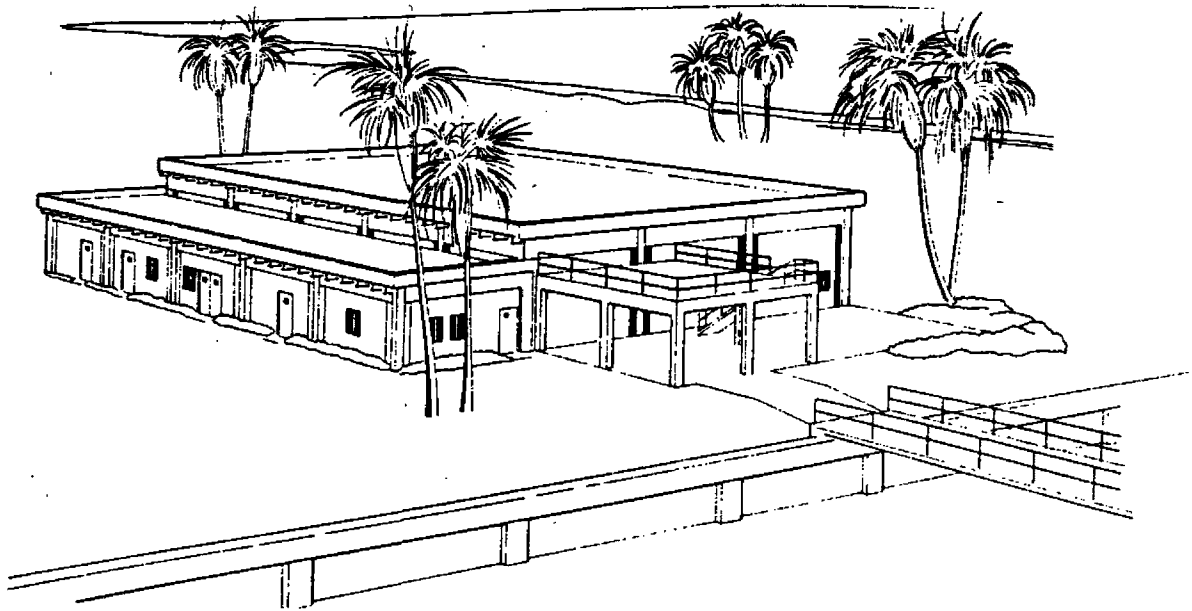


ERLGB DATA PROCESSING RESOURCES:  
A BRIEFING BOOK



ENVIRONMENTAL RESEARCH LABORATORY  
GULF BREEZE, FL 32561

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ERLGB DATA PROCESSING RESOURCES

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## INTRODUCTION

The following report will acquaint you with the data processing resources at the EPA, Gulf Breeze Laboratory. It is written in outline form for ease of accessibility. The following topic headings are covered by each system or service in the report:

A. WHO HAS ACCESS?

This may also include additional information or limitations related to this area.

B. SERVICES PROVIDED

These will vary depending on the system covered.

C. WHAT MANUALS AND/OR DOCUMENTATION ARE AVAILABLE?

A listing of all printed materials and their location.

D. FOR FURTHER ASSISTANCE AND/OR INSTRUCTION

Identifies the system or department manager for further assistance.

E. NOTES TO USERS

A catchall of newsworthy information, directly related to user's of the concerned system or service.

These topics should inform the reader adequately to determine which system or service is appropriate for his/her need. It is not intended as a tutorial, but should be viewed in the nature of a directory.

To request additional copies of this report, or to make future additions or changes, please see the CSC Site Manager, Mr. Russ Ryder. His office is located in the Computer Building, building 24.

DEC PDP 11/70

The DEC PDP 11/70 is the primary computer resource used at ERLGB. It provides services to administration, scientists, the Library and other EPA branches; it is also the link to the NCC IBM. It is central to all data processing activity of the laboratory and is accessible from virtually all locations on the Island.

The Computer Resource Group staffs the PDP 11/70 and encourages EPA and contract employees to take advantage of the many services it offers; whether it is adopting pre-existing programs or developing new programs to suit a particular need.

