Enclosure A1

A PROGRAM EVALUATION OF THE NRC DOCUMENT CONTROL SYSTEM

Office of Management and Program Analysis

November 1980

DCS STUDY

- Purpose
  - To evaluate the current NRC Document Control System
  - To identify and analyze options that will allow NRC to meet its document control needs at the lowest possible cost
  - To respond to various related topics that are of interest to NRC management
- Scope
  - The study is a broad program evaluation that focuses on the major benefits and costs of the current DCS and alternative systems
  - The study is not:
    - An audit of contractual performance or system management
    - An assessment of the DCS hardware or technology
- Approach
  - Gather information on DCS from:
    - Review of system justification
    - Review of system performance and cost data
    - Survey of NRC staff views (survey of 50 known DCS users, random survey of 100 potential users, solicitation of Office Director views)
    - Survey of 14 other agencies
  - Identify significant findings on the benefits and costs of the current DCS
  - Identify and analyze:
    - Major system options
    - Decision alternatives

GENERAL BACKGROUND - DOCUMENT CONTROL SYSTEM (DCS)

- In Nov. 1975, a Document Management Task Force found that at NRC:
  - Information retrieval takes too much staff time
  - No sure or systematic means exists for locating all documents on a technical problem or public inquiry.
  - Information is not available to the public on a timely basis.

- SECY 76-433 requested Commission approval to issue an RFP for a DCS and estimated that the DCS contract would cost $9 million (1976 $) over two years to install and $5M (1982 $) per year after that. The accompanying cost-benefit analysis assumed a high level of savings and projected eventual net savings to NRC of over $20M annually (1982 $).

- The initial DCS system concepts were that:
  - Off-the-shelf components should be used.
  - The system should be modular, providing flexibility to adapt to future NRC needs.
  - User needs were not well defined but demand for system would increase as system capabilities were added.
  - Staff views should be incorporated into implementation plans for each major step in the system development.
  - There would be a cost-benefit analysis at the end of phase 1 (about 1 year).

- Original contract was for a two-year period (June 3, 1978 to June 2, 1980) at a price of $10 million.

- SECY 79-649, responding to the promised cost-benefit requirement, reported that the system as a whole was cost-effective because administrative support functions of DCS were cost effective, since $5M annual costs were replaced by DCS. No technical information retrieval benefits were yet realized at that time (Dec. 1979).

- Contract provided that the term could be extended for a third and fourth year at NRC's option. The third year option (June 80 to June 81) was exercised at a negotiated price of about $11M.

- Total contract price is now $24M, including $10M original two year contract, $3M docket backfit effort for year 2, and $11M for year 3.

AREAS OF FINDINGS

A. NRC's needs

B. DCS use

C. DCS benefits and savings

D. Component costs of DCS

E. Changes to reduce cost

F. Management issues

G. Other issues

A. Is the DCS meeting NRC's needs?

1. NRC chose not to conduct a systematic assessment of its specific user needs for information storage and retrieval either prior to or subsequent to the development of the DCS, because NRC intended the system to be flexible in meeting user needs as they became apparent.

2. A number of general administrative and technical needs can be inferred from initial system proposals and limited experience with the system to date:

   a. Establish a systematic means of locating all documents on a particular topic
   b. Reduce professional staff search and retrieval time
   c. Enable NRC to meet statutory requirements and ensure timely notification of licensees and public of availability of NRC documents
   d. Create a central file index and ensure file integrity
   e. Eliminate duplication in storing and distributing documents.

3. Although the DCS was proposed and approved primarily as a technical information retrieval system, it is not yet fully developed to serve this purpose.

4. The DCS satisfies some, but not all, of NRC's administrative and technical document control needs.

B. To what extent has the DCS been used to date? What usage can be anticipated?

1. About a fourth of all potential users are currently using the system. Only about a third of these use the system daily.

2. System use is about equally divided between administrative and technical uses.

3. NRR and IE account for nearly all use of the DCS by the major program offices.

4. There are a number of system limitations that inhibit use of the DCS. Primary limitations are lack of a subject search capability and an incomplete data base. Lesser factors that may inhibit DCS use are data base accuracy, hours of operation, number and type of terminals and their locations, and user skills in operating the system.

5. System use would increase if these limitations (Finding B.4.) were removed; however, in the absence of a clear understanding of user needs, it is difficult to project how great this use might be.

C. To what extent has the DCS provided benefits and savings to NRC?

1. The two primary areas in which savings or benefits can be realized (and the 1982 dollar values associated with each) are:

   a. Savings in technical staff time that otherwise would be spent searching for and retrieving documents (0 to $20 million savings possible), and

   b. Costs that NRC would otherwise incur to perform certain core administrative functions ($4 to $6 million).

2. The DCS has not yet provided the substantial potential staff time savings that were cited in the original justification for the system; this shortfall is explained in part by the fact that planned systems capabilities are not currently scheduled to be fully developed and implemented until 1983. The DCS may help NRC meet its safety responsibilities more effectively.

3. The limited capability of the DCS to "locate all documents on a particular subject" has permitted technical staff time savings of approximately 12 staff years.

4. Unanticipated benefits for the technical staff have resulted from the development of specialized reports not identified in the original DCS contract.

5. The total cost of performing a number of related administrative functions using the DCS is probably less than the cost of performing these functions under separate contracts.

D. What are the major components of the $10.9M cost of the DCS for the third year?

FUNCTION	CONTRACTUAL COMPONENT		
	Labor ($M)	Equipment Lease ($M)	Reimbursable Costs & Fixed Fee ($M)
Coding	3.2	-	-
Data Entry & QC	0.7	0.1	-
Control & Distribution	0.3	-	-
Filming	0.3	0.3	-
Search & Retrieval	-	0.2	-
System Oper. & Maint.	2.1	1.6	-
System Management	0.8	-	-
Travel & Supplies	-		0.9
Space	-	-	0.3
Fixed Fee	-	-	0.1
TOTAL $10.9M	7.4	2.2	1.3

E. What changes could be made now that would reduce DCS costs or increase system benefits?

1. Changes that would reduce costs are:

		Maximum Annual Contract Cost Reduction	Net Annual Saving After Offsetting NRC Cost Increase
a.	Reduce the rate of backfit effort	$2¼ million	$2 million
b.	Reduce labor billing rates	$1	$1
c.	Limit system content to Docket 50 and PDR documents	$½	?
d.	Substantially reduce contractor coding and abstracting	$3	$1½ to 2
e.	Eliminate subject index development	$1¼*	$¼*
f.	Eliminate video portion of DCS	$½	$½
g.	Reduce contractor planning and interface with NRC	$½	$¼ to ½
h.	Eliminate processing of duplicate documents by contractor	$½	0 to $½
i.	Reduce equipment lease costs by purchasing equipment	$2	$2**
j.	Eliminate contract "special handling" process	$½	$¼
k.	Provide Government-furnished space to contractor	$¼	0

2. Changes that would increase the current system benefits are:

		Annual (Contract) Cost Increase
a.	Accelerate by a factor of two the backfit of documents	$2½ million
b.	Backfit subject search capability into existing data base	$1 to 2*
c.	Increase hours of operation	$½
d.	Lease 100 additional digital terminals and associated equipment for HQ offices	$¼
e.	Test and improve (if necessary) data base quality	$¼ to ½
f.	Expedite document processing	$¼

*One-time cost.
**One-time purchase cost of about $2½M not included.

F. What management issues are relevant to future DCS operations?

1. There are no systematic procedures for review, approval, or documentation of user requests for additional products and services.

2. Pressure for growth in system products and costs occurs because:

   a. User offices do not incur the costs of services provided to them,

   b. Special custom products and services must be added to compensate for unrealized system capabilities,

   c. TIDC lacks practical authority or incentive to deny user requests, and

   d. The practice of direct interface between TERA and NRC staff encourages increases in requests for services.

3. Certain provisions of the TERA contract--the contractor's proprietary rights to system software and the lease arrangements--make it difficult for NRC to recompete the contract.

4. The contract can be recompeted for year 4, beginning June 1981, only with an expedited contract source selection process.

5. The cost of buying the DCS equipment now (and maintaining it) is less than the cost of continuing to lease the equipment for another two years.

G. What other issues are relevant to future DCS operations?

1. TERA appears to have been responsive to the formal contract requirements and to the particular needs of various NRC users.

2. An examination of the document control systems of 14 other agencies suggests the following:
   a. Compared to the DCS, the systems in other agencies are sufficiently different in purpose and content that direct comparisons of specific costs and benefits are of limited value.
   b. General comparisons of system attributes are:
      - NRC's system contains more document types (exception: CIA),
      - NRC relies on contractors to a greater degree,
      - NRC has more people working on its system than all but one agency,
      - The rates of documents entered into the DCS and searches conducted on the DCS are not significantly different from the averages for the other systems,
      - The total costs of NRC's system (contractor and in-house) are significantly greater than the total costs for the other agencies.

3. With respect to terminals:
   a. The DCS was originally designed as an all video system.
   b. The cost of video terminals appears to be three to six times that of digital terminals.
   c. Primarily because of difficulties with the microfiche tub files associated with digital terminals, the staff has expressed a preference for video terminals.
   d. The cost of transmitting video images among scattered NRC locations makes an all video system impracticable at the present time.
   e. Measures to improve video image quality have been initiated.

DESCRIPTION OF SYSTEM OPTIONS
(Annual costs in millions of 1982 $;
uncertainty in cost estimates is ± 25%)

Option 1: AUSTERE SYSTEM (approximately $6M)

- An automated system that provides substantial administrative services and selected technical benefits.
- System content limited to PDR and Docket 50 materials. Backfit reduced significantly. Subject search implemented gradually by document type; no subject index backfit; processing of duplicate documents reduced.
- Automated search and retrieval primarily through digital terminals.

Option 2: CURRENT SYSTEM (approximately $10M)

- An automated system that provides many administrative services and technical benefits.
- System content includes most NRC documents. Backfit includes docket materials only. Subject search implemented gradually for most documents; some subject index backfit.
- Automated search and retrieval through digital and video terminals.

Option 3: ENHANCED SYSTEM (approximately $13M)

- An automated system that provides many administrative and technical services.
- System content includes most NRC documents. Backfit expanded to include most documents. Subject search implemented immediately for most documents; total subject index backfit.
- Automated search and retrieval through video terminals.
- Improved training of NRC staff and quality control; faster document entry into system.

Option 4: MANUAL/AUTOMATED SYSTEM (approximately $8M)

- A partially automated manual system that provides many administrative services and technical benefits.
- System content includes most NRC documents. Backfit includes docket materials only. Subject search implemented gradually for most documents; some subject index backfit.

Option 5: MANUAL SYSTEM (aproximately $11M)

- A manual system that provides many administrative services and technical benefits.
- System content includes most NRC documents. Backfit includes docket materials only. Subject search implemented gradually for most documents; some subject index backfit.
- Manual search and retrieval by librarians.

ANALYSIS OF SYSTEM OPTIONS

o Costs and administrative savings for system options (see Figure 1 on next page)

- That portion of the total system cost for each option that would otherwise be spent to perform administrative functions is as much as $6 million. This amount is shown as the shaded portion of each bar.
- The marginal or "at risk" cost that would be expended to achieve technical benefits is shown as the unshaded portion of each bar. These marginal costs vary between zero and $7 million.
- Option 1, the Austere System, would be worthwhile strictly as an administrative system because its total cost is roughly equal to the cost of performing the same administrative functions by other means.

o Costs and total savings for system options (see Figure 2 on second page)

- There is considerable uncertainty as to the level of technical benefits (and associated savings) that the DCS will provide. Assuming a constant $6 million administrative savings, three levels of technical (and total) savings are shown by the dashed horizontal lines. The bottom line assumes no technical savings, just the $6 million administrative savings shown in Figure 1. The middle line assumes a medium level of $7 million in technical savings that corresponds to the 145 staff years of savings estimated in SECY 79-649. The top line assumes a maximum level of $20 million in technical savings based on the approximately 400 staff year savings esimated in SECY 76-433.
- The range of uncertainty in the level of technical savings that can be achieved ($0 to $20 million) is much greater than the ($7 million) cost difference between the most costly and least costly system options.
- Even more pronounced is the $27 million range of net cost and net savings possible. At one extreme, the most costly system (Option 3: $13M) realizing only minimum savings ($6M) would have a net cost of $7M. At the other extreme, the least expensive system (Option 1: $6M) if it could realize maximum savings ($26M) would have a net savings of $20M. Together, $7 million net cost and $20 million net savings is a $27 million range of uncertainty.

