

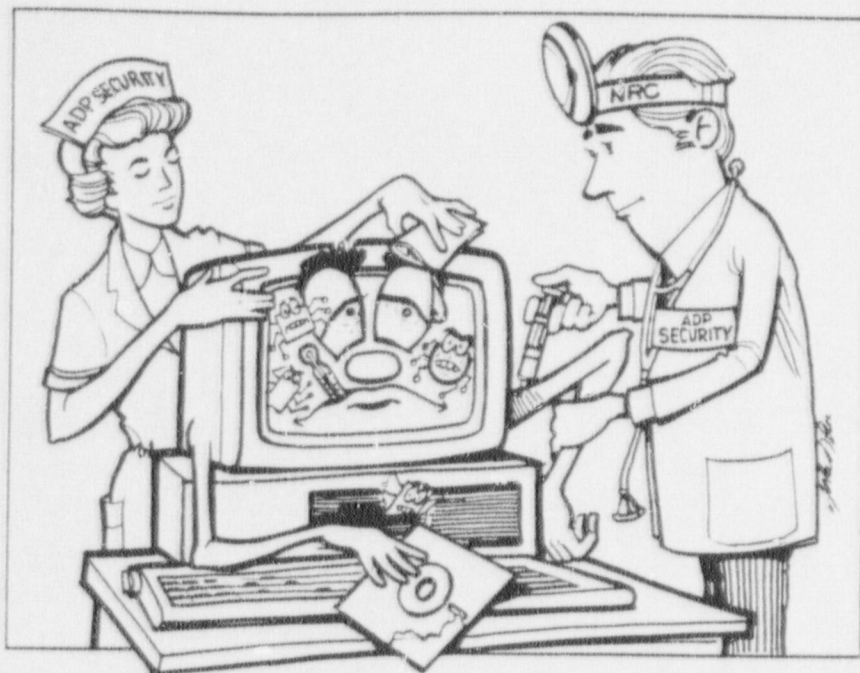
Information Technology  
Services Support Center  
and Training Laboratory



U.S. Nuclear  
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Division of Information  
Support Services

Office of  
Personnel



Proper precautions can prevent this from happening to your computer!

## Are You A Candidate For Personal Computer Security Problems?

By Lou Grosman, IRM

The increased use of computer resources to provide information to the NRC staff has led to a substantial investment in computer assets. Employees in all NRC offices use personal computers, word processors, and remote terminals on a daily basis. This equipment may also be connected to host computers or networks. It is usually supported by peripheral devices such as printers, plotters, and on-line/off-line storage devices.

This radical increase in computerized office applications has taken computer security out of the hands of a small group of experts who focused on securing self-contained computer rooms. Protecting

against information loss, destruction, or modification; disclosure of sensitive information; and computer crime now are a daily concern for an ever widening group of managers and YOU, the end-user.

In the computer security area, the NRC is committed to take action to limit risks, head off problems, and minimize the potential for the loss or unauthorized disclosure of information. To accomplish these goals, all end-users need to understand the ADP security dimensions of their jobs. You need to incorporate security procedures into your daily routine, learn to recognize potential problems, and know what to do if something goes wrong.

You can begin to see what computer security is about, and where you fit in, by considering the following questions:

What computer equipment do you work with? Is the equipment protected? Is there control over access to your work area and terminals?

What about the data you work with? Is it sensitive? If so, what special procedures should you follow?

What problems occur when you use computer equipment? What other

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problems have you heard about? What kinds of losses did these problems cause?

What procedures do you follow to protect equipment and information from harm? How do you document your actions?

Have you ever thought of anything that would help protect computer equipment or sensitive information? Who should you talk to about security concerns?

These questions are at the core of the formal NRC computer security program. Every end-user is responsible for recognizing how computer security is linked to his or her job. The following list of simple precautions is provided to help you relate security to your job and to help you determine your responsibilities and develop the procedures you need to

follow to protect ADP equipment in your work area and sensitive information from loss or unauthorized disclosure.

Do you protect sensitive unclassified information? Sensitive and mission-critical information requires protection from disclosure alteration, and loss.

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**Every end-user  
is responsible  
for recognizing  
how computer  
security is  
linked to his or  
her job.**

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Do you protect your unattended terminal? Always logout before leaving your terminal unattended.

Do you protect against viruses? Never bring unauthorized/personal software to work, see NRC Manual Chapter Bulletin 0904-3, Section VII. Beware of borrowed or unsolicited software; these may contain a computer "virus" designed to capture, alter, or destroy data.

Do you protect your media? Label all diskettes, and lock up software, removable media, and equipment that contains fixed media.

Do you protect against disaster? Backup your data at frequent intervals. Always have backup programs, equipment, data, and data bases ready to go.

By reviewing this list on a regular basis and implementing the precautions, security will become second nature to you and YOU won't be a candidate for personal computer security problems.

The NRC has a designated computer security staff to provide advice and guidance to all employees. If you have a computer security question or problem, if you or your organization would like a computer security briefing, or if you would like a copy of the "NRC COMPUTER USER'S GUIDE TO GOOD SECURITY PRACTICES", contact Louis H. Grosman, at 492-5019. Additional information and guidance on computer security matters can be found in NRC Appendix 2301, Parts I and II.

## ITS NEWS Credits

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Your articles, ideas, questions and comments are welcomed. Please forward them to the ITS staff by:

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Do you protect classified data? Process classified data only when you have prior approval and authorization. Never process classified data on a system with a hard disk.

Do you protect your equipment? Practice good housekeeping at all times, including not smoking, drinking, or eating around the personal computer or terminal. Keep electrical appliances away from your computer and media.

Do you protect your area? Recognize, politely challenge, and assist people who DO NOT belong in the area.

Do you protect passwords? Use only permitted passwords, change them frequently, use meaningless character strings, safeguard and DO NOT share your password with anyone.

Do you protect your files? Establish and periodically review access privileges for each sensitive file. Inspect your data to ensure that no one has tampered with it.

## Special Thanks!

The ITS NEWS Staff wishes to give special thanks to Emily Robinson, IRM. She has been the Interim Editor of the ITS NEWS for the past two issues, and was a tremendous help during the transition period for this issue. Thanks for all your hard work and dedication!



## LIST OF HELP MENUS

NAME	DESCRIPTION
HM	Lists Help Menus
HDISPLAY	Specialized Commands For DisplayWrite 4
HXTALK	Describes Specialized Commands For CROSSTALK Communications Program
HSMART	Describes Specialized Commands for SmartTerm Communications Program
HMV8000	Commands for MV/8000 Job Control Language
HFORTRAN	Commands for The Fortran Editor And Compiler On The MV/8000

Table 1: Example Menu of Customized HELP Menus created on SIDEKICK. You can easily create these simple menus if you read the following article.

## Can't Remember a Command? Use SIDEKICK!

By William Ford, NMSS

Have you ever been running a piece of software or been logged on to a mainframe computer only to discover that you can't remember a needed command? Have you ever had to search for that command through thick manuals, which you have searched many times before. Have you ever wanted to eliminate having to bury your desk underneath software and mainframe manuals so you can look up a command quickly?

If so, then a customized help menu is a tool you can use. Creating customized help menus is quick and easy. However, you will need a personal computer with a hard disk drive and a memory resident program that allows you to store and access notes on the hard disk drive. SIDEKICK is a supported NRC software package that, in addition to a calendar and calculator, contains a note pad feature that allows the user to create and store text information as individual files on a hard disk. Because SIDEKICK is a memory resident program, it can be accessed while you are running another program. This means users can access any SIDEKICK program

(including SIDEKICK's own help menus) while running another program and then return to that program exactly where they left off. This feature allows the user to call up and view documents that have been created and stored on a hard disk using the SIDEKICK Notepad program. To create your own personal menus, you only need to type the commands and explanations you wish to remember into the SIDEKICK Notepad and save them with a unique file name to the hard disk. Because SIDEKICK has built-in help menus, this too is easy to do.

To see how customized help menus might be used, consider the following example in which a user wants to use FORTRAN on a mainframe computer. First the user would load SIDEKICK. Memory-resident programs should be loaded before other software is used (caution, some users' hardware may not have enough memory for both SIDEKICK and the application that they wish to run). Having loaded SIDEKICK, the user then would recall the names of the customized help menu files he/she has created. The user accomplishes this by

viewing a SIDEKICK Notepad document which contains the name and a brief description of each of his customized help menus (Table 1). Next, to access the mainframe, the user loads up his/her communication software on the PC. At this time the user may want to use SIDEKICK to view the communication help menu. Next the user logs onto the mainframe and uses SIDEKICK to view a Notepad document containing job control language commands. Finally, the user enters the mainframe FORTRAN editor and uses SIDEKICK to refresh his/her memory about the FORTRAN editor commands.

Similar menus can also be created for other PC programs such as word processing and spreadsheet programs. However, SIDEKICK may reduce the speed of some types of software such as dBASE III and dBASE III PLUS. Again the only requirement is that SIDEKICK is loaded before the software you intend to use. Be creative and enjoy.

## Computer Facility of the Future

by Mike King, IRM

In anticipation of the move of NRC facilities from Bethesda to the proposed Two White Flint North (TWFN) office building, the Computer and Telephone Operations Branch (CTOB), Office of Information Resources Management (IRM), is proceeding with plans to design and implement a consolidated computer center for the new building. This center is scheduled to be located on the sixth floor of the new building and would consolidate computer facilities currently located at the Phillips, Woodmont, and Maryland National Bank buildings. The facility will contain all of NRC computers larger than a personal computer (PC), and will be operated by a contractor. At this time, it is expected that there will be two operating shifts.

Hardware at the facility will include IBM, Data General, and Hewlett Packard equipment. Systems to be served include Payroll/IFMIS (Integrated Financial Management System), Personnel, PASS (Property and Supply), NUDOS, SINET, PROFS, INQUIRE, EXSIS, the Operations Center, and general timesharing as currently provided at P-634. The existing One White Flint North (OWFN) computer room, will be retained to provide a remote job entry (RJE) facility for the offices located in that building, as well as an off-site tape library for the TWFN center.

Consolidating computer operations in the way proposed by IRM will allow for a more efficient, streamlined operation. Operating costs will be reduced by having a few contractors in a single location. Additionally, consolidation will provide for redundancy of both hardware and software for similar systems (e.g., the Data General equipment), which will allow a fallback position in the event of hardware or software failure. In the interest of security, the environment will be "compartmentalized". Separate work areas within the facility will be dedicated to particular applications that process sensitive unclassified data, such as Personnel and Payroll; classified information will not be processed in the facility.

