	5.20000	5.200000	YES
CH66 EP312	131	2	66	L	0.000000	0.003910	0.000000	0.00000E+00	0.00000	5.20000	5.200000	YES
CH72 EP313	143	2	72	L	0.000000	0.003910	0.000000	0.00000E+00	0.00000	5.20000	5.200000	YES
CH67 EP401	133	2	67	L	0.000000	0.039101	0.000000	0.00000E+00	0.00000	52.00000	52.000000	YES
CH81 EP404	161	2	81	L	0.000000	0.156403	0.000000	0.00000E+00	0.00000	208.00000	208.000000	YES
CH82 EP405	163	2	82	L	0.000000	0.156403	0.000000	0.00000E+00	0.00000	208.00000	208.000000	YES
CH73 EP412	145	2	73	L	0.000000	0.039101	0.000000	0.00000E+00	0.00000	52.00000	52.000000	YES
CH80 EP413	159	2	80	L	0.000000	0.000976	0.000000	0.00000E+00	0.00000	0.65000	0.650000	YES
CH89 EP414	177	2	89	L	0.000000	0.002930	0.000000	0.00000E+00	0.00000	1.94990	1.949900	YES
CH91 EP415	181	2	91	L	0.000000	0.011730	0.000000	0.00000E+00	0.00000	15.60000	15.599999	YES
CH92 EP416	183	2	92	L	0.000000	0.011730	0.000000	0.00000E+00	0.00000	15.60000	15.599999	YES
CH84 EP501	167	2	84	L	0.000000	0.007820	0.000000	0.00000E+00	0.00000	10.40000	10.400000	YES
CH90 EP503	179	2	90	L	0.000000	0.039101	0.000000	0.00000E+00	0.00000	52.00000	52.000000	YES
CH83 EP504	165	2	83	L	0.000000	0.011730	0.000000	0.00000E+00	0.00000	15.60000	15.599999	YES
CH27 F300	53	2	27	L	0.000000	0.782014	0.000000	0.00000E+00	0.00000	1040.00000	1040.000000	YES
CH49 I001	97	2	49	L	0.000000	2.867822	0.000000	0.00000E+00	0.00000	458.10986	458.109863	YES
CH09 SP001	17	2	9	L	0.000000	1.000000	0.000000	0.00000E+00	0.00000	1024.00000	1023.000000	YES
CH42 SP002	83	2	42	L	0.000000	1.000000	0.000000	0.00000E+00	0.00000	1024.00000	1023.000000	YES
CH46 SP003	91	2	46	L	0.000000	1.000000	0.000000	0.00000E+00	0.00000	1024.00000	1023.000000	YES
CH47 SP004	93	2	47	L	0.000000	1.000000	0.000000	0.00000E+00	0.00000	1024.00000	1023.000000	YES
CH53 SP005	105	2	53	L	0.000000	1.000000	0.000000	0.00000E+00	0.00000	1024.00000	1023.000000	YES

Figure 6.2-23. Sample Site Data Description Record Contents Report

Table 6.2-4. Site Data Description Utility Messages (Sheet 1 of 6)

<p>Message: 'CONVERSION ERROR IN FIELD' '<u>NNNNN</u>' 'REPLACED BY 0'. **ERROR**</p> <p>Reason: An invalid numeric character has been detected in field '<u>NNNNN</u>' and replaced with zero so that further editing may continue.</p> <p>Action: The invalid numeric field must be replaced with a valid numeric field and the program rerun. If a number other than zero is desired.</p> <p>Routine: Main PGM</p>
<p>Message: 'RECORD NOT FOUND FOR SITE ID NUMBER <u>NNNNN</u> **ERROR**</p> <p>Reason: An attempt was made to delete or replace a site ID not on the Site Data Description file. '<u>NNNNN</u>' is the ID Number.</p> <p>Action: Change the Site ID to a valid number that exists on the file and rerun the program.</p> <p>Routine: Main Program</p>
<p>Message: 'RECORD ALREADY EXISTS FOR SITE ID NUMBER' <u>NNNNN</u> **ERROR**</p> <p>Reason: An attempt was made to add a duplicate site to the Site Data Description file. '<u>NNNNN</u>' is the Site ID.</p> <p>Action: Change the Site ID Number to one that is not on the file and rerun the program.</p> <p>Routine: Main Program</p>
<p>Message: 'INVALID KEY FOR SITE ID NUMBER' <u>NNNNN</u> **ERROR**</p> <p>Reason: A conversion error was detected when the Site ID was used as key in reading or writing the file. '<u>NNNNN</u>' is the invalid number.</p> <p>Action: Correct the Site ID Number and rerun the program</p> <p>Routine: Main Program</p>
<p>Message: 'PRINT OPTION COMPLETE'</p> <p>Reason: The last record on the file has been printed using the 'print' option.</p> <p>Action: None</p> <p>Routine: Main (print option processing section)</p>

Table 6.2-4. Site Data Description Utility Messages (Sheet 2 of 6)

<p>Message: 'SITE ID' <u>NNNNN</u> 'DELETED FROM THE SITE DATA DESCRIPTION FILE'</p> <p>Reason: Site ID Number '<u>NNNNN</u>' has been deleted.</p> <p>Action: None</p> <p>Routine: Main Program ('Delete' processing section)</p>
<p>Message: 'A-CARD--COLUMN 7--IS NOT EQUAL TO A, R, OR D' **ERROR**</p> <p>Reason: A valid code has not been entered into Column 7 of the A-Card. Valid codes are: A = ADD, R = REPLACE, or D = DELETE.</p> <p>Action: Correct and rerun</p> <p>Routine: Main Program</p>
<p>Message: 'ERROR IN PROCESSING A-CARD-TYPE FIELD = '_____' **ERROR**</p> <p>Reason: Column 6 of the A-Card does not contain an 'A'.</p> <p>Action: Correct and rerun.</p> <p>Routine: Main Program (A-Card section)</p>
<p>Message: 'TOTAL B-CARDS PROCESSED = '<u>NN</u>'</p> <p>Reason: To print total number of B-Cards processed for one site. '<u>NN</u>' is the total.</p> <p>Action: None</p> <p>Routine: Main Program (B-Card processing section)</p>
<p>Message: 'END OF SITE INFORMATION FIELD UPDATE FOR SITE' <u>NNNNN</u></p> <p>Reason: Successful end of utility for site '<u>NNNNN</u>'</p> <p>Action: None</p> <p>Routine: Main Program</p>

Table 6.2-4. Site Data Description Utility Messages (Sheet 3 of 6)

<p>Message: 'SITE DATA DESCRIPTION FILE NOT UPDATED FOR SITE' <u>NNNNN</u>.</p> <p>Reason: Unsuccessful end of a site. For site '<u>NNNNN</u>'.</p> <p>Action: Correct errors and rerun.</p> <p>Routine: Main Program</p>
<p>Message: 'SITE ID INVALID' **ERROR**</p> <p>Reason: Site ID value entered is less than 1 or greater than 99998.</p> <p>Action: Correct and rerun.</p> <p>Routine: A-Card-Edit.</p>
<p>Message: '<u>VV</u>' IS NOT VALID FOR SYSTEM TYPE **ERROR**</p> <p>Reason: Value '<u>VV</u>' entered is not equal to 'HC', 'H', or 'HW'. '<u>AA</u>' is the value entered.</p> <p>Action: Correct and rerun.</p> <p>Routine: A-Card-Edit</p>
<p>Message: <u>VV</u> 'IS INVALID FOR SCAN-LENGTH' **ERROR**</p> <p>Reason: Value '<u>VV</u>' entered is less than '8' or greater than '92'.</p> <p>Action: Correct and rerun.</p> <p>Routine: A-Card-Edit</p>
<p>Message: <u>VV</u> 'IS INVALID FOR PRINT LEVEL' **ERROR**</p> <p>Reason: Value '<u>VV</u>' entered is not equal to 0, 4, 8, or 12.</p> <p>Action: Correct and rerun</p> <p>Routine: A-Card-Edit</p>

Table 6.2-4. Site Data Description Utility Messages (Sheet 4 of 6)

Message: <u>V</u> IS INVALID FOR TIME ZONE' **ERROR**
Reason: Value ' <u>V</u> ' entered for time zone is not equal to 'E', 'C', 'M', or 'P'.
Action: Correct and rerun
Routine: A-Card-Edit
Message: <u>NN</u> 'FIELDS ON THE A-CARD ARE INVALID'
Reason: To print total errors found in the A-Card. ' <u>NN</u> ' is total.
Action: Correct errors and rerun.
Routine: A-Card-Edit
Message: <u>AAAAAA</u> 'HAS ALREADY BEEN USED AS A VARIABLE NAME IN A PREVIOUS B-CARD' **ERROR**
Reason: The variable name ' <u>AAAAAA</u> ' has already been used in a previous B-Card.
Action: Correct and rerun.
Routine: B-Card-Edit
Message: <u>AAAAAA</u> 'NOT FOUND IN VARIABLE NAME TABLE' **ERROR**
Reason: The variable entered was not found in the variable name table.
Action: Correct and rerun.
Routine: B-Card-Edit
Message: <u>LL</u> 'IS INVALID VALUE FOR INPUT LENGTH' **ERROR**
Reason: Input length ' <u>LL</u> ' entered is not equal to 1 or 2.
Action: Correct and rerun.
Routine: B-Card-Edit.

Table 6.2-4. Site Data Description Utility Messages (Sheet 5 of 6)

Message:	<u>NN</u> 'IS INVALID FOR POSITION IN INPUT' **ERROR**
Reason:	' <u>NN</u> ' entered for position in input is less than zero or greater than the scan length.
Action:	Correct and rerun.
Routine:	B-Card-Edit
Message:	<u>V</u> 'INVALID FOR CONVERSION TYPE' **ERROR**
Reason:	' <u>V</u> ' entered for conversion type is not equal to 'L', 'Q', 'D', 'T' or 'R'.
Action:	Correct and rerun.
Routine:	B-Card-Edit
Message:	'CONVERSION PARMS INVALID FOR CONVERSION TYPE. ONLY FIRST TWO PARMS USED. **ERROR**
Reason:	Conversion Type is 'L', 'D' or 'R' and conversion 3 or conversion 4 is not equal to zero.
Action:	Correct and rerun.
Routine:	B-Card-Edit
Message:	'CONVERSION PARMS INVALID FOR CONVERSION TYPE. SECOND PARM CANNOT BE LESS THAN FIRST PARM. *ERROR**
Reason:	Conversion type is 'D' and first and second parms must specify a range.
Action:	Correct and rerun.
Routine:	B-Card-Edit

Table 6.2-4. Site Data Description Utility Messages (Sheet 6 of 6)

Message:	'CONVERSION PARMS INVALID FOR CONVERSION TYPE. ONLY FIRST THREE PARMS USED. **ERROR**
Reason:	Conversion type is equal to 'Q' and CONV4 is not equal to zero.
Action:	Correct and rerun.
Routine:	B-Card-Edit
Message:	<u>NNNNNNNN</u> 'IS INVALID FOR MAXIMUM VALUE BECAUSE IT IS LESS THAN THE MINIMUM' **ERROR**
Reason:	Value ' <u>NNNNNNNN</u> ' is invalid for reason stated.
Action:	Correct and rerun.
Routine:	B-Card-Edit
Message:	<u>NNNNNNNN</u> 'IS INVALID VALUD FOR MAXIMUM CHANGE' **ERROR**
Reason:	Maximum change (NNNNNNNN) is greater than maximum value minus minimum value.
Action:	Correct and rerun.
Routine:	B-Card-Edit

6.3 DATA BASE MANAGEMENT PROGRAMMER/ANALYST USER GUIDELINES

The Data Base Management Programmer/Analyst must support the following capabilities within the CDPS:

- Maintenance of Data Base Software
- File Maintenance
- Terminal Processing
- Information retrieval
- Output Processing
- Plots of instrumentation data

The user guidelines to follow in providing these services are contained in subsequent paragraphs.

6.3.1 Applicable Documents

The following documents are required in order to support the use of the DATA BASE:

<u>Document Name</u>	<u>Number</u>
NIPS Users Manual Error Codes	CSM-UM-15-74
NIPS Users Manual Job Preparation Manual	CSM-UM-15-74
NIPS Users Manual Retrieval and Send Processor	CSM-UM-15-74
NIPS Users Manual File Structuring	CSM-UM-15-74
NIPS Users Manual Introduction to File Concepts	CSM-UM-15-74
NIPS Users Manual Output Processor	CSM-UM-15-74
NIPS Users Manual Utility Support	CSM-UM-15-74
NIPS Users Manual Terminal Processing	CSM-UM-15-74
Installation of NIPS 360 FFS	CSM-UM-15-74
NIPS Processing Handbook	TR-80-72
NIPS General Description	CSM-UM-15-74

6.3.2 Maintenance of Data Base Software

The Data Base Software consists of the National Military Command and Control Information Processing System (NIPS). This system is operational within the Host Computer and is maintained through changes generated by IBM FSD Gaithersburg personnel. Any changes made are distributed to the Data Base Programmer/Analyst for evaluation of applicability to SIMS utilization of the system. If considered essential to SIMS use, modification will be made to the data base software.

The Source Statements for NIPS are maintained in Washington, D.C. and are in S/360 Assembling Language form. Only the load modules are distributed for installation at outside facilities. Installation procedures are contained in "Installation of NIPS 360 FFS" manual.

The Data Base Software Load Modules are stored on disk within the S/370-145 and are named "FFSLIB." A backup image of the system is maintained on magnetic tape.

If changes are required to NIPS to support SIMS, formal requests will be made to IBM personnel in Gaithersburg to implement our unique requirements.

6.3.3 NIPS File Maintenance

File maintenance accepts the data bank update information generated during the input processing phase as well as inputs from system analysts, integration personnel and test personnel. It provides the capabilities required to enter/delete/archive data within the data bank.

The capabilities of file definition, file maintenance, and file revision provide the user with a broad and flexible capability for generating and maintaining data files. The user may add, delete, or change file records. Also, he may modify or change file fields and may change (increase or decrease) the volume of data associated with any file record. In addition to maintenance (or generation) of a data file, the user may create auxiliary output files simultaneously with the maintenance process.

A generative code technique is used in the actual data manipulation. To avoid wasteful regeneration, the system provides a complete, automatic library maintenance function for user logic statements. Maintenance execution, therefore, may consist of executing prestored logic statements, compiling logic statements and library updating, or a combination of these functions.

Other component functions provide for the creation of summaries, run logs, and/or audit trails during file processing.

Job Control Language (JCL) Statements to be used in file maintenance are found in "NIPS Users Manual - Job Preparation Manual."

File Structuring/Definition - The user submits, as input to the file structure component, a deck of statements defining the format for his file using the standard File Structuring Language detailed in the NIPS user manual Vol. II. An example of a Remote Site Operational data file structuring is shown in figure 6.3-1 with comments indicating the input card fields and their use. The NIPS file layout listing resulting from a computer generation of the File Structure module of NIPS is shown in figure 6.3-2.

File Revision - This routine of NIPS provides for the restructuring of an existing data file allowing for the deletion, addition and relocation of fields within the data file as well as changes to their storage mode, size and name. A user structures a File Format Table (FFT) describing the file in its revised format. The NIPS procedure 'XF' is then executed to provide the automatic generation of data sets and File Structuring control language to accept the desired data from the old file format and generate a new file with the desired changes incorporated. Figure 6.3-3 is a listing of the resulting output of a File Revision run of the NIPS system where File SOLSTAT was being revised and called File SOLSTAA.

File Maintenance - The File Maintenance routine provides the tool for generating and maintaining the structured data files. It will accept fixed or variable length, blocked or unblocked, or undefined transaction records from tape, disk, or card files. On any given File Maintenance run, file updating can be performed with a variety of transaction record formats. The user supplies the record update logic to be used in File Maintenance by writing logic statements in the File Maintenance Language. The File Maintenance Language commands are described in detail in the Users Manual on File Maintenance (Vol. III). A sample of File Maintenance Logic Statements is shown in figure 6.3-4. This series of commands was used to update a file named SOLSIT from a transaction tape containing parameteric data which would be obtained from the sensors at a remote location.

6.3.4 Terminal Processing

Terminal processing provides the user with the capability to access data within the data bank via an on-line terminal. It provides the interface to support both local and remote terminal devices and provides the user an on-line data retrieval capability and a display language for outputting data. In addition, it performs the translation of data base interrogation statements, performs sorting of data to be outputted, if requested, and qualifies the records for output dependent upon them meeting the criteria set by selected relational operations (such as equal to, greater than, less than, etc.) in the inquiry being processed.

The output portion makes available to the user operators for (1) placing information at the top and bottom of every page of output, (2) repositioning the display page number and/or system date, and (3) controlling the number of lines shown on each display page.

① STRUCTURE SOLDATA. ⑥

③	FIELD	ROSID	⑤ 2	⑥ C	⑦ ALPHA	⑧ *SYSTEM SITE ID*.
	FIELD	RSYID	2	C	ALPHA	*SYSTEM TYPE*.
	FIELD	RDATE	5	C	ALPHA	*DATE OF RECORD*.
	FIELD	RTMINT	1	C	ALPHA	*CODE*.

9 ⑩ GROUP SYSGRP ROSID RSYID RDATE RTMINT.

FIELD	RTCD	2	⑫ C1	NUMER	*CODE*.
FIELD	XCOLID	2	⑬ X	ALPHA	*COLLECTOR ID*.
FIELD	XCMBR	2	X	ALPHA	*MANUFACTURER CODE*.
FIELD	XCMAT	2	X	ALPHA	*MATERIAL CODE*.
FIELD	XCTYPE	2	X	ALPHA	*COLLECTOR TYPE*.
FIELD	XCOST	2	X	ALPHA	*COST CATEGORY*.
FIELD	XEFF	2	X	ALPHA	*EFFICIENCY RATING*.
FIELD	XSTOID	2	X	ALPHA	*STORAGE ID*.
FIELD	COMID	2	X	ALPHA	*COMMERCIAL ID*.
FIELD	XCOID	2	X	ALPHA	*COOLING SYSTEM ID*.
FIELD	XCOMAID	2	X	ALPHA	*COOLING MATERIAL ID*.
FIELD	XHEATID	2	X	ALPHA	*HEATING ID*.
FIELD	XHMAT	2	X	ALPHA	*HEATING MATERIAL*.
FIELD	XCONT	2	X	ALPHA	*CONTROL SYSTEM*.
FIELD	XHOTID	2	X	ALPHA	*HOT WATER ID*.
FIELD	XHOTTYP	2	X	ALPHA	*HOT WATER TYPE*.
FIELD	XTRAN	2	X	ALPHA	*TRANSPORT TYPE*.
FIELD	RTARM	4	⑭ 1	NUMER	*HOUR/MINUTE OF READING*.
FIELD	RPIL	4	1	NUMER	*STORAGE TANK ULLAGE-ABSOLUTE PRESS*.
FIELD	RP1A	4	1	NUMER	*STORAGE TANK ULLAGE-ALTERNATE*.
FIELD	RP2L	4	1	NUMER	*COLLECTOR PUMP OUTLET*.
FIELD	RP2A	4	1	NUMER	*COLLECTOR FAN OUTLET*.
FIELD	RP3L	4	1	NUMER	*LOAD HEAT EXCHANGER PUMP OUTLET*.
FIELD	RP3A	4	1	NUMER	*LOAD HEAT EXCHANGER FAN OUTLET*.
FIELD	RDP1L	4	1	NUMER	*COLLECTOR PUMP DIFF PRESS*.
FIELD	RDP1A	4	1	NUMER	*COLLECTOR FAN*.
FIELD	RDP2L	4	1	NUMER	*LOAD HEAT EXCHANGER PUMP*.
FIELD	RDP2A	4	1	NUMER	*LOAD HEAT EXCHANGER FAN*.
FIELD	RT1	4	1	NUMER	*OUTDOOR DRY BULB TEMP*.
FIELD	RT2	4	1	NUMER	*COLLECTOR INLET*.
FIELD	RT3	4	1	NUMER	*COLLECTOR OUTLET*.
FIELD	RT4	4	1	NUMER	*COLLECTOR SURFACE*.
FIELD	RT5	4	1	NUMER	*DOMESTIC SERVICE WATER*.
FIELD	RT6	4	1	NUMER	*DOMESTIC PREHEATED OUTLET*.
FIELD	RT7	4	1	NUMER	*DOMESTIC HOT WATER SUPPLY*.
FIELD	RT8	4	1	NUMER	*STORAGE TANK*.
FIELD	RT9	4	1	NUMER	*DWELLING DRY BULB AIR*.
FIELD	RDT1	4	1	NUMER	*PREHEATER INPUT DIFF TEMP*.
FIELD	RDT2	4	1	NUMER	*DOMESTIC HOT WATER/SERVICE*.
FIELD	RDT3	4	1	NUMER	*LOAD HEAT EXCHANGER*.
FIELD	RDT4	4	1	NUMER	*COOLING TOWER*.
FIELD	RDT5	4	1	NUMER	*ABSORPTION CHILLER EVAPORATOR*.
FIELD	RF1	4	1	NUMER	*COLLECTOR FLOW RATE*.
FIELD	RF2	4	1	NUMER	*DOMESTIC HOT WATER*.
FIELD	RF3	4	1	NUMER	*PREHEATER HEAT EXCHANGE*.
FIELD	RF4	4	1	NUMER	*LOAD HEAT EXCHANGER*.
FIELD	RO1	4	1	NUMER	*COLLECTOR INCIDENCE SOLAR RAD*.
FIELD	RW1	4	1	NUMER	*COLLECTOR PUMP/FAN POWER*.
FIELD	RW2	4	1	NUMER	*DOMESTIC HOT WATER AUX*.
FIELD	RW3	4	1	NUMER	*PREHEATER PUMP/FAN*.
FIELD	RW5	4	1	NUMER	*COOLING TOWER POWER*.
FIELD	RI1	4	1	NUMER	*LOAD HEAT EXCHNGR PUMP ON/OFF*.
FIELD	RI2	4	1	NUMER	*COOLING TOWER PUMP ON/OFF*.
FIELD	RRH1	4	1	NUMER	*DWELLING RELATIVE HUMIDITY*.
FIELD	RSP1	4	1	NUMER	*SPARE*.
FIELD	RSP2	4	1	NUMER	*SPARE*.
FIELD	RSP3	4	1	NUMER	*SPARE*.
FIELD	RSP4	4	1	NUMER	*SPARE*.
FIELD	RSP5	4	1	NUMER	*SPARE*.