The following will show some of the options available for use.

If further, more specific information is needed contact the System Manager, Lin Donnalley.

## A. WHO HAS ACCESS TO THE SYSTEM?

The PDP 11/70 is available to all EPA and contract employees. An account is necessary before access to the computer is granted. An account may be established by seeing the System Manager, Lin Donnalley. She will give you a password to protect programs and data and will brief you on backups and security features which are followed to ensure the integrity of data collection and analysis.

## B. SERVICES PROVIDED

### 1. Language Compilers

- a. Fortran IV-PLUS
- b. Fortran 77
- c. MACRO-11 Assembler
- d. BASIC

### 2. Utility Programs

- a. SORT  
Allows data to be sorted in ascending or descending order.
- b. DATATRIEVE  
This program allows the following:
  - data input
  - data updating
  - report generation

### 3. EPA Standard Systems Software

- a. Interactive Application System (IAS)  
This is the operating system that supports the users of the PDP 11/70. It includes IAS Program Development System (PDS) which allows you to:
  - create
  - edit
  - manipulate files
  - access devices
  - compile and run programs
- b. INFORM-11  
Very useful data base management system that allows you to write a list of procedures into a file which can be executed by a unique name. Some of the procedures allowed are:
  - data entry
  - retrieval
  - verification
  - statistical analysis
  - reporting

- management of data  
The INFORM-11 is a significant and accessible resource which is very easy to use.

- c. Command Language Interpreter (CLI)  
This is a task program that transposes user-friendly commands into machine language that is meaningful to the computer for execution. PDS is a CLI.

- d. Forms Translator and Data Entry Processor (DEP)  
This allows a programmer to design formatted data entry screens. It also allows duplication of currently used forms on the CRT.

#### 4. Application Programs

- a. PLOT PROGRAMS

- General plotting (GPLOT)  
allows the choice of:
  - how many sets of data to run at once
  - normal or logarithmic curves
  - plot types for each set of data
  - names for each set of data
  - symbols used to designate plot points
  - grid to section graph
  - minimum and maximum scale values
  - interpolation
  - sending graph to plotter
- Regression plotting (RPLOT)  
allows the choice of:
  - how many sets of data to run at once
  - transforming data with selected functions
  - minimum and maximum scale values
  - sending graph to plotter
- Mean and Standard Deviation plotting (MPLOT)  
allows the choice of:
  - how many sets of data to run at once
  - use of archived or new data sets
  - transforming data with selected functions
  - arithmetic or geometric mean
  - minimum and maximum scale values
  - names for data sets
  - plotting of all points
  - having standard deviation points plotted
  - plotting types
  - symbols to indicate plot points
  - normal or logarithmic data types

- b. PROBIT  
Designed to investigate the effect of a chemical on the environment when conducting toxicity studies, PROBIT linearizes the integrated normal sigmoid curve.
- c. LOGIT  
Designed to investigate the effect of a chemical on the environment when conducting toxicity studies, LOGIT linearizes the logistic sigmoid curve.
- d. BIOFAC  
BIOFAC is a program that characterizes the rates of uptake and clearance of chemicals in aquatic organisms. It generates optimal estimates of the rate of constants from a set of sequential time-concentration data. This program because of its size, is executed through the NCC IBM, using data acquired locally.

NOTE: The application programs stated above are programs already written. The PDP 11/70 is not limited to running only these programs. Programs can be written to serve almost any purpose. For further information see the System Manager, Lin Donnalley.

5. Input/Output services provided

- a. Input
  - Terminals are located in numerous places on the island. These terminals are directly linked to the PDP 11/70.
  - Tektronix terminals are located in building 27. These terminals run the plot routines.
  - TI Hardcopy Portable Terminals may be checked out with advanced notice from Lin Donnalley, the System Manager. These utilize the services of the PDP 11/70 from places other than the Island, via a telephone.
  - Tapes are also available that have historical data on them that may be used as data in programs.
- b. Output
  - Available with the plot routines are the Tektronix 4662 and 4663 plotters. These plotters provide on site charting of graphs.
  - Medium speed band 300 lines per minute (LPM) line printer.
  - High speed drum 900 lines per minute (LPM) line printer.
- c. Storage
  - There are two (2) 176 million byte capacity removable disks.
  - Two (2) unlimited capacity 9-track tapes drives.