IRM is continuing to discuss with the Office of Consolidation on the space to be allocated for the computer facility, keeping in perspective not only the present level of service, but also future ADP needs. Contractor support will be used in the design and implementation of the layout. The facility should reflect the state of the art in facility design and management and should allow flexibility for the acquisition of newer, larger pieces of equipment. A possible long-term future acquisition could be a mainframe computer. This would enable NRC to reduce its dependence on non-NRC computer facilities and significantly reduce off-site timesharing expenses.

## Add Your Scientific Computer Code To The NRC NES C Collection!

*By Pat Bell, IRM*

Does your office have a scientific computer code developed by the NRC staff or by a National Laboratory or by a commercial contractor? Is there documentation in the form of a NUREG or NUREG/CR? Do you want to make it available for distribution with restrictions set by your office? If the answer is "yes," you need the NES C. The NRC has a contract with the National Energy Software Center (NES C) at the Argonne National Laboratory, Argonne, Illinois to distribute NRC computer codes to the NRC staff, NRC contractors, universities, the American public and foreign interests. The computer codes in the NRC NES C collection are technical in nature and sponsored by the NRC. When a NUREG or a NUREG/CR describing a computer code is published the NRC may have an obligation to make the code available to the public and, when appropriate, to requestors from foreign countries. Response to these requests is facilitated by this contract.

### How Does a Code Become Part of the NRC NES C Collection?

The NES C Installation Representative for the NRC, Pat Bell, IRM/ITSB, assists the sponsoring NRC Office with the preparation of a submittal package. This package is made up of a set of the NES C forms describing the computer code (in an abstract clearly outlined as to content), file attributes if the materials are on magnetic tape or directory contents if the materials are on floppy disk(s), code acronym, keywords chosen from a provided thesaurus, a subject classification chosen from a list of possibilities (for example, heat transfer and fluid flow, reactor systems analysis, chemistry, physics, or biology), and a release form that is signed by the Division Director of the NRC sponsoring Office. The

release form gives the sponsoring office the opportunity to specify the computer code distribution (unlimited, U.S. only, a specific distribution list, etc.). In addition to the NES C forms, the submittal package includes the source code, sample input and output results using the sample input, all files needed to run the computer code (supplied on magnetic tape and/or floppy disk(s)), and NUREGs or NUREG/CRs describing the technical scenario, hardware and software used, how to install the code at another facility, and how to prepare data to be run by the code. Once the NES C receives the submittal package, quality assurance (QA) procedures are performed. If the submittal package meets the QA standards, NES C accepts the code into the NRC NES C collection.

### Standards and Portability

Computer codes and documentation should be written according to a set of standards to ease the task of portability. Frequently, computer codes are distributed to requestors who expect to use them on computer configurations that are different than those on which they were developed. NES C has access to a large variety of computers that are used to perform quality assurance tests on the codes submitted for inclusion in the NES C collection or the NRC NES C collection. Applicable sources are:

The ANSI FORTRAN77 is the computer code standard for FORTRAN programs.

The NRC staff and NRC contractors may find guidelines for documentation in the American National Standards Institute (ANSI) Standard N-413, "Guidance for the Documentation of Digital Computer Programs."

The NRC staff and NRC contractors may find guidelines for docu-



mentation in the Federal Information Processing Standards Publication (FIPS PUB 105), "Guideline For Software Documentation Management" which is published by the Department of Commerce.

Attachment 1 of the NRC Manual Chapter 0904-3, "NRC Computer Software Policy," addresses the areas of code distribution and standards. It is updated frequently. These documents are available at the NRC library.

### Why would NRC Staff want to submit a computer code to NESC?

Once an NRC staff member submits a code to the NESC, most of the administrative tasks are handled by the NESC. In addition to sending the code to domestic requestors, NESC maintains a distribution list that can be used to notify prior recipients of changes to the code. The NESC also maintains the latest policy and procedures for distributing computer codes to requestors from foreign countries. The NRC sponsoring office controls any necessary restrictions regarding distribution. Last but not least, and maybe the most important advan-

tage of all, is that the NESC will be maintaining the latest version of the computer codes so that the nuclear industry and the NRC are using the same versions.

### How to find information about computer codes

Abstracts providing information about computer codes in the entire NESC collection may be found in two large volumes in the ITSB technical library located in the Phillips Building in room P-808. Abstracts providing information about computer codes in the NRC NESC collection, are updated on a quarterly basis and available in two locations, the ITSB technical library located in the Phillips building, P-808, and the ITSB user area, One White Flint North, 3C-10.

### How to receive a code from NESC

NRC staff members may obtain a code by submitting a letter from their Branch Chief or above requesting the code. NRC contractors may receive a code by submitting a request through their NRC staff project manager. These requests will be filled without a charge.



Margaret Butler, of National Energy Software Center (NESC), shows Pat Bell, IRM, the new index to the NRC NESC collection. You can add your code or request a code from this collection.

## Become Part of the ITS NEWS Team!

ITS NEWS welcomes everyone to contribute! Please send your articles, ideas, and suggestions to :

ITS NEWS Editor  
Mailstop P-808  
492-8309

All requests for codes should be sent to:

Chief  
Information Technology Services Branch  
Division of Information Support Services  
Office of Information Resources  
Management

Requests from the general public may be submitted directly to the NESC. They will be filled at a reasonable price. The NESC address is:

National Energy Software Center  
Argonne National Laboratory  
9700 South Cass Avenue  
Argonne, Illinois 60439

Computer code requests from foreign countries are likely to be sent to many different places including NESC directly, NRC's Information Technology Services Branch, an NRC staff member, NRC's International Programs Office, the State Department, Department of Energy, or any combination of the above. No matter where the request is received initially all of these groups must be directly or indirectly involved in responding to the request. Answers to questions and detailed information may be obtained from Pat Bell, 492-3491.

# SIGN ON SINET WITH EXSIS

## Who's Using SINET?

The Shared Information NETWORK (SINET) is a centralized data base that serves as the primary repository for NRC's shared data. In February, the SINET development team conducted a survey to find out who was using the data in SINET and how it was helping them in their work. In this article we'd like to share with you the comments and experiences of SINET users in the Office of Nuclear Reactor Regulation (NRR).

During the two week survey period we found over 15 NRR staff using either the SINET Shared Information Access System or the Executive Information System (EXSIS). These included staff from the Divisions of Reactor Projects I/II, Reactor Projects III-V, Operational Events Assessment, Reactor Inspection and Safeguards, and Licensee Performance and Quality Evaluation. Here's what we learned when we asked them how they used the data base.

### Reactor Projects Division Managers Used SINET and EXSIS

Gary Holahan, Acting Director, Division of Reactor Projects III-V and Special Projects and Marty Virgilio, Acting Director, A/D for Region III and V Reactors are both enthusiastic users of the Executive Information System (EXSIS). EXSIS provides summary, exception, and trending data extracted daily from the main SINET data base. Targeted for managers, it is designed to display information quickly and easily using a combination of text and color graphics.

During the survey period, they used EXSIS to prepare for meetings with utility executives, review the latest

data on plants reporting significant events, and gather information for the NRC senior management meetings. Marty Virgilio commented that prior to the availability of EXSIS, preparation for a meeting on a particular nuclear power plant often involved a substantial data gathering effort, including collection of information from event files, SALP and performance indicator (PI) reports, and briefings by the project manager. Now much of this information is available on a PC through EXSIS. Gary Holahan told us that he no longer keeps the hard copies of the PI reports in his office since he realized that he could use EXSIS to select, display, and print the PI graphs on his PC printer. Another feature that comes in handy is the ability to display the daily plant status, highlighting the plants that have

had a status change from the previous day. For a manager, "EXSIS provides a good overall picture of how well a facility has been operating."

Perhaps most important to a busy manager, EXSIS is easy to use. They both commented on the user-friendliness of the system. "Anyone can learn to use this system in under 15 minutes." It's designed for people who don't have time to learn complicated procedures. There is no need for a manual, no need for typing (a mouse is used to select items from the screen), and no need for formalized training.

Mark Caruso, Technical Assistant, and Ray Scholl, the NRR SIMS Coordinator, are both using the SINET Shared Information Access System. During the survey period



EXSIS is designed to display information from the main SINET database quickly and easily. Here, Gary Holahan, NRR, is using a mouse to select items on the EXSIS screen.



Mark Caruso used the containment design type and containment structure type information in SINET to check some discrepancies in data he put together for a study on design strengths and weakness of commercial nuclear power plants. This study was prepared as a followup to some initial work done on this subject for the NRC senior management briefings.

Ray Scholl used the system primarily to check the accuracy of the data for the plants in his division, but also helped others to retrieve information. He mentioned that several of the project managers have asked to receive a regular copy of the SINET Nuclear Power Reactor Book for the plants they manage. The reactor book, available as a standard report from the Shared Information Access System, is a compilation of design data, outage data, systematic assessment of licensee performance (SALP) data, monthly operating report data, performance indicator data, and event data for a selected reactor unit.

At the request of his management, Ray Scholl is also working on a project to identify additional design and system data useful to NRR that could be added to the SINET data base in the future. The NRR proposals will be used as a straw-man for a recently-formed working group that is determining the scope of hardware data to be stored in SINET.

#### **Nuclear Reactor Book Used to Prepare for Team Inspections**

Len Cobb, Senior Program Coordinator, NRR Division of Reactor Inspection and Safeguards (DRIS), used the Shared Information Access System to explore how SINET data could help the staff in his division, particularly in the area of inspections. As a result of his initial use of the system, he put together a summary of SINET features for his division director, branch chiefs, and section chiefs and recommended that the SINET Nuclear Power Reactor Book be used to assist in special team inspections. Its first



SINET provides quick access to NRC's shared data. Mark Caruso, NRR, used SINET to check discrepancies in data he put together for a study.

use was for the Calvert Cliffs nuclear power plant inspection during March 1989.

He commented that the reactor book can be a time-saver in preparing for the team inspection. Instead of researching, collecting, and copying this data for each team member, several copies of the 50-page reactor book can be requested from SINET and available at the White Flint printer in a matter of hours. The reactor book for any nuclear plant unit can be produced simply by requesting it on the reports menu of the Shared Information Access System. It can be routed for printing to high speed printers located throughout the agency, including White Flint, the Phillips Building, and all of the regional offices.