END.

Figure 6.3-1. File Structure Statements

FIGURE 6.3-1 EXPLANATION

1. **Structure** - This operator must occur first in the input. It is used to establish the name of the file to be structured.
2. **File Name** - The name of the file to be structured: It must conform to the name conventions described in Vol. I, Introduced to File Concepts.
3. **FIELD** - The field operator must be the first word on the statement defining the characteristics of each data element in the data file record.
4. **Field Name** - A unique name (for the file) that follows the general system name rules.
5. **Field Length** - The EBDIC length of the data field. The entry is coded as a numeric integer, not to exceed three characters in length.
6. **Set Function Identifier** - This example shows the fields to be Record Control fields.
7. **Field Mode Identifier** - This shows that the data field content is alphameric. All control fields must be alpha mode.
8. **Output Title/Lable** - The title or label which will be used in designating the field on output reports.
9. **GROUP** - This operator is used to redefine a sequence of adjacent fields/groups with a single new name which is to be used as a data reference.
10. **Group Name** - The user supplied name for the group of control fields being referenced.
11. **Group Fields** - The names of the fields being grouped together to form the group name.
12. **Function Identifier** - This indicates that this particular field is a control field for Set 1.
13. **Set Identifier** - The 'X' is an indication that the fields shown are data elements (fields) of the fixed set.
14. **Set Identifier** - The '1' shows that the fields being described are data elements within the first set of the fixed set for the file being structured.

FILE NAME- SOLDATA DATE- 76062

** SOURCE STATEMENT LIST **

FLD/GRP NAME	STATEMENT OPERATOR	FIELD SIZE	SPEC USE	SET NO.	RET. LOGIC	MODE	INPUT SUBRT	OUTPUT SUBRT	EDIT NAME	FIELD/GROUP/VAR. SET LABEL (CHARS 1-50)	THE FLAG ** MARKS NOTE STATEMENTS
RSID	FIELD	002	CTL	000	-	ALPHA	---	---	---	*SYSTEM SITE ID*	
RSYD	FIELD	002	CTL	000	-	ALPHA	---	---	---	*SYSTEM TYPE*	
RDATE	FIELD	005	CTL	000	-	ALPHA	---	---	---	*DATE OF RECORD*	
RTMINT	FIELD	001	CTL	000	-	ALPHA	---	---	---	*CODE*	
SYSGRP	GROUP	*	---	---	-	ALPHA	---	---	---		
		* FIELDS-		RSID		RSYD		RDATE		RTMINT	
XCOLID	FIELD	002	---	000	-	ALPHA	---	---	---	*COLLECTOR ID*	
XCMER	FIELD	002	---	000	-	ALPHA	---	---	---	*MANUFACTURER CODE*	
XCMAT	FIELD	002	---	000	-	ALPHA	---	---	---	*MATERIAL CODE*	
XCTYPE	FIELD	002	---	000	-	ALPHA	---	---	---	*COLLECTOR TYPE*	
XCOST	FIELD	002	---	000	-	ALPHA	---	---	---	*COST CATEGORY*	
XEFF	FIELD	002	---	000	-	ALPHA	---	---	---	*EFFICIENCY RATING*	
XSTOID	FIELD	002	---	000	-	ALPHA	---	---	---	*STORAGE ID*	
COMID	FIELD	002	---	000	-	ALPHA	---	---	---	*COMMERCIAL ID*	
XCOLD	FIELD	002	---	000	-	ALPHA	---	---	---	*COOLING SYSTEM ID*	
XCOMAID	FIELD	002	---	000	-	ALPHA	---	---	---	*COOLING MATERIAL ID*	
XHEATID	FIELD	002	---	000	-	ALPHA	---	---	---	*HEATING ID*	
XHMAT	FIELD	002	---	000	-	ALPHA	---	---	---	*HEATING MATERIAL*	
XCONT	FIELD	002	---	000	-	ALPHA	---	---	---	*CONTROL SYSTEM*	
XHOTID	FIELD	002	---	000	-	ALPHA	---	---	---	*HOT WATER ID*	

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Figure 6.3-2. File Layout (Sheet 1 of 4)

FILE NAME- SOLDATA DATE- 76062

** SOURCE STATEMENT LIST **

FLO/GRP NAME	STATEMENT OPERATOR	FIELD SIZE	SPEC USE	SET NO.	RET. LOGIC	MODE	INPUT SUBRT	OUTPUT SUBRT	EDIT NAME	FIELD/GROUP/VAR.SET LABEL (CHARS 1-60)	THE FLAG ** MARKS NOTE STATEMENTS
XHOTYP	FIELD	002	---	000	-	ALPHA	---	---	---	*HOT WATER TYPE*	
XTRAN	FIELD	002	---	000	-	ALPHA	---	---	---	*TRANSPORT TYPE*	
RTCD	FIELD	002	CTL	001	-	ALPHA	---	---	---	*CODE*	
RTARM	FIELD	004	---	001	-	NUMER	---	---	---	*HOUR/MINUTE OF READING*	
RPIL	FIELD	004	---	001	-	NUMER	---	---	---	*STORAGE TANK ULLAGE-ABSOLUTE PRESS*	
RP1A	FIELD	004	---	001	-	NUMER	---	---	---	*STORAGE TANK ULLAGE-ALTERNATE*	
RP2L	FIELD	004	---	001	-	NUMER	---	---	---	*COLLECTOR PUMP OUTLET*	
RP2A	FIELD	004	---	001	-	NUMER	---	---	---	*COLLECTOR FAN OUTLET*	
RP3L	FIELD	004	---	001	-	NUMER	---	---	---	*LOAD HEAT EXCHANGER PUMP OUTLET*	
RP3A	FIELD	004	---	001	-	NUMER	---	---	---	*LOAD HEAT EXCHANGER FAN OUTLET*	
RDP1L	FIELD	004	---	001	-	NUMER	---	---	---	*COLLECTOR PUMP DIFF PRESS*	
RDP1A	FIELD	004	---	001	-	NUMER	---	---	---	*COLLECTOR FAN*	
RDP2L	FIELD	004	---	001	-	NUMER	---	---	---	*LOAD HEAT EXCHANGER PUMP*	
RDP2A	FIELD	004	---	001	-	NUMER	---	---	---	*LOAD HEAT EXCHANGER FAN*	
RT1	FIELD	004	---	001	-	NUMER	---	---	---	*OUTDOOR DRY BULB TEMP*	
RT2	FIELD	004	---	001	-	NUMER	---	---	---	*COLLECTOR INLET*	
RT3	FIELD	004	---	001	-	NUMER	---	---	---	*COLLECTOR OUTLET*	
RT4	FIELD	004	---	001	-	NUMER	---	---	---	*COLLECTOR SURFACE*	
RT5	FIELD	004	---	001	-	NUMER	---	---	---	*DOMESTIC SERVICE WATER*	
RT6	FIELD	004	---	001	-	NUMER	---	---	---	*DOMESTIC PREHEATED OUTLET*	

Figure 6.3-2. File Layout (Sheet 2 of 4)

FILE NAME- SOLDATA DATE- 76062

** SOURCE STATEMENT LIST **

FLD/GRP NAME	STATEMENT OPERATOR	FIELD SIZE	SPEC USE	SET NO.	RET. LOGIC	MODE	INPUT SUBRT	OUTPUT SUBRT	EDIT NAME	FIELD/GROUP/VAR.SET LABEL (CHARS 1-60)	THE FLAG ** MARKS NOTE STATEMENTS
RT7	FIELD	004	---	001	-	NUMER	---	---	---	*DOMESTIC HOT WATER SUPPLY*	
RT8	FIELD	004	---	001	-	NUMER	---	---	---	*STORAGE TANK*	
RT9	FIELD	004	---	001	-	NUMER	---	---	---	*DWELLING DRY BULB AIR*	
RDT1	FIELD	004	---	001	-	NUMER	---	---	---	*PREHEATER INPUT DIFF TEMP*	
RDT2	FIELD	004	---	001	-	NUMER	---	---	---	*DOMESTIC HOT WATER/SERVICE*	
RDT3	FIELD	004	---	001	-	NUMER	---	---	---	*LOAD HEAT EXCHANGER*	
RDT4	FIELD	004	---	001	-	NUMER	---	---	---	*COOLING TOWER*	
RDT5	FIELD	004	---	001	-	NUMER	---	---	---	*ABSORPTION CHILLER EVAPORATOR*	
RF1	FIELD	004	---	001	-	NUMER	---	---	---	*COLLECTOR FLOW RATE*	
RF2	FIELD	004	---	001	-	NUMER	---	---	---	*DOMESTIC HOT WATER*	
RF3	FIELD	004	---	001	-	NUMER	---	---	---	*PREHEATER HEAT EXCHANGE*	
RF4	FIELD	004	---	001	-	NUMER	---	---	---	*LOAD HEAT EXCHANGER*	
RO1	FIELD	004	---	001	-	NUMER	---	---	---	*COLLECTOR INCIDENCE SOLAR RAD*	
RW1	FIELD	004	---	001	-	NUMER	---	---	---	*COLLECTOR PUMP/FAN POWER*	
RW2	FIELD	004	---	001	-	NUMER	---	---	---	*DOMESTIC HOT WATER AUX*	
RW3	FIELD	004	---	001	-	NUMER	---	---	---	*PREHEATER PUMP/FAN*	
RW5	FIELD	004	---	001	-	NUMER	---	---	---	*COOLING TOWER POWER*	
RI1	FIELD	004	---	001	-	NUMER	---	---	---	*LOAD HEAT EXCHNGR PUMP ON/OFF*	
RI2	FIELD	004	---	001	-	NUMER	---	---	---	*COOLING TOWER PUMP ON/OFF*	
RRH1	FIELD	004	---	001	-	NUMER	---	---	---	*DWELLING RELATIVE HUMIDITY*	

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FILE NAME- SOLDATA DATE- 76062

*** SOURCE STATEMENT LIST ***

FLD/GRP NAME	STATEMENT OPERATOR	FIELD SIZE	SPEC USE	SET NO.	RET. LOGIC	MODE	INPUT SUBRT	OUTPUT SUBRT	EDIT NAME	FIELD/GROUP/VAR.SET LABEL (CHARS 1-60)	THE FLAG ** MARKS NOTE STATEMENTS
RSP1	FIELD	004	---	001	-	NUMER	---	---	---	*SPARE*	
RSP2	FIELD	004	---	001	-	NUMER	---	---	---	*SPARE*	
RSP3	FIELD	004	---	001	-	NUMER	---	---	---	*SPARE*	
RSP4	FIELD	004	---	001	-	NUMER	---	---	---	*SPARE*	
RSP5	FIELD	004	---	001	-	NUMER	---	---	---	*SPARE*	

ENDFS

*** ADVISORY MESSAGE- FILE STRUCTURE PERFORMED WITH NO CLASSIFICATION

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Figure 6.3-2. File Layout (Sheet 4 of 4)

** FILE REVISION CONTROL CARDS **

FILE = SOLSTAT.
 NEWFILE = SOLSTAA.
 PRINT = ALL.
 ** NO ERRORS DETECTED IN INPUT CARDS **

Figure 6.3-3. File Revision (Sheet 1 of 18)

*** ANALYSIS OF FILE REVISION ***

OLD FIELD				NEW FIELD				-CHANGES-			
NAME	SET	TYPE	MODE	NAME	SET	TYPE	MODE	NAME	SET	TYPE	MODE
SITEID	000	C	A	SITEID	000	C	A				
SYSID	000	CC	AA	SYSID	000	CC	AA				
DATE	000	CC	AA	DATE	000	CC	AA				
THERMAL	000	NN	BB	THERMAL	000	NN	BB				
TTPUA	000	NN	BB	TTPUA	000	NN	BB				
SPUAA	000	NN	BB	SPUAA	000	NN	BB				
SOLCEL	000	NN	BB	SOLCEL	000	NN	BB				
USEENRGY	000	NN	BB	USEENRGY	000	NN	BB				
CUMTEMP	000	NN	BB	CUMTEMP	000	NN	BB				
ABSEFF	000	NN	BB	ABSEFF	000	NN	BB				
P8	000	NN	BB	P8	000	NN	BB				
P9	000	NN	BB	P9	000	NN	BB				
P10	000	NN	BB	P10	000	NN	BB				
P11	000	NN	BB	P11	000	NN	BB				
P12	000	NN	BB	P12	000	NN	BB				
P13	000	NN	BB	P13	000	NN	BB				
P14	000	NN	BB	P14	000	NN	BB				
P15	000	NN	BB	P15	000	NN	BB				
P16	000	NN	BB	P16	000	NN	BB				
P17	000	NN	BB	P17	000	NN	BB				
P18	000	NN	BB	P18	000	NN	BB				
P19	000	NN	BB	P19	000	NN	BB				
P20	000	NN	BB	P20	000	NN	BB				
P21	000	NN	BB	P21	000	NN	BB				
P22	000	NN	BB	P22	000	NN	BB				
P23	000	NN	BB	P23	000	NN	BB				
P24	000	NN	BB	P24	000	NN	BB				
P25	000	NN	BB	P25	000	NN	BB				
P26	000	NN	BB	P26	000	NN	BB				
P27	000	NN	BB	P27	000	NN	BB				
P28	000	NN	BB	P28	000	NN	BB				
P29	000	NN	BB	P29	000	NN	BB				
P30	000	NN	BB	P30	000	NN	BB				
P31	000	NN	BB	P31	000	NN	BB				
P32	000	NN	BB	P32	000	NN	BB				
P33	000	NN	BB	P33	000	NN	BB				
P34	000	NN	BB	P34	000	NN	BB				
P35	000	NN	BB	P35	000	NN	BB				
P36	000	NN	BB	P36	000	NN	BB				
P37	000	NN	BB	P37	000	NN	BB				
P38	000	NN	BB	P38	000	NN	BB				
P39	000	NN	BB	P39	000	NN	BB				
P40	000	NN	BB	P40	000	NN	BB				
P41	000	NN	BB	P41	000	NN	BB				
P42	000	NN	BB	P42	000	NN	BB				
RTIME	001	C	AA	RTIME	001	C	AA				
R1	001	NN	BB	R1	001	NN	BB				
R2	001	NN	BB	R2	001	NN	BB				
R3	001	NN	BB	R3	001	NN	BB				
R4	001	NN	BB	R4	001	NN	BB				
R5	001	NN	BB	R5	001	NN	BB				
R6	001	NN	BB	R6	001	NN	BB				
R7	001	NN	BB	R7	001	NN	BB				
R8	001	NN	BB	R8	001	NN	BB				
R9	001	NN	BB	R9	001	NN	BB				

Figure 6.3-3. File Revision (Sheet 2 of 18)

R10	001	N	B	R10	001	N	B
R11	001	N	B	R11	001	N	B
R12	001	N	B	R12	001	N	B
R13	001	N	B	R13	001	N	B
R14	001	N	B	R14	001	N	B
CTIME	002	C	A	CTIME	002	C	A
C1	002	N	B	C1	002	N	B
C2	002	N	B	C2	002	N	B
C3	002	N	B	C3	002	N	B
C4	002	N	B	C4	002	N	B
C5	002	N	B	C5	002	N	B
C6	002	N	B	C6	002	N	B
C7	002	N	B	C7	002	N	B
C8	002	N	B	C8	002	N	B
C9	002	N	B	C9	002	N	B
C10	002	N	B	C10	002	N	B
C11	002	N	B	C11	002	N	B
C12	002	N	B	C12	002	N	B
C13	002	N	B	C13	002	N	B
C14	002	N	B	C14	002	N	B
C15	002	N	B	C15	002	N	B
C16	002	N	B	C16	002	N	B
C17	002	N	B	C17	002	N	B
C18	002	N	B	C18	002	N	B
C19	002	N	B	C19	002	N	B
C20	002	N	B	C20	002	N	B
C21	002	N	B	C21	002	N	B
C22	002	N	B	C22	002	N	B
C23	002	N	B	C23	002	N	B
C24	002	N	B	C24	002	N	B
C25	002	N	B	C25	002	N	B
C26	002	N	B	C26	002	N	B
C27	002	N	B	C27	002	N	B
C28	002	N	B	C28	002	N	B
C29	002	N	B	C29	002	N	B
C30	002	N	B	C30	002	N	B
C31	002	N	B	C31	002	N	B
C32	002	N	B	C32	002	N	B
C34	002	N	B	C34	002	N	B
C35	002	N	B	C35	002	N	B
C36	002	N	B	C36	002	N	B
C37	002	N	B	C37	002	N	B
C38	002	N	B	C38	002	N	B
C39	002	N	B	C39	002	N	B
C40	002	N	B	C40	002	N	B
C41	002	N	B	C41	002	N	B
C42	002	N	B	C42	002	N	B
PROBLEM	003	N	A	PROBLEM	003	N	A
SOLDATE	003	N	A	SOLDATE	003	N	A
SOLUTN	003	W	A	SOLUTN	003	W	A

Figure 6.3-3. File Revision (Sheet 3 of 18)

*** FR GENERATED LOGIC STATEMENTS ***

SFMS/L18,SOLSTAA
SAR,FR,6,017

Figure 6.3-3. File Revision (Sheet 4 of 18)

COMMUNICATION RECORDS

1 FMS/LIB SOLSTAA. DISK. TRANSACTION SOURCE IS CARDS

NO ERRORS DETECTED IN THE COMMUNICATION RECORDS

Figure 6.3-3. File Revision (Sheet 5 of 18)

LIBRARY ACTION CARDS

1 START FR AR 0002 0006 0001 0017 0001

NO ERRORS DETECTED IN THIS CONTROL DECK

Figure 6.3-3. File Revision (Sheet 6 of 18)

LIBRARY ACTION-ADD A PERMANENT STATEMENT

1 T0196 0197 START FR R ASP

TRANSACTION DESCRIPTOR DECK

Line	Field	Value	Code	Code	Code	Code	Code
2	SITEID	FIELD 0007	0002	A	S	SITEID	
3	SYSID	FIELD 0009	0002	A	S	SYSID	
4	DATE	FIELD 0011	0006	A	S	DATE	
5	THERMAL	FIELD 0029	0004	B	N		
6	TTPUA	FIELD 0033	0004	B	N		
7	SPUAA	FIELD 0037	0004	B	N		
8	SOLCEL	FIELD 0041	0004	B	N		
9	USENRGY	FIELD 0045	0004	B	N		
10	COMTEMP	FIELD 0049	0004	B	N		
11	ABSEFF	FIELD 0053	0004	B	N		
12	P8	FIELD 0057	0004	B	N		
13	P9	FIELD 0061	0004	B	N		
14	P10	FIELD 0065	0004	B	N		
15	P11	FIELD 0069	0004	B	N		
16	P12	FIELD 0073	0004	B	N		
17	P13	FIELD 0077	0004	B	N		
18	P14	FIELD 0081	0004	B	N		
19	P15	FIELD 0085	0004	B	N		
20	P16	FIELD 0089	0004	B	N		
21	P17	FIELD 0093	0004	B	N		
22	P18	FIELD 0097	0004	B	N		
23	P19	FIELD 0101	0004	B	N		
24	P20	FIELD 0105	0004	B	N		
25	P21	FIELD 0109	0004	B	N		
26	P22	FIELD 0113	0004	B	N		
27	P23	FIELD 0117	0004	B	N		
28	P24	FIELD 0121	0004	B	N		
29	P25	FIELD 0125	0004	B	N		
30	P26	FIELD 0129	0004	B	N		
31	P27	FIELD 0133	0004	B	N		
32	P28	FIELD 0137	0004	B	N		
33	P29	FIELD 0141	0004	B	N		
34	P30	FIELD 0145	0004	B	N		
35	P31	FIELD 0149	0004	B	N		
36	P32	FIELD 0153	0004	B	N		
37	P33	FIELD 0157	0004	B	N		
38	P34	FIELD 0161	0004	B	N		
39	P35	FIELD 0165	0004	B	N		
40	P36	FIELD 0169	0004	B	N		
41	P37	FIELD 0173	0004	B	N		
42	P38	FIELD 0177	0004	B	N		

Figure 6.3-3. File Revision (Sheet 7 of 18)

TRANSACTION DESCRIPTOR DECK

43	P39	FIELD 0181	0004	B	N
44	P40	FIELD 0185	0004	B	N
45	P41	FIELD 0189	0004	B	N
46	P42	FIELD 0193	0004	B	N

SEQ	PGLN	LABEL	OPER	OPERANDS	FLAGS
47			POOL		
48			MNU	\$THERMAL, THERMAL	
49			MNU	\$TTPUA, TTPUA	
50			MNU	\$SPUAA, SPUAA	
51			MNU	\$SOLCEL, SOLCEL	
52			MNU	\$USEENRGY, USEENRGY	
53			MNU	\$COMTEMP, COMTEMP	
54			MNU	\$ABSEFF, ABSEFF	
55			MNU	\$P8, P8	
56			MNU	\$P9, P9	
57			MNU	\$P10, P10	
58			MNU	\$P11, P11	
59			MNU	\$P12, P12	
60			MNU	\$P13, P13	
61			MNU	\$P14, P14	
62			MNU	\$P15, P15	
63			MNU	\$P16, P16	
64			MNU	\$P17, P17	
65			MNU	\$P18, P18	
66			MNU	\$P19, P19	
67			MNU	\$P20, P20	
68			MNU	\$P21, P21	
69			MNU	\$P22, P22	
70			MNU	\$P23, P23	
71			MNU	\$P24, P24	
72			MNU	\$P25, P25	
73			MNU	\$P26, P26	
74			MNU	\$P27, P27	
75			MNU	\$P28, P28	
76			MNU	\$P29, P29	
77			MNU	\$P30, P30	
78			MNU	\$P31, P31	
79			MNU	\$P32, P32	
80			MNU	\$P33, P33	
81			MNU	\$P34, P34	
82			MNU	\$P35, P35	
83			MNU	\$P36, P36	
84			MNU	\$P37, P37	

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Figure 6.3-3. File Revision (Sheet 8 of 18)

NIPS FILE MAINTENANCE

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SEQ	PGLN	LABEL	OPER	OPERANDS	FLAGS
85			MNU	\$P38, P38	
86			MNU	\$P39, P39	
87			MNU	\$P40, P40	
88			MNU	\$P41, P41	
89			MNU	\$P42, P42	
90			HLT		
91			END		

NO ERRORS DETECTED IN THIS LOGIC STATEMENT

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Figure 6.3-3. File Revision (Sheet 9 of 18).

