

# ITS NEWS

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Information Technology  
Services Support Center  
and Training Laboratory



U.S. Nuclear  
Regulatory  
Commission

Division of Information  
Support Services

Office of Personnel

## ITS Lab Celebrates Fifth Anniversary

by Kathy Beckman, ITS Training Lab

In this issue, we celebrate the fifth anniversary of end-user training at the ITS Training Laboratory. More than 9,000 course completions have been recorded. NRC students have completed hands-on microcomputer training either at the ITS Lab's permanent Headquarters training site or in courses conducted on-site at the Regions.

### In the Beginning

The ITS Lab opened to its first NRC microcomputer students on October 15, 1984. The initial training facility, located on the first floor of the Woodmont Building, had one classroom with eight IBM/PCs

(See ITS Lab pg 2)

## ITS Support Center Marks Fifth Year!

by Lana Cobb, IRM

On January 10, 1980, IRM celebrated the fifth year of the ITS Support Center facility at the NRC. The original ITS

Support Center was designed to be a complementary facility to the ITS Training Lab. In 1985, the Training Lab provided structured hands-on microcomputer software training and the ITS Support Center provided technical support for computer users in mainframes, minicomputers, and microcomputers. Today, the ITS Training Laboratory provides hands-on training for software packages and agency accessible applications. The Information

Technology Services Branch (ITSB) provides access to mini-computers, microcomputers and mainframes; user support for packages running on these machine environments; guidance in the area of security; technical oversight of training; user support in developing better visual presentation of data (graphics); and maintenance of all three machine environments.

(See Support Center pg 3)



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## ITS NEWS CREDITS

The ITS NEWS is a quarterly publication providing information of interest to users of computer technology at the NRC. It is produced by the staff of the NRC Information Technology Services Support Center and Training Laboratory in conjunction with the NRC's Office of Personnel.

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(dual floppy drives) and two other classrooms for demonstrations and user group meetings.

By the end of 1984, 249 course completions had been recorded at the new NRC facility in an 8-course curriculum which included: Introduction to End-User Computing at NRC, PC-DOS, introductory courses in dBase III and LOTUS 1-2-3, a BASIC programming course, word processing with DisplayWrite 3, and data communications via CROSSTALK. 1984 also took ITS Lab instructors to Regions III and IV to conduct DisplayWrite 2 training.

### Five Years Later

Training services at the ITS Lab have expanded dramatically since 1984. During these five years, the curriculum has grown from eight to 20 courses. All three classrooms are now equipped with microcomputers, making 24 workstations available for hands-on training.

The facility has also changed location. In July 1989, the Training Lab facility moved to the newly renovated third floor of the Wood-

mont Building. The Lab is now an integral part of the NRC Training Complex, which includes the Individualized Learning Center (see article in this issue) and classroom facilities for a wide variety of technical, supervisory, and secretarial skills training.

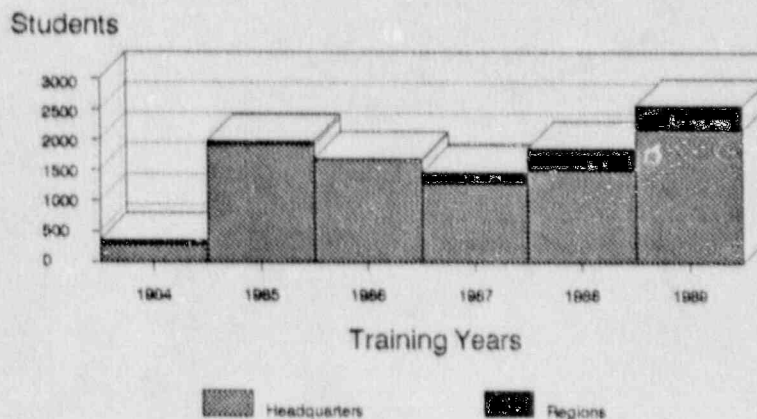
### Trends

First, the ITS Lab experienced substantial increases in overall enrollments both in 1988 and 1989, reversing the decline in enrollments experienced in 1986 and 1987. (The term "overall enrollment" refers to an employee who completes an ITS Lab course, either at Headquarters or on-site in an NRC Regional facility.) The figure below illustrates the overall enrollment trends during the Lab's five-year history.

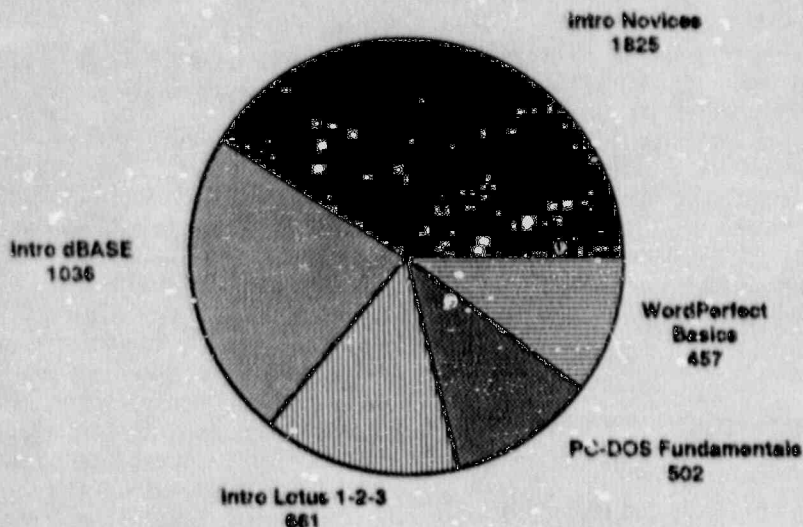
Second, Regional requests for on-site training are burgeoning. This major trend accelerated training delivery to the Regions.

Third, demand for individual courses has changed over the five years between 1984-1989. The most heavily subscribed course has been "Introduction to End-User Computing at NRC for Novices," with 1,825 student enrollments. However, this

## Headquarters and Regional Staff Enrollments 1984-1989



## Top 5 Training Courses 1984-1989



course is less in demand now since the base group of end-users at the agency has become computer literate through training and follow-on experience. "Introduction to dBase III Plus" ranks second in overall demand, with 1,036 completions. Interestingly, as seen in the pie chart above, "WordPerfect 5.0: The Basics" ranks fifth overall after only nine months on the ITS Lab schedule.

### Future Directions

With the opening of NRC's Individualized Learning Center, NRC employees will be able to select their training from two formats: instructor-led and self-study. Look for coordination between the Lab and the Learning Center's curricula to enhance each NRC employee's training opportunities.

PC-to-mainframe connectivity training will be a major growth area in instructor-led classes. Two new courses are slated to accompany the implementation of Nuclear Documents System/Advanced Design.

A training analysis of NRR's Workload Information and Scheduling Program (WISP) is underway.

Replacement of the 5520 with Local Area Networks (LANs) will present another major training opportunity at the agency. Classroom 390 will be configured as a Local Area Network to support LAN training.

All in all, the next few years at the ITS Lab promise to be as challenging and productive as the first five!

## Ideas, Articles, Comments?

We'd like to  
hear from you.