#### **SINET Used by Risk Applications Branch for Quick Access**

Steven Long from the Risk Applications Branch in the Division of Radiation Protection and Emergency Preparedness used SINET to review "50.72" event reports. He commented that it was easier to use SINET than to search NRR's chronological event report files, particularly when he remembers that an event occurred at a specific

plant, or when reviewing the event history at a plant. This is because the Shared Information Access System provides the capability to scroll through the events (both 50.72s and LERs) in reverse chronological order by unit.

#### **Reactor Books Helped Prepare for Senior Management Meetings**

Loren Plisco, a senior operations engineer in the Performance and Quality Evaluation Branch used both EXSIS and Shared Information Access System. "EXSIS is handy for answering questions and getting information quickly. I use SINET when I want more detail or historical information." He found the EXSIS display of SALP information to be particularly useful. "You can see a plant's complete SALP history on a single screen, and the color coding of the performance ratings makes it easy to understand the information at a glance." Loren Plisco also explained that the reactor books are one of the primary sources of information used to prepare for the semiannual senior management meetings. "We used to get event information from paper files and microfiche." The reactor books save time, paper, and file space, a scarce commodity in White Flint.

## Improved SINET Access From Common-use PC's Suggested

Peter Tam, the Project Manager for Beaver Valley in the Division of Reactor Projects I/II, used SINET to check the daily plant status. He used one of the common-use PCs on the 13th floor of White Flint North to access SINET. He commented that not all the common-use machines had the easy-to-use SINET sign-on profile that made it attractive for him to use the system instead of waiting for the printed daily plant status report to be distributed, and in fact he preferred to use a different machine that was closer to his office. As a result of this comment, an improved SINET communications profile is being developed for common-use PCs at White Flint.

### SINET Problems?

Call 492-4005

If you would like to share information on how you use SINET data with ITS NEWS readers, contact Fran Goldberg, FTS 492-4978.

If you would like to find out more about SINET, sign up for the one-day SINET course offered by the ITS Training Lab. To get access to SINET, you need a SINET user ID and password. To request yours, fill out NRC Form 380 (Computer Facility Access Request), have it properly signed and forward it to Rashida Alam, P-612, 429-9900.

If you are a manager and are interested in learning more about EXSIS, or if you have any comments or suggestions on the SINET Shared Information Access System, call Guy Wright on 492-4988.

## SARA - A State-of-the-Art PRA Tool

by Dick Robinson, RES

The NRC has a responsibility to continuously evaluate its safety requirements utilized in reviews in light of any new information that becomes available. Information related to the safety of nuclear power plants (NPPs) comes from a variety of sources such as experience from operating reactors, research results, NRC staff, NRC safety reviews, and architect/engineer, vendor and utility design reviews. Each time a new concern or safety issue is identified from one or more of these sources, the need for immediate action to assure safe plant operation is assessed. This assessment includes consideration of the generic implications of the issue.

The System Analysis and Risk Assessment (SARA) system has been developed at the Idaho National Engineering Laboratory under the direction and guidance of the Office of Nuclear Regulatory Research. The overall objective is to develop a personal computer (PC)-based, user-friendly system for the computation and analysis of information on NPP risk characteristics. The purpose is to provide the capability, in support of rulemaking needs, to examine the risk impact of NPP regulatory issues and plant design and operational changes.

Probabilistic risk assessment (PRA) first entered the nuclear power industry with the publication of the NRC Reactor Safety Study (WASH-1400) in 1975. From that time up to the very recent past, the vast majority of all PRA work was performed using mainframes or minicomputers. This was due to two important factors: first, these large computers were, for a long time, the only machines in existence that could do the job; and, second, the enormity and complexity of the work was beyond the capability of a microcomputer. This situation generally meant expensive but limited access to PRA codes, with the further drawback of high cost maintenance of files and codes on mainframe computers. The end

result was that a completed PRA was difficult to keep current and follow-on uses were limited.

The advent of more powerful PCs sparked interest in inexpensively and more easily maintained "living" risk assessment studies. The possibility of having a personal workstation capable of manipulating and analyzing PRA information opened up new horizons for the uses of PRA. A traditional function of PRA is to determine the risk to the public attributable to the facility analyzed. Many useful insights into the design, operation, and maintenance of the facility are discovered in the process. This information can be integrated into the day-to-day decisionmaking that takes place in the management of the plant. However, such a risk-management approach requires up-to-date risk information. The PC is an excellent vehicle for maintenance and retrieval of this information, and proprietary information can easily be protected through the use of a Bernoulli Box or other removable mass storage devices.

### The SARA System

The SARA system is a state-of-the-art interactive code that allows the user to temporarily modify initiating accident event and/or basic event failure frequencies and propagate those changes through the plant model to determine their impact on the core damage frequency. The results of the (automatic) reanalysis are displayed (numerically and graphically) alongside the original PRA (base case) results. The analysis can be performed at several levels: a group of plants, a single plant, a plant damage state, or a single accident sequence. In addition, consequence analysis of plant containment failures are simulated by manipulating the containment release mode probabilities and mean consequence values and (automatically) recalculating the accident consequences. The SARA database



contains PRA data for the dominant accident sequences from plant PRAs, as well as descriptive information about the plants (e.g., event trees, piping and instrumentation diagrams, and pedigree data).

The code is completely menu driven, and an overview of its primary features can be captured from its main menu (Figure 1), the first of many hierarchical fill-in-the-blank screens. The Calculations and Sensitivity Analysis (CS) option accesses the main facility and lets the user temporarily change one or more basic event and/or initiator frequencies, error factors, and correlation numbers, and then recalculate frequencies, importance measures and (if desired) uncertainty bands on the resulting mean values. Using the CS option, it is possible to observe hypothetical effects such as degraded component reliability or change in operational procedures on core damage frequency.

The Modify Sequence Cutsets (MC) facility goes beyond the CS option in that it provides the user with the means to modify the cutsets associated with a specific sequence, in order to simulate a modest change in the plant model (such as adding another train). If extensive changes in the plant model need to be evaluated, RES has developed a companion code, Integrated

Reliability and Risk Analysis System (IRRAS), that permits constructing (or modifying) a system fault tree and providing SARA with new (integrated) sequences.

The Sensitivity Study Log (SS) facility enables one to save the results of a CS run so that the results can be used to make comparison studies among several CS runs. A simple editor is available which provides the means to construct a summary report of the study.

The Consequence Analysis (CA) option allows the user to modify containment release mode and consequence probabilities and recalculate the total risk to the public, along with the fractional contribution of each plant damage state. Currently, this option is available on only one plant as an exploratory aid to determine its usefulness.

Choosing Graphics Information (GI) accesses a display processor that permits one to view the PRA event trees (with the dominant accident sequences highlighted) and plant piping and instrumentation diagrams. Currently, the graphics are informative only, and are not yet ready for interactive use.

Data Base Editing (DE) provides the capability to review and edit any

item in the database. Database management and control is provided by designation of "regular" and "master" users and the use of passwords. Only master users can make changes to the baseline data; however, regular users can easily review data. All users can make temporary changes for sensitivity studies without affecting the baseline data.

The Data Base Reports (DR) option provides reports of any data in the database. Reports can be sent to the console, to a printer, or to a file for later use.

## SARA Applications

SARA has been developed as a flexible tool to support different levels of users requiring risk and reliability information for decision-making and regulatory analysis. During 1988, Brookhaven National Laboratory used SARA extensively to perform a sensitivity study on the safety significance of motor operated valve failure rates (NUREG/CR-5140).

SARA was also used to quantitatively analyze the safety significance of a number of Multi-Plant Action items, such as: the reactor trip system, diesel generator reliability, BWR recirculation pump trip, and improved accident monitoring and instrumentation for detection in inadequate core cooling.

Figure 2 shows an illustration of SARA's potential to help prioritize generic issues. The SARA system (loaded with data and plant models from draft NUREG-1150) was used to calculate the impact on the core damage frequency of assumed resolutions of three generic issues pertaining to the Surry plant. Each of the issues (shown in the legend) was studied separately, and then in two different sequence combinations to show cumulative effects. [The phenomenological assumptions were based on the engineering analysis in NUREG-0933 and the issue completion times were obtained from the SIMS database.] The downward trend shown in Figure 2 indicates that the proposed

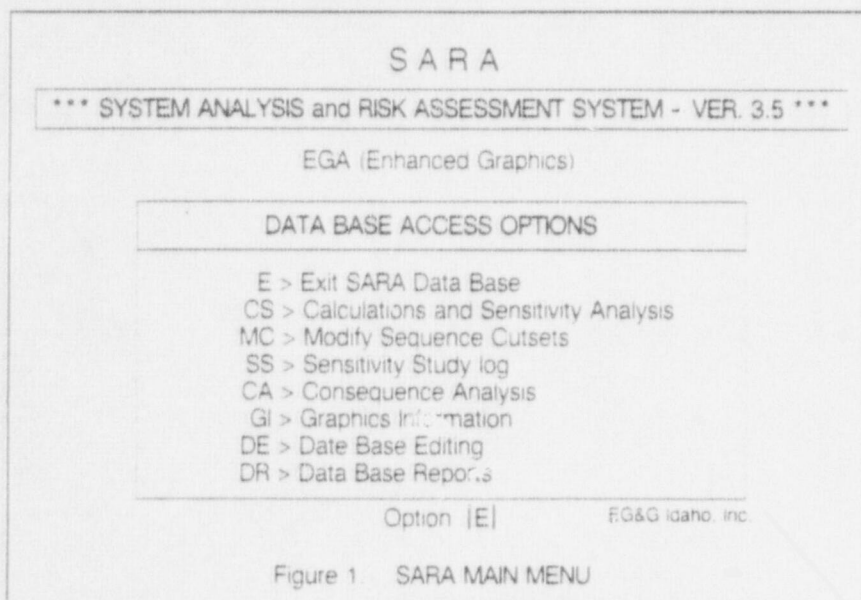


Figure 1. SARA MAIN MENU

This is a typical user-friendly menu found in SARA, a Probabilistic Risk Assessment tool.

