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DEMONSTRATION OF THE FEASIBILITY OF AUTOMATING THE INFORMATION SYSTEM OF A SMALL SERVICE ORGANIZATION USING A GENERALIZED COMPUTER SOFTWARE PACKAGE

NAVAL POSTGRADUATE SCHOOL
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THESIS

DEMONSTRATION OF THE FEASIBILITY OF AUTOMATING THE INFORMATION SYSTEM OF A SMALL SERVICE ORGANIZATION USING A GENERALIZED COMPUTER SOFTWARE PACKAGE

by

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September 1976

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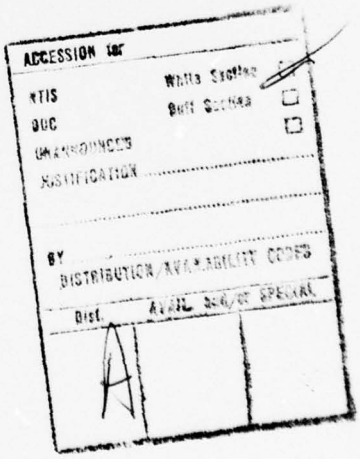
The utilization of the SPSS at FESO conclusively demonstrated that a generalized computer software package is a cost effective approach to satisfying the information processing requirements of a small service organization. The development process and operating procedures were documented to facilitate the adoption of this approach by other service organizations.



Demonstration of the Feasibility of Automating the Information System of a Small Service Organization Using a Generalized Computer Software Package

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ABSTRACT

The concept of using a generalized computer software package to satisfy the information processing requirements of a small service organization was introduced. The feasibility of this approach was demonstrated by applying the Statistical Package for the Social Sciences (SPSS) to the data processing requirements of a service organization. Using SPSS, an automated information system was developed and implemented in an operational environment for the Facility Engineering Support Office (FESO), a service organization at the Civil Engineering Laboratory (CEL).

The utilization of the SPSS at FESO conclusively demonstrated that a generalized computer software package is a cost-effective approach to satisfying the information processing requirements of a small service organization. The development process and operating procedures were documented to facilitate the adoption of this approach by other service organizations.

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I. INTRODUCTION

A. GENERAL

Increased emphasis is being placed on evaluating efficiency and effectiveness within today's organizational environment. This is true in both the public and private sectors. However, in order to evaluate efficiency and effectiveness, the manager needs relevant information. Unfortunately, the situation facing the typical manager is the inability of the organization to gather and process data in such a way as to produce the needed relevant information. Often, the necessary data to be collected has not been defined, and the data processing requirements to produce the reports with the relevant information are unknown.

Compounding the problem of not having the data collection and processing requirements defined, is the problem of physically processing the data. A small organization is usually handicapped by resource limitations, and the manager often abandons any hope of aggressively pursuing a program of evaluating efficiency and effectiveness.

An alternative to abandonment of any hope of a successful program is to consider the suitability of the adaptation of a generalized computer software package to meet the resource limitations. A successful adaptation of a software package offers the manager increased

capability to analyze data in depth as well as significant time savings over a manual system.

B. PURPOSE OF THE STUDY

The objective of this study is to demonstrate that the capabilities of a generalized computer software package can provide a feasible approach to meeting the information processing requirements of a small service organization for measuring effectiveness. This approach provides a viable alternative in those instances where lack of sufficient resources or a cost-benefit analysis precludes development of a specialized application program. Specifically, the Statistical Package for the Social Sciences (SPSS), which is a generalized computer software package, will be adapted to provide an effective, flexible information system for the Facility Engineering Support Office (FESO), a service organization at the Navy's Civil Engineering Laboratory (CEL). This approach will demonstrate that the use of a generalized software package is a viable and economically rewarding approach to meeting such information processing requirements.

II. METHODOLOGY

This study focused on the development of a flexible, computerized information system for the FESO to demonstrate the feasibility of utilizing a generalized software package to assist a small service organization in measuring effectiveness. A mechanism was provided to facilitate consideration of its use by other service organizations. The methodology of this work was comprised of five phases.

A. DECISION TO AUTOMATE

The information processing requirements to measure the effectiveness of a small service organization were analyzed. The capability of the service organization to manually process these requirements accurately and efficiently was used as a basis to decide whether or not automation would be beneficial.

B. SELECTION OF A FEASIBLE APPROACH TO AUTOMATION

A literature search was undertaken to present alternate ways to automate the information processing requirements of a small service organization. This research examined the trends and state of the art in specialized application programming and the development of generalized computer software packages. The findings of this research were integrated with the previously analyzed information

processing requirements of a service organization to provide a basis for the selection of the best approach to automation.

C. SELECTION OF AN APPROPRIATE COMPUTER PACKAGE

The criteria to be satisfied by a generalized software package in automating an effectiveness-type information system of a small service organization were outlined. A survey of available software packages was made. Each software package was compared to the established criteria to select the most appropriate package.

D. DEMONSTRATION OF FEASIBILITY BY ADAPTING PACKAGE TO A SERVICE ORGANIZATION

To best illustrate the adaptation of the computer package, it was applied to a specific service organization. An important factor often overlooked or slighted in the development of an information system is adequate supporting documentation. This enables the user to understand and effectively evaluate, implement and maintain a computerized information system using the SPSS. To this end, detailed documentation of the processing logic and operating procedures for the application of the SPSS at FESO were included as part of this work.

E. GENERALIZATION OF THE SOFTWARE PACKAGE FOR OTHER SERVICE ORGANIZATIONS

After the feasibility of adapting the software package for a specific service organization was demonstrated, an

analysis was made to show its general applicability to other service organizations.

III. SCOPE OF THE WORK

As with any study of this nature, the scope and content of the final product should be stated. Recognizing this, an attempt has been made to develop, implement and document a basic functional automated information system and then indicate where further study or work might be directed.

A. ASSUMPTIONS

Recommending the adaptation of a computer package to a service organization assumes compatible and adequate computer capacity on the part of the user. The ability of the program package to be run on a variety of computers was an important consideration in the package selection. Although the program package is flexible and the expansion of the use of computer terminals connected to large central computers greatly enhances the probability of computer availability, computer capacity nevertheless must be considered.

B. LIMITATIONS

An important area in an effectiveness-type information system for a service organization is the collection of cost data. In the specific application described in this study, provisions were made for expansion of the automated system to include cost data associated with the

service provided. CEL has, like many organizations, automated cost summaries available. The benefits of including available cost data in this automated data base did not warrant the effort at the expense of other areas of work that were pursued.

The measurement of the value of the benefits provided by a service organization has been addressed in a previous study. Hendrickson and Fisher (1974) developed one method utilizing a survey of the benefit to users. While useful, the survey method may not lend itself to frequent update capability of the information system. A method of measuring the value of the benefits in relationship to costs might be included in an expanded automated data base.

IV. BACKGROUND

A. EVOLUTION OF COMPUTER SOFTWARE

The first commercial computer, developed about 1950, resembled the current computer systems in name only. Early computers did not store operating instructions internally, but used external controls such as switches, wired control panels, cards or paper tapes. Since these controls often had to be changed as the work progressed, computer operations were very inflexible (Arnold 1969, p. 30). It was Dr. John von Neumann, a mathematician and a member of the Institute for Advanced Study in Princeton, New Jersey, who suggested in a paper in 1946 that "computer instructions, as well as the data being manipulated, could be stored internally" (Sanders 1970, p. 16).

1. Proliferation of Computer Programming Languages

The implementation of the stored computer program concept began an evolution and proliferation of computer languages (structure of the instruction). Languages evolved from the lower level (simple) languages to higher level (sophisticated) languages. The first languages were called machine languages because the computer did not translate the programmer coding to process data. The languages were completely numeric in nature. For example, "21" might mean "add." Mnemonic coding soon replaced

machine coding. For example, "A" might mean "add." A translation program, called an assembler, would translate each mnemonic statement into machine-language code. Finally, English words replaced mnemonics to form higher level languages. For example, "add" would mead "add." Higher level language translator programs are called compilers. The result is that one "word" could be translated and many machine-language instructions compiled from the single word.

The proliferation of computer languages soon became a problem for computer users. Not only did the languages differ among manufacturers, but often the languages would differ among product lines of the same manufacturer. As one of the largest users of computers in the United States, the Department of Defense proposed, in 1958, that "a committee of manufacturer and user representatives be organized to see what could be done to develop a language which would be compatible with the various makes of equipment" (Elliot 1975, p. 494). As a result of the effort of this committee, the Common Business Oriented Language (COBOL) was devised. COBOL has been called an English-like language because it uses letters, numbers, and punctuation marks in following the rules of grammar to form expressions, statements, sentences and paragraphs. These English-like statements form procedures for processing data files. Formula Translation (FORTRAN) was developed by International Business Machines (IBM) Corporation

as a mathematical language. The U.S. Navy currently has a policy to encourage the use of COBOL for business and logistics applications and FORTRAN for scientific applications (Chief of Naval Operations Instruction 10462.8 of 13 Mar 1969). The American National Standards Institute has developed standards for COBOL and FORTRAN. COBOL and FORTRAN have been called procedural languages because the programmer expresses the program logic in a series of steps to form procedures. By use of a procedural language, the programmer may develop a computer program to solve specific needs of the user. This historical approach of programming step by step to solve specific user functional needs (e.g., payroll program) is called application programming.

2. Emergence of Software Packages

Even with the advent of the higher level language, the manager was dependent on the expertise of a professional programmer for even small changes in the application program. The manager needed some kind of software tool that could interpret his requirements and process data without the expertise of a professional programmer and the long development time often required by the historical application programming methods. The result of this need was the use of COBOL, FORTRAN and other languages to develop groups of programs called "packages" that serve particular needs. These packages could be operated by less sophisticated programmers and often by personnel not automatic data

processing (ADP) oriented. Some packages are generalized more than others and can meet a broader spectrum of needs. The various packages could be categorized as generalized application packages, file management systems or processors, and Data Base Management Systems (DBMS).

Generalized application packages contain programs that have been written for processing data restricted to particular functions. Application packages have been written for specific business functional areas such as payroll, billing and accounts receivable, inventory control, and project scheduling. Some generalized software packages, like the SPSS, have been written which are less application-oriented. Though not necessarily independent of application, these packages provide data processing capabilities (such as statistical routines in the SPSS) that can be applied to a wide range of business functional areas. Application packages are written by computer users, equipment manufacturers or independent software houses (Sanders 1970, p. 64-65).

File management systems or file processors are software packages that are not application oriented, but are independent of the functional areas of business or specific subject areas. A file management system may perform file creation, file maintenance, retrieval of individual data items and generate reports. Informatics' Mark IV is probably the most popular file processor that

has been programmed for a variety of computers (Woodridge 1973, p. 8).

B. SERVICE ORGANIZATION

In this thesis a service organization will be defined in broad terms as "an entity which provides a requestor with a service or a product." Services include such functions as information given from an information center, or technical advice provided by a civilian personnel office. Products include such items as duplicated reports from a print shop, or typed pages from a stenographic pool.

The nature of service organizations causes them to share similar information requirements in the evaluation of their efficiency and effectiveness. These requirements may best be stated in the form of questions:

1. How many requests for service were received during a given time period?
2. How long did it take to provide the service?
3. Which resources within the organization directly contributed to or provided the service?
4. Who were the users of the services of the organization?

The answers to these and other questions are often not systematically found. These answers are more likely to be the result of intuitive or pragmatic judgement. Statements like "I think our organization is doing pretty well" or "Nobody is complaining about our service" represent the extent of many analyses.

The problem with many small service organizations in their attempt to measure effectiveness is their inability to process the large amounts of data sometimes available because the data is stored and maintained in manual records. Their limited resources and the historical method of automation using application programming techniques prohibit these small organizations from automating their processing requirements.

C. FESO OBJECTIVES

The example of a service organization used throughout this study is the FESO. The FESO, at the Navy's CEL, was established in 1972 to satisfy a perceived need by the Navy field activities. Its objective is to transfer current technology from the CEL to the field activities. The FESO strives to accomplish its objective in several ways. Probably the two most noticeable ways of accomplishing its objective are:

1. Coordinate (link) the requests for information by users in the field activities with the appropriate resource (knowledgeable division) within the CEL to ensure responsivness to the users' needs. A full-time civil engineer performs this function. In essence, the FESO markets a service to the field activities.

2. Advertise highlights of current technology available and publicize the availability of the free technical service through publication of Research Applied to Public

Works (RAP) Briefs (RAP Briefs 1976) and field visits. Prior to this study, all information processing by the FESO, except costs, was performed manually.

D. DECISION TO AUTOMATE

Concurrent with the growth of a service organization is the need to evaluate its effectiveness and efficiency. The same is true of the FESO. A number of recent studies was made to evaluate the growth and effectiveness of the FESO (Jolly 1973, Jolly 1974, Hendrickson 1974). These studies measured the dollar benefits accrued by the user requesting services and compared these benefits to the cost of operating the FESO Assistance Program. Certain informational requirements are placed upon the service organization in order to provide the basis to evaluate effectiveness of such a program. The ability to collect and manually process the data associated with these informational requirements is strained by the growth of the program. This is currently true at the FESO. If the problem of collecting and efficiently processing the data is not solved, the data being analyzed may become incomplete, inaccurate, or untimely and of limited value. The solution to this problem is to develop a computerized information system for the service organization.

E. SELECTION OF AN APPROACH TO AUTOMATION

In accomplishing the automation of the information system several approaches, described earlier in this

chapter, are available. An application program designed for the specific needs of the service organizations could be developed, or a generalized software package could be adapted. One method to determine the best approach to automation is to determine the requirements and constraints of the service organization and then select the approach that is most appropriate.

The FESO has the following requirements and constraints:

1. There is a requirement to reduce the manhours of data manipulation required to prepare reports.

2. There is a requirement to handle changing data inputs and outputs with a minimum of disruption.

3. There exists a constraint of limited resources for automation. FESO personnel are non-ADP oriented. While there is a computer center available at CEL, its resources are limited.

The first two of the above mentioned requirements could be satisfied with any of several approaches to an automated information system. The last item, a constraint of limited resources for automation, required a careful analysis as to how the automation should be accomplished. The choice existed for either the development of a specialized in-house computer application program or the adaptation of an appropriate generalized software package to meet the automation needs.

Head (1971, p. ix), in his discussion of the trade-offs in computer system design, stated:

> From top management's standpoint, the packaged system represents a potentially significant solution to the ever-mounting cost problems of supporting computer operations with the company. In an era when both hardware and software costs tend to escalate alarmingly, the availability of software packages can permit new systems to be installed in many cases at a fraction of the equivalent in-house development cost. Top management's heightened concern with cost effectiveness in computer operations makes it increasingly important that the role of generalized software be fully understood and exploited for maximum economic benefit within the company.

If an appropriate computer software package could be obtained a substantial cost savings could be realized in the processing of the information requirements of a small service organization. The selection of an appropriate generalized software package was determined to be a very cost-effective approach to meeting the FESO information processing needs within the stated requirements and constraints.

V. COMPUTER SOFTWARE PACKAGE SELECTION

A. ESTABLISHING SELECTION CRITERIA

A background of the trends and state of the art in computer programming and software packages along with a preliminary analysis of the information requirements of a service organization provide a background for establishing the criteria for selecting a computer software package. Woodridge (1973, p. 62-64) suggested four categories for software selection criteria. These criteria address requirements in the areas of features, technical and operational environment, implementation and price of the package.

In his discussion on screening software packages for selection, McKeever (1971, p. 60) says that for maximum screening effectiveness two important questions must be asked. The first is, "Will the package run on your computer?" The second question is, "What was the software designed to do or for what purpose was it created?" McKeever's two questions are similar to Woodridge's first two criteria categories. This study will use the four criteria established by Woodridge. The specifications for each category are tailored to meet the needs of a small service organization.

1. Features

The package should contain as many of the features listed below as possible.

a. Data Definition

The capability must exist to define, generate, and update the data base.

b. Data Manipulation

Data manipulation includes the capability to rearrange or recode data, perform computational or logical operations, select, display (e.g., listing) and retrieve data. It must be possible to edit the input data.

c. Statistical Routines

A variety of statistical routines must be present in the package. Examples of statistical capabilities or routines that might be included are sampling, weighting, cross tabulation, frequency distribution, correlation and regression analysis. There must be the capability of inserting additional routines to meet unique requirements that may arise in the future.

2. Technical and Operational

Even though the package contains the necessary features, it must be possible to operate it in the environment for which it is intended. A thorough analysis of the technical and operational features of the candidate packages as they relate to the intended environment will ensure an appropriate package selection.

a. Hardware/Software Configuration

The package must be capable of operating on the computers available. This includes the available core memory as well as peripheral equipment (i.e., card reader,

printer, etc.).

b. Portability or Transferability

The package must have been programmed and demonstrated as executable on at least two different computers of different manufacturers. A package that will not operate on more than one computer without conversion will restrict its application to other organizations.

c. Higher Level Language

A higher level language such as COBOL or FORTRAN must have been used to write the programs. Use of a lower level language will unnecessarily encumber the flexibility of the package.

3. Implementation and Maintenance

Two important requirements which ensure that the package can be implemented when needed and maintained with minimum effort are:

a. Immediate Availability

Often, packages are "under development" and not available even though they have been announced to the public. The package must be available for immediate delivery and implementation.

b. Training and Documentation

It should not be necessary that personnel using the package have previous training or experience in computer programming. The package should be designed so that non-ADP-oriented personnel may use it. A fully documented and self-explanatory package is essential.

All capabilities, as well as limitations and constraints, should be logically and systematically presented in the documentation.

4. Price

Ideally, the package should be available to the user with no start-up costs. It is desirable to have the package available from previous purchase or current lease. Operating costs of the current packages, though generally not significant, should be reviewed and evaluated to preclude unacceptable costs.

B. REVIEW AND SELECTION OF SOFTWARE PACKAGE

A critical review of each software package will increase the probability of making a good selection. Selection of a package which does not include most of the desirable features will severely restrict its usefulness to the user. The search for any software package should be as broad as possible to ensure the inclusion of the most satisfactory candidates.

1. Review

A literature search uncovered several software packages that were likely candidates for meeting the selection criteria established. The likely candidates included the Mark IV, Biomedical Computer Programs (BMD), Statistical Package for the Social Sciences (SPSS) and Organized Set of Integrated Routines for Investigation in Statistics (ORSIRIS) packages. Each of the four packages

was reviewed to determine its capabilities and then compared with the criteria previously established.

a. Mark IV

Mark IV is a general-purpose file management system that has been developed by Informatics for several types of computers (IBM and UNIVAC). It has been developed primarily for business applications (Fry and others 1969, p. 11). It has the features of data definition and data manipulation required for this study. It also meets the technical and operational requirements as well as the implementation and maintenance requirements. An analysis of Mark IV published in Auerbach Computer Technology Reports states, "Mark IV is designed to allow nonprogrammers to interact with the data base via an easily learned non-procedural English-like syntax. . . . . The Mark IV data base is also fairly sophisticated, employing hierarchically structured files."

While Auerbach acknowledges that Mark IV can be used for the design, implementation and operation of business applications, it lacks adequate statistical routines. The Mark IV provides a CALL command to call in statistical routines from statistical packages, but is unable to perform statistical processing without such an interface (Auerbach, 1976, p. 1).

b. BMD

BMD was developed by the University of California under the sponsorship of a grant by the National

Institute of Health. The package is very strong in statistical routines, but weak in data definition and data manipulation of the features category. It would be acceptable in the categories of technical and operational requirements, implementation, maintenance, and price. However, its weakness in support of the required data definition and data manipulation features makes this package an acceptable but not recommended candidate for selection (Dixon, 1974).

c. SPSS

SPSS was initially developed at Stanford University. Its design incorporated features of several other software packages and statistical routines. The BMD package made a significant contribution to SPSS. Many capabilities (e.g., CROSSTABS format) were taken from Data Text, a package developed at Harvard University. Special programs, such as factor analysis and the Guttman Scale, were borrowed from other statistical program developers (Nie 1975, p. xxiv).

SPSS provides all the capabilities of data definition, data manipulation and statistical routines, as required in the features category of the criteria list. The technical and operational feasibility of SPSS has been demonstrated by its use at both the Lawrence Berkeley Laboratory Computing Facility and the Naval Postgraduate School. The Berkeley facility supports the CEL with the SPSS package via a batch terminal. Since the SPSS

package is installed and available for use by CEL personnel, the implementation, maintenance and price requirements have been met.

d. OSIRIS

OSIRIS is a package designed for the management and analysis of social data. It was developed by the Institute for Social Research at the University of Michigan. It has data definition, data manipulation, and statistical features that are acceptable for this study. OSIRIS has been demonstrated to be operational at the University of Michigan and other computer centers. It is written primarily in FORTRAN. It does not meet the portability or transferability requirements since it operates on only one manufacturer's equipment (i.e., IBM 360 or 370 System) (Rattenbury 1974).

2. Selection

The selection of a software package should be made by comparing the capabilities of each package against the established selection criteria. Table V-1, SOFTWARE PACKAGE SELECTION, is a recapitulation of the selection criteria and review of the four packages under consideration. An analysis of the table reveals that only one package satisfies all of the criteria.

Mark IV, while a very popular package, lacks adequate statistical routines. Mark IV is written in Basic Assembly Language (BAL), not a higher level language, which limits its transferability. Mark IV is,

TABLE V-I

SOFTWARE PACKAGE SELECTION

CRITERIA	MARK IV	BMD	SPS	OSIRIS
1. Features				
a. Data Definition	Y	Y	Y	Y
b. Data Manipulation	Y	N	Y	Y
c. Statistical Routines	N	Y	Y	Y
2. Technical and Operational				
a. Hardware/Software Configuration	Y	Y	Y	Y
b. Portability or Transferability	Y	Y	Y	N
c. Higher Level Language	N	Y	Y	Y
3. Implementation and Maintenance				
a. Immediately Available	Y	Y	Y	U
b. Training and Documentation	Y	Y	Y	Y
4. Price	Y	Y	Y	U

Legend

Y = Yes. Meets Requirements.

N = No. Does Not Meet Requirements.

U = Unknown or Uncertain.

The criteria for selection of a software package for a service organization are shown. Four possible packages are compared to these criteria. It can be seen that the SPSS satisfies all of the criteria listed.

however, rated as transferable because it operates on both IBM and UNIVAC computers. Since statistical routines are necessary for the FESO service organization information system, Mark IV was not selected.

The BMD package has been demonstrated as satisfactory at CEL in three of the four criteria categories. In the Features category, BMD is satisfactory in support of statistical problems but weak in data definition and unsatisfactory in data manipulation. For example, if the FESO changes its data base from cards to permanent disk storage, the desired data management functions cannot be performed because the BMD lacks the necessary update feature. For these reasons the BMD package was not selected.

The OSIRIS package is strong in all feature requirements. However, it is not portable. The OSIRIS was written for only IBM equipment. The Department of Defense acquires computer equipment using the competitive bid process. Changes in computer equipment are not unlikely. If an organization changed its brand of computer, the future of the service organization data processing support, if dependent on OSIRIS, would be uncertain. The availability and price of the package were not known. The OSIRIS was, therefore, not selected.

The SPSS package has been demonstrated as satisfactory at CEL. The SPSS package is processed via terminal connected to the Lawrence Berkeley Laboratory Computing Facility. The SPSS package provides the processing capabilities needed for a service organization such as FESO,

because SPSS is powerful in all the areas where acceptance criteria were established. Because the SPSS was clearly superior to the other packages, it was selected for use by the FESO.

VI. STATEMENT OF SYSTEM OBJECTIVES

The development of an automated information system should not proceed without a clear statement of the major objectives of the automated system. These objectives should be derived from the analysis leading to the decision to automate a previously manual operation. The major objectives of the automated system at FESO were:

1. To relieve the FESO of as much time-consuming manual data manipulation as practical.

2. To provide a method to process all the requests for assistance received during the quarter within seven days following the end of the quarter.

3. To provide a method to automatically verify, to the extent feasible, the accuracy of the data input to the computer.

4. To accurately process and generate all of the reports currently prepared by the FESO relating to the requests for assistance.

5. To provide a method to increase the amount of analysis feasible on the requests for assistance received during the current quarter and also during the past quarters or years (trend analysis).

VII. COMPUTER PACKAGE ADAPTATION

The adaptation of the SPSS computer software package to satisfy a service organization's information requirements can be accomplished by completing the tasks identified below:

1. Identify output reports.
2. Prepare report specifications.
3. Compile data element list and assign codes.
4. Design input record format and code data definitions.
5. Convert report specifications into computer task definitions.
6. Arrange card deck in proper order.
7. Develop editing logic.
8. Test and implement system.

The above tasks can be applied to many service organizations because of the similarity of requirements among service organizations. Some of the data elements such as subject, requestor, or responsible division are peculiar to the FESO organization, but other data elements may be substituted or assigned to meet unique requirements of specific organizations.

A. IDENTIFY OUTPUT REPORTS

The initial step in developing an information system using a software package is to identify what output reports are required. In broad terms, what information is needed? To insure adequate identification for control purposes, it is necessary to give a descriptive title and assign a report number to each output.

If the service organization has a manual information system in operation, the existing reports can be used as a baseline for an inventory of reports required to support the organization. Additional reports, or modifications to existing reports, may be made as necessary to meet changes in the system objectives or operating environment. An annual review of these reports should be made to ensure they meet the current system objectives. Additions, deletions or modifications should be made as necessary.