NOTE: There is a link between the PDP 11/70 and NCC IBM, this link sends programs and data input and receives analytical and report output.

There are also communication capabilities with all other EPA labs through the PDP 11/70.



C. WHAT MANUALS AND/OR DOCUMENTATION ARE AVAILABLE?

1. The EPA PDP 11/70 User's Manual  
This provides a basic description of what is available, in terms any user can understand, of EPA's standard hardware and software configurations and will state which manual to refer to for further information. This is a manual designed to direct the user to more detailed information.
2. Manual Outline  
This functions as a table of contents to each of the manuals for further guidance to a particular subject of the PDP 11/70. This outline may be obtained by seeing the System Manager, Lin Donnalley.
3. IAS PDS User's Guide  
A guide to the use of file manipulation commands of PDS.
4. DATATRIEVE User's Guide  
Describes information on DATATRIEVE in a more specific manner, providing detailed information on the use of DATATRIEVE to users.
5. INFORM-11 Reference Manual  
Provides detailed information to the users of the INFORM-11 data base management system.
6. PDP 11/70 Programmer Reference Manual  
Includes detailed information on CLI software.
7. Data Entry Project Forms Definition Language  
Implementation and reference manual for DEP

NOTE: The manuals are located in the Computer Building, building 24.

D. FOR FURTHER ASSISTANCE AND/OR INSTRUCTION

See the PDP 11/70 System Manager, Lin Donnalley.

E. NOTES TO USERS:

1. The hours of operation for the PDP 11/70 are 24 hours a day, with two exceptions:
  - a. Backups

Monday	4:00a.m. - 8:00p.m.
Wednesday	11:30a.m. - 1:00p.m.
Thursday	11:30a.m. - 1:00p.m.

- b. Preventive Maintenance  
These hours will be notified on the CRT's sign-on screen to notify users.
2. The PDP 11/70 Support Staff includes the following:
  - a. System Manager - Lin Donnalley
  - b. Senior Programmer - Hank Misiak
  - c. Computer Operator - Melanie Cumby
  - d. Data Entry Operator - Jo Ann Robison
3. In order to request work that relates to the PDP 11/70, a job request form should be filled out and approved by a branch chief. The job request forms are for the initiators benefit, they allow an organized method for the PDP 11/70 staff to ensure that the request was properly identified, authorized, accepted and performed. The job request form may be obtained in the Computer Building, building 24.
4. When a sign off message appears on the screen, please do so as quickly as possible. Your cooperation in this effort will allow operations required for the shut down to begin and end in a minimum amount of time. Work on the computer may then be resumed for all employees.

### NCC IBM

The IBM 3081 is provided for the EPA Laboratories by the National Computer Center, (NCC), in Research Triangle Park in North Carolina. Their mission is to aid EPA and contract employees in their administrative and scientific duties in addition to the local support provided the DEC PDP 11/70.

Software packages such as SAS and input/output services are provided which would otherwise not be available. These will be listed with a brief explanation of each in the section to follow.

There is a charge to the laboratory for use of the IBM. It should, therefore, only be used when it has been determined that all other resources of the laboratory cannot meet the user's needs. The system manager will assist you in this area should you have any questions.

## A. WHO HAS ACCESS TO THE SYSTEM?

The IBM is connected to the laboratory through a phone line to the DEC PDP 11/70. This connection is activated when the number of jobs waiting to be sent reaches a minimum threshold or until a job has remained in queue for a minimum amount of time. Any EPA or contract employee with a current DEC account may access the IBM. Please see the system manager, Lin Donnalley for job schedules and account information.