LIBRARY ACTION-ADD A PERMANENT STATEMENT

1 T0084 0085 START FR RA ASP

TRANSACTION DESCRIPTOR DECK

2	SITEID	FIELD	0007	0002	A	S	SITEID
3	SYSID	FIELD	0009	0002	A	S	SYSID
4	DATE	FIELD	0011	0006	A	S	DATE
5	RTIME	FIELD	0018	0004	A	N	
6	R1	FIELD	0029	0004	B	N	
7	R2	FIELD	0033	0004	B	N	
8	R3	FIELD	0037	0004	B	N	
9	R4	FIELD	0041	0004	B	N	
10	R5	FIELD	0045	0004	B	N	
11	R6	FIELD	0049	0004	B	N	
12	R7	FIELD	0053	0004	B	N	
13	R8	FIELD	0057	0004	B	N	
14	R9	FIELD	0061	0004	B	N	
15	R10	FIELD	0065	0004	B	N	
16	R11	FIELD	0069	0004	B	N	
17	R12	FIELD	0073	0004	B	N	
18	R13	FIELD	0077	0004	B	N	
19	R14	FIELD	0081	0004	B	N	

SEQ	PGLN	LABEL	OPER	OPERANDS	FLAGS
20			POOL		
21			POS	RTIME,A001	
22		B001	SIP	RTIME,B001	
23		A001	USS	RTIME	
24			MCS	\$RTIME,RTIME	
25			MNU	\$R1,R1	
26			MNU	\$R2,R2	
27			MNU	\$R3,R3	
28			MNU	\$R4,R4	
29			MNU	\$R5,R5	
30			MNU	\$R6,R6	
31			MNU	\$R7,R7	
32			MNU	\$R8,R8	
33			MNU	\$R9,R9	
34			MNU	\$R10,R10	
35			MNU	\$R11,R11	
36			MNU	\$R12,R12	
37			MNU	\$R13,R13	
38			MNU	\$R14,R14	
39			HLT		

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Figure 6.3-3. File Revision (Sheet 10 of 18)

LIBRARY ACTION-ADD A PERMANENT STATEMENT

1 T0084 0085 START FR RA ASP

TRANSACTION DESCRIPTOR DECK

2	SITEID	FIELD 0007	0002	A	S	SITEID
3	SYSID	FIELD 0009	0002	A	S	SYSID
4	DATE	FIELD 0011	0006	A	S	DATE
5	RTIME	FIELD 0018	0004	A	N	
6	R1	FIELD 0029	0004	B	N	
7	R2	FIELD 0033	0004	B	N	
8	R3	FIELD 0037	0004	B	N	
9	R4	FIELD 0041	0004	B	N	
10	R5	FIELD 0045	0004	B	N	
11	R6	FIELD 0049	0004	B	N	
12	R7	FIELD 0053	0004	B	N	
13	R8	FIELD 0057	0004	B	N	
14	R9	FIELD 0061	0004	B	N	
15	R10	FIELD 0065	0004	B	N	
16	R11	FIELD 0069	0004	B	N	
17	R12	FIELD 0073	0004	B	N	
18	R13	FIELD 0077	0004	B	N	
19	R14	FIELD 0081	0004	B	N	

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SEQ	PGLN	LABEL	OPER	OPERANDS	FLAGS
20			POOL		
21			POS	RTIME,A001	
22		B001	SIP	RTIME,B001	
23		A001	USS	RTIME	
24			MCS	\$RTIME,RTIME	
25			MNU	\$R1,R1	
26			MNU	\$R2,R2	
27			MNU	\$R3,R3	
28			MNU	\$R4,R4	
29			MNU	\$R5,R5	
30			MNU	\$R6,R6	
31			MNU	\$R7,R7	
32			MNU	\$R8,R8	
33			MNU	\$R9,R9	
34			MNU	\$R10,R10	
35			MNU	\$R11,R11	
36			MNU	\$R12,R12	
37			MNU	\$R13,R13	
38			MNU	\$R14,R14	
39			HLT		

Figure 6.3-3. File Revision (Sheet 10 of 18)

NO ERRORS DETECTED IN THIS LOGIC STATEMENT

Figure 6.3-3. File Revision (Sheet 11 of 18)

LIBRARY ACTION-ADD A PERMANENT STATEMENT

1 T0192 0193 START FR RB ASP

TRANSACTION DESCRIPTOR DECK

LINE	FIELD	VALUE	FR	RB	ASP	DESCRIPTION
2	SITEID	FIELD 0007	0002	A	S	SITEID
3	SYSID	FIELD 0009	0002	A	S	SYSID
4	DATE	FIELD 0011	0006	A	S	DATE
5	CTIME	FIELD 0018	0004	A		
6	C1	FIELD 0029	0004	B	N	
7	C2	FIELD 0033	0003	B	N	
8	C3	FIELD 0037	0003	B	N	
9	C4	FIELD 0041	0003	B	N	
10	C5	FIELD 0045	0003	B	N	
11	C6	FIELD 0049	0003	B	N	
12	C7	FIELD 0053	0008	B	N	
13	C8	FIELD 0057	0003	B	N	
14	C9	FIELD 0061	0003	B	N	
15	C10	FIELD 0065	0003	B	N	
16	C11	FIELD 0069	0003	B	N	
17	C12	FIELD 0073	0003	B	N	
18	C13	FIELD 0077	0003	B	N	
19	C14	FIELD 0081	0003	B	N	
20	C15	FIELD 0085	0003	B	N	
21	C16	FIELD 0089	0003	B	N	
22	C17	FIELD 0093	0004	B	N	
23	C18	FIELD 0097	0004	B	N	
24	C19	FIELD 0101	0004	B	N	
25	C20	FIELD 0105	0004	B	N	
26	C21	FIELD 0109	0004	B	N	
27	C22	FIELD 0113	0004	B	N	
28	C23	FIELD 0117	0004	B	N	
29	C24	FIELD 0121	0003	B	N	
30	C25	FIELD 0125	0003	B	N	
31	C26	FIELD 0129	0003	B	N	
32	C27	FIELD 0133	0008	B	N	
33	C28	FIELD 0137	0003	B	N	
34	C29	FIELD 0141	0003	B	N	
35	C30	FIELD 0145	0004	B	N	
36	C31	FIELD 0149	0004	B	N	
37	C32	FIELD 0153	0004	B	N	
38	C33	FIELD 0157	0004	B	N	
39	C34	FIELD 0161	0004	B	N	
40	C35	FIELD 0165	0004	B	N	
41	C36	FIELD 0169	0004	B	N	
42	C37	FIELD 0173	0004	B	N	
43	C38	FIELD 0177	0004	B	N	

Figure 6.3-3. File Revision (Sheet 12 of 18)

TRANSACTION DESCRIPTOR DECK

43	C39	FIELD 0177	0004		N
44	C40	FIELD 0181	0004		N
45	C41	FIELD 0135	0004		N
46	C42	FIELD 0189	0004		N

SEQ	PGLN	LABEL	OPCR	OPERANDS	FLAGS
47			POOL		
48			PLS	CTIME,A002	
49		R002	STP	CTIME,R002	
50		A002	BSS	CTIME	
51			MCS	\$CTIME,CTIME	
52			MNU	\$C1,C1	
53			MNU	\$C2,C2	
54			MNU	\$C3,C3	
55			MNU	\$C4,C4	
56			MNU	\$C5,C5	
57			MNU	\$C6,C6	
58			MNU	\$C7,C7	
59			MNU	\$C8,C8	
60			MNU	\$C9,C9	
61			MNU	\$C10,C10	
62			MNU	\$C11,C11	
63			MNU	\$C12,C12	
64			MNU	\$C13,C13	
65			MNU	\$C14,C14	
66			MNU	\$C15,C15	
67			MNU	\$C16,C16	
68			MNU	\$C17,C17	
69			MNU	\$C18,C18	
70			MNU	\$C19,C19	
71			MNU	\$C20,C20	
72			MNU	\$C21,C21	
73			MNU	\$C22,C22	
74			MNU	\$C23,C23	
75			MNU	\$C24,C24	
76			MNU	\$C25,C25	
77			MNU	\$C26,C26	
78			MNU	\$C27,C27	
79			MNU	\$C28,C28	
80			MNU	\$C29,C29	
81			MNU	\$C30,C30	
82			MNU	\$C31,C31	
83			MNU	\$C32,C32	
84			MNU	\$C34,C34	

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Figure 6.3-3. File Revision (Sheet 13 of 18)

NIPS FILE MAINTENANCE

SEQ	PGLN	LABEL	OPER	OPERANDS	FLAGS
85			MNU	\$C35,C35	
86			MNU	\$C36,C36	
87			MNU	\$C37,C37	
88			MNU	\$C38,C38	
89			MNU	\$C39,C39	
90			MNU	\$C40,C40	
91			MNU	\$C41,C41	
92			MNU	\$C42,C42	
93			HLT		
94			END		

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NO ERRORS DETECTED IN THIS LOGIC STATEMENT

Figure 6.3-3. File Revision (Sheet 14 of 18)

LIBRARY ACTION-ADD A PERMANENT STATEMENT

1 T0052 0053 START FR RC ASP

TRANSACTION DESCRIPTOR DECK

2	SITEID	FIELD 0007	0002	A	S	SITEID
3	SYSID	FIELD 0009	0002	A	S	SYSID
4	DATE	FIELD 0011	0005	A	S	DATE
5	PROBLEM	FIELD 0029	0018	A	N	
6	SOLDATE	FIELD 0047	0005	A	N	
7	SOLUTN	FIELD 0053		D	N	

SEQ PGLN LABEL OPER OPERANDS

FLAGS

8			P00L			
9			PCS	PROBLEM,A003		
10	B003		STP	PROBLEM,B003		
11	A003		BSS	PROBLEM		
12			MAL	\$PROBLEM, PROBLEM		
13			MAL	\$SOLDATE, SOLDATE		
14			MVF	\$SOLUTN, SOLUTN		
15			HLT			
16			END			
17			STOP			

NO ERRORS DETECTED IN THIS LOGIC STATEMENT

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Figure 6.3-3. File Revision (Sheet 15 of 18).

LOGIC STATEMENT - R - FOR REPORT - FR - HAS BEEN ADDED TO FILE - SOLSTAA.-
THE TOTAL LENGTH OF THIS LOGIC STATEMENT IS 1048 BYTES

LOGIC STATEMENT - RA - FOR REPORT - FR - HAS BEEN ADDED TO FILE - SOLSTAA.-
THE TOTAL LENGTH OF THIS LOGIC STATEMENT IS 1216 BYTES

LOGIC STATEMENT - RB - FOR REPORT - FR - HAS BEEN ADDED TO FILE - SOLSTAA.-
THE TOTAL LENGTH OF THIS LOGIC STATEMENT IS 1928 BYTES

LOGIC STATEMENT - RC - FOR REPORT - FR - HAS BEEN ADDED TO FILE - SOLSTAA.-
THE TOTAL LENGTH OF THIS LOGIC STATEMENT IS 1096 BYTES

Figure 6.3-3. File Revision. (Sheet 16 of 18)

START UPDATE RECORD GENERATION
UPDATE RECORD GENERATION COMPLETED.....
UPDATE RECORD COUNT IS1090
NUMBER OF TRACKS WRITTEN TO THE SORTIN DATASET.....000027

Figure 6.3-3. File Revision (Sheet 17 of 18)

**FM PROCESSING BLOCK SIZE FOR THIS RUN WILL BE THE DEFAULT SIZE OF 16000 BYTES. THE FM PB SIZE CAN BE ENTERED ON THE EXEC CARD, E.G., PARM='PBSIZE=20K' OR PARM='LIST,PB=3K'. LIMITS ARE 1K TO 99K. AS THE PB SIZE IS INCREASED ABOVE 16 K, REGION SIZE SHOULD BE INCREASED CORRESPONDINGLY.

85 SOLSTAA. = S

NOT CATALOGED-EXISTS ON FOLLOWING VOL-SER-NO 000304

*****FILE GEN/UPD COMPLETED*****

```

*****
$FMS/UPD,SCL$IT,SCL$IT1,LS,DISK,TAPE
$DP,SCL$IT1
$AP,SCL$IT1,1
$ASP,SCL$IT1,2,88
$RSID,1,2,C1
$RSTYP,2,3,C2
$RDATE,1,5,C3
$RTMINT,5,5,C4
$RTCD,87,88,C5
$HOUR,4,5
$MIN,7,8
$SEC,9,12
$TSET,13,16
$RV,17,20
$UETA,21,24
$TAOT,25,28
$TSCOV,29,32
$TSCOC,33,36
$ATSE,37,40
$USNTA,41,44
$NTAOT,45,48
$NTSCOV,49,52
$NTSCOC,53,56
$AAT,57,60
$ECT,61,64
$TEHAA,65,68
$LIHAA,69,72
$TEDA,73,76
$LIDA,77,80
$DCS,81,84
$NU,85,88

POGL
MCT $RSID,R$SID
MCT $RSTYP,R$SYID
MCT $RDATE,R$DATE
MCT $RTMINT,R$TMINT
POG2 $RTCD,R$RTCD
ADG2 $STP,R$STP
BSS $RTCD
MCS $RTCD,R$RTCD
MNU $HOUR,R$H1/2
MNU $MIN,R$M3/4
MNU $1/4,R$TARM
MNU $SEC,R$P1L
MNU $TSET,R$P1A
MNU $RV,R$P2L
MNU $UETA,R$P2A
MNU $TAOT,R$P3L
MNU $TSCOV,R$P3A
MNU $TSCOC,R$P1L
MNU $ATSE,R$P1A
MNU $USNTA,R$P2L
MNU $NTAOT,R$P2A
MNU $NTSCOV,R$T1
MNU $NTSCOC,R$T2
MNU $AAT,R$T3
MNU $ECT,R$T4
MNU $TEHAA,R$T5
MNU $LIHAA,R$T6
MNU $TEDA,R$T7
MNU $LIDA,R$T8
MNU $DCS,R$T9
MNU $NU,R$T1

HLT
END
STOP
/*
//

```

Figure 6.3-4

Output Report Generation - Terminal

The applicable terminal application component for use in SIMS is the Quick Inquiry Processor (QUIP), designed to give a powerful data retrieval and display capability.

The Terminal Processing Users Manual (NIPS Vol. VI) contains detailed procedures for invoking this terminal application program. An example of a terminal session (on a 2260 terminal) is shown in figure 6.3-5.

File Maintenance - Terminal

The terminal application program, which provides a means of performing maintenance on an existing file, is called Source Data Automation (SODA). It interacts with the terminal and the File Maintenance capability, as previously described, to allow for the inputting of raw data to a file or the changing of existing data fields within a file. An example of the use of SODA to update two fields of a file is shown in figure 6.3-6, along with the previously generated and library stored File Maintenance Logic Statements (figure 6.3-7).

Development Activity - Terminal

The EDIT application program provides the user programmer/analyst with a means of entering, managing and editing of NIPS source language statements for development and debugging. It also provides the user the capability of submitting jobs into the input job stream of the Operating System for processing.




Utility Functions - Terminal



The NIPS system provides the ability to send messages and data between terminals and performing the rudimentary utility functions which are provided by the System/370 Operating System.

6.3.5 Information Retrieval



To support the requirements for both scheduled and non-scheduled inquiries of the data base, the Reference and Sort Processor (RASP) of NIPS will be utilized. This capability of NIPS provides the following:

- Batched retrievals against a single file
- Merged file retrieval
- Data record qualification on fixed/periodic/variable information
- Error diagnostic printout
- Multiple IF Statements within each retrieval

AN EXAMPLE OF THE TERMINAL SESSION TO ACCESS FIVE FIELDS OF A FILE CALLED SOLSTAA IS AS FOLLOWS. THE SYMBOL  INDICATES 'START MANUAL INPUT',  INDICATES 'ENTRY MANUAL INPUT' AND  INDICATES THE REPLY TO THE QUIP REQUEST.

 FILE SOLSTAA. 




 LIST ALL SITEID CTIME THERMAL SOLCEL USENRY. 

 → Q 

 TERMINAL DISPLAY

SITE ID	CTIME	THERMAL	SOLCEL	USENRY
01	0100	765	859	658
	0200	709	856	657
	0300	711	858	659
	0800	707	859	653
	2400	705	836	647
02	0100	907	914	645
	0200	909	934	650

Figure 6.3-5. Use of QUIP

AN EXAMPLE OF A TERMINAL SESSION TO EXERCISE THE ON-LINE FILE MAINTENANCE FUNCTION IS AS FOL-
LWS WITH THE SYMBOL  MEANING 'START MANUAL INPUT',  MEANING 'ENTER MANUAL INPUT'
AND  INDICATING THE REPLY PRESENTED ON THE TERMINAL SCREEN BY THE SYSTEM






























 LOGON (AE6111, TEST) \rightarrow R 
 LOGON ACCEPTED, PROCEED
 FILE SOLSTAA REPORT TRY1  (NEW LINE)
 R2000 44443333 \rightarrow F 
 INPUT SCRATCHED READY FOR MORE
 R2200A7776666 \rightarrow F 
 LLLL USENRGY NOT NUMERIC
 1111=7777 \rightarrow F 
 INPUT SCRATCHED READY FOR MORE
 R23006666A777 \rightarrow F 
 1111 ABSEFF NOT NUMERIC
 1111=7777 \rightarrow F 
 INPUT SCRATCHED READY FOR MORE
 R24006666555510IJ760201 \rightarrow F 
 1111111111 MUST WORK WITH SITE 09
 11=09 \rightarrow F 
 INPUT SCRATCHED READY FOR MORE
 UPDATE \rightarrow F 
 ALL UPDATED RECORDS WRITTEN ON FILE SOLSTAA

Figure 6.3-6 Use of SODA Capability

LIBRARY ACTION--ADD A PERMANENT STATEMENT

1 T0080 START TRY A ASP

TRANSACTION DESCRIPTOR DECK

2	RECID	FIELD 0002	0010 01 D	M
3	CTIME	FIELD 0012	0004 02 D	M
4	THERMAL	FIELD 0016	0004 D	N
5	TTPUA	FIELD 0020	0004 D	N

SEQ PGLN LABEL OPER OPERANDS

FLAGS

6		PULL		
7		BNR	BADKY	
8		MNU	\$THERMAL,W1/4	
9		COA	\$THERMAL,W1/4	
10		BEQ	AD	
11		ERR	\$THERMAL,'NOT NUMERIC'	
12		BRA	NOAD	
13	AD	ADD	W1/3,THERMAL,THERMAL	
14		HLT		
15	NOAD	MNU	\$TTPUA,W1/4	
16		COA	\$TTPUA,W1/4	
17		BEQ	AD1	
18		ERR	\$TTPUA,'NOT NUMERIC'	
19		HLT		
20	AD1	ADD	W1/3,TTPUA,TTPUA	
21		HLT		
22	BADKY	ERR	\$RECID,'RECORD NOT ON FILE'	
23		DDR		
24		HLT		
25		HLT		
26		END		
27		STOP		

NO ERRORS DETECTED IN THIS LOGIC STATEMENT

Figure 6.3-7

- Insertion of literals in sort keys
- Answer record ordering
- Multiple answer sets from each retrieval
- Storage of retrievals for later execution
- Ability to use user - written subroutines to qualify data
- Ability to pass information for output formatting
- Ability to change operands at execution time
- Ability to change sort field designations to execution time.

Detailed user instructions are contained in "NIPS Users Manual - Retrieval and Sort Processor."

6.3.6 Output Processing

In support of the report generation and magnetic tape generation requirements, the output processing capability of NIPS will be utilized. This function provides the capability for formatting complex and lengthy reports and provides the capability to generate graphic output formats. It initializes basic communication files and prepares the output data file(s) which are to be processed. The inquiry being processed is examined and any logical conditioning requested to be performed on the output is done. Output page formatting statements are processed and made ready for compilation and link editing. The final phase of this module is the execution of the assembled and linked code against the output data file.

Formal Report Generation - Hard Copy

The NIPS system provides the user with a report generator which can be driven by a master data file or by the result of a retrieval process. A flexible, free form user language is provided. A generative code technique produces a Report Instruction Table (RIT). This module includes an automatic library capability for speed and convenience in producing non-terminal output. Output may be in the form of print, cards, disk or on magnetic tape. An example of the structuring of a RIT and the resultant output are shown in figure 6.3-8.

Detailed user instructions are contained in "NIPS Users Manual - Output Processor."