The increased processing capability of the computer must not be abused by generating unnecessary reports. All too often, enthusiasm for a computerized system results in excessive generation of reports. The manager is then inundated with reports, many of which may be unnecessary.

If a manual information system is not currently in use, the manager must see that requirements are analyzed from a zero baseline. It is imperative that the manager ensures that reports are designed to fulfill his stated objectives of the information system.

In the case of the FESO Assistance Program, eleven reports were identified as necessary to provide the FESO with the information to function effectively. An inventory of these reports is included as Figure VII-1.

B. PREPARE REPORT SPECIFICATION

After the output reports have been identified, it is necessary to determine what input and data manipulation is required to produce the output reports. This is done by preparing a Report Specification for each output report listed in the Inventory of Reports. Preparation of the Report Specification requires a detailed systematic analysis of each output report to determine the data selection criteria, data elements, data manipulation logic and output parameters. Since all data records are not used in preparing each output report, the data selection criteria determines which data elements are to be used. In addition to computations, data manipulation may involve recoding and logic operations to generate additional data elements necessary for the output reports. Output parameters often include new data elements that are not in the input, such as totals or frequencies.

All report programming should be based on the requirements stated in the report specifications. Subsequent changes to report processing should be made first to the report specifications and then to the programming. This will ensure a continual update of the documentation of the information system programming.

A sample report specification for the adaptation of the SPSS package to the FESO Assistance Program is shown in Figure VII-2. In addition to the input and output parameters, selection criteria (i.e. constraints) and necessary data manipulation or computational requirements are included. Relevant information such as the purpose of the report and frequency of report preparation are also provided. The report specifications for the 11 reports required for the Assistance Program are included in Appendix A. The information contained in the report specifications for the Assistance Program was used to prepare SPSS control cards and operating procedures described later.

C. COMPILE DATA ELEMENT LIST AND ASSIGN CODES

With the report specifications prepared, the requirements for the data input become apparent. A review of the report specifications can provide a composite list of all data elements that should be included as input to the preparation of the reports. A basic data element identifies what kind of data item is to be collected and used for input for computer processing. Each data element should be given codes to represent the range of values expected for the particular data element. When applicable, the basic data element codes should be logically expanded and structured to enhance their usefulness in the input record, internal processing, and output reports. Lyon (1971, p. 7) stressed this logical organization of the data. Expanding a data element involves combining two

or more basic data elements to form a new, more useful data element. For example, the data elements "day" and "year" can be combined to form the expanded data element "date."

A structured data element code is one which can be divided into parts to learn more about the data. For example, the zip code is a structured data element. The first digit denotes the postal region. The next two digits denote the post office within that region. The last two digits denote the area within that particular post office. On a national level, this allows rapid mail sorting by region using only the first of the five digit code. The regional and local post offices, then, can similarly continue the sort process efficiently.

The list of all data elements used for the FESO Assistance Program is shown in Figure VII-3. Data elements that were structured are designated with asterisks. The usefulness of structuring data codes can be demonstrated by examining a data element from this list. The data element referred to as "subject" is divided into three category levels. The major category, or highest level, is a two position numeric code. The intermediate category is a three position code. The minor category is a four position code. As an example, the subject "utilities" is subdivided as follows:

Category Level	SPSS Variable Mnemonic Code	Value Code	Value Name
Major	SUBCAT2	25	Utilities
Intermediate	SUBCAT3	251	Air
		252	Electrical
		253	Gas
		254	Sewage
		255	Steam
		256	Water
		257	Other
Minor	SUBJCODE	2541	Ships
		2542	Treatment
		2543	Other

Data selection or summary analysis could be made at the major, intermediate or minor levels. If codes were randomly assigned rather than by the use of a structural code, such "levels" of analysis would not be readily accomplished. Examples of other structured data elements in the Assistance Program are "control number," "date in," "responsible division(s)," and "requesting station."

Whenever possible, "standard" codes should be assigned. The use of standard codes will make it easier to integrate data bases or compare data in one data base with data in another data base. This capability is particularly useful in large organizational components.

The Assistance Program required a data element to identify each requestor of services. Several existing Navy data elements were considered, and one was selected as suitable for use in the Assistance Program to meet the requestor identification requirement. While accounting codes and supply

codes such as the Unit Identification Code and the Routing Identifor code were considered, the Standard Navy Distribution List (SNDL) coding structure was found most satisfactory. The SNDL code was found to be presently structured by (major and minor) mission type of activity, and activity serial number. Multiple activities of the same mission type are serialized so that each activity (i.e., requestor) has a unique identifor.

D. DESIGN INPUT RECORD FORMAT AND CODE DATA DEFINITION

After the structuring of the data elements is complete, the format of the input record may be designed. For ease in referencing a particular location on the input record, the record is divided into fields. A field is one or more data elements assigned to a specific location on the input record card. In determining these locations, the fields are divided into three groups: control, fixed and variable. The control group contains those data elements which are most often used in selecting or ordering the data records. Fixed group data are data elements that appear only once in the record, with data values of fixed or determinable length. Variable group data are data elements of undetermined length.

It is recommended that the three groups be arranged in the input record beginning with the control group at the left, the fixed group in the center, and the variable group at the right. The placing of variable data at the right facilitates

recording data of variable length. Any unused input record area is then at the right-most section of the record card.

Figure VII-4 shows the format of the input data record developed for the Assistance Program. Fields 1 through 4 comprise the control group. The data elements in the control group have been placed in decending order of significance. The major-to-minor arrangement in the Assistance Program control group is Fiscal Year, Quarter, Program, and Serial Number. This practice is followed because it aids in the sorting and selecting processes when handling control group data. Field 5 is a special type field. It is a redefinition or combination of fields 3 and 4. This redefinition was done so that the two fields may be addressed together when they are to be processed as a single entity. Fixed data comprises fields 6 through 23 of the input record.

Fields 24 through 26 comprise the variable group. Since more than one CEL organizational division may work on or be assigned to a request, space must be provided for multiple divisions. Fields 24 and 25 allow for two divisions to be assigned to one request. Another type of data found in the variable group section is narrative (alphanumeric) type data. In the Assistance Program, the Subject field (27) is used for comments or narrative concerning the request that cannot be coded in other fields of the input record. Since narrative is free form in nature, unused spaces in the input record will appear at the right-most part of the record if variable data is recorded last.

With the input record format designed using the structured data elements, the data base may be described in computer language utilizing the data definition language feature of the computer software package. Detailed instructions for preparing data-definition cards are contained in Chapter 4 of the SPSS manual (Nie, 1975). An excellent convention to follow when preparing the data definition cards is to place only one definition statement on a card rather than "stringing" multiple statements on one card. The use of one card for each statement will ease the burden of updating the data definition, as is expected with a service organization, to meet changing requirements.

The results of the preparation of data definition cards describing the Assistance Program data base are listed in Appendix B. This process entailed defining the data elements and their codes in the format specified in the SPSS manual. Some optional, but useful, control cards used in generating the data definition cards were the RUN NAME and COMMENT cards.

1. RUN NAME Card

The RUN NAME card identifies the current computer run and causes a heading to be printed on the top of each page of output generated on that run. The name Gene Early, who is Head of the FESO office, was used as the RUN NAME in the Assistance Program automated system.

2. COMMENT Card

The COMMENT card serves the very simple function of enabling the user to place comments almost anywhere in the

in the card deck. COMMENT cards enable the user to make notes which will appear in the order and at the location in the control-card deck where they were placed. In the FESO automated information system, the COMMENT card was used to identify the establishment and description of new variables as well as the elapsed time calculation. Figure VII-5 shows the use of this card.

Chapter 6 of the SPSS manual provides more details on the use of data-definition cards.

E. CONVERT REPORT SPECIFICATIONS INTO COMPUTER TASK DEFINITIONS

The data-definition cards defined the structure and content (i.e., acceptable values of range of values) of the data. A set of task-definition cards is prepared to describe the data manipulation and statistical calculations to be performed on selected data for each report to be produced. The data-definition cards remain unchanged while preparing all the reports. However, a set of task-definition cards is required for each report. Each set of cards is identified by using a TASK NAME statement card.

The report specifications provided the information necessary to prepare the task-definition cards. As previously discussed, the data selection constraints defined which data should be used. The data manipulation requirements defined which data should be used. The data manipulation requirements defined which calculations were to be made. Chapter 5 of the SPSS manual (NIE, 1975) explains how to code the task-definition cards.

The task-definition cards for each report must have at least one procedure card. Procedure cards invoke or "call in" statistical routines, such as CROSSTABS, FREQUENCIES, or REGRESSION to process the data. CROSSTABS enables the user to compute two-way to n-way joint frequency distribution tables. FREQUENCIES computes and presents one-way frequency distribution tables as well as additional descriptive statistics such as median, mean, standard deviation, skewness, kurtosis and others. REGRESSION is a general statistical technique through which the user can analyze the relationship between a dependent and a set of independent variables. Chapters 14 through 26 of the SPSS manual (Nie, 1975) provide a detailed explanation of the use of these and other statistical routines.

The above statistical routines can be modified by other command cards such as SELECT IF, RECODE, COMPUTE or IF, which constrain the data being used. The SELECT IF command enables the user to select only the pertinent records in the data base, subject to the SELECT IF criteria. For example, the command "SELECT IF (QTR EQ 1)" will cause the selection and use of only those records in the data base from the first quarter. RECODE is used to modify the value of an existing variable. COMPUTE and IF may be used to either establish new variables or modify values in existing variables. The use of these commands is limited only by the imagination and creativity of the user. More details on these and other data modification commands can be found in Chapter 8 of the SPSS manual (Nie, 1975).

The task-definition logic for each of the 11 reports developed for the Assistance Program are contained in Appendix C. Some of the previously discussed salient features of the SPSS task-definition capabilities that were used in developing the Assistance Program report logic can be illustrated by use of some examples.

One powerful feature of the SPSS software package is its ability to select only those records that will be used in preparing a given report. The SELECT IF command was particularly useful in preparing computer statements for Assistance Program reports since many of the reports were compiled only from pertinent records in the data base. Figure VII-6 uses the SELECT IF command to process only those records that belong to GROUP 6. GROUP 6 is a segment of the user population comprises the shore activities. GROUP 6 was established to minimize repeating logic coding each time shore activities were referred to in report preparation. If any record fails this test it will not be selected for use in preparing Report 1.

In addition to the SELECT IF command, the CROSSTABS and FREQUENCIES procedures are utilized in preparing Report 1. The FREQUENCIES procedure lists all the elapsed time values that occurred, while the CROSSTABS procedure segments the elapsed time values into categories, such as "two days or less," for FESO briefing charts used in management presentations.

The data modification commands RECODE, COMPUTE and IF were also useful in the preparation of the reports for the Assistance Program. Some examples of their use include:

RECODE

Figure VII-7 shows an example of the recoding techniques. The variable named "REQUEST" might have values in the range of 621 through 626, but such values are recoded to the single discrete value of 62 so that the cross-tabulation procedure would consider values 621 through 626 equally for statistical purposes.

IF

In Figure VII-5, Assistance Program Data Definitions, the IF command is used to establish a new data element (variable) called GROUP. In addition, the variable REQUEST in each record is examined by the use of IF "relational operators" to place each record in an appropriate group. Relational operators include logic such as greater than (GT), less than (LT) or equal to (EQ). The groups into which the records were placed were established in accordance with the FESO requirements. As mentioned earlier, GROUP 6 refers to shore activities. The FESO reports the Assistance Program service by grouping users in management presentations and RAP's briefs.

COMPUTE

In Figure VII-5, Assistance Program Data Definitions, elapsed time for answering a request is calculated by using the COMPUTE command. The two IF commands preceding the COMPUTE command then execute the calculation by first subtracting the

date the request was received (DATE IN) from the date it was answered (DATE OUT) and then adding the answer to ELAPSED, a previously described variable, with no value assigned.

Sometimes a manager finds an unusual item in a report about which he would like to have more information. When this occurs, the data selected to prepare the report can be printed with pertinent detailed information. This capability is similar to looking at accounting schedules or other detailed backup material not normally included with statistical or summary type reports. The feature, neither a procedure or command, is a special control card that is coded LIST CASES. Its use will cause the printing of the records (i.e., cases) used in a given statistical procedure. An example of its use is found in Figure VII-8. This report selects only those records that were submitted by three specific Naval stations (i.e., SNDL numbers 1453712, 4600120 and 7040200). The records for these stations are selected and printed along with detailed data using the LIST CASE feature. The details for the format and use of LIST CASE are presented in Chapter 10 of the SPSS manual (Nie, 1975).

The SPSS also provides a method to update data files by adding and deleting records. This technique is useful if the data base is large, updated frequently and stored on media other than cards such as magnetic tape, disk or data cells. This facility was not used with the Assistance Program because the size of the data base is small, it is updated infrequently

(i.e., quarterly) and the data is stored on cards. The details of this facility, however, are given in Chapter 11 of the SPSS manual (Nie, 1975).

F. ARRANGE CARD DECK IN PROPER ORDER

SPSS cards are placed in the order shown below to process data cards and produce reports. Some card types are optional and some are required.

Card Status	Order	Card Type
Optional	1	Run Cards
Required	2	Data-Definition Cards
Required	3	Task-Definition Cards (Restricted to one procedure)
Required	4	Data Cards
Optional	5	Additional Task-Definitions (Not restricted to one procedure)
Required	6	Finish Card

Within the data-definition and task-definition sections there are optional, conditional and required cards. A detailed explanation of the card order is given in Chapter 7 of the SPSS manual. Data-definition cards for the Assistance Program were discussed earlier and the set of cards shown in Appendix B are acceptable for processing any of the Assistance Program reports.

In addition to the above card types, job cards for the specific computer operating system must precede and follow the SPSS deck. Job card requirements will be discussed in a later section of this study.

G. DEVELOP EDITING LOGIC

Probably the single most important part of the computer processing is the input data. Without clean data there is little chance of obtaining useful output reports. The old saying of "garbage in, garbage out" is certainly true in this case. The importance of timely, accurate and complete input data cannot be overstressed in the design of an information system. Most authors writing on the subject of computer information systems stress the importance of accurate input data. Alexander (1974, p. 177-182) succinctly discusses eleven principles to be followed in designing an information system.

It is significant to observe that four of the eleven principles are concerned with the accuracy and completeness of the input data. Those four principles are stated below.

> Principle No. 2 All raw input data, for which accuracy is an important consideration, must be separately checked by a verification process before it is entered into the main processing operations.
>
> Principle No. 3 All raw data inputs must be edited for accuracy and completeness before the main data-processing operations are begun.
>
> Principle No. 9 An activity listing of all accepted transaction activity inputs should be prepared during every file updating run.
>
> Principle No. 10 Spurious messages discovered by the editing program should be output on an exception (input error) report.

In developing the editing logic for the FESO Assistance Program automated data base, the principles put forth by Alexander were followed to ensure data accuracy. "Sight" verification of the input data was implemented through the use

of the activity list, a computer printout of all input data. "Key" verification is planned for the future. The key verification process entails keypunching the data into each card two times. During the initial keying process, the first operator uses a machine that punches holes in each card. The second operator keys the data into the prepunched cards to verify the accuracy of the initial keying process. If the two operators do not key identical data into a card, the card fails the verification and the discrepancy must be resolved before processing may continue.

Prior to the processing of any of the reports, the input data was run through an edit operation. This edit operation was designed by the preparation of an additional set of task-definition statements. This set of task-definition statements check each data record for accuracy in conformance with the coded data previously established on the data-definition cards in the computer program. Figure VII-9 lists the set of task-definition statements prepared for the edit operation. The edit logic checks each field in the input record for accurate and complete data in two manners. First, the content of each field is checked against the data-definition section statements that defined the structured data base and acceptable values. Each field must have an acceptable value or it is flagged as an error. Next, the relationship between fields is defined and the content of the related fields must be consistent. For example, if the medium out field has been coded, indicating that the request has been

answered, and there is no date entered in the date out field, the edit logic would flag the date out column as an error. If the record passed the edit without any error flags, the data could be considered as accurate and complete.

Error information about any data record that failed the edit test is displayed through the use of an exception report. Error flags showing the input card columns containing erroneous data are displayed in the report along with the necessary record identification information. When erroneous data card records are corrected and all input data passes the edit with a "negative" exception report (no errors), processing of the reports may begin. An illustrated edit exception report is discussed and shown in the operating procedures portion of this study.

H. TEST AND IMPLEMENT SYSTEM

"The primary function of testing is to obtain tangible evidence that a program and its controls are functioning as their design indicates" (Sanders 1970, p. 397). Test data should consist of both artificial and live data. Artificial data containing data records valid in format but invalid in content are necessary to test the comprehensiveness of edit programs (Sanders 1970, p. 398).

Live or actual data is also selected to represent operational requirements as nearly as possible. This data is used to "shake-down" the new system in its entirety. User personnel are active in the system testing phase of system

development. Conditions are as realistic as possible. When the system is satisfactorily tested, it is ready for implementation (Ditri 1971, p. 115).

Artificial test data was contrived for the FESO Assistance Program to test the edit operation. Invalid data was constructed to test the comprehensiveness of the edit logic. After successfully passing this test, representative live data was prepared from actual FY-76 Assistance Program requests for service. This representative data was then utilized as input to test each report on a "unit-test" basis.

After each report processing logic was unit-tested, a system test was conducted for the Assistance Program. The system test, conducted with FESO personnel, consisted of using live data and generating all 11 Assistance Program reports. Actual operational data for the third quarter FY-76 was used for the system test. The third quarter data provided the necessary input to establish an automated data base. Since the third quarter FY-76 manual reports had recently been completed, the system test resulted in a "parallel operation" environment.

The reports prepared from the automated data base were compared with the reports manually prepared. Discrepancies were reconciled and corrections made to the automated system where necessary. The automated system produced reports acceptable to the FESO personnel. Figure VII-1D illustrates a typical report. All reports are shown in Appendix D. The parallel operations accomplished a successful implementation

and reinforced the statement of Ditri, "Where applicable, the new system operates in parallel with the old one on a planned basis until it is running smoothly enough for the old system to be discontinued" (1971, p. 115).

After the successful combination system test and implementation of the automated data base and report preparation using third quarter FY-76 data, the automated data base was expanded to include the first two quarters of FY-76 data. This was done by first processing each quarter's data through the edit operation until brought within acceptable tolerances established by FESO personnel. Next, the two quarters were combined with the third quarter, and cumulative FY-76 reports were compared to manual reports maintained by the FESO. The results of the cumulative reports were accepted as accurate and complete to conclude the implementation of the automated system.

INVENTORY OF REPORTS

Report No.	Title
0*	Edit Report
1	Request Response Time Report
2	Breakdown of Request Subjects
3	Breakdown of Method of Receiving Requests
4	Summary of Requests by Major Requestors
5	Breakdown of Requests-Short Term/Job Order
6	Breakdown of Requests by CEL Division
7	Breakdown of Requests by Activities
8	Identification of Requests by Region (EFD,WS,ROICC)
9	Breakdown of Requests by Minor Requestor Groups
10	Query of Data Base for Request Station
11	Query of Data Base for Requestor

*Not considered a FESO Assistance Program report

Figure VII-1 Inventory of Reports

The initial step in developing an information system is the identification of the required reports.

FESO ASSISTANCE PROGRAM
REPORT SPECIFICATIONS

REPORT TITLE: Percentage Breakdown of Request Subjects

REPORT NUMBER: 2

PURPOSE: This report provides a summary of the percentage of requests received from the Shore Activities during the report period in each major subject category. It will be used by CEL personnel for program briefings.

INPUT PARAMETERS FROM EACH REQUEST: Fiscal Year, Quarter, Subject.

SELECTION CONSTRAINTS:

1. Includes only requests received from the Shore Activities.

2. Includes both answered and unanswered requests.

DATA MANIPULATION REQUIREMENTS:

Sum the number of requests in each major subject category. Divide summation by the total number of requests received from Shore Activities during the reporting period. Multiply by 100.

Figure VII-2 Report Specifications-Percentage Breakdown of Request Subjects-Report #2

This figure details the specific information needed to prepare computer report #2

REPORT SPECIFICATIONS (Cont'd.)

OUTPUT PARAMETERS:

1. Percentage of total number of requests received in each major subject category.

FREQUENCY: Quarterly; cumulative for the Fiscal Year.

Figure VII-2 Report Specifications-Percent Breakdown of Request Subjects-Report #2

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DATA ELEMENT LIST

Data Element	Number of Characters	Format
Fiscal Year	2	Numeric
Quarter	1	Numeric
Program	1	Numeric
Serial Number	3	Numeric
Control Number*	4	Numeric
Subject Code*	4	Numeric
Major Subject Code*	2	Numeric
Intermediate Subject Code*	3	Numeric
Calendar Year In	1	Numeric
Julian Day In	3	Numeric
Julian Date Out*	4	Numeric
Calendar Year Out	1	Numeric
Julian Day Out	3	Numeric
Julian Date Out*	4	Numeric
Medium In	1	Numeric
Medium Out	1	Numeric
Job Order Designator	1	Numeric
Requestor	3	Numeric
Station Location	4	Numeric
Station Serial Number	3	Numeric
Station*	7	Numeric
Primary Division	2	Numeric
Secondary Division	2	Numeric
Subject	38	ALPHA

*Structured data elements

Figure VII-3 Data Element List

This list includes all of the data elements used in the FESO Assistance Program

INPUT RECORD FORMAT STRUCTURE

Input Field	Data Element Name	Variable Name	Number of Characters	Record Positions	Format	Data Element Description
1	Fiscal Year	FY	2	1-2	Numeric	Two digits stating Fiscal Year.
2	Quarter	QTR	1	3	Numeric	One digit indicating which of four quarters in the Fiscal Year the request was received.
3	Program	PROGRAM	1	4	Numeric	One-digit code indicating type of program, energy or non-energy, supporting the request.
4	Serial Number	SERIAL	3	5-7	Numeric	Three digit sequential number assigned upon receipt at CEL.
5	Control Number*	CNTRLNR	4	4-7	Numeric	Expanded code of program and serial number.
6	Card Number	CARDNR	2	8-9	Numeric	Two-digit code enabling future inputs to easily be incorporated.
7	Subject Code*	SUBJCODE	4	10-13	Numeric	Four-digit structured code defining the subject of the request. See Appendix B for a complete list of codes.
8	Major Subject Code*	SUBCAT2	2	10-11	Numeric	Two-digit code indicating major subject areas.

Figure VII-4 Input Record Format Structure

This figure describes and defines the structure of the input data to be placed on the computer data card.

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INPUT RECORD FORMAT STRUCTURE (Cont'd.)

Input Field	Data Element Name	Variable Name	Number of Characters	Record Positions	Format	Data Element Description
9	Intermediate Subject Code*	SUBCAT3	3	10-12	Numeric	Three-digit code indicating intermediate subject areas.
10	Calendar Year In	YRIN	1	14	Numeric	Single-digit code indicating the year the request was received.
11	Julian Day In	DAYIN	3	15-17	Numeric	Three-digit code indicating the Julian day the request was received.
12	Julian Date In	DATEIN	4	14-17	Numeric	Four-digit structured code.
13	Calendar Year Out	YROUT	1	18	Numeric	Single-digit code indicating year the request was answered.
14	Julian Day Out	DAYOUT	3	19-21	Numeric	Three-digit code indicating the Julian day the request was answered.
15	Julian Date Out*	DATEOUT	4	18-21	Numeric	Four-digit structured code indicating when the request was completed.
16	Elapsed Time	ELAPSED	4	22-25	Numeric	Four-digit code indicating the elapsed time required to complete the request. Machine computed.

Figure VII-4 Input Record Format Structure (Cont'd.)

INPUT RECORD FORMAT STRUCTURE (Cont'd.)

Input Field	Data Element Name	Variable Name	Number of Characters	Record Positions	Format	Data Element Description
17	Medium In	MEDIUMIN	1	26	Numeric	One-digit code indicating how the request was received. See Appendix B for a complete listing of codes.
18	Medium Out	MEDIUMOT	1	27	Numeric	One-digit code indicating how the request, after completion, was returned to the requestor.
19	Job Order Designator	JODESIGN	1	28	Numeric	Job order designator. One digit code identifying the effort required to answer the request.
20	Requestor	REQUEST	3	29-31	Numeric	Three-digit code identifying the originator of the request. See Appendix B for a complete listing of codes.
21	Station Location	STALOC	4	32-35	Numeric	Four-digit code indicating the type of activity.
22	Station Serial Number	STASER	3	36-38	Numeric	Three-digit code identifying activity within the type activity code.
23	Station*	STATION	7	32-38	Numeric	Seven-digit structured code from the SNDL uniquely identifying the requestors.

Figure VII-4 Input Record Format Structure (Cont'd.)

INPUR RECORD FORMAT STRUCTURE (Cont'd.)

Input Field	Data Element Name	Variable Name	Number of Characters	Record Positions	Format	Data Element Description
24	Primary Division	PRIDIV	2	39-40	Numeric	Two-digit code identifying CEL division working on request.
25	Secondary Division	SECDIV	2	41-42	Numeric	Two-digit code identifying the CEL division sharing the work on a request.
26	Responsible Division	RESDIV	4	39-42	Numeric	Expanded code of CEL divisions working on the request. See Appendix B for a complete list of codes.
27	Subject	SUBJECT	38	43-80	ALPHA	Description of Subjects of request.