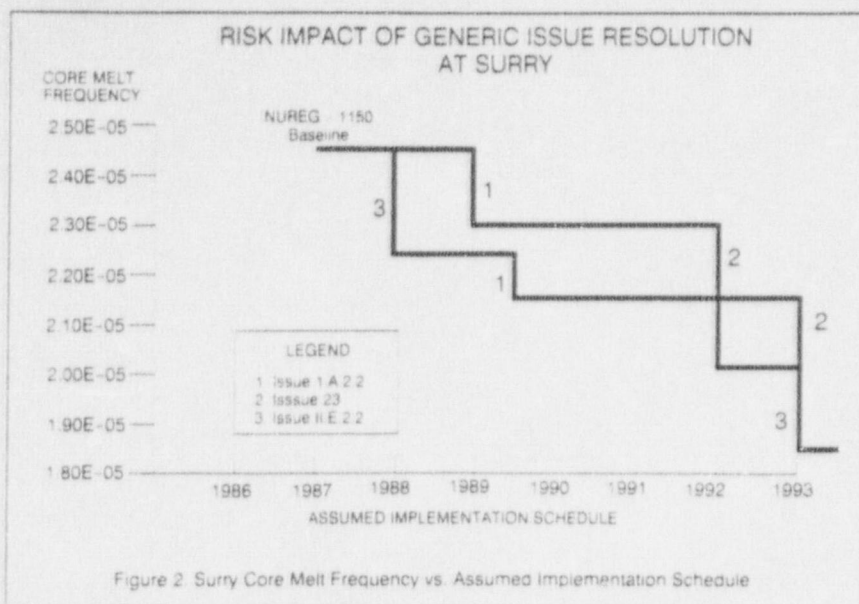


Figure 2. Surry Core Melt Frequency vs. Assumed Implementation Schedule

Illustration of SARA's potential to help prioritize generic issues.

changes could improve safety; and it appears that the lower curve (issue sequence 3,1,2) would be preferred to the upper curve (issue sequence 1,2,3). However, for regulatory applications where a course of action has far-reaching implications, many more combinations would have to be studied.

Other potential uses of SARA that have been identified are: assessment of the effectiveness of existing and proposed regulations (including backfits), review of PRAs and other reliability studies, evaluation of plant-specific issues (e.g., operational problems, Individual Plant Examinations, and technical specification and procedural changes), and evaluation of the significance of operational occurrences.

SARA is currently available to potential NRC users, and a User's Manual has been written as draft NUREG/CR-5022. During this year, SARA is undergoing considerable modifications as a result of feedbacks from applying the code to regulatory and research problems. Version 4.0 will contain significant technical and user-support features and, along with updated documentation for their utilization, will become available in July. Formal training on both SARA and IRRAS was conducted at the ITS Training Laboratory last August, and IRM is

planning to provide this again during Summer 1989 for interested members of the staff. The new Version 4.0 and documentation will be used in the training class. Any questions may be addressed to Dick Robinson, 492-3915.

## Wizards in Computer History

"I think there was an inevitability about the transistor. I would estimate if I had not invented it, someone would have at least a year later", said William Shockley. He shared the Nobel Prize for physics in 1956 for this invention which he developed at Bell Laboratories, and which transformed the computer world. The transistor allowed machines to be smaller and faster than earlier computers which used vacuum tubes.

Now 30 years later, we can put millions of transistor circuit components into a chip of microscopic size. But that's another story.

Watch future issues for this ongoing feature.

## Personnel Powers Up With 4GL

By Kathy Adams, OP

The Office of Personnel (OP) recently procured a fourth generation language (4GL) for the Data General (DG) MV/15000. The Workforce Analysis, Systems and Information (WASI) staff of OP is responsible for maintaining the current Automated Personnel System (APS) and satisfying standard and ad hoc requests for personnel data. Currently WASI creates sequential files that are subsets of the APS/INFOS II data on tape. These tapes are stored on disk and tape at NIH and are available for access in response to NRC data needs through the use of SPSSX and MARKIV.

The 4th GL Cyberquery/Cyberscreen (CQCS) can be used to create new data bases or to interface with existing data bases. CQCS has a full understanding of AOS/VS (DG operating system), INFOS II (file management software), COBOL, FORTRAN and other DG internals as well as integrating with third generation language (3rd GLs) such as CEO and TRENDVIEW.

The major components of CQCS are Cyberquery and Cyberscreen. Cyberquery is a powerful query and report generator that allows the user to produce reports in a fraction of the time taken by conventional programming systems. Cyberscreen creates screens for input, menus, and browsing.

WASI will be using CQCS to overlay APS and provide user friendly ad hoc query and report generation capabilities for OP's Satellite and Regional Offices. This procedure will ultimately reduce the cost of runtime at NIH, increase the availability of personnel data to managers and the staff, and decrease the number of WASI staff hours dedicated to data processing. WASI and IRM are planning full implementation of the use of CQCS within coming months.



# Speed Up Your Messages With E-mail!

By Lana Cobb, IRM



Pick up and read any computer magazine or management information publication and you are likely to see articles on electronic mail (e-mail). E-mail is one of the latest "buzz" words in the information systems arena and it is increasing in popularity as users utilize this method of communicating.

What is e-mail? E-mail is the electronic communication of text, data, or files between a sender and a designated recipient. In more sophisticated (advanced) systems it could also include images and voice mail. E-mail can be a one-way or a two-way communication. Most systems offer the features to read, save, print or delete a message. This type of electronic communication could be divided into two categories: in-house systems and commercial systems. A user is required to have access to a host computer, a terminal or personal computer, software, a communication line, and modem. Some in-house users' personal computers can be hardwired to the system, such as the IBM 9370 and the IBM 5520, thus, eliminating the need for a modem. The type of software required will be dictated by the system that you expect to utilize. E-mail systems may reside on main-frame computers, minicomputers and personal computers, including Local Area Networks (LANs). Both in-house or commercial systems will require that you obtain an account.

Why is e-mail so popular? E-mail is relatively easy to learn and can enhance productivity by providing a smooth, rapid, direct flow of information. It reduces paperwork, eliminates the frustrations of "telephone tag", reduces problems that can result from trying to communicate with people in different time zones, and provides the option of distribution to one user or to a group, thus, eliminating duplication of user effort.

What are the limitations? The user will have to have access to the equipment, and the recipient must also have a mail-box (account). However, if the user is not logged onto the system, it will be necessary to periodically check the system to obtain messages.

NRC expects that the number of e-mail users will increase within the next year as more personal computers are installed throughout the agency and will connect to one another. This type of communication has changed the way we are doing business within the agency, with the licensee, and our contractors; however, the application begins with the users and can be important to the organization.

At present there are several major e-mail systems being used in the agency. There is no direct interconnection between them, therefore, a recipient must be able to access the system of the sender. These e-mail systems are just a few pieces in our agency's electronic puzzle. Several representatives have consented to discuss these systems in the articles

appearing in this issue. The systems that are discussed are the following:

The IBM 5520 system brought to NRC one of the earliest automated office environments for wordprocessing and is the most widely-used system;

The Data General computers provided a method of data exchange with the contractors and the labs;

The agency purchased the IBM 9370s as a move to lessen our dependency on time-sharing;

Dialcom is a commercial system which is used by the Incident Response Center for their communication needs;

LANs will gradually replace the IBM 5520s, connect microcomputers and allow user access to various systems thru networks.

E-mail is a by-product of the above systems and provides an advantage that many employees are utilizing to enhance communications and productivity.



E-mail is fast and efficient!

## E-mail Systems

System	No. Of Users	External NRC	Access Charge	Host System	Service Group	Contact For Info.
IBM 5520	1,326	Plant Sites & Some Utilities	None	IBM 5520	In-house	5520 Office Coordinators
Data General	133	Some Labs & Contractors	None	MV/6000 MV/8000 MV/15000	In-house	J. Seeherman 492-9687
DIALCOM	International	Publicly Accessible	Connect Charge	Offsite Vendor	Commercial	J. Himes 492-9003
IBM PROFS	300	Some Contractors	None	IBM 9370	In-house	S. Root 492-4093
LANs	New	To Be Developed	None	PC File Server	In-house	C. Gianos 492-9785

## E-mail: 5520 Document Distribution

By Beth DeWoody, IRM

Each IBM 5520 Administrative System (5520) in NRC is a node in the "5520 Office Automation Communications Network." Each node transmits documents and messages electronically through a 5520-based facility called Document Distribution.

IBM 5520s are installed in each Headquarters building except Woodmont and East-West Towers, which have 5520 dial-in capability. The largest 5520 Document Distribution facility is at One White Flint North, which has nine 5520s. One 5520 is installed in Nicholson Lane South, with remote dial-in capability for Nicholson Lane North. The rest of the Document Distribution facility includes the Bethesda locations: one 5520 is installed in the Maryland National Bank Building and two 5520s are installed in Phillips. A few national laboratories and utilities have 5520s, and these have become part of the NRC 5520 Document Distribution facility, allowing the utility to



transmit material directly to a Regional Office via the 5520.

NRC 5520 Document Distribution is comprised of systems that serve as the backbone for electronic transmission of word processing (WP) documents. The basis of Document Distribution are multiple-line store-and-forward 5520s that serve as gateways for other 5520s, for the IBM System/36 minicomputer, and for more than 1000 personal computers (PCs) and 100 IBM Displaywriter word processing systems throughout NRC.

The 5520 Document Distribution facility is available to all NRC offices in all locations that have local or remote transmission capability. A 5520 is installed in each Region, as well as the Uranium Recovery Field Office in Denver. The Resident Inspector's office at each nuclear power plant site has remote dial-in capability and uses its own Region 5520 for Document Distribution.

IBM 5520 Document Distribution performs several functions: (1) electronic movement of 5520 documents and messages to and from other 5520s; (2) electronic movement of 5520 documents and

messages within the same 5520; (3) transmission of revisable-form text (RFT), final-form text (FFT), and binary files after local transfer or conversion from an IBM-compatible personal computer (PC); (4) remote transmission of IBM-compatible PC files; and (5) remote transmission to and from compatible stand-alone WP equipment, such as the IBM Displaywriter.

The 5520 supports automatic initiation of a call to another 5520, and automatic answering for dial-in systems. Autocall units and autoanswer modems are installed on each 5520 in the NRC network, and 5520 Document Distribution throughout NRC is active 24 hours a day, 7 days a week.

5520-to-5520 Document Distribution is the most frequently used mode of transmission within NRC offices and buildings. A 5520 user can automatically transmit documents and/or messages to a single recipient or to multiple recipients configured in the network. 5520s send and receive the document external profile (exact document name, author, comments, and



creation date) and document internal format (margins, line spacing, pitch, and header/footer).

PC-to-5520 Document Distribution is supported on PCs that are hardwired to a 5520 or that have the binary synchronous communications feature. A PC/5520 user can combine Document Distribution with local transfer (upload of RFT files from a PC with the 5520 Attachment Program hardware and software) and local conversion (upload of ASCII files from a PC with the 5520 Attachment Program) to transmit various file types to other NRC offices and buildings.