## B. SERVICES PROVIDED

### 1. Software packages

#### a. Language Compilers

- |            |                |
|------------|----------------|
| ◦ Fortran  | ◦ PL/1 **      |
| ◦ COBOL ** | ◦ BASIC        |
| ◦ APL **   | ◦ Assembler ** |

\*\* NOTE: Not available on the DEC PDP 11/70

#### b. Application Programs

The following is a list of some of these programs and their uses as given in the NCC IBM User's Guide:

- EASYTRIEVE
  - report generation
  - information retrieval
  - record updating/editing
  - matching and merging files
  - preprinted or customized forms
- Statistical Analysis System (SAS)
  - linear and nonlinear regression
  - analyses of variance and covariance
  - multivariate analysis of variance
  - matrix manipulation
  - multiple and partial correlation coefficients
  - Spearman's and Kendall's correlation coefficients
  - frequency and crosstabulation tables
  - assorted printed and plotted output
- Biomedical Computer Program (BMDP)
  - univariate statistics (mean, skewness) and histograms
  - bivariate F and T tests and comparison of cells
  - scatter plots, probability plots
  - missing values estimates, patterns and correlations

- multiple linear, stepwise, best subsets, principle component and polynomial regression as well as nonlinear regression
- nonparameter statistical analysis, canonical correlations, discriminant analysis
- cluster analysis on cases, variables or blocks
- o Plotting and Graphics Systems
  - setting the contents of the communication vector
  - placing scaling marks on a plot
  - advancing and terminating frames

## 2. Input/Output Services

- a. On the IBM:
  - o unlimited disk storage on and off line
  - o laser printer
    - for larger printouts
    - these are mailed to users
  - o calcomp plotter
    - plots are mailed to users
- b. On the DEC PDP 11/70:
  - o high speed drum 900 lines per minute (LPM) line printer
  - o medium speed band 300 LPM line printer
  - o Tektronix 4662 and 4663 plotters
  - o two 176 megabyte disk drives
  - o two 9 track tape drives

## C. WHAT MANUALS AND/OR DOCUMENTATION ARE AVAILABLE?

1. The NCC/IBM Users Guide  
Provides more detailed information on software and support available from the IBM and NCC personnel. Available in the Computer Building, building 24.
2. NCC/IBM Newsletter  
Documents any changes or additions to IBM software, operations or services. Copies are available from the CSC Secretary, Corky Lynch.
3. Reference manuals for the operation of the IBM are maintained locally at NCC.

D. FOR FURTHER ASSISTANCE AND/OR INSTRUCTION

Please see your System Manager, Lin Donnalley.

E. NOTES TO USERS

1. Hours the IBM is available:

M - F 6:00am - 5:00am  
Sat 6:00am - 3:30pm  
For holidays; see newsletter.

2. The DEC is your link to the IBM, therefore, users must be aware of schedules of operation locally as well. It is available 24 hours a day except for the following:

a. Backups

Monday	4:00p.m. - 8:00p.m.
Wednesday	11:30a.m. - 1:00p.m.
Thursday	11:30a.m. - 1:00p.m.

b. Monthly tape backups

These times are subject to change but are only taken after lab hours when the computer is not in use.

c. Preventive maintenance

Also subject to change. Notices are printed on CRT's to inform users.

3. Save costs for the IBM by using batch streams to execute jobs.

4. Costs for the IBM are 25-50% less if jobs are run overnite or on weekends. Use this savings whenever possible. See your system manager for the necessary changes to your job card JCL.

5. Should NCC be responsible for a job failure a refund is available for costs charged to the laboratory in connection with that job. Please bring your "bombed job" printouts to the System Manager so this may be determined.

6. NCC provides a very dedicated user support committee. Should you wish to express requests, enhancements, problems or assistance, please see the System Manager so your suggestions may be brought to their attention.

HEWLETT PACKARD 3357

The Hewlett Packard multiprocessor offers a continuous real-time facility necessary for many experimental applications. This means data doesn't wait for access to the processor. Due to time-sharing utilization and regular system shutdowns required for backups and preventive maintenance, the DEC is not a primary resource for real-time processing as it cannot guarantee return for additional information in a specified amount of time. The Hewlett Packard is also used extensively for data collection and manipulation, and for archiving analytical data.