6.3.7 Plot Capability

A capability to plot instrumentation data has been added to the NIPS Data Base System. Data will be presented on a Tektronix 4015 display and hardcopy provided on a Tektronix 4631 unit. The procedure to be utilized in generation of plots is as follows:

CREATE RITID=REPORT STORE=TEMP	0001S
FILE SOLSTAA	0002S
FORMAT PRINT LINES 8	0003S
HEADER1 83 *SOLAR ENERGY RECORDING SYSTEM DATA*	0004S
HEADER1 104 *DATE:*	0005S
HEADER1 115 OPCODE	0006S
HEADER1 124 *PAGE:*	0007S
HEADER1 130 PAGEND	0008S
SPACE 2:	0009S
HEADER2 20 *STATION NUMBER: 1329*	0010S
HEADER2 74 *EQUIPMENT LIST:*	0011S
HEADER2 108 *SERIAL*	0012S
HEADER2 131 *SENSITIVITIES*	0013S
HEADER3 17 *RECORDING PERIOD:*	0014S
HEADER3 109 *NUMBERS*	0015S
HEADER3 130 *MV/CAL/SCM/MIN*	0016S
HEADER4 46 *STATION LOCATION: MARSHAL SPACE FLIGHT CENTER*	0017S
HEADER4 96 *1. TRACKING PYRHELIOMETER (REFERENCE)*	0018S
HEADER4 108 *R10432*	0019S
HEADER4 125 *5.35*	0020S
HEADERS 31 *BUILDING 4200*	0021S
HEADERS 96 *2. TRACKING PYRHELIOMETER (CONCENTRATOR)*	0022S
HEADERS 108 *R10433*	0023S

HEADER5 125 *6.21*	0024S
HEADER6 40 *HUNTSVILLE,AL. 35812*	0025S
HEADER6 82 *3. TRACKING PYRANOMETER*	0026S
HEADER6 108 *1384001*	0027S
HEADER6 125 *5.12*	0028S
HEADER7 41 *STATION LATITUDE: 34.716 DEGREES NORTH*	0029S
HEADER7 85 *4. NON TRACKING PYRANOMETER*	0030S
HEADER7 100 *1384002*	0031S
HEADER7 125 *4.97*	0032S
HEADER8 40 *STATION LONGITUDE: 86.604 DEGREES WEST*	0033S
HEADER9 34 *HEIGHT ABOVE SEA LEVEL: 221 METERS*	0034S
SPACE 1	0035S
HEADER10 23 *INTER PERIOD*	0036S
HEADER10 38 *DIRECT RAD*	0037S
HEADER10 63 *TOTAL RADIATION-TRACK*	0038S
HEADER10 87 *EFFICIENCIES - TRACK*	0039S
HEADER10 113 *TOTAL RADIATION NONTRK*	0040S
HEADER10 121 *EFFCS*	0041S
HEADER10 132 *NONTRK*	0042S
HEADER11 7 *DATE*	0043S
HEADER11 22 *START STOP*	0044S
HEADER11 66 *1VAL US-CON US-SAR*	0045S
HEADER11 72 *CONCN*	0046S

***** REPORT SPECIFICATION CARDS *****

HEADER11 80	*ABSOR*	0047S
HEADER11 89	*ARRAY*	0048S
HEADER11 96	*AVAL*	0049S
HEADER11 105	*US-ABR*	0050S
HEADER11 114	*US-SAR*	0051S
HEADER11 121	*ABSOR*	0052S
HEADER11 131	*ARRAY*	0053S
HEADER12 16	*HR:MN*	0054S
HEADER12 23	*HR:MN*	0055S
HEADER12 32	*CAL/SCM*	0056S
HEADER12 40	*CAL/SCM*	0057S
HEADER12 49	*CAL/SCM*	0058S
HEADER12 57	*CAL/SCM*	0059S
HEADER12 66	*CAL/SCM*	0060S
HEADER12 70	*X*	0061S
HEADER12 78	*X*	0062S
HEADER12 87	*X*	0063S
HEADER12 97	*CAL/SCM*	0064S
HEADER12 106	*CAL/SCM*	0065S
HEADER12 114	*CAL/SCM*	0066S
HEADER12 120	*X*	0067S
HEADER12 120	*X*	0068S
LINE1 74	P8	0069S

Figure 6.3-8. (Sheet 3 of 9)

** NIPS 360 FFS OUTPUT PROCESSOR **

DATE 76 051

***** REPORT SPECIFICATION CARDS *****

*** PAGE 004 ***

LINE1 82 P9	0070S
LINE1 90 P10	0071S
LINE1 98 P11	0072S
LINE1 106 P12	0073S
LINE1 114 P13	0074S
LINE1 123 P14	0075S
LINE1 132 P15	0076S
END	0077S

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Figure 6.3-8. (Sheet 4 of 9)

F44-LEVEL LINKAGE EDITOR OPTIONS SPECIFIED MAP,LIST,LET,NCAL,OC
 DEFAULT OPTION(S) USED - SIZE=(122880,45056)
 IEW0000 ENCLUDE LOADR
 IEW0000 NAME REPORT#T

MODULE MAP

CONTROL SECTION			ENTRY					
NAME	ORIGIN	LENGTH	NAME	LOCATION	NAME	LOCATION	NAME	LOCATION
AACATA	00	434						
ARMBS	438	516						
ACSAVE	A50	222						
ADPRT	C78	2EA						

ENTRY ADDRESS 00
 TOTAL LENGTH F68

***REPORT#T NOW ADDED TO DATA SET

96

Figure 6.3-8. (Sheet 5 of 9)

SOURCE DIRECT
PUBLISH SPECIAL=REPORT

INPUT CTL RECORD
INPUT CTL RECORD

Figure 6.3-8. (Sheet 6 of 9)

SOLAR ENERGY RECORDING SYSTEM DATA

DATE: 20 FEB 1976

PAGE: 2

STATION NUMBER: 1329
 RECORDING PERIOD:
 STATION LOCATION: MARSHAL SPACE FLIGHT CENTER
 BUILDING 4200
 HUNTSVILLE, AL. 35812
 STATION LATITUDE: 34.716 DEGREES NORTH
 STATION LONGITUDE: 86.604 DEGREES WEST
 HEIGHT ABOVE SEA LEVEL: 221 METERS

EQUIPMENT LIST:	SERIAL NUMBERS	SENSITIVITIES MV/CAL/SCM/MIN
1. TRACKING PYRHELIOMETER (REFERENCE)	810432	5.35
2. TRACKING PYRHELIOMETER (CONCENTRATOR)	810433	6.21
3. TRACKING PYRANOMETER	1384001	5.12
4. NON TRACKING PYRANOMETER	1384002	4.97

66

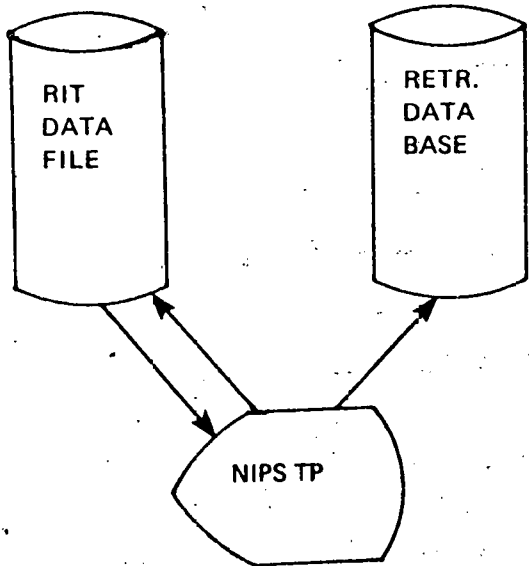
DATE	INTER PERIOD		DIRECT RAD	TOTAL RADIATION - TRACK			EFFICIENCIES - TRACK			TOTAL RADIATION - NONTRK			EFFCS NONTRK		
	START	STOP		I VAL	US-CON	US-SAR	CONCN	ABSOR	ARRAY	AVAL	US-ARR	US-SAR	ABSOR	ARRAY	
HR:MN	HR:MN		CAL/SCM	CAL/SCM	CAL/SCM	CAL/SCM	CAL/SCM	%	%	%	CAL/SCM	CAL/SCM	CAL/SCM	%	%
											5	5		138	
														5	
														325	26169
														389	5145
														307	1185

Figure 6.3-8. (Sheet 8 of 9)

- An information retrieval query is made using NIPS and the NIPS terminal processor (TP) through which selected parameters are abstracted from the data base for subsequent recall.
- Using the NIPS TP, a job is submitted from the terminal to the host computer which, through the execution of a Data Base Processor, will:
 - Access the retrieved parameters and reformat the data
 - Allow the selection of plot identifiers
 - Pass the plot information to a display interface module which will generate the plot on a display terminal.

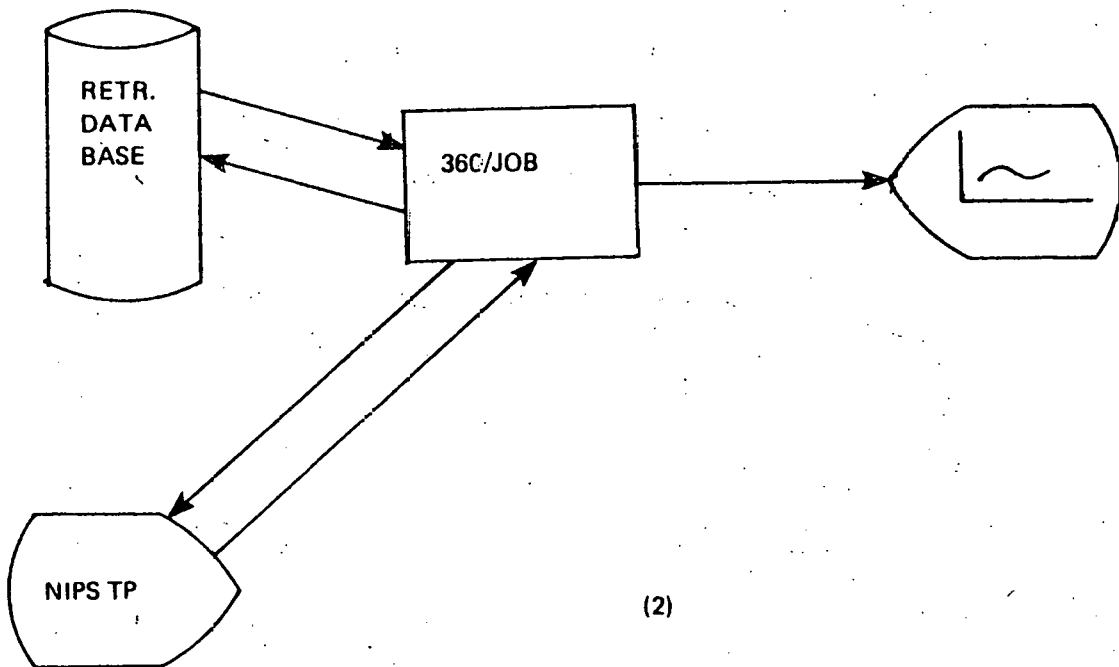
Although remote job entry has been mentioned throughout the section concerning plot capability batch processing can be used if needed or desired.

The plot capability is pictorially shown in figure 6.3-9.



(1)

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(2)

Figure 6.3-9. Plot Capability

7.0 COMPUTER OPERATIONS GUIDELINES

The daily processing of instrumentation data from remote sites involves computer operations on both the System/7 computer (data collection) and S/370-145 computer (data processing/data base update/user support). In addition, non-scheduled processing requests must be supported on a continuing basis throughout the contractual period. Because the majority of daily processing is performed during second and third shifts, this section is oriented primarily toward the daily operations required in collection and processing of instrumentation data. Other processing requirements will be handled in a normal terminal or batch processing environment with no unique operator requirements.

7.1 SYSTEM/7 DATA COLLECTION OPERATIONS

At approximately 2000 each night, the data collection process must be initiated by the operator. Data collection will process automatically thereafter unless error conditions occur which terminate data collection. The following paragraphs describe operator actions required in support of System/7 data collection.

7.1.1 Initiation of Site Collection

To initiate the Data Collection from Remote Sites, the following procedures must be followed:

- (1) Mount Disk 'SIMS SYS7OP' onto mountable disk unit of System/7
- (2) IPL System/7 from mountable disk
- (3) Upon System Printing 'OP1', enter 'SDC'
- (4) Automatic Data Collection will begin. "Communication Log Report" will be printed during collection
- (5) Report of error conditions will be printed during collection. For errors causing termination of collection, System/7 programmer must be notified
- (6) Upon completion of Site Data Collection, MESSAGE 'SITE DATA COLLECT COMPLETE' will be printed.
- (7) Upon completion of data collection, transfer of data to S/370-145 must be performed. See Paragraph 7.2 for operation instructions.
- (8) 'Communication Log Report' must be delivered to computer center for inclusion with other data processing reports
- (9) Dismount disk from mountable disk unit and store.

7.1.2 Monitor of Data Collection

The "Communication Log Report," which is printed on the Teletype Printer, contains a sequential history of communication activity. Error conditions will be logged for communications analysis.

The operator should review this log periodically, and, if an error message occurs, he should notify the System/7 Programmer/Analyst for troubleshooting.

If data collection completes in a normal manner, a message indicating successful completion will be printed.

7.2 TRANSFER OF DATA TO S/370-145

To transmit data to the S/370-145 for processing and data base update, the following operational procedures must be followed:

- (1) Insure that the Host Computer operator has invoked the System Program 'SBCUPROG'
- (2) IPL from the fixed disk of the System/7
- (3) After System/7 Prints '>', enter '\$L!'
- (4) After System/7 prints 'PGM.(NAME,IODA):', enter 'HFS'
- (5) After System/7 prints 'SBCUPROG STARTED ON HOST?', enter 'Y'
- (6) Upon completion of data transfer, System/7 will print 'HFS ENDED 'DATE/TIME''
- (7) Notify Host operator that transfer is complete.

7.3 REPORT COLLECTION

Upon successful completion of data transfer, the "Communication Log Report," Data Transfer Message, and other Teletype Messages must be removed from the Teletype Printer and returned to the Facility Computer Room for distribution. The data should be placed into the output distribution bin for the System/7 Programmer/Analyst's review the next day.

7.4 SYSTEM/7 RECONFIGURATION

Since the System/7 computer is shared by other users, the operator must reconfigure the system to a known state. To perform this reconfiguration, the operator must:

- (1) Dismount 'SIMSSYS70P' disk from mountable disk unit of System/7
- (2) Remote and store teletype output
- (3) Store disk into storage cabinet.

7.5 S/370-145 DATA TRANSFER FROM SYSTEM/7

- (1) Upon notification by System/7 operator, invoke system program 'SBCUPROG'
- (2) Upon notification by System/7 operator, terminate 'SBCUPROG'

If error conditions occur to inhibit successful data transfer, the operator must notify the Computer Operations Manager for assistance in troubleshooting the problem.

7.6 INITIATION OF INPUT PROCESSING ACTIVITY

Upon completion of data transfer, the S/370 operator will begin the input processing phase by initiating production job "PSIMSIPS" via the console terminal.

During execution of input processing, the operator will be requested via the console to mount tapes and will be notified of error conditions which cause termination of processing. Error messages, in addition to system error messages, are:

```
"SIMS RAW DATA PROCESSING FAILED.CALL INPUT PROCESSING PROG/ANALYST"  
"SIMS MERGE & SUMMARY FAILED.CALL INPUT PROCESSING PROG/ANALYST"
```

Successful completion of the Input Processing activity will provide the following messages to the operator via the console:

```
"SIMS RAW DATA PROCESSING COMPLETED SUCCESSFULLY"  
"SIMS MERGE AND SUMMARY COMPLETED SUCCESSFULLY"  
"SIMS NIGHTLY IPS SAVES COMPLETED SUCCESSFULLY"
```

7.7 DATA BASE MAINTENANCE ACTIVITY

Upon successful completion, the Data Base Maintenance Activity will be initiated automatically by the S/370 operator. If errors occur which cause termination of Data Base Maintenance Activity, the following message will be printed on the Console:

```
"Data Base Maintenance Terminated. Call Data Base Programmer/  
Analyst"
```

In the event of failure, the operator must dismount SIMS magnetic tapes prior to initiation of other jobs to be processed.

Successful completion of the Data Base Maintenance Activity will provide the following message to the operator:

```
"Data Base Maintenance Successfully Completed. Beginning User  
Support Activity"
```

7.8 USER SUPPORT ACTIVITY

User Support Activity will be invoked by the S/370 operator and will provide daily reports for analysis purposes and magnetic tapes for delivery to MSFC. Tape mount messages will be provided via the console.

Unsuccessful completion will be noted through the following console message:

"User Support Terminated Unsuccessfully. Call Data Base Programmer/Analyst"

Successful completion will be noted by the following console message:

"User Support Successfully Completed"

7.9 REPORT/MAGNETIC TAPE DISTRIBUTION

Upon completion of User Support Activities, reports and magnetic tapes created, should be placed in output bins for pickup and distribution.

7.10 TAPE LIBRARIAN

All input and output magnetic tapes used and created during processing must be placed in the Tape Library for cataloging.

7.11 HISTORY PROCESSING

The IPS History program will be run once a month concurrent with S/7 data collection operations. The history job must be completed prior to initiation of input processing activity (job PSIMSIPS).

To run SIMS History the operator shall initiate job "PSIMSHST".

During History execution, the operator will be requested via the console to mount tapes and will be notified of error conditions which cause termination of processing. The error message, in addition to system error messages, is:

"SIMS HISTORY PROGRAM FAILED CALL INPUT PROCESSING PROG/ANALYST"

Successful completion of SIMS History processing will provide the following messages to the operator via the console:

"SIMS HISTORY PROGRAM COMPLETED SUCCESSFULLY"

"SIMS HISTORY SAVES COMPLETED SUCCESSFULLY"

8.0 PERFORMANCE ANALYST GUIDELINES

The performance Analyst is a primary user of the CDPS in that he is dependent on the CDPS to provide him the data needed to analyze the performance of solar heating and cooling systems. The Performance Analyst supports the following functions within the CDPS:

- (1) Provides Site Description/Site Directory information
- (2) Maintains Site Description notebook
- (3) Examines reports generated during processing of raw input data
- (4) Performance evaluation

The following paragraphs address the role of the Performance Analyst as a user of the CDPS.

8.1 APPLICABLE DOCUMENTS

The following CDPS documents are required in order to utilize the CDPS:

- (1) CDPS Software Performance Specification Document
- (2) CDPS Software Design Document

8.2 SITE DESCRIPTION/SITE DIRECTORY INFORMATION

The Performance Analyst must provide the CDPS with remote site information under the following circumstances:

- (1) Initially
- (2) Changing of sensor calibration coefficients
- (3) Deleting a site

8.2.1 Site Initiation

In order for the CDPS to automatically collect data, process data, and maintain a data base entry, the Performance Analyst must ensure that the CDPS is initialized for the site. This initialization is provided through the completion of the site data information form (figure 8-1). The form consists of three separate sheets and should be completed as described in the form. The Performance Analyst must also specify performance evaluation equations. The completed form and the equations should be taken to the request coordinator who will ensure that the CDPS is properly initialized prior to site activation.

8.2.2 Remote Site Description Changes

The following procedures define the actions to be taken by the Performance Analyst to:

- (1) Change the general site information
- (2) Update measurement definitions (calibration)

All forms must be given to request coordinator for implementation.

General Site Information

Page 1 of the site data information form contains site general information. To correct or update this information, page 1 must be recorded and given to the request coordinator for implementation.

Measurement Definition Update

Measurement definition is contained in page 2 and page 3 of the Site Data Information Form. To add/change/delete information previously entered into the system, the lines on the form corresponding to the measurements requiring change must be completed as described below:

<u>Action</u>	<u>Procedure</u>
Addition of measurement	Complete line corresponding to location of measurement in the raw input data stream
Change of measurement characteristics	Enter new data into line corresponding to measurement
Deletion of measurement	Draw a line through the location of the measurement

PAGE 1 = GENERAL INFORMATION
DATE: _____
NEW, CHANGE, OR DELETE (CIRCLE)
SIGNATURE: _____

SITE DATA INFORMATION

TO CHANGE ANY INFORMATION ON THIS PAGE, COMPLETE ALL ITEMS EXCEPT CARD CODE. TO DELETE A SITE, FILL IN SITE ID AND DATE, CIRCLE 'DELETE' AND COMPLETE SIGNATURE.

1 — — — — 5 SITE ID (EXAMPLE 00043)

A — — — — 7 CARD CODES (RESERVED FOR FILE MAINTENANCE TECHNICIAN USE)
6 — — — — 7

8 — — — — 9 SYSTEM TYPE ('HC' = HEATING & COOLING, 'H# = HEATING, OR 'HW' = HOT WATER)

10 — — — — 11 PRINT LEVEL ('12' = MOST DETAILED LEVEL INCLUDES PRINT OF DETAIL RECORDS,
'08' = NORMAL LEVEL, '04' = LESS DETAIL THAN NORMAL,
'00' = NO PRINTING)

12 — — — — 13 SCAN LEVEL (NO. OF BYTES OF DATA IN ONE SCAN. DO NOT INCLUDE TIME BYTES).

14 — — — — 14 TIME ZONE ('E' = EASTERN, 'C' = CENTRAL, 'M' = MOUNTAIN, 'P' = PACIFIC)

15 — — — — 19 COLLECTOR AREA (SQUARE FEET, RIGHT JUSTIFY)

Figure 8-1. Site Data Information Forms (Page 1 of 3)

SITE DATA INFORMATION

IF NEW COMPLETE ALL INFO ABOUT ALL MEASUREMENTS AND
 LINE THROUGH NON-EXISTENT MEASUREMENTS.
 IF CHANGE COMPLETE ALL INFO ABOUT A NEW OR CHANGED MEASUREMENT
 LINE THROUGH TO DELETE A MEASUREMENT.