Figure 1: COSTS AND ADMINISTRATIVE SAVINGS FOR SYSTEM OPTIONS
(In 1982 Dollars Rounded to Nearest Million)

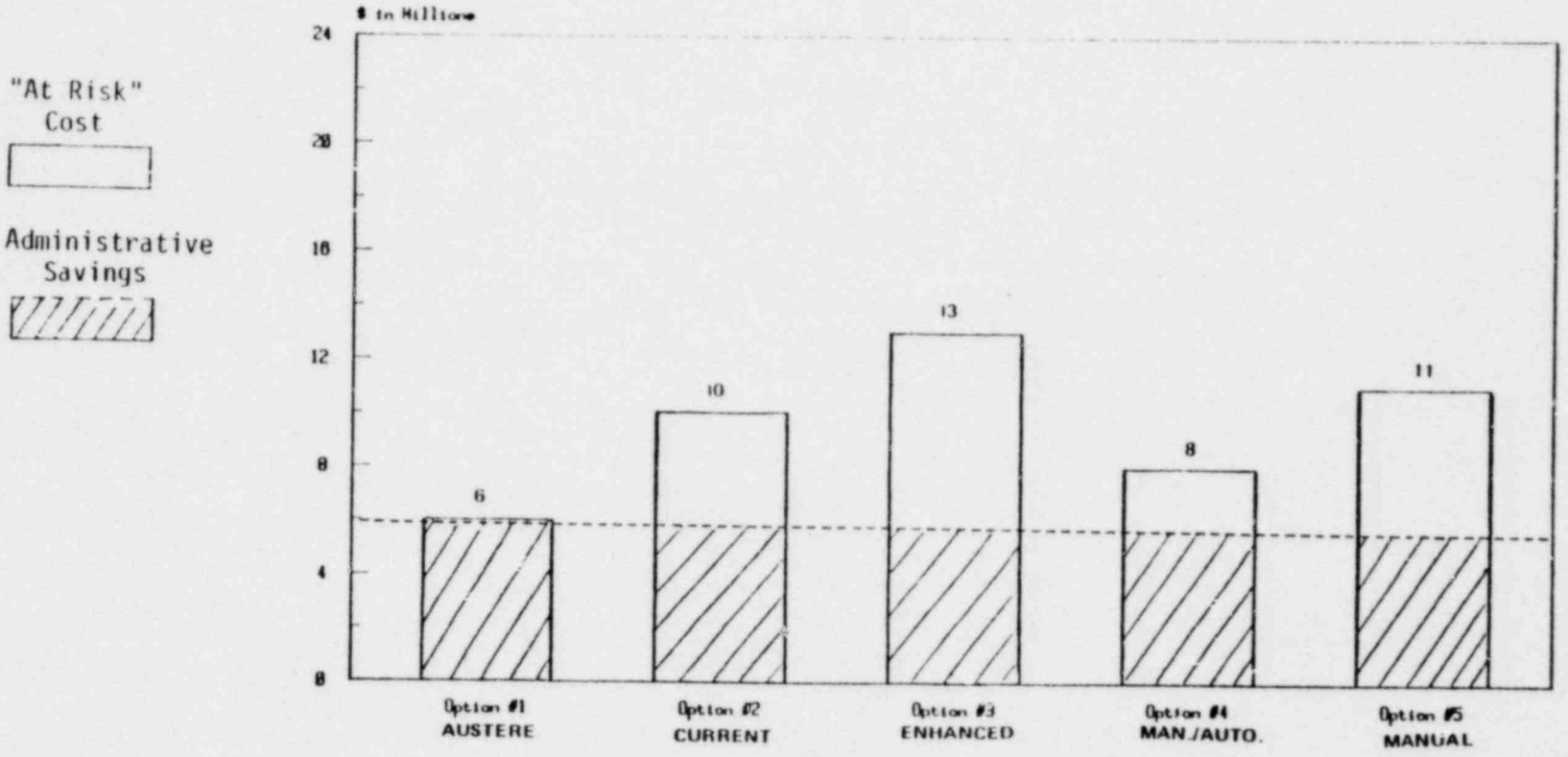
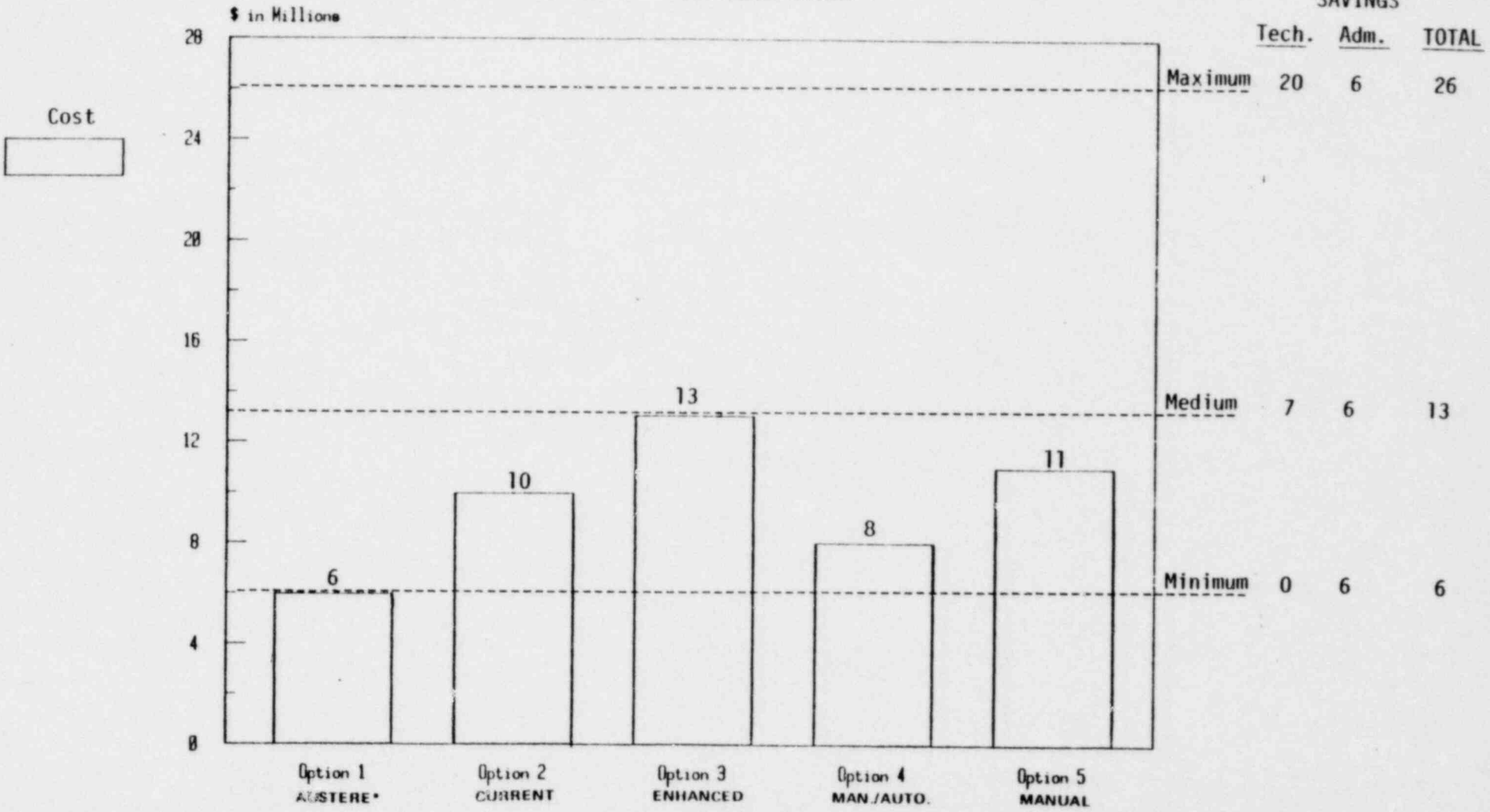


Figure 2: COSTS & TOTAL SAVINGS FOR SYSTEM OPTIONS

(In 1982 $ Rounded to Nearest Million)



	SAVINGS		
	Tech.	Adm.	TOTAL
Maximum	20	6	26
Medium	7	6	13
Minimum	0	6	6

*May not realize all maximum technical savings because of slightly reduced data base.

KEY DECISIONS AND DECISION FACTORS

- Key Decisions needed

  1. Is additional study and pilot testing needed?
  2. What should be done with the year 3 and year 4 contracts?
  3. Which of the five system options should be selected?

- Key Decision factors

  1. Will the DCS:
     - Achieve full capabilities?
     - Provide substantial administrative and technical benefits?
  2. How certain are these estimates?

POSSIBLE DECISIONS

- Conduct studies/pilot tests if user needs, system capabilities, or benefits are uncertain.

- Year 3 and 4 Contracts
  - Terminate if DCS will meet neither technical nor administrative needs.
  - Cut back if DCS will meet administrative needs but technical needs are considered small or uncertain.
  - Continue if DCS will meet both administrative and technical needs with reasonable certainty.
  - Accelerate pace of development if highly certain that DCS will meet both administrative and technical needs.

- System Option
  - Select Austere Option (#1) if potential technical savings are considered small or uncertain.
  - Select Current Option (#2) if technical savings are judged both significant and fairly certain.
  - Select Enhanced Option (#3) if technical savings are certain to be very high.
  - Select Manual/Automated Option (#4) or Manual Option (#5) if most or all technical benefits of Option 2 are needed but the capabilities of the fully automated system are uncertain.

KEY DECISION ALTERNATIVES

Alternative	Study/Pilot Test	Year 3 and 4 Contracts	System Option
A	No	Terminate	Manual (or pre-DCS)
B	Yes	Cut back	Austere
C	Maybe	Continue	Current
D	No	Accelerate	Enhanced

Enclosure A2

A PROGRAM EVALUATION OF THE NRC DOCUMENT CONTROL SYSTEM

Evidence to Support Findings

November 1980

Contents

Preface

This document contains evidence to support the findings of the MPA Program Evaluation of the NRC Document Control System. The evidence has been gathered from a variety of sources including NRC documents, TERA contract, contractor reports, surveys of NRC employees, and personal interviews with the people directly involved with the various aspects of DCS contract management and daily system operation.

Detailed evidence from these various sources is presented for each of the findings in the study. Each finding, A.1 through G.3, is presented in order, and Table and Figure labels correspond to the findings to which they refer.

Finding A.1: NRC chose not to conduct a systematic assessment of its specific user needs for information storage and retrieval either prior to or subsequent to the development of the DCS because NRC intended the system to be flexible in meeting user needs as they became apparent.

- "... it became obvious to the /Document Management/ Task Force that the scope of work related to document management within the NRC...." would require:

  "1. That ISMD /Information Services and Management Division -- a proposed organizational unit/ perform an evaluation of how automated-information control systems can best be used to improve the efficiency and precision of efforts to track, process, control, store and distribute documents and information."

  (Task Force Report, p. 18)

- In the pre-contract planning period, TIDC made a conscious decision not to conduct a systematic assessment of needs because they believed that potential users would not know what they wanted in the early stages of contract development and that the users would not be able to project their needs several years into the operational phases of the contract. TIDC did not want the system design to be limited to the needs expressed in 1977 so that the overall system would be obsolete before it was fully operational. TIDC wanted the system to be flexible enough to be responsive to the changing needs of NRC.

  (Meeting - Cornell and ADM/TIDC, 11/5/80)

- TIDC's answers to specific use statistics questions posed by potential bidders at the Pre-Proposal Conference for DCS may be seen as further evidence that they did not want to limit the potential flexibility or evolutionary design of the DCS. A list of these questions and the TIDC answer is attached as Figure A.1.

  (Pre-Proposal Conference, p. II-1)

- In the absence of clearly defined user needs, TERA conducted its own survey to determine which documents were needed by the NRC staff and in what order (within the context of backfit) -- those that "would be of most direct and immediate benefit to the NRC staff in promoting the public health and safety" -- in order to prepare the Backfit Implementation Plan required by the contract.

  (Backfit Implementation Plan)

II-I

Figure A-1:
Questions about system use statistics submitted to NRC by potential bidders attending May 6, 1977 Pre-Proposal Conference and the NRC response to those questions.

II. System Use Statistics

Questions

1. How many users?

2. How many retrievals at each NRC location?

3. How are they grouped?

4. What access time is needed?

5. How many would be on-line at one time?

6. What is the average transaction time?

7. Is it expected that they can be trained to use CRT computer terminal protocol?

8. How many users on the system?

9. How many user terminals are required?

10. What is the average number of inquiries per terminal, building, and city?

11. How many simultaneous?

12. What would be a rough estimate of the expected retrieval workload against the microfiche data base; e.g., in terms of images/hour/user? Or, what is the current workload in terms of retrieval requests to the current NRC central manual and semi-automated systems? A rough estimate of the number of pages per request? Is the workload uniform throughout the day or are there peaks?

13. How many retrieval terminals do you anticipate? How many duplicate fiche/master retrieved? How many hard copy?

14. How many NRC persons are to be trained?

Answer

Clearly, there were a large number of questions seeking information about proposed system use statistics. To provide responses to this type of query would be grossly misleading as they assume first a system and second stable use patterns. System use will be radically impacted by the proposed system design. For this reason modularity and the potential for system growth and flexibility are of great importance. The proposed system should not penalize the NRC with excessive capacity but rather should be able to respond to new and greater demands on the system.

Finding A.2: A number of general administrative and technical needs can be inferred from initial system proposals and limited experience with the system to date:

a. Establish a systematic means of locating all documents on a particular topic (technical)

b. Reduce professional staff search and retrieval time (technical)

c. Enable NRC to meet statutory requirements and ensure timely notification of licensees and public of availability of NRC documents (administrative)

d. Create a central file index and ensure file integrity (administrative)

e. Eliminate duplication in storing and distributing documents (administrative)

Prior to any statement of agency needs, the Document Management Task Force identified problems that were a result of the document management policies and practices in effect at that time.

o The Task Force found that there were certain problems that would require attention:

1. Evidence indicates ... subscribers have not been uniformly and consistently receiving NRC information ...
2. NRC publicly distributed information is not being received on a timely basis ...
3. Docket 50 files are being maintained in at least six different locations ...
4. NRC documents are being lost in the management process ...
5. There is a duplication of efforts with respect to management of NRC documents ...
6. Another area of expensive duplication is distribution ...
7. ... when it is necessary to locate documents ... considerable professional time must be given to search ....
8. There is no central source within NRC where the Task Force could find, through an index approach, guidance as to the existence of information generated or held by the NRC ...

See Figure A.2 for retrieval system requirements.

(Task Force Report, pp. 7-9)

o The Gossick to Anders memorandum transmitting the Findings and Recommendations of the Task Force restated these problems:

"The Senior Staff Committee agrees with the findings of the Task Force that" [Findings paraphrased by MPA.]

1. retrieval takes too long
2. some information developed by NRC is not readily available
3. there is excessive duplication
4. present document management lacks clear directives, coordination and has insufficient resources.

(Memo, Gossick to Anders, 1/30/76)

Finding 4.2 continued

The problems identified by the Task Force were later restated in terms of general requirements for the system.

- TERA proposed its ARMS (Automated Records Management System) to be responsive to NRC requirements as shown below:

  "Enable Rapid Access ...
  Provide Accurate Retrieval ...
  Ensure File Integrity ...
  Eliminate the Need for Duplicate Files Among Staff Members ...
  Reduce Clerical Time Spent Handling Documents ...
  Provide Easy-to-Use, User-Oriented Document Access and Retrieval System
  Enable Compliance with Statutory Requirements ..."