Call or Write:  
ITS News Editor  
P-808 or 492-8309

(Continued from Support Center pg 1)

## Background Of The Concept

In the early 1980's, the role of the data processing professional began to change from a doer to a facilitator. Instead of doing the projects for a user, the data processing staff could help the users do for themselves.

This concept of end-user assistance developed in response to the impact of new technologies and the advent of microcomputers and more advanced programming languages which occurred in the late 1970's. Decreasing hardware costs and increasingly powerful machines together with "user-friendly" software made it possible and cost effective for users to develop their own application and to retrieve data from existing data bases. This could now be accomplished with decreased Automated Data Processing (ADP) development staff involvement. The employee would need to be trained and assisted, thus the idea of an a dual functioning facility: the ITS Training Lab and the ITS Support Center.

In the Fall of 1983, a proposal for an "NRC ADP Information Technology Center" was adopted and preparations were made to apply the concepts of end-user computing at NRC and prepare for the wave of the future. The ADP professionals began to learn microcomputer products. A list of packages determined to be "user-friendly" on microcomputers, minicomputers and mainframes was established and walk-in and telephone support to end-users began. At this time there were only two microcomputers in the agency.

During the course of the past five years, the concepts of end-user computing and related support services have been enhanced and fine-tuned to their present state. In 1986, the use of contractors for the support of microcomputer-related questions was initiated. With the

occupancy of the White Flint Building, an additional user assistance center was established. In 1988, the Graphics Service Section joined this branch and provided assistance enabling end-users to communicate data visually through the use of microcomputer products. Additional minicomputer types and products were added for access by agency end-users, including IBM 9370s and PROFS. Today the information center concept is carried out by both the staff and contractors.

## What Is Happening Now?

By Karen VanDuser, IRM

In August 1989, services related to the support of the end-user computing effort, with the exception of microcomputing hardware and software acquisition, was placed in ITSB. The functions of ITSB are implemented by four sections: Automated Graphics; Information Technology Support; Codes and Standards; and Computer Services. David Diehl is the Branch Chief for ITSB.

The Automated Graphics Section, Janet Thot-Thompson, Chief, is responsible for developing, recommending and implementing approved agency-wide goals, objectives, policies, guidelines, and procedures for design and graphics services throughout the NRC. Assistance to the end-user in the area of graphic analysis, design, advice, and support is provided. Visual communications standards, consultation and visual enhancement and imaging are provided for supported software.

The Information Technology Support Section, Karen VanDuser, Chief, provides installation, maintenance, and technical support for production microcomputer and office automation equipment (5520s and Displaywriters). The section is responsible for providing installations and technical support (hot-line, and walk-in service) for supported commercial software. Troubleshooting of hardware,

software and data communication lines and modems are also done at the users site. The section maintains literature on commercial software.

The Codes and Standards Section, Louis Grosman, Chief, provides advice, guidance and assistance in all aspect of ADP security. This section provides control for access to NRC computer systems (access initials and accounts control) for in-house and time-share computing facilities used at the NRC. The scientific end-user community is provided technical support by this section, including accessing codes through the National Energy Software Center. Technical support of the ITS Training Laboratory is also performed by this section.

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## *IRM will continue to expand the depth and breadth of automated systems.*

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The Computer Services Section, Rashida Alam, Chief, provides systems programming and operational support services for NRC minicomputers and mainframe computers (Data Generals, IBM 9370, and NIH). This group evaluates, acquires, installs and maintains the various NRC mini and mainframe computer hardware, and associated peripherals, such as the data storage devices, telecommunications equipment, remote job entry workstations, and remote printers. This group maintains liaison with all timesharing facilities, and provides technical consulting to ADP users and contractors regarding the computer facilities and proprietary applications software running on these machines.

Over five years ago, the original staff and managers believed that the concept of end-user computing and their responsibilities to provide training and assistance would have a significant impact on the agency. They were right! This concept is active today as we look to the future in this information age.

## The Future of the ITS

By Joyce Amenta, IRM

The Information Technology Center's mission is to help employees become self-sufficient computer users and effectively use the computer in the workplace, whether the information is office based and accessed through a local area network, or resident in a mainframe located across the country and accessed through a modem or wide area network. In either case, the ITS staff facilitates the transition from batch data processing to interactive processing, from centralized resources to distributed resources and systems, and from supporting a few complex in-house systems and functionally limited software to supporting powerful, multifunction, high level, user friendly software.

By 1993, every employee who can profitably use a microcomputer will have one. Over the next three years, staff will have access to word-processing, document transfer, electronic mail, databases, computational resources, analytical tools and automated administrative resources either locally or via networks. IRM will continue to expand the depth and breadth of automated systems to perform critical functions in support of the NRC mission, such as the Master Inspection Planning System and the Workload Information and Scheduling Program for NRR, the Executive Shared Information System for the Commissioners and senior staff, the Daily Plant Status System for AEOD, and develop administrative support systems for smoother internal NRC operations. The ITS will play a greater role in assuring user self-sufficiency in learning new systems, accessing data bases and in managing their computing environment.

# NRC Responds To Prompt Payment Act

By Dan Schwartz, IRM

Want to pay interest penalties on your own overdue bills? Well, neither does the NRC! Did you know that the Division of Contracts and Property Management (DCPM) receives almost 5,000 bills under NRC contracts annually? These bills are for everything from computers to engineering support, from software support to cleaning support. Since everyone including the NRC must pay an interest penalty for late payments, can you imagine the extra costs involved for overdue invoice payments? Fortunately, the NRC has a new tool to assist with paying invoices on time. It is the new INVOICE TRACKING SYSTEM (INVTS).

INVTS was developed by IRM in response to Public Law 100-496, which amended the Prompt Payment Act. The Act now requires agencies to pay invoices within thirty days (eliminating the fifteen day grace period previously allowed). The INVTS system tracks invoices from initial receipt to final payment

to ensure that vendors supplying goods and services to the NRC are paid in a predictable and timely manner. Invoices which are overdue automatically have the interest penalty included when payment is generated by the Division of Accounting and Finance in the Office of the Controller. Likewise, invoices eligible for discounts have the discount amounts deducted when paid by the discount date. The data flow diagram illustrates the administrative processes related to invoice payments.

Basically, the INVTS provides four major functions. The first function is currently in production and the others will be implemented in the future. The first function provides a powerful reporting capability. The most important reports show overdue invoices by responsible Project Officer and Contract Administrator. For example, one report shows the basic information about a Project Officer in the report title followed by a detailed list of overdue invoice information. A similar report is produced for Contract Administrators. These reports are distributed to the appropriate Project Officers, Contract Administrators, and managers to expedite handling of these invoices.

Other reports show pending invoices that must be paid by a certain date or they will be subject to interest penalties.

The second major function is the generation of Form 292s, "Voucher Transmittal for Review and Approval Prior To Payment". Typing of this form is time-consuming and subject to errors. Computer generation of this form will speed up the payment cycle.