Displaywriter-and-PC-to-5520 Document Distribution involves remote transmission of WP documents from an IBM-compatible WP system with the binary synchronous communications feature. Dial-in capability is provided to all NRC offices that do not have a 5520, to all nuclear power plant sites, and to some national laboratories and utilities.

The 5520 Document Distribution facility allows for: (1) changing of routes to bypass "down" systems; (2) document library maintenance upon receipt of information (store only, print only, store and print, or cancel); and (3) error recovery (status of delivery to destination IDs, clearing queues, and communications line traces). Document Distribution has several "trigger" conditions for contact and delivery, and it supports special handling requests, such as delivery time, priority notification (immediate contact with the intended recipient), and confirmation (acknowledgement of receipt of a document).

Security for 5520 Document Distribution includes use of system node passwords, recipient (operator) passwords, and a Security ID check on all communications lines making a connection. In addition, encryption devices are connected to communications lines outside the NRC Headquarters area; transmission is encoded between Headquarters and Regions, and between each Region. Persons dialing in from

remote devices must use a unique set of characters to access their assigned 5520, and a Security ID check is performed after connection and before information is transmitted or received.

For the 5520 user, Document Distribution is an easy and efficient means of transmitting information. All a user needs to know is the recipient's 5520 system node name and local address, or the local address of a dial-in remote device, to transmit information anywhere within NRC Headquarters and Regions.

However, the IBM 5520 system is no longer being manufactured and the Agency will be replacing these systems. See the article on cc:Mail.

## Data General E-mail

*By Judy Seeherman, IRM*

E-mail is available on the following NRC Data General MV/8000 computers, Payroll, IFMIS (Integrated Financial Management System), Personnel, Operation Center and the PASS (Property and Supply). This mail activity allows a

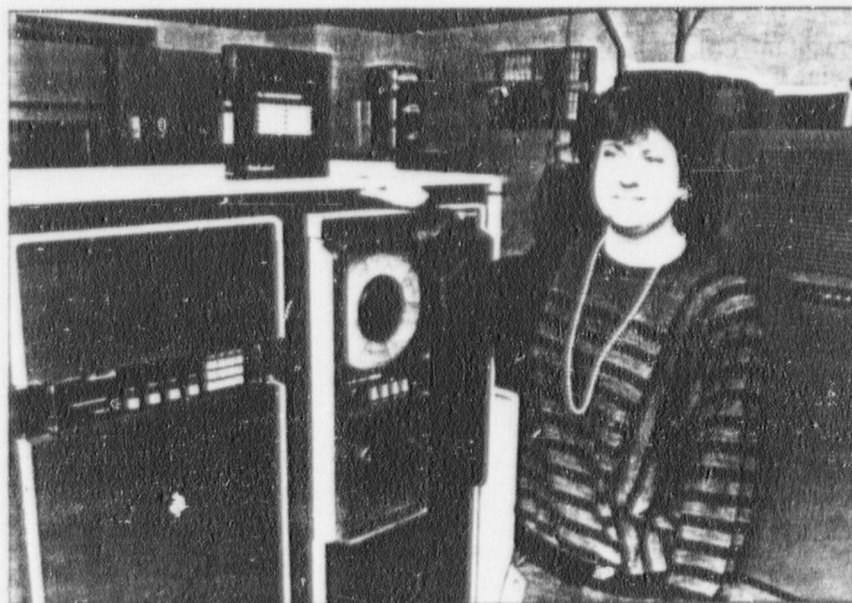
user to send an electronic message to any other user on the same computer system.

The recipient will then be alerted by the system that they have a mail message, that is if he is currently logged on. Otherwise the user will be notified he has received mail when they logon the system. After reading the mail, the recipient then has the option of storing, printing, or deleting the mail message.

This e-mail system was first installed on the MV/8000 in 1984. In the past several years users of the other Data General systems expressed interest in this facility, so it was installed on their respective computers. The current facility was developed and installed by NRC contractor personnel.

E-mail on the Data General is commonly used by NRC employees to send messages within NRC and to send message to the National Labs and contractors. It is basically easy to learn, requiring only a few commands to execute e-mail. It is a great tool to get messages out in a fast, convenient method.

The user can type in a "?" and get a complete list of the users currently



Judy Seeherman, IRM, at the Phillips Building Computer Center, checking the Data General machine which transfers and stores all DG e-mail messages. Have you checked your messages today?

using the system. If you do not know the name as it appears in the system, all you have to do is to type in what you think the name maybe and the system will give you names similar to what you have typed in. Then the user can select the correct name.

This mail facility also provides a mailing list option that allows the users to build a list of individuals for sending group messages, such as meeting announcements. The mail facility also contains on-line help to assist users in learning how to use the mail.

#### DG E-mail System info:

Judy Seeherman  
492-9687

#### Account info:

Mike King  
492-4974

The e-mail system is helpful in informing other users of programs or macros that have been developed that might interest them, as well as in passing files to other users and sending messages to the system personnel or application programmer addressing concerns of the system.

Persons interested in becoming a user or getting more information on the system may call 492-9687, Judy Seeherman. Users must have an account and system identification to use the system. An account can be established by submitting an NRC Form 380 to Mike King, JR. For more information on accounts, call Mike King on 492-4974.



## Commercial Electronic Mail

By Joe Himes, AEOD

It is a dark and stormy night. One of the nation's largest nuclear power plants has just reported a problem that could become much more serious. NRC emergency response personnel are rushing to monitor the situation just as the local television station reports a deepening concern about the safety of nearby residents. At NRC Headquarters and in the Regional Office, all know that they will soon be deluged with telephone calls, and it will be more than the news media calling. Federal, State, and local authorities -- all with important roles in protecting the public -- have been notified and will need regular updates. NRC response personnel will be able to do nothing but answer telephones unless they seize the initiative and send frequent updates. Yet the list of authorities has become so long that there is utterly too little time to send facsimiles to one after the other. How can the NRC get critical information to all of these people while it is still timely?

When the AEOD Incident Response Branch (IRB) foresaw this grim situation, it decided to evaluate the use of commercial electronic mail (e-mail) services in the next major exercise. E-mail, which includes the capability to transfer documents and other files, is an obvious way of distributing messages to many locations simultaneously, but why choose a commercial service? Several Federal in-house systems were offered, but none was readily usable by all of the dozen or so organizations participating in the exercise, and in no case was e-mail the priority use of the in-house computer that supported it. On the other hand, e-mail is the priority business of the commercial services, which cannot gain customers if their computers are not compatible with a wide range of customer equipment. The Federal Response Subcommittee, a permanent group that represents all Federal agencies

with roles in a radiological emergency, agreed to test and evaluate Dialcom e-mail service in the Federal Field Exercise at Zion Nuclear Plant in June 1987. NRC/IRB led the task.

The test was successful and the NRC has relied on e-mail as an essential part of its emergency readiness ever since. IRB notifies other organizations when an emergency begins and tells them that further information will be sent via e-mail. Then response personnel at the lead NRC location -- a Regional Office, the Headquarters Operations Center, or the site -- periodically transmit status summaries and press releases to more than 40 locations: the same story is sent to all participants at the same time. Because of the US commitment to exchange information and assistance should a future accident have international consequences, the NRC "network" even extends internationally to the International Atomic Energy Agency (IAEA) in Vienna, Austria.

COSMOS 1900 tested our "network" unexpectedly in the Fall of 1988. The Soviet satellite, powered by a small nuclear reactor, had somehow stopped communicating with its mission control while it was hurtling toward imminent reentry. Only ten years earlier, a similar Soviet satellite had scattered radioactive debris over a large part of western Canada when it failed to burn up during reentry. Although the Soviets reported that there were automatic safety mechanisms aboard the newer satellite, the US government decided to prepare for the worst, just in case. Within a very short time, NRC/IRB had expanded its network to include new users and to link with other, long-established systems such as the one used by the radiation control program directors in each state. Some users wrote, reviewed, and distributed guidance for handling radioactive debris; others obtained or relayed the latest satellite position data and reentry projections. It was a very busy time. The USSR cooperated with the IAEA, which relayed important informa-



tion to US planners. The final messages, that the safety systems had worked as planned and a crisis had been averted, were also picked up from news services on Dialcom and relayed quickly throughout the network.

The breadth of services offered by commercial systems makes them hard to beat for many uses. Public Affairs personnel let the Dialcom computer search news wires for articles containing certain key words. When the computer finds an article, it puts a copy in the Public Affairs mailbox for reading at the user's convenience. This same capability would help them monitor public reaction to an emergency. If they wish to forward one of the stories or any other message, it can be delivered by Dialcom as a telex or a facsimile to someone having no computer terminals. Nothing has to be retyped, no quality is lost in the relay, and on-line time from remote locations costs less than a phone call.

There are limitations. E-mail cannot yet send pictures and it cannot notify a user who is not on line; one must call the service to see waiting messages. In general, users must also be customers of the same service company to communicate with each other. These limitations are being overcome gradually, but for now we must live with them. We send pictures via facsimile, we call the service to see waiting messages or we stay on line during an emergency. NRC is the lead agency in initiating a multi-agency competitive procurement that will secure the same service company for many agencies without going sole-source.

One major issue remains. Can the same commercial service that must be used during emergencies satisfy more routine needs in other parts of the agency? Dialcom and other companies charge for services used, which should be cheaper than in-house systems for low volume, more expensive as volume increases. While utility and economics can help the NRC determine the best mix of e-mail systems for local and

long-distance service, IRB sees a special twist in this issue. If another emergency were to occur, wouldn't you feel better if your key communicators were everyday-familiar with their systems? Especially on dark and stormy nights?

## PROFS Electronic Mail

*By Sharon Root, IRM*

IBM's Professional Office System (PROFS) residing on the IBM 9370s, is a powerful, easy-to-use office automation tool. NRC uses PROFS for a variety of purposes, one of which is electronic mail.

PROFS enables its users to perform office functions electronically from terminals or personal computers (PC) that are connected to one of NRC's two IBM 9370 mainframe computers. PROFS users may also access the IBM 9370s by using PCs with a modem or through NRC's Autodial Network System (ANS) with a software communications package such as CROSSTALK.

Presently, NRC staff members with PROFS accounts can send and receive notes, messages and/or files quickly to and from other PROFS users at NRC as well as to PROFS users at the Idaho National Laboratory (INEL) and at the Center for Nuclear Waste Regulatory Analyses (CNWRA) in San Antonio, Texas.