  (TERA Technical Proposal, pp. iii-iv)

- "... The contract statement of work (SOW) lists, in condensed form, the general requirements:

  - enable rapid access
  - provide accurate retrieval
  - ensure file integrity
  - eliminate the need for duplicative files among members
  - reduce professional time spent performing clerical functions
  - provide easy-to-use, user-oriented, document access and retrieval system
  - enable compliance with statutory requirements (e.g., Title 44 of the United States Code (U.S.C.) -- sections on records management, printing and distribution, and Title 5 U.S.C. -- Administrative Procedures Act, Freedom of Information Act, and Privacy Act)."

  (SECY-78-67B, p. 3)

- "It was determined prior to contract award that the system meet the general requirements listed in the Contract Statement of Work as:

  Enable rapid access
  Provide accurate retrieval
  Ensure file integrity
  Eliminate the need for duplicative files among members
  Reduce professional time spent performing clerical functions
  Provide easy-to-use, user-oriented, document access and retrieval system
  Enable compliance with statutory requirements ..."

  (SECY-79-649, Appendix B)

Figure A-2:

Vugraph from Document Management Task Force Briefing to Commissioners, November 1975

NRC REQUIREMENTS FOR RETRIEVAL SYSTEM

ORIENTED TO STAFF USE

INDEX TERMINOLOGY

RAPID ACCESS FOR MULTIPLE USERS

UPDATABLE FILES

FILE INTEGRITY (SECURITY)

REDUCE STORAGE VOLUME

EXPANDABLE (MODULAR)

IMMEDIATE APPLICATION

MEET STATUTORY REQUIREMENTS

COST/BENEFIT

Finding A.3: Although the DCS was proposed and approved primarily as a technical information retrieval system, it is not yet fully developed to serve this purpose.

- "The majority of users, in terms of both volume and content, will be the professional members of the regulatory staff."

  (SECY-78-67 and TERA Contract §3.I.B., p. 3-2)

- "The success of the program is dependent upon day-to-day participation by NRC technical and technical support staff. The contractor is required to work closely with the professional and administrative personnel offices to tailor the system, particularly the index, to their needs. The importance of the technical staff input cannot be overemphasized."

  (Memo - Thompson to Chilk, 2/23/78)

- "... the System was designed and implemented to expedite and provide major assistance to the licensing and inspection/enforcement functions of the NRC staff. ... The System provides, and was designed to provide, both technical information and records management...."

  (Memo - Donoghue to Cornell, 6/10/80, pp. 1 and 4)

- The Progress Reports issued monthly by TERA indicate that TERA is proceeding with the backfit effort and that the subject search capability is under development.

  (TERA Monthly Progress Reports)

- The "Subject Index Implementation Plan has been approved and subject-specific categories are being defined for use by the staff to aggregate documents on a subject related basis."

  (SECY-79-649, p. 2)

- TIDC expects the software for the subject search capability to be developed by June 1981. Although TERA has begun to code selected document types by subject, they expect to have completed only a fraction of the documents to be subject coded by June 1981. All of the subject coding should be completed between January and June 1982.

  (Meeting - Cornell and ADM/TIDC, 11/5/80)

Finding A.4: DCS satisfies some, but not all, of NRC's administrative and technical document control needs.

- The following is a list of the major administrative services and products provided by DCS:

  - Daily Accession List of documents added to DCS data base
  - Title List of Documents Made Publicly Available (NUREG-0540)
  - FOIA Responses
  - LPDR Accession List
  - List of documents sent to Central Files
  - Congressional Correspondence Report
  - Regulatory Information Distribution System (RIDS)
  - SECY Chronological Docket List
  - DCS Data Base Tapes for PDR
  - "Public Only" tub of microfiche for PDR
  - NTIS Service (1 copy of docket material to NTIS)

  (DCS Services Report)

- Of the three administrative needs identified in Finding A.2 --
  - elimination of duplication in storage and distribution
  - file integrity for documents in data base, and
  - central file index

  DCS is completely satisfying only one -- file integrity.

  The inability of DCS to satisfy NRC's need to reduce the volume of hard-copy files is discussed in Finding C.5.

  It is not possible for DCS to prepare a central file index because not <u>all</u> documents generated by NRC are routinely sent to TERA for processing.

  (Survey of File Center Supervisors)

- In the Technical Proposal to NRC, TERA indicated that the Automated Records Management System (ARMS) would satisfy NRC's administrative document control needs [identified in Finding A.2, see page 3] in the following ways:

  - enable rapid access to documents
  - provide accurate retrieval
  - ensure file integrity
  - eliminate need for duplicate files among staff members
  - reduce document handling time
  - provide user-oriented document access
  - enable compliance with statutory requirements

  (TERA Technical Proposal, p. iii-iv)

Finding A.4. continued

- The following is a list of major technical information services and products provided by DCS:
  - IE Bulletins, Notices and Circulars Listings
  - Incident Response Center Drawings Index
  - IE Internal Filing Systems Subject Codes
  - State Emergency Plans Microfiche
  - Licensing Board Notifications and Generic Technical Issues Printouts
  - Antitrust Document Indexes
  - ELD Subject Codes and Legal Summaries
  - SD Codes and Standards Reports
  - NMSS Internal File Codes
  - Special Reports on TMI, Licensee Event Reports, Inspection Reports, cumulative listings of certain classes of documents such as NUREGs, Commission Papers, Research Information Letters, and State Emergency Plans

(DCS Services Report)

Finding B.1: About a fourth of all potential users are currently using the system. Only about a third of these use the system daily.

- Of the 98 people questioned in the MPA Random Survey of Potential Users*, 24 indicated that they used the system at least once a month. Of that group of monthly users, 8 said that they used the system daily. See Figure B-1: "Frequency of Use," for detailed breakdown.

(Random Survey)

*See Appendix for MPA Random Survey methodology which shows offices excluded from survey.

Frequency of Use

(Based on a survey of 98 NRC employees
selected at random from a list of potential users)

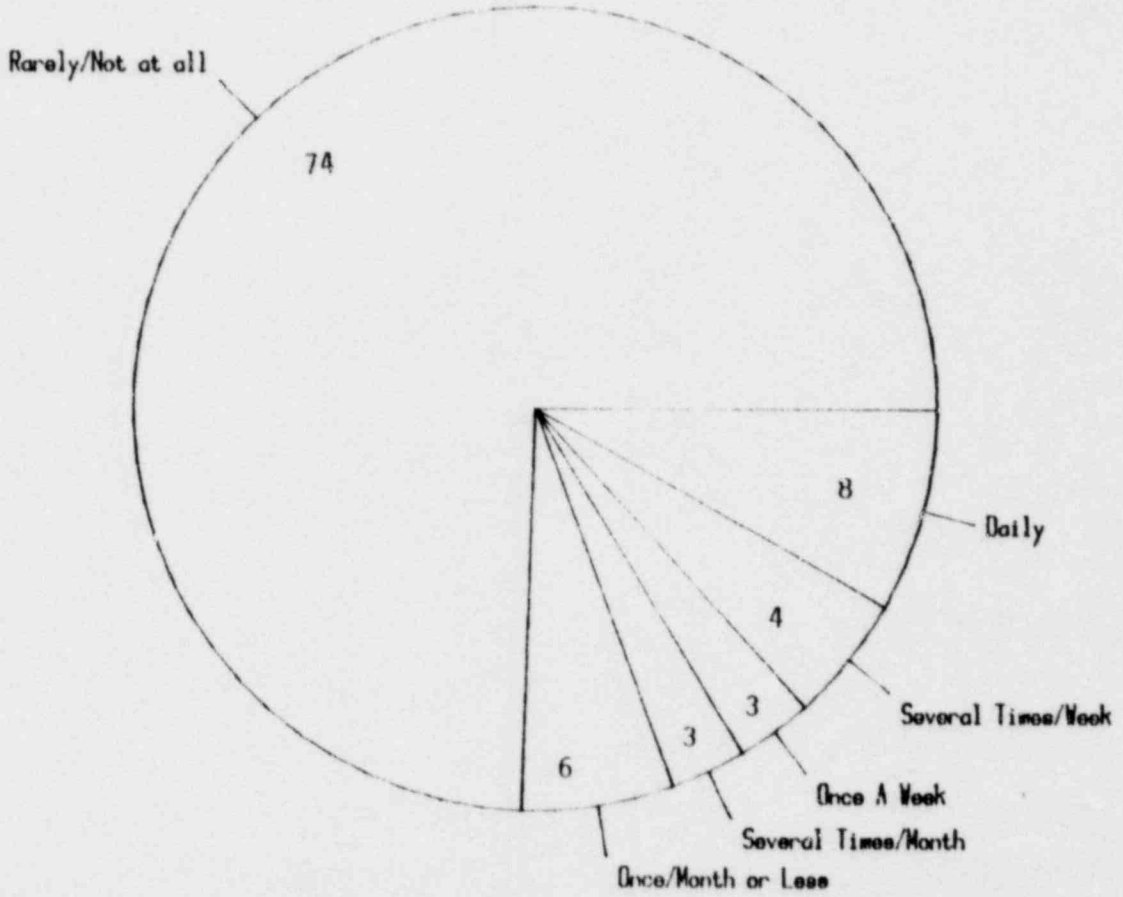


Figure B-1

Finding B.2: System use is about equally divided between administrative and technical uses.

- TERA supplied MPA with document search statistics for the period March-August 1980. The data indicate the number of terminals per office and the number of searches for those terminals. (MPA inferred technical or administrative use from the location of the terminals.) The MPA analysis of this data indicates that there are more individual technical users and that these technical users generally perform single searches; whereas, there are fewer administrative users, but they generally conduct multiple searches. See Table B-2: "Document Searches by Office for Period March-August 1980," for specific information.

  (Terminal Use Statistics)

- Responses to Question 6 in the MPA Random Survey of Potential Users, "For what work activities do you use the DCS? -- administrative? technical? or other professional?" indicate that 68% use the system for technical purposes.

  (Random Survey)

Table B-2

DOCUMENT SEARCHES BY OFFICE
FOR PERIOD MARCH-AUGUST 1980

Office	# of Terminals	Total Searches	% of Total
NRR	(11)	5,158	14
IE HQ	(2)	3,924	10
NMSS	(2)	2,024	5
Research	(1)	630	1
1/ Standards	(2)	630	2
MPA	(2)	732	2
OCA	(1)	429	1
ELD	(2)	1,123	3
ASLAB	(1)	584	2
ACRS	(1)	744	2
SP	(1)	747	2
EDO	(1)	31	0
2/ Region V	(1)	438	2
Total Technical/ Professional Searches		(17,320)	(46)
PDR	(1)	834	2
3/ TIDC	(1)	3,894	11
FOIA	(1)	3,754	10
Central Files		11,687	31
Total Administrative Searches		(20,169)	(54)
TOTAL SEARCHES		37,489	

46% of all searches are for technical/professional research purposes.
54% of all searches are for administrative purposes.

1/ Terminal in SD removed July 1980.

2/ Region V terminal installed July 1980. (NOTE: Region II terminals installed September 1980)

3/ TIDC terminal was used extensively for double checking sources for Rogovin Report. Recent use is much lower.

Finding B.3: NRR and IE account for nearly all use of the DCS by the major program offices.

- From the TERA-supplied data indicating document search statistics for the period March-August 1980, it is evident that NRR and IE use the DCS more frequently than the other major program offices. See Table B-2: "Document Search by Office for the Period March-August 1980," for specific details.

  (Terminal Use Statistics)

- NRR and IE were the only major program offices that indicated specific uses of the DCS.

  (Office Director Comments)

Finding B.4: There are a number of system limitations that inhibit use of the DCS. Primary limitations are lack of a subject search capability and an incomplete data base. Lesser factors that may inhibit DCS use are data base accuracy, hours of operation, number and type of terminals and their locations, and user skills in operating the system.

o Eighty percent of the individuals questioned in the MPA Survey of DCS Users made explicit reference to at least one system limitation that was precluding them from using the system to the fullest extent possible. Of the limitations mentioned by these individuals, the two cited most frequently were the lack of a subject search capability and the incompleteness of the data base (included in Figure B-4a below in the areas labeled "Subject-search-related difficulties" and "Document-related difficulties," respectively). The remaining users experiencing difficulty cited "Equipment-related difficulties" as factors limiting their use of the DCS. These include: lack of video terminals, poor video image, inappropriate terminal locations, and an insufficient number of terminals.

(User Survey)

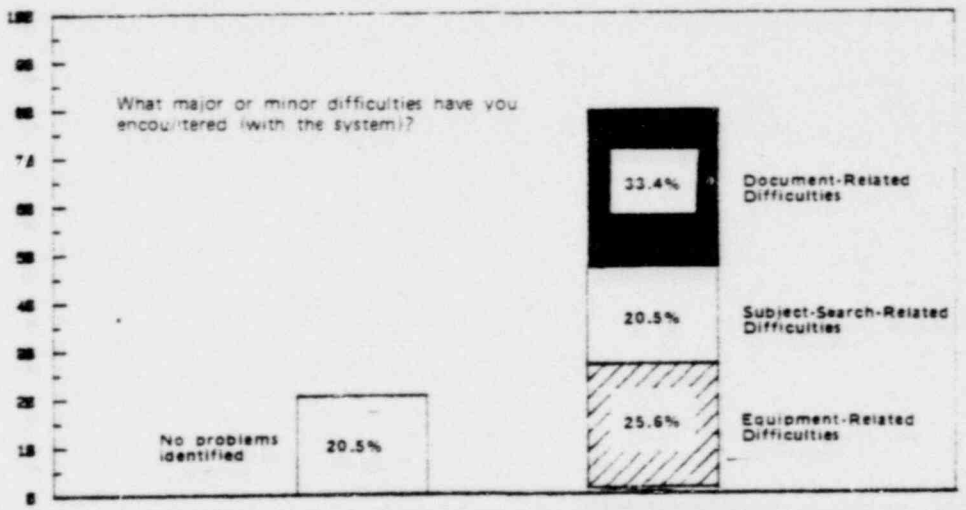


Figure B-4a: Analysis of Responses to Question 7 of the MPA Survey of DCS Users

o All offices indicated specific limitations that inhibited their use of the DCS. Of the limitations cited, however, the lack of a subject search capability and the fact that there were not enough documents in the data base were of primary importance. Other limitations included the lack of video terminals, the slowness of the backfitting process, and the staff's unfamiliarity with the DCS. (NRR and ADM indicated that a periodic news letter or bulletin informing employees of present and future capabilities of the system would increase employee awareness of DCS.)