The following describes the services provided by the Hewlett Packard system and guides you for further assistance.

C. WHAT MANUALS AND/OR DOCUMENTATION ARE AVAILABLE?

Complete documentation is available for all supported languages, the operating environment and utilities.

1. HP 3357 Users' Guide  
a basic guide to use the HP 3357 and a directory to specific user manuals.
2. Software Update  
current software updates and procedure.

NOTE: These manuals are located in the Computer Building, building 24.

D. FOR FURTHER ASSISTANCE

Please see the Systems Manager, Jim Moore.

E. NOTES TO USERS

1. The Hewlett Packard provides the user with raw data to identify individual data points which can provide a more detailed analysis of the processed output.
2. In the near future the Hewlett Packard will be linked to the DEC PDP 11/70, providing all of the advantages of the DEC including NCC IBM, SAS, and National Communications Network with all EPA labs and locations.
3. The Hewlett Packard runs 24 hours a day, and is always available for processing. During back-ups data collections are continued.



### TEKTRONIX 4051

The Tektronix 4051, located in the Wetlab Computer Room, is dedicated to monitoring water quality parameters. These include raw and filter seawater temperatures, raw, filter and control seawater salinities, ph, dissolved oxygen and additionally, solar energy levels striking the wetlab roof.

This monitoring enables researchers to determine that desired water quality levels are maintained for wetlab experiments which will not effect data results and analysis.

The system has been equipped with an uninterruptible power supply, which has greatly increased dependability. Future additions, as they become possible, will reduce downtime even further.

The following will provide additional information regarding the TEK 4051 and will direct you for further assistance.

A. WHO HAS ACCESS TO THE SYSTEM?

Because it is dedicated to water quality monitoring, the TEK 4051 is only accessed for operations and maintenance purposes by computer personnel. Of course data collected by the system is available to all EPA and contract employees for analysis, graphics and report output as desired.

B. SERVICES PROVIDED

1. Monitored data available from March 1983.
2. Graph of water quality parameters for current 24 hour period.
3. Two and three dimensional plots from data of the host
  - a. Salinity
    - o raw
    - o filtered
    - o control
  - b. Temperature
    - o raw
    - o filtered
  - c. PH
  - d. Dissolved oxygen
  - e. Solar

C. WHAT MANUALS AND/OR DOCUMENTATION ARE AVAILABLE?

1. A laboratory notebook is provided for logging system downtime.
2. Procedures for bringing the system back up are posted above the terminal
3. Reference and operators manuals as well as equipment and device manuals are available for programming and operations need.

NOTE: These manuals may be found in the Wetlab Computer Room.

D. FOR FURTHER ASSISTANCE AND/OR INSTRUCTION

For output requests, reporting problems or further inquiry, see Hank Misiak, Russ Ryder or Jo Ann Robison.

E. NOTES TO USERS

An additional TEKTRONIX 4051 is located in building 27. The primary use of the system is software development and plotting of wetlab data.

### IBM PC's

An IBM PC XT and two PC JR's are currently located at the EPA laboratory. Due to the dedicated nature of their application they are generally unavailable to employees outside of their designated department.

The possibility exists that additional IBM Personal Computers will be available to EPA employees in the future; therefore, information on their current use could be valuable.

The following explains the current applications of the IBM Personal Computers being used at EPA.

A. WHO HAS ACCESS?

1. The PC XT is used by administration personnel under the supervision of Connie Shoemaker.
2. a. A PC JR is used by the Department of Extramural Affairs under the supervision of Dr. Frank Wilkes.  
b. A PC JR is used in the Drilling Fluids program under the supervision of Dr. Thomas Duke.