*Structured data elements

Figure VII-4 Input Record Format Structure (Cont'd.)

```
                (92?=092)/
                PRIDIV (65=54)/SECDIV (65=54)
COMMENT
COMMENT         COMPUTATION OF REQUEST ELAPSED TIME
COMMENT
IF              (YROUT GT YRIN) ELAPSED=+635
IF              (YROUT EQ YRIN) ELAPSED= 0
COMPUTE         ELAPSED = ELAPSED + DATEOUT - DATEIN
COMMENT
COMMENT         ESTABLISH NEW VARIABLES
COMMENT
COMPUTE         RESPONSE=.
IF              (REQUEST GT 9 AND LT 79)GROUP=6
IF              (REQUEST GT 31? AND LT 353)GROUP=6
IF              (REQUEST GT 62? AND LT 627)GROUP=6
IF              (REQUEST GT 69 AND LT 79)GROUP=7
IF              (REQUEST EQ 80)GROUP=8
IF              (REQUEST GT 89 AND LT 93)GROUP=9
IF              (REQUEST GT 9 AND LT 13)USER=10
IF              (REQUEST GT 19 AND LT 23)USER=20
IF              (REQUEST GT 29 AND LT 37)USER=30
IF              (REQUEST GT 311 AND LT 353)USER=36
IF              (REQUEST GT 39 AND LT 50)USER=40
IF              (REQUEST GT 49 AND LT 57)USER=50
IF              (REQUEST GT 59 AND LT 62)USER=61
IF              (REQUEST GT 61 AND LT 63)USER=62
IF              (REQUEST GT 62? AND LT 627)USER=62
COMMENT
COMMENT         DESCRIBE NEW VARIABLES
COMMENT
VAR LABELS      GROUP,RDT AND E ASSISTANCE REQUEST GROUPS/
                USER,ASSISTANCE REQUESTORS BY INTERMED CAT/
                RESPONSE,REQUEST RESPONSE TIME
VALUE LABELS    GROUP (6)SHORE   FACILITY (7)SEABEES (8)NON NAVFAC
                (9)NON NAVY/
                USER(10)CNM
                USER(20)NAVFAC
                USER(30)EFDS
                USER(40)PWC
                USER(50)PWS
                USER(61)OICC
                USER(62)ROICC/
                RESPONSE (1)ZERO DAYS
                (2)1 TO 2 DAYS
                (7)3 TO 7 DAYS
                (14)8 TO 14 DAYS
```

Figure VII-5 FESO Assistance Program Data Definition Cards

This figure shows the use of the IF, COMMENT, and COMPUTE cards.

```
COMMENT
COMMENT         ****************************************************************
COMMENT
COMMENT         BEGIN REQUEST RESPONSE TIME - REPORT 1
COMMENT
*IF             (ELAPSED EQ 0)RESPONSE=1
*IF             (ELAPSED GT 0 AND LT 3)RESPONSE=2
*IF             (ELAPSED GT 2 AND LT 8)RESPONSE=7
*IF             (ELAPSED GT 7 AND LT 15)RESPONSE=14
*IF             (ELAPSED GT 14 AND LT 31)RESPONSE=30
*IF             (ELAPSED GT 30)RESPONSE=31
*IF             (ELAPSED LT 0)RESPONSE=32
*COMPUTE        ITSELF=RESPONSE
*SELECT IF      (GROUP EQ 6)
TASK NAME       REQUEST RESPONSE TIME REPORT - REPORT 1
CROSSTABS       VARIABLES=RESPONSE(0,32)ITSELF(0,32)/
                TABLES=RESPONSE BY ITSELF
OPTIONS         3,4,5
*SELECT IF      (GROUP EQ 6)
*IF             (ELAPSED LT 0)ELAPSED=999
FREQUENCIES     GENERAL=ELAPSED
COMMENT
COMMENT         END   REQUEST RESPONSE TIME - REPORT 1
COMMENT
COMMENT         ****************************************************************
COMMENT
```

Figure VII-6 FESO Assistance Report #1 - Task Definition Logic

This figure shows the use of the SELECT IF command card.

```
COMMENT
COMMENT         ************************************************************
COMMENT
COMMENT         BEGIN BREAKDOWN OF REQUESTS BY MINOR REQUESTOR GROUPS - REPORT 9
COMMENT
COMMENT         BE CAREFUL - YOU MUST INSERT SELECT DESIRED QTR CARD NEXT
*RECODE         REQUEST(311 THRU 312=31)(331 THRU 332=33)
                (341 THRU 342=34)(351 THRU 352=35)(621 THRU 626=62)
TASK NAME       BREAKDOWN OF REQUESTS BY MINOR REQUESTOR GROUPS - REPORT 9
CROSSTABS       VARIABLES=REQUEST(10,62)USER(10,62)/
                TABLES=REQUEST BY USER
OPTIONS         3,4,5
COMMENT
COMMENT         END   BREAKDOWN OF REQUESTS BY MINOR REQUESTOR GROUPS - REPORT 9
COMMENT
COMMENT         ************************************************************
COMMENT
```

Figure VII-7 FESO Assistance Report #9 - Task Definition Logic

This figure shows the use of the RECODE command.

```
COMMENT
COMMENT         ************************************************************
COMMENT
COMMENT         BEGIN QUERY OF DATA BASE FOR REQUEST STATION = REPORT 10
COMMENT
COMMENT ---- INSERT A SELECT IF STATION EQ CARD NEXT
*SELECT IF      (STATION EQ 1453712 OR 4600120 OR 7040200)
TASK NAME       QUERY OF DATA BASE FOR REQUEST STATION = REPORT 10
LIST CASES      CASES=2000/VARIABLES=QTR,CNTRLNR,SUBJCODE,ELAPSED,
                REQUEST,STATION,RESDIV,SUBJECT1,SUBJECT2,SUBJECT3
CROSSTABS       TABLES=CNTRLNR BY STATION
OPTIONS         3,4,5
COMMENT
COMMENT         END   QUERY OF DATA BASE FOR REQUEST STATION = REPORT 10
COMMENT         ************************************************************
COMMENT
```

Figure VII-8 FESO Assistance Report #10 - Task Definition Logic

This figure shows the use of the LIST CASES command.

```
COMMENT
COMMENT         ****************************************************************
COMMENT
COMMENT         BEGIN EDIT REPORT - REPORT C
COMMENT
*COMPUTE        ERROR1=0103
*COMPUTE        ERROR2=1011
*COMPUTE        ERROR3=1421
*COMPUTE        ERROR4=2626
*COMPUTE        ERROR5=2931
*COMPUTE        ERROR6=3238
*COMPUTE        ERROR7=3940
*COMPUTE        ERROR8=4142
*COMPUTE        COMP1=0
*IF             (GTR EQ 1 OR 2 OR 3 OR 4)ERROR1=0000
*IF             (FY EQ 75 OR 76 OR 77 OR 78 OR 79 OR 71)ERROR1=0000
*SELECT IF      (ERROR1 EQ 0103)
*IF             (SUBCAT2 EQ 10 OR 11 OR 12 OR 13 OR 14 OR 15 OR 16 OR 17
                OR 18 OR 19 OR 20 OR 21 OR 22 OR 23 OR 24 OR 25 OR 26
                OR 27 OR 28 OR 99)ERROR2=0000
*SELECT IF      (ERROR2 EQ 1011)
*IF             (YRIN EQ 5 OR 6 OR 7 OR 8 OR 9)ERROR3=0000
*IF             (YROUT EQ 5 OR 6 OR 7 OR 8 OR 9)ERROR3=0000
*IF             (DAYIN GT 0 AND LT 366)ERROR3=0000
*IF             (DAYOUT LT 366)ERROR3=0000
*IF             (MEDIUMOT GT 8 AND DATEOUT LT 1)ERROR3=1421
*SELECT IF      (ERROR3 EQ 1421)
*IF             (MEDIUMIN EQ 1 OR 2 OR 3 OR 4 OR 5)ERROR4=0000
*IF             (MEDIUMOT EQ 0 AND DATEOUT EQ 0) ERROR4=0000
*IF             (MEDIUMOT EQ 1 OR 2 OR 3 OR 4 OR 5) ERROR4=0000
*IF             (DATEOUT GT 1 AND MEDIUMOT LT 1) ERROR4=2628
*IF             (DAYOUT LT 1 AND MEDIUMOT GT 0)ERROR4=2628
*IF             (JOBDESIGN EQ 0 OR 1)ERROR4=0000
*SELECT IF      (ERROR4 EQ 2628)
*IF             (REQUEST EQ 10 OR 11 OR 12 OR 20 OR 21 OR 22 OR 31
                OR 32 OR 33 OR 34 OR 35 OR 36 OR 41 OR 42 OR 43
                OR 44 OR 45 OR 46 OR 47 OR 48 OR 49 OR 51 OR 52
                OR 53 OR 54 OR 55 OR 56 OR 61 OR 62 OR 71
                OR 72 OR 73 OR 74 OR 75 OR 76 OR 77 OR 78 OR 80 OR 90
                OR 91 OR 92
                OR 311 OR 312 OR 331 OR 332 OR 341 OR 342 OR 351 OR 352
                OR 621 OR 622 OR 623 OR 624 OR 625 OR 626) ERROR5=0000
*SELECT IF      (ERROR5 EQ 2931)
*IF             (REQUEST EQ 11 OR 12 OR 51 OR 52 OR 53 OR 54 OR 55
                OR 56 OR 621 OR 622 OR 623 OR 624 OR 625 OR 626)COMP1=1
```

Figure VII-9 FESO Assistance Program Edit Logic

This figure depicts the computer editing logic used to detect errors in the input data.

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```
*IF             (COMP1 EQ 1 AND STATION GT 0)ERROR6=0000
*IF             (COMP1 EQ 0 AND STATION LT 1)ERROR6=0000
*IF             (PRIDIV EQ 41 OR 42 OR 43 OR 44 OR 51 OR 52 OR 53 OR 54
                OR 55 OR 61 OR 62 OR 63 OR 64 OR 65 OR 80) ERROR7=0000
*SELECT IF      (ERROR7 EQ 3940)
*IF             (SECDIV EQ 0 OR 41 OR 42 OR 43 OR 44 OR 51 OR 52 OR 53
                OR 54 OR 55 OR 61 OR 62 OR 63 OR 64 OR 65 OR 80)
                ERROR8=0000
*SELECT IF      (ERROR8 EQ 4142)
TASK NAME       EDIT REPORT - REPORT 0
LIST CASES      CASES=200/VARIABLES=FY,QTR,CNTRLNR,ERROR1,ERROR2,ERROR3,
                ERROR4,ERROR5,ERROR6,ERROR7,ERROR8
FREQUENCIES     GENERAL=CNTRLNR
COMMENT
COMMENT         END   EDIT REPORT - REPORT 0
COMMENT
COMMENT         ************************************************************
COMMENT
```

Figure VII-9 FESO Assistance Program Edit Logic

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GENE EARLY
BREAKDOWN OF REQUEST SUBJECTS - REPORT 2
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

SUBCAT2 MAJOR SUBJECT CATEGORY

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
BUILDING MATERIALS	11	17	9.6	9.6	9.6
CATHODIC PROTECTION	12	1	.6	.6	10.2
CORROSION	13	9	5.1	5.1	15.3
ENERGY	14	19	10.7	10.7	26.0
MOORINGS	17	1	.6	.6	26.6
PAINTS,COATGS,CHEM	18	42	23.7	23.7	50.3
PAVEMENTS	19	8	4.5	4.5	54.8
POLLUTION	20	8	4.5	4.5	59.3
PHYSICAL SECURITY	21	5	2.8	2.8	62.1
ROOFING	23	29	16.4	16.4	78.5
STRUCTURAL	24	5	2.8	2.8	81.4
UTILITIES	25	14	7.9	7.9	89.3
WATERFRONT	26	2	1.1	1.1	90.4
FLOORING	27	2	1.1	1.1	91.5
OTHER	99	15	8.5	8.5	100.0
	TOTAL	177	100.0	100.0	

VALID CASES 177 MISSING CASES 0

Figure VII-10 FESO Assistance Program - Breakdown of Requests Subjects - Report #2

This figure shows the absolute frequency and percentage of requests received in each subject category.

VIII. SOFTWARE PACKAGE OPERATION PROCEDURES

The purpose of developing operation procedures for the SPSS software package is to describe its use in an operating environment of a service organization. These procedures will illustrate how the FESO personnel may operate the SPSS package for the Assistance Program at the CEL.

A. DATA COLLECTION

There are many sources of requests for FESO service. Most requests are submitted by Naval organizations such as the Engineering Field Divisions (EFD) and Public Works Centers (PWC). However, requests are also submitted by other Department of Defense (DOD) organizations, non-DOD agencies, state and local governments. Requests are accepted by either the FESO or any CEL division.

Requests may be either verbal or written. The individual accepting a verbal request documents pertinent information on CEL from 3960/38 (7-71), Record of Response to Verbal Request for RDT & E Assistance, shown as Figure VIII-1. The form has six items of information. The first five provide the details of the request and the sixth item describes the disposition of the request. The information provided by items one through five is maintained by FESO in a suspense file. At the time the request is answered, the form is removed from the suspense file

and placed in a completed file.

Written requests are handled similarly to verbal requests with the written request itself replacing CEL Form 3960/38. However, replies to written requests are handled by correspondence.

B. INPUT PREPARATION REQUIREMENTS

Before the Assistance Program reports can be prepared, the following input requirements must be met:

1. Complete Input Data Sheets

It is the responsibility of the FESO personnel to log each request. An Input Data Sheet is used for this purpose. At the end of a quarter the log should contain data on all verbal and written requests received during the report period. The log entries are serialized beginning with 001 at the beginning of the fiscal year. A partially completed log is illustrated as Figure VIII-2. The format of the input data sheet is consistent with the input record format (Figure VII-4) and is tailored to be used directly in the keypunch operation. Appropriate codes to be entered on the input data sheet were described in Figure VII-4.

2. Keypunch and Verify Computer Cards

Periodically, and at least at the end of each quarter, the data on the input data sheets must be punched into computer cards. A manila card such as that shown in Figure VIII-3 should be used if available.

If verification facilities are available, the punched cards should be key verified. Discrepancies between the original card punching and the verification must be resolved before the quarterly batch of cards may be used for preparing reports.

3. Determine Record Count for Audit Control

To ensure that all input data records are processed and accounted for, the batch of punched cards must be counted prior to submission to the computer facility. The computer processing logic will again count the cards, print them and display the number of total cards at the end of various reports. The batch count is controlled by punching a special card called the "number of cases" card. The totals at the end of the reports must equal the batch total. The "N of CASES" batch control card is punched as follows:

Columns	Punch
1	N
2	blank
3-4	OF
5	blank
6-10	CASES
11-15	blank
16-18	Enter number of cases (e.g., 095)
19-80	blank

It is suggested that a card with a colored strip on its top edge be used for this card to distinguish it from other cards. The "N OF CASES" batch control card and the input data cards punched from the input data sheets are now ready for computer processing.

C. COMPUTER PROCESSING

In order to execute any program on the computer a set of job control cards is required. The set of cards needed on the CEL terminal is depicted in Figure VIII-4. Five cards are placed in front and two are placed in back of the SPSS deck. All processing is done on the CEL computer terminal connected to the Lawrence Berkeley Laboratory Computer Center. CEL instruction manuals should be consulted for preparing job control cards and for operating the terminal.

There are two distinct stages of computer processing of the FESO automated system. During the first stage the input cards are validated by the edit operation. Computer prepared reports are processed in the second stage.

1. Edit Operation

The function of the edit operation is to purify the input data as much as possible prior to its use in processing the reports. The task definitions that perfrom the edit were presented in Chapter VII. The edit operation is a reiterative process. It is repeated until the data is purified according to the edit logic. The operation produces an exception report. The exception report titled Edit Report--Report 0, because it is not distributed as one of the FESO Assistance Program information system reports, is shown as Figure VIII-5. The report contains a list of the input data records that have errors detected. The errors must be researched and the input data

cards corrected. All the input data cards are again processed through the edit operation. This procedure is repeated until the exception report is "negative" indication that no more errors have been detected. An example of the exception report with no errors is shown in Figure VIII-6. The edit input stage is completed at this time.

In order to process the edit on the computer the input data cards and the "N OF CASES" card are inserted in the SPSS deck. The edit task-definition set of cards is placed in the SPSS deck immediately before the "READ INPUT DATA" card. The "N OF CASES" card is placed between the "INPUT MEDIUM" and "INPUT FORMAT" cards. There are tutorial COMMENT cards located in the SPSS deck to aid in locating where to place the "N OF CASES" card. In addition, a detailed explanation of the order of control cards in the deck construction is given in TABLE 7.1 of the SPSS manual (Nie 1975, p. 79).

2. Prepare Computer Reports

The function of this second stage is to process the reports using the set of task-definition cards prepared for each report. The FESO Assistance Program has eleven reports that are prepared at the end of each quarter. If desired, any report can be run using more than one quarter's data to produce a cumulative report.

All eleven reports may be processed with one execution of the SPSS deck. The order of the card deck is similar to the order established for running the edit. Report 2

task definitions replace the Report 0 edit task definitions. Reports 1 and 3 through 11 task definitions are placed immediately after the last input data card and preceding the "END" card.

All task definitions do not have to be run (i.e., executed) during the same computer run. If only one report is to be prepared, its task-definition cards are placed where the edit task-definition cards were located. Any additional reports are run by placing their task-definition cards after the last input data card. There are, however, some restrictions. Reports 1, 7, 8 and 9 have "multiple procedure" task definitions, and none of these reports can be placed in front of the "READ INPUT DATA" card. Only one procedure card may be placed in front of the input data cards. When one or more of these restricted reports are run, there must be at least one of the other reports (i.e., report 0, 2, 3, 4, 5, 6, 10 or 11) placed in front of the data cards. The restricted reports must be placed in back of the data cards.

The "LIST CASES" cards are optional. the "LIST CASES" facility is used to list the input cards. Only those cards selected for use in preparing a given report are listed. This facility may accompany any one or all of the task definitions depending on needs. The listing provides an excellent schedule of input or audit trail showing the data used to prepare a given report. One final audit or control step is required. A comparison must be made of

the valid cases total at the end of reports using all the input data cards with the "N OF CASES" total to ensure that all input has been processed.

D. SYSTEM MAINTENANCE

The input edit function plays a vital role in an operational information system. Operational information systems, particularly dynamic systems, require maintenance to ensure that they meet changing management requirements. System maintenance may be divided into two categories. The first category is operational maintenance, and the second is design maintenance.

1. Operational Maintenance

Operational maintenance is necessary to respond to changes in the operating environment. An example of operational maintenance in the Assistance Program would be the expansion of the list of service requestors to include new customer. This would be necessary to process current input data.

2. Design Maintenance

Design maintenance involves the review of the system periodically to evaluate its effectiveness in meeting current management requirements. Design maintenance begins with an analysis of existing reports. Reports no longer required are discontinued. Inadequate reports are revised to reflect current needs. For example, in the Assistance Program the subject code report might be

summarized at different levels. Sometimes the data base might have to be modified to include additional data elements. New reports may be required. If so, the computer logic is developed to generate the new report.

A comprehensive example of a system maintenance change is included as Appendix E. Appendix E details a design change and incorporates a modification to the data base. A new data element is established and a new report is prepared. A review of the system change example will enable a better understanding of the mechanics and techniques necessary in implementing either an operational or design maintenance change.

RECORD OF RESPONSE TO VERBAL REQUEST FOR RDT&E ASSISTANCE 5 Jan 1976
NCEL (T) 3960/38 (7-71) date

INSTRUCTIONS FOR RECORD OF RESPONDING TO VERBAL REQUESTS FOR RDT&E ASSISTANCE FORM

1. This form is for recording verbal requests for RDT&E Assistance that do not result in an official letter being sent to the requestor.
2. Fill in by hand using ballpoint pen, or type if you prefer.
3. If request is satisfied during the initial conversation with the requestor, complete items 1 thru 6, send original to L03C and make appropriate internal distribution.
4. If further action is required after initial contact, complete items 1 thru 5 and send copy to L03C. Whoever is assigned action, complete item 6, send original to L03C and make appropriate internal distribution.
5. Comments or suggestions to improve the form should be directed to L03C.

---

1. Received by: C. E. Imel (name) L54 (code) 4192 (extension)
2. How received: (check one) telephone X NCEL visit ____ site visit ____
3. From: Mr. Steve Azar (name) A/V 690-7313 (telephone)
   ____ (title) 114 (code) LANTDIV, NAVFAC Norfolk, VA. (activity)
4. Details of request: Provide information of desalination equipment and their cost for possible application at Rota, Spain. Three units, each has capacity of 100,000 gpd will be required for this case.
5. Was request satisfied during initial contact? Yes ____ No X
   a. If no, who will complete? L54/Chan name
   b. If no, estimated manhours to complete: 0-8 X 8-20 ____ over 20 ____
6. Nature of service performed or information supplied (include dates): Four different processes may be used for desalination. 1. Multi-stage Flash Distillation, Equip. supplier: a. Riley-Beaird Inc. Mr. Frank J. Zarambo (318) 868-4441 b. Aquachem, Mr. Will Pergande (414) 962-0100 x466. Est. Cost, $500K/100,000gpd unit. 2. Vapor Compression Distillation, equip. splr: a. Aquachem as above. b. Mechanical Equip. Co. Mr. George W. Strohl (504)523-7271. Est. Cost, $350K/100,000 gpd unit. 3. Reverse osmosis, equip. splr: a. Continental Water Condition Co. Mr. Jack C. Jameson (915)852-9090, b. Ecological Syst. Div. of Raypak Inc. Mr. Frank Shippey (213)889-1500, c. UOP Fluid Sci. Div. Mr. David H. Furukawa (714)278-7440, ROGA Div. Mr. I. Nusbaum (714)299-9920, d. OWRT (old OSW) Mr. W. Hahn (202)343-5965 for consultation of R.O. pretreatment requirement. 4. Freezing, a. AVCO Mr. Herold E. Davis (617)657-2008 AVCO has a 75,000gpd unit currently operated at Wrightsville, N.C. Cost , not available. P.S. R.O. est.cost, $500K/100,000gpd Mr. Azar was satisfied with the information we have provided. 6 Jan 1976 DATE

Copy to: L54 (division), L50 (other), L03C

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Figure VIII-1 Documentation Form for Verbal Requests

This figure documents all information received concerning a verbal request.

FESO ASSISTANCE PROGRAM -- INPUT DATA SHEET

FY	QTR	P	SERIAL	CARD	SUBJ. CODE	DATE IN	DATE OUT	ELAPSED	immed	out	JOB	REQUEST	STATION	RES DIV
1 2	3	4	5 6 7	8 9	10 11 12 13	14 15 16 17	18 19 20 21	22 23 24 25	26	27	28	29 30 31	32 33 34 35 36 37 38	39 40 41 42
76	3	0	301		2700	6006	6006		3	3		055	1453744	52
SUBJECT 43-80 DEACTIVATE POOL														
76	3	0	302		2561	6005	6012		3	3		053	6029284	65
FILTERS TO REMOVE DUST PARTICLES														
76	3	0	303		2700	6007	6007		3	3		053	5867650	52
FLOORING														
76	3	0	304		2620	6007	6014		3	1		033		55
JOB IN PR														

Figure VIII-2 Input Data Sheet

This figure depicts the coded input data ready for keypunch.

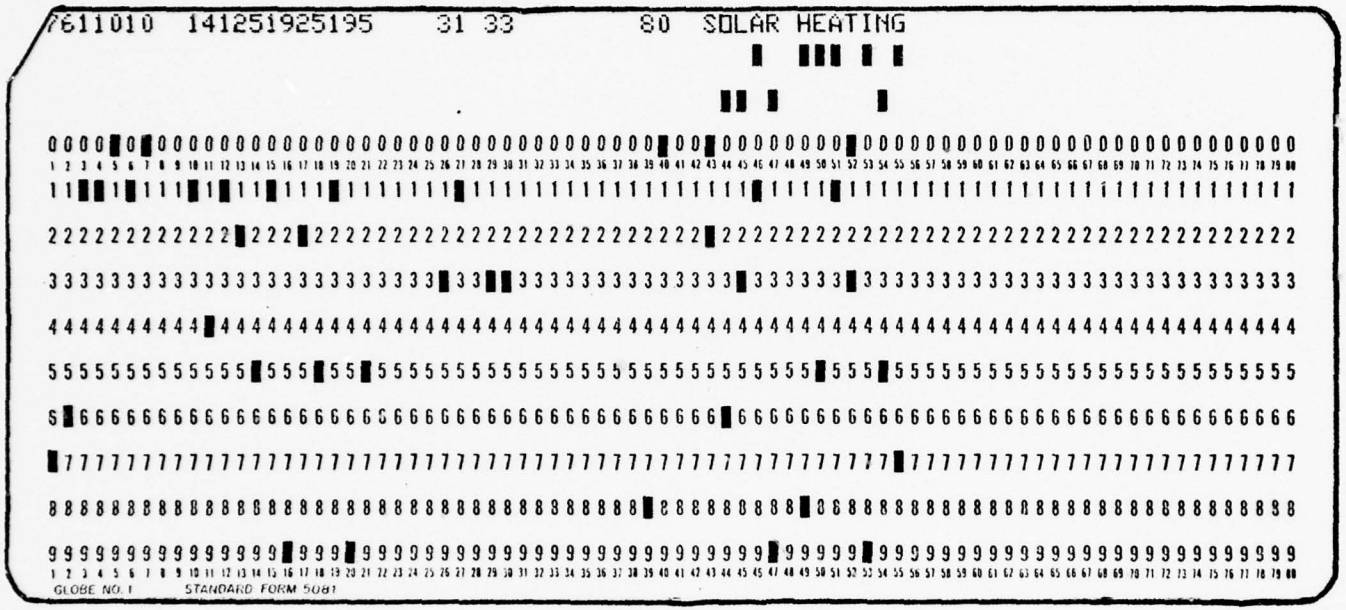

Figure VIII-3 Illustrated Computer Card

This figure shows the coded input data from one request ready for input to the computer.