(Office Director Comments)

o In response to Question 8 of the MPA Survey of DCS Users, "Are you kept informed of improvements or changes made to the system?" nearly two thirds of the users indicated that they were not kept informed of changes made to the system. The remaining third said that they relied on the TERA client managers to keep them informed of changes or improvements to the DCS. See Figure B-4b below.

(User Survey)

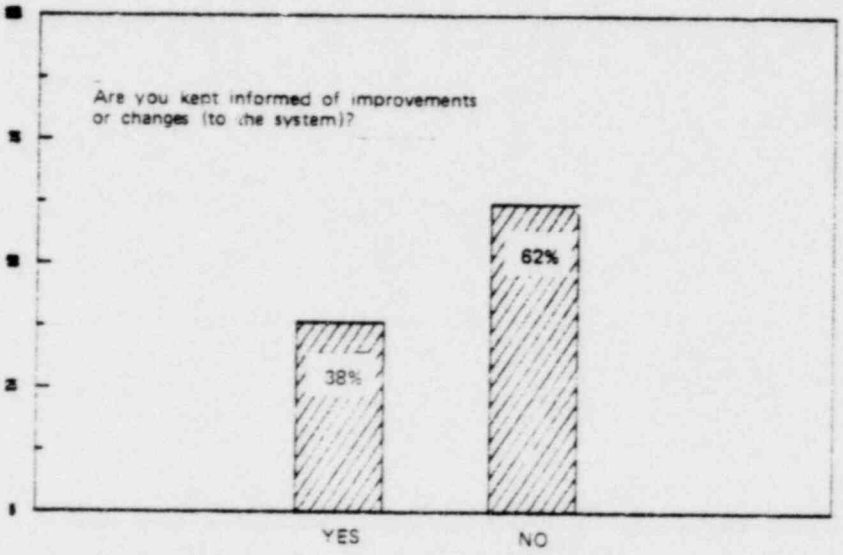


Figure B-4b: Analysis of Responses to Question 8 of the User Survey

Finding B.5: System use would increase if these limitations (identified in Finding B.4) were removed; however, in the absence of a clear understanding of user needs, it is difficult to project how great the increase in use might be.

- All offices indicated that their use of the DCS would increase if the system were improved, and all cited specific improvements. None of the offices, however, was able to project how much more frequently they would use the system even if the improvements were made.

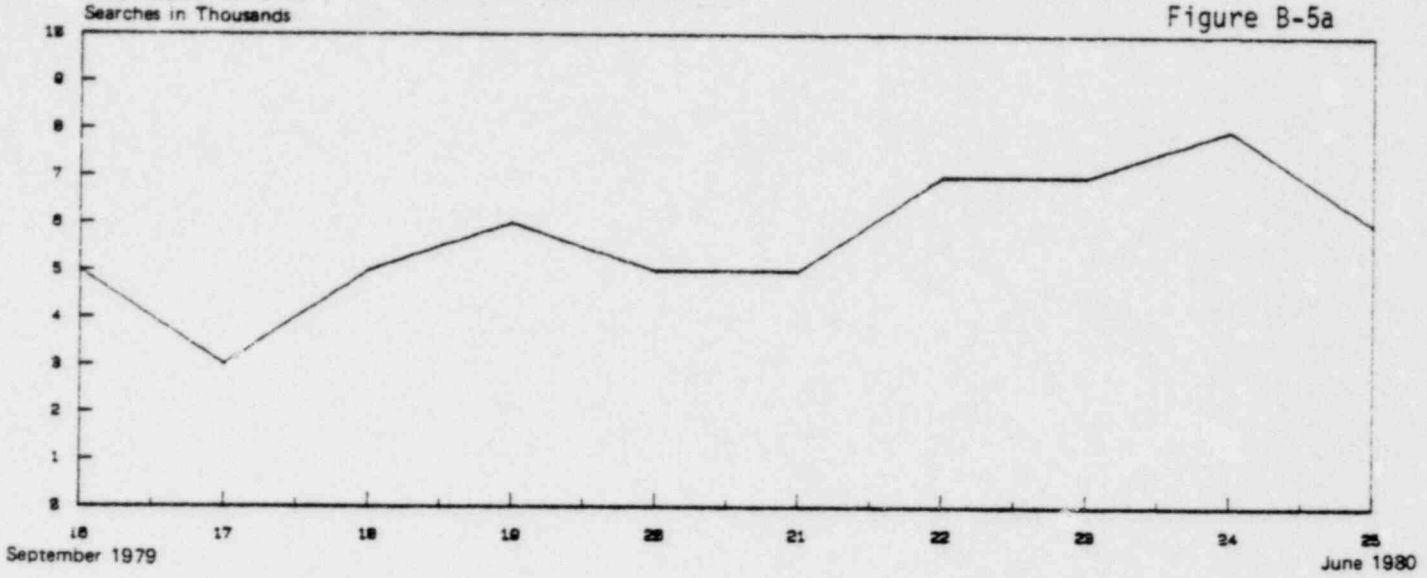
  (Office Director Comments)

- Data taken from the monthly Progress Reports prepared by TERA show an increasing trend in the use of the DCS as measured by the "number of DCS searches" conducted by DCS users. Although search statistics are available only from Month 16 to the present, we can infer that use will continue to increase as more documents are included in the data base and as more potential users are trained to use the DCS. Figures B-5a-c show that system use has a positive correlation with DCS data base content and number of people trained to use the system.

  (TERA Monthly Progress Reports)

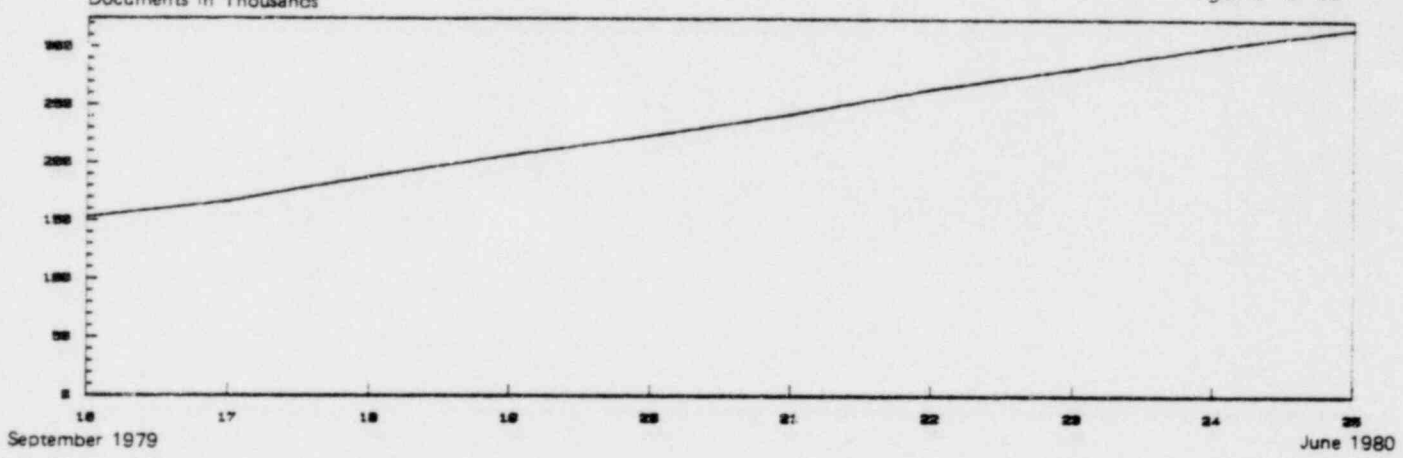
NUMBER OF SEARCHES PERFORMED PER MONTH

Figure B-5a



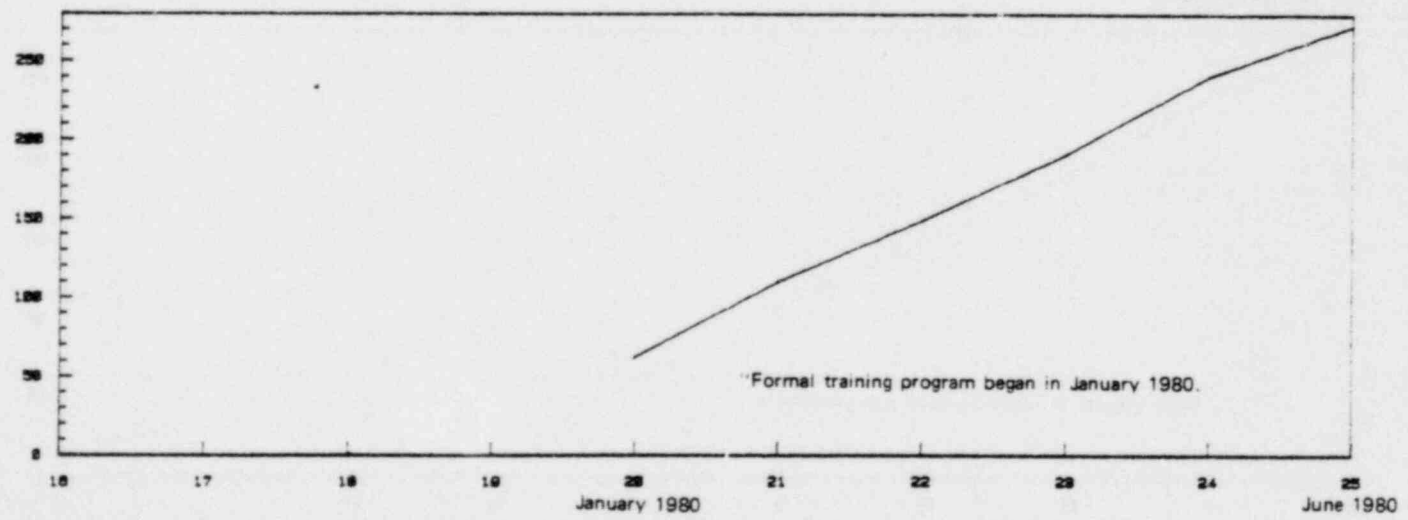
CUMULATIVE NUMBER OF DOCUMENTS IN DATA BASE

Figure B-5b



CUMULATIVE NUMBER OF PEOPLE TRAINED

Figure B-5c



Finding C.1: The two primary areas in which savings can be realized (and the 1982 dollar values associated with each) are:

a. Savings in technical staff time that otherwise would be spent searching for and retrieving documents ($0 to $20 million* savings possible), and

b. Costs that NRC would otherwise incur to perform certain core administrative functions ($4 to $6 million).**

- "Increased efficiency and responsiveness to the staff and public are the major benefits of the automated system; however, the cost/benefit analysis (Table C-1, attached) also indicates a cost savings of $50.1 million over the next five years."

(SECY-76-433, p. 2)

- Appendix K of SECY-79-649 indicates an estimated annual savings in the cost of performing certain administrative functions to be $5.3 million, broken down as follows:

"(a) The projected annual cost to the NRC of having DOE/TIC produce this document (title list journal) through the former program arrangement was about $4.2 million.

...

(b) The computer time-share cost per year to produce this listing (daily accession list) was estimated to exceed $1 million.

(c) The computer time-share cost to perform this function (RIDS) was estimated to be $120 thousand."

(SECY-79-649, Appendix K)

- "The NRC has a basic operation cost of about $2.5 - $3.0 million in computer or time-sharing costs to process the volume of documents that it makes publicly available.

(Memo Donoghue to Cornell, 6/10/80)

- See Findings C.2 and C.3 on page 21 for detail on anticipated savings in technical staff time.

- The dollar value of annual savings in technical staff time can vary substantially as a function of (1) the percent of their time that staff members spend searching for documents and (2) the percent of search time that is saved by using the DCS. The effects of these factors on savings, assuming a $50,000 cost (salary and benefits) for each technical DCS user, is shown in Figure C-1.

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* SECY-76-433, Appendix E, indicates a total search cost of $15,617,000 (in 1976 $). If we assume a 75% savings of search costs, then the maximum possible savings is $20 million (in 1982 $).

** Refer to evidence listed under Finding C.5 for specific costs.

APPENDIX E - CONSERVATIVE COST/BENEFIT ANALYSIS FOR DOCUMENT CONTROL SYSTEM

PRESENT SYSTEM (5 Years)		PROPOSED SYSTEM (5 Years)	
Operating costs ($19,434,000 x 5 yr.)[1]	$ 97,170,000	$ 9,160,000	Est. developmental costs[4]
Historical increase in workload costs ($1,100,000 x 5 yrs.)[2]	5,500,000	33,560,000	Est. NRC operating costs begin FY 7 costs ($8,390,000 x 4 yr.)[5]
Add-on operating costs to meet established requirements ($2,672,000 x 5 yr.)[3]	13,360,000	23,206,000	Est. cost on continuing present system for initial year
	$116,030,000	$65,926,000	
Annual cost display			Annual cost display[6]
FY 77 -	23,206,000	35,796,000 - FY 77	
78 -	23,206,000	13,350,000 - 78[7]	
79 -	23,206,000	8,390,000 - 79	
80 -	23,206,000	8,390,000 - 80	
81 -	23,206,000	8,390,000 - 81	

[1] Includes direct NRC costs for document management: copying at $1,310,000, storage at $624,000, distribution at $1,400,000); 21 man/yr. (85 functional positions) and reimbursable costs of ERDA support $483,000; required staff time to search and retrieve information at $15,617,000.

[2] Experience at NRC indicates a cost of $.25 per page of documentation with an annual internal volume increase of about 4.5 million pages per year.

[3] TIC contract meets program requirements for apx. 10% of NRC documents, additional 44.5 man/yr. are required to meet remainder.

[4] Provided by contract over 2-yr. period.