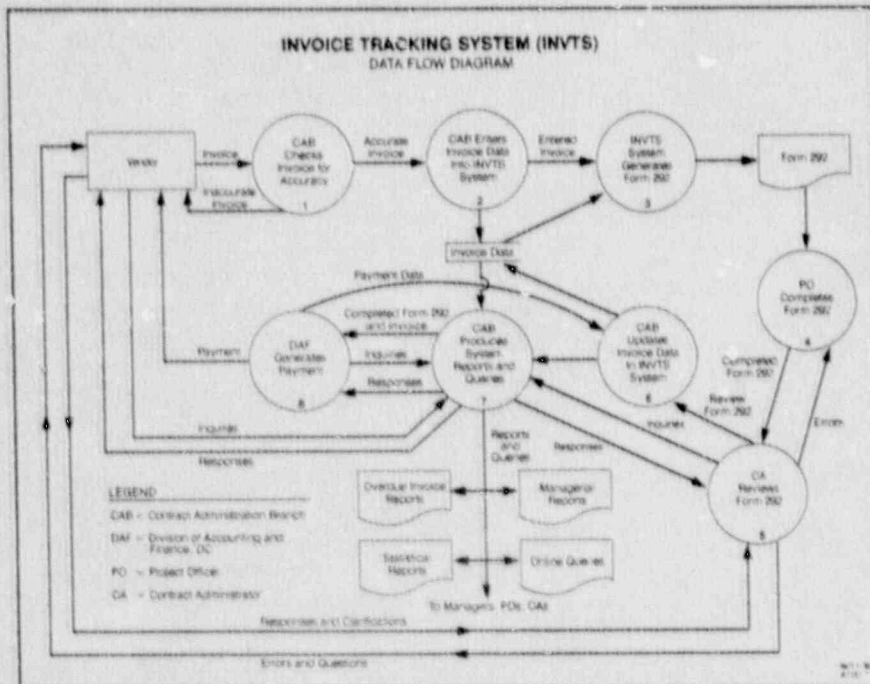
A third function is to provide NRC-wide access to invoice status information for Project Officers, Contract Administrators, and other appropriate staff. This will help to keep everyone informed in a timely manner.

The fourth function is an invoice analysis sub-system. This function will enable the Contract Administration Branch to identify patterns of late invoice payments in order to take corrective action and anticipate problems.

The INVTS is yielding unplanned benefits too. The system provides another check to prevent duplicate invoice payments, and can be used to provide cost information. For example, the system was recently queried to calculate costs for maintenance of the White Flint Building.

The INVTS System is a multi-user system that can be accessed by the RENEX protocol converter or through dialup lines. The system uses IBM 3270 terminal emulation features to provide the user full screen capabilities. It executes at the NIH time-sharing facility on the IBM 370/3090 computers. The data is maintained using IBM's DB2 Data Base Management System. Programs that access, manipulate, and report on the data are written in PL1 and Query Management Facility. The INVTS was put into production in September, 1989.

For more information or questions, contact Dan Schwartz on 492-7065 or Tim Hagan on 492-4800.



INVTS diagram showing the flow of data throughout the system.

# NUDOCS

# NEWS

NUCLEAR DOCUMENTS  
SYSTEM NEWSLETTER

## AEOD Now Importing NUDOCS Records Into WAMS

The NUDOCS data download capability is being used by AEOD to import licensee event report (LERs) information into the Work Assignment Management System (WAMS). AEOD processes about 3,000 LERs each year, so use of this feature has saved time and effort.

The Division of Safety Programs is responsible for analyzing and evaluating operating events described in LERs, determining the safety significance of the events, and deciding whether action is necessary. Prior to the availability of NUDOCS data download capability, all necessary LER information had to be entered into the AEOD computer manually. The data included the docket number, LER number, report date, event date, and description. The problems with this manual method of record processing included errors introduced during manual data entry, and manual tracking of review status.

Gene Trager of AEOD/ROAB realized that most of the LER data elements were already being captured by NUDOCS, and could be input directly into the WAMS database. Using the NUDOCS data download increases efficiency and reduces the chances for error. In addition, this helps ensure all LERs received by the NRC are evaluated.

Once the records are downloaded, they are imported into WAMS, which is a dBASE III language program developed using Clipper. WAMS generates LER cover sheets containing the information from NUDOCS, along with space for the reviewing engineers to include classifications, findings, and comments. After the review process, the resulting data is added to WAMS for a permanent archival summary record of the review process. The WAMS/NUDOCS information may be used later for input to NRC inspections, systematic assessments of licensee performance, or Commissioner site visits.

Gene estimates that using the data download feature will save AEOD at least one-half a person-year annually. If you are interested in this system or have questions, call Gene Trager on 492-4496.

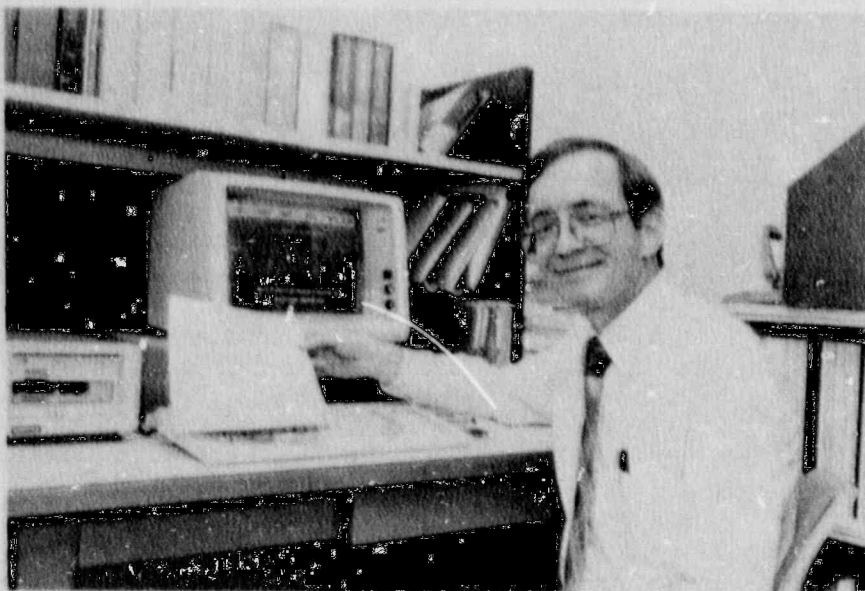
## The NUDOCS Hot Line Staff

Probably every NUDOCS user has called the NUDOCS Hot Line to ask a question or resolve a problem. But how many users can remember the names of the people who provided assistance from the other end of the telephone? Here is an opportunity for NUDOCS users to become familiar with the Hot Line staff.

The NUDOCS Hot Line staff is comprised of Pat Exum, Sally Palko, John Knable, George Russ, and Darlene Hoyer. All members of the Hot Line staff are employees of the NUDOCS indexing department. Each member has extensive knowledge and experience in the procedures for encoding technical nuclear industry-related documents. The five-member Hot Line staff has a combined experience of over 34 years on the NUDOCS project.

The Hot Line staff has other responsibilities in addition to their Hot Line duties. Ms. Exum and Ms. Palko are supervisors of indexing teams. Mr. Knable and Mr. Russ conduct quality control on the indexed data records. Ms. Hoyer provides training to NUDOCS users.