```
EARLY,5,300,62000.484135,EARLY
MYACCT(478060197)
ERASEMT,SPSS,12511.
FETCHMT,SPSS,12511.
SPSS.

(SPSS deck)

FINISH
6/7/8/9
```

Figure VIII-4 Job Control Cards

This figure shows the job control cards necessary to execute the SPSS program.

GENE EARLY
EDIT REPORT - REPORT 0
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

CASE-NO	FY	QTR	CNTRLNR	ERROR1	ERROR2	ERROR3	ERROR4	ERROR5	ERROR6	ERROR7
1	76.	4.	585.	0	0	0	0	2931.	3238.	0
2	76.	4.	634.	0	1011.	0	0	2931.	0	0

Figure VIII-5 FESO Assistance Program - Output from Edit Program Showing Errors

This figure shows the identification of the computer card columns containing input errors.

```
GENE EARLY
EDIT REPORT - REPORT 0
FILE   ASSIST   (CREATION DATE =  20 JUL 76)   ASSISTANCE PROGRAM DATA BASE

CNTRLNR   CONTROL NR

                                                RELATIVE   ADJUSTED     CUM
                                    ABSOLUTE      FREQ       FREQ       FREQ
CATEGORY LABEL              CODE      FREQ        (PCT)      (PCT)      (PCT)
                                      ------      ------     ------
                            TOTAL        0        100.0      100.0

VALID CASES       0      MISSING CASES      0
```

Figure VIII-6 FESO Assistance Program - Output from Edit Program Showing No Errors

This figure shows the output format
when no errors are detected by the computer editing logic.

IX. GENERALIZATION OF SPSS TO OTHER SERVICE ORGANIZATIONS

The example used throughout this study demonstrated how a generalized software package has met the information processing requirements of a service organization. The SPSS was adapted to meet the information processing requirments of the FESO Assistance Program. The SPSS was used to establish an automated data base and produce reports in support of the measurement of the Assistance Program effectiveness. This adaptation was accomplished with the existing FESO staff and limited resource requirements.

The automated data system was developed to satisfy the information processing requirements stated as system objectives in Chapter VI. Data for the first three quarters of FY-76 was used to prepare FESO reports by use of the SPSS package. FESO personnel prepared the input data and reviewed the output but were relieved of time-consuming manual data manipulation. The automated method provided a vehicle to process all the requests for the third quarter FY-76 within seven days following the end of the quarter. An extensive automated edit operation, with predefined logic, verified the accuracy of the input data to the extent feasible. Data has been accurately processed for all the reports currently prepared by the FESO relating to requests for assistance. The future

growth of the data base, which now contains three quarters of historical data, and the availability of statistical routines in the SPSS package provide a method to substantially increase the amount of analysis that may be perofrmed on the requests for assistance.

In this study, the approach taken to meet a service organization's information processing requirements with SPSS can be generalized to other service organizations for two fundamental reasons. First, the SPSS was capable of handling the FESO Assistance Program processing requirements. Second, many other service organizations have similar characteristics of the FESO. One characteristic is the similarity of the data base design requirements. Many of the data elements of the Assistance Program are almost generic in nature to all service organizations. For example, all service organizations are interested in the dates services are requested and the dates services are provided. Another similar characteristic between FESO and other service organizations is the management report requirements. The data contained in the reports of the FESO automated information system are common to most service organizations. Most service organization management information reports should answer questions such as "service response time," number of service requests," "customer profile (e.g., location, size, etc.)." Adaptation of the SPSS to FESO has demonstrated this generalized capability.

Obviously, a thorough analysis of an individual organization's specific data base and reporting requirements is needed to apply directly the SPSS methodology developed in this study. Generalization of the approach appears logical and feasible since the approach was applied to one service organization that has similar characteristics to most service organizations.

X. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

The argument for and the demonstration of the use of a generalized software package in a small service organization environment has been presented in this study. The following conclusions have been drawn:

1. The adaptation of the SPSS computer package provided a viable and economical alternative to meeting the effectiveness-type information requirements of the FESO.

2. Because of the powerful statistical routines in the SPSS, the FESO effectiveness-type information system can be expanded substantially to increase the statistical analysis of the requests for assistance.

3. The SPSS, a generalized computer software package, can meet the effectiveness-type information requirements of many typical small service organizations.

B. RECOMMENDATIONS

1. Additional work should be undertaken to define and incorporate trend analysis of request data into the FESO effectiveness-type information system to enhance its usefulness.

2. Small service organizations who desire to process their effectiveness data using limited ADP resources should consider the use of a generalized software package, such as the SPSS.

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APPENDIX A

FESO ASSISTANCE PROGRAM
REPORT SPECIFICATIONS

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FESO ASSISTANCE PROGRAM
REPORT SPECIFICATIONS

REPORT TITLE: Request Response Time Report

REPORT NUMBER: 1

PURPOSE: This report provides a summary of the number of days that it took to answer each request received from the Shore Activities during the report period. It will be used by CEL personnel for program briefings and presentations.

INPUT PARAMETERS FROM EACH REQUEST: Date in, Date out, Fiscal Year, Quarter.

SELECTION CONSTRAINTS:

1. Include all requests received from the Shore Activities.
2. Exclude all unanswered requests.

DATA MANIPULATION REQUIREMENTS:

1. Sum and print the number of requests answered:
   a. In 0 days (answered same day).
   b. In 2 days or less.

Figure A-1 Report Specifications - Request Response Time Report - Report #1

This figure details the specific information needed to prepare computer report #1.

REPORT SPECIFICATIONS (Cont'd.)

DATA MANIPULATION REQUIREMENTS (Cont'd.):

c. In 7 days or less.

d. In 14 days or less.

e. In 30 days or less.

f. In greater than 30 days.

2. Calculate and print the percentage of requests answered in each time period (percent of all requests) received from the Shore Activities.

OUTPUT PARAMETERS:

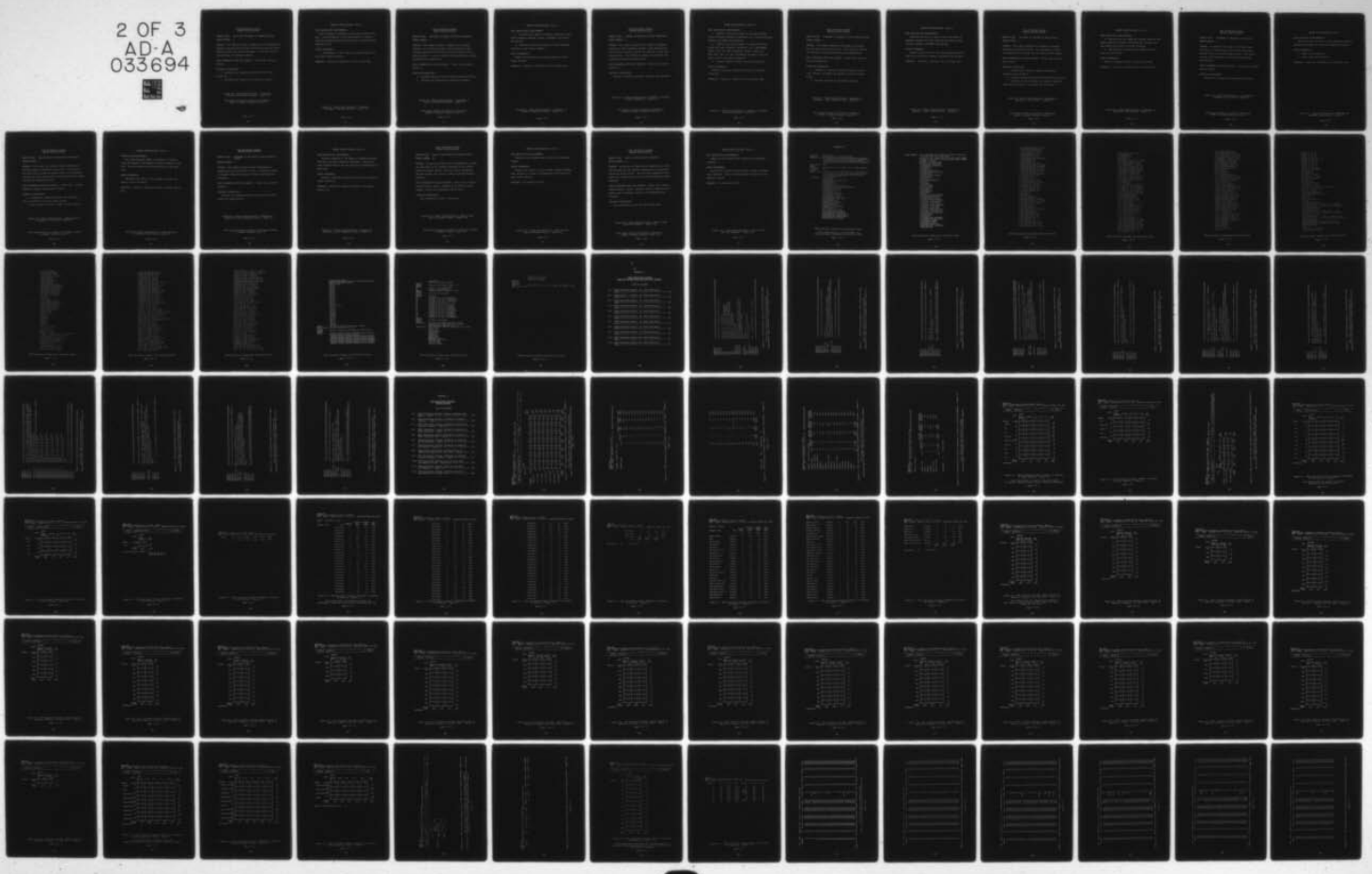
Number and percentage of requests received in each time period (days).

FREQUENCY: Quarterly; cumulative for the Fiscal Year.

Figure A-1 Report Specifications - Request Response Time Report - Report #1

AD-A033 694 NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF F/G 5/2
DEMONSTRATION OF THE FEASIBILITY OF AUTOMATING THE INFORMATION --ETC(U)
SEP 76 K M SUESS, J F THALER
UNCLASSIFIED NPS-54CF76091 NL

2 OF 3
AD-A
033694



FESO ASSISTANCE PROGRAM
REPORT SPECIFICATIONS

REPORT TITLE: Percentage Breakdown of Request Subjects

REPORT NUMBER: 2

PURPOSE: This report provides a summary of the percentage of requests received from the Shore Activities during the report period in each major subject category. It will be used by CEL personnel for program briefings.

INPUT PARAMETERS FROM EACH REQUEST: Fiscal Year, Quarter, Subject.

SELECTION CONSTRAINTS:

1. Includes only requests received from the Shore Activities.
2. Includes both answered and unanswered requests.

Figure A-2 Report Specifications - Percentage Breakdown of Request Subjects - Report #2

This figure details the specific information needed to prepare computer report #2.

REPORT SPECIFICATIONS (Cont'd.)

DATA MANIPULATION REQUIREMENTS:

Sum the number of requests in each major subject category. Divide summation by the total number of requests received from Shore Activities during the reporting period. Multiply by 100.

OUTPUT PARAMETERS:

1. Percentage of total number of requests received in each major subject category.

FREQUENCY: Quarterly; cumulative for the Fiscal Year.

Figure A-2 Report Specifications - Percentage Breakdown of Request Subjects - Report #2

FESO ASSISTANCE PROGRAM
REPORT SPECIFICATIONS

REPORT TITLE: Breakdown of Method of Receiving Request

REPORT NUMBER: 3

PURPOSE: This report provides a summary, by the medium received, of the absolute number and percentage of total requests received from the Shore Activities during the reporting period. It will be used by CEL personnel for program briefings and presentations.

INPUT PARAMETERS FROM EACH REQUEST: Fiscal Year, Quarter, Medium in.

SELECTION CONSTRAINTS:

1. Includes requests received from the Shore Activities.
2. Includes both answered and unanswered requests.

Figure A-3 Report Specifications - Breakdown of Method of Receiving Request - Report #3

This figure details the specific information needed to prepare computer report #3.

REPORT SPECIFICATIONS (Cont'd.)

DATA MANIPULATION REQUIREMENTS:

1. Sum and print number of requests received in each medium category (message, letter, telephone, site visit, CEL visitor).

2. Calculate and print percentage of total requests received in each medium category.

OUTPUT PARAMETERS:

Number and percentage of requests received in each medium category.

FREQUENCY: Quarterly; cumulative for the Fiscal Year.

Figure A-3 Report Specifications - Breakdown of Method of Receiving Request - Report #3

FESO ASSISTANCE PROGRAM
REPORT SPECIFICATIONS

REPORT TITLE: Summary of Requests by Major Requestors

REPORT NUMBER: 4

PURPOSE: This report summarizes the number of requests received by major requestor category (type organization) and by minor requestor category (by activity in each type organization). This report is used by CEL personnel for program briefings and presentations.

INPUT PARAMETERS FROM EACH REQUEST: Fiscal Year, Quarter, Requestor.

SELECTION CONSTRAINTS:

Include all requests received, answered and unanswered.

Figure A-4 Report Specifications - Summary of Requests by Major Requestors - Report #4

This figure details the specific information needed to prepare computer report #4.

REPORT SPECIFICATIONS (Cont'd.)

DATA MANIPULATION REQUIREMENTS:

1. Identify and sum the number of requests received within the major requestor categories (i.e., Shore Activities, Seabees, Non-NAVFAC and Non-Navy).

2. Identify and sum the number of requests received within the minor requestor categories (i.e., CNM/SYSCOM, NAVFAC, EFD, PWC, PWO, OICC/ROICC, CBLANT, CBPAC, CBC, CESO, MCB, ACB, UTC, NRC, NON-NAVFAC, NON-NAVY) which are subsets within the major categories.

3. Provide a matrix of major and minor categories.

OUTPUT PARAMETERS:

Number of requests received from each of the above categories.

FREQUENCY: Quarterly; cumulative for the Fiscal Year.

Figure A-4 Report Specifications - Summary of Requests by Major Requestors - Report #4

FESO ASSISTANCE PROGRAM
REPORT SPECIFICATIONS

REPORT TITLE: Breakdown of Requests - Short Term/Job Order

REPORT NUMBER: 5

PURPOSE: This report summarizes the number of requests that are short-term and Job Order. This report is used by CEL personnel for program briefings and presentations.

INPUT PARAMETERS FROM EACH REQUEST: Fiscal Year, Quarter, Job Order Designator.

SELECTION CONSTRAINTS:

1. Includes all requests received from Shore Activities, Seabees, Non-NAVFAC and Non-Navy during the report period.

2. Includes answered and unanswered requests.

Figure A-5 Report Specifications - Breakdown of Requests - Short Term/Job Order - Report #5

This figure details the specific information needed to prepare computer report #5

REPORT SPECIFICATIONS (Cont'd.)

DATA MANIPULATION REQUIREMENTS:

Calculate and print, in matrix form, the number of requests grouped into short-term and Job Order by Shore Activity, Seabees, Non-NAVFC and Non-Navy.

OUTPUT PARAMETERS:

Number of short-term and Job Order requests received from Shore Activities, Seabees, Non-NAVFAC and Non-Navy.

FREQUENCY: Quarterly; cumulative for the Fiscal Year.

Figure A-5 Report Specifications - Breakdown of Requests - Short Term/Job Order - Report #5

FESO ASSISTANCE PROGRAM
REPORT SPECIFICATIONS

REPORT TITLE: Breakdown of Requests by CEL Division

REPORT NUMBER: 6

PURPOSE: This report summarizes the number of requests assigned to each CEL division. The information is used in determining the average cost of answering each request.

INPUT PARAMETERS FROM EACH REQUEST: Fiscal Year, Quarter, CEL Division.

SELECTION CONSTRAINTS:

1. Includes both answered requests and requests currently being worked on.
2. Includes requests received from the Shore Activities.
3. Includes all CEL Divisions who worked on requests (some requests worked on by several CEL Divisions).

Figure A-6 Report Specifications - Breakdown of Requests by CEL Division - Report #6

This figure details the specific information needed to prepare computer report #6

REPORT SPECIFICATIONS (Cont'd.)

DATA MANIPULATION REQUIREMENTS:

1. Sum and print the number of requests received from Shore Activities, Seabees, Non-NAVFAC and Non-Navy that were worked on by each of the CEL Divisions.

2. Identify which requests were worked on by more than one CEL Division.

OUTPUT PARAMETERS:

Number of requests worked by each CEL Division.

FREQUENCY: Quarterly; cumulative for the Fiscal Year.

Figure A-6 Report Specifications - Breakdown of Requests by CEL Division - Report #6

FESO ASSISTANCE PROGRAM
REPORT SPECIFICATIONS

REPORT TITLE: Breakdown of Requests by Activities

REPORT NUMBER: 7

PURPOSE: To determine the number of different Navy activities or organizations who used the Assistance Program during the current report period. This report is used by CEL personnel for program briefings and presentations.

INPUT PARAMETERS FROM EACH REQUEST: Fiscal Year, Quarter, Request Station.

SELECTION CONSTRAINTS:

Includes all requests from the Shore Activities.

Figure A-7 Report Specifications - Breakdown of Requests by Activities - Report #7

This figure details the specific information needed to prepare computer report #7

REPORT SPECIFICATIONS (Cont'd.)

DATA MANIPULATION REQUIREMENTS:

Select and print the name of each requesting activity and the total number of activities submitting requests.

OUTPUT PARAMETERS:

1. Names of each activity.
2. Total number of activities.

FREQUENCY: Quarterly; cumulative for the Fiscal Year.

Figure A-7 Report Specifications - Breakdown of Requests by Activities - Report #7

FESO ASSISTANCE PROGRAM
REPORT SPECIFICATIONS

REPORT TITLE: Identification of Requests by EFD Areas

REPORT NUMBER: 8

PURPOSE: This report will provide feeder information to manually prepare a quarterly status letter for each EFD. The report must include the identification of the requests received from each division and the PWO's and ROICC's within the same EFD geographical area.

INPUT PARAMETERS FROM EACH REQUEST: Fiscal Year, Quarter, Requestor, Request Identification Number.

SELECTION CONSTRAINTS:

1. Includes all requests received from the EFD's, PWO's and ROICC's during the report period.
2. Must identify the serial number of each request.

Figure A-8 Report Specifications - Identification of Requests by EFD Areas - Report #8

This figure details the specific information needed to prepare computer report #8

REPORT SPECIFICATIONS (Cont'd.)

COMPUTATION REQUIREMENTS:

List identification number of requests in a matrix. Place EFD requests, PWO requests and ROICC requests on one axis. Place the names of the six divisions on the other axis.

OUTPUT PARAMETERS:

Identification number of the requests received from each of the six divisions.

FREQUENCY: Quarterly; requests received in report quarter only.

Figure A-8 Report Specifications - Identification of Requests by EFD Areas - Report #8

FESO ASSISTANCE PROGRAM
REPORT SPECIFICATIONS

REPORT TITLE: Breakdown of Requests by Minor Requestor Groups

REPORT NUMBER: 9

PURPOSE: This report provides feeder information to prepare quarterly EFD status letters. It shows the number of requests submitted by major and minor organizational categories.

INPUT PARAMETERS FROM EACH REQUEST: Fiscal Year, Quarter, Requestor.

SELECTION CONSTRAINTS:

Includes all requests received from Shore Activities during the report period.

Figure A-9 Report Specifications - Breakdown of Requests by Minor Requestor Groups - Report #9

This figure details the specific information needed to prepare computer report #9

REPORT SPECIFICATIONS (Cont'd.)

DATA MANIPULATION REQUIREMENTS:

Requires summation of the number of requests received from major and minor requestor categories. Matrix has major organizations on one axis and minor organizations on other axis.

OUTPUT PARAMETERS:

Number of requests received from each of the organizational categories.

FREQUENCY: Quarterly; requests received in the report quarter only.

Figure A-9 Report Specifications - Breakdown of Requests by Minor Requestor Groups - Report #9

FESO ASSISTANCE PROGRAM
REPORT SPECIFICATIONS

REPORT TITLE: Query of Data Base for Request Station

REPORT NUMBER: 10

PURPOSE: To provide the FESO with the capability to query the data base for the requests submitted by any station during the report period. This may provide background data for planned site visits on other Assistance Program planning.

INPUT PARAMETERS FROM EACH REQUEST: Fiscal Year, Quarter, Control Number, Subject, Response Time, Medium used for Request, Station and Responsible CEL Division.

SELECTION CONSTRAINTS:

Only constraint is data in data base.

Figure A-10 Report Specifications - Query of Data Base for Request Station - Report #10

This figure details the specific information needed to prepare computer report #10

REPORT SPECIFICATIONS (Cont'd.)

DATA MANIPULATION REQUIREMENTS:

Search and list request data received from specified station.

OUTPUT PARAMETERS:

Fiscal Year, Quarter, Control Number, Subject Response Time, Requestor, Station and Responsible CEL Division for each station queried.

FREQUENCY: As required by FESO.

Figure A-10 Report Specifications - Query of Data Base for Request Station - Report #10

FESO ASSISTANCE PROGRAM
REPORT SPECIFICATIONS

REPORT TITLE: Query of Data Base for Requestor

REPORT NUMBER: 11

PURPOSE: To provide the FESO with the capability to query the data base for the requests submitted by any requestor during any report period. This provides background information for planned site visits or other Assistance Program planning.

INPUT PARAMETERS FROM EACH REQUEST: Fiscal Year, Quarter, Control Number, Subject, Requestor Subject, Response Time, Medium used for Request, Station, and responsible CEL Division.

SELECTION CONSTRAINTS:

Only restricted by data from entire data base.

Figure A-11 Report Specifications - Query of Data Base for Requestor - Report #11

This figure details the specific information needed to prepare computer report #11.

REPORT SPECIFICATIONS (Cont'd.)

DATA MANIPULATION REQUIREMENTS:

Search and list request data received from specified requestor.

OUTPUT PARAMETERS:

Fiscal Year, Quarter, Control Number, Subject, Response Time, Requestor, Station and Responsible Division for each requestor queried.

FREQUENCY: As required by FESO.

Figure A-11 Report Specifications - Query of Data Base for Requestor - Report #11

APPENDIX B

```
RUN NAME        GENE EARLY
FILE NAME       ASSIST,ASSISTANCE PROGRAM DATA BASE
VARIABLE LIST   FY,QTR,PROGRAM,SERIAL,CNTRLNR,CARDNR,SUBCAT2,SUBCAT3,
                SUBJCODE,YRIN,DAYIN,DATEIN,YROUT,DAYOUT,DATEOUT,ELAPSED,
                MEDIUMIN,MEDIUMOT,JODESIGN,REQUEST,STALOC,STASER,
                STATION,PRIDIV,SECDIV,RESDIV,SUBJECT1,SUBJECT2,SUBJECT3,
                REGSTA
INPUT MEDIUM    CARD
COMMENT
COMMENT         BE CAREFUL - YOU MUST INSERT THE N OF CASES CARD NEXT
N OF CASES      225
COMMENT
INPUT FORMAT    FIXED (F2.0,F1.0,F1.0,F3.0,F4,F4.0,F2.0,F2.0,T10,F3.0,
                T13,F4.0,F1.0,F3.0,T14,F4.0,F1.0,F3.0,T18,F4.0,F4.0,
                F1.0,F1.0,F1.0,F3.0,F4.0,F3.0,T32,F7.0,F2.0,F2.0,
                T39,F4.0,A8,A8,A8,T25,F10.0)
VAR LABELS      FY,FISCAL YEAR/
                QTR,QUARTER/
                PROGRAM,PROGRAM FUNDING CODE/
                SERIAL,SERIAL NR/
                CNTRLNR,CONTROL NR/
                CARDNR,CARD NR/
                SUBCAT2,MAJOR SUBJECT CATEGORY/
                SUBCAT3,INTERMEDIATE SUBJECT CATEGORY/
                SUBJCODE,SUBJECT CODE/
                YRIN,CALENDAR YEAR IN/
                DAYIN,JULIAN DAY IN/
                DATEIN,JULIAN DATE IN/
                YROUT,CALENDAR YEAR OUT/
                DAYOUT,JULIAN DAY OUT/
                DATEOUT,JULIAN DATE OUT/
                ELAPSED,ELAPSED TIME - DAYS /
                MEDIUMIN,MEDIUM IN/
                MEDIUMOT,MEDIUM OUT/
                JODESIGN,J.O.DESIGNATOR/
                REQUEST,REQUESTOR/
                STALOC,STATION LOCATION/
                STASER,STATION SERIAL NR/
                STATION,STATION/
                PRIDIV,PRIMARY DIVISION/
                SECDIV,SECONDARY DIVISION/
                RESDIV,RESPONSIBLE DIVISION/
                SUBJECT1,SUBJECT DESCRIPTION 1/
                SUBJECT2,SUBJECT DESCRIPTION 2/
                SUBJECT3,SUBJECT DESCRIPTION 3/
                REGSTA,REQUESTOR AND SNDL
```

FESO Assistance Program Data Definition Cards

This figure depicts, in SPSS format, the FESO Assistance Program data definition cards.

page 1 of 12