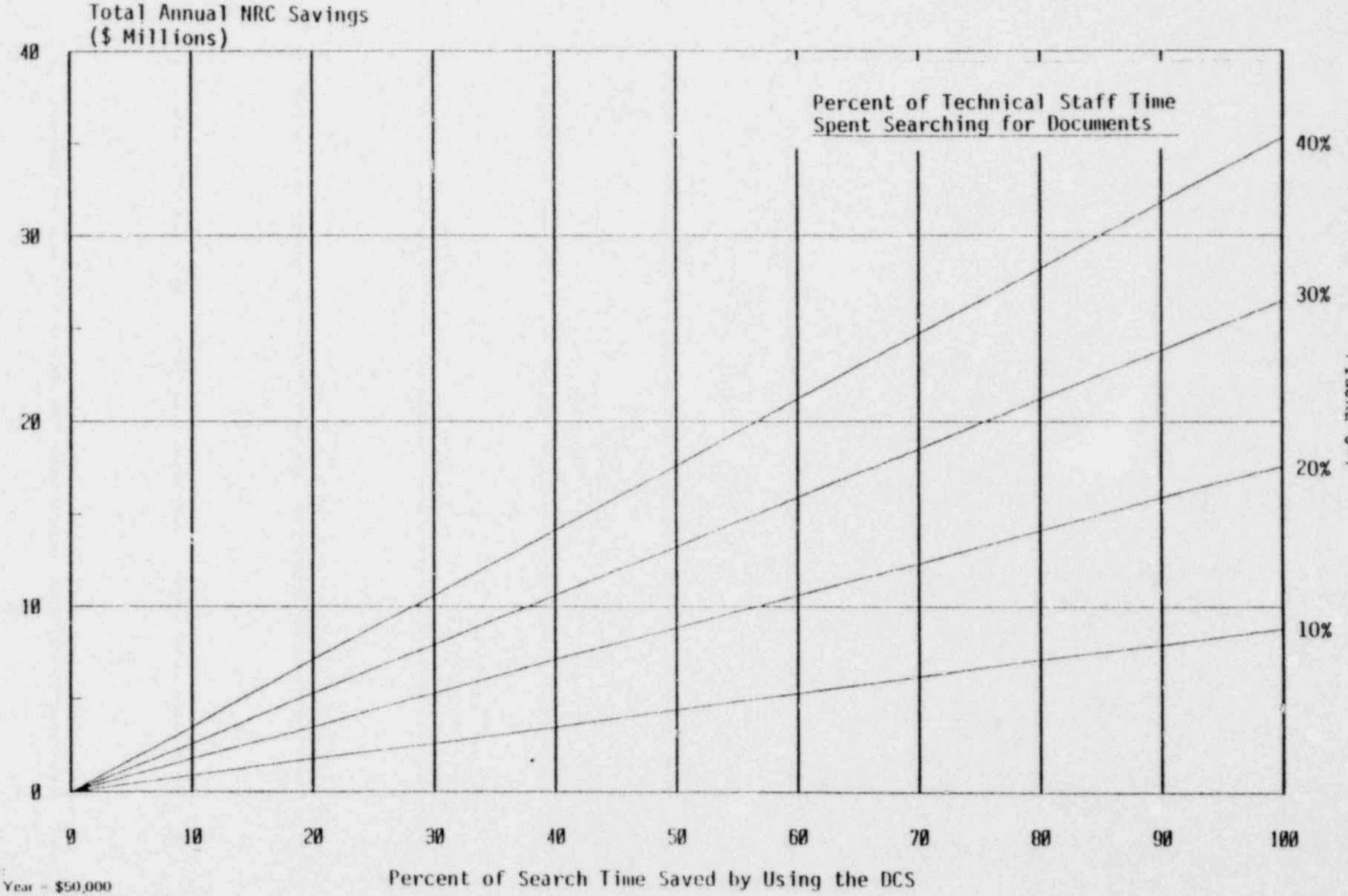
[5] Proposed system will have the following cost impacts:
- Reduce retrieval costs by 75%
- Reduce hard-copy requirements by 15%
- Reduce storage space costs by 50%
- Reduce distribution costs by 30%
- Eliminate costs to replace 10% loss of user file copies annually.
- Generate improved NRC document services to all users of information.

[6] Proposed system generates savings of $50.1 million over a 5-yr. period.

[7] Proposed system returns developmental costs in second year.

Table C-1:
SECY-76-433 Cost/Benefit Analysis

POTENTIAL SAVINGS IN TECHNICAL STAFF RESOURCES ATTRIBUTABLE TO DCS



Assume:
1 Staff Year = $50,000
1764 Technical Staff Members*

*SECY 79-649 assumed this number of technical staff members when estimating savings from DCS.

FIGURE C-1

Finding C.2: The DCS has not yet provided the substantial potential staff time savings that were cited in the original justification for the system; this shortfall is explained in part by the fact that planned systems capabilities are not currently scheduled to be fully developed and implemented until 1983. The DCS may help NRC meet its safety responsibilities more effectively.

Finding C.3: The limited capability of the DCS to "locate all documents on a particular subject" has permitted technical staff time savings of approximately 12 staff years.

o Projections of staff time savings and an estimate of current savings are summarized below:

- 1976 Projection

  o In a cost-benefit analysis attached to SECY-76-433, approximately 400 staff years were anticipated to be saved by implementing the DCS. The analysis identified a total (pre-DCS) searches and retrieval cost of $15,617,000. DCS was assumed to provide savings of 75% of the total, or $11,712,750. Assuming a $30,000 annual cost per staff year in 1976, the $11,712,750 saving equals about 400 staff years saved annually when the DCS is fully implemented.

- 1979 Projection

  o An attachment to SECY-79-649 contained a more conservative estimate of the staff time savings possible with DCS and contained estimates for Fiscal Years 1981, 1982, and 1983.

  The savings shown were:

1981	12 SY
1982	57 SY
1983	145 SY

- Estimate of Current Savings

  o MPA estimates of a current savings of 12 staff years of professional search time are based on the following calculation:

  17,320 searches per 6-month period (see Table B-2), therefore 34,640 searches per 12-month period

  Assume net saving of 3/4 hours per search, therefore 25,980 hours search time saved per year.

  Staff year = 2080 hours

$$\text{Staff year saved} = \frac{\text{Hrs. search time saved per year}}{\text{Hrs. staff time (yrs.)}} = \frac{25980}{2080} \approx 12 \text{ sy}$$

Findings C.2 and C.3 continued

- ELD indicated a small savings in staff years from their use of the antitrust and special subject file. The other offices either could not provide estimates or said that savings were minimal. Most felt that savings won't be realized until sometime in the future when the syscem is fully developed and implemented.

(Office Director Comments)

Finding C.4: Unanticipated benefits for the technical staff have resulted from the development of specialized reports not identified in the original DCS contract.

- "The Three Mile Island, Unit 2... Special Title Lists, ... complete with 30 full sets of titled microfiche, were provided on short notice with an accuracy that would not have been possible had the DCS not been in existence."

(SECY-79-649, p. 2)

o ELD has indicated that they have received considerable benefit from the file established by TERA to track the Stanislaus Antitrust activities and the ELD Special Subject Index File.

"It is estimated that if the automated systems were not available, an additional three staff years of effort would be required to perform this function manually."

IE has cited the LER Tracking System as a benefit of the DCS that was not specifically identified in the original contract.

"We have begun to use the DCS as a method of tracking all documents related to each licensee event report. Termination of the DCS would eliminate such tracking systems."

(Office Director Comments)

o Since the contract was awarded, numerous offices have requested additional services specific to their particular needs. The services TERA has provided include:

Antitrust Secure Data Record (ELD)
Supplementary legal subject code and description (ELD)
Licensing Board Notifications (NRR)
Generic Technical Issues Report List (NRR)
Docket Data Base (NRR)
Meteorology/Hydrology Data Base (NRR)
Systematic Evaluation Program (SEP) Status Report (NRR)
LER Quarterly Monitoring Report (IE)
Periodic Listing of Bulletins, Notices, and Circulars (IE)
Incident Response Center Drawing Library (IE)
LER and Bulletin Response Tracking (IE)

"... An average of two requests for special reports /one time only/ are received and processed /by TERA/ each day." (p. 15)

(DCS Services Report)

Finding C.5.: The total cost of performing a number of related administrative functions using the DCS is probably less than the cost of performing these functions under separate contracts.

- "It is estimated that these tasks (Title List, daily accession list, distribution sheets) would have cost the NRC about $5.3 million [$4.2 million, $1 million, $120,000, respectively] in the first year of the DCS contract if they were continued to be done by outside contractors, whereas, the total DCS contract for the first year was $4.5 million."

  (SECY-79-649, p. 1)

- ADM estimated that the DCS replaced functions that they would have had to pay about $8 million for during the two years the contract has been operational (ADM did not provide a breakdown). Examples that were provided by some of the branches in ADM of functions which may cost more under separate contracts are:

  - An additional $360K per year in timesharing costs for a locator system to locate submittals and respond to staff and licensee queries regarding their status.

  - An additional $10-15K per month in timesharing costs to maintain the PDR Accession List.

  - An additional $250K per year for production of Docket 50 microforms.

  - Record management function now performed by DCS would require 5-8 people if done in-house.

  (Office Director Comments)

- Historical growth in file storage has been in excess of 10% annually. The DCS has allowed more than 34,000 cubic feet of hardcopy storage to be eliminated and at least 12,000 precluded, for a net reduction of 46,000. This has been largely nonrecord material because of the lack of a National Archives approved record retention schedule for NRC. Once NARS approves the NRC retention schedule (planned for completion in mid-1981), more than 75% of NRC record material will be approved for maintenance in microform.

  (Meeting with TIDC 11/17/80)

- A significant portion of the task of distributing incoming documents has been taken over by the DCS. The cost of this service, if done separately, is estimated at $1.1 million.

  (Meeting with TIDC 11/17/80)

Finding C.5. continued

o None of the offices indicated that they have discarded any of their hard-copy files. IE has begun to remove their files but has not yet discarded them. ADM, however, indicated a savings of about 145 cubic feet of hardcopy storage space by converting Commission Papers and Vendors Topical Reports to microfiche.

ADM - "A survey earlier this year indicated that approximately one-half of the LPDRs will run out of space in the next year and would have to be moved if microfiche is not available."

(RIDS) - "Conversion to a manned effort, assuming NRC requires the present turnaround time, would require an additional 10 or 11 persons and an additional 800 square feet or more of additional space."

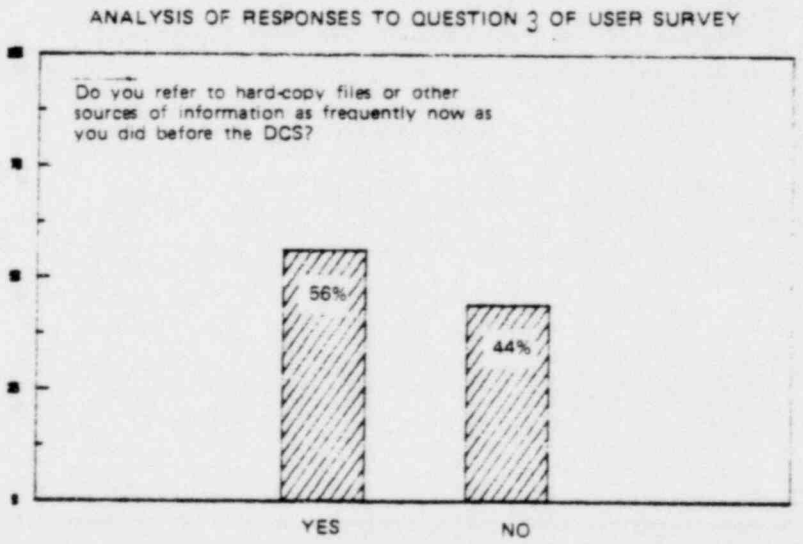
"As of today, a total of 5,482 Commission Papers have been converted to microfiche to free approximately 50 cubic feet of space. A total of 3,842 Vendors Topical Reports have been converted to microfiche freeing up approximately 95 cubic feet of space."

IE - "We have also begun to remove selected hardcopies of documents from the IE files for destruction on the basis that the documents are available in DCS." (Note: IE plans to destroy these files when they receive formal authorization.)

(Office Director Comments)

o Slightly less than half of the users surveyed indicated that they were using their hardcopy files less frequently than they had in the past. The remaining users said they used hardcopy files with about the same frequency as they had before DCS. All users were reluctant to throw away their hardcopy files in favor of the DCS. See chart below.

(User Survey)



Finding D: What are the major components of the $10.9M cost of the DCS for the third year?

Total contract costs are covered in Modification 8 of the TERA contract (covering year 3). Functional cost information is contained in TERA's "Critical Design Review" (pages 61-65).

Finding E: What changes could be made now that would reduce DCS costs or increase system benefits?

o Table E below shows billing data for the 13 TERA occupational groups. The first column of numbers shows the "negotiated billing rates" for each of the occupational groups. These rates are the salaries, in dollars per hour, that NRC actually pays for the services of each person in a particular group (during the third contract year). The negotiated billing rates include all nonsalary factors such as overhead (51.1%), fringe benefits and other similar factors called "labor additive" (57.9%), general and administrative expenses (14.36%), and profit (10%). The product of these four components (collectively called the "burden rate") is 3.0. (The calculation is: 1.511 x 1.579 x 1.1436 x 1.10 = 3.0) This means that NRC is billed by TERA at rates that are three times what TERA salaries are supposed to be. The table shows, however, that the actual salaries paid to the TERA employees are different from the estimated rates that were the basis for the billing rates that NRC negotiated. In six of the thirteen labor categories (numbers 8 through 13), the negotiated billing rate is more than three times the actual salaries paid to the TERA employees. Significantly, several of these categories (Chief Tech Coder/Abstracter, Tech Coder/Abstracter, and Term Operator) are those in which the greatest total labor costs and labor hours are concentrated).

NRC is being billed for nearly $700,000 more than would be the case if the burden rate were 3.0 for all labor categories. Column 3 shows, for each of the labor categories, the extent to which the contract cost is influenced by burden rates varying from the nominal 3.0 level. Numbers in parentheses reflect contract savings that are attributable to burden rates less than 3.0; numbers without parentheses indicate "excess" costs attributable to burden rates greater than 3.0.