In addition to extensive indexing knowledge, each member of the Hot Line staff has received cross-training in the other NUDOCS departments (micrographics, computer operations, document distribution and control). The staff has also received instruction in telecommunications,



Gene Trager, AEOD, importing NUDOCS records into the Work Assignment Management System (WAMS) in order to increase efficiency and reduce the chance for error.

hardware, and software configuration. This extensive training is necessary to prepare the Hot Line staff to answer the wide variety of questions posed by NUDOCS users.

The Hot Line staff has been trained to assist the user community in all aspects of NUDOCS usage. They answer questions ranging from choosing the best search for the desired results to how to conduct a data download. They resolve such problems as why a user is having difficulty in accessing the system. Assistance is given with ad hoc reports, or the staff will produce a report to meet the user's needs. The staff is available from 8:00 a.m. to 5:00 p.m. Monday through Friday. The Hot Line number is 492-8603.

### **Another LPDR Joins User Community**

Another Local Public Document Room (LPDR), William Carlson Library at the University of Toledo, has joined the network of NUDOCS users. NUDOCS is accessed to assist patrons in locating information on the Davis-Besse Nuclear Power Plant. There are now seven LPDR's using NUDOCS.

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## **User Groups**

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### **TPUG Meets**

When the Technical Programming Users Group (TPUG) met on October 17, 1989. Dr. Stan Fabric, AEOD, demonstrated the nuclear power plant transient analyzer program he has been developing for the NRC. His program calculates solutions to nine conservation equations at each of up to 70 fluid nodes and the radial heat conduction equations in up to 50 "heat slabs," in real time and at each time step. The nodes are arranged to model the primary system, including reactor core, steam generators, pressurizer, steam lines, and some consideration of the balance of plant. Stan has several plants modeled by the code, representative

of Westinghouse, Babcock and Wilcox, and General Electric Nuclear Steam System Supplier designs used in industry.

The program can plot and display on four windows as many as 24 parameters simultaneously. The program can be interrupted at any time to change plant setpoints, transient scenario, or scales. A matrix associated with each graph shows the status of various pieces of plant equipment. Help screens are also available to the user at any point in the program. One of Stan's goals is to make the program extremely user friendly, especially in preparing input files, so that users can concentrate on the reactor being simulated instead of programming details.

Another feature of the program is its mimicking capability. Plan views of the primary circuit are shown on the screen. Different colors are used to show the changing levels and phases of water in the various parts of the loop. This real time or slowed down visual aid helps the viewer understand if undesirable voids or steam pockets exist in the reactor head or locations lower than the pressurizer for particular reactor conditions.

The feature that distinguishes this program from other plant simulators is the proof-testing it has gone through with respect to real events and tests in plants. For example, this program accurately reproduces results of several Department of Energy programs (LOFT, Semiscale, Otis, FIST), the TMI-2 accident, the Ginna steam generator tube rupture event, and other measured plant transients.

The program requires machine capabilities beyond the average workstation at NRC. For example, it requires more than 3 MB of RAM (whereas most NRC machines have only 640 KB) in conjunction with software called "DOS extender." Stan is developing this program on a Compaq 386/20 machine with a Weitek 1167 math coprocessor, standard VGA color monitor (640 x

480 pixels), mouse, and HP Laserjet printer, using an optimizing NDP FORTRAN 386 compiler with HALO 88 graphics primitives that can be invoked from the FORTRAN program. Plans are to use the program at the NRC Technical Training Center and Operations Center. Other staff members might use it by obtaining the appropriate upgrade equipment.

TPUG is planning more frequent programs of article reviews and discussions of codes used to solve problems in chemical engineering, health physics, and physics. We are also planning to invite speakers. Those interested in participating are encouraged to contact Vern Hodge, 492-1169.

### **Artificial Intelligence User Group**

The Artificial Intelligence User Group (AIUG) meets approximately monthly to pursue topics of interest. For some time now, we have been working on building an expert system to aid people in filling out travel claims. We have developed a set of rules to support local travel, learning a lot about mechanical reasoning in the process.

In the Fall, we met to discuss the subject of neural nets and connection machines, and held a meeting on developing an expert system aid in the export license processing area.

Our meetings are usually lively and informative. We recognize we are not all experts in this field, and we try to keep the meetings interesting to all levels of knowledge.

Future meetings will continue to develop the travel expert system and discuss topics of interest to the members.

Those interested should contact Bill Kennedy on 492-1723 or mail stop OWFN 17G21.

# Memo: Computer Viruses and Personal Computers

By Sandra Bogenholm, CSSO DOE Center for Computer Security

**Editor's Note:** The following article was first printed in Department Of Energy's Office of Safeguards and Security, Los Alamos National Laboratory newsletter, CENTER FOR COMPUTER SECURITY NEWS, Volume 8, Number 2, dated August 1989. NRC has its own policy and procedures which should be adhered to, but this article has some useful information for all PC users. It is reprinted in part with permission from editor Karleen Rodie.

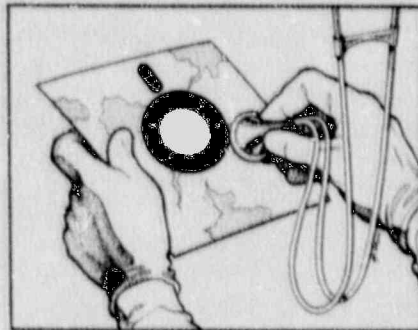
As a personal computer user, you are responsible for certain data protection functions on your PC or workstation system that are handled automatically by the system manager of a mainframe system. These functions include providing physical security for the system and media, providing adequate backup for all software and data, ensuring that only information appropriate to the authorized levels of classification and category is stored or processed on your system, and ensuring that infected software is not run on your computer.

Recently, many viruses (or related code) have been infecting computer systems around the laboratory. A virus is a "self-propagating Trojan horse, composed of a mission component, a trigger component, and a self-propagating component." A virus can cause a number of benign or serious problems-- anything from a message on the screen to data alteration, data loss, etc.

The most likely entry point for a virus is at the microcomputer level. From there it can spread to other micro or mainframe computers to which the microcomputer is networked or with which you share media. As a PC user, you are our most important line of defense against a costly and embarrassing virus infection. By keeping your system and media free from viral infection, you protect not only yourself but also users with whom you share files. Included are some guidelines to help you minimize the likelihood of a virus infection, diagnose the presence of a virus, and respond in the event of an infection.

## Computer Virus Guidelines

Protection from viral infection includes knowing your software sources and limiting sources to commercial ones whenever possible. It also includes limiting access to your computer and its media. Recovery from infection is facilitated by having backups of the operating system, application programs, and data files and by your keeping several previous backups so that you are sure you can go back to a point before the infection to



reconstruct the system and data. Finally, knowing your system and running virus detection programs helps you monitor your system to ensure contamination-free files and system.