Notes and messages are two different methods of communication in PROFS with other users. PROFS delivers these notes and messages, ordinarily delivered in person or by telephone, directly, promptly and conveniently.

When a message is sent, it appears directly on the recipient's screen; The message does not go into the incoming mail and PROFS does not keep a copy of it. Thus, the recipient will receive the message only if he or she is signed onto PROFS when the message is sent. However,

PROFS notifies the sender immediately if the recipient is not signed on the system by giving the sender a message saying, "USER ID NOT LOGGED ON." Before sending a message, a user may use the PROFS option to check if the recipient is logged on the system.



PROFS notes differs from PROFS messages significantly. A note goes into a recipient's incoming mail where it will stay until the mail is "opened" or some type of action is performed. For example, the recipient may choose to look, forward, file, erase, reply, or print the note, send the note again, send a new note, or erase the note from the Note Log.

Users can keep a file of notes sent and received in a Note Log that is system generated, or they may set up Note Logs for specific areas (i.e., BUDGET88, BUDGET89, PERSONNEL). PROFS automatically keeps an electronic copy of note unless it is instructed not to.

Notes or messages can be sent to one PROFS user or to multiple PROFS users; however, files may be sent to only one user at a time.

In order to send notes and messages to multiple users, one can build Distribution Lists that contain the recipient's User ID and Node. Sharon Root, NRC's PROFS Administrator, maintains a Master Nickname File that contains the User IDs of all NRC staff who have PROFS accounts, and also maintains a Master Nickname File of User IDs for staff at the CNWRA. A Master Nickname File for Idaho National Energy Lab (INEL) may be set up when more NRC users communicate with INEL using PROFS. Distribution Lists can be built from these files or PROFS users can build their own Distribution Lists.

PROFS generates a mail log that lists information about documents that a user has filed from their PROFS incoming mail, as well as



Mike Lee, NMSS, Sharon Root, IRM, and Mysore Nataraja, NMSS, discussing documentation for PROFS E-mail.

information the user has sent to others. The mail log serves as a users individual index to PROFS storage. PROFS users may refer to this log to locate and manipulate files.

NMSS staff in the Division of High Level Waste Management (HLWM) and staff of the CNWRA use the electronic mail feature of PROFS to send and receive files generated from sources outside of PROFS to each other. Those files are usually generated on the IBM 5520, DisplayWrite 4, or Lotus 1-2-3.

HLWM and CNWRA also transmit files that they have generated using IBM's Application System (AS). They access AS to utilize its project management capability and produce precedent diagrams and Gantt charts. HLWM can then send the diagrams and charts to the 36 inch wide continuous-roll plotter located on the fourth floor of the White Flint Building.

Other NRC PROFS users include ASLBP and OGC staff who make up the Internal Steering Committee for High Level Waste. Committee members send and receive files that are usually draft documents. They can review draft documents when they receive it and make any changes and comments, and then returned to the originator.

Members of the IRM staff use PROFS to communicate between White Flint and the Phillips building. In addition, PROFS accounts are being set up and training sessions developed for senior IRM staff members so they will be able to access and use PROFS for communication between staff members who are located in different buildings.

The IBM 9370s are operated by IRM's Computer and Telephone Operations Branch (CTOB). Questions or requests for information concerning PROFS may be directed to Sharon Root, CTOB, on 492-0256.

## cc:Mail

by Chris Gianios

As more and more microcomputers become available to the NRC staff and aging systems such as the IBM 5520 distributed word processing system are replaced, individual microcomputers will be grouped into clusters of connected personal computers (PCs) called local area networks or LANs. Within this new office environment, the convenience of electronic mail (e-mail) will be one of the featured attractions. The ability to send messages and files throughout a section, branch, or division using the group's local area network (LAN) will eliminate "telephone tag" problems, reduce mail service requirements, speed delivery, lower Agency demands on copy machines, and enhance communications between organizationally separated units.

To serve as a postman for e-mail within this environment, the Office of Information Resources Management has selected a software package called cc:Mail by cc:Mail, Inc.

Like most LAN-based electronic mail systems, cc:Mail is controlled by a central microcomputer in the local area network called the file server. The file server acts as a traffic cop to control the flow of information between various PCs on the network. In the LAN environment, cc:Mail offers extensive messaging features, basic file management, a built-in text editor, and the ability to transfer virtually any file--from formatted WordPerfect documents to Lotus 1-2-3 spreadsheets to Chart-Master graphics--over the network with ease. The basic processes of other e-mail systems described in these articles: addressing, composing, attaching files, and sending messages, are similar. To establish wide-area network connectivity, cc:Mail links with other networks, remote PCs, and mainframes, including those with alternative e-mail systems such as PROFS.





The cc:Mail program uses a menu-driven interface. It can be run as a memory-resident utility allowing the user to press a definable hot key, jump into the cc:Mail program, send and receive messages, and then jump back into the underlying application. The program also notifies the user of mail received. The user can read the mail (typically one message at a time), respond to it, delete the message, print it, or save it to a disk.

The opening screen contains a main menu and two status windows at the top of the screen that list received messages and the number of messages stored. By using the cursor or arrow keys, the user selects options from the menu to retrieve, read, send, or store messages. Other options include such items as a choice of addressee from a pop-up menu. It's a simple system that new users can learn easily. In the event of trouble, it includes an on-line help option.

Composing messages is a critical function in any electronic mail system and cc:Mail provides a built-in text editor. The editor provides search and replace, margin control, and extensive block move/delete functions. It also provides the ability to handle graphics images within the message itself. For graphics, the user can take a snapshot of a displayed image within another application (e.g., Chart-Master) with an included screen snapshot utility. This virtual camera provides the computer equivalent of a screen photograph called a bit map. Once in cc:Mail, the user can edit the image, label it, and add lines, boxes, circles, and shadings using another built-in graphics utility. Similarly, text can also be captured and manipulated with cc:Mail's text editor.

Although cc:Mail can pull both text and graphics into a message, the real advantage of the system is its ability to transfer files of arbitrary content. Most users will probably jot a short note with the package's text editor, attach a word processed document plus any supporting graphics files, and send the collec-

tion to another user. Attaching files is simple with cc:Mail. Once the user has created a message, up to 20 graphics or formatted files can be attached to the message. These need not be files that can be manipulated by cc:Mail. They are simply sent to another user who has the software required to handle the files.

With cc:Mail, private or public mailing lists can be created, mail forwarded, and return receipt requested for users on this system. The latter option notifies the user when a letter has been read. The user can also reply directly to an incoming message, save a copy, and encrypt files if necessary. cc:Mail also offers a bulletin board system where LAN-wide messages can be posted.

Excellent message management services are offered by cc:Mail. A user can sort messages by sender, date, date range, subject, attachment, or combinations of these parameters. Messages are stored folders for easy reference. Users can have a maximum of 200 folders, each holding as many as 500 messages. NRC staff members will find themselves relying more and more on their PCs as an alternative to the more traditional filing systems!

In the future, cc:Mail holds great promise in its role as the electronic mailman for NRC's local area networking environment. Then we may wonder how we managed without it.

### **NUDOCS User Group Forming**

**This group will provide a forum for sharing information, developing new applications, and refining retrieval skills.**

**Contact Phyllis Smith  
492-4098**

## **Artificial Intelligence User Group**

The AIUG has been busy on a project to build an actual expert system. A smaller group of about eight people has been meeting every two weeks on this effort. This group's goal is to learn about expert systems while building a system for others to use in making travel claims.

The approach taken was to first break the problem into evolutionary steps. These range from a simple system for local travel to a complete system supporting local, domestic, and foreign travel with multiple per diem rates, rental cars, and other complications. Next was the selection of a development environment.

The group has surveyed possible development environments and methods including programming languages (LISP, PROLOG, BASIC), public domain expert system development tools (i.e., shells) and commercially available shells. To evaluate the different approaches, the group tried to build a simple expert system to try to do only local travel.

Each member of the group has been trying different development systems on the local travel task. Successes and difficulties are being discovered in developing the rules from the references, in finding necessary computational capabilities, and in the use of the various development systems. To keep the group honest, one member is working on a traditional approach by programming the task in Clipper's dBASE environment.

The next step is to compare the working prototypes to select one (or more) to expand into handling simple domestic travel. From there, the project will expand to do all travel claims.

The AIUG invites others to join in this quest. Those interested should contact Bill Kennedy on 492-1723 or mail stop OWFN 17 G 19.

# NUDOCS NEWS

## NUCLEAR DOCUMENTS SYSTEM NEWSLETTER

### NUDOCS Hotline

The Nuclear Document System (NUDOCS) has a Hotline telephone number (492-8603) for its users who have questions or encounter problems relative to search procedures, hardware/software use, or reference material needs. The Hotline is staffed by NUDOCs personnel who are experts. Users can call the Hotline between 7:00 a.m. and 8:00 p.m. at 492-8603.

Those who are in need of NUDOCs materials should call the Hotline. The Hotline staff will provide User's Manuals, Training Course Manuals, lists of Document Type Codes, alphabetical listings of nuclear power plants, and other NUDOCs-related material.

The most common questions asked of Hotline personnel concern search selection and format. When users call the Hotline, the staff will identify which search is most efficient in locating a specific record or finding a category of document. The staff will also specify the coded value for entry in certain fields (i.e., affiliations, document type codes, etc.) or the formats for inputting tracking numbers, report numbers, dockets, or author/recipient names.

Those who are not familiar with using the Subject/Boolean Search can receive step-by-step subject search instruction. Assistance will be provided in accessing the thesaurus and the full text, and scanning within the text. If users want to download search results to a disk, the Hotline personnel will walk them through the download process.

Typical requests for information can be answered through the Hotline. Is this type of document

captured on NUDOCs? What documents are available full text? What is the telephone number for dialing into NUDOCs using a PC with communications software?

The Hotline staff is familiar with the specifications for accessing NUDOCs using SmarTerm 400 or CROSSTALK. They will assist users in preparing the profile for dialing into NUDOCs and they will help with any problems users may encounter when utilizing the NUDOCs workstations.

If a user is conducting a very large search, and would like a printout to keep as part of his files or to compare with other files, the user can obtain ad hoc printouts by calling the Hotline. The printouts will be generated on 8-1/2 x 11 inch or 14 x 11 inch fan-fold computer paper or on 8-1/2 x 11 inch single sheets of paper. Several print formats are available, depending of the size of the paper and the information requested.

Some users call the Hotline with suggestions, complaints, compliments, or corrections to data records. These type of calls are welcome. User input is always appreciated.