The Office of Administration points out that the Defense Contract Audit Agency has performed an audit of and approved the components of TERA's burden rates. Moreover, ADM points out that it is difficult to compare the burden rates of TERA with other particular consulting firms because the nature of the work and other factors are significantly different. The Division of Contracts has not provided examples of other firms against which we might compare or "benchmark" the TERA burden rates. Nonetheless, our limited experience and intuition suggests that even a burden factor of 3.0 may be high for the type of work being done by TERA. Informal discussions with representatives of various consulting firms, albeit not a scientific or necessarily representative sample, suggests that burden rates of approximately 2.5 may be more typical for work involving large numbers of low-salaried employees. The last column on the table shows that NRC billings for year three are about $1.8 million more than they would be if NRC were billed at a rate of 2.5 times annual salary for each of the 13 labor categories.

Figures E-1a, b, and c show, for the 13 labor categories, the total labor costs, labor rates, and labor hours, respectively. The most significant points are:

- The greatest contributors to total cost are the coding and abstracting function (those for which the burden rates are greater than 3).

Finding E continued

- The negotiated labor rates between years 2 and 3 have increased appreciably, typically by a third and by 50% for Senior Engineers.

o TIDC has planned to recompete the contract in year 5. Recompetition could be expected to reduce contract costs.

o Other costs shown for Finding E in the briefing package are estimates based on conversations with NRC and contractor staffs.

Table E: Year 3 Billing Data for TERA Occupational Groups

Occupational Group	Negotiated Billing Rate ($1/hr)	Burden Rate*	Total Billings in Excess of: 3.0 Burden Rate	2.5 Burden Rate
1. Program Management	113	2.04	(67,840)	(32,288)
2. Project Management	76	2.88	(17,280)	58,320
3. Principal Engineer	68	2.88	(40,320)	120,960
4. Senior Engineer	65	3.01	0	85,248
5. Project Engineer	54	2.95	(5,760)	47,808
6. Engineer	44	2.94	(3,840)	25,056
7. Programmer	40	2.64	(19,200)	8,160
8. Engineer Coder/Abstractor	39	3.22	34,560	100,224
9. Chief Tech Coder/Abstractor	38	3.77	199,680	318,864
10. Technical Coder	31	4.00	460,800	669,600
11. Terminal Operator	22	3.34	84,480	233,376
12. Technician	19	3.27	46,080	103,104
13. Clerical	21	3.22	9,600	44,880
			680,960 Total	1,783,312 Total

*Burden rate is the factor by which the negotiated billing rate is divided to obtain actual employee salary.

TERA Total Labor Costs by Occupation

Comparison of Year 1, 2 and 3

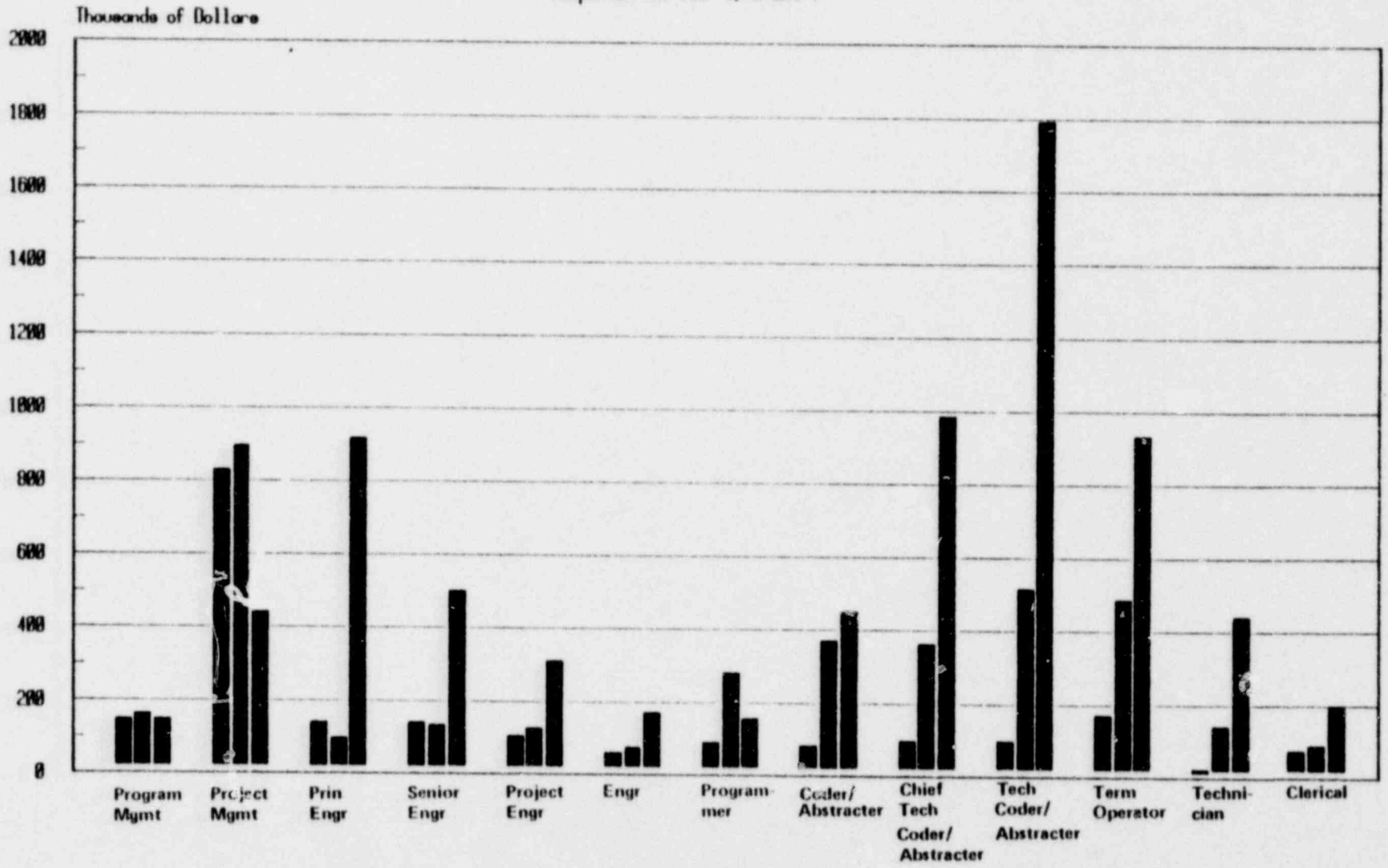
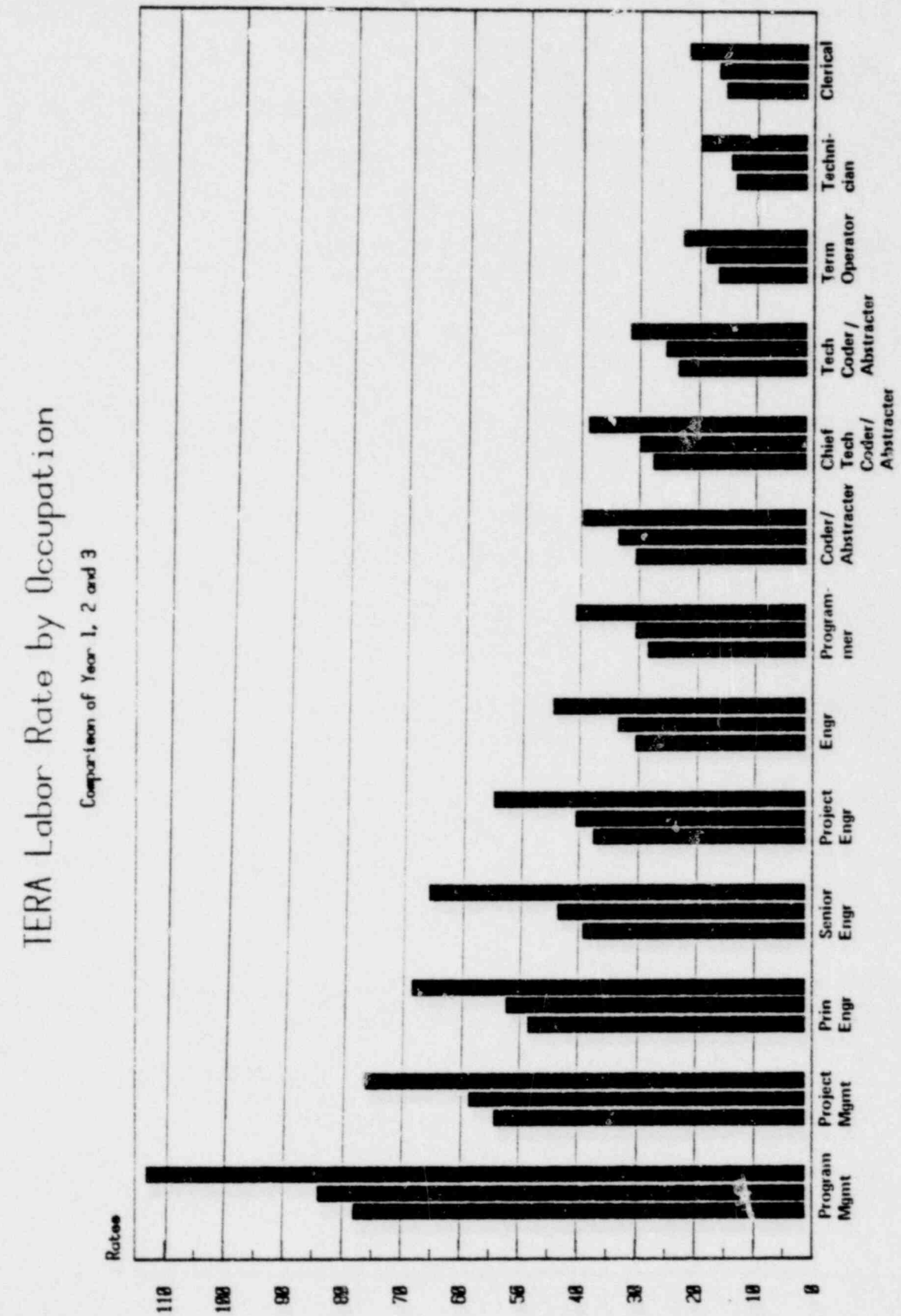


Table E-1a

Table E-1b


TERA Labor Rate by Occupation
Comparison of Year 1, 2 and 3
Rates
110
100
90
80
70
60
50
40
30
20
10
0
Program Mgmt
Project Mgmt
Prin Engr
Senior Engr
Project Engr
Engr
Programmer
Coder/ Abstracter
Chief Tech Coder/ Abstracter
Tech Coder/ Abstracter
Term Operator
Technician
Clerical

TERA Labor Hours by Occupation

Comparison of Year 1, 2 and 3

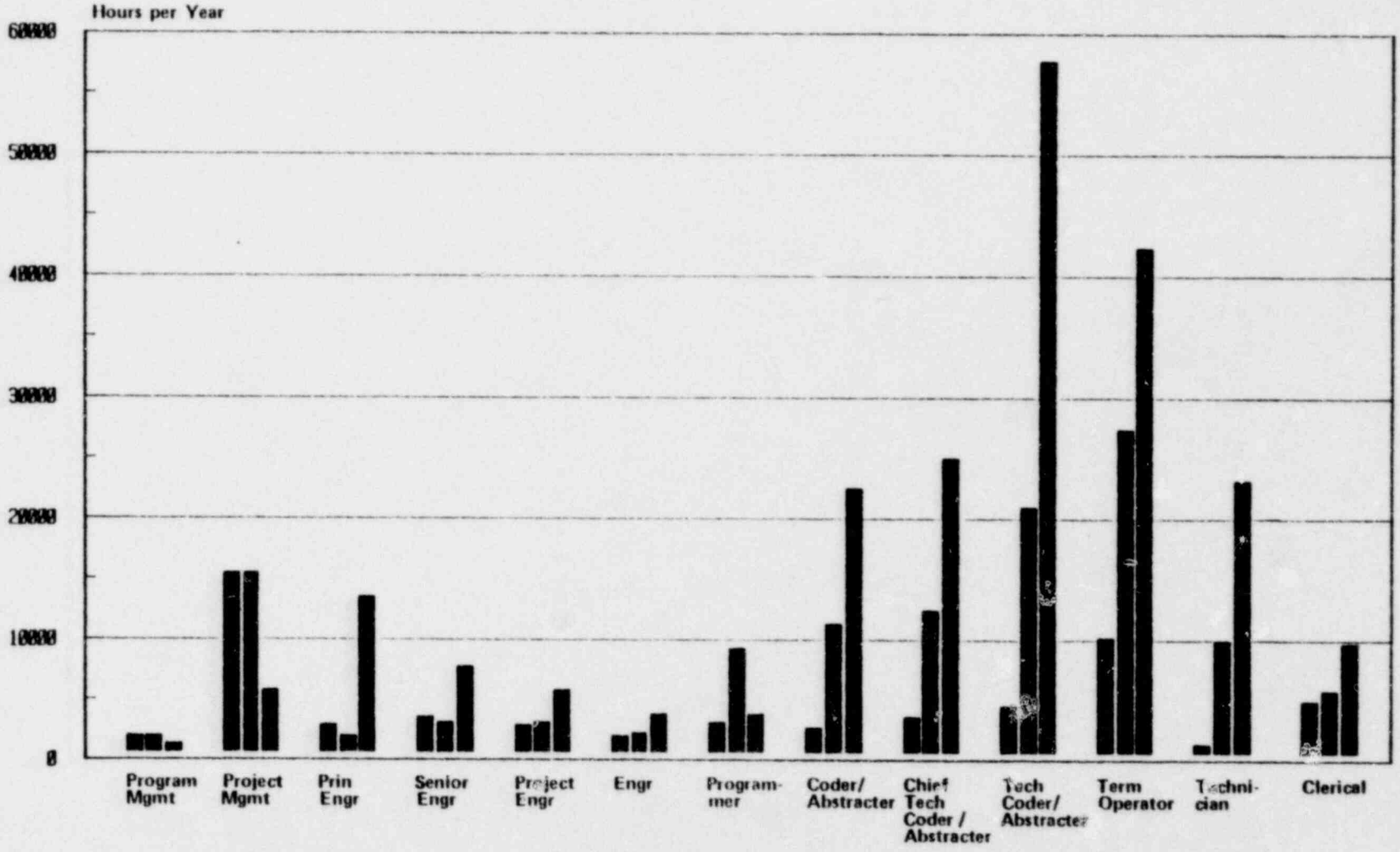


Table E-1c

Finding F.1: There are no systematic procedures for review, approval, or documentation of user requests for additional products and services.