```
VALUE LABELS    FY (71)TRANSIT QTR (74)FY-74 (75)FY-75 (76)FY-76
                (77)FY-77 (78)FY-78 (79)FY-79/
                QTR (1)1ST QTR (2)2ND QTR (3)3RD QTR (4)4TH QTR/
                PROGRAM ( )NON ENERGY FUNDED (0)NON ENERGY FUNDED
                (1)ENERGY FUNDED/
                SUBCAT2 (10)BREAKWATERS
                (11)BUILDING MATERIALS
                (12)CATHODIC PROTECTION
                (13)CORROSION
                (14)ENERGY
                (15)FIRE PROTECTION
                (16)MECHANICAL EQUIPMENT
                (17)MOORINGS
                (18)PAINTS,COATGS,CHEM
                (19)PAVEMENTS
                (20)POLLUTION
                (21)PHYSICAL SECURITY
                (22)POLAR
                (23)ROOFING
                (24)STRUCTURAL
                (25)UTILITIES
                (26)WATERFRONT
                (27)FLOORING
                (28)SHIELDING
                (99)OTHER/
                SUBCAT3 (100)BREAKWATERS
                (101)BRKWTRS-PERMANENT
                (102)BRKWTRS-PORTABLE
                (110)BUILDING MATERIALS
                (111)BLDG MTLS-CONCRETE
                (112)BLDG MTLS-MASONRY
                (113)BLDG MTL-PLSTCS,RSNS
                (114)BLDG MTLS-TIMBER
                (115)BLDG MTLS-OTHER
                (116)BLDG MTLS-ADHESIVES
                (117)BLDG MTLS-CAULKING
                (120)CATHODIC PROTECTION
                (130)CORROSION
                (140)ENERGY
                (141)ENERGY-ALT SOURCES
                (142)ENERGY-CONSERVATION
                (143)ENERGY-LOSSES
                (144)ENERGY-OTHER
                (150)FIRE PROTECTION
                (160)MECHANICAL EQUIPMENT
                (170)MOORINGS
```

(171)MOORINGS-DEEP WATER
(172)MOORINGS-HARBOR
(180)PAINTS,COATS,CHEM.
(181)P,C,CH-CHEMICALS
(182)P,C,CH-COATINGS
(183)P,C,CH-PAINTS
(184)P,C,CH-WATERPROOFING
(189)P,C,CH-MISC
(190)PAVEMENTS
(191)PAVEMENTS-APRONS
(192)PAVEMENTS-PRKNG AREA
(193)PVMNTS-ROADS,STREETS
(194)PAVEMENTS-RUNWAYS
(195)PAVEMENTS-SIDEWALKS
(196)PAVEMENTS-TAXIWAYS
(197)PAVEMENTS-TEMPORARY
(198)PAVEMENTS-OTHER
(200)POLLUTION
(201)POLLUTION-AIR
(202)POLLUTION-NOISE
(203)POLLUT-SOLID WASTE
(204)POLLUTION-WATER
(205)POLLUTION-OTHER
(210)PHYSICAL SECURITY
(211)PHYS SEC-FENCING
(212)PHYS SEC-OTHER
(220)POLAR
(230)ROOFING
(240)STRUCTURAL
(241)STRUCT-DESIGN,GEN
(242)STRUCT-EXPLOS EFFECT
(243)STRUCT-SEISMIC EFFCT
(244)STRUCTURAL-OTHER
(250)UTILITIES
(251)UTILITIES-AIR
(252)UTILITIES-ELECTRICAL
(253)UTILITIES-GAS
(254)UTILITIES-SEWAGE
(255)UTILITIES-STEAM
(256)UTILITIES-WATER
(257)UTILITIES-OTHER
(260)WATERFRONT
(261)WATERFRONT-CANALS
(262)WATERFRONT-PIERS
(263)WATERFRONT-PILES
(264)WATERFRONT-PONTOONS

```
(265)WATERFRONT-OTHER
(270)FLOORING
(280)SHIELDING
(990)OTHER/
SUBJCODE (1000)BREAKWATERS
(1010)BRKWTRS-PERMANENT
(1020)BRKWTRS-PORTABLE
(1100)BUILDING MATERIALS
(1110)BLDG MTLS-CONCRETE
(1120)BLDG MTLS-MASONRY
(1130)BLDG MTLS-PLSTC,RBR
(1140)BLDG MTLS-TIMBER
(1150)BLDG MTLS-OTHER
(1160)BLDG MTLS-ADHESIVES
(1170)BLDG MTLS-CAULKING
(1200)CATHODIC PROTECTION
(1300)CORROSION
(1400)ENERGY
(1410)ENRGY-ALT SOURCES
(1411)ENRGY ALT SRC-GEOTH
(1412)ENRGY ALT SRC-SOLAR
(1413)ENRGY ALT SRC-WIND
(1414)ENRGY ALT SRC-OTHER
(1420)ENERGY-CONSERVATION
(1430)ENERGY-LOSSES
(1440)ENERGY-OTHER
(1500)FIRE PROTECTION
(1600)MECHANICAL EQUIP
(1700)MOORINGS
(1710)MOORINGS-DEEP WATER
(1720)MOORINGS-HARBOR
(1800)PAINTS,COATS,CHEM
(1810)P,C,CH-CHEMICALS
(1820)P,C,CH-COATINGS
(1830)P,C,CH-PAINTS
(1840)P,C,CH-WATERPROOF
(1900)PAVEMENTS
(1910)PAVEMENTS-APRONS
(1920)PAVEMENTS-PARK AREA
(1930)PVMNTS-ROADS,STREET
(1940)PAVEMENTS-RUNWAYS
(1950)PAVEMENTS-SIDEWALKS
(1960)PAVEMENTS-TAXIWAYS
(1970)PAVEMENTS-TEMPORARY
(1980)PAVEMENTS-OTHER
(2000)POLLUTION
```

(2010)POLLUTION-AIR
(2020)POLLUTION-NOISE
(2030)POLLUT-SOLID WASTE
(2031)POLUT,SLD WST-LANDL
(2032)SOLID WASTE-TRTMNT
(2033)SOLID WASTE CLASS D
(2040)POLLUTION-WATER
(2050)POLLUTION-OTHER
(2100)PHYSICAL SECURITY
(2110)PHYS SEC-FENCING
(2120)PHYS SEC-OTHER
(2200)POLAR
(2300)ROOFING
(2400)STRUCTURAL
(2410)STRUCT-DESIGN,GEN
(2420)STRUCT-EXPLOS EFFCT
(2430)STRUCT-SISMIC EFFCT
(2440)STRUCTURAL-OTHER
(2500)UTILITIES
(2510)UTILITIES-AIR
(2520)UTILITIES-ELECTRIC
(2521)UTILITY,ELECT-DISTR
(2522)UTILITY,ELECT-OTHER
(2530)UTILITIES-GAS
(2540)UTILITIES-SEWAGE
(2541)UTIL,SEWAGE-SHIPS
(2542)UTIL,SEWAGE-TREAT.
(2543)UTIL,SEWAGE-OTHER
(2550)UTILITIES-STEAM
(2560)UTILITIES-WATER
(2561)UTIL,WATER-DISTR
(2562)UTIL,WATER-SUPPLY
(2563)UTIL,WATER-TREATMNT
(2564)UTIL,WATER-OTHER
(2570)UTILITIES-OTHER
(2600)WATERFRONT
(2610)WATERFRONT-CAMELS
(2620)WATERFRONT-FENDRS
(2630)WATERFRONT-PILES
(2640)WATERFRONT-PONTOONS
(2650)WATERFRONT-OTHER
(2700)FLOORING
(2800)SHIELDING
(9900)OTHER/
YRIN (4) CAL YR IN 74
(5)CAL YR IN 75

```
(6)CAL YR IN 76
(7)CAL YR IN 77
(8)CAL YR IN 78
(9)CAL YR IN 79/
YROUT (4)CAL YR OUT 74
(5)CAL YR OUT 75
(6)CAL YR OUT 76
(7)CAL YR OUT 77
(8)CAL YR OUT 78
(9)CAL YR OUT 79/
MEDIUMIN (1)LETTER
(2)MESSAGE
(3)TELEPHONE
(4)VISIT TO SITE
(5)VISITOR AT NCEL/
MEDIUMOT (1)LETTER
(2)MESSAGE
(3)TELEPHONE
(4)VISIT TO SITE
(5)VISITOR AT NCEL/
JODESIGN ( )SHORT TERM REQUEST
(1)JOB ORDER REQUEST/
REQUEST (10)CNM
(11)STAFF CE-SYSCOM
(12)STAFF CE-TYPE COMMAND
(20)NAVFAC
(21)RESO
(22)NAVNUCPWRUNIT
(30)EFD
(31)EFD-NORTHERN DIV
(311)EFD-NORTHERN DIV-NEW YORK BRANCH
(312)EFD-NORTHERN DIV-GREAT LAKES BRANCH
(32)EFD-CHESAPEAKE
(33)EFD-ATLANTIC
(331)EFD-ATLANTIC DIV-EUROPEAN BRANCH
(332)EFD-ATLANTIC DIV-PUERTO RICO BRANCH
(34)EFD-SOUTHERN
(341)EFD-SOUTHERN DIV-NEW ORLEANS BRANCH
(342)EFD-SOUTHERN DIV-NAVAL TRAINING BRANCH
(35)EFD-WESTERN
(351)EFD-WESTERN DIV-SEATTLE BRANCH
(352)EFD-WESTERN DIV-SAN DIEGO BRANCH
(36)EFD-PACIFIC
(40)PWC
(41)PWC-SAN FRANCISCO
(42)PWC-GREAT LAKES
```

(43)PWC-NORFOLK
(44)PWC-PENSACOLA
(45)PWC-SAN DIEGO
(46)PWC-PEARL HARBOR
(47)PWC-GUAM
(48)PWC-SUBIC
(49)PWC-YOKOSUKA
(50)STATIONS
(51)STATION-NORTHERN
(52)STATION-CHESAPEAKE
(53)STATION-ATLANTIC
(54)STATION-SOUTHERN
(55)STATION-WESTERN
(56)STATION-PACIFIC
(60)OICC AND ROICC
(61)OICC
(62)ROICC
(621)ROICC-NORTHERN
(622)ROICC-CHESAPEAKE
(623)ROICC-ATLANTIC
(624)ROICC-SOUTHERN
(625)ROICC-WESTERN
(626)ROICC-PACIFIC
(70)SEABEES
(71)CB LANT
(72)CB PAC
(73)CBC
(74)CESO
(75)MCB
(76)ACB
(77)LCT
(78)NCR
(90)NON-NAVFAC
(91)ARMY
(92)AIR FORCE/
STATION (00095)NAV SUP ANTARCTICA
(00844)DEFENSE DEPOT OGDEN
(00855)NADC WARMINSTER
(00943)NAF WASHINGTON
(01350)NAF ATSUGI
(01623)NAF EL CENTRO
(02500)PMTC
(03525)NAPTC TRENTON
(05120)NAS BERMUDA
(05212)NAS BRUNSWICK

(145)215)NAS CECIL FIELD
(145)484)NAS KEY WEST
(1451)54)NAS ALAMEDA
(1451335)NAS FALLON
(1451546)NAS LEMOORE
(14516)9)NAS MOFFET
(1451552)NAS WHIDBEY ISLAND
(1451800)NAS MIRAMAR
(14518)8)NAS NORTH ISLAND
(1452570)NAS MEMPHIS
(1452580)NAS MERIDIAN
(1452590)NAS WHITING FIELD
(1452736)NAS PENSACOLA
(1453712)NAS PAX RIVER
(1453740)NAS PT MUGU
(1455550)NAS LOS ALAMITOS
(1455562)NAS ATLANTA
(1455616)NAS NEW ORLEANS
(1455650)NAS SOUTH WEYMOUTH
(1514153)NWSC CRANE
(1514240)NWS EARLE
(1514440)NAD HAWTHORNE
(1536500)NAB LITTLE CREEK
(1746600)AVIATION SUPPLY OFFICE
(179)355)NAVAL AVIONICS FAC
(2476)76)NCS DIEGO GARCIA
(2476)85)NCS HAROLD E HOLT
(2476)93)NCD BALBOA,CANAL ZONE
(2476175)NCS WASHINGTON
(2476300)NCS GUAM
(2476515)NCS GREECE
(2476525)NCS PUERTO RICO
(2516400)NCBC GULFPORT
(2516500)NCBC PT HUENEME
(2547)65)OICC THAILAND
(2547(50)OICC TRIDENT
(2547420)OICC GUAM
(256)400)NCTC GULFPORT
(256,725)NCTC PORT HUENEME
(2831450)NETC NEWPORT
(2834500)NETPDC PENSACOLA
(3)60)90)NF CAPE HATTERAS
(3)61775)NF GRAND TURK
(3)61195)NF CENTERVILLE BEACH
(3)7)55)ROICC CHARLESTON
(3)7)745)ROICC PAC

(406[illegible]475)NAVAL MAG LUALUALEI
(4462350)NAV NUCLEAR POWER UNIT
(4470500)NAVAL OBSERVATORY
(5771[illegible])NSGA HOMESTEAD
(5771815)NSGA SKAGGS ISLAND
(5771910)NSGA WINTER HARBOR
(5775915)NAVSECSTA WASHINGTON
(5867150)NSY PUGET SOUND
(5867190)NSY CHARLESTON
(5867250)NSY LONG BEACH
(5867600)NSY PEARL HARBOR
(5867550)NSY PORTSMOUTH
(5867551)NSY NORFOLK
(5867975)NSY MARE ISLAND
(6[illegible]2[illegible]284)NS GUANTANAMO
(6[illegible]2[illegible]480)NS MAYPORT
(6[illegible]3[illegible]510)NS MIDWAY
(6[illegible]3[illegible]690)NS SAN DIEGO
(6[illegible]3[illegible]695)NS TREASURE ISLAND
(6[illegible]31675)NS ROTA
(6[illegible]7[illegible]0)NSB NEW LONDON
(6174750)NSC SAN DIEGO
(6175785)NSD SUBIC BAY
(6206900)NSF THURMONT
(6214950)NSWC WHITE OAK
(6214951)NSWC DAHLGREN LAB
(6336[illegible]2)NTS KEYPORT
(6388[illegible]0)NTEC ORLANDO
(6484750)NUC SAN DIEGO
(6541500)NUSC NEWPORT
(6700[illegible]0)NWC CHINA LAKE
(6805625)NWS CHARLESTON
(6805630)NWS CONCORD
(6805660)NWS EARLE
(6805700)NWS SEAL BEACH
(7[illegible]2[illegible]0)NAVAL ACADEMY
(7[illegible]35435)NPGS
(8139[illegible]0)MCAS BEAUFORT
(8139430)MCAS IWAKUNI
(8139700)MCAS KANEOHE BAY
(8139800)MCAS QUANTICO
(8139875)MCAS EL TORO
(8139950)MCAS YUMA
(8270175)MCB CAMP LEJEUNE
(8270551)MCB CAMP PENDLETON
(8270[illegible])MCB TWENTYNINE PALMS

```
                (8373200)MCSC BARSTOW
                (8385650)MCDEC MARINE CORPS DEV AND EDUC COM-QUANTICO
                (8600610)MCRD PARRIS ISLAND/
                PRIDIV (41)L41
                (42)L42
                (43)L43
                (44)L44
                (51)L51
                (52)L52
                (53)L53
                (54)L54
                (55)L55
                (61)L61
                (62)L62
                (63)L63
                (64)L64
                (65)L65
                (80)L80/
                SECDIV (41)L41
                (42)L42
                (43)L43
                (44)L44
                (51)L51
                (52)L52
                (53)L53
                (54)L54
                (55)L55
                (61)L61
                (62)L62
                (63)L63
                (64)L64
                (65)L65
                (80)L80/
COMMENT         NEXT CARD IDENTIFIES ALPHANUMERIC VARIABLES
PRINT FORMATS   SUBJECT1,SUBJECT2,SUBJECT3 (A)
COMMENT
COMMENT         RECODE TO CORRECT ANY ERRONEOUS LEFT JUSTIFICATION
COMMENT
RECODE          REQUEST (100=010)(110=011)(120=012)(200=020)(210=021)
                (220=022)(300=030)(310=031)(320=032)
                (330=033)(340=034)(350=035)(360=036)(400=040)(410=041)
                (420=042)(430=043)(440=044)(450=045)(460=046)(470=047)
                (480=048)(490=049)(500=050)(510=051)(520=052)(530=053)
                (540=054)(550=055)(560=056)(600=060)(610=061)(620=062)
                (700=070)(710=071)(720=072)(730=073)(740=074)(750=075)
                (760=076)(770=077)(780=078)(800=080)(900=090)(910=091)
```

```
                (920=092)/
                PRIDIV (65=54)/SECDIV (65=54).
COMMENT
COMMENT         COMPUTATION OF REQUEST ELAPSED TIME
COMMENT
IF              (YROUT GT YRIN) ELAPSED=-635
IF              (YROUT EQ YRIN) ELAPSED= 0
COMPUTE         ELAPSED = ELAPSED + DATEOUT - DATEIN
COMMENT
COMMENT         ESTABLISH NEW VARIABLES
COMMENT
COMPUTE         RESPONSE=.
IF              (REQUEST GT 9 AND LT 70)GROUP=6
IF              (REQUEST GT 310 AND LT 353)GROUP=6
IF              (REQUEST GT 620 AND LT 627)GROUP=6
IF              (REQUEST GT 69 AND LT 79)GROUP=7
IF              (REQUEST EQ 80)GROUP=8
IF              (REQUEST GT 89 AND LT 93)GROUP=9
IF              (REQUEST GT 9 AND LT 13)USER=10
IF              (REQUEST GT 19 AND LT 23)USER=20
IF              (REQUEST GT 29 AND LT 37)USER=30
IF              (REQUEST GT 311 AND LT 353)USER=30
IF              (REQUEST GT 39 AND LT 50)USER=40
IF              (REQUEST GT 49 AND LT 57)USER=50
IF              (REQUEST GT 59 AND LT 62)USER=61
IF              (REQUEST GT 61 AND LT 63)USER=62
IF              (REQUEST GT 620 AND LT 627)USER=62
COMMENT
COMMENT         DESCRIBE NEW VARIABLES
COMMENT
VAR LABELS      GROUP,RDT AND E ASSISTANCE REQUEST GROUPS/
                USER,ASSISTANCE REQUESTORS BY INTERMED CAT/
                RESPONSE,REQUEST RESPONSE TIME
VALUE LABELS    GROUP (6)SHORE   FACILITY (7)SEABEES (8)NON NAVFAC
                (9)NON NAVY/
                USER(10)CNM
                USER(20)NAVFAC
                USER(30)EFDS
                USER(40)PWC
                USER(50)PWS
                USER(61)OICC
                USER(62)ROICC/
                RESPONSE (1)ZERO DAYS
                (2)1 TO 2 DAYS
                (7)3 TO 7 DAYS
                (14)8 TO 14 DAYS
```

FESO Assistance Program Data Definition Cards

```
                    (30)15 TO 30 DAYS
                    (31)OVER 30 DAYS
                    (32)NOT ANSWERED
COMMENT
COMMENT
COMMENT             BE CAREFUL - YOU MUST INSERT ONE REPORT DECK
READ INPUT DATA
```

FESO Assistance Program Data Definition Cards

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APPENDIX C

FESO ASSISTANCE PROGRAM
TASK DEFINITION LOGIC FOR THE FESO REPORTS

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C-9 FESO Assistance Report #9- Task Definition Logic ---------- 135

C-10 FESO Assistance Report #10- Task Definition Logic ---------- 136

C-11 FESO Assistance Report #11- Task Definition Logic ---------- 137

```
COMMENT
COMMENT         ********************************************************************
COMMENT
COMMENT         BEGIN REQUEST RESPONSE TIME - REPORT 1
COMMENT
*IF             (ELAPSED EQ 0)RESPONSE=1
*IF             (ELAPSED GT 0 AND LT 3)RESPONSE=2
*IF             (ELAPSED GT 2 AND LT 8)RESPONSE=7
*IF             (ELAPSED GT 7 AND LT 15)RESPONSE=14
*IF             (ELAPSED GT 14 AND LT 31)RESPONSE=30
*IF             (ELAPSED GT 30)RESPONSE=31
*IF             (ELAPSED LT 0)RESPONSE=32
*COMPUTE        ITSELF=RESPONSE
*SELECT IF      (GROUP EQ 6)
TASK NAME       REQUEST RESPONSE TIME REPORT - REPORT 1
CROSSTABS       VARIABLES=RESPONSE(0,32)ITSELF(0,32)/
                TABLES=RESPONSE BY ITSELF
OPTIONS         3,4,5
*SELECT IF      (GROUP EQ 6)
*IF             (ELAPSED LT 0)ELAPSED=999
FREQUENCIES     GENERAL=ELAPSED
COMMENT
COMMENT         END   REQUEST RESPONSE TIME - REPORT 1
COMMENT
COMMENT         ********************************************************************
COMMENT
```

Figure C-1 FESO Assistance Report #1-Task Definition Logic

This figure details the data selection and manipulation logic necessary to prepare computer report #1.

```
COMMENT
COMMENT         ********************************************************************
COMMENT
COMMENT         BEGIN BREAKDOWN OF REQUEST SUBJECTS - REPORT 2
COMMENT
*SELECT IF      (GROUP EQ 6)
TASK NAME       BREAKDOWN OF REQUEST SUBJECTS - REPORT 2
LIST CASES      CASES=2000/VARIABLES=QTR,CNTRLNR,SUBJCODE,DATEIN,
                DATEOUT,ELAPSED,MEDIUMIN,MEDIUMOT,JUDESIGN,REQSTA,RESDIV
FREQUENCIES     INTEGER=SUBCAT2(10,99)
COMMENT
COMMENT         END   BREAKDOWN OF REQUEST SUBJECTS - REPORT 2
COMMENT
COMMENT         ********************************************************************
COMMENT
```

Figure C-2 FESO Assistance Report #2-Task Definition Logic

This figure details the data selection and manipulation logic necessary to prepare computer report #2.

```
COMMENT
COMMENT          ********************************************************************
COMMENT
COMMENT          BEGIN BREAKDOWN OF METHOD OF RECEIVING REQUEST - REPORT 3
COMMENT
*SELECT IF       (GROUP EQ 6)
TASK NAME        BREAKDOWN OF METHOD OF RECEIVING REQUEST - REPORT 3
FREQUENCIES      INTEGER=MEDIUMIN(1,5)
COMMENT
COMMENT          END   BREAKDOWN OF METHOD OF RECEIVING REQUEST - REPORT 3
COMMENT          ********************************************************************
COMMENT
```

Figure C-3 FESO Assistance Report #3-Task Definition Logic

This figure details the data selection and manipulation logic necessary to prepare computer report #3.

```
COMMENT
COMMENT         ********************************************************************
COMMENT         ********************************************************************
COMMENT
COMMENT         BEGIN SUMMARY OF REQUESTS BY MAJOR REQUESTOR - REPORT 4
COMMENT
*RECODE         REQUEST (10 THRU 12=10)(20 THRU 23=20)(30 THRU 36=30)
                (40 THRU 49=40)(50 THRU 56=50)(60 THRU 62=60)
                (311 THRU 352=30)(621 THRU 626=60)
TASK NAME       SUMMARY OF REQUESTS BY MAJOR REQUESTOR - REPORT 4
LIST CASES      CASES=2000/VARIABLES=CTR,CNTRLNP,SUBJCODE,DATEIN,
                DATEOUT,ELAPSED,MEDIUMIN,MEDIUMOT,JODESIGN,REQSTA,RESDIV
CROSSTABS       VARIABLES=REQUEST(10,99)GROUP(6,9)/
                TABLES=REQUEST BY GROUP
OPTIONS         3,4,5
COMMENT
COMMENT         END   SUMMARY OF REQUESTS BY MAJOR REQUESTOR - REPORT 4
COMMENT
COMMENT         ********************************************************************
COMMENT
```

Figure C-4 FESO Assistance Report #4-Task Definition Logic

This figure details the data selection and manipulation logic necessary to prepare computer report #4.