There are, however, some instances when the NUDOCs Hotline is NOT the appropriate number to call:

- 1) Requests for copies of documents. Copies of NUREGs, regulatory guides, or manual chapters can be obtained from the Document Control Branch, (DCB), at 492-7915. To obtain a blowback (copy from microfiche) of any other type of document, call the Records and Reports Management Branch, IRM, at 492-1251;
- 2) Repair requests for reader/printers that are broken. Assistance

will be provided from DCB at 492-0085. If a PC is broken, contact the Small Systems Branch, (SSB) at 492-8143;

- 3) Requests for names to be added or deleted from a document distribution, contact DCB at 492-0085;
- 4) Requests for copies of SmarTerm 400 or CROSSTALK are available by calling SSB, 492-8219 and submitting a form, "Request for NRC Standard PC System Upgrade".

### External Access

Many organizations external to the NRC are finding NUDOCs is a useful tool in their nuclear energy tasks. EG&G, Oak Ridge National Laboratory, Science Applications International Corporation, and Southwest Research Institute have been long-term users of NUDOCs. Last year, several Local Public Document Rooms obtained access to NUDOCs. More recently the State of New Jersey, Battelle Pacific Northwest Laboratory, the Massachusetts Institute of Technology, and Gulf States Utilities have become NUDOCs users. Additional utilities are expected to become NUDOCs users in the future. If an external organization wishes to obtain access to NUDOCs, contact Mike Collins, IRM/DCB, at 492-8044.

### Full Text Update

Congressional correspondence (correspondence, questions and answers) is currently being added to the full text data base.

A new service is available that allows a user to request a document that is full-text on NUDOCs in the form of a floppy diskette using the WordPerfect format or ASCII format. For information call NUDOCs Hotline 492-8603.



# ITS TRAINING LAB NEWS

## Monthly Regional Training Record Achieved

March 1989 was a banner month for regional microcomputer training. Three regions--Region V, Region II, and Region I-- scheduled ITS Lab training at their sites. This represents the first time that three regions organized on-site training during the same month.

The total of 126 participants completing on-site training in March also establishes a record monthly high. These March training statistics highlight the trend toward increased participation by the NRC regions in microcomputer training illustrated in the figure below.

The ITS Lab and regional staffs worked closely to tailor each training session to that region's particular needs. Kathleen Hamill, Director of the Division of Resource Management and Administration for Region V, and Ed Frigillana, Region V, identified specifications for the "Computer Literacy for Managers" course. The training addressed an audience comprised of the Region V Administrator, John B. Martin, the Deputy Regional Administrator, Bobby Faulkenberry, and 13 other senior managers.

In Region II, Theresa Spearman, Region II Personnel Officer, and Steven Vias, Region II Project Engineer, defined the unique training needs of 13 resident site administrative staff personnel. On March 9, Norman Stanback, ITS Lab instructor, conducted the training session, which included DOS subdirectory commands, new features of DisplayWrite 4 (contrasted with DisplayWrite 2), and data communications using CROSSTALK for file transfer from sites to/from regional headquarters.

Marilyn Moore of Region I's Office of Personnel organized two courses: "Introduction to End-User Computing for Novices at NRC" and "WordPerfect 5.0" for the Administrative Management Branch. Norman Stanback of the ITS Lab trained 12 participants in each class.

## Exceptional Response to WordPerfect 5.0 Training

More than 350 NRC staff members responded to the ITS Lab's special announcement of two new WordPerfect training classes. Two hundred people requested training in Module 1: The Basics. An additional 150 signed up for Module 2: Intermediate WordPerfect. This number of requests sets a Lab record for the largest response ever to a new course. The Lab is meeting this intense demand for WordPerfect 5.0 training in two

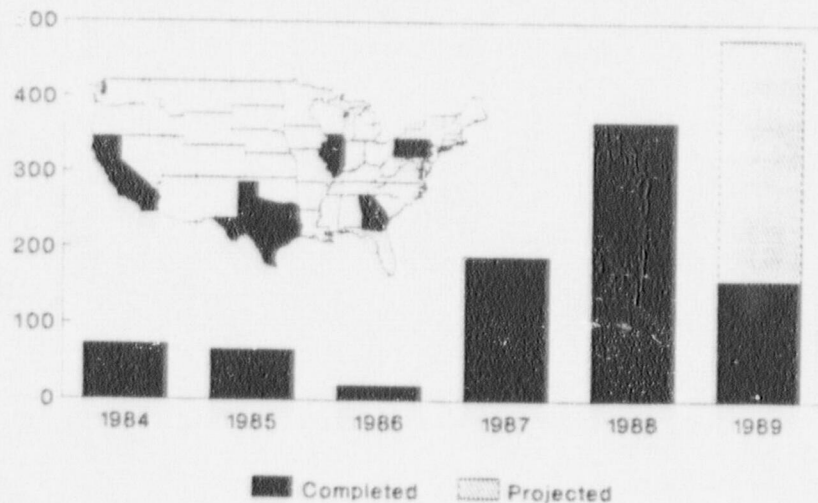
phases. Phase I, completed in March, delivered WordPerfect training to five offices that have an urgent need for training. These included:

ASLBP	30
RESEARCH	27
OCM	9
OP	5
OC	4
TOTAL	75

Phase II during April and May offered many sections of both Module 1 and Module 2. Scheduling additional WordPerfect training classes on Fridays prevented an adverse impact on other PC training classes such as LOTUS and dBASE.

WordPerfect training classes will continue to be scheduled as needed at the Lab. To reserve your place, send your In-House Training Request to W-102.

## Regional Training Statistics Number of Student Completions



This chart shows that the number of NRC staff receiving on-site regional training is climbing dramatically.

# ITS TECH NOTES

This section of the newsletter provides tips and technical information of interest to NRC computer users. If you have any questions regarding "Tech Notes" or if you wish to contribute an item, contact the ITS Support Centers: for PC and NIH items, call 492-4160 or 492-0353; for INEL items, call 492-3490; and for DG items call 492-3491. You may also drop by and visit in P-808 or OWFN 3C12.

## Personal Computers

### Different Density Diskettes Can Cause Problems

Before we discuss the problems in sharing information, we should first take a look at the differences between high, quad and double density diskette drives as the table below demonstrates.

The problem of sharing information on different density diskettes comes from the fact that a high density formatted diskette (of the same size) cannot be read from or be written to when placed in a quad or

double density drives. However, a double or quad density formatted diskette (of the same size) can be read from and written to in the high density diskette drives with a couple of exceptions.

First, you can read a formatted 5 1/4 double density diskette in the IBM PC/AT 5 1/4 high density drive. If you write information to this double density diskette in the high density drive, you must use this diskette only in the high density drive from that point on or you take a great risk losing data stored on diskette.

Second, if you format a 3 1/2 quad density diskette in a IBM PS/2 Model 50 or PS/2 Model 30 286 high density drive be sure to either format the diskette using a standard IBM PS/2 Model 30 or choose "FORMAT L" as the formatting option when presented by your system. Otherwise, the high density drive will format the quad density diskette as if it were a high density diskette. DOS will report that the diskette has approximately 1.44 MB of storage space when in reality it has only 720 KB storage space, causing eventual loss of data on the quad density diskette.

Users who have PS/2 MODEL 50's or PS/2 MODEL 30 286's who do not have the the correct

"FORMAT.BAT" which provides options of "FORMAT L" and "FORMAT H" (the double and high density formatting options) may contact the ITS Support Center, 492-4162, for installation of a copy of the file.

### HP Laserjet Series II Printer Controls

Don't understand how printer control codes work? The general format for a single printer command to your Laserjet Series II printer is shown below:

ESC&I#O

ESC - Escape character identifies a printer command to the printer.

&I - Signals Laserjet printer that certain category or type of printer command follows.

# - Variable Value is used in printer commands that involve setting a numeric value for Lines-Per-Inch, Page Length, Copies Printed, etc. and the # pound sign symbol denotes a numeric value that you substitute for this symbol in the actual command.

O - Uppercase or lowercase letter indicates what printer command you want executed by the printer.

Several printer commands can be combined, shortened and sent to the printer all at once.

The general format for combining a command to your Laserjet Series II printer is shown below:

\027E\027&I168D\027&k2S

\027E - Resets the printer back to the default settings after printing.

DENSITY	SYSTEM TYPE/MODEL	DISKETTE SIZE	APPROX. STORAGE
HIGH	IBM PC/XT 286	5 1/4	1.2 MB
HIGH	IBM PC/AT	5 1/4	1.2 MB
HIGH	IBM PS/2 MODEL 30 286	3 1/2	1.44 MB
HIGH	IBM PS/2 MODEL 50	3 1/2	1.44 MB
QUAD	IBM PS/2 MODEL 30	3 1/2	720 KB
DOUBLE	IBM PC	5 1/4	360 KB
DOUBLE	IBM PC/XT	5 1/4	360 KB



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\027&11o8D - Tells the Hewlett-Packard printer to print in Landscape mode and 8 Lines Per Inch.

\027&k2S - Prints 16.66 mode which is compressed print.

## Lotus 1-2-3 Printer Setups

Hewlett Packard Laser Jet Series II printer setups are used to format your spreadsheet printer output. To invoke these you must first obtain the Lotus Spreadsheet Menu, option to Print, select Printer, then select Options (a selection available on the Print Menu), finally you may pass the appropriate printer setup to the printer by keying in the setup string. Steps to include a setup string in your worksheet are as follows:

```
/PRINT  
PRINTER  
OPTIONS  
SET-UP
```

At this point type in and enter one of the following Laserjet Series II printer set-up strings.

\027E This setup string resets printer to its default settings and has same effect as if you turned your printer off, then on again.

\027&10O This setup string sets the printer to portrait (11" vertical) orientation.

\027&11O This setup string sets the printer to landscape (11" horizontal) orientation.

\027&k0S This setup string sets pitch to 10.00 or 10 characters per inch.

\027&k2S This setup string sets pitch to 16.66 or 16.66 characters per inch (Compressed Print Mode).

## Printer Control Codes In dBASE III PLUS

If you wish to send printer control codes from within dBASE III PLUS, first insure your printer is powered on and the On Line light is displayed. You may then issue commands at the dBASE dot prompt. Remember to press the ENTER key after typing each command.