- The DCS study group asked TIDC to provide documentation of the review of all approved special requests and to provide an outline of the standard procedures taken to approve or deny them. The partial analyses of several requests, provided by TIDC, did not demonstrate that a formal process was in place for reviewing special requests. TIDC makes its own informal assessments of the costs and benefits of requests.

  (Interviews with TIDC Staff)

- ADM suggested that a review committee be established, comprised of the primary users, that would be empowered to review all requests for services and to assign priorities within available funds.

  (Office Director Comments)

- The TERA contract does not specify procedures for special services.

  (TERA Contract)

Finding F.2: Pressure for growth in system products and costs occurs because:

a. User offices do not incur the costs of services provided to them,

b. Special custom products and services appear to be added to compensate for unrealized system capabilities,

c. TIDC lacks practical authority or incentive to deny user requests, and

d. The practice of direct interface between TERA and the NRC staff encourages increases in requests for services.

- "Numerous requests have been generated by particular user groups for specialized reports and these have been prepared and delivered by the contractor."

(SECY 79-649)

- Most offices specified general and office-specific services they would like from the DCS, but none took cost into account.

(Office Director Comments)

- "One of the fundamental services of the DCS is the capability to produce written printouts immediately to serve the needs of individuals or groups within NRC. This particular service has been available since the start of the DCS and has been taken advantage of by representatives from every major NRC program and staff office. Currently, an average of two requests for special reports are received and processed each day."

(DCS Services Report)

- See evidence for Finding C.4 for list of ongoing services provided by TERA.

- Costs for additional services are added to the total cost of the contract (increased manhours, software modification, etc.). All costs for DCS contract are paid through Office of Administration administrative support funds (B&R No. 48-20-25-302).

(TERA Contract)

- "Another management strategy of note resulted from a decision of Bill Besaw that the relationship between the contractor and the NRC staff should avoid as much bureaucratic red tape as possible. Therefore, he decided not to establish an agency staff to specifically interface with TERA. Rather he permits TERA client managers to work directly with the NRC staff. Therefore TERA project managers work directly with the NRC staff to assess their needs, solve their problems, accept orders for reports and counsel them regarding their records management problems without having to obtain formal approval from the NRC Contract Officer Technical Representative."

(Grimsley Case Study)

Finding F.3: Certain provisions of the TERA contract -- the contractor's proprietary rights to system software and the lease arrangements -- make it difficult for NRC to recompete the contract.

- Article XX of the original contract states that TERA claims rights to the original ARMS software after the contract has expired. In order to continue system operation, NRC must buy or lease the ARMS software. (Informal discussions have been held between TERA and the Division of Contracts regarding the possible NRC purchase of DCS software.) Article XX is reprinted below.

> "ARTICLE XX - NRC Use of the Contractor's Propriety Software
>
> The Contractor alleges that its Automated Records Management System (ARMS) is a proprietary computer system, designed and developed by TERA. The Contractor shall provide to the Nuclear Regulatory Commission the utilization of the applicable software portions of this system as determined by the Nuclear Regulatory Commission. Full rights and title to the existing ARMS software will remain in TERA, except that the NRC only, will have the right to use, at no cost, the aforesaid applicable software portions of the ARMS system in the manner and for the purposes set forth in Section 3 of this contract. Such rights shall survive the expiration of this contract. Improvements in the applicable software portion of the ARMS system which are required to be originated or developed under this contract are subject to unlimited rights as defined in Clause 58."
>
> (TERA Contract)

- Discussions with the Division of Contracts indicate that if potential bidders planned to use the existing DCS facility they would have to negotiate with TERA for sublease of the facility.

(Telephone conversation - C. Lebo, Division of Contracts)

Finding F.4: The contract can be recompeted for year 4, beginning June 1981, only with an expedited contract source selection process.

- Discussions with the Division of Contracts indicate that they require between 6 and 9 months lead time to award a contract. This does not include the time required to write the Statement of Work and obtain Commission approval.

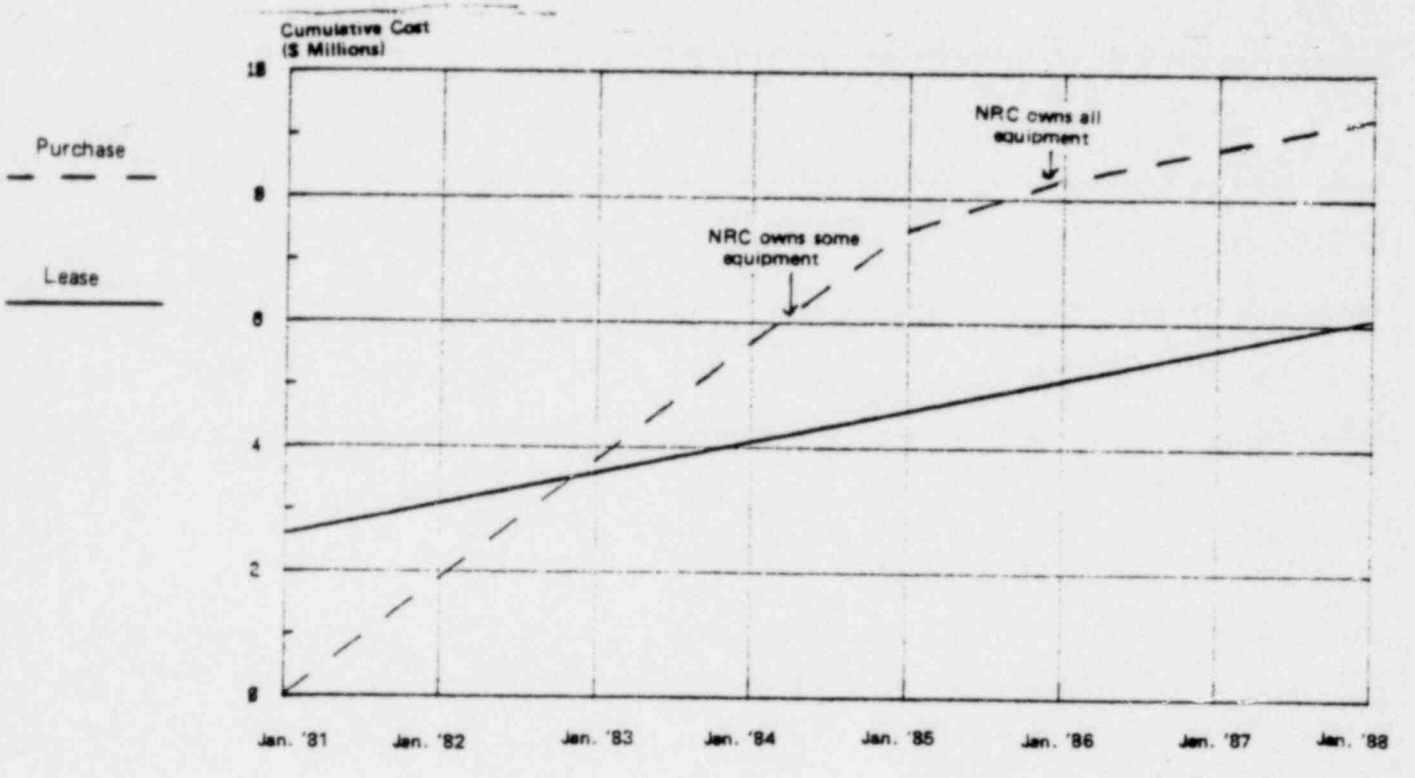
  (Telephone Conversation - C. Lebo, Division of Contracts)

- A typical contract award process may require 27 to 40 weeks, broken down as follows:

Action	Time Required (weeks)	Cumulative Time Required (weeks)
Prepare Statement of Work, secure Commission approval, and issue RFP	9-14	
Evaluate offers, Secure best & final offers, negotiate, and present selection to Commission	14-18	23-32
Commission decision, and award contract	4-8	27-40

Finding F.5. The cost of buying the DCS equipment now (and maintaining it) is less than the cost of continuing to lease the equipment for another two years.

Figure F-5: Comparative Costs of Leasing/Purchasing DCS Equipment in January 1981



* $4.2M cumulative lease payments Sept. 1978 through Dec. 1980 not included
* Maximum annual maintenance costs assumed to be $500K
* NRC owns equipment after 5½ years of lease payments
* Purchase costs do not include credit for salvage value

To date NRC has leased rather than purchased ADP equipment. The TERA contract contains an equipment purchase option that allows NRC to take a credit against the purchase price equal to a set percentage of lease payments made by NRC. During the contract's third year (June 1980 to June 1981), a credit of 63% of our cumulative lease payments is applicable. If equipment is purchased in the contract's fourth year or later, the credit is only 50% of lease payments. After 5-1/2 years of paying lease, NRC will own the equipment and pay only maintenance costs of approximately $300-500,000 per year.

(TERA Contract, Section 6.A.5(a))

The following tables show the supporting computations for Figure F-6 and are based on purchasing equipment by January 1981.

EQUIPMENT PURCHASE COMPUTATIONS

(Purchase at 63% Credit)

	EQUIPMENT GROUP	PURCHASE BASE	INITIAL LEASE DATES	MONTHS PAID	MONTHLY AMOUNT	AMOUNT PAID	CREDIT 63%	PURCHASE PRICE
1.	Original Hardware	$ 3,765,342	9/15/78-5/80	20.5	$ 143,332	$ 2,938,306		
			6-9/80	6	113,471	680,826		
						$ 3,619,132	$2,280,053	$1,485,289
2.	1st 16 Terminals	169,440	10/78	26	5,587	145,262	91,515	77,925
3.	2nd 16 Terminals	231,332	3/89	21	7,631	160,251	100,958	130,374
4.	Mod 7A	145,115	12/79	12	4,985	59,820	37,687	107,428
5.	Mod 7B	59,490	9/79	15	2,196	32,940	20,752	38,738
6.	Mod 7C	97,725	1/80	11	3,207	35,277	22,225	75,500
7.	Mod 7D	749,100	6/80	6	22,606	135,636	85,451	663,349
								$2,578,603

(Dr. S. Zungoli, TIDC)

Calendar Year	Annual Costs	Cumulative Costs
9/15/78-12/31/80	--	$4,188,318 (paid)
1981	$1,916,196	1,916,196
1982	1,916,196	3,832,392
1983	1,916,196	5,748,588
1984	1,784,756*	7,533,344
1985	730,219**	8,263,563
1986 & onwards	500,000***	8,763,563

* Includes $300K for maintenance ** Includes $400K for maintenance
***$500K for maintenance only

Finding G.1: TERA appears to have been responsive to the formal contract requirements and to the particular needs of various NRC users.

- "The contractor has performed in a responsible, professional and thorough manner, Contract deliverables have been submitted as shown below: " /paraphrased by DCS Study Group/

	Scheduled	Delivered
Title List Implementation Plan	7/78	6/78
Title List	12/78	9/78
Take over Document Accession and Control System	12/79	10/78
Index System Implementation Plan	12/78	1/79
Subject Index-Criteria for Content	2/79	1/79
Security Plan	1/79	12/78
Remote Fiche Access and Retrieval Implementation Plan	1/79	10/78
System Statistics Plan	6/79	7/79
Routine Operation of Remote Microfiche and Retrieval System	9/79	8/79

(SECY-79-649, pp. 3-4)

- "Both the System and contractor have proven to be flexible and responsive. Specific examples of this responsiveness are:" /Paraphrased by DCS Study Group/

  - digital terminals provided a year earlier than expected
  - DACS effort assumed by TERA one year earlier than scheduled
  - TERA prepared special title lists and 30 sets of microfiche and created special search routines to aid in TMI investigation
  - developed special file level indexes for PDR
  - incorporated RIDS into DACS and provided 6-hour turnaround time
  - TERA created special document flow patterns to capture documents of individual NRC offices while not disrupting their normal flow
  - developed special file indexes for Rules and Records"

(SECY-79-649, pp. 4-5)

- "The NRC staff members continue to advise the contractor of the way they use information and their specific needs. Based on the exchange of information, the contractor is tailoring the system to ensure that it responds to NRC needs in every possible way that is cost beneficial. The contractor has encouraged system understanding and use among all NRC technical and technical-support staff."

(SECY-79-649 B-4, Appendix B, p. B-4)

Finding G.1 continued

- "This Subject Index--Criteria for Content document provides the categories of information that are suggested for use by the NRC staff to retrieve information. It has been submitted two months ahead of the Project Schedule date to allow for a complete review by the NRC staff."

  (Subject Index--Criteria for Content, pp. 1-2)

- The TERA "approach" in the creation of a usable subject index was to conduct hundreds of meetings with NRC staff members to discuss DCS applications that would simplify information retrieval and increase the success of the subject search activity.

  (Subject Index--Criteria for Content, pp. 1-2 ff)

- "Task 4.2.3 Entry of Backfit Documents into System

  TERA is prepared to implement the Plan immediately upon approval by the COTR and will, thenceforth, work with TIDC and the NRC offices to capture the selected documents and commence their routine backfit into the DCS."

  (Backfit Implementation Plan)

- "The contractor has demonstrated a continuing commitment to achieve user satisfaction with the DCS through the following efforts:"/paraphrased by DCS Study Group/

  tours and demonstrations of facility
  ongoing meetings with NRC staff
  formal training program
  preparation of comprehensive DCS user's manual to supplement training.

  (SECY-79-649, p. 2)

- Several offices cited specific examples of TERA's responsiveness to their needs. Examples were:

  NMSS - "TERA personnel have been very receptive to correction requests."

  SD - "The TERA Corporation is sending representatives to interview the OSD staff to determine how the DCS can better meet the needs of office. They are examining ways to produce more complete and timely information as well as revising their user training course to address specific user office needs."

  IE - "We have been working with TERA personnel to define those classes of existing documents which should be added to the system to improve information retrieval in the Operations Center and to make file searches more efficient."

Finding G.1 continued

SP - "The TERA personnel have been very responsive whenever we have had a problem in locating a document in the DCS. They have made a very concerted effort to educate us to the system."

AEOD - "... the DCS has been very responsive to the specific requests for services that have been made by this office. These services have included training sessions, special search strategies, etc."