```
COMMENT
COMMENT         ************************************************************
COMMENT
COMMENT         BEGIN BREAKDOWN OF REQUESTS - SHORT TERM/JOB ORDER - REPORT 5
COMMENT
TASK NAME       BREAKDOWN OF REQUESTS - SHORT TERM/JOB ORDER - REPORT 5
CROSSTABS       VARIABLES=JODESIGN(6,1)GROUP(6,9)/
                TABLES=JODESIGN BY GROUP
OPTIONS         3,4,5
COMMENT
COMMENT         END   BREAKDOWN OF REQUESTS - SHORT TERM/JOB ORDER - REPORT 5
COMMENT
COMMENT         ************************************************************
COMMENT
```

Figure C-5 FESO Assistance Report #5-Task Definition Logic

This figure details the data selection and manipulation logic necessary to prepare computer report #5.

```
COMMENT
COMMENT         ********************************************************************
COMMENT
COMMENT         BEGIN BREAKDOWN OF REQUESTS BY CEL DIVISION - REPORT 6
COMMENT                 ---PRIMARY DIVISION---
*SELECT IF      (JODESIGN EQ 6)
TASK NAME       BREAKDOWN OF REQUESTS BY CEL DIVISION - REPORT 6
CROSSTABS       VARIABLES=PRIDIV(40,80)GROUP(6,9)/
                TABLES=PRIDIV BY GROUP
OPTIONS         3,4,5
COMMENT                 ---SECONDARY DIVISION---
*SELECT IF      (JODESIGN EQ 6 AND SECDIV NE 0)
LIST CASES      CASES=200.VARIABLES=CIR,CNTRLNR,SUBJCODE,DATEIN,
                DATEOUT,ELAPSED,MEDIUMIN,MEDIUMOT,JODESIGN,REQSTA,RESDIV
CROSSTABS       VARIABLES=SECDIV(40,80)GROUP(6,9)/
                TABLES=SECDIV BY GROUP
OPTIONS         3,4,5
COMMENT
COMMENT         END   BREAKDOWN OF REQUESTS BY CEL DIVISION - REPORT 6
COMMENT
COMMENT         ********************************************************************
COMMENT
```

Figure C-6 FESO Assistance Report #6-Task Definition Logic

This figure details the data selection and manipulation logic necessary to prepare computer report #6.

```
COMMENT
COMMENT         ************************************************************
COMMENT
COMMENT         BEGIN BREAKDOWN OF REQUESTS BY ACTIVITY - REPORT 7
TASK NAME       BREAKDOWN OF REQUESTS BY ACTIVITY - REPORT 7
LIST CASES      CASES=PRINT/VARIABLES=QTR,CNTRLNR,SUBJCODE,ELAPSED,
                REQUEST,STATION,RESDIV
FREQUENCIES     GENERAL=REQSTA
FREQUENCIES     GENERAL=STATION
COMMENT
COMMENT         END   BREAKDOWN OF REQUESTS BY ACTIVITY - REPORT 7
COMMENT         ************************************************************
```

Figure C-7 FESO Assistance Report #7-Task Definition Logic

This figure details the data selection and manipulation logic necessary to prepare computer report #7.

```
COMMENT
COMMENT         ********************************************************************
COMMENT
COMMENT         BEGIN IDENT OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
COMMENT         BE CAREFUL - YOU MUST INSERT SELECT DESIRED QTR CARD NEXT
*RECODE         REQUEST (311=031)(312=031)(331=033)(332=033)(341=034)
                (342=034)(351=035)(352=035)
*SELECT IF      (REQUEST EQ 31 OR 51 OR 521)
TASK NAME       IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
CROSSTABS       TABLES=CNTRLNR BY REQUEST
OPTIONS         3,4,5
*SELECT IF      (REQUEST EQ 32 OR 52 OR 522)
CROSSTABS       TABLES=CNTRLNR BY REQUEST
OPTIONS         3,4,5
*SELECT IF      (REQUEST EQ 33 OR 53 OR 523)
CROSSTABS       TABLES=CNTRLNR BY REQUEST
OPTIONS         3,4,5
*SELECT IF      (REQUEST EQ 34 OR 54 OR 524)
CROSSTABS       TABLES=CNTRLNR BY REQUEST
OPTIONS         3,4,5
*SELECT IF      (REQUEST EQ 35 OR 55 OR 525)
CROSSTABS       TABLES=CNTRLNR BY REQUEST
OPTIONS         3,4,5
*SELECT IF      (REQUEST EQ 36 OR 56 OR 526)
CROSSTABS       TABLES=CNTRLNR BY REQUEST
OPTIONS         3,4,5
COMMENT
COMMENT         END   IDENT OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
COMMENT
COMMENT         ********************************************************************
COMMENT
```

Figure C-8 FESO Assistance Report #8-Task Definition Logic

This figure details the data selection and manipulation logic necessary to prepare computer report #8.

```
COMMENT
COMMENT     ************************************************************
COMMENT
COMMENT
COMMENT     BEGIN BREAKDOWN OF REQUESTS BY MINOR REQUESTOR GROUPS - REPORT 9
COMMENT
COMMENT     BE CAREFUL - YOU MUST INSERT SELECT DESIRED QTR CARD NEXT
*RECODE     REQUEST(311 THRU 312=31)(331 THRU 332=33)
            (341 THRU 342=34)(351 THRU 352=35)(621 THRU 626=62)
TASK NAME   BREAKDOWN OF REQUESTS BY MINOR REQUESTOR GROUPS - REPORT 9
CROSSTABS   VARIABLES=REQUEST(10,62)USER(10,62)/
            TABLES=REQUEST BY USER
OPTIONS     3,4,5
COMMENT
COMMENT     END   BREAKDOWN OF REQUESTS BY MINOR REQUESTOR GROUPS - REPORT 9
COMMENT
```

Figure C-9 FESO Assistance Report #9-Task Definition Logic

This figure details the data selection and manipulation logic necessary to prepare computer report #9.

```
COMMENT
COMMENT         ************************************************************
COMMENT
COMMENT         BEGIN QUERY OF DATA BASE FOR REQUEST STATION - REPORT 10
COMMENT
COMMENT ---- INSERT A SELECT IF STATION EQ CARD NEXT
*SELECT IF      (STATION EQ 1453712 OR 460012) OR 7040203)
TASK NAME       QUERY OF DATA BASE FOR REQUEST STATION - REPORT 10
LIST CASES      CASES=2000/VARIABLES=QTR,CNTRLNR,SUBJCODE,ELAPSED,
                REQUEST,STATION,RESDIV,SUBJECT1,SUBJECT2,SUBJECT3
CROSSTABS       TABLES=CNTRLNR BY STATION
OPTIONS         3,4,5
COMMENT
COMMENT         END   QUERY OF DATA BASE FOR REQUEST STATION - REPORT 10
COMMENT         ************************************************************
COMMENT
```

Figure C-10 FESO Assistance Report #10-Task Definition Logic

This figure details the data selection and manipulation logic necessary to prepare computer report #10.

```
COMMENT
COMMENT         ************************************************************
COMMENT
COMMENT         BEGIN QUERY OF DATA BASE FOR REQUESTOR - REPORT 11
COMMENT
COMMENT ---- INSERT A SELECT IF  REQUESTED CARD NEXT
*SELECT IF      (REQUEST EQ 20 OR 30 OR 41)
TASK NAME       QUERY OF DATA BASE FOR REQUESTOR - REPORT 11
LIST CASES      CASES=2000/VARIABLES=QTR,CNTRLNR,SUBJCODE,ELAPSED,
                REQUEST,STATION,RESDIV
CROSSTABS       TABLES=CNTRLNR BY REQUEST
OPTIONS         3,4,5
COMMENT
COMMENT         END   QUERY OF DATA BASE FOR REQUESTOR - REPORT 11
COMMENT         ************************************************************
COMMENT
```

Figure C-11 FESO Assistance Report #11-Task Definition Logic

This figure details the data selection and manipulation logic necessary to prepare computer report #11.

APPENDIX D

FESO ASSISTANCE PROGRAM
OUTPUT REPORTS

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GENE EARLY
REQUEST RESPONSE TIME REPORT - REPORT 1
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF *
RESPONSE REQUEST RESPONSE TIME BY ITSELF
* PAGE 1 OF 1

COUNT / RESPONSE	ITSELF 1	2	7	14	30	31	32	ROW TOTAL
1	71	0	0	0	0	0	0	71
ZERO DAYS								40.1
2	0	21	0	0	0	0	0	21
1 TO 2 DAYS								11.9
7	0	0	32	0	0	0	0	32
3 TO 7 DAYS								18.1
14	0	0	0	16	0	0	0	16
8 TO 14 DAYS								9.0
30	0	0	0	0	15	0	0	15
15 TO 30 DAYS								8.5
31	0	0	0	0	0	4	0	4
OVER 30 DAYS								2.3
32	0	0	0	0	0	0	18	18
NOT ANSWERED								10.2
COLUMN TOTAL	71	21	32	16	15	4	18	177
	40.1	11.9	18.1	9.0	8.5	2.3	10.2	100.0

Figure D-1 FESO Assistance Program, Request Response Time Report - Report #1

This figure shows the length of time, in categories,
that it took to answer requests received from the Shore Activities.
page 1 of 3

GENE EARLY
REQUEST RESPONSE TIME REPORT - REPORT 1
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

ELAPSED ELAPSED TIME - DAYS

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
	0	92	40.9	40.9	40.9
	1.	18	8.0	8.0	48.9
	2.	8	3.6	3.6	52.4
	3.	10	4.4	4.4	56.9
	4.	8	3.6	3.6	60.4
	5.	4	1.8	1.8	62.2
	6.	5	2.2	2.2	64.4
	7.	12	5.3	5.3	69.8
	8.	4	1.8	1.8	71.6
	9.	8	3.6	3.6	75.1
	10.	3	1.3	1.3	76.4
	11.	3	1.3	1.3	77.8
	12.	2	.9	.9	78.7
	14.	1	.4	.4	79.1
	15.	1	.4	.4	79.6

Figure D-1 FESO Assistance Program, Request Response Time Report - Report #1

16.	2	.9	.9	80.4
17.	1	.4	.4	80.9
19.	2	.9	.9	81.8
20.	1	.4	.4	82.2
22.	2	.9	.9	83.1
23.	1	.4	.4	83.6
27.	1	.4	.4	84.0
28.	4	1.8	1.8	85.8
29.	2	.9	.9	86.7
30.	3	1.3	1.3	88.0
31.	1	.4	.4	88.4
35.	1	.4	.4	88.9
40.	1	.4	.4	89.3
45.	1	.4	.4	89.8
47.	1	.4	.4	90.2
62.	1	.4	.4	90.7
999.	21	9.3	9.3	100.0
TOTAL	225	100.0	100.0	

VALID CASES 225 MISSING CASES 0

Figure D-1 FESO Assistance Program, Request Response Time Report - Report #1

page 3 of 3

BREAKDOWN OF REQUEST SUBJECTS - REPORT 2
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

SUBCAT2 MAJOR SUBJECT CATEGORY CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
BUILDING MATERIALS	11	17	9.6	9.6	9.6
CATHODIC PROTECTION	12	1	.6	.6	10.2
CORROSION	13	9	5.1	5.1	15.3
ENERGY	14	19	10.7	10.7	26.0
MOORINGS	17	1	.6	.6	26.6
PAINTS,COATGS,CHEM	18	42	23.7	23.7	50.3
PAVEMENTS	19	8	4.5	4.5	54.8
POLLUTION	20	8	4.5	4.5	59.3
PHYSICAL SECURITY	21	5	2.8	2.8	62.1
ROOFING	23	29	16.4	16.4	78.5
STRUCTURAL	24	5	2.8	2.8	81.4
UTILITIES	25	14	7.9	7.9	89.3
WATERFRONT	26	2	1.1	1.1	90.4
FLOORING	27	2	1.1	1.1	91.5
OTHER	99	15	8.5	8.5	100.0
	TOTAL	177	100.0	100.0	

Figure D-2 FESO Assistance Program, Breakdown of Request Subjects - Report #2

This figure shows the absolute frequency
and percentage of requests received in each major subject category.

GENE EARLY
BREAKDOWN OF METHOD OF RECEIVING REQUEST - REPORT 3
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

MEDIUMIN MEDIUM IN

CATEGORY LABEL	CODE	ABSOLUTE FREQUENCY	RELATIVE FREQUENCY (PERCENT)	ADJUSTED FREQUENCY (PERCENT)	CUMULATIVE ADJ FREQ (PERCENT)
LETTER	1	12	6.8	6.8	6.8
MESSAGE	2	2	1.1	1.1	7.9
TELEPHONE	3	150	84.7	84.7	92.7
VISIT TO SITE	4	11	6.2	6.2	98.9
VISITOR AT NCEL	5	2	1.1	1.1	100.0
	TOTAL	177	100.0	100.0	

VALID CASES 177 MISSING CASES 0

Figure D-3 FESO Assistance Program, Breakdown of Method of Receiving Request - Report #3

This figure shows the absolute frequency
and percentage of requests received in each medium category.

GENE EARLY
SUMMARY OF REQUESTS BY MAJOR REQUESTOR - REPORT 4
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF REQUEST REQUESTOR BY GROUP *

REQUEST	COUNT / GROUP	SHORE FACILITY 6	SEABEES 7	NON NAVE AC 8	NON NAVY 9	ROW TOTAL
NAVFAC	20	13	0	0	0	13
						5.8
EFD	30	56	0	0	0	56
						24.9
PWC	40	21	0	0	0	21
						9.3
STATIONS	50	79	0	0	0	79
						35.1
OICC AND ROICC	60	8	0	0	0	8
						3.6
CB LANT	71	0	2	0	0	2
						.9
CBC	73	0	1	0	0	1
						.4
CESO	74	0	3	0	0	3
						1.3
UCT	77	0	1	0	0	1
						.4
	COLUMN TOTAL	177	11	18	19	225
		78.7	4.9	8.0	8.4	100.0

(CONTINUED)

Figure D-4 FESO Assistance Program, Summary of Requests by Major Requestor - Report #4

This figure shows, in matrix form, the number of requests received within various requestor categories.

GENE EARLY
SUMMARY OF REQUESTS BY MAJOR REQUESTOR - REPORT 4
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
REQUEST REQUESTOR BY GROUP
* *

		GROUP				
	COUNT	ISHORE FACILITY	SEABEES	NON NAVF AC	NON NAVY	ROW TOTAL
		6	7	8	9	
REQUEST	78	0	4	0	0	4
NCR						1.8
	80	0	0	18	0	18
NON-NAVFAC						8.0
	90	0	0	0	15	15
NON-NAVY						6.7
	91	0	0	0	2	2
ARMY						.9
	92	0	0	0	2	2
AIR FORCE						.9
	COLUMN TOTAL	177	11	18	19	225
		78.7	4.9	8.0	8.4	100.0

Figure D-4 FESO Assistance Program, Summary of Requests by Major Requestor - Report #4

page 2 of 2

GENE FARLY
BREAKDOWN OF REQUESTS - SHORT TERM/JOB ORDER - REPORT 5
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF *
JODESIGN J.O.DESIGNATOR BY GROUP RDT AND E ASSISTANCE REQUEST GROUPS
* * * * * * * * * * * * * * * * * * * \

GENE EARLY
BREAKDOWN OF REQUESTS BY CEL DIVISION - REPORT 6
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* C R O S S T A B U L A T I O N O F
PRIDIV PRIMARY DIVISION BY GROUP
* *

	GROUP				
COUNT	ISHORE FACILITY	SEABEES	NON AC	NAVE	NON NAVY	ROW TOTAL
PRIDIV	6	7	8	9	
42	1	0	0	2	3
L42					1.4
43	1	0	0	0	1
L43					.5
44	0	0	0	1	1
L44					.5
51	5	1	3	0	9
L51					4.2
52	110	4	6	9	129
L52					60.3
53	12	1	1	1	15
L53					7.0
54	5	1	2	0	8
L54					3.7
55	1	0	0	1	2
L55					.9
61	6	0	1	0	7
L61					3.3
COLUMN TOTAL	167	10	18	19	214
	78.0	4.7	8.4	8.9	100.0

(CONTINUED)

Figure D-6 FESO Assistance Program, Breakdown of Requests by CEL Division - Report #6

This figure shows the number of requests answered by each CEL Division.

GENE EARLY
BREAKDOWN OF REQUESTS BY CEL DIVISION - REPORT 6
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* C R O S S T A B U L A T I O N O F
PRIDIV PRIMARY DIVISION BY GROUP
* *

	GROUP				
COUNT	ISHORE FACILITY	SEABEES	NON NAVE AC	NON NAVY	ROW TOTAL
PRIDIV	6	7	8	9	
62	6	1	1	0	8
L62					3.7
63	9	1	0	0	10
L63					4.7
64	1	1	1	0	3
L64					1.4
80	10	0	3	5	18
L80					8.4
COLUMN TOTAL	167	10	18	19	214
	78.0	4.7	8.4	8.9	100.0

Figure D-6 FESO Assistance Program, Breakdown of Requests by CEL Division - Report #6

```
GENE EARLY
BREAKDOWN OF REQUESTS BY CEL DIVISION - REPORT 6
FILE   ASSIST   (CREATION DATE =  12 JUL 76)   ASSISTANCE PROGRAM DATA BASE

* * * * * * * * * * * * * * * * * * * *  C R O S S T A B U L A T I O N   O F
    SECDIV    SECONDARY DIVISION                                  BY  GROUP
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

                    GROUP
            COUNT   I
                    ISHORE       ROW
                    IFACILITY  TOTAL
                    I     6  I
SECDIV      --------I--------I
                44  I     1  I     1
  L44               I        I 100.0
                   -I--------I
            COLUMN          1       1
             TOTAL      100.0   100.0