## Preventative and Damage Control Measures

Make frequent data file backups and store the diskettes or other media in a safe location (ideally in a different office and building from your computer). Files that would be difficult or time-consuming to recreate should be backed up most often. Practice recovering your files from the backups. There are commercial software programs that can quickly back up your hard disk. Save the backup diskette sets of critical or hard-to-replace files for at least a year unless they become obsolete before then.

Always make a backup or working copy of application software; never run directly from the distribution disk. If you have problems with your disk, computer, or a virus, you can reinstall the software after the problem is corrected.

Never boot your system with the original operating system diskettes. Make backup copies before you install the system software, and use them for installation. Write-protect and store the original diskettes in a safe location. Subsequently, boot from the hard disk or from your backup copies. Also, never add data or programs to the original system diskettes.

## Unauthorized Software

Do not bring ANY unauthorized code (software) into the workplace-- especially software downloaded from public bulletin boards. Be suspicious of any software or software media supplied by friends. It is recommended that software be purchased through normal procurement channels or that it be reviewed by knowledgeable programming/security personnel.

## Software Development

Assign sensitive software development tasks to trusted persons, or subject all software to independent review before it is installed. Use a two-person rule for software and hardware design, implementation, testing, and review. Better yet, encourage the use of good software engineering practices and hold design reviews, code walk-throughs, etc. Keep development and production isolated from each other.

## Specific Systems

When you initially install your operating system software (DOS or MS-DOS users), examine the COMMAND.COM file. Write down its size, creation date and creation time. Periodically reexamine COMMAND.COM to see if any changes in size, date, or time have



occurred. Such changes may mean that a virus has corrupted the file. If you note unexplainable changes, rebuild DOS with the "SYS" command.

Check any multiuser system to ensure that all anonymous, debug, dealer service, and other general user identifiers, passwords, and accounts are disabled. These should also be checked after each operating system upgrade.

**Write Protection and File Locking**  
If your operating system supports locking files to prevent changes, set that protection on all files you seldom change. Although a virus can get round this, many have not been written to anticipate locked files so some protection is provided by taking this precaution.

When you obtain new software, write-protect the distribution disk or tape before making a backup or working copy or installing the software on your hard-disk. Just inserting a disk in an infected system can be enough to corrupt the diskette. In fact, it is always a good idea to use write-protected disks unless you know you will need to write to a disk.

Applications and data can be kept on write-protected removable media (cartridge drives or floppies) and inserted into a workstation only when needed.

**Miscellaneous**  
Test every unknown program before system-wide release (preferably on an isolated system). Use password security if available. Report any unauthorized use of your system. Make it a practice to power down your microcomputer overnight, and do not leave diskettes in the disk drives overnight. You may wish to install a locking device on the power switch to prevent unauthorized access to your computer. Have standard recovery procedures in place. Now is a good time to develop a contingency plan.

## Diagnosing the Presence of a Virus

The best way to detect the presence of a computer virus is to be as familiar as possible with the way your computer runs in daily operation. In addition, look for the following indications of system contamination:

Program or data files mysteriously disappear. Unusual messages appear on the screen. Some viruses even announce that your system has been infected. An unusual number of program or system crashes or print errors occur. Sudden, unexplainable reductions in system memory or disk space occur. Your computer seems to run more slowly than normal. Program loads take longer than normal. An unusual number of disk accesses occur. Disk drive access lights come on for no apparent reason. An executable file, particularly COMMAND.COM, changes in size. Unexplainable hidden files appear. IBM PC-DOS V4.0 has three hidden files, earlier versions have two. But be aware that some application software does create legitimate hidden files.

## Wizards In Computer History

Sixty-five years after Charles Babbage pioneered the idea that tables could be calculated by machinery, Alan Turing, a British scientist, wrote his famous paper which launched the computer age. While a student at Princeton in 1936, he said, "The Math Department here comes fully up to my expectations". At the time such notable mathematicians as Von Neumann, Courant, and Einstein were teaching there. Turing predicted that within 50 years someone would build a machine that worked like the brain. He imagined input with punched paper tape and other particulars that eventually came into being after his death in 1954. By 1980, the field of artificial intelligence was busy learning about the brain by using the computer.

## Practice Safe Computing

By Lou Grosman, IRM

The date of activation of the Columbus Day Virus has come and gone and there were no reported cases of infection within the NRC. However, this does not mean that NRC PCs are immune to a viral attack. Routine use of good computing practices can reduce the likelihood of contracting and spreading any virus, and can minimize the effects if one does strike.

Good computing practices include:

1. Making frequent backups of your data, and keeping several versions.
2. Using only NRC-issued software.
3. Using care when exchanging data between computers, particularly when telecommunicating or exchanging files by floppy disk.
4. Avoiding the duplication or copying of program files. If program files must be duplicated, keep user files (those generated by use of vendor software) and program files (vendor software) on separate floppy diskettes.
5. Learning about your computer and the software you use. Be able to distinguish between normal and abnormal system activity.

Additional information on computer viruses can be obtained from Louis Grosman on 492-5019, or from the ITS Support Centers at White Flint (3C12) and the Phillips Building (P-808). The ITS Support Centers can be reached at 492-0353 or 492-4160.



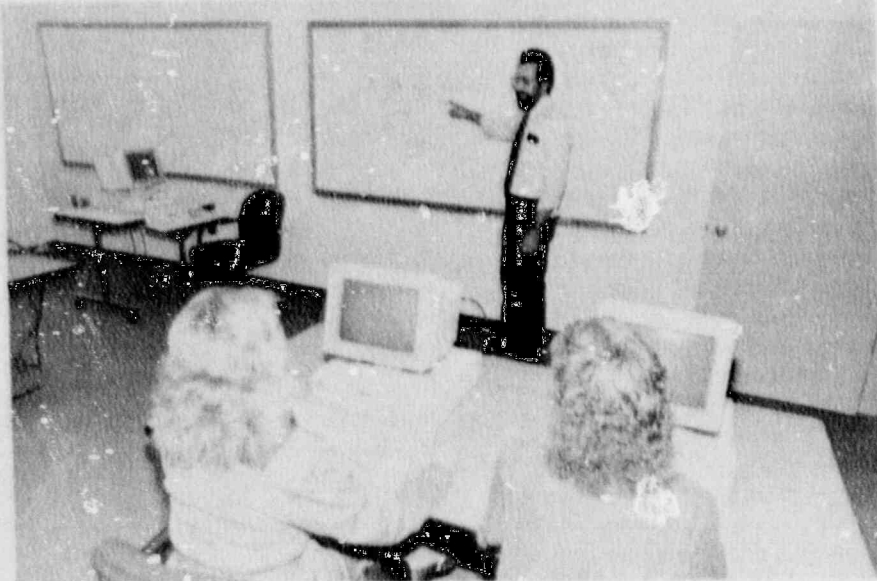
# TRAINING LAB NEWS

## Third Computer Classroom Opens

The ITS Lab has opened its third microcomputer training classroom. The new training room is equipped with eight IBM PS/2 Model 30 286 student workstations. Each workstation has a color monitor and SmartTeam 2400 baud modem. Two Hewlett Packard LaserJet II printers support the eight workstations via a print share device installed by IRM/OANDB.