DATE: _____

NEW OR CHANGE (CIRCLE)

RESP SIG _____

MEASUREMENT DESCRIPTIVE NAME	MEAS CODED NAME	BYTE POS IN SCAN 1 = 1st BYTE TIME	LENGTH IN SCAN 1 OR 2	CONVERSION INFORMATION				UNIT OF CONVERTED VALUE	TESTING INFORMATION			
				T Y P E	TYPE MAY BE L = LINEAR, Q = QUADRATIC, T = THIRD ORDER OR D = DISCRETE. IF 1 IS RAW BIT VALUE SEE FORMULAS BELOW. TO COMPLETE CONVERTED VALUE CV				UNITS OF COMPUTED VALUE		*TO TEST FOR FROZEN STATE	
					A	B	C		D	MIN VALUE		MAX VALUE
WIND DIRECTION	D001							0 FROM N				
COLLECTOR CIRC PUMP POWER	EP101							KW				
HW ELEC AUX POWER	EP300							KW				
HW CIRC PUMP POWER	EP301							KW				
HTG ELEC AUX POWER	EP400							KW				
HTG LOOP CIRC PUMP POWER	EP401							KW				
BLDG FAN POWER	EP402							KW				
HEAT PUMP COMPRESS POWER	EP403							KW				
ABSORP CHILLER OPEN POWER	EP501							KW				
HW AUX FUEL FLOW	F300							FT3/MIN				
HTG AUX FUEL FLOW	F400							FT3/MIN				
COOLING AUX FUEL FLOW	F500							FT3/MIN				
TOTAL RADIATION	I001							KGTU/HR				
DIFFUSE RADIATION	I002							KGTU/HR				
OUTDOOR DB TEMPERATURE	T001							OF				
COLLECTOR INLET TEMPERATURE	T100							OF				
STORAGE INLET TEMPERATURE	T101							OF				
COLLECTOR ABSORBER TEMP	T102							OF				
STORAGE MEDIA AVG TEMP	T200							OF				
STORAGE AMBIENT TEMP	T201							OF				
MAKEUP WATER TEMP	T300							OF				
HX INLET TEMP	T301							OF				
LOAD RETURN TEMP	T400							OF				
LOAD HX INLET TEMP	T500							OF				
COOLING TOWER INLET TEMP	T501							OF				
BLDG RETURN AIR DB TEMP	T600							OF				
BLDG RETURN AIR WB TEMP	T601							OF				
BLDG SUPPLY AIR WB TEMP	T602							OF				

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KEYPUNCH SITE ID +
 CARD CODE OR ALL CARDS

TYPE
 L: CV = A + BI
 Q: CV = A + BI + CI²
 T: CV = A + BI + CI² + DI³

TYPE
 D: CV = $\begin{cases} 1, & \text{IF } A \leq I \leq B \\ 0 & \text{OTHERWISE} \end{cases}$

Figure 8-1. Site Data Information Forms (Page 2 of 3)

IF NEW COMPLETE ALL INFO ABOUT MEASUREMENTS AND LINE THROUGH NON EXISTENT MEASUREMENTS.
IF CHANGE COMPLETE ALL INFO ABOUT A NEW OR CHANGED MEASUREMENT LINE THROUGH TO DELETE A MEASUREMENT.

DATE: _____
NEW OR CHANGE (CIRCLE)
RESP SIG _____

MEASUREMENT DESCRIPTIVE NAME	MEAS CODED NAME	BYTE POS IN SCAN 1 = 1st BYTE TIME	LENGTH IN SCAN 1 OR 2	CONVERSION INFORMATION				UNITS OF CONVERTED VALUE	TESTING INFORMATION				
				TYPE	TYPE MAY BE L = LINEAR, Q = QUADRATIC, T = THIRD ORDER OR D = DISCRETE. IF I IS RAW BIT VALUE SEE FORMULAS BELOW TO COMPLETE CONVERTED VALUE CV				UNITS OF COMPUTED VALUE			*TO TEST FOR FROZEN STATE	
					A	B	C		D	MIN VALUE	MAX VALUE		MAXIMUM CHANGE BETWEEN READINGS
COLLECTOR TEMP DIFF	TD100							OF					
STORAGE TEMP DIFF (C&TS)	TD101							OF					
STORAGE TEMP DIFF (HWS)	TD300							OF					
HX TEMP DIFF	TD301							OF					
LOAD HX TEMP DIFF	TD302							OF					
STORAGE TEMP DIFF (HTS)	TD400							OF					
AUXILIARY TEMP DIFF	TD401							OF					
LOAD HX TEMP DIFF (HTS)	TD402							OF					
LOAD HX TEMP DIFF (SCS)	TD500							OF					
COOLING TOWER TEMP DIFF	TD501							OF					
SUPPLY/RETURN AIR TEMP DIFF	TD600							OF					
WIND VELOCITY	W100							MPH					
COLLECTOR FLOW RATE	W100							GAL/MIN					
CIRCULATION FLOW RATE (HWS)	W300							GAL/MIN					
LOAD FLOW RATE	W301							GAL/MIN					
CIRCULATION FLOW RATE (HTS)	W400							GAL/MIN					
LOAD HX FLOW RATE	W500							GAL/MIN					
COOLING TOWER FLOW RATE	W501							GAL/MIN					
BLDG AIR FLOW RATE	W600							FT3/MIN					
CONDENSATE FLOW	W601							FT3/MIN					
SPARE	SP01							-					
SPARE	SP02							-					
SPARE	SP03							-					
SPARE	SP04							-					
SPARE	SP05							-					
SPARE	SP06							-					
SPARE	SP07							-					
SPARE	SP08							-					
SPARE	SP09							-					
SPARE	SP10							-					

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KEYPUNCH SITE ID +
CARD CODE OR ALL CARDS

TYPE
L: CV = A + BI
Q: CV = A + BI + CI²
T: CV = A + BI + CI² + DI³

TYPE
D: CV = $\begin{cases} 1, \text{ IF } A \leq I \leq B \\ 0 \text{ OTHERWISE} \end{cases}$

Figure 8-1. Site Data Information Forms (Page 3 of 3)

8.2.3 Site Deletion

To delete a remote site from the CDPS processing activity, page 1 of the Site Data Information Form must be completed as described below:

<u>Field</u>	<u>Current</u>
Date:	Date of deletion
Status:	Circle Delete
Site ID:	Identification of site to be deleted
Responsible Signature:	Signature of authorized person to add/delete sites

8.3 MAINTAIN SITE DESCRIPTION NOTEBOOK

The Performance Analyst must maintain a remote site notebook which contains a history of all transactions made to the CDPS relative to the site. The history will be provided through listings provided as a result of each remote site description file transaction. These listings provide:

- (1) A listing of the composite results of all Site Data Description Transactions made to date along with possible error messages (see figure 8-2). Table 6.2-4 contains explanations of error messages
- (2) A Site Data Description Report which indicates the present contents of the CDPS file (see figure 8-3)

Through maintenance of previous contents reports and transactions listing, traceability can be maintained from initiation to termination of a site.

8.4 RAW DATA PROCESSING ANALYSIS

The Performance Analyst can control the level of detail of print during raw input processing. This control is achieved through completion of the "Print Level" field on the Site Data Information Form (figure 8-1). The results to be expected from each selected print level are shown in table 8-1.

SCAS DATA INFORMATION FILE UTILITY PROGRAM
 UTILITY RUN FOR PURPOSE OF ** ADDING A SCAS **
 SCAS ID 071

PAGE 5

DATE : 12/16/77
 TIME : 1358

***** CARD IMAGES AND ERROR MESSAGES *****

071BCH74	C1472L30	+1270772E-07	C.	0.	30	+208.00	+178.00	*T246
071BCH75	C1492L-20	+1368523E-07	C.	0.	-20	+156.00	+176.00	*T247
071ECH72	01432L-20	+1368523E-07	C.	0.	-20	+156.00	+176.00	*T600
071BCH76	C1512L-20	+1368523E-07	C.	0.	-20	+156.00	+176.00	*T601
071ECH77	01532L-20	+1368523E-07	C.	0.	-20	+156.00	+176.00	*T602
071ECH78	01552L-20	+1368523E-07	C.	0.	-20	+156.00	+176.00	*T603
071ECH79	01572L-20	+1368523E-07	C.	0.	-20	+156.00	+176.00	*T604
071ECH33	CC652L0	+0977516E-07	0.	0.	0	+130.00	+130.00	*V001
C71BCH07	CC1321C.	+1376641E-07	+CC04189E-07	+0C00C08E-07	C	+1807.0	+1807.0	*W100
071ECH08	00152TC.	+1376641E-07	+CC04189E-07	+00CC008E-07	0	+1807.0	+1807.0	*W101

TOTAL E-CARDS PROCESSED = 20

END OF SCAS INFORMATION FILE UPDATE FOR SCAS #071

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Figure 8-2. Sample Site Data Description Utility Card Images/Error Message Report

GENERAL INFORMATION REPORT

SCAS_ID 071
 PRINT_LEVEL 12
 SCAN_LENGTH 160
 TIME_ZONE M
 TIME_ZONE_OFFSET -3600
 SITE_ID 148
 SUB_TYPE S
 REV_LEVEL -
 REV_TIME 77/12/16 13.58
 SITE_NAME HULLCO CONSTRUCTION CC.
 ANALYST_NAME UNKNOWN
 ENGINEER_NAME UNKNOWN

CCCEC MEASUREMENTS REPORT

MEASUREMENT	SCAN PCS	LEN	NIPS FCS	CGNV TYPE	CCNV #1	CCNV #2	CCNV #3	CCNV #4	MINIMUM VALUE	MAXIMUM VALUE	MAXIMUM CHANGE	MUST CHNG?
CF01 CALIB	1	2	1	L	0.000000	1.000000	0.000000	0.000000E+00	0.000000	1024.000000	1023.000000	YES
CH17 E001	33	2	17	L	0.000000	0.351506	0.000000	0.000000E+00	0.000000	468.000000	468.000000	YES
CH04 EF100	7	2	4	L	0.000000	0.000576	0.000000	0.000000E+00	0.000000	0.650000	0.650000	YES
CF05 EP101	5	2	5	L	0.000000	0.000576	0.000000	0.000000E+00	0.000000	0.650000	0.650000	YES
CH19 EP400	37	2	19	L	0.000000	0.003506	0.000000	0.000000E+00	0.000000	2.600000	2.599999	YES
CF20 EP401	35	2	20	L	0.000000	0.003506	0.000000	0.000000E+00	0.000000	2.600000	2.599999	YES
CH18 EP402	35	2	18	L	0.000000	0.003506	0.000000	0.000000E+00	0.000000	2.600000	2.599999	YES
CF34 EP403	67	2	34	L	0.000000	0.003506	0.000000	0.000000E+00	0.000000	2.600000	2.599999	YES
CF02 I001	3	2	2	L	0.000000	2.946553	0.000000	0.000000E+00	0.000000	470.750000	470.750000	YES
CH09 RH600	17	2	9	L	0.000000	0.097752	0.000000	0.000000E+00	0.000000	130.000000	130.000000	YES
CH10 RHE01	19	2	10	L	0.000000	0.097752	0.000000	0.000000E+00	0.000000	130.000000	130.000000	YES
CH16 SP001	31	2	16	L	0.000000	1.000000	0.000000	0.000000E+00	0.000000	1024.000000	1023.000000	YES
CH25 SF002	45	2	25	L	0.000000	1.000000	0.000000	0.000000E+00	0.000000	1024.000000	1023.000000	YES
CF26 SP003	51	2	26	L	0.000000	1.000000	0.000000	0.000000E+00	0.000000	1024.000000	1023.000000	YES
CH27 SF004	53	2	27	L	0.000000	1.000000	0.000000	0.000000E+00	0.000000	1024.000000	1023.000000	YES
CF35 SF005	69	2	35	L	0.000000	1.000000	0.000000	0.000000E+00	0.000000	1024.000000	1023.000000	YES
CF36 SF006	71	2	36	L	0.000000	1.000000	0.000000	0.000000E+00	0.000000	1024.000000	1023.000000	YES
CH43 SF007	85	2	43	L	0.000000	1.000000	0.000000	0.000000E+00	0.000000	1024.000000	1023.000000	YES
CF44 SP008	87	2	44	L	0.000000	1.000000	0.000000	0.000000E+00	0.000000	1024.000000	1023.000000	YES
CH45 SF009	89	2	45	L	0.000000	1.000000	0.000000	0.000000E+00	0.000000	1024.000000	1023.000000	YES
CF49 SP010	97	2	49	L	0.000000	1.000000	0.000000	0.000000E+00	0.000000	1024.000000	1023.000000	YES
CH03 T001	5	2	3	L	-20.000000	0.136852	0.000000	0.000000E+00	-20.000000	156.000000	176.000000	YES
CH06 T100	11	2	6	L	30.000000	0.127077	0.000000	0.000000E+00	30.000000	208.000000	178.000000	YES
CF11 T101	21	2	11	L	30.000000	0.127077	0.000000	0.000000E+00	30.000000	208.000000	178.000000	YES

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Figure 8-3. Sample Site Data Description Record Contents Report

Table 8-1.

Print Level Selected	Description of Results
0	No site summary report. No detail record prints. No messages unless major errors occur.
4	Site summary report is printed. No messages about individual variable errors (BCH, out of limits, or changing too fast.) No detail record prints.
8	Site summary report with all detailed error messages printed. No detail record reports.
12	Site summary report with all detailed error messages printed. Detail record prints created also.

The normal output of the CDPS raw data input processing will be the Site Raw Data Processing Report (figure 8-4). Error messages and possible causes/corrective actions are shown in table 8-2.

To obtain a listing of all detailed records processed by the CDPS, print level 12 should be selected. The resulting report will have the format shown in figure 8-5.

8.5 SITE PERFORMANCE EVALUATION

In support of Site Performance Evaluation, the CDPS provides the Performance Analyst with daily evaluation reports as shown in figure 8-6. If, upon analysis, the Analyst desires further detailed information, the information retrieval capability of the Data Base System can be utilized to provide either hardcopy reports or plots (examples in figure 8-7). The request coordinator will provide the interface through which the Analyst can request additional information from the CDPS.

8.6 SITE DESCRIPTION FILE GENERATION/MAINTENANCE

The Data Base File containing the non-instrumented data pertinent to each of the sixty remote sites is required to provide data for report generation. The performance analyst will complete the Remote Site Description Data Input form (figure 8-8) using instructions as detailed in table 8.3. The completed forms will be keypunched as detailed in table 8.4, and the resultant cards will be input to a batch computer job which will perform the necessary file maintenance activity using the NIPS File Maintenance (FM) capability. This file maintenance will be performed on an as required basis as site information is added/deleted/changed.

8.7 SUBSYSTEM EVALUATION FILE GENERATION/MAINTENANCE

The Subsystem Evaluation File is a manually maintained file containing characteristics of the subsystems being evaluated. The performance analyst will complete the 'Subsystem Evaluation Input Sheet' (figure 8-9) per instructions detailed in table 8.5. The completed forms will be keypunched per the keypunch instructions of table 8.6. The generated cards will be input to a NIPS/360 File Maintenance (FM) process on an as required basis (TBD).

8.8 SYSTEM INTEGRATION DATA FILE GENERATION/MAINTENANCE

TBD

8.9 SIMULATION/WEATHER DATA FILE GENERATION/MAINTENANCE

TBD

INPUT PROCESSING SYSTEM. CONVERSION OF RAW INPUT TO DETAIL RECORDS BEGUN FOR SDAS 041

RUN TIME 77/11/15 23.40

SDAS CLOCK BASE TIME 77/09/27 17.58.25
 PREV SDAS CLOCK BASE TIME 77/09/27 17.59.10
 #RAW_DATA RECORDS 66 #RAW_DATA_BYTES 13400 #BCH_ERRORS 0
 STREAM PROCESSING COMPLETED WITH ERROR CODE 0

SCANSEP
 DATA BLOCKS TOT: 18 OUTPUT: 18 REJECTED: 0
 SCANS TOT: 198 OUTPUT: 198 REJECTED: 0
 #RAW_DATA_BYTES EXPECTED: 13400 ACTUAL: 13400
 SCANSEP PROCESSING COMPLETED WITH ERROR CODE 0

CNVTEST
 TIME OF PREV LAST SCAN 77/11/14 07.28.30
 TIME OF FIRST SCAN 77/11/14 07.38.25
 VARIABLE CH01 HAS CONSTANT VALUE 0.000
 VARIABLE CH05 HAS CONSTANT VALUE 0.000
 VARIABLE CH06 HAS CONSTANT VALUE 0.000
 TIME OF LAST SCAN 77/11/15 01.47.29

VARNAME	#OUT_OF_LIMITS	#BCH_ERRORS	#CHNG_TOO_FAST	#REJECTED	MIN_VALUE	MIN_VALUE_TIME	MAX_VALUE	MAX_VALUE_TIME
CH01	0	0	0	0	0.000	77/11/14 07.38.25	0.000	77/11/14 07.38.25
CH03	0	0	0	0	0.000	77/11/14 09.35.45	0.000	77/11/14 11.01.05
CH05	0	0	0	0	0.000	77/11/14 07.38.25	0.000	77/11/14 07.38.25
CH07	0	0	0	0	0.000	77/11/14 07.38.25	288.847	77/11/14 13.09.05
CH09	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 08.42.25
CH11	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 11.01.05
CH13	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 07.43.45
CH15	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 09.57.05
CH17	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 10.07.45
CH19	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 16.42.25
CH20	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 13.57.05
CH21	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 08.37.05
CH22	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 11.17.05
CH23	0	0	0	0	0.000	77/11/14 07.43.45	2.000	77/11/14 12.37.05
CH24	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 12.21.05
CH25	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 09.30.25
CH26	0	0	0	0	0.000	77/11/14 07.43.45	2.000	77/11/14 08.53.05
CH27	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 09.41.05
CH28	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 08.37.05
CH29	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 08.31.41
CH30	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 09.57.05
CH31	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 07.57.45
CH32	0	0	0	0	0.000	77/11/14 07.38.25	2.000	77/11/14 10.39.45
CH02	0	0	0	0	0.000	77/11/14 10.23.45	23.705	77/11/14 13.19.45
CH10	0	0	0	0	0.000	77/11/14 18.14.09	34.857	77/11/14 08.37.05
CH04	0	0	0	0	15.347	77/11/14 14.23.45	43.982	77/11/14 23.55.29
CH12	0	0	0	0	68.543	77/11/15 00.16.49	75.660	77/11/14 16.05.05
CH14	0	0	0	0	71.554	77/11/15 00.59.29	125.181	77/11/14 16.10.25
CH16	0	0	0	0	93.734	77/11/14 11.11.45	126.970	77/11/14 16.10.25
CH18	0	0	0	0	68.680	77/11/14 23.50.09	85.513	77/11/14 16.15.45
CH08	0	0	0	0	0.000	77/11/14 07.38.25	0.000	77/11/14 07.38.25
CH06	0	0	0	0	0.000	77/11/14 07.38.25	2.352	77/11/15 00.22.09

CNVTEST PROCESSING COMPLETED WITH ERROR CODE 0

DATA FOR SDAS 041 PROCESSED WITH HIGHEST ERROR CODE 0

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Figure 8-4. Sample Raw Data Processing Site Summary Report

DETAIL RECORD PRINT FOR SDAS 013 SITE 022 SUBTYPE 1

RUN TIME 77/10/27 11.00

PAGE 3

YR/MO/DA HR.MN.SC	CH01 CH11 CH21 CH31 CH41	CH02 CH12 CH22 CH32 CH42	CH03 CH13 CH23 CH33 CH43	CH04 CH14 CH24 CH34 CH44	CH05 CH15 CH25 CH35 CH45	CH06 CH16 CH26 CH36 CH46	CH07 CH17 CH27 CH37 CH47	CH08 CH18 CH28 CH38 CH48	CH09 CH19 CH29 CH39	CH10 CH20 CH30 CH40
77/10/26 00.11.16	0.000 0.000 0.000 75.830 0.000	44.043 9.375 1.367 77.607 193.867	0.000 0.000 0.000 0.000 175.500	25.293 18.511 14.453 0.000 140.156	0.156 18.367 0.000 6.406 196.406	50.879 4.053 0.000 88.789 188.789	0.000 0.000 66.504 1.166 88.271	426.758 0.000 58.750 195.625 84.082	142.305 0.000 0.000 0.000	11.914 1.367 81.563 194.453
77/10/26 00.16.36	0.000 0.000 0.000 76.973 0.000	38.574 9.131 2.106 77.480 193.867	0.000 0.000 0.000 0.000 173.359	24.414 13.359 19.352 0.000 140.547	0.000 9.176 0.000 0.000 190.352	53.711 2.295 0.000 88.594 185.273	0.000 0.000 66.914 1.649 88.906	426.758 0.000 59.844 195.430 89.922	141.133 0.000 0.000 0.000	11.816 2.100 80.977 194.258
77/10/26 00.21.56	0.000 0.000 0.000 77.180 0.000	36.963 9.082 1.904 77.480 194.063	0.000 0.020 0.000 0.000 171.602	23.242 13.282 6.243 0.000 140.547	0.000 9.584 0.000 0.000 184.102	53.906 0.586 0.781 88.008 181.563	0.000 0.000 66.094 1.166 88.652	427.734 0.000 59.160 195.625 93.350	140.156 0.000 0.000 0.000	11.426 3.467 80.781 193.867
77/10/26 00.27.16	0.000 0.000 0.000 78.242 0.000	36.133 8.789 1.953 77.607 194.063	0.000 0.000 0.000 0.000 169.453	22.056 16.066 5.127 0.000 140.742	0.000 3.942 0.000 0.000 179.023	54.004 0.000 6.488 88.203 178.242	0.000 0.000 64.863 1.649 89.160	427.734 0.000 62.031 194.648 93.984	139.375 0.000 0.000 0.000	11.035 4.004 80.586 193.867
77/10/26 00.32.36	0.000 0.000 0.000 77.861 0.000	35.449 8.594 2.246 77.607 193.867	0.000 0.000 0.000 0.000 167.305	21.375 17.773 4.053 0.000 140.938	0.000 3.942 0.000 0.000 175.508	54.004 0.000 6.781 88.398 174.531	0.000 0.000 64.043 0.000 89.287	427.734 0.000 61.211 195.234 93.984	138.398 0.000 0.000 0.000	10.742 3.906 80.000 194.063
77/10/26 00.37.56	0.000 0.000 0.000 77.734 0.000	33.789 8.301 2.441 77.988 194.453	0.000 0.000 0.000 0.000 165.547	20.996 17.676 3.562 0.000 159.961	0.000 7.551 0.000 0.000 172.188	53.906 0.000 6.488 88.203 169.648	0.000 0.000 64.453 0.000 89.922	427.734 0.000 60.117 195.039 93.350	138.008 0.000 0.000 0.000	10.547 2.783 79.805 194.063
77/10/26 00.43.16	0.000 0.000 0.000 77.734 0.000	32.178 3.203 2.734 78.115 194.453	0.000 0.020 0.000 0.000 163.398	20.215 17.578 3.369 0.000 140.156	0.000 8.362 0.000 0.000 168.386	53.809 0.000 6.293 88.203 165.742	0.000 0.000 65.684 0.000 89.922	427.734 0.000 58.340 194.648 93.096	137.422 0.000 0.000 0.000	10.449 1.953 79.023 193.867