B. SERVICES PROVIDED

1. a. The PC XT provides administration personnel with
  - budget planning
  - personnel listings
  - ability to transmit and receive information from other computers
  - record storage
  - data analysisb. The PC JR is used by the Extramural Affairs Department for
  - program planning
  - tracking of Program Planning documents
  - word processing
  - ability to transmit and receive information from other computers
  - record storage
  - data analysisc. The PC JR used in the Drilling Fluids Program is in the implementation phase.
2. SOFTWARE PACKAGES  
The following is a list of the software available on the PC XT and the PC JR's. Note the availability of each:
  - a. PC-DOS  
an operating system with disk features. Available on all three systems.
  - b. BASIC  
the Basic Language interpreter provides the user with the resource to create software as needed for individual applications. Available on all three systems.
  - c. LOTUS 1-2-3  
a spreadsheet program with graphics and data management capabilities. This is available for Extramural Affairs on cartridge and on disk for Administration.

- d. WORDSTAR  
a word processing program with text editing and manipulation. Available for the PC XT and the PC JR in Administration.
- e. DBASE-III  
a data base management system. Available only on the PC XT.
- f. CROSSTALK  
a communication program with terminal emulation. Available for the PC XT and the PC JR in Administration.
- g. IBM FILING ASSISTANT  
Available on Dr. Dukes PC JR.
- h. IBM WRITING ASSISTANT  
Available on Dr. Duke PC JR.

### 3. INPUT/OUTPUT

- a. PC XT
  - 256KB memory
  - 10MB fixed disk
  - 360KB dual density, dual sided, soft sector diskette drive
  - character display monitor
  - high quality dot matrix printer with graphics capability
  - 1200 baud smart modem
- b. PR JR in Administration
  - 128KB memory
  - 360KB dual density, dual sided, soft sector diskette drive
  - 2 loadable cartridge receptacles (Cartridges are programmed ROM that can be loaded. These programs are often too large to normally run in available memory if loaded from disk.)
  - monochrome display
  - dot matrix printer
- c. PC JR in Drilling Fluids program
  - 128KB memory
  - 360KB dual density, dual sided, soft sector diskette drive
  - 2 loadable cartridge receptacles (Cartridges are programmed ROM that can be loaded. These programs are often too large to normally run in available memory if loaded from disk.)
  - color graphics display
  - dot matrix printer

C. WHAT MANUALS AND/OR DOCUMENTATION ARE AVAILABLE?

1. Manuals are available for each of the software packages used by all three PC systems.
  - a. LOTUS 1-2-3
  - b. DBASE-III
  - c. Wordstar
  - d. Crosstalk
  - e. IBM PC Basic
  - f. EPA IBM PC XT User's Guide
  - g. Okidata Printer User's Guide
  - h. IBM Filing Assistant
  - i. IBM Writing Assistant
  - j. Hayes Smart Modem
2. The manual for the PC JR used by Dr. Duke are located in building 15. The other manuals are located on the second floor in the Administration Building with the PC XT.

D. FOR FURTHER ASSISTANCE

1. Should you feel you have a valid application for the PC XT or the PC JR please see Connie Shoemaker or Dr. Frank Wilkes respectively.
2. Should further information be desired of an individual nature please see the Senior Programmer, Hank Misiak in the computer building.

E. NOTES TO USERS

1. An electronic bulletin board is available through E-Mail to connected terminals providing users with current IBM PC classified information, book reviews, and up-to-date IBM PC news.
2. Infrequent users of the IBM Personal Computers should obtain their own diskette media so data entered and manipulated can be held in the security of the user's possession.
3. It is also recommended that "backups" or copies be made for additional security.



## THE LIBRARY

The Library is the information center for the laboratory which fully integrates data processing resources. The on-line library system has provided the ability to retrieve and organize vast amounts of information not previously accessible by manual methods.

The following will explain what services are available through the library and will direct you for further assistance.

## A. WHO HAS ACCESS?

1. The library is available to all EPA and contract employees. Students involved in the stay-in-school program and public patrons are allowed to use the materials on the premise, but may not remove them from the library.
2. The library on-line resources are accessible only by library personnel with the exception of the ERLGB contribution database. This will be discussed in notes to users, page 6-4.
3. A library index, available to all patrons, contains listings of title, author and subject. Please see the library manager, Susan Means, for access.