Initially, courses in graphics, WordPerfect 5.0, and mainframe connectivity such as "SINET: Query System," "SINET: OnLine Query," and NUDOCS/AD training will be offered in the new classroom. Eventually, this room will be configured on a local area network (LAN) and will be the site of LAN training.

With the addition of this third classroom, there are now 24 student workstations available at the ITS Lab for hands-on training.



The ITS Training Lab's newest classroom equipped with eight PS/2 workstations.

## Regional Training: Focus On WordPerfect

NRC's Regional Offices are finding that WordPerfect 5.0 training is their current highest priority. Since WordPerfect training was added to the ITS Lab curriculum in April, 1989, ITS Lab trainers have conducted WordPerfect classes at four of the five Regional sites for a total of 174 students. The table on the right shows the number of students trained in each region.

### Regional WordPerfect Training

| Region | # Students |
|--------|------------|
| RI     | 41         |
| RII    | 80         |
| RIII   | 0*         |
| RIV    | 31         |
| RV     | 22         |

\*Planned in FY 90

## 1990 Mainframe Curriculum Expanding

Training end-users to access information stored on NRC's many mainframe systems continues to expand at the ITS Lab. In 1990, users will be able to come to the Lab for instruction in querying and reporting data from three mainframe application systems: Nuclear Documents System (NUDOCS/AD), Workload Infor-

mation and Scheduling Program (WISP), and Shared Information Network (SINET). For more information on individual courses, call the ITS Lab at 492-4744.

## Watch for New WordPerfect Courses

The ITS Lab is currently developing two new classes to add to its WordPerfect 5.0 curriculum in Spring, 1990:

WordPerfect 5.0 Graphics Features  
WordPerfect 5.0 Advanced Text Features

Students in the new Graphics Features course will learn how to produce documents which integrate graphics (for example, a Lotus 1-2-3 graphic) into their text, text/graphic slides for TV graphics at White Flint, and complex tables with multiline entries.

Students who complete the new Advanced Text Features course will be able to create these work products: multipage documents containing an automatically generated table of contents, table of figures, and index; documents with footnotes/endnotes and numbered paragraphs, a style template for a memorandum, and a password protected document.

## PC Parallel Processing Arrived In Research

By Ralph Landry, RES

A Small Business, Innovative Research (SBIR) grant has developed truly surprising capability in a new, microcomputer-based parallel processing computer. The Office of Nuclear Regulatory Research (RES) has several methods at its disposal to contract for research support, such as the DOE lab, consultant and university contracts. A lesser known type of contract is that of the SBIR. Congress has mandated that federal agencies with research budgets greater than \$100M spend a portion of their budget supporting SBIR work. Two years ago RES received a proposal from Risk Management Associates (RMA) to develop a PC-based parallel processing system (PCPPS). George Marino was appointed the Program Manager, the development phase was funded and a prototype PCPPS machine delivered. This computer is capable of running codes such as RELAP5, CONTAIN, CORCON, the Source Term Code Package, and other traditional mainframe codes along with all standard microcomputer software.

This past Spring, RMA submitted a proposal for Phase II of the original contract. Under Phase II the NRC would receive four additional computers with further enhancements and a larger set of computer codes. The four machines have been delivered and are assigned to Jim Johnson, Ralph Landry, Ed Throm, and George Marino, the Program Manager for the contract.

The computer uses two separate, miniaturized central processing units, or CPUs, and three coprocessors. The motherboard uses the Intel 80386, with 80387 and Weitek coprocessors running at 25 MHz. A secondary board is installed using the Motorola 68020 running at 25 MHz and the Motorola 68882

coprocessor at 33 MHz. Each microprocessor has 8MB of dedicated memory. A problem running on one CPU can be independent of the other CPU or linked so as to exchange data. This is considerably different from the operation of computers such as the Sun Workstation. The Sun machines do not actually run two programs simultaneously. The Sun uses a technique known as time slicing to appear to run two programs at the same time. In reality only one is executing at a given point in time. All others are waiting for their turn to use the microprocessor. The PCPPS, on the other hand, has the ability to have two programs running on their own dedicated microprocessors with their own dedicated memory. This makes the programs run a great deal faster and makes the computer much more useful for office needs.

The PCPPS computers we have are capable of running virtually any code that will run on a mainframe computer. The difference is the time the codes take to run. A typical RELAP5 run will take ten times longer to run on the microcomputer than it takes to run on a Cray XM/P. The cost differential is even greater. Rather than spending hundreds of dollars per hour of timesharing service on the Cray, we now only need to pay the cost of electricity, cents per kilowatt-hour, after the initial cost of the PCPPS.

The run time requirements are not really a disadvantage over the mainframe. No one has direct access to a mainframe since the time must be shared among many users. Computer runs are submitted and their results returned the next day. Thus, for all practical purposes the PCPPS computer will give the same code calculations turn around as the mainframe.

Long code calculations can be started on the secondary CPU while the front CPU is used for WordPerfect, or another application. Problems can be started before leaving for the day and the results reviewed the next morning. Or, problems can

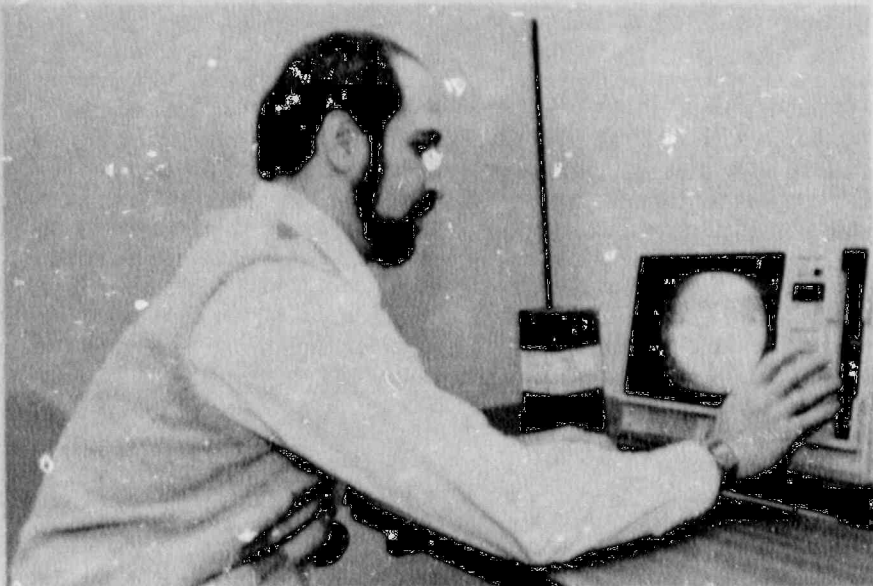
be started and allowed to run over the weekend. Work can also be controlled from another location. With remote control software the PCPPS functions as an extension to the host computer. I have a Northgate 386 computer and modem at home. Initiating work on the PCPPS has been a simple matter by the Northgate-PCPPS link. A single phone call attaches to the PCPPS, executes the program, and stores the data file for use at the office.