NO STATISTICS ARE COMPUTED -
                                TABLE HAS ONE COLUMN.
                                TABLE HAS ONE ROW.
```

Figure D-6 FESO Assistance Program, Breakdown of Requests by CEL Division - Report #6

GENE EARLY
BREAKDOWN OF REQUESTS BY CEL DIVISION - REPORT 6
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

CASE-NO	QTR	CNTRLNR	SUBJCODE	DATEIN	DATEOUT	RESDIV
1	3.	352.	9900.	6020.	6020.	4344.

Figure D-6 FESO Assistance Program, Breakdown of Requests by CEL Division - Report #6

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GENE EARLY
BREAKDOWN OF REQUESTS BY ACTIVITY - REPORT 7
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

REQSTA REQUESTOR AND SNDL

CATEGORY LABEL	CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
	2000000000.	11	4.9	4.9	4.9
	2100000000.	1	.4	.4	5.3
	2204462350.	1	.4	.4	5.8
	3100000000.	6	2.7	2.7	8.4
	3200000000.	9	4.0	4.0	12.4
	3300000000.	13	5.8	5.8	18.2
	3400000000.	5	2.2	2.2	20.4
	3500000000.	18	8.0	8.0	28.4
	3520000000.	1	.4	.4	28.9
	3600000000.	4	1.8	1.8	30.7
	4100000000.	1	.4	.4	31.1
	4200000000.	2	.9	.9	32.0
	4300000000.	1	.4	.4	32.4
	4400000000.	6	2.7	2.7	35.1
	4500000000.	8	3.6	3.6	38.7
	4700000000.	3	1.3	1.3	40.0
	5100000000.	1	.4	.4	40.4
	5101450202.	2	.9	.9	41.3
	5101455860.	1	.4	.4	41.8
	5101514160.	1	.4	.4	42.2
	5101514240.	1	.4	.4	42.7
	5101746600.	2	.9	.9	43.6
	5101790355.	1	.4	.4	44.0
	5102831450.	4	1.8	1.8	45.8

Figure D-7 FESO Assistance Program, Breakdown of Requests by Activity - Report #7

This figure shows the absolute frequency and percentage of requests received from each requestor code.

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GENE EARLY
BREAKDOWN OF REQUESTS BY ACTIVITY - REPORT 7
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

5105771910.	1	.4	.4	46.2
5106078600.	1	.4	.4	46.7
5201453712.	1	.4	.4	47.1
5204470500.	1	.4	.4	47.6
5205775915.	1	.4	.4	48.0
5206206900.	1	.4	.4	48.4
5208385650.	2	.9	.9	49.3
5302476076.	1	.4	.4	49.8
5302476093.	1	.4	.4	50.2
5302476625.	1	.4	.4	50.7
5303060090.	1	.4	.4	51.1
5303060775.	1	.4	.4	51.6
5305867650.	1	.4	.4	52.0
5306029284.	1	.4	.4	52.4
5306031675.	1	.4	.4	52.9
5308270175.	1	.4	.4	53.3
5401452580.	1	.4	.4	53.8
5401452590.	1	.4	.4	54.2
5401452736.	1	.4	.4	54.7
5402834600.	1	.4	.4	55.1
5406029480.	1	.4	.4	55.6
5406380800.	3	1.3	1.3	56.9
5406805625.	1	.4	.4	57.3
5501316250.	3	1.3	1.3	58.7
5501392600.	1	.4	.4	59.1
5501451546.	1	.4	.4	59.6
5501451609.	4	1.8	1.8	61.3
5501[illegible]1652.	1	.4	.4	61.8

Figure D-7 FESO Assistance Program, Breakdown of Requests by Activity - Report #7

GENE EARLY
BREAKDOWN OF REQUESTS BY ACTIVITY - REPORT 7
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

5501451800.	1	.4	.4	62.2
5501453740.	3	1.3	1.3	63.6
5502506600.	5	2.2	2.2	65.8
5503061195.	2	.9	.9	66.7
5505867250.	2	.9	.9	67.6
5505867905.	1	.4	.4	68.0
5506170750.	1	.4	.4	68.4
5506480750.	1	.4	.4	68.9
5506541500.	1	.4	.4	69.3
5506805650.	1	.4	.4	69.8
5508139875.	1	.4	.4	70.2
5508139950.	3	1.3	1.3	71.6
5508270800.	2	.9	.9	72.4
5602476085.	2	.9	.9	73.3
5605867600.	1	.4	.4	73.8
5606175785.	3	1.3	1.3	75.1
6243070055.	1	.4	.4	75.6
6253070745.	1	.4	.4	76.0
6255867150.	2	.9	.9	76.9
6258270551.	4	1.8	1.8	78.7
7100000000.	2	.9	.9	79.6
7302506400.	1	.4	.4	80.0
7400000000.	3	1.3	1.3	81.3
7700000000.	1	.4	.4	81.8
7800000000.	4	1.8	1.8	83.6
8000000000.	16	7.1	7.1	90.7
8001451808.	1	.4	.4	91.1
8001514160.	1	.4	.4	91.6

Figure D-7 FESO Assistance Program, Breakdown of Requests by Activity - Report #7

GENE EARLY
BREAKDOWN OF REQUESTS BY ACTIVITY - REPORT 7
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

9000000000.	15	6.7	6.7	98.2
9100000000.	2	.9	.9	99.1
9200000000.	2	.9	.9	100.0
TOTAL	225	100.0	100.0	

VALID CASES 225 MISSING CASES 0

Figure D-7 FESO Assistance Program, Breakdown of Requests by Activity - Report #7

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GENE EARLY
BREAKDOWN OF REQUESTS BY ACTIVITY - REPORT 7
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

STATION CATEGORY LABEL	STATION CODE	ABSOLUTE FREQ	RELATIVE FREQ (PCT)	ADJUSTED FREQ (PCT)	CUM FREQ (PCT)
	=0	135	60.0	60.0	60.0
NAF EL CENTRO	1316250.	3	1.3	1.3	61.3
PMTC	1392600.	1	.4	.4	61.8
NAS BRUNSWICK	1450202.	2	.9	.9	62.7
NAS LEMOORE	1451546.	1	.4	.4	63.1
NAS MOFFET	1451609.	4	1.8	1.8	64.9
NAS WHIDBEY ISLAND	1451652.	1	.4	.4	65.3
NAS MIRAMAR	1451800.	1	.4	.4	65.8
NAS NORTH ISLAND	1451808.	1	.4	.4	66.2
NAS MERIDIAN	1452580.	1	.4	.4	66.7
NAS WHITING FIELD	1452590.	1	.4	.4	67.1
NAS PENSACOLA	1452736.	1	.4	.4	67.6
NAS PAX RIVER	1453712.	1	.4	.4	68.0
NAS PT MUGU	1453740.	3	1.3	1.3	69.3
NAS SOUTH WEYMOUTH	1455860.	1	.4	.4	69.8
NWSC CRANE	1514160.	2	.9	.9	70.7
NWS EARLE	1514240.	1	.4	.4	71.1
AVIATION SUPPLY OFFI	1746600.	2	.9	.9	72.0
NAVAL AVIONICS FAC	1790355.	1	.4	.4	72.4
NCS DIEGO GARCIA	2476076.	1	.4	.4	72.9
NCS HAROLD E HOLT	2476085.	2	.9	.9	73.8
NCD BALBOA,CANAL ZON	2476093.	1	.4	.4	74.2
NCS PUERTO RICO	2476625.	1	.4	.4	74.7
NCBC GULFPORT	2506400.	1	.4	.4	75.1

Figure D-7 FESO Assistance Program, Breakdown of Requests by Activity - Report #7

GENE EARLY
BREAKDOWN OF REQUESTS BY ACTIVITY - REPORT 7
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

NCBC PT HUENEME	2506600.	5	2.2	2.2	77.3
NETC NEWPORT	2831450.	4	1.8	1.8	79.1
NETPDC PENSACOLA	2834600.	1	.4	.4	79.6
NF CAPE HATTERAS	3060090.	1	.4	.4	80.0
NF GRAND TURK	3060775.	1	.4	.4	80.4
NF CENTERVILLE BEACH	3061195.	2	.9	.9	81.3
ROICC CHALLESTON	3070055.	1	.4	.4	81.8
ROICC PAC	3070745.	1	.4	.4	82.2
NAV NUCLEAR POWER UN	4462350.	1	.4	.4	82.7
NAVAL OBSERVATORY	4470500.	1	.4	.4	83.1
NSGA WINTER HARBOR	5771910.	1	.4	.4	83.6
NAVSECSTA WASHINGTON	5775915.	1	.4	.4	84.0
NSY PUGET SOUND	5867150.	2	.9	.9	84.9
NSY LONG BEACH	5867250.	2	.9	.9	85.8
NSY PEARL HARBOR	5867600.	1	.4	.4	86.2
NSY PORTSMOUTH	5867650.	1	.4	.4	86.7
NSY MARE ISLAND	5867905.	1	.4	.4	87.1
NS GUANTANAMO	6029284.	1	.4	.4	87.6
NS MAYPORT	6029480.	1	.4	.4	88.0
NS ROTA	6031675.	1	.4	.4	88.4
NSB NEW LONDON	6078600.	1	.4	.4	88.9
NSC SAN DIEGO	6170750.	1	.4	.4	89.3
NSD SUBIC BAY	6175785.	3	1.3	1.3	90.7
NSF THURMONT	6206900.	1	.4	.4	91.1
NTEC ORLANDO	6380800.	3	1.3	1.3	92.4
NUC SAN DIEGO	6480750.	1	.4	.4	92.9
NUSC NEWPORT	6541500.	1	.4	.4	93.3
NWS CHARLESTON	6805625.	1	.4	.4	93.8

Figure D-7 FESO Assistance Program, Breakdown of Requests by Activity - Report #7

GENE EARLY
BREAKDOWN OF REQUESTS BY ACTIVITY - REPORT 7
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

NWS CONCORD	B805650.	1	.4	.4	94.2
MCAS EL TORO	B139875.	1	.4	.4	94.7
MCAS YUMA	B139950.	3	1.3	1.3	96.0
MCB CAMP LEJEUNE	B270175.	1	.4	.4	96.4
MCB CAMP PENDLETON	B270551.	4	1.8	1.8	98.2
MCB TWENTYNINE PALMS	B270800.	2	.9	.9	99.1
MCDEC MARINE CORPS D	B385650.	2	.9	.9	100.0
	TOTAL	225	100.0	100.0	

VALID CASES 225 MISSING CASES 0

Figure D-7 FESO Assistance Program, Breakdown of Requests by Activity - Report #7

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GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* C R O S S T A B U L A T I O N O F
CNTRLNR CONTROL NR BY REQUEST
* *

	REQUEST		
COUNT	EFD-NORTHERN DIV	STATION-NORTHERN	ROW TOTAL
	31.	51.	
CNTRLNR			
308.	0	1	1
			4.8
309.	0	1	1
			4.8
340.	0	1	1
			4.8
347.	0	1	1
			4.8
355.	1	0	1
			4.8
360.	0	1	1
			4.8
378.	1	0	1
			4.8
395.	0	1	1
			4.8
408.	0	1	1
			4.8
COLUMN TOTAL	6	15	21
	28.6	71.4	100.0

(CONTINUED)

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

This figure shows the identification number of each request received from each EFD region (and associated PWS and ROICC).

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

	REQUEST		
COUNT	EFD-NORTHERN DIV	STATION-NORTHERN	ROW TOTAL
	31.	51.	
CNTRLNR			
411.	0	1	1
			4.8
421.	1	0	1
			4.8
442.	0	1	1
			4.8
447.	1	0	1
			4.8
453.	0	1	1
			4.8
457.	1	0	1
			4.8
471.	1	0	1
			4.8
476.	0	1	1
			4.8
477.	0	1	1
			4.8
COLUMN TOTAL	6	15	21
	28.6	71.4	100.0

(CONTINUED)

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

	REQUEST		
COUNT	EFD-NORTHERN DIV	STATION-NORTHERN	ROW TOTAL
CNTRLNR	31.	51.	
478.	0	1	1
			4.8
479.	0	1	1
			4.8
480.	0	1	1
			4.8
COLUMN TOTAL	6	15	21
	28.6	71.4	100.0

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

	REQUEST		
COUNT	EFD-CHESAPEAKE	STATION-CHESAPEA	ROW TOTAL
	32.	52.	
CNTRLNR			
316.	0	1	1
			6.7
341.	1	0	1
			6.7
392.	1	0	1
			6.7
410.	1	0	1
			6.7
412.	0	1	1
			6.7
416.	1	0	1
			6.7
422.	1	0	1
			6.7
438.	0	1	1
			6.7
446.	0	1	1
			6.7
COLUMN TOTAL	9	6	15
	60.0	40.0	100.0

(CONTINUED)

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

	REQUEST		
COUNT	EFD-CHESAPEAKE 32.	STATION-CHESAPEA 52.	ROW TOTAL
CNTRLNR			
451.	1	0	1
			6.7
472.	1	0	1
			6.7
504.	1	0	1
			6.7
516.	0	1	1
			6.7
523.	0	1	1
			6.7
528.	1	0	1
			6.7
COLUMN TOTAL	9 60.0	6 40.0	15 100.0

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

	REQUEST		
COUNT	EFD-ATLANTIC	STATION-ATLANTIC	ROW TOTAL
	33.	53.	
CNTRLNR			
302.	0	1	1
			4.5
303.	0	1	1
			4.5
304.	1	0	1
			4.5
311.	1	0	1
			4.5
319.	1	0	1
			4.5
331.	1	0	1
			4.5
354.	1	0	1
			4.5
362.	1	0	1
			4.5
381.	1	0	1
			4.5
COLUMN	13	9	22
TOTAL	59.1	40.9	100.0

(CONTINUED)

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

	REQUEST		
COUNT	EFD-ATLA INTIC	STATION-ATLANTIC	ROW TOTAL
	33.	53.	
CNTRLNR			
420.	0	1	1
			4.5
434.	0	1	1
			4.5
448.	1	0	1
			4.5
459.	0	1	1
			4.5
460.	1	0	1
			4.5
461.	1	0	1
			4.5
492.	1	0	1
			4.5
501.	1	0	1
			4.5
510.	0	1	1
			4.5
COLUMN TOTAL	13	9	22
	59.1	40.9	100.0

(CONTINUED)

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

	REQUEST		
COUNT	EFD-ATLANTIC	STATION-ATLANTIC	ROW TOTAL
CNTRLNR	33.	53.	
1486.	0	1	1
			4.5
1490.	0	1	1
			4.5
1535.	0	1	1
			4.5
1539.	1	0	1
			4.5
COLUMN TOTAL	13	9	22
	59.1	40.9	100.0

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* C R O S S T A B U L A T I O N O F
CNTRLNR CONTROL NR BY REQUEST
* *

	REQUEST			
COUNT	EFD-SOUTHERN	STATION-SOUTHERN	ROICC-SOUTHERN	ROW TOTAL
	34.	54.	624.	
CNTRLNR				
317.	0	1	0	1
				6.7
345.	0	1	0	1
				6.7
346.	0	1	0	1
				6.7
365.	0	1	0	1
				6.7
393.	0	1	0	1
				6.7
394.	0	1	0	1
				6.7
426.	0	1	0	1
				6.7
427.	1	0	0	1
				6.7
428.	0	1	0	1
				6.7
COLUMN TOTAL	5	9	1	15
	33.3	60.0	6.7	100.0

(CONTINUED)

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

	REQUEST			
COUNT	EFD-SOUTHERN	STATION-SOUTHERN	ROICC-SOUTHERN	ROW TOTAL
	34.	54.	624.	
CNTRLNR				
432.	1	0	0	1
				6.7
433.	1	0	0	1
				6.7
444.	1	0	0	1
				6.7
456.	1	0	0	1
				6.7
498.	0	0	1	1
				6.7
517.	0	1	0	1
				6.7
COLUMN TOTAL	5	9	1	15
	33.3	60.0	6.7	100.0

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

	REQUEST			
COUNT	EFD-WEST ERN	STATION- WESTERN	ROICC-WE STERN	ROW TOTAL
	35.	55.	625.	
CNTRLNR				
301.	0	1	0	1
				1.7
310.	0	1	0	1
				1.7
318.	1	0	0	1
				1.7
321.	0	1	0	1
				1.7
322.	1	0	0	1
				1.7
325.	0	1	0	1
				1.7
329.	1	0	0	1
				1.7
330.	0	0	1	1
				1.7
332.	1	0	0	1
				1.7
COLUMN TOTAL	18	34	7	59
	30.5	57.6	11.9	100.0

(CONTINUED)

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE FARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* * * \

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* C R O S S T A B U L A T I O N O F
CNTRLNR CONTROL NR BY REQUEST
* *

CNTRLNR	COUNT / REQUEST	EFD-WEST ERN 35.	STATION- WESTERN 55.	ROICC-WE STERN 625.	ROW TOTAL
377.		1	0	0	1
					1.7
380.		0	1	0	1
					1.7
384.		0	0	1	1
					1.7
385.		0	1	0	1
					1.7
388.		0	1	0	1
					1.7
389.		0	1	0	1
					1.7
390.		1	0	0	1
					1.7
391.		0	1	0	1
					1.7
405.		0	0	1	1
					1.7
COLUMN TOTAL		18	34	7	59
		30.5	57.6	11.9	100.0

(CONTINUED)

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

CNTRLNR	COUNT / REQUEST	EFD-WESTERN	STATION-WESTERN	ROICC-WESTERN	ROW TOTAL
		35.	55.	625.	
407.		0	0	1	1
					1.7
413.		0	1	0	1
					1.7
417.		1	0	0	1
					1.7
425.		0	1	0	1
					1.7
429.		0	1	0	1
					1.7
431.		0	1	0	1
					1.7
435.		1	0	0	1
					1.7
436.		0	1	0	1
					1.7
443.		0	1	0	1
					1.7
COLUMN TOTAL		18	34	7	59
		30.5	57.6	11.9	100.0

(CONTINUED)

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

CNTRLNR	COUNT / REQUEST	EFD-WESTERN	STATION-WESTERN	ROICC-WESTERN	ROW TOTAL
		35.	55.	625.	
449.		0	1	0	1
					1.7
450.		1	0	0	1
					1.7
452.		1	0	0	1
					1.7
466.		0	0	1	1
					1.7
467.		0	1	0	1
					1.7
469.		0	1	0	1
					1.7
470.		0	1	0	1
					1.7
475.		1	0	0	1
					1.7
482.		0	1	0	1
					1.7
COLUMN TOTAL		18	34	7	59
		30.5	57.6	11.9	100.0

(CONTINUED)

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

	REQUEST			
COUNT	EFD-WEST ERN	STATION- WESTERN	ROICC-WE STERN	ROW TOTAL
	35.	55.	625.	
CNTRLNR				
497.	0	1	0	1
				1.7
499.	0	1	0	1
				1.7
505.	1	0	0	1
				1.7
511.	1	0	0	1
				1.7
513.	1	0	0	1.
				1.7
514.	1	0	0	1
				1.7
515.	1	0	0	1
				1.7
518.	1	0	0	1
				1.7
519.	0	1	0	1
				1.7
COLUMN TOTAL	18	34	7	59
	30.5	57.6	11.9	100.0

(CONTINUED)

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

	REQUEST			
COUNT	EFD-WEST ERN	STATION- WESTERN	ROICC-WE STERN	ROW TOTAL
	35.	55.	625.	
CNTRLNR				
527.	0	1	0	1
				1.7
530.	0	1	0	1
				1.7
1470.	0	1	0	1
				1.7
1538.	0	1	0	1
				1.7
1676.	0	1	0	1
				1.7
COLUMN TOTAL	18	34	7	59
	30.5	57.6	11.9	100.0

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

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GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

	REQUEST		
COUNT	EFD-PACIFIC	STATION-PACIFIC	ROW TOTAL
	36.	56.	
CNTRLNR			
334.	0	1	1
			10.0
352.	1	0	1
			10.0
387.	1	0	1
			10.0
465.	1	0	1
			10.0
500.	0	1	1
			10.0
508.	0	1	1
			10.0
509.	0	1	1
			10.0
1419.	1	0	1
			10.0
1439.	0	1	1
			10.0
COLUMN TOTAL	4	6	10
	40.0	60.0	100.0

(CONTINUED)

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE EARLY
IDENTIFICATION OF REQUESTS BY REGION-EFD,PWS,ROICC - REPORT 8
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

	COUNT	REQUEST		
		EFD-PACIFIC	STATION-PACIFIC	ROW TOTAL
		36.	56.	
CNTRLNR				
	1488.	0	1	1
				10.0
	COLUMN TOTAL	4	6	10
		40.0	60.0	100.0

Figure D-8 FESO Assistance Program, Identification of Requests by Region- EFD, PWS, ROICC - Report #8

GENE EARLY
BREAKDOWN OF REQUESTS BY MINOR REQUESTOR GROUPS - REPORT 9
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* C R O S S T A B U L A T I O N O F
REQUEST REQUESTOR BY USER
* *

		USER					
	COUNT	NAVFAC	EFDS	PWC	PWS	ROICC	ROW TOTAL
		20	30	40	50	62	
REQUEST							
	20	11	0	0	0	0	11
NAVFAC							6.2
	21	1	0	0	0	0	1
NESO							.6
	22	1	0	0	0	0	1
NAVNUCPWRUNIT							.6
	31	0	6	0	0	0	6
EFD-NORTHERN DIV							3.4
	32	0	9	0	0	0	9
EFD-CHESAPEAKE							5.1
	33	0	13	0	0	0	13
EFD-ATLANTIC							7.3
	34	0	5	0	0	0	5
EFD-SOUTHERN							2.8
	35	0	19	0	0	0	19
EFD-WESTERN							10.7
	36	0	4	0	0	0	4
EFD-PACIFIC							2.3
	COLUMN	13	56	21	79	8	177
	TOTAL	7.3	31.6	11.9	44.6	4.5	100.0

(CONTINUED)

Figure D-9 FESO Assistance Program, Breakdown of Requests by Major Requestor Groups - Report #9

This figure shows, in matrix form, the number of requests received by various requestor groups.

GENE EARLY
BREAKDOWN OF REQUESTS BY MINOR REQUESTOR GROUPS - REPORT 9
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* C R O S S T A B U L A T I O N O F
REQUEST REQUESTOR BY USER
* *

	USER					
COUNT	INAVFAC	EFDS	PWC	PWS	RDICC	ROW TOTAL
	20	30	40	50	62	
REQUEST						
41	0	0	1	0	0	1
PWC-SAN FRANCISC						.6
42	0	0	2	0	0	2
PWC-GREAT LAKES						1.1
43	0	0	1	0	0	1
PWC-NORFOLK						.6
44	0	0	6	0	0	6
PWC-PENSACOLA						3.4
45	0	0	8	0	0	8
PWC-SAN DIEGO						4.5
47	0	0	3	0	0	3
PWC-GUAM						1.7
51	0	0	0	15	0	15
STATION-NORTHERN						8.5
52	0	0	0	6	0	6
STATION-CHESAPEA						3.4
53	0	0	0	9	0	9
STATION-ATLANTIC						5.1
COLUMN	13	56	21	79	8	177
TOTAL	7.3	31.6	11.9	44.6	4.5	100.0

(CONTINUED)

Figure D-9 FESO Assistance Program, Breakdown of Requests by Major Requestor Groups - Report #9

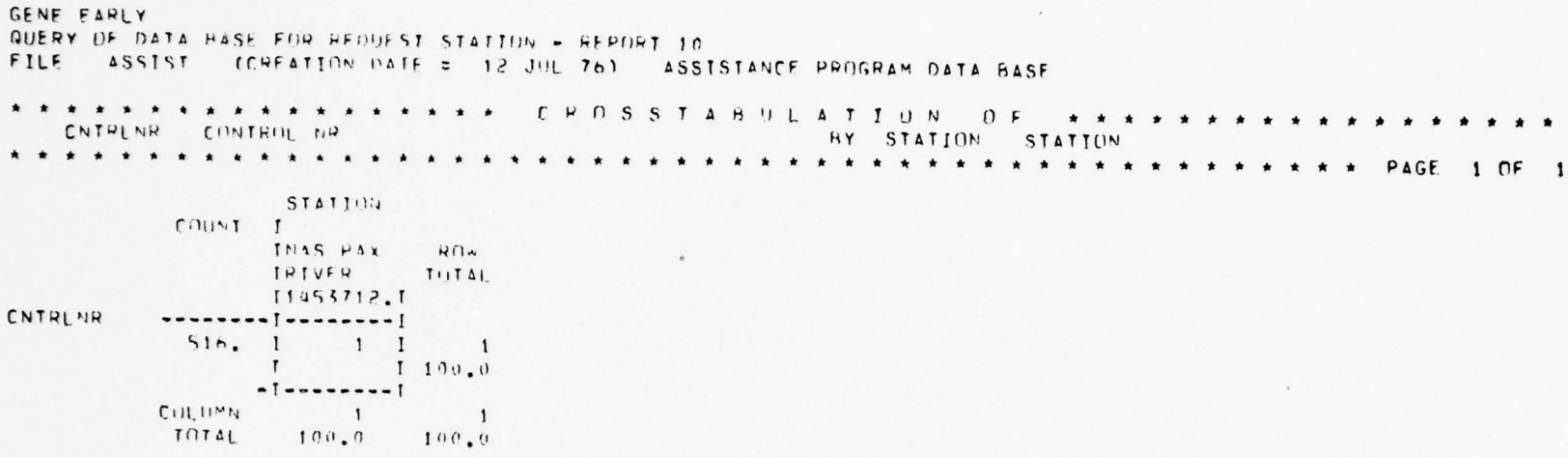
GENE EARLY
BREAKDOWN OF REQUESTS BY MINOR REQUESTOR GROUPS - REPORT 9
FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
REQUEST REQUESTOR BY USER
* *

COUNT	USER NAVFAC 20	EFDS 30	PWC 40	PWS 50	ROICC 62	ROW TOTAL
REQUEST						
54	0	0	0	9	0	9
STATION-SOUTHERN						5.1
55	0	0	0	34	0	34
STATION-WESTERN						19.2
56	0	0	0	6	0	6
STATION-PACIFIC						3.4
62	0	0	0	0	8	8
ROICC						4.5
COLUMN TOTAL	13 7.3	56 31.6	21 11.9	79 44.6	8 4.5	177 100.0

NUMBER OF MISSING OBSERVATIONS = 48

Figure D-9 FESO Assistance Program, Breakdown of Requests by Major Requestor Groups - Report #9



```
GENE EARLY
QUERY OF DATA BASE FOR REQUEST STATION - REPORT 10
FILE   ASSIST   (CREATION DATE =  12 JUL 76)   ASSISTANCE PROGRAM DATA BASE

* * * * * * * * * * * * * * * * * * * *  C R O S S T A B U L A T I O N  O F  * * * * * * * * * * * * * * * * * * * *
    CNTRLNR   CONTROL NR                                                  BY  STATION   STATION
* * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * PAGE  1 OF  1