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Figure 8-5. Sample Raw Data Processing Detail Record Print

Table 8.2. Raw Data Processing Error Messages (Sheet 1 of 6)

<p>Message: NO SITE DATA DESCRIPTION RECORD FOR SITE _____ . DATA FOR THIS SITE BYPASSED.</p> <p>Error Level: 12 Subroutine: IPSRAW (Main)</p> <p>Explanation: Raw data with a site id for which there is no record in the Site Data Description file. Either the raw data is wrong, or the Site Data Information for the site must be added to the Site Data Description file.</p>
<p>Message: SITE _____ IS A SITE WITH NO PREVIOUS DATA.</p> <p>Error Level: None Subroutine: IPSRAW (Main)</p> <p>Explanation: No record for the site was found in the continuity file. This means that the current batch of raw data contains the first operational data collected from the site.</p>
<p>Message: LOST IN RAW FILE. SITE ID RECORD HAS WRONG FILL PROCESSING STOPPED.</p> <p>Error Level: 16 Subroutine: IPSRAW (Main)</p> <p>Explanation: Raw data has wrong format or some data is missing. Consult with System/7 programmers for possible problem explanation. (Site id record content is printed.)</p>
<p>Message: PECULIAR VALUES IN TIME OF SITE ID. DATA PROCESSING FOR THE SITE WILL BE BYPASSED. PROCESSING FOR OTHER SITES WILL BE ATTEMPTED.</p> <p>Error Level: 12 Subroutine: IPSRAW (Main)</p> <p>Explanation: Either System/7 put bad values in Site id record or this is not a site id record. If record also has bad fill data or bad counters it is probably not an id record. Consult with System/7 programmers for possible problem explanation. (Site id record content is printed.)</p>
<p>Message: BAD VALUE(S) IN COUNTERS OF SITE ID RECORD. PROCESSING STOPPED.</p> <p>Error Level: 16 Subroutine: IPSRAW (Main)</p> <p>Explanation: Either System/7 put bad value(s) in Site id record or this is not an id record. If record also has bad fill data or bad time values it is probably not an id record. Consult with System/7 programmers for possible error explanation. (Site id record content is printed.)</p>

Table 8.2. Raw Data Processing Error Messages (Sheet 2 of 6)

<p>Message: HIGHEST SEVERITY LEVEL _____</p> <p>Error Level: Not applicable Subroutine: IPSRAW (Main)</p> <p>Explanation: If 16, terminal error encountered. If 12, processing failed for one or more sites. If 10, one or more data blocks rejected. If 8, one or more scans rejected. If 4, one or more individual variable readings rejected. If 0, no data rejected.</p>
<p>Message: UNEXPECTED END OF FILE OF RAW DATA WHILE SEPARATING RAW DATA OF SITE _____ INTO DATA AND FLAG STREAMS.</p> <p>Error Level: 16 Subroutine: STREAM</p> <p>Explanation: Site id record must have a bad value in its counters or some raw data has been lost. Consult with System/7 programmers for possible error explanation.</p>
<p>Message: SCANSEP: END OF FILE READING DATAFIL. PROCESSING STOPPED FOR SITE _____</p> <p>Error Level: 12 Subroutine: SCANSEP</p> <p>Explanation: End-of-site indication not found in the data records for the site. If BCH error count for the site was not zero then probably a noise problem made an End-of-block or End-of-site unrecognizable.</p>
<p>Message: SCANSEP. END OF FILE READING FLAGFIL. PROCESSING STOPPED FOR SITE _____</p> <p>Error Level: 12 Subroutine: SCANSEP</p> <p>Explanation: Normally accompanies an 'END OF FILE READING DATAFIL' message and is part of the same problem.</p>
<p>Message: SCANSEP. A COMMAND FRAME HAS ILLEGAL CODE AND NO BCH ERROR. PROCESSING STOPPED FOR SITE ID _____</p> <p>Error Level: 12 Subroutine: SCANSEP</p> <p>Explanation: Either raw data has wrong format or the scan separation routine has gotten lost processing noisy data. Look at site BCH error count and consult with System/7 programmer for problem explanation.</p>

Table 8.2. Raw Data Processing Error Messages (Sheet 3 of 6)

<p>Message: SCANSEP: A SCAN WITH TIME _____ HAS BEEN DROPPED SINCE TIME < = TIME OF LAST SCAN. SITE ID = _____</p> <p>Error Level: 8 Subroutine: SCANSEP</p> <p>Explanation: Error could be caused by rerunning same raw data and not re- storing to previous version of continuity file. Otherwise, time may be wrong or time of previous scan may be wrong.</p>
<p>Message: SCANSEP: A SCAN WITH TIME _____ HAS BEEN DROPPED SINCE TIME > = RUN TIME. SITE ID = _____</p> <p>Error Level: 8 Subroutine: SCANSEP</p> <p>Explanation: Could be caused by a clock reset at the site. Also could be connected to a time overrun at the site.</p>
<p>Message: SCANSEP: BCH ERROR IN COMMAND FRAME WITH END-OF-SITE COMMAND FOR SITE ID _____</p> <p>Error Level: 10 Subroutine: SCANSEP</p> <p>Explanation: Noisy data. Command is treated as End-of-site. If command should have been Block-Start then one or more data blocks were lost. Compare SCANSEP actual and expected raw data byte counts.</p>
<p>Message: SCANSEP: BCH ERROR IN COMMAND FRAME WITH BLOCK START COMMAND CODE. BLOCK OF DATA SKIPPED FOR SITE ID _____</p> <p>Error Level: 10 Subroutine: SCANSEP</p> <p>Explanation: Noisy data. Command with BCH error treated as Block Start. Normally means a block of data is rejected. If should have been End-of-site then will probably end up rejecting all data for the site.</p>
<p>Message: SCANSEP: COMMAND WITH BCH ERROR AND ILLEGAL CODE ASSUMED TO BE BLOCK START. BLOCK WILL BE SKIPPED FOR SITE _____</p> <p>Error Level: 10 Subroutine: SCANSEP</p> <p>Explanation: Similar to BCH error in Command frame with Block Start command code.</p>

Table 8.2. Raw Data Processing Error Messages (Sheet 4 of 6)

<p>Message: SCANSEP: COMMAND WITH BCH ERROR AND ILLEGAL CODE ASSUMED TO BE END OF SITE. SITE ID = _____</p> <p>Error Level: 10 Subroutine: SCANSEP</p> <p>Explanation: Similar to BCH error in command with End-of-site command code.</p>
<p>Message: SCANSEP: BCH ERROR IN END OF BLOCK OR START OF SCAN. DECODED AS END OF BLOCK. SITE ID = _____</p> <p>Error Level: 8 Subroutine: SCANSEP</p> <p>Explanation: Trying to correctly process noisy data. Six or more characters of 'FF' imply End-of-block. If wrong probably will get lost in the scan separation process.</p>
<p>Message: SCANSEP: BCH ERROR IN END OF BLOCK OR START OF SCAN DECODED AS START OF SCAN AND SCAN DROPPED. SITE ID = _____</p> <p>Error Level: 8 Subroutine: SCANSEP</p> <p>Explanation: Trying to process noisy data. If data does not contain at least 6 bytes of 'FF' as in End-of-Block it is treated as Start-of-Scan. The scan is dropped because of uncertain time.</p>
<p>Message: CNVTEST: BAD SCAN POINTER FOR SITE _____ . PROCESSING FOR SITE STOPPED.</p> <p>Error Level: 12 Subroutine: CNVTEST</p> <p>Explanation: Bad information in the Site Data Description file. Change values on the Site Data Information form and/or change the Site Data Description Utility.</p>
<p>Message: CNVTEST: BAD NIPS POINTER FOR SITE _____ . PROCESSING FOR SITE STOPPED.</p> <p>Error Level: 12 Subroutine: CNVTEST</p> <p>Explanation: Bad information in the Site Data Description file. Change values on the Site Data Information form and/or change the Site Data Description Utility.</p>

Table 8.2. Raw Data Processing Error Messages (Sheet 5 of 6)

<p>Message: IN CNVTEST HAVE SITE ID MISMATCH. SITE-DATA-INFO. SITE-ID = _____ SCAN SITE-ID = _____ NIPS-INPUT. SITE-ID = _____ PROCESSING TERMINATED.</p> <p>Error Level: 16 Subroutine: CNVTEST</p> <p>Explanation: Should never happen. Look for a software problem.</p>
<p>Message: CNVTEST: ILLEGAL CONVERSION TYPE IN SITE DATA INFO. PROCESSING STOPPED FOR SITE ID _____</p> <p>Error Level: 12 Subroutine: CNVTEST</p> <p>Explanation: Bad information in the Site Data Description file. Change values on the Site Data Information form and/or change the Site Data Description Utility.</p>
<p>Message: VARIABLE _____ OUT OF LIMITS AT TIME _____ MINIMUM = _____ MAXIMUM = _____ VALUE = _____</p> <p>Error Level: None Subroutine: CNVTEST</p> <p>Explanation: Engineering units value of variable is outside of performance analyst specified limits.</p>
<p>Message: VARIABLE _____ HAS BCH ERROR AT TIME _____</p> <p>Error Level: None Subroutine: CNVTEST</p> <p>Explanation: A BCH flag error affects the portion of the raw data from which the variables data was extracted. The value could be wrong.</p>
<p>Message: VARIABLE _____ CHANGED TOO FAST AT TIME _____</p> <p>Error Level: None Subroutine: CNVTEST</p> <p>Explanation: Change between successive values of a variable exceeds per- formance analyst specified limits.</p>
<p>Message: VARIABLE _____ REJECTED AT TIME _____</p> <p>Error Level: 4 Subroutine: CNVTEST</p> <p>Explanation: Variable failed two or more tests (out-of-limits, BCH error, or changing-too-fast) and value was rejected.</p>

Table 8.2. Raw Data Processing Error Messages (Sheet 6 of 6)

Message: CNVTEST: BAD OP CODE IN ENGINEER EQUATIONS. PROCESSING STOPPED
FOR SITE _____

Error Level: 12 Subroutine: CNVTEST

Explanation: Bad computed variable equation in Site Data Description file.
Change data on Site Data Information form and/or change the
Site Data Description Utility.

Message: VARIABLE _____ HAS CONSTANT VALUE _____

Error Level: None Subroutine: CNVTEST

Explanation: A variable which performance analyst has specified must change
had a constant value throughout one batch of raw input. In-
dicates a possible problem in the site data collection hard-
ware.

SOLAR HEATING AND COOLING PROGRAM

ERDA 1-0037

12/16/76 DAILY SYSTEM PERFORMANCE SUMMARY

PROCESSING DATE: JANUARY 4, 1976

SITE NUMBER: 0037
 SITE LOCATION: 1915 WAXLEAF GREEN, HUNTSVILLE, ALABAMA 35803
 SITE NAME:
 OPERATION START DATE: OCTOBER 17, 1976
 LATITUDE: 34.7°N
 LONGITUDE: 86.6°N

COLLECTOR SIZE: 65 SQUARE METERS
 COLLECTOR TYPE: REVERE COPPER
 STORAGE SIZE: 1200 GALLONS
 STORAGE MEDIA: 100% WATER
 SYSTEM TYPE: HOT WATER, HEATING & COOLING

DATE OF DATA: DECEMBER 16, 1975

HOUR OF DAY	HOT WATER		HEATING		COOLING		DHW LOSS WH	TOTAL SOLAR				SYSTEM OPER POWER	TOTAL AUX KWH	PER CENT SOLAR %	CONVEN ENERGY SAVED	COMF INDEX %	DHW AVA %
	SOLAR KWH	AUX KWH	SOLAR KWH	AUX KWH	SOLAR KWH	AUX KWH		AVAIL KWH	COLLECT KWH	UTILIZE KWH	CONV %						
0-1	0.01	0.00	10.13	0.00	0.00	0.00	20	0.00	0.00	10.14	0.0	0.23	0.00	97.1	9.91	100.0	100
1-2	0.00	0.00	11.01	0.00	0.00	0.00	0	0.00	0.00	11.01	0.0	0.25	0.00	96.7	10.76	100.0	100
2-3	0.02	0.00	14.93	0.00	0.00	0.00	32	0.00	0.00	14.95	0.0	0.24	0.00		14.71	98.1	100
3-4	0.01	0.00	15.72	0.00	0.00	0.00	18	0.00	0.00	15.73	0.0	0.26	0.00		15.47	96.3	100
4-5	0.00	0.00	17.41	0.00	0.00	0.00	0	0.00	0.00	17.41	0.0	0.27	0.00		17.14	97.7	100

Figure 8-6: Daily System Performance Summary

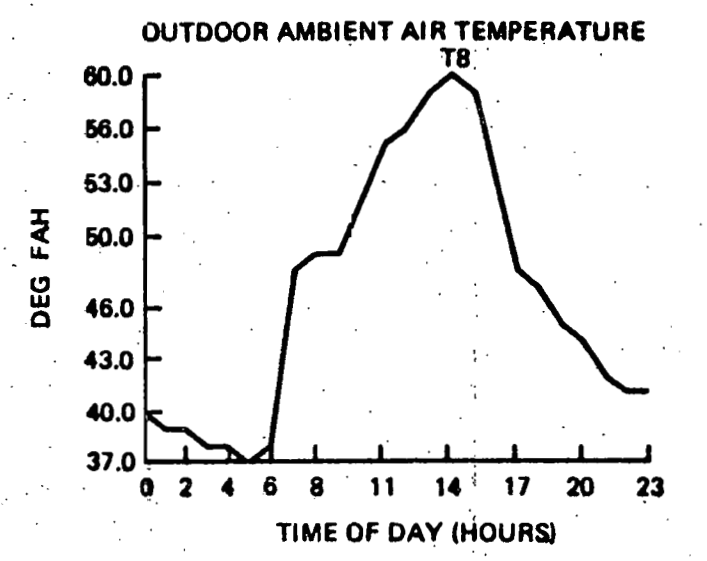
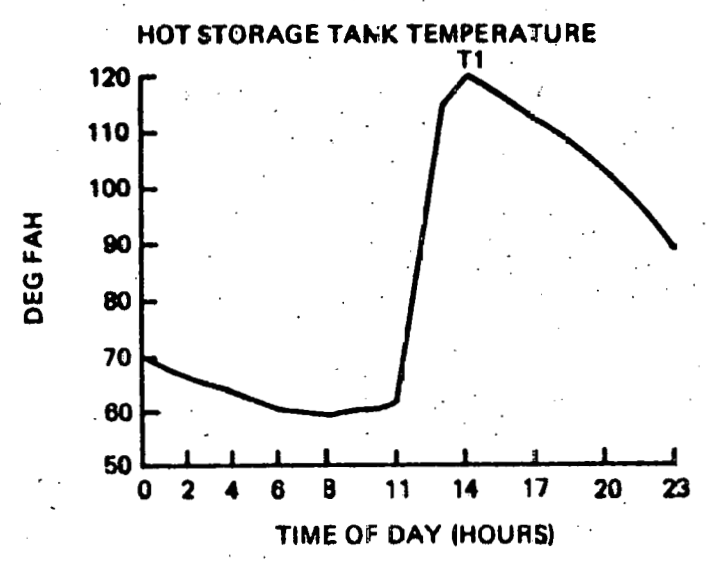
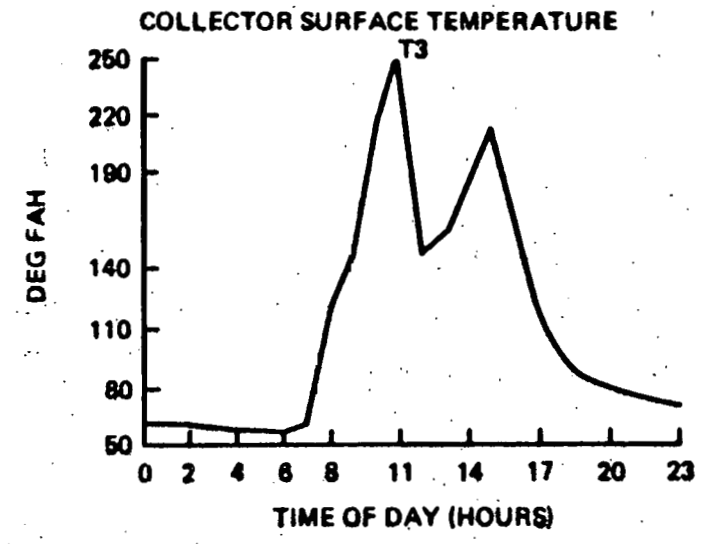
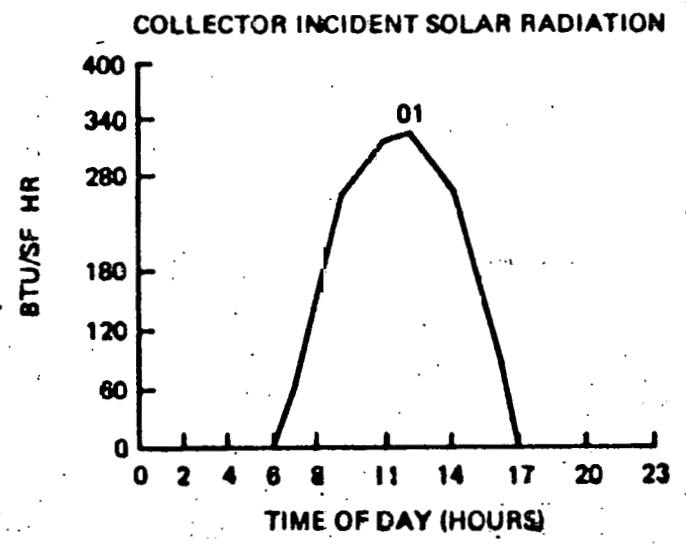


Figure 8-7: User Output Samples

REMOTE SITE DESCRIPTION DATA INPUT SHEET

SDAS PARAMETER DATA	FIELD NAME	SIZE	SET NUMBER	MODE	CONVERSION ROUTINE - INPUT	CONVERSION ROUTINE - OUTPUT	
EDIT MASK	LABEL				GROUP (Y/N)	DUMMY (C)	SYSTEM ID CODE
SDAS PARAMETER DATA	FIELD NAME	SIZE	SET NUMBER	MODE	CONVERSION ROUTINE - INPUT	CONVERSION ROUTINE - OUTPUT	
EDIT MASK	LABEL				GROUP (Y/N)	DUMMY (C)	SYSTEM ID CODE
SDAS PARAMETER DATA	FIELD NAME	SIZE	SET NUMBER	MODE	CONVERSION ROUTINE - INPUT	CONVERSION ROUTINE - OUTPUT	
EDIT MASK	LABEL				GROUP (Y/N)	DUMMY (C)	SYSTEM ID CODE
SDAS PARAMETER DATA	FIELD NAME	SIZE	SET NUMBER	MODE	CONVERSION ROUTINE - INPUT	CONVERSION ROUTINE - OUTPUT	
EDIT MASK	LABEL				GROUP (Y/N)	DUMMY (C)	SYSTEM ID CODE
SDAS PARAMETER DATA	FIELD NAME	SIZE	SET NUMBER	MODE	CONVERSION ROUTINE - INPUT	CONVERSION ROUTINE - OUTPUT	
EDIT MASK	LABEL				GROUP (Y/N)	DUMMY (C)	SYSTEM ID CODE
SDAS PARAMETER DATA	FIELD NAME	SIZE	SET NUMBER	MODE	CONVERSION ROUTINE - INPUT	CONVERSION ROUTINE - OUTPUT	
EDIT MASK	LABEL				GROUP (Y/N)	DUMMY (C)	SYSTEM ID CODE
SDAS PARAMETER DATA	FIELD NAME	SIZE	SET NUMBER	MODE	CONVERSION ROUTINE - INPUT	CONVERSION ROUTINE - OUTPUT	
EDIT MASK	LABEL				GROUP (Y/N)	DUMMY (C)	SYSTEM ID CODE

REMOTE SITE DESCRIPTION DATA INPUT SHEET

COMMENTARY TEXT

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REMOTE SITE DESCRIPTION DATA INPUT SHEET

SITEID	SYSID	NAME
--------	-------	------

STREET ADDRESS

CITY, STATE, ZIP CODE

ALTITUDE	LONGITUDE	ROOF PITCH	ORIENTATION	DESIGN LOADS	POWER COST	AUXILIARY SYSTEM
----------	-----------	------------	-------------	--------------	------------	------------------

COLLECTOR SUBSYSTEM				COST CATEGORY (EC-MR-UN)	EFFICIENCY CODE (VH-HI-MY-LO-VL)
IDENTIFICATION	MFG. CODE	MATERIAL CODE	TYPE (L/AZ)	TYPE	SYSTEM TYPE (SF-MF-CO)
				CO	

MANUFACTURER NAME	ABSORBER MATERIAL	ABSORBER CONFIGURATION	ABSORBER COATING
-------------------	-------------------	------------------------	------------------

NO. OF COVERS	COVER MATERIAL	POWER SIZE	STATUS (AS-LPS)	CERTIFY CODE	OPERATING LIFE	RATED ENERGY	INLET TEMP
---------------	----------------	------------	-----------------	--------------	----------------	--------------	------------

OUTLET TEMP	FLOW RATE	RECORDING FORMAT	NO. OF PARAMETERS	DATA SET NAME
		SDAS DATA →		

STORAGE SUBSYSTEM →	ID	TYPE	COMMERCIAL ID	DIMENSION	THERMAL CAP.	RATED TEMP.	RATED PRESSURE	BURST PRESSURE	PRESSURE RATIO
---------------------	----	------	---------------	-----------	--------------	-------------	----------------	----------------	----------------

COLLING SUBSYSTEM →	ID	MATERIAL ID	FLUID ID	SAFETY CODE	PERFORMANCE DATA
---------------------	----	-------------	----------	-------------	------------------

HEATING SUBSYSTEM →	ID	MATERIAL ID	TYPE/COMM. ID	SAFETY CODE	PERFORMANCE DATA
---------------------	----	-------------	---------------	-------------	------------------

CONTROL SUBSYSTEM →	ID	LOGIC ID	PARAMETERS
---------------------	----	----------	------------

SENSE TYPES	OPERATING MODES
-------------	-----------------

HOT WATER SUBSYSTEM →	ID	TYPE	COMMERCIAL ID	FLUID INTERFACE SEPARATION	TOXICITY POTENTIAL	SAFETY STANDARDS
-----------------------	----	------	---------------	----------------------------	--------------------	------------------

	ID	COMMERCIAL ID	DESCRIPTION (PH, IOW, DENSITY, VISCOSITY, ETC.)
--	----	---------------	---

Table 8.3. Remote Site Description Data Input Sheet(s)

Page 1 Instructions

Complete page 1 of the remote site description data input sheet using the following instructions for each information block on the form.