.SET PRINT ON

For EPSON compatible printers, you may wish to enter one of the following commands:

To set the printer for compressed print, type:

.?? CHR(27) + CHR(15)

To set the printer back to normal print size, type:

.?? CHR(27) + CHR(18)

For HP Laserjet Series II printer, you may wish to enter one of the following commands:

To set the printer paper orientation for a page to portrait (11 vertical), type:

.?? CHR(27) + "&10O"

To set the printer paper orientation for a page to landscape (11" horizontal), type:

.?? CHR(27) + "&11O"

To set the pitch to 10.00 (10 characters per inch), type:

.?? CHR(27) + "&k0S"

To set the pitch to 16.66 (compressed print), type:

.?? CHR(27) + "&k2S"

Normally you will then want to set the printer off and eject your paper at this point. This is accomplished by typing the following commands at the dBASE dot prompt.

.SET PRINT OFF

.EJECT

## dBASE III PLUS Set Carry ON Command

The SET CARRY ON command copies information from a previously entered record in your database to a new record entry when appending active records. The SET CARRY OFF command (which is the default setting in dBASE) is used to turn off this feature.

Here are the steps you can use to accomplish this task at the dBASE dot prompt:

. SET CARRY ON

. USE DATABASE (if not already in use)

. APPEND

Within this process, you may change those fields which may require changed values. Then commit the record by going to the last field and pressing the ENTER key. A new record would then be displayed with all the same information displayed, cursor through the fields make any changes required and commit the record.

After exiting the APPEND mode, you are returned to the dot prompt where you may want to turn off the

# ITS TECH NOTES

SET CARRY command with by typing SET CARRY OFF and pressing the ENTER key, as shown in the example below:

```
. SET CARRY OFF
```

## dBASE Backup For Selected Records

You may backup your dBASE database using a range of record numbers by typing the following commands at the dot prompt followed by pressing the ENTER key:

```
. USE <DATABASE NAME>
```

```
. DISPLAY STRUCTURE
```

If you are backing up your database to blank formatted 5 1/4 diskettes (formatted as double density), divide 362496 by the total number of bytes for one record. The size of your record can be displayed on your screen by issuing the DISPLAY STRUCTURE command.

If you are backing up your database to blank formatted 3 1/2 diskettes (formatted as double density), divide 730112 by the total number of bytes for one record. The size of your record can be displayed on your screen by issuing the DISPLAY STRUCTURE command.

The above actions will allow you to determine how many records (from the database you have chosen to back up) will fit on one diskette.

At this point, let us say you determined that 20 records from the database is the maximum that will fit on one diskette.

Your next action is to perform the actual backup of the database to your formatted diskettes. This is done by issuing the following commands at the dot prompt for the example chosen above (20 records from the database to each formatted diskette).

```
.COPY TO <BACKUP DATABASE NAME> FOR RECNO()  
>= 1 .AND. RECNO() <= 20
```

Then issue the command to backup the next 20 records.

```
.COPY TO <BACKUP DATABASE NAME> FOR RECNO()  
>= 21 .AND. RECNO() <= 40
```

You would repeat this procedure, changing records numbers for start and last, for the rest of the database being backed up.

A word to the wise, when defining the filename given to the backup databases (in our example the 20 record segments) assign a sequentially descriptive name for each set of file: Example: NRCACCT1.DBF, NRCACCT2.DBF, etc. This way, if you ever need to put the database back in its original order from your backup diskettes, this naming convention will provide you with an mechanism to insure that the records are put back in their original order.

The final step is to close your original database by issuing the CLOSE DATABASES command when you're finished backing up to diskette. This is done by typing CLOSE DATABASES at the dot prompt and pressing the ENTER key.

```
.CLOSE DATABASES
```

## NIH

### Wylbur SCRATCH DSNAMES PAST Command

The scratch option of the SHOW DSNAMES PAST command allows the user to remove unwanted data sets from disk storage at NIH. Each time Wylbur presents a data set the user has the option to order a scratch or retain the data set.

Typing the command SHOW DSNAMES PAST SCRATCH will result in Wylbur providing the data set, followed by a prompt addressing that particular data set. For example,

```
? SHOW DSNAMES PAST  
SCRATCH  
NRC003  
@TSO.PROFILE.CLIST  
SCRATCH? (yes or no)
```

Typing the command, SHOW DSNAMES PAST SCRATCH MULTIPLE, will result in listing all of your data set names followed by a single prompt, asking whether each of these data sets should be scratched.

```
? SHOW DSNAMES PAST  
SCRATCH MULTIPLE  
NRC003  
@TSO.PROFILE.CLIST  
SCRATCH? (yes or no)  
@WYLBUR.PROFILE  
SCRATCH? (yes or no)  
DJM - PDS  
SCRATCH? (yes or no)  
LANGFORD  
SCRATCH? (yes or no)  
NAMES - PDS  
SCRATCH? (yes or no)  
TEST - PDS
```



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SCRATCH? (yes or no)  
TST - PDS  
SCRATCH? (yes or no)  
?

These commands could be very helpful in cleaning up disk data sets that are no longer needed.

## INEL

### New CRAY Editor

A new screen editor, EMACS provides facilities that go far beyond the features found in the VI editor. New features include filling of text, automatic indentation, viewing two or more files at once and manipulation of characters, words, lines, paragraphs or pages. It supports automatic formatting for different languages such as auto tabbing to column 7 in FORTRAN. Several special commands are necessary to use this utility. Contact Emily Robinson for information on 492-3490.

### CRAY Training

Due to the conversion from the CYBER 176 to CYBER 830, a number of users are deciding to use the CRAY. CRAY training has been given during the past year in small group settings or on a one-on-one basis. CRAY training in March was held for six users. Those interested, should call Emily Robinson for information on 492-3490.

## Data General

### Destination

Are you residing somewhere other than the Phillips building? Are you in need of computer print-out from the Data General computer room in the Phillips building? Have you been traveling, by NRC Shuttle, to Phillips to personally pick up your print-out? There is another way. Actually there are two possibilities. The first way, if the print-out is only a few pages and you have a printer in your computer configuration, is to use the CLI TYPE command to print directly to that printer, ( e.g. TYPE pathname). The second way is to use the destination switch on the CLI QPRINT command and let it equal your mail stop, ( e.g. QPRINT/DEST=OWFN\_3C\_12 pathname). The mail stop will print

on the banner page of the print-out instead of your username and will alert the operator to put that output in the mail rather than in the user's box in the computer room.

### AUTOBAUD

A new release of the Data General AOS/VS operating system has been installed. This release supports AUTOBAUD. "What does that mean to me?", you ask. It means that when you dial into the DG MV/8000 computer, located in the Phillips building, the fastest baud rate (300, 1200, 2400) for which your modem is capable is the baud rate that will be used. The user must make a one-time change in the CROSSTALK or SmarTerm profile phone number and baud rate for desired combination:

2400 baud	492-4918
1200 baud	492-7950
300 baud	492-4917

### Improve Your Sensibility to Your Own Potential by Making This Comparison With the CRAY!

CRAY SuperComputer	Human Brain
Weights 7 tons	Weights 3 lbs.
60 miles of wiring	200,000 miles neurons and axons
Not portable	Very portable
400 million calculations per second	100 years of CRAY calculations to simulate every operation your brain does in one second
Limits for sequential and simultaneous processing	No limits, infinite
No intuition	Intuitive processing

# NUCLEAR REGULATORY COMMISSION

## ITS SUPPORT CENTER FACILITIES

### Locations:

Phillips Building, Room P-808 One White Flint North, 3C-12  
7920 Norfolk Avenue, 11555 Rockville Pike,  
Bethesda, MD 20814 Rockville, MD 20852

### Phone:

(FTS) or (301)492-4160 (FTS) or (301)492-0353

### Center Hours:

7:30 a.m. - 4:15 p.m. M-F

### Services:

User Assistance (Telephone & Walk-in), Equipment and Software for Trial Use, Demonstrations, Technical Library, Tours plus Computer/Video-based Tutorials. Support Center Project Manager, Karen VanDuser; AMCI Project Manager, Derrick Schreiner.

## TRAINING LABORATORY FACILITY

### Location:

Suite W-102 Woodmont Building  
8120 Woodmont Avenue,  
Bethesda, MD 20814

Phone: (FTS) or (301)492-4744

Laboratory Hours: 7:30 a.m. - 4:30 p.m. M-F

Class Hours: 8:30 a.m. - 3:30 p.m.

### Services:

Three classrooms for formal ADP training including one equipped with six IBM XT's and one with eight IBM PC's. "Hands-on" instruction in the use of microcomputers and timesharing systems.

Note: The Training Laboratory is operated by the Graduate School, USDA under contract and managed by the Office of Personnel, to provide training in end-user computing for the NRC staff. Technical guidance is provided by IRM. NRC Project Manager, Carolyn Bassin; GS/USDA Training Manager, Kathy Beckman.

## NRC END-USER COMPUTING SERVICES DIRECTORY

Hardware Acquisition/Upgrade/Relocation and Software Acquisition/Upgrade: Dawn Oliver, P-622, 492-8219

### Hardware Installation and Maintenance:

Microcomputers: Dawn Oliver, P-622, 492-8219

Word processors: Beth DeWoody, P-622, 492-4832

Other ADP Equipment: Charles Johnson, P-622, 492-8311

Computer Room: Phillips 492-7713  
White Flint 492-0885

Computer Security: Louis Grosman, P-612, 492-5016

Data Communications - Modems and Data Lines:  
Stan Wood, MNBB-7602, 492-7723 or 492-8000

Timesharing Access/IDs: Mike King, P-622, 492-4974

### PC & NIH User Support:

ITS Support Center, Phillips Bldg., P-808, 492-4160  
One White Flint North, 3C-12, 492-0353

### Data General and INEL User Support:

Pat Bell, 3C-16, 492-3491

Emily Robinson, 3C-14, 492-3490

SINET Problems: 492-4005

NUDOCS Hotline: 492-8603

### Data General Systems Problems:

Judy Seeherman, P-622, 492-9687

IBM PROFS/E-Mail Support: Sharon Root, P-612, 492-4093

Electronic Records Support: Brenda Shelton, P-530, 492-8102

Graphics Support: Janet Thot-Thompson, 2G-40, 492-6215

Commercial Database Support: Eileen Chen, 160, 492-8501

Scientific Code Distribution - NESD: Pat Bell, 3C-16, 492-3491

### Safety Information Network (SINET) Development:

Guy Wright, MNBB-7602, 492-4988

### Systems Development and Modification:

Bill Usilton, P-700, 492-8322

Operations Center: Joe Himes, MNBB-3111, 492-9003

### Scheduling for ITS Training Laboratory

Kathy Beckman, W-102, 492-4744