                    STATION
            COUNT   I
                    INAS PAX      ROW
                    IRIVER        TOTAL
                    I1453712.I
CNTRLNR     --------I--------I
             516.   I      1  I       1
                    I         I  100.0
                   -I--------I
            COLUMN          1         1
             TOTAL      100.0     100.0
```

Figure D-10 *FESO Assistance Program*, Query of Data Base for Request Station - Report #10

The first page of this figure shows the number of requests received from each Request Station queried and the request number (i.e. 516). The second page is a list of selected input data from each request.

GENE EARLY
QUERY OF DATA BASE FOR REQUEST STATION - REPORT 10
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

CASE-NO	QTR	ENTRY#	SUBJCODE	ELAPSED	REQUEST	STATION	RESDIV	SUBJECT1	SUBJECT2	SUBJECT3
1	3.	516.	1810.	1.	52.	1453712.	5200.	CLEANIN	G STAINE	D (ON) C

Figure D-10 FESO Assistance Program, Query of Data Base for Request Station - Report #10

page 2 of 2

GENE EARLY
QUERY OF DATA BASE FOR REQUESTOR - REPORT 11
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

* CROSSTABULATION OF
CNTRLNR CONTROL NR BY REQUEST
* *

	REQUEST		
COUNT			
	TRAVRAC	SAC-SAN FRANCISC	ROW TOTAL
	20.	81.	
CNTRLNR			
312.	1	0	1
			8.3
338.	0	1	1
			8.3
357.	1	0	1
			8.3
445.	1	0	1
			8.3
464.	1	0	1
			8.3
481.	1	0	1
			8.3
491.	1	0	1
			8.3
520.	1	0	1
			8.3
1406.	1	0	1
			8.3
1437.	1	0	1
			8.3
1485.	1	0	1
			8.3
1507.	1	0	1
			8.3
COLUMN TOTAL	11 91.7	1 8.3	12 100.0

Figure D-11 FESO Assistance Program, Query of Data Base for Requestor - Report #11

This figure shows the number of requests received from each requestor queried and a list of selected input data from each request.

GENE EARLY
QUERY OF DATA BASE FOR REQUESTOR - REPORT 11
FILE ASSIST (CREATION DATE = 12 JUL 76) ASSISTANCE PROGRAM DATA BASE

CASE-NO	QTR	CNTRLNO	SUBJCODE	ELAPSED	REQUEST	STATION
1	3.	312.	1110.	0	20.	-0
2	3.	338.	2900.	5.	41.	-0
3	3.	357.	1830.	7.	20.	-0
4	3.	1406.	1420.	-6020.	20.	-0
5	3.	1437.	1420.	-6049.	20.	-0
6	3.	445.	2521.	-6057.	20.	-0
7	3.	464.	1130.	3.	20.	-0
8	3.	481.	1300.	6.	20.	-0
9	3.	1445.	1412.	2.	20.	-0
10	3.	491.	9900.	1.	20.	-0
11	3.	1507.	1400.	-6077.	20.	-0
12	5.	524.	1830.	-6078.	20.	-0

Figure D-11 FESO Assistance Program, Query of Data Base for Requestor - Report #11

FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

CASE-NO	QTR	CNTRLNR	SUBJCODE	DATEIN	DATEOUT	ELAPSED	MEDIUMIN	MEDIUMOT	JODESIGN	RESDIV
1	3.	301.	2700.	6006.	6006.	0	3.	3.	-0	5200.
2	3.	302.	2561.	6005.	6012.	7.	3.	3.	-0	6500.
3	3.	303.	2700.	6007.	6007.	0	3.	3.	-0	5200.
4	3.	304.	2620.	6007.	6014.	7.	3.	1.	-0	5500.
5	3.	305.	2550.	6005.	6005.	0	3.	3.	-0	5200.
6	3.	306.	2543.	6008.	-0	-6008.	3.	-0	-0	6500.
7	3.	307.	9900.	6007.	6008.	1.	3.	1.	-0	5300.
8	3.	308.	2300.	6008.	6030.	22.	3.	3.	-0	5200.
9	3.	309.	1840.	6008.	6043.	35.	3.	3.	-0	5200.
10	3.	310.	2033.	6005.	6008.	3.	3.	3.	-0	6300.
11	3.	311.	2563.	6005.	6006.	1.	3.	3.	-0	6500.
12	3.	312.	1110.	6009.	6009.	0	3.	3.	-0	5200.
13	3.	313.	2420.	6009.	6009.	0	3.	1.	-0	5100.
14	3.	314.	2200.	6009.	6009.	0	3.	3.	-0	6400.
15	3.	315.	9900.	6009.	6009.	0	3.	3.	-0	4200.
16	3.	316.	1980.	6013.	6013.	0	3.	3.	-0	5300.
17	3.	317.	2522.	6012.	6016.	4.	3.	3.	-0	6200.
18	3.	318.	2550.	6012.	6057.	45.	3.	1.	1.	5100.
19	3.	319.	1300.	6014.	6015.	1.	3.	3.	-0	5200.
20	3.	320.	1810.	6012.	6015.	3.	3.	1.	-0	5200.
21	3.	321.	9900.	6012.	6012.	0	3.	3.	-0	5300.
22	3.	322.	9900.	6013.	6013.	0	3.	3.	-0	5300.
23	3.	323.	1820.	6012.	6012.	0	3.	3.	-0	5200.
24	3.	324.	1980.	6013.	6013.	0	3.	3.	-0	5300.
25	3.	325.	2300.	6014.	6014.	0	3.	3.	-0	5200.
26	3.	326.	2300.	6014.	6014.	0	3.	3.	-0	5200.
27	3.	327.	1820.	6013.	6013.	0	3.	3.	-0	5200.
28	3.	328.	1820.	6012.	6015.	3.	3.	3.	-0	5200.
29	3.	329.	1820.	6008.	6008.	0	3.	3.	-0	5200.
30	3.	330.	2521.	6008.	6008.	0	3.	3.	-0	5200.
31	3.	331.	1300.	6014.	-0	-6014.	3.	-0	-0	5200.
32	3.	332.	9900.	6020.	6020.	0	3.	3.	-0	4344.
33	3.	333.	1830.	6019.	6019.	0	3.	3.	-0	5200.
34	3.	334.	9900.	6019.	6048.	29.	1.	1.	-0	5200.
35	3.	335.	1820.	6020.	6020.	0	3.	3.	-0	5200.
36	3.	336.	1820.	6021.	6021.	0	3.	3.	-0	5200.
37	3.	338.	9900.	6007.	6012.	5.	3.	3.	-0	6300.
38	3.	339.	2420.	6022.	6022.	0	3.	4.	-0	5100.
39	3.	340.	2300.	6013.	6021.	8.	3.	3.	-0	5200.

Figure D-12 FESO Assistance Program, Computer Listing of Third Quarter FY-76 Input Data

This figure shows a computer listing made from all data records used in the FESO data base.

FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

CASE-NO	QTR	CNTRLNR	SUBJCODE	DATEIN	DATEOUT	ELAPSED	MEDIUMIN	MEDIUMOT	JODESIGN	RESDIV
40	3.	341.	2300.	6016.	6016.	0	3.	3.	-0	5200.
41	3.	342.	2300.	6020.	6020.	0	3.	3.	-0	5200.
42	3.	343.	2300.	6020.	6020.	0	3.	3.	-0	5200.
43	3.	344.	2300.	6021.	6022.	1.	3.	3.	-0	5200.
44	3.	345.	2300.	6022.	6023.	1.	3.	3.	-0	5200.
45	3.	346.	2522.	6026.	6033.	7.	3.	3.	-0	5200.
46	3.	347.	1830.	6016.	6020.	4.	3.	3.	-0	5200.
47	3.	348.	1830.	6026.	6026.	0	3.	4.	-0	5200.
48	3.	349.	2300.	6026.	6026.	0	3.	3.	-0	5200.
49	3.	351.	1600.	6019.	6019.	0	3.	3.	-0	5400.
50	3.	352.	2562.	6020.	6023.	3.	3.	3.	-0	5400.
51	3.	353.	9900.	6030.	6057.	27.	1.	1.	-0	9400.
52	3.	354.	1130.	6029.	6030.	1.	3.	3.	-0	5200.
53	3.	355.	2120.	6028.	6028.	0	3.	3.	-0	5100.
54	3.	356.	1830.	6029.	6029.	0	3.	3.	-0	5200.
55	3.	357.	1830.	6023.	6030.	7.	3.	3.	-0	5200.
56	3.	358.	2300.	6023.	6026.	3.	3.	4.	-0	5200.
57	3.	359.	2300.	6023.	6023.	0	3.	3.	-0	5200.
58	3.	360.	2300.	6023.	6028.	5.	3.	3.	-0	5200.
59	3.	361.	9900.	6027.	6035.	8.	5.	3.	-0	5100.
60	3.	362.	2033.	6035.	6036.	1.	3.	1.	-0	6300.
61	3.	363.	1820.	6033.	6035.	2.	3.	3.	-0	5200.
62	3.	365.	1820.	6026.	6035.	9.	3.	1.	-0	5200.
63	3.	366.	1550.	6029.	6034.	5.	3.	3.	-0	5100.
64	3.	377.	2300.	6033.	6033.	0	3.	3.	-0	5200.
65	3.	378.	2300.	6033.	6033.	0	3.	3.	-0	5200.
66	3.	379.	9900.	6034.	6074.	40.	3.	1.	-0	6200.
67	3.	380.	1980.	6030.	6030.	0	3.	3.	-0	5300.
68	3.	381.	2522.	6040.	6068.	28.	3.	3.	-0	6200.
69	3.	382.	1150.	6036.	6042.	6.	3.	3.	-0	5200.
70	3.	384.	1840.	6037.	6037.	0	3.	3.	-0	5200.
71	3.	385.	2620.	6037.	6037.	0	3.	3.	-0	5200.
72	3.	386.	2300.	6034.	6034.	0	3.	3.	-0	5200.
73	3.	387.	9900.	6042.	6042.	0	3.	3.	-0	5200.
74	3.	388.	2050.	6042.	6072.	30.	1.	1.	-0	5200.
75	3.	389.	2420.	6037.	6040.	3.	3.	5.	-0	5100.
76	3.	390.	2033.	6035.	6037.	2.	3.	3.	-0	6300.
77	3.	391.	1820.	6041.	6041.	0	3.	1.	-0	5200.
78	3.	392.	1820.	6041.	6041.	0	3.	3.	-0	5200.

Figure D-12 FESO Assistance Program, Computer Listing of Third Quarter FY-76 Input Data

FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

CASE-NO	QTR	CNTRLNR	SUBJCODE	DATEIN	DATEOUT	ELAPSED	MEDIUMIN	MEDIUMOT	JODESIGN	RESDIV
79	3.	393.	1830.	6041.	6041.	0	3.	3.	-0	5200.
80	3.	394.	1830.	6042.	6042.	0	3.	3.	-0	5200.
81	3.	395.	2300.	6044.	6050.	6.	3.	3.	-0	5200.
82	3.	396.	9900.	6035.	6044.	9.	4.	1.	-0	5200.
83	3.	397.	1820.	6035.	6044.	9.	4.	1.	-0	5200.
84	3.	398.	1300.	6035.	6044.	9.	4.	1.	-0	5200.
85	3.	399.	1820.	6035.	6044.	9.	4.	1.	-0	5200.
86	3.	400.	1150.	6035.	6044.	9.	4.	1.	-0	5200.
87	3.	401.	1420.	6035.	6044.	9.	4.	1.	-0	5200.
88	3.	402.	1300.	6037.	6044.	7.	3.	3.	-0	5200.
89	3.	403.	9900.	6035.	6035.	0	3.	5.	-0	4200.
90	3.	405.	1830.	6043.	6072.	29.	3.	1.	-0	5200.
91	3.	1406.	1420.	6020.	-0	-6020.	3.	-0	1.	8000.
92	3.	407.	1830.	6048.	6048.	0	3.	3.	-0	5200.
93	3.	408.	1110.	6048.	6048.	0	3.	3.	-0	5200.
94	3.	409.	1830.	6048.	6048.	0	3.	3.	-0	5200.
95	3.	410.	2300.	6032.	6032.	0	3.	5.	-0	5200.
96	3.	411.	1150.	6049.	6050.	1.	3.	3.	-0	5200.
97	3.	412.	1840.	6049.	6049.	0	3.	3.	-0	5200.
98	3.	413.	1830.	6050.	6050.	0	3.	3.	-0	5200.
99	3.	414.	1130.	6050.	6052.	2.	3.	3.	-0	5200.
100	3.	415.	9900.	6042.	6044.	2.	3.	1.	-0	5200.
101	3.	416.	2300.	6044.	6044.	0	3.	3.	-0	5200.
102	3.	417.	9900.	6051.	6051.	0	3.	3.	-0	5200.
103	3.	418.	9900.	6051.	6051.	0	3.	3.	-0	5200.
104	3.	1419.	1420.	6027.	-0	-6027.	2.	-0	1.	6400.
105	3.	420.	1300.	6050.	6069.	19.	1.	1.	-0	5200.
106	3.	421.	1980.	6048.	6048.	0	3.	3.	-0	5300.
107	3.	422.	2300.	6050.	6050.	0	3.	3.	-0	5200.
108	3.	423.	1300.	6049.	6051.	2.	3.	4.	-0	5200.
109	3.	424.	9900.	6051.	6063.	12.	5.	1.	-0	5100.
110	3.	425.	1820.	6042.	6044.	2.	3.	4.	-0	5200.
111	3.	426.	1300.	6044.	6051.	7.	3.	3.	-0	5200.
112	3.	427.	2563.	6054.	-0	-6054.	3.	-0	-0	5200.
113	3.	428.	1830.	6055.	6055.	0	3.	3.	-0	5200.
114	3.	429.	1830.	6054.	6054.	0	3.	3.	-0	5200.
115	3.	430.	1420.	6034.	-0	-6034.	4.	-0	-0	6300.
116	3.	431.	2120.	6049.	6050.	1.	3.	1.	-0	6100.
117	3.	432.	1820.	6056.	6056.	0	3.	3.	-0	5200.

Figure D-12 FESO Assistance Program, Computer Listing of Third Quarter FY-76 Input Data

FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

CASE-NO	QTR	CNTRLNR	SUBJCODE	DATEIN	DATEOUT	ELAPSED	MEDIUMIN	MEDIUMOT	JODESIGN	RESDIV
118	3.	433.	1300.	6054.	6064.	10.	3.	1.	-0	5200.
119	3.	434.	2033.	6055.	6055.	0	3.	3.	-0	6300.
120	3.	435.	2420.	6055.	6062.	7.	3.	1.	-0	5100.
121	3.	436.	1980.	6054.	6055.	1.	3.	3.	-0	5200.
122	3.	1437.	1420.	6049.	-0	-6049.	3.	-0	1.	6200.
123	3.	438.	1830.	6057.	6057.	0	3.	3.	-0	5200.
124	3.	1439.	1300.	6057.	-0	-6057.	1.	-0	-0	5200.
125	3.	440.	1170.	6057.	6057.	0	3.	2.	-0	5200.
126	3.	441.	1300.	6057.	-0	-6057.	1.	-0	-0	5200.
127	3.	442.	2033.	6056.	6057.	1.	3.	1.	-0	6300.
128	3.	443.	1820.	6058.	6058.	0	3.	3.	-0	5200.
129	3.	444.	1820.	6057.	6057.	0	3.	3.	-0	5200.
130	3.	445.	2521.	6057.	-0	-6057.	3.	-0	-0	6200.
131	3.	446.	1970.	6058.	6062.	4.	3.	3.	-0	5300.
132	3.	447.	2120.	6058.	6058.	0	3.	3.	-0	6100.
133	3.	448.	2521.	6063.	-0	-6063.	3.	-0	-0	6200.
134	3.	449.	9900.	6058.	6061.	3.	3.	3.	-0	6100.
135	3.	450.	2563.	6061.	6072.	11.	3.	5.	-0	6300.
136	3.	451.	1980.	6051.	6062.	11.	3.	3.	-0	5300.
137	3.	452.	9900.	6015.	6062.	47.	1.	1.	-0	5100.
138	3.	453.	2120.	6062.	6078.	16.	3.	4.	-0	6100.
139	3.	454.	2120.	6063.	6063.	0	3.	3.	-0	6100.
140	3.	455.	1980.	6063.	6063.	0	3.	3.	-0	5200.
141	3.	456.	2120.	6063.	6063.	0	3.	3.	-0	6100.
142	3.	457.	1810.	6062.	6062.	0	3.	3.	-0	5200.
143	3.	458.	2300.	6057.	6058.	1.	3.	3.	-0	5200.
144	3.	459.	1130.	6058.	6058.	0	3.	3.	-0	5200.
145	3.	460.	2300.	6064.	6064.	0	3.	3.	-0	5200.
146	3.	461.	1110.	6064.	6065.	1.	3.	3.	-0	5200.
147	3.	462.	1820.	6064.	6064.	0	3.	3.	-0	5200.
148	3.	463.	9900.	6065.	6072.	7.	3.	3.	-0	6400.
149	3.	464.	1130.	6065.	6068.	3.	3.	3.	-0	5200.
150	3.	465.	1160.	6064.	6069.	5.	3.	3.	-0	5200.
151	3.	466.	1820.	6061.	6063.	2.	3.	4.	-0	5200.
152	3.	467.	1720.	6068.	6068.	0	3.	3.	-0	5200.
153	3.	468.	1820.	6064.	6064.	0	3.	3.	-0	5200.
154	3.	469.	2420.	6063.	-0	-6063.	3.	-0	1.	5100.
155	3.	470.	2300.	6058.	-0	-6058.	3.	-0	1.	5200.
156	3.	471.	2300.	6065.	6065.	0	3.	3.	-0	5200.

Figure D-12 FESO Assistance Program, Computer Listing of Third Quarter FY-76 Input Data

FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

CASE-NO	QTR	CNTRLNR	SUBJCODE	DATEIN	DATEOUT	ELAPSED	MEDIUMIN	MEDIUMOT	JODESIGN	RESDIV
157	3.	472.	2300.	6067.	6067.	0	3.	3.	-0	5200.
158	3.	473.	2300.	6064.	6064.	0	3.	3.	-0	5200.
159	3.	1474.	1412.	6030.	-0	-6030.	3.	-0	1.	8000.
160	3.	475.	2541.	6056.	-0	-6056.	3.	-0	-0	5400.
161	3.	476.	1150.	6058.	6086.	28.	4.	3.	-0	5200.
162	3.	477.	1150.	6058.	6089.	31.	4.	3.	-0	5200.
163	3.	478.	1830.	6058.	6069.	11.	4.	3.	-0	5200.
164	3.	479.	2300.	6058.	6077.	19.	4.	3.	-0	5200.
165	3.	480.	1420.	6034.	6034.	0	5.	1.	-0	8400.
166	3.	481.	1300.	6057.	6065.	8.	3.	1.	-0	5200.
167	3.	482.	2300.	6057.	6077.	20.	3.	3.	-0	5200.
168	3.	483.	2030.	6033.	-0	-6033.	3.	-0	1.	5400.
169	3.	1484.	1414.	6048.	6065.	17.	1.	1.	-0	8000.
170	3.	1485.	1412.	6019.	6021.	2.	3.	1.	-0	8000.
171	3.	1486.	1430.	6007.	6035.	28.	1.	1.	-0	8000.
172	3.	1487.	1430.	6030.	6040.	10.	3.	1.	-0	8000.
173	3.	1488.	1420.	6033.	6063.	30.	3.	1.	-0	8000.
174	3.	1489.	1420.	6063.	6063.	0	3.	1.	-0	8000.
175	3.	1490.	1412.	6053.	6065.	12.	1.	1.	-0	8000.
176	3.	491.	9900.	6075.	6076.	1.	3.	3.	-0	5200.
177	3.	492.	2040.	6075.	6075.	0	3.	3.	-0	5400.
178	3.	493.	1420.	6056.	6118.	62.	1.	1.	-0	8000.
179	3.	494.	1300.	6075.	6075.	0	3.	3.	-0	5200.
180	3.	495.	1300.	6070.	6070.	0	3.	3.	-0	5200.
181	3.	496.	2650.	6076.	6076.	0	3.	3.	-0	5200.
182	3.	497.	1130.	6084.	6085.	1.	3.	3.	-0	5200.
183	3.	498.	1820.	6076.	6076.	0	3.	3.	-0	5200.
184	3.	499.	1820.	6071.	6075.	4.	3.	3.	-0	5300.
185	3.	500.	1160.	6076.	6082.	6.	2.	2.	-0	5300.
186	3.	501.	1110.	6077.	6078.	1.	1.	1.	-0	5200.
187	3.	502.	1200.	6078.	6100.	22.	1.	1.	-0	5200.
188	3.	503.	1820.	6065.	6065.	0	3.	3.	-0	5200.
189	3.	504.	1420.	6077.	6077.	0	3.	3.	-0	5200.
190	3.	505.	2300.	6077.	-0	-6077.	3.	-0	-0	5200.
191	3.	506.	1820.	6077.	6077.	0	3.	3.	-0	5200.
192	3.	1507.	1440.	6077.	-0	-6077.	4.	-0	1.	8000.
193	3.	508.	1150.	6078.	6085.	7.	3.	3.	-0	6300.
194	3.	509.	9900.	6078.	6085.	7.	3.	3.	-0	6300.
195	3.	510.	2300.	6079.	6082.	3.	3.	3.	-0	5300.

Figure D-12 FESO Assistance Program, Computer Listing of Third Quarter FY-76 Input Data

FILE ASSIST (CREATION DATE = 20 JUL 76) ASSISTANCE PROGRAM DATA BASE

CASE-NO	QTR	CNTRLNR	SUBJCODE	DATEIN	DATEOUT	ELAPSED	MEDIUMIN	MEDIUMOT	JODESIGN	RESDIV
196	3.	511.	1412.	6078.	6082.	4.	3.	3.	-0	6200.
197	3.	512.	9900.	6070.	-0	-6070.	2.	-0	1.	4500.
198	3.	513.	9900.	6079.	6083.	4.	3.	3.	-0	4200.
199	3.	514.	1980.	6079.	6083.	4.	3.	1.	-0	5300.
200	3.	515.	1910.	6079.	6083.	4.	3.	1.	-0	5300.
201	3.	516.	1810.	6085.	6086.	1.	3.	3.	-0	5200.
202	3.	517.	1110.	6085.	6085.	0	3.	3.	-0	5200.
203	3.	518.	1820.	6086.	6086.	0	3.	3.	-0	5200.
204	3.	519.	9900.	6079.	6082.	3.	5.	3.	-0	5200.
205	3.	520.	9900.	6082.	6092.	10.	3.	1.	-0	5200.
206	3.	1521.	1420.	6077.	6085.	8.	3.	1.	-0	8000.
207	3.	522.	1940.	6089.	6089.	0	3.	3.	-0	5300.
208	3.	523.	9900.	6091.	6091.	0	3.	3.	-0	5200.
209	3.	524.	1830.	6078.	-0	-6078.	3.	-0	1.	5200.
210	3.	525.	1830.	6085.	6091.	6.	3.	3.	-0	5200.
211	3.	1526.	1412.	6008.	6015.	7.	3.	1.	-0	8000.
212	3.	527.	1830.	6088.	6088.	0	3.	3.	-0	5200.
213	3.	528.	2300.	6088.	6088.	0	3.	3.	-0	5200.
214	3.	529.	2300.	6090.	6090.	0	3.	3.	-0	5200.
215	3.	530.	2420.	6065.	6071.	6.	1.	1.	-0	5100.
216	3.	531.	2541.	6014.	6015.	1.	3.	1.	-0	5400.
217	3.	1533.	1420.	6077.	6086.	9.	3.	1.	-0	8000.
218	3.	1534.	1420.	6030.	6060.	30.	3.	1.	-0	8000.
219	3.	1535.	1412.	6051.	-0	-6051.	1.	-0	-0	8000.
220	3.	1536.	1414.	6058.	6086.	28.	1.	1.	-0	8000.
221	3.	1537.	1413.	6077.	6084.	7.	3.	1.	-0	8000.
222	3.	1538.	1412.	6084.	6100.	16.	3.	1.	-0	8000.
223	3.	1539.	1412.	6089.	6103.	14.	3.	1.	-0	8000.
224	3.	1676.	1412.	6084.	6099.	15.	3.	1.	-0	8000.
225	3.	540.	2650.	6069.	6092.	23.	1.	1.	-0	5500.

Figure D-12 FESO Assistance Program, Computer Listing of Third Quarter FY-76 Input Data

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DEMONSTRATION OF THE FEASIBILITY OF AUTOMATING THE INFORMATION --ETC(U)
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APPENDIX E

COMPREHENSIVE EXAMPLE OF FESO INFORMATION SYSTEM MAINTENANCE

To assist the user in updating his automated information system, a comprehensive example of a system maintenance change incorporating the mechanics of both operational and design maintenance is provided in this appendix. This example illustrates how to make changes to the data-definition section of the SPSS control deck to effect a modification to the data base. Also illustrated is how to prepare a set of task-definition cards to describe the processing necessary to produce a new report. The illustrated problem requires the establishment of a new data element as part of the input record and the use of this data element in the preparation of a new report. The new data element is to be established in a second card of each input case. This is a realistic requirement because as a system expands, the data for each case may require an expanded input record which cannot fit on one data card.

A. PROBLEM SCENARIO

It has been determined advantageous to prepare a report that will display the distribution of the value of the benefits resulting from the work of CEL on each request. Each benefit received from a request is to be placed into one of three benefit categories; under $1000, between $1000

and $5000, and exceeding $5000. The benefit data for each case (request) is to be used as input to the computer system by means of a second keypunched card. There is no second card in the present system. The new data element (i.e., variable) will be a benefit code. The report displaying the distribution of the benefits is to include data from only customers at the shore activities. Previously defined logic contained in the SPSS deck places each request in customer groups. Shore activities are coded as GROUP 6.

B. PREPARE REPORT SPECIFICATIONS

Since the scenario requires the preparation of a new report, the first step is preparation of the Report Specifications. As previously shown in Figure VII-2, specifications contain the purpose, input parameters, data manipulation requirements and output parameters. Preparation of report specifications will document the requirements and provide the basis for updating the computer program.

C. UPDATE DATA DEFINITIONS

Using the report specification as the documented information source, the following steps are followed in updating the data-definition section.

1. Establish New Variable

The new variable is established at the end of the VARIABLE LIST section of the SPSS control deck. The last card would be changed to read as follows: (The number above the coding shows the beginning card column of the coding.)

16
Before change: REQSTA

After change: REQSTA,BNFTCODE

2. Redefine Input Format

The location of the new variable in the input record must be described. In addition, the format characteristics of the data element are shown. BNFTCODE is a one-position numeric code. The last card of the INPUT FORMAT section would be changed to read:

16
Before change: T39,F4.0,A8,A8,A8,T29,F10.0)

After change: T39,F4.0,A8,A8,A8,T29,F10.0/T9,F1.0)

Note that the closed parenthesis ")" is moved to the right end. The slash "/" causes reading to transfer to the second card. "T9" begins reading in column 9 in the second card. Finally, the "F1.0" describes the data element as fixed, numeric and one position in length.

Columns 1 through 8 of the second card will contain control information. Columns 1 through 7 have the same data as contained in the first card of each case. Column 8 has a "2" punch in it to designate it as the second card of the case.

3. Assign Variable Labels

Each time the variable "BNFTCODE" is used in a report, a meaningful label can be printed if desired. This is accomplished by inserting a variable label card at the end of the VAR LABELS section. First the existing last card must be modified.

Existing last card

```
                    16
Before change:  REQSTA,REQUESTOR AND SNDL

After change:   REQSTA,REQUESTOR AND SNDL/
```

The slash "/" is appended to the existing last card to denote additional card(s) in the section. The new last card then reads:

```
                    16
New last card:  BNFTCODE,BENEFIT RECEIVED FROM REQUEST
```

4. Assign Value Labels

When a value associated with the new variable, BNFTCODE, is printed on a report, a meaningful label can be printed if desired. This is accomplished by inserting additional cards at the end of the VALUE LABEL section. The existing last card does not have to be modified. It already has a slash:

Existing last card

```
                    16
                (80)L80/
```

Three new cards are prepared for possible values 1, 2 or 3. The last card will have a slash.

```
                                  16
First additional card:  BNFTCODE (1) UNDER $1000

Second additional card:  (2)BETWEEN $1000 AND $5000

New last card:           (3)OVER $5000/
```

5. Update Edit Logic

Whenever new values are permitted for an existing data element or a new data element is added to the data

definition, the edit logic should be updated. The variable BNFTCODE with its acceptable values of 1, 2 or 3 for the BENEFIT categories may be included as part of the edit logic as follows:

```
1               16
*SELECT IF      (ERROR 9 EQ 0909)

IF              (BNFTCODE EQ 1 OR 2 OR 3) ERROR9 = 0
```

These cards are then inserted immediately following the ERROR8 logic cards in the edit card deck.

6. Special Considerations

The N OF CASES card contains the number of cases, not cards, in the input data file. Since the number of cases is not increased by expanding each case to two cards, the N OF CASES card remains the same.

D. PREPARE TASK DEFINITIONS

The following steps are taken to prepare a set of task-definition cards to produce a report.

1. Prepare Task Identification Cards

These cards are used to identify the beginning and ending of the task definition.

```
1           16
COMMENT
COMMENT     ************************************************
COMMENT
COMMENT     BEGIN BENEFIT REPORT - REPORT 12
COMMENT
    (insert task cards)
COMMENT
COMMENT     END BENEFIT REPORT - REPORT 12
COMMENT
COMMENT     ************************************************
COMMENT
```

2. Code Logic Cards

If any special logic is necessary the cards are coded with an asterisk "*" in column one so that the logic will apply to only this particular task. The logic below will select shore activity data and bypass other data.

```
1               16
*SELECT IF      (GROUP EQ 6)
```

3. Select Appropriate Statistical Procedure

Select one or more statistical procedure from the SPSS manual that will process the data for the desired report. The FREQUENCIES procedure is used in this example because it can tabulate the cases by benefit category and compute supporting percentages. The optional TASK NAME command will print the report title on each page of the report. The optional LIST CASES will list the cases selected to prepare the report. These three operations might be coded as follows:

```
1               16
TASK NAME       BENEFIT REPORT - REPORT 12

LIST CASES      CASES = 2000/VARIABLES=QTR,CNTRLNR,SUBCODE,
                DATEIN,DATEOUT,ELAPSED,MEDIUMIN,MEDIUMOT,
                BNFTCODE

FREQUENCIES     INTEGER=BNFTCODE(1,3)
```

The following optional frequencies card would be prepared if the discrete values such as benefit categories 1, 2 and 3 were not known. When the possible values are known the INTEGER method can be used and some computer time and resources are saved.

```
1               16
FREQUENCIES     GENERAL=BNFTCODE
```

4. Assemble Task-Definition Cards

Assemble the task-definition cards in the order shown below.

a. Beginning COMMENT cards

b. Logic cards

c. TASK NAME card (optional)

d. LIST CASES cards (optional)

e. Procedure card (FREQUENCIES)

f. Ending COMMENT cards

If more than one procedure card is necessary to prepare a report, the report cannot be run by placing all the task-definition cards before the READ INPUT DATA card. Only one procedure can be placed prior to the READ INPUT DATA card. Either the task will have to be made into two or more reports, or the task-definition cards must be placed after the input data cards.

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