## B. SERVICES PROVIDED

1. EPALIT is a general data management resource which generates the following services:
  - a. Library Holdings Database
    - printouts by title, author or subject
    - special reports such as journal index or directory of items in circulation
    - keyword analysis of titles and descriptive notes
  - b. ERLGB Contribution Database
    - a directory printout of:
      - bibliographic citations
      - author index
      - keyword title index
    - special bibliographies
  - c. Reprint Database
    - author index in bibliographic citation format
    - subject, title and keyword indices
    - author and subject specific indices
    - catalogs personal reprints of the laboratory staff

NOTE: These reprints are owned by the individual scientist.

  - d. Library Notebook Database
    - control and retrieval of the research notebooks
    - maintain table of contents for each
  - e. Slide Collection Database
    - maintains description and circulation of the laboratory slide collection.

- f. Thesaurus (of terms recommended for use in describing published material)
  - o a thesaurus of descriptors with hierarchial relationships
  - o a listing of descriptors with relationships
  - o a keyword-in-context listing of descriptor words

2. Access to national commercial databases

- a. Dialog  
This service provides access to over 200 databases. The most frequently used are BIOSIS, (on-line version of Biological Abstracts), Aquatic Sciences and Fisheries Abstracts, Oceanic Abstracts, Enviroline, Pollution Abstracts, CA Search (on-line version of Chemical Abstracts), and the NTIS database.
- b. National Library of Medicine (NLM)  
This service provides access to databases in the medical, biological, chemical and life sciences fields.
- c. National Environmental Data Referral Service (NEDRES)  
This is a directory database which identifies the existence, location, characteristics and availability of environmental data held by federal, state and private organizations.

3. OCLC

Provides the library with on-line cataloging capabilities and links the library nationally to the interlibrary loan system. This allows the library to locate and retrieve material not available on-site as well as giving assistance to other libraries who may have need for information stored at the laboratory.

- d. Reference  
All books, journals, papers and materials in the library are available for use.

C. WHAT MANUALS AND/OR DOCUMENTATION ARE AVAILABLE?

- 1. Library Systems Users Manual
- 2. Computerized Library Systems both provide detailed information and examples of EPALIT and the library databases mentioned earlier.
- 3. OCLC Guide
- 4. Library Mission Statement
- 5. These materials are located in the library.

D. FOR FURTHER ASSISTANCE AND/OR INSTRUCTION

Please see the Library Manager, Susan Means or the Library Assistant, Alice Pool.

E. NOTES TO USERS

1. The ERLGB contribution system is directly accessible via any DEC connected terminal to all lab employees utilization of this service is a benefit which will provide users with more immediate information and will allow more time for library personnel to complete other duties.
2. The library staff asks that all requests for reprints please go through the library so that a record may be made of the transaction.

## STATISTICAL ANALYSIS

Statistical Analysis is a critical element in determining experimental evaluation. It is the basis for conclusions drawn from data derived from an experiment. With the importance placed on statistical analysis, the need for accuracy becomes obvious. The services and data processing resources available at EPA provide the high degree of accuracy and versatility necessary for complex statistical analysis.

The following will expand on the Statistical Analysis resources available and will direct you for further assistance.

A. WHO HAS ACCESS TO THE STATISTICAL ANALYSIS RESOURCES?

1. The statistician and related data processing resources are available to all EPA and contract employees.

B. SERVICES PROVIDED

1. The Statistician, Dr. Christine Deans, will assist users in the following:
  - a. in the design phase of an experiment to ensure that measurable and meaningful data are produced
  - b. in choosing accurate statistical analysis of statistical data
  - c. will review for accuracy, the manuscripts which make reference to or inference from their results
2. SAS  
is a general statistical analysis package provided by the NCC IBM through the PDP 11/70. It is readily available for use by the Statistician. Some of the functions it provides are analysis of variance, regression, categorical data analyses and multivariate analysis (see NCC IBM). For details of these and other functions, please refer to the SAS Users Guide.
3. PROBIT  
is an easy to use statistical analysis program available on the PDP 11/70. It is used primarily for determining lethal concentration calculations (LC50). (Note: Refer to page 1-3 for more application programs available on the PDP 11/70.)
4. Input/Output Services
  - a. Data files currently stored on disk or tape may be transferred to the IBM NCC for SAS analysis.
  - b. Data not currently stored on disk or tape may be input by the data entry operator. (please see Notes To User's NCC IBM, page 2-4)
  - c. The 4662 Plotter is used to produce charts from SAS analysis. It is a single pen plotter. The pen may be changed for different colors.
  - d. The 4663 Plotter is a two pen color plotter capable of larger charts. It is also used to produce charts from SAS analysis.