While the NRC funded the development of the PCPPS, we are not alone in using the machines. Four of the machines have been purchased by the New York Power Authority (NYPA), two by Carolina Power and Light, one by Pennsylvania Power and Light, one by Stone and Webster and one by Columbia University. Recently the IAEA in Vienna, Austria contracted to purchase four of the computers. Export licensing in that case must be worked out since the Department of State has classified the microprocessors used and some of the codes as having strategic use.

The utility owners are quick to point out that one purpose in having the computers is to support their response to the Individual Plant Examination effort. NYPA has reduced the licensing department's mainframe costs to zero since receiving the four PCPPSs. That includes having run over 100 transient cases on the PCPPS to examine success criteria.

Where do we go from here? The hope of some of us involved in use of the machines is to start providing analytical support to the programs within RES. We now have the capability to do so with the new PC based parallel processing computers, and as this capability is recognized, RES can increase its support to other NRC offices.

For additional information, you may call Ralph Landry, 492-3735 or George Marino, Project Manager, on 492-3896.



Henry Rubin, OP, demonstrating one of the new self-paced learning stations in the Learning Center. This video workstation is one of several that will be available.

## A New Individualized Learning Center

By Carolyn Bassin, OP

In early 1992, the Office of Personnel will open a new Agency-wide training facility. It's an Individualized Learning Center where staff will have greater access to training through self-instructional programs. The Learning Center is collocated with the ITS Laboratory on the third floor of the Woodmont Building.

Using the Learning Center means not having to wait for a formal training class to meet some of your needs. Computer-based, interactive computer/video disc, and audio/video programs will allow you to control choice and pace of learning. They are easy to use, interactive, and efficient ways of learning.

Self-study courses are being integrated into the Agency's current classroom curricula, so that programs in the Learning Center will be available to help you:

1. Take advantage of greater opportunities for personal development.
2. Supplement your classroom training with additional instruction prior to and after class.

3. Replace classroom training, which may not be available when you need it or does not meet your specific needs.

Many new programs are already purchased for the Learning Center. They offer training in end-user microcomputing, managerial skills, project management skills, secretarial techniques, interpersonal relationships, and site-access refresher. The new Learning Center is developing and will acquire new programs to meet the needs of NRC's training mission.

The Learning Center has its own space large enough for fourteen study-stations. The area is set up to provide the services and support needed to use the facility's materials and equipment. It is a pleasant and quiet space, free from office distractions.

When the Learning Center opens, come by and take advantage of this new approach and opportunity to more directly and quickly meet your training and development needs. For additional information, call Carolyn Bassin, 492-8526.

## Do You Equate 'Security' Only With 'Classified'?

By Emily Robinson, IRM

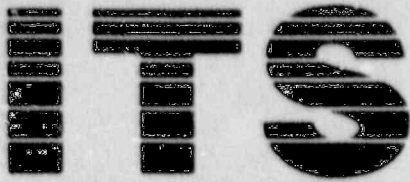
On November 30, the designated day for government agencies to emphasize computer security awareness, videos were shown in Phillips lobby, P-1106, OWFN-3B9 and on TV monitors throughout OWFN during the lunch hour period. ITSB staff were available in both Phillips and White Flint buildings to distribute awareness materials and answer questions.

The response was less than expected to the agency-wide yellow announcement. ITSB reports that many employees said they didn't participate because they do not use classified data on their PC's or mainframes. This may indicate that NRC computer users now equate "security" only with "classified". If this is the case, it is important to correct this concept by emphasizing that "computer security" equates to "protection of your valuable data". What if your unclassified, priority document was destroyed? What if you lost your database that took weeks or months to create, or what if your laboriously-developed Lotus spreadsheet was corrupted?

It only takes a simple mistake, an innocent keystroke by a coworker, a power failure, a virus infection or a game-playing friend to create errors in your PC file or to destroy your files completely.

Employees turn up at the ITS Support Centers with sad faces because their valuable diskette or their hard disk is somehow corrupted. It happens frequently. Practice safe computing.

**Watch for the  
opening of the  
Individualized  
Learning Center**



# TECH NOTES

This section of the newsletter provides tips and technical information of interest to NRC computer users. If you have any questions regarding "TechNotes" 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

### WordPerfect: On-screen Template

WordPerfect Corporation includes a template with each package of software. This template belongs on the keyboard, where it provides a reference for the function keys and assorted special WordPerfect keys. The template is a big help, but it's easy to lose. Fortunately, you can access the built-in WordPerfect template by doing the following:

1. Press [F3] twice.
2. If you like, you can print the template screen by pressing [SHIFT] + [PRINT SCREEN]. Make certain your printer is turned on and is on line.
3. Pressing the [SPACE BAR] returns you to the document screen.

### WordPerfect: Hyphens and Returns

Several kinds of hyphens, dashes and carriage returns are available in WordPerfect. Each has a slightly different effect on your document, but they all look alike on the document screen. Use **Reveal Codes** (F11 or ALT + F3) to see the differences.

The hard hyphen functions as a breaking point when WordPerfect

needs to hyphenate a word at the end of a line.

The hyphen acts as though it were just another character. If it appears in a word that needs to be broken at the end of a line, WordPerfect will prompt you for another hyphen.

The soft hyphen can be inserted between the syllables of a word, and will appear in the printed document only if it occurs as the last character in a line.

The dash is a combination of two types of hyphen that ensures that it will not be broken if it appears at the end of a line. Words separated by hard spaces will always behave as though they were one word.

The invisible soft return allows you to specify where WordPerfect breaks a line, rather than allowing the program to do it. This is useful

where words such as "and/or" or "either/or" would be broken.

The deletable soft return is inserted by WordPerfect if the line contains no spaces. WordPerfect will simply continue the text on the next line.

### WordPerfect: Format Changes and Footnote

If you add footnotes to your document and then change your document's margins, justification, line spacing, or any other item that affects the overall layout of the document, your footnotes will retain the original format characteristics and will not appear the way you wish them to. In order to allow the footnotes to adjust to the new format, you need to make your changes as follows:

1. Retrieve your WordPerfect document.

#### WordPerfect Hyphens and Returns

| Type                  | Key to Press         | Effect   | Hidden Code  |
|-----------------------|----------------------|--|--------------|
| Hard Hyphen           | Hyphen               | Regular hyphen   | [-]          |
| Hyphen                | Home, hyphen         | WordPerfect treats hyphenated word as a single word                    | -            |
| Soft Hyphen           | CTRL + Hyphen        | Inserts a hyphen which appears when a word breaks at the end of a line | Highlighted- |
| Dash                  | Home, hyphen, hyphen | Keeps two hyphens together   | -[-]         |
| Hard Space            | Home, space          | Keeps two words together   | [ ]          |
| Invisible Soft Return | Home, Enter          | Inserts line break without hyphenating                                 | [ISrt]       |
| Deletable Soft Return | (none)               | Forces a line break without hyphenating                                | [DSrt]       |



# TECH NOTES

2. Press [SHIFT]+[F8] to access the Format Menu.

3. Select Option 3 (Document). This will allow you to tell WordPerfect how to format this particular document whole.

4. Select Option 2 (Initial Codes). The current settings will be displayed on a screen similar to the Reveal Codes screen (F11 or ALT+F3 key combination).