General Information

<u>BLOCK HEADING</u>	<u>Instruction</u>
SITEID	2 character Site Identification Number
SYSID	2 Character System Identification Number
SITE NAME	Up to 50 Character Site Name
STREET ADDRESS	Up to 50 Character Street Address of the Site
CITY, STATE, UP CODE	Up to 50 characters for City, State, and Zip Code
LATITUDE	Up to 10 character of Latitude Information
LONGITUDE	Up to 10 characters of Longitude Information
ROOF PITCH	Up to 2 characters showing pitch of roof
ORIENTATION	Up to 2 characters indicating building orientation
DESIGN LOAD	Up to 12 characters of design load information
POWER COST	Up to 10 characters of cost of power
AUXILIARY SYSTEM	Up to 20 characters indicating auxiliary system used

Collector Subsystem

<u>BLOCK HEADING</u>	<u>Instruction</u>
IDENTIFICATION	2 characters of Collector Subsystem Identifier
MFG. CODE	2 character manufacturers code
MATERIAL CODE	2 character code for material
TYPE (LI/AI)	LI for Liquid or AI for Air
SYSTEM TYPE	SF-single family or MF-Multiple Family or CO-commercial

Table 8.3. Remote Site Description Data Input Sheet(s) (Continued)

Page 2

Instructions (Cont'd)

BLOCK HEADING

COST CATEGORY	EC-Economic or MR-Marginal or UN-Uneconomical
MANUFACTURERS NAME	Up to 20 characters for name of Collector System manufacturer
ABSORBER MATERIAL	Up to 20 characters describing the absorber material
ABSORBER CONFIGURATION	Up to 20 characters describing the configuration of the absorber
ABSORBER COATING	Up to 10 characters describing absorber coating
NO. OF COVERS	2 characters indicating the number of covers
COVER MATERIAL	Up to 10 characters describing cover material
POWER SIZE	Up to 10 characters showing standard power size
STATUS (AS-LP)	Operational status, AS-available off shelf or LP-limited production
CERTIFY CODE	2 character independent agency certification code
OPERATING LIFE	2 character operating life code
RATED ENERGY	2 characters indicating Energy Collection (Rated)
INLET TEMP.	Up to 4 characters of collector inlet temperature
OUTLET TEMP.	Up to 4 characters of collector outlet temperature
FLOW RATE	Up to 4 characters indicating collector flow rate

Table 8.3. Remote Site Description Data Input Sheet(s) (Continued)

Page 3

SDAS DATA

BLOCK HEADING

Instruction

RECORDING FORMAT

1 character showing format of SDAS recording

NO. OF PARAMETERS

Up to 4 characters indicating number of parameters

DATA SET NAME

Up to 8 characters showing the remote operational data set name

STORAGE SUBSYSTEM

BLOCK HEADING

Instruction

ID

2 character storage subsystem identification

TYPE

2 character storage type

COMMERCIAL ID

2 character storage commercial identification

DIMENSION

10 characters showing storage dimension

THERMAL CAP

2 characters of rated thermal capacity

RATED TEMP

Up to 4 characters of rated temperature

RATED PRESSURE

Up to 4 characters showing rated pressure

BURST PRESSURE

Up to 4 characters showing burst pressure

PRESSURE RANGE

Up to 10 characters indicating pressure range

COOLING SUBSYSTEM

BLOCK HEADING

Instruction

ID

2 character cooling subsystem identification

MATERIAL ID

2 character identification of material

FLUID ID

2 character identification of fluid

SAFETY CODE

2 character safety code

Table 8.3. Remote Site Description Data Input Sheet(s) (Continued)

Page 4

COOLING SUBSYSTEM (Cont'd)

BLOCK HEADING

Instruction

PERFORMANCE DATA

Up to 80 characters of performance data

HEATING SUBSYSTEM

BLOCK HEADING

Instruction

ID 2 character identification of the heating subsystem
MATERIAL ID 2 character identification of material
TYPE 2 character heating type indicator
COMM. ID 2 characters of commercial identification
SAFETY CODE 2 character safety code
PERFORMANCE DATA Up to 80 characters of performance data

CONTROL SUBSYSTEM

BLOCK HEADING

Instruction

ID 2 character identification of the control subsystem
LOGIC ID 2 character identification of logic
PARAMETERS Up to 80 characters of parameter data
SENSOR TYPES Up to 80 characters showing sensor types
OPERATING MODES Up to 80 characters indicating operating modes

HOT WATER SUBSYSTEM

BLOCK HEADING

Instruction

ID 2 character identification of this hot water subsystem
TYPE 2 character indicating type of subsystem

Table 8.3. Remote Site Description Data Input Sheet(s) (Continued)
Page 5

HOT WATER SUBSYSTEM (Cont'd)

<u>BLOCK HEADING</u>	<u>Instruction</u>
COMMERCIAL ID	2 characters of commercial identification
FLUID INTERFACE SEPARATION	2 characters of fluid separation
TOXICITY POTENTIAL	2 character codes showing toxicity
SAFETY STANDARD	2 character code indicating safety standard

TRANSPORT SUBSYSTEM

<u>BLOCK HEADING</u>	<u>Instruction</u>
ID	2 character identification of the transport subsystem
COMMERCIAL ID	2 characters of commercial identification
DESCRIPTION	Up to 200 characters of descriptive data

Page 2 Instructions

Page 2 can contain up to 1000 characters commentary text such as:

- o Failure history
 - Problem/Date
 - Problem/solution date
- o Pointers to off line documents/data
 - System description
 - System definition
 - System specification
 - Design procedures
 - Certification data

Table 8.3. Remote Site Description Data Input Sheet(s) (Continued)

Page 7

Page(s) 3 and above instructions

Complete a two line entry for each parameter being received from the SDAS. Use as many pages as required.

SDAS PARAMETER DATA

BLOCK HEADING

Instruction

FIELD NAME	Up to 7 characters of a unique field name
SIZE	2 characters showing size of the parameter in bytes
SET NUMBER	2 characters indicating set in remote data file
MODE	5 characters indicating mode-either ALPHA or NUMBER
CONVERSION ROUTINE-INPUT	Up to 7 characters giving name of input routine
CONVERSION ROUTINE-OUTPUT	Up to 7 characters giving name of output routine
EDIT MASK	Up to 7 characters showing name of edit mask used
.ABEL	Up to 69 characters labeling the parameter
GROUP (Y/N)	Group indication either Yes (Y) or No (N)
DUMMY (D)	Dummy record indicator - D
SYSTEM ID CODE	Subsystem identification character

KEYPUNCH OPERATING INSTRUCTIONS

JOB NUMBER:

EFFECTIVE DATE:

3 NAME: Remote Site Description Data Input Sheet 1

CARD COL	NO. OF COL'S	FIELD DESCRIPTION	SPECIAL INSTRUCTIONS
1	1	Transaction	Always 'D'
2	2	Card Code	Always '01'
4	5	Site ID	AN, RJZF if less than 2 positions
9	2	System ID	AN, RJZF if less than 2 positions
11	69	Site Name	AN, LJ, punch as shown
<u>Card 2</u>			
1	1	Transaction	Always 'D'
2	2	Card Code	Always '02'
4	5	Site ID	Dupe from Card 1
9	2	System ID	Dupe from Card 1
11	69	Street Address	AN, LJ, punch as shown
<u>Card 3</u>			
1	1	Transaction	Always 'D'
2	2	Card Code	Always '03'
4	5	Site ID	Dupe from Card 2
9	2	System ID	Dupe from Card 2
11	69	City, State, Zip Code	AN, LJ, punch as shown
<u>Card 4</u>			
1	1	Transaction	Always 'D'
2	2	Card Code	Always '04'
4	5	Site ID	Dupe from Card 3
9	2	System ID	Dupe from Card 3
11	10	Latitude	A/N, LJ, punch as shown

Table 8.4. (Continued)

KEYPUNCH OPERATING INSTRUCTIONS

PAGE 2 OF 7

JOB NUMBER:

EFFECTIVE DATE:

3 NAME: Remote Site Description Data Input Sheet 1

CARD COL.	NO. OF COL'S	FIELD DESCRIPTION	SPECIAL INSTRUCTIONS
<u>Card 4 (Continued)</u>			
21	10	Longitude	AN, LJ, punch as shown
31	2	Roof Pitch	A/N, RJ, reject greater than 2
33	2	Orientation	AM, RJ, reject greater than 2
35	12	Design Loads	AN, RJ, punch as shown
47	10	Power Cost	AN, RJ punch as shown.
57	23	Auxiliary System	AN, RJ punch as shown
<u>Card 5</u>			
1	1	Transaction	Always 'D'
2	2	Card Code	Always '05'
4	5	Site ID	Dupe from Card 4
9	2	System ID	Dupe from Card 4
11	2	Identification	AN, RJZF
13	2	Mfg. Code	A/N, RJZF
15	2	Material Code	A/N, RJZF
17	2	Type (LI/AI)	A/N, RJZF
19	1	Type (C)	A/N-Always 'C'
20	1	System Type	A/N, Skip of blank
21	1	Cost Category	N, skip if blank
22	2	Efficiency Code	A/N, skip if blank
24	20	Manufacturer's Name	A/N, LJ, punch as shown
44	20	Absorber material	A/N, LJ, punch as shown
64	16	Absorber configuration	A/N, LJ, punch as shown

KEYPUNCH OPERATING INSTRUCTIONS

JOB NUMBER:
3 NAME:

EFFECTIVE DATE:

CARD COL.	NO. OF COL'S	FIELD DESCRIPTION	SPECIAL INSTRUCTIONS
<u>Card 6</u>			
1	2	Transaction Code	Always 'D'
2	2	Card Code	Always 06
4	5	Site ID	Dupe from Card 5
9	2	System ID	Dupe from Card 5
11	10	Absorber Counting	AN, LJ, punch as shown
21	2	No. of Covers	AN, RJZF
23	10	Cover Material	AN, LJ, punch as shown
33	10	Power Size	AN, LJ, punch as shown
43	2	Status (AS-LP)	AN, punch as shown
45	2	Certify Code	AN, LJ, punch as shown
47	2	Operating Life	AN, LJ, punch as shown
49	2	Rated Energy	AN, LJ, punch as shown
51	4	Inlet temp	AN, RJZF, skip if blank
55	4	Outlet temp	AN, RJZF, skip if blank
59	4	Flaco Rate	AN, RJZF, skip if blank
63	1	Recording Format	AN, skip if blank
64	4	No. of Parameters	AN, RJZF, skip if blank
68	8	Data Set Name	AN, LJ, punch as shown
<u>Card 7 (Storage Subsystem)</u>			
1	1	Transaction Code	Always 'D'
2	2	Card Code	Always '07'
4	5	Site ID	Dupe from Card 6

8007A

KEYPUNCH OPERATING INSTRUCTIONS

JOB NUMBER:

EFFECTIVE DATE:

JOB NAME:

CARD COL.	NO. OF COL'S	FIELD DESCRIPTION	SPECIAL INSTRUCTIONS
<u>(Card 7 Cont'd)</u>			
9	2	System ID	Dupe from Card 6
11	2	ID	AN, LJ skip if blank
13	2	Type	AN, LJ skip if blank
15	2	Commercial ID	AN, LK skip if blank
17	10	Dimension	AN, LJ skip if blank
27	2	Thermal Cap	AN, LJ skip if blank
29	4	Rated Temp	AN, LJ skip if blank
33	4	Rated Pressure	AN, LJ skip if blank
37	4	Burst Pressure	AN, LJ skip if blank
41	10	Rated Range	AN, LJ skip if blank
<u>Card 8 (Cooling Subsystem)</u>			
1	1	Transaction Code	Always 'D'
2	2	Card Code	Always '08'
4	5	Site ID	Dupe from Card 7
9	2	System ID	Dupe from Card 7
11	2	ID	AN, skip if blank
13	2	Material ID	AN, skip if blank
15	2	Fluid ID	AN skip if blank
17	2	Safety Code	AN, skip if blank
19	61	Performance Data	AN, LJ, skip if blank

KEYPUNCH OPERATING INSTRUCTIONS

JOB NUMBER:

EFFECTIVE DATE:

NAME:

CARD COL.	NO. OF COL'S	FIELD DESCRIPTION	SPECIAL INSTRUCTIONS
<u>Card 9 (Heating Subsystem)</u>			
1	1	Transactron Code	Always D
2	2	Card Code	Always '09'
4	5	Site ID	Dupe from Card 8
9	2	System ID	Dupe from Card 8
11	2	ID	AN, skip if blank
13	2	Material ID	AN, skip if blank
15	2	Type	AN, skip if blank
17	2	Comm. ID	AN, skip if blank
19	2	Safety Code	AN, skip if blank
21	59	Performance data	AN, LJ, skip if blank
<u>Card 10 (Control Subsystem)</u>			
1	1	Transaction Code	Always 'D'
2	2	Card Code	Always '10'
4	5	Site ID	Dupe from Card 9
9	2	System ID	Dupe from Card 9
11	2	ID	AN, skip if blank
13	2	Logic ID	AN, skip if blank
15	65	Parameters	AN, LJ skip if blank
<u>Card 11 (Control Subsystem Cont'd)</u>			
1	1	Transaction Code	Always 'D'
2	2	Card Code	Always '11'

KEYPUNCH OPERATING INSTRUCTIONS

JOB NUMBER: _____

EFFECTIVE DATE: _____

NAME: _____

CARD COL.	NO. OF COL'S	FIELD DESCRIPTION	SPECIAL INSTRUCTIONS
<u>Card 11 (Control Subsystem Cont'd)</u>			
4	5	Site ID	Dupe from Card 10
9	2	System ID	Dupe from Card 10
11	69	Sensor Types	AN, LJ punch as shown
<u>Card 12 (Control Subsystem Cont'd)</u>			
1	1	Transaction Code	Always 'D'
2	2	Card Code	Always '12'
4	5	Site ID	Dupe from Card 11
9	2	System ID	Dupe from Card 11
11	69	Operating modes	AN, LJ, punch as shown
<u>Card 13 (Hot Water Subsystem)</u>			
1	1	Transaction Code	Always 'D'
2	2	Card Code	Always '13'
4	5	Site ID	Dupe from Card 12
9	2	System ID	Dupe from Card 12
11	2	ID	AN, skip if blank
13	2	Type	AN, skip if blank
15	2	Commercial ID	AN, skip if blank
17	2	Fluid Interface Separation	AN, skip if blank
19	2	Toxicity Potential	AN, skip if blank
21	2	Safety Standards	AN, skip if blank

KEYPUNCH OPERATING INSTRUCTIONS

JOB NUMBER:
NAME:

EFFECTIVE DATE:

CARD COL.	NO. OF COL'S	FIELD DESCRIPTION	SPECIAL INSTRUCTIONS
<u>Card 14 (Transport Subsystem)</u>			
1	2	Transaction Code	Always 'D'
2	2	Card Code	Always '14'
4	5	Site ID	Dupe from Card 13
9	2	System ID	Dupe from Card 13
11	2	ID	AN, skip if blank
13	2	Commercial ID	AN, skip if blank
15	65	Description	AN, LJ, punch as shown
<u>Card 15 (Transport Subsystem, Cont)</u>			
1	1	Transaction Code	Always 'D'
2	2	Card Code	Always '15'
4	5	Site ID	Dupe from Card 14
9	2	System ID	Dupe from Card 14
11	69	Description Cont.	AN, LJ, punch as shown

Subsystem Evaluation Input Sheet

Complete the subsystem evaluation input sheet using the following instructions for each information block on the form.

General Information

<u>BLOCK HEADING</u>	<u>Instruction</u>
DATE	Month, Day, Year of Input
HOUR	2 character hour of evaluation data
NO. OF SAMPLE	2 characters indicating number of samples
DATA SOURCE	1 character denoting source of data
SUBSYSTEM	4 character subsystem identification

Collector Subsystem

<u>BLOCK HEADING</u>	<u>Instruction</u>
IDENTIFICATION	2 characters of Collector Subsystem Identifier
MFG. CODE	2 character manufacturers code
MATERIAL CODE	2 character code for material
TYPE	LI for Liquid or AI for Air
SYSTEM TYPE	SF-Single Family, MF-Multiple Family or CO-Commercial
COST CATEGORY	EC-Economic, MR-Marginal or UN-Uneconomical
MANUFACTURERS NAME	Up to 20 characters for name of Collector Subsystem manufacturer
ABSORBER MATERIAL	Up to 20 characters describing the absorber material
ABSORBER CONFIGURATION	Up to 20 characters describing the configuration of the absorber
ABSORBER COATING	Up to 10 characters describing absorber coating
NO. OF COVERS	2 characters indicating the number of covers
COVER MATERIAL	Up to 10 characters describing cover material
PANEL SIZE	Up to 10 characters showing standard panel size
STATUS	Operation Status, AS-available off shelf or LP-limited production

Collector Subsystem (Cont'd)

<u>BLOCK HEADING</u>	<u>Instruction</u>
CERTIFY CODE	2 character independent agency certification code
OPERATING LIFE	2 character operating life code
RATED ENERGY	2 characters indicating Energy Collection (Rated)
INLET TEMP.	Up to 4 characters of collector inlet temp.
OUTLET TEMP.	Up to 4 characters of collector outlet temp.
FLOW RATE	Up to 4 characters indicating Collector Flow Rates

Storage Subsystem

<u>BLOCK HEADING</u>	<u>Instruction</u>
ID	2 character Storage Subsystem identification
TYPE	2 character storage type
COMMERCIAL ID	2 character commercial identification
DIMENSION	10 characters showing storage dimension
THERMAL CAP.	2 characters of rated thermal capacity
RATED TEMP.	Up to 4 characters of rated temperature
RATED PRESSURE	Up to 4 characters showing rated pressure
BURST PRESSURE	Up to 4 characters showing burst pressure
PRESSURE RANGE	Up to 10 characters indicating pressure range
PERFORMANCE DATA	Up to 80 characters of performance data

Cooling Subsystem

<u>BLOCK HEADING</u>	<u>Instruction</u>
ID	2 character Cooling Subsystem identification
MATERIAL ID	2 character identification of material
FLUID ID	2 character identification of fluid
SAFETY CODE	2 character safety code
PERFORMANCE DATA	Up to 80 characters of performance data

Heating Subsystem

BLOCK HEADING

Instruction

ID	2 character identification of the Heating Subsystem
MATERIAL ID	2 character identification of material
TYPE	2 character heating type indicator
COMM ID	2 characters of commercial identification
SAFETY CODE	2 character safety code
PERFORMANCE DATA	Up to 80 characters of performance data

Control Subsystem

BLOCK HEADING

Instruction

ID	2 character identification of Control Subsystem
LOGIC ID	2 character identification of logic
PARAMETERS	Up to 80 characters of sensor types
OPERATING MODES	Up to 80 characters indicating operating modes

Hot Water Subsystem

BLOCK HEADING

Instruction

ID	2 character identification of Hot Water Subsystem
TYPE	2 characters indicating type of system
COMMERCIAL ID	2 characters of commercial identification
FLUID INTERFACE SEPARATION	2 characters of fluid separation
TOXICITY POTENTIAL	2 character code showing toxicity
SAFETY STANDARD	2 character code indicating safety standard

KEYPUNCH OPERATING INSTRUCTIONS

PAGE 1 OF 5

JOB NUMBER:

EFFECTIVE DATE:

NAME: Subsystem Evaluation Input Sheet

CARD COL.	NO. OF COL'S	FIELD DESCRIPTION	SPECIAL INSTRUCTIONS
<u>Card 1</u>			
1	1	Transaction	Always 'D'
2	2	Card Code	Always '01'
4	6	Date	A/N
10	2	Hour	A/N
12	2	Number of Sample	A/N
14	1	Data Source	A/N
15	4	Subsystem	A/N
<u>Card 2 (Collector Subsystem)</u>			
1	1	Transaction	Always 'D'
2	2	Card Code	Always '02'
4	4	Subsystem	From cols. 15-18 of card 1
8	12	Identification	A/N, R,JZF
20	2	Manufacturer's Code	A/N, skip if blank
22	2	Material Code	A/N, skip if blank
24	2	Type	A/N, skip if blank
26	1	TY (always 'C')	Always 'C'
27	1	System Type	A/N, skip if blank
28	2	Cost Category	A/N, skip if blank
30	2	Efficiency Code	A/N, skip if blank
32	20	Manufacturer's Name	A/N, LJ, punch as shown
52	20	Absorber Material	A/N, LJ, punch as shown

KEYPUNCH OPERATING INSTRUCTIONS

PAGE 2 OF 5

JOB NUMBER:

EFFECTIVE DATE:

NAME: Subsystem Evaluation Input Sheet

CARD COL.	NO. OF COL'S	FIELD DESCRIPTION	SPECIAL INSTRUCTIONS
		<u>Card 3 (Collector Subsystem Continued)</u>	
1	1	Transaction	Always 'D'
2	2	Card Code	Always '03'
4	4	Subsystem	From cols. 15-18 of card 1
8	20	Absorber Configuration	A/N, LJ, punch as shown
28	10	Absorber Coating	A/N, LJ, punch as shown
38	2	Number of Covers	A/N, RJZF
40	10	Cover Material	A/N, LJ, punch as shown
50	10	Panel Size	A/N, LJ, punch as shown
60	2	Status	A/N, skip if blank
62	2	Certify Code	A/N, skip if blank
64	2	Operating Life	A/N, skip if blank
66	4	Rated Energy	A/N, skip if blank
70	3	Inlet Temperature	A/N, skip if blank
73	3	Outlet Temperature	A/N, skip if blank
76	4	Flow Rate	A/N, skip if blank
		<u>Card 4 (Storage Subsystem)</u>	
1	1	Transaction Code	Always 'D'
2	2	Card Code	Always '04'
4	4	Subsystem	From cols. 15-18 of card 1
8	2	ID	A/N, LJ, skip if blank
10	2	Type	A/N, LJ, skip if blank
12	2	Commercial ID	A/N, LJ, skip if blank
14	10	Dimension	A/N, LJ, skip if blank