- e. A line printer is available for report output in the computer room.

C. WHAT MANUALS AND/OR DOCUMENTATION ARE AVAILABLE?

1. A SAS User's Guide consisting of three volumes is available:
  - a. Basics - fundamentals of the SAS system; intro to DATA and PROC steps; the syntax and use of SAS statements; macros; systems options; procedures for descriptive statistics, report writing and utilities.
  - b. Statistics - contains advanced statistical procedures in the areas of regression, analysis of variance, categorical data analyses, multivariate analysis, discriminant analysis, clustering, scoring and matrix language.
  - c. SAS/Graphs User's Guide - a brief tutorial to aid the user in selection and execution of the many SAS graph options.

NOTE: These manuals are available in the library.

2. PROBIT definitions and commands are found in the PDP 11/70 Users Guides.

D. FOR FURTHER ASSISTANCE AND/OR INSTRUCTION

Please see Statistician, Dr. Christine Deans.

E. NOTES TO USERS

1. To ensure accuracy and provide timely processing, data to be entered by data entry operator should be on a standard data form.
2. For availability times and associated costs for SAS, please refer to NCC IBM NOTES TO USERS, page 2-4.

## WORD PROCESSING

The Word Processing department utilizes EPA standard LEXITRON word processing stations and other timely equipment. This enables the lab to maintain a professional standard in document, manuscript, letter and report output. The department also provides transmittals between EPA locations through built in modems and the agency's electronic mail system.

This section on the Word Processing Department will provide a look at what is available and how to best utilize the facilities available.



A. WHO HAS ACCESS TO THE WORD PROCESSING SERVICE?

All EPA and contract employees have access to the services the Word Processing Department provides. The proper request forms may be obtained from the Word Processing Department. The material and request form should be submitted to Word Processing far enough in advance to serve your needs in an orderly and efficient manner. The Word Processing Department provides a service, access to the equipment is only for Word Processing Personnel.

B. SERVICES PROVIDED

1. Typing - typing services are done using a dual floppy disk Lexitron VI1303. Other equipment used along with the Lexitron are in internal modem and a letter quality printer. The typing services provided are:
  - a. Manuscripts
  - b. Documents
  - c. Letters
  - d. Reports
  - e. Memos
  - f. Envelopes
  - g. Invoices

NOTE: Typing is structured in Government style for a standard. Alternative typing styles should be described by the request form.

NOTE: For manuscripts submit an "Editorial Review Tracking System" request form from word processing. For all other typing, submit the "Job Request" form.

2. Graphics
  - a. Tables
  - b. Transparencies
  - c. View graphs
  - d. Slides

3. Electronic Mail (E-mail)

Text may be sent or received from all EPA locations housing agency standard facilities. Please submit a "Cover Memo for Electronic Mail" when requesting this service.

C. WHAT MANUALS AND/OR DOCUMENTATION ARE AVAILABLE?

1. LEXITRON VT1303 Training Manual
2. Reference Manual
3. Communication Guide (for E-Mail)
4. All manuals and request forms are located in the Word Processing Department on the 2nd floor of building 1.

D. FOR FURTHER INSTRUCTION AND/OR ASSISTANCE

See the Word Processing Manager, Maureen Stubbs.

E. NOTES TO USERS

1. Include, along with the proper form a typed or neatly printed copy of what you want done.
2. The Word Processing department hours are:

Monday - Friday      7:30am - 4:00pm