5. Press [SHIFT]+[F8]. The Format Menu will reappear.

6. Select Option 1 (Line Format). Any changes made to these items since you defined your footnotes must be made here as well.

7. Press [F7] three times to return to the document screen.

Some people prefer to make all their format changes this way as a matter of habit. However, it should be noted that this procedure makes global changes that affect the entire document. Format changes that affect only a few lines or paragraphs should be placed in the document itself.

## WordPerfect: Moving and Copying Text

Like all word processing software, WordPerfect allows you to manipulate portions of text--move them, copy them, and so forth. This is accomplished with the Move key (CTRL+F4).

It is important to mark the desired text with the Block command (F12 or ALT+F4) BEFORE pressing the Copy key (CTRL+F4). This is because when the Copy key is pressed, WordPerfect checks to see

if you have marked any text with the Block command. If you haven't, WordPerfect offers to mark text for you, by displaying this line at the bottom of the document screen:

**Move: 1 Sentence; 2 Paragraph; 3 Page;  
4 Retrieve: 0**

Since WordPerfect can only "guess" as to what text you mean, allowing it to mark text for you can cause problems if your document has many indents or hard carriage returns. Therefore, the following procedure is recommended:

1. Use the Block command (F12 or ALT+F4) to mark the text you wish to manipulate.

2. Press the CTRL and F4 keys simultaneously. WordPerfect responds by displaying this line at the bottom of the document screen:

**Move: 1 Block; 2 Tabular Column; 3 Rectangle: 0**

3. Press 1 or B for Block. WordPerfect responds by displaying this line at the bottom of the document screen:

**1 Move; 2 Copy; 3 Delete; 4 Append: 0**

4. Press 1 if you wish to remove the blocked text and move it elsewhere in the document. The blocked text will disappear and WordPerfect will invite you to move the cursor to the point where you want the blocked text to BEGIN and press the ENTER key.

Press 2 if you want the blocked text to remain where it is, but you wish it also to appear elsewhere in the document. The blocked text will stay where it is, and WordPerfect will invite you to move the cursor to the point where you want the copy of the blocked text to BEGIN and press the ENTER key.

Press 3 if you want to delete the blocked text entirely. This can also be accomplished merely by blocking text and pressing the DELETE key. (Remember, the F1 key allows you to restore accidentally deleted material.)

Press 4 if you want the blocked text to be attached to the end of a document. WordPerfect will ask for the name of the file to which you wish to attach the block. Type the file name and press the ENTER key.

## New Handouts Are Available

The ITS Support Center has added three new handouts to the list of publications available at the ITS Support Centers. These new publications are titled:

(1) "Cursor Movement in WordPerfect 5.0"

(2) "Comparison of Function Keys between DisplayWrite 4 and WordPerfect 5.0"

(3) "Lotus 1-2-3 Date-Time-Filename Macro"

Previously listed handouts (refer to Fall ITS News) and the three cited above are available by calling the ITS Support Center at 492-4160 or 492-0353. You may also stop by P-808 in the Phillips Building or OWFN 3C12.

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## INEL

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### New Accounting Program

Now every user on the CRAY machine can use the "dcost" utility to see daily costs for file storage charges. The user should be in the username directory in order to capture all information about sub-directories, but a specific directory may be named. Syntax and details may be accessed from the on-line manual pages, specifying the DCOST command.

### Programmer's Timesaver

The "make" utility can simplify the task of generating and maintaining object files and executable programs on the CRAY. This can save a considerable amount of time and money for medium to large FORTRAN programs. The utility creates a makefile which is well-commented and can be edited by the programmer. See details in the November issue of "INEL Exchange," or access information from the on-line manual pages on the CRAY, specifying the FMGEN command.

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## Data General

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### VT100 Emulation:

Data General MV/8000 users now have the capability of using VT100 Emulation when logging onto the system via CROSSTALK or communications other than Smarterm. The VT100 Emulation will permit the use of SED (including screen editing), Query, and PRESENT software. Detailed instructions may be obtained by signing onto the Data General and typing the command: HELP \*VT100.

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## NIH

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### Help Reduce Costs

In an effort to reduce costs at NIH, all users are requested to move any datasets that are on the NIH file packs to the NRC private packs. The use of NRC private packs will permit NRC to save 32% of the cost of storing the data. For the names of the NRC private packs and assistance in moving your datasets, please call John Lochte at 492-4090 or David Barrow at 492-8303.

### How Much Are You Spending At NIH?

If you are an NIH user and want to keep track of exactly where and how your dollars are being spent at NIH computer center, now you can find that out interactively by accessing your billing data through Project Accounting System Online (PAS ONLINE). Easy to use, PAS ONLINE enables users and account sponsors to display or print billing information for either the previous full month, the current month-to-date, or a single day, by using a series of simple DB2 Query Management Facility (QMF) procedures. Anyone with registered account and initials and an appropriate equipment to access the NIH computer facility can use PAS ONLINE. Security is assured by displaying only the data that the user or account manager is authorized to see.

All users are encouraged to use PAS ONLINE and keep track of the expenses incurred at NIH. For information about how to use PAS ONLINE, please contact NIH computer center's technical note Interface #152 of August 25, 1989, or call NIH PAL Unit at 496-5525 or Mike King at 492-4974.

# 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:** 3rd Floor Woodmont Building  
8120 Woodmont Avenue,  
Bethesda, MD 20814

**Phone:** (FTS) or (301)492-4744 **Mailstop:** W-306

**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 eight IBM XT's, one with eight IBM PCs with Hardcards, and one with PS/2 Model 30 286. "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 and Software Acquisition/Upgrade:** Dawn Oliver, P-530, 492-8219

**Hardware Installation, Relocation and Maintenance:**  
Microcomputers: Karen McElvea, P-500, 492-8906  
Word processors: Beth DeWoody, P-500, 492-4832  
Other ADP Equipment: Beth DeWoody, P-500, 492-4832  
Software Installation: Jennifer Talbert, P-500, 492-8317

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

**Computer Security:** Louis Grosman, P-808, 492-5019

**Data Communications Problems - Modems and Data Lines:**  
Brian Brownell, P-500, 492-7927

**Modem and Data Line Acquisition:**  
Stan Wood, MNBB-8703, 492-7723

**Timesharing Access/IDs:** Mike King, P-808, 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 Hotline:** 492-4222  
**NUIDOCs Hotline:** 492-8603

**Data General Systems Problems:**  
Judy Seeherman, P-612, 492-9687

**IBM PROFS/E-Mail Support:** Sharon Root, P-808, 492-4093

**Electronic Records Support:**  
Brenda Shelton, MNBB-7714, 492-8132

**Graphics Support:** Janet Thot-Thompson, 2G-40, 492-0215

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

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

**Shared Information Network (SINET) Development:**  
Fran Goldberg, P-712, 492-4978

**Systems Development and Modification:**  
Bill Usilton, P-712, 492-8322

**Scheduling for ITS Training Laboratory:**  
Kathy Beckman, W-306, 492-4744