KEYPUNCH OPERATING INSTRUCTIONS

JOB NUMBER:

EFFECTIVE DATE:

NAME: Subsystem Evaluation Input Sheet

CARD COL.	NO. OF COL'S	FIELD DESCRIPTION	SPECIAL INSTRUCTIONS
<u>Card 4 (Storage Subsystem Continued)</u>			
24	2	Thermal Cap	A/N, LJ, skip if blank
26	4	Rated Temperature	A/N, LJ, skip if blank
30	4	Rated Pressure	A/N, LJ, skip if blank
34	4	Burst Pressure	A/N, LJ, skip if blank
42	4	Rated Range	A/N, LJ, skip if blank
46	34	Performance Data	A/N, LJ, punch as shown
<u>Card 5 (Cooling Subsystem)</u>			
1	1	Transaction Code	Always 'D'
2	2	Card Code	Always '05'
4	4	Subsystem	From cols. 15-18 of card 1
8	2	ID	A/N, LJ, skip if blank
10	2	Material ID	A/N, LJ, skip if blank
12	2	Fluid ID	A/N, LJ, skip if blank
14	2	Safety Code	A/N, LJ, skip if blank
16	64	Performance Data	A/N, LJ, punch as shown
<u>Card 6 (Heating Subsystem)</u>			
1	1	Transaction Code	Always 'D'
2	2	Card Code	Always '06'
4	4	Subsystem	From cols. 15-18 of card 1
8	2	ID	A/N, LJ, skip if blank
10	2	Material ID	A/N, LJ, skip if blank
12	2	Type	A/N, LJ, skip if blank
14	2	Commercial ID	A/N, LJ, skip if blank

KEYPUNCH OPERATING INSTRUCTIONS

JOB NUMBER:

EFFECTIVE DATE:

JOB NAME: Subsystem Evaluation Input Sheet

CARD COL.	NO. OF COL'S	FIELD DESCRIPTION	SPECIAL INSTRUCTIONS
<u>Card 6 (Heating Subsystem Continued)</u>			
16	2	Safety Code	A/N, LJ, skip if blank
18	62	Performance Data	A/N, LJ, punch as shown
<u>Card 7 (Control Subsystem)</u>			
1	1	Transaction Code	Always 'D'
2	2	Card Code	Always '07'
4	4	Subsystem	From cols. 15-18 of card 1
8	2	ID	A/N, LJ, skip if blank
10	2	Logic ID	A/N, LJ, skip if blank
12	68	Parameters	A/N, LJ, punch as shown
<u>Card 8 (Control Subsystem Continued)</u>			
1	1	Transaction Code	Always 'D'
2	2	Card Code	Always '08'
4	4	Subsystem	From cols. 15-18 of card 1
8	72	Sensor Types	A/N, LJ, punch as shown
<u>Card 9 (Control Subsystem Continued)</u>			
1	1	Transaction Code	Always 'D'
2	2	Card Code	Always '09'
4	4	Subsystem	From cols. 15-18 of card 1
8	72	Operating Modes	A/N, LJ, punch as shown

KEYPUNCH OPERATING INSTRUCTIONS

JOB NUMBER:

EFFECTIVE DATE:

JOB NAME: Subsystem Evaluation Input Sheet

CARD COL	NO. OF COL'S	FIELD DESCRIPTION	SPECIAL INSTRUCTIONS
<u>Card 10 (Hot Water Subsystem)</u>			
1	1	Transaction Code	Always 'D'
2	2	Card Code	Always '10'
4	4	Subsystem	From cols. 15-18 of card 1
8	2	ID	A/N, LJ, skip if blank
10	2	Type	A/N, LJ, skip if blank
12	2	Commercial ID	A/N, LJ, skip if blank
14	2	Fluid Interface Separation	A/N, LJ, skip if blank
16	2	Toxicity Potential	A/N, LJ, skip if blank
18	2	Safety Standards	A/N, LJ, skip if blank

9.0 CDPS REQUEST COORDINATOR GUIDELINES

The CDPS Request Coordinator is the focal point for the processing of requests for CDPS services. He provides the following:

- (1) External User Interface
- (2) Performance Analyst Interface
- (3) CDPS Software Change Coordination
- (4) Data Base Contents and Security

9.1 APPLICABLE DOCUMENTS

The following documents are considered pertinent to the request coordinator's functions:

- (1) CDPS Software Performance Specification Document
- (2) CDPS Software Design Document
- (3) MSFC Data System Plan
- (4) Solar Heating and Cooling Instrumentation and Installation Guidelines
- (5) SDAS Performance Specification
- (6) NIPS User Manuals

9.2 EXTERNAL USER INTERFACE

The External User (outside IBM and MSFC) will request CDPS services via the appropriate government agency for which he is performing tasks to ERDA. These requests will be forwarded to MSFC for evaluation and action by IBM. The request coordinator will handle all interface for CDPS services and will provide resulting data to MSFC for transmittal to the user requesting the data.

9.3 PERFORMANCE ANALYST INTERFACES

Performance Analyst input requests for remote site initiation, site description changes, site deletion, and special processing will be coordinated and accomplished through the request coordinator. The coordinator will ensure that proper authority exists for all changes to the remote site definition and will review all results of CDPS processing to ensure that requests have been fully satisfied.

9.4 CDPS SOFTWARE CHANGES

All changes to the CDPS software resulting from either new requirements or correction of software deficiencies will be formally controlled. The coordinator will provide the interface through which changes are requested and implemented.

9.5 DATA BASE CONTENTS AND SECURITY

The request coordinator will control access to the performance evaluation data base and will provide training to personnel authorized to access the data base. In addition, all data entered into the data base (other than instrumentation data) will be coordinated through the request coordinator.

APPENDIX A

USER'S MANUAL FOR PLOT CAPABILITY

1.0 INTRODUCTION

This manual is intended to assist the user in exercising the steps necessary to generate plots on a Tektronix display terminal using the NIPS software package. The user must be familiar with the NIPS Terminal Processing (TP) capability.

The hardware components which are used in conjunction with NIPS are:

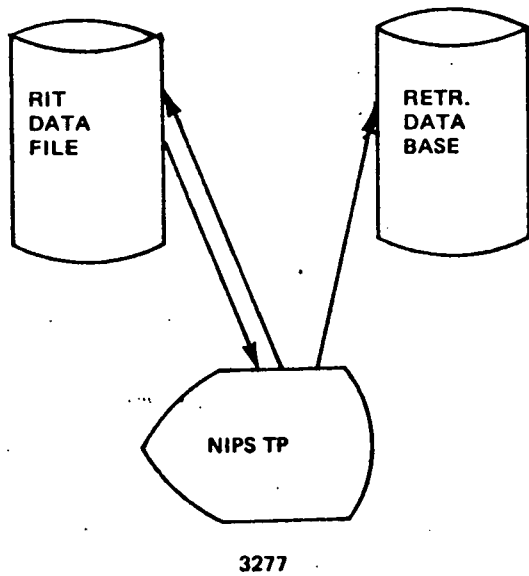
- (1) The IBM 3277 Display Unit
- (2) The Tektronix 4015-1 Display Unit

The IBM 3277 will be used for NIPS software application and the Tektronix for graphics.

In order to present the user with an overview of the complete process involved in generating plots, a functional flow illustrated in Figure A will be discussed.

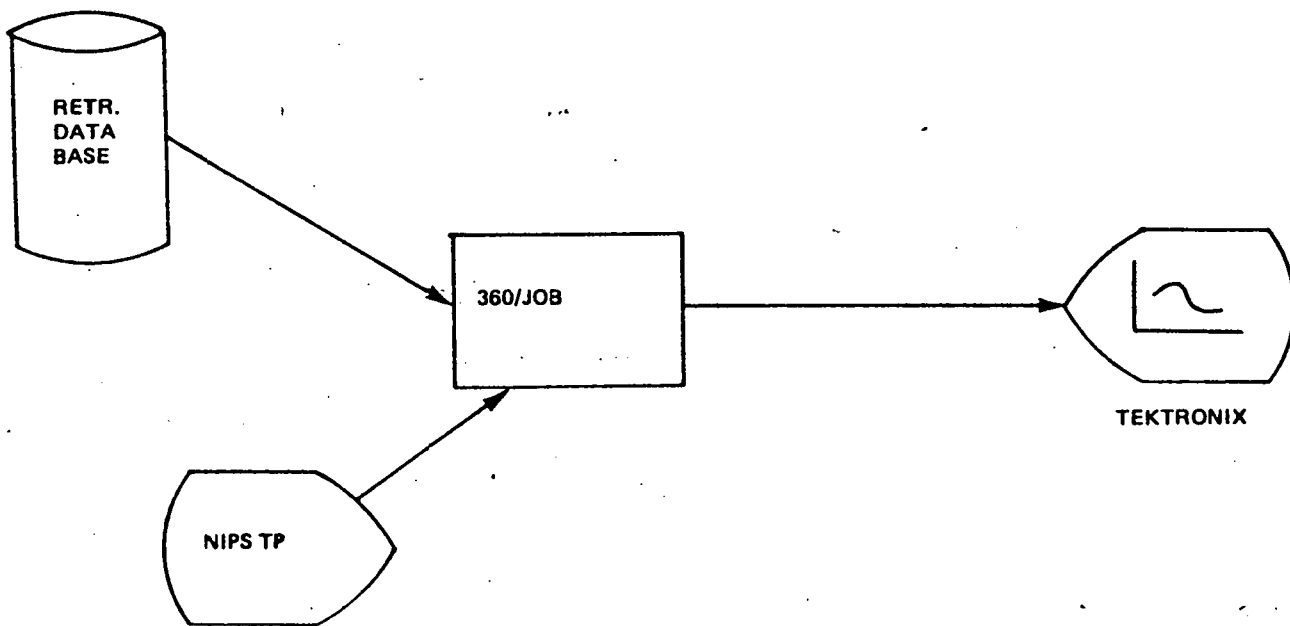
- (1) Using NIPS and the NIPS TP, an information retrievable query is made by addressing and updating a RIT data file. This causes selected parameters based on a particular site and date to be abstracted from a NIPS data base. These parameters are then stored (RETR DATA BASE) for subsequent recall to be plotted. A detailed description and use of the RIT data file is contained in Section 2.1.
- (2) Finally, using the NIPS TP, a job is submitted from the 3277 terminal to the host computer which will:
 - o Address the RETR data base and reformat the DATA.
 - o Pass the plot information to a Tektronix display for plot generation.

A detailed description of the steps necessary to submit a job using NIPS TP and the 3277 terminal is contained in Section 3.0.



(1)

A-3



(2)

Figure A.

2.0 FILE FORMAT

2.1 RIT DATA FILES

There is basically one file format that the user must be familiar with, i.e., the RIT data file. The purpose of this data file is to give the user flexibility in specifying:

- o The site from which the variable/variables are to be selected
- o The recording date for the variable/variables.

To accommodate all the predefined variables to be plotted, each variable or variables (in the case of multiple plots) will have assigned to it a unique RIT data file. This permits the user to select beforehand the variables to be plotted.

The format of this file is illustrated in Figure B and defined as follows:

<u>Line</u>	<u>Function/Remarks</u>
1-10	Defines the control information necessary to retrieve selected data. The user under normal operation will not modify these lines because they will be unique for a given parameter to be retrieved from the NIPS data base.
11	Defines the site (AAAAA) and the recording period (BBBBBB) specified by the user for the variables to be plotted.

From the preceding definition and referring again to Figure B we see that, if the user requested Site 3 and a recording date of September 1, 1976, line 11 would be modified as follows:

PUBLISH SPECIAL = PLOT01 PARAM=100003760901

```

(1) CREATE RITID=PLOT01 STORE=TEMP
(2) FILE HOURLY
(3) FORMAT TAPE NAME PLOT01
(4) RECORD1 IF RDATE EQ PARAM 7/12 AND ROSID EQ PARAM 2/6
(5) RECORD1 12 PARAM 1/12
(6) RECORD2 IF RDATE EQ PARAM 7/12 AND ROSID EQ PARAM 2/6
(7) RECORD2 7 N111
(8) RECORD 2 2 '01'
(9) END
(10) SOURCE DIRECT
(11) PUBLISH SPECIAL=PLOT01 PARAM='1AAAAABBBBBB'

```

Figure B. RIT Data File Format

2.2 UNIQUE RIT DATA FILES

As discussed in Section 2.1, each variable to be plotted will have its own RIT data file. The user need only know the variable required and its RIT data file identification to attain the requested plot.

Each RIT data file will be stored with its associated identifier for immediate recall. At the present time no standard plots have been defined, but for purposes of illustration, the following could be an example,

IDENTIFIER	VARIABLE	TITLE
PLOT1	N111	'ECSS CON EFF'
PLOT2	N113	'AVG AMB DB T'
	.	.
	.	.
PLOT26	Q604	'TOT E ENRG SAV'

NOTE: The ordinate for the predefined plots is designated by the column entitled 'TITLE' and the abscissa defaults to 'TIME IN HRS' in 24 hourly increments. The implementation of this predefined table will be discussed in Section 3.0.

3.0 NIPS TERMINAL PROCESSOR (TP) REMOTE JOB EXECUTION

Through the NIPS TP, certain commands must be exercised in order to update a RIT data file and/or submit a job remotely for execution on the host computer. The following paragraphs will discuss these commands and their resultant actions.

Note:	<u>Symbol</u>	<u>Meaning</u>
	▶	Start Key, Terminal Input
	◻	Entry Key, End of Terminal Input
	⊙	Response from NIPS TP

- (1) ▶ LOGON AQUILA 7R◻
⊙ EOM RECEIVED
EDIT PROCESS COMPLETED. START CONVERSATION.
- (3) ▶ S◻
⊙ OUTPUT QUEUE SCRATCHED. CONVERSATION TERMINATED.
- (4) ▶ 7S◻
⊙ QUERY DELETED.
- (5) ▶ /C 110/1AAAAABBBBBB/100004760102/
⊙ EOM RECEIVED.
⊙ EDIT PROCESS COMPLETED. START CONVERSATION.
- (6) ▶ 3◻
⊙ OUTPUT QUEUE SCRATCHED. CONVERSATION TERMINATED.
- (7) ▶ 7S◻
⊙ QUERY DELETED.

The preceding terminal inputs to update the RIT data file are explained as follows.

<u>Line</u>	<u>Function/Remarks</u>
1	This NIPS TP Command initiates the terminal session.
2	This NIPS TP Command brings into the NIPS TP work file the PDS member PLOT1. This member contains the RIT data file and the necessary job control language for the plot generation of Variable N111. (See Section 2.2).
3-4	These NIPS TP Commands must be entered before another NIPS TP Command is issued.
5	This NIPS TP Command updates the RIT data file (Section 2.1). This changes the line with sequence number 110 (Figure B) in the NIPS TP work file such that PARAM='1AAAAABBBBBB' becomes PARAM='100004760102'. This will cause parameter N111 recorded on January 2, 1976 from Site 4 to be retrieved and stored for plotting.
6-7	These NIPS TP Commands terminate the previous NIPS TP Command.

4.0 EXAMPLES

The following terminal session was used to generate a single plot on the 4015-1 Tektronix terminal.

Note:	<u>Symbol</u>	<u>Meaning</u>
	▶	Start Key, Start of Terminal Input
	▣	Entry Key, End of Terminal Input
	⊙	Response from NIPS TP

- (1) ▶ LOGON AQUILA 7R▣
⊙ EOM RECEIVED
⊙ EDIT PROCESS COMPLETED. START CONVERSATION.
- (2) ▶ /G MEM=PLOT1 LIB=NIPLOT 7E▣
⊙ EOM RECEIVED
⊙ EDIT PROCESS COMPLETED. START CONVERSATION.
- (3) ▶ S▣
⊙ OUTPUT QUEUE SCRATCHED. CONVERSATION TERMINATED.
- (4) ▶ 7S▣
⊙ QUERY DELETED.
- (5) ▶ /C 110/1AAAAABBBBBB/100003760901/
⊙ EOM RECEIVED.
⊙ EDIT PROCESS COMPLETED. CONVERSATION TERMINATED.
- (6) ▶ S▣
⊙ OUTPUT QUEUE SCRATCHED. CONVERSATION TERMINATED.
- (7) ▶ 7S▣
⊙ QUERY DELETED.
- (8) ▶ /SUBMIT 7E▣
⊙ EOM RECEIVED
⊙ EDIT PROCESS COMPLETED. CONVERSATION TERMINATED.
- (9) ▶ LOGOFF 7R▣

<u>Line</u>	<u>Function/Results</u>
1	This NIPS TP Command initiates the terminal session.
2	This NIPS TP Command brings into the TP work file the PDS member PLOT1. This member contains the RIT data file and the necessary job control language for the plot generation of Variable N111 (see Section 2.2).
3-4	These NIPS TP Commands must be entered before another NIPS TP Command is issued.
5	This NIPS TP Command updates the RIT data file (Section 2.1). This changes the line with Sequence Number 116 (Figure B) in the NIPS TP work file such that PARAM='1AAAAABBBBBB' becomes PARAM='100003760901'. This will cause parameter N111 recorded on September 1, 1976 from Site 3 to be retrieved and stored for plotting.
6-7	These NIPS TP Commands must be entered before another NIPS TP Command is issued.
8	This NIPS TP Command submits the contents of the NIPS work file for execution by the host computer.
9	This NIPS TP Command terminates the terminal session.

The output from this terminal session is illustrated in Figures C and D.

A-10

NIPS DATA BASE PLOT

09/14/76 09:39:02

FIGURE C

SITE 0003 DATE 09/01/76

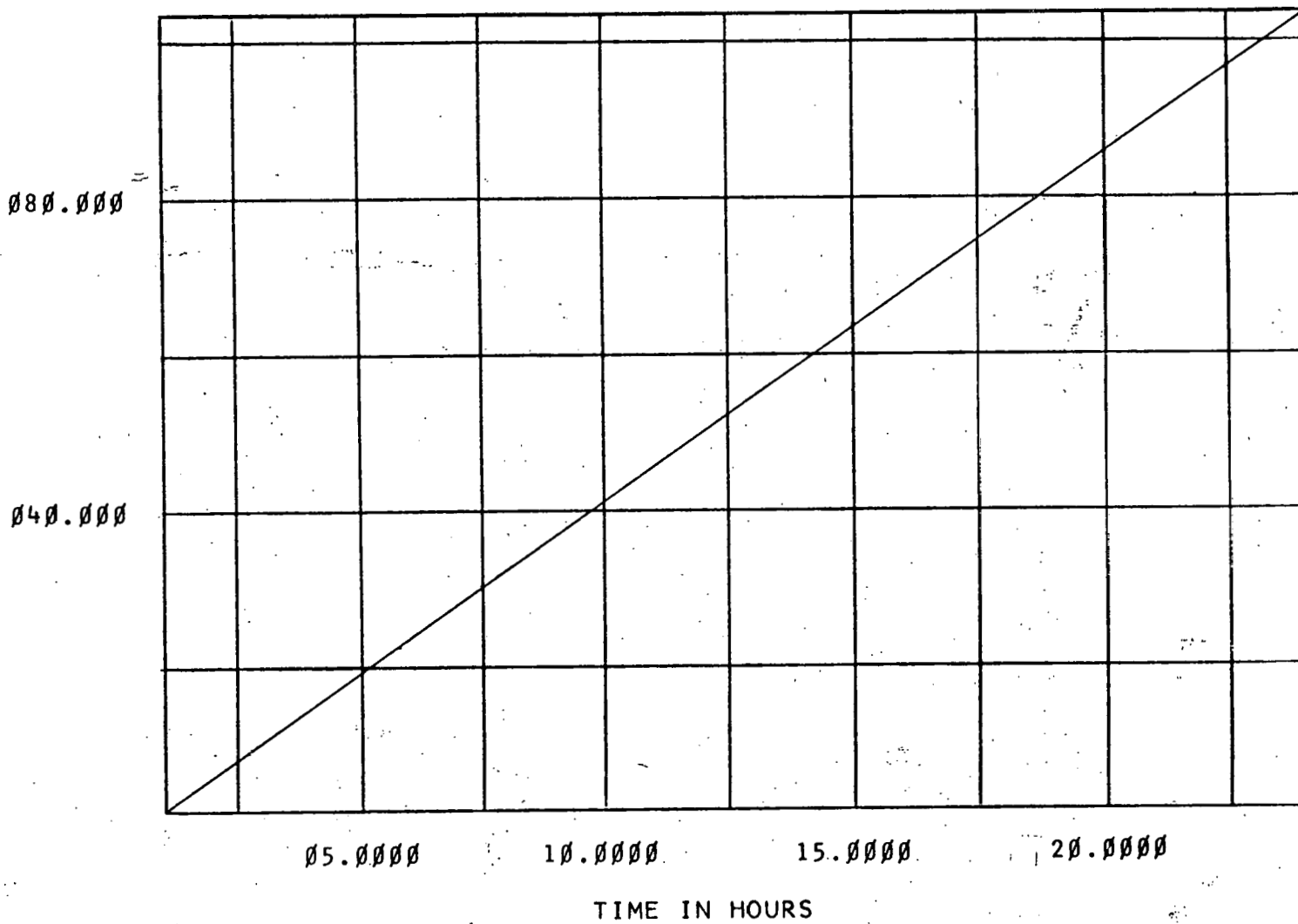


FIGURE D

FCS CONCENTRATION

080.000

040.000

05.0000

10.0000

15.0000

20.0000

TIME IN HOURS