(Office Director Comments)

o "The Office of Administration has provided this Inquiry Staff with two terminals that access the Document Control System (DCS) and six sets of microfiche which cover most of the TMI-2 documents from the beginning of the licensing process up through June 20, 1979. These two services have aided our efforts immeasureably and have contributed to a most efficient use of our professional and managerial manpower. Likewise, those services have allow us to keep our administrative manpower requirements to a bare minimum."

(Memo - Cornell (serving as Staff Director, NRC/TMI Special Inquiry Group) to Donoghue, 8/7/79)

Finding G.2: An examination of the document control systems of 14 other agencies suggests the following:

a. Compared to the DCS, the systems in other agencies are sufficiently different in purpose and content that direct comparisons of specific costs and benefits are of limited value.

b. General comparisons of system attributes are:

- NRC's system contains more document types (exception: CIA)
- NRC relies on contractors to a greater degree,
- NRC has more people working on its system than all but two agencies,
- The rates of documents entered into the DCS and searches conducted on the DCS are not significantly different from the averages for the other systems,
- The total costs of NRC's system (contractor and in-house) are significantly greater than the total costs for the other agencies.

o In August, 1980, OMPA staff conducted a telephone survey of fourteen other Federal agencies. The missions of the agencies varied, including national security concerns (NSA, CIA, State), technical/scientific concerns (NASA, NSF), narrow regulatory functions (FERC, FCC, SEC, ICC, CPSC, FAA), and broader administrative functions (White House, Justice, GAO). The document control system of each agency was described on the basis of whether the system was automated, the primary focus and function of the system, the number of documents processed per month, whether a contractor was involved in administering or operating the system, operating costs of the system, and the number of contractor and/or agency personnel assigned to maintain the system. The results of the survey are included in the attached table (Table G-2, "Comparison of Other Agencies' Document Control Systems).

(Survey of Other Agencies)

TABLE G-2 - COMPARISON OF OTHER AGENCIES' DOCUMENT CONTROL SYSTEMS

Agency	Costs			Number of People		Documents		
	In-house* ($M)	Contractor ($M)	Total ($M)	In-house	Contractor	Type	Number Documents Entered/Month (1000's) (not pages)	Use Searches/Mo. (1000's)
NRC	0.3	10.9	11.2	6	93	Various	24.0	5.9
NASA	1.5	5.0	6.5	29	207	Reports	21.0	8.6
GAO	0.1	3.0	3.1	2	70	Reports	0.3	20.0
State	4.0	0	4.0	80	0	Telegrams, adm.	65.0	9.4
ICC	7.0**	0	7.0	90	0	Decision docs.	1.0	not available
SEC	1.5	0.4	1.9	30	3	Reports	10.0	24.0
NSF	0.9**	0	0.9	16	0	Proposals, peer revs.	20.0	2.0
FCC	0.3**	0	0.3	4	0	Listings	not available	not available
FAA	0.8**	0	0.8	15	0	Reports	2.0	0.8
CPSC (1)	0.7	0.1	0.8	15	4	Hotline	18.0	not available
CPSC (2)	0.9**	0	0.9	15	0	Teletypes	17.0	1.0
CPSC (3)	0.4**	0	not avail.	7	0	Clearinghouse	18.0	0.5
CIA	2.8	0	not avail.	55	0	Various	50.0	7.0
FERC	2.0	0	not avail.	40	0	All Manual	20.0	4.0
Justice (1)	not available			not available		FOIA, older cases	not available	
Justice (2)	0.5	not available		10	up to 150	Litigation	varies	no steady pattern
White House	2.0	0	not avail.	53	0	All Manual	65	not available

*Annual agency labor costs of $50,000 per employee.

**Includes equipment/timesharing costs.

Finding G.3: With respect to terminals:

a. The DCS was originally designed as an all video system.

b. The cost of video terminals appears to be 3 to 6 times that of digital terminals.

c. Primarily because of difficulties with the microfiche tub files associated with digital terminals, the staff has expressed a preference for video terminals.

d. The cost of transmitting video images among scattered NRC locations makes an all video system impracticable at the present time.

e. Measures to improve video image quality have been initiated.

- The requirement for video capability is described in Task 4.4 of the original contract.

"4.4 Product of System

The SYSTEM must be able to produce at the remote-terminal location, a virtual page image, a Subject-Index image, and a hard copy of the document-page image."

(The cost data in the Pricing Schedule, Section 6, of the original contract appears to refer to video, rather than digital terminals.)

(TERA Contract, Section 3, Statement of Work and Deliverables)

- The GSA list price for one digital terminal is about $2000. The installed purchase price of the same terminal from TERA is about $5000. NRC is presently leasing digital terminals at a monthly rate of approximately $150 each (for approximately 5-1/2 years, at which time NRC would own the terminal), for a total price of about $9900.

Discussions with the contract management staff indicate that costs of video terminals and peripheral video equipment are from 3 to 6 times greater than those of digital equipment.

(TERA Contract, Section 6A(8)a, p. 6-6)
(Discussions with ADM/DC)

Finding G.3 continued

- Of the five major program offices, NRR, IE, and SD expressed a preference for video terminals. (ADM, ELD, SP, and AEOD also expressed a preference for video). Those with microfiche tub files said that the delivery of microfiche from TERA was too slow.

  (Office Director Comments)

- IE staff finds the use of tub file microfiche to be inconvenient because their hard-copy files are readily accessible (IE file room located in same building).

  (Interview E. Jordan, IE, 10/22/80)

- Although remote video capability to scattered NRC locations is a technological possibility, it is not possible within the cost ceiling of the present contract. In order to expand video service to other locations, NRC will have to modify the present contract to: (1) allow TERA to focus its attentions on video installation tasks, and (2) to increase the cost of the overall contract to cover equipment, transmission, and increased manpower. Once the contract modifications are complete, TERA indicates that expanded video services can be available within 2 to 3 months in specific locations. TERA is presently awaiting a decision from NRC.

  (Telephone conversations - J. Long, TERA and C. Lebo, ADM/DC)

- The 10 carousels NRC is currently leasing from TERA use optical tube scanning devices to scan microfiche. This signal is converted to a digital signal and transmitted to a remote video terminal. The optical scanning devices are sensitive to changes in the environment and require daily alignment. The 12 additional carousels NRC is leasing in Year 3 (to be delivered in January 1981) will be equipped with charged couple devices (CCD) for scanning that bypass the conversion of an optical signal to a digital signal. These devices also enhance the image of poor quality document. In addition, by June 1981 TERA will have retrofit the 10 carousels currently leased by NRC with the new charged couple devices.

  (Telephone conversation with J. Long, TERA)

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Memoranda

NRC Memorandum from S. J. Chilk to the Commissioners (Hendrie, Gilinsky, Kennedy, Bradford), "SECY-78-67 -- Proposed Contract Award for the NRC Document Control System (Commissioner Action Item)," April 28, 1978.

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Miscellaneous NRC Documents

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TERA Advanced Services Corporation, "Boolean Search System: Implementation Plan," submitted to W. J. Besaw, NRC/TIDC, September 1980.

"Terminal Use Statistics for Period March-August 1980," TERA computer printout requested by OMPA showing number of searches by terminal location, September 1980.

Office Director Comments

Responses to September 9, 1980 Cornell memorandum from EDO staff and program offices (and Region V) regarding DCS services, possible savings, effect of termination of services, and suggestions for system improvements.

Surveys

"Survey of Identified DCS Users," conducted by OMPA Document Control Study Group to learn of use patterns and of user difficulties, conducted during the period July 28, 1980 to August 8, 1980.

"Random Survey of Potential DCS Users," telephone survey conducted by OMPA Document Control System Study Group to determine to what extent the DCS was being used, conducted during the week of August 18, 1980.

"Survey of Other Federal Agencies," telephone survey conducted by OMPA Document Control System Study Group to compare their document management systems to DCS, conducted during the period August 14, 1980 to September 19, 1980.

"Informal Survey of File Center Supervisors," informal telephone survey conducted by OMPA Document Control System Study Group to determine reduction in volume of hard copy files, conducted during September 1980.

Miscellaneous

Grimsley, Donnie H. "A Case Study of the Document Control System of the United States Nuclear Regulatory Commission," paper submitted as requirement of "Management Information Systems" course, Harvard University, May 14, 1980.

"Notes of November 5, 1980 Meeting with E.K.Cornell, ADM/TIDC, and OMPA," notes prepared by S.K.Conver, November 5, 1980.

Telephone conversations and personal interviews with people directly involved with the various aspects of DCS contract management and daily system operation: W.J.Besaw, M.L.Steele, R.S.Scott, S.Zungoli -- NRC/ADM/TIDC; C.Lebo -- NRC/ADM/DC; J.Long -- TERA.

Appendix

Methodologies for Surveys:

- Survey of Identified DCS Users
- Random Survey of Potential DCS Users
- Survey of Other Federal Agencies

Methodology for Survey of Identified DCS Users

MPA interviewed users of the document control system in order to develop a picture of usage patterns and user difficulties with the system and to highlight user concerns and recommendations for improvements. The DCS study group asked TERA to provide names of individuals within the NRC who they considered to be users. This list was augmented by the DCS study group who were familiar with other users. Individuals in administrative, program support, and technical fields from all major offices and most staff offices were interviewed. (A table indicating numbers of individuals interviewed in various offices is attached). A total of 40 individuals were interviewed over a 10-day period.

Appointments were made with users to meet with them in their offices, giving them usually at least a day to think about the system. Some even prepared notes in anticipation of specific questions. Usually 2 interviewers questioned users. Following the interview, notes were reviewed and combined and typed into a final form.

The interview questions were grouped into three categories: 1) usage, 2) utility, and 3) recommendations.

The questions were as follows:

USAGE:

1. How frequently do you use the DCS?
2. How did you learn to use the DCS?
3. Do you need to use files or other sources as often?
4. For what functions do you use the DCS?

UTILITY:

5. Does the system contain the documents you need?
6. Is it relatively easy to search and locate documents?
7. What major or minor difficulties have you encountered?

RECOMMENDATIONS:

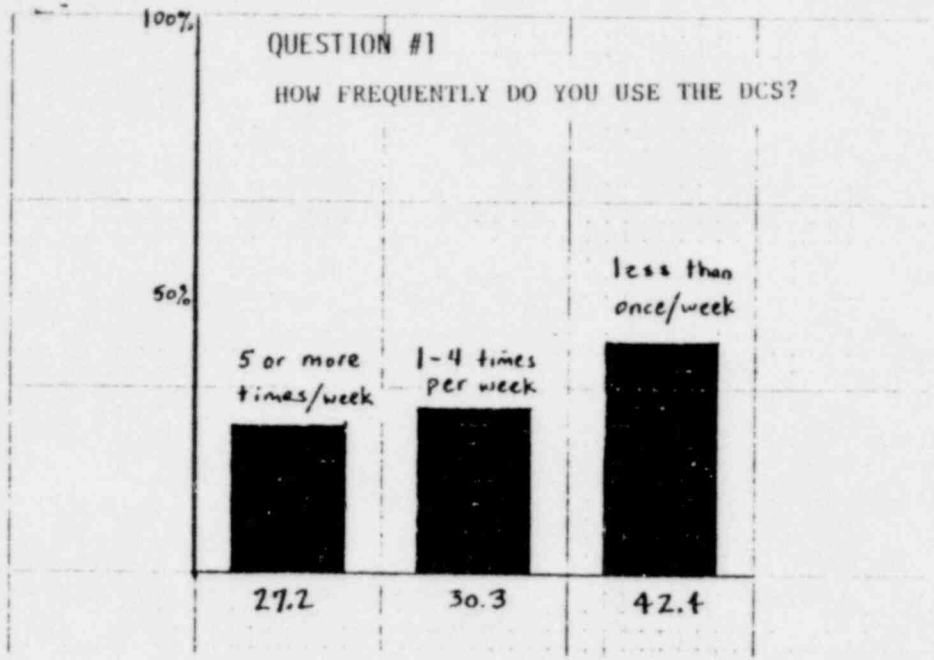
8. Are you kept informed of improvements or changes?
9. Would a subject index improve your capability with the system?
10. What recommendations would you make to improve the system?

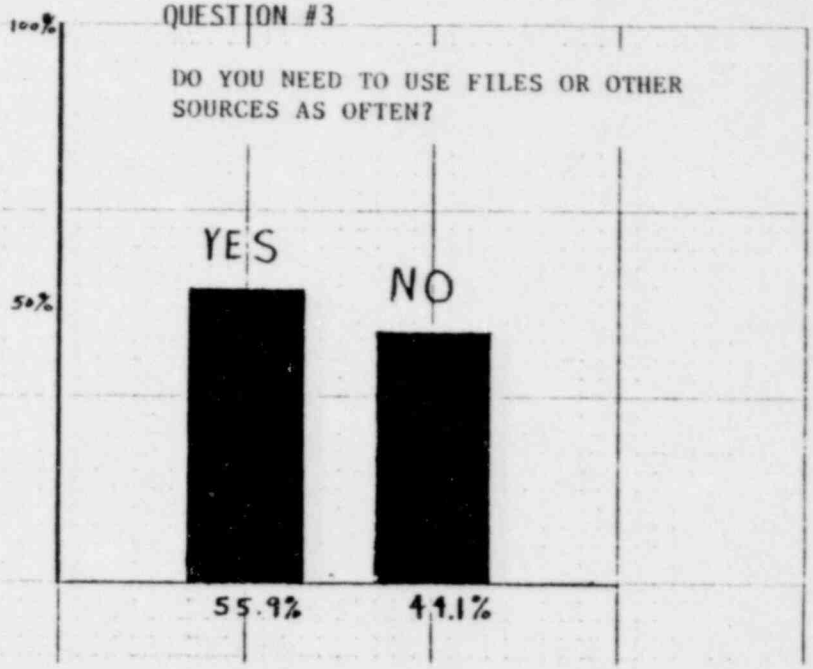
At the conclusion of all the interviews, the DCS study group reviewed the notes from each interview and, based on these notes, created broad categories of responses to each interview question. The responses to the interview questions were then grouped under these broad categories. A summary of the results of the survey is contained in the attached Table and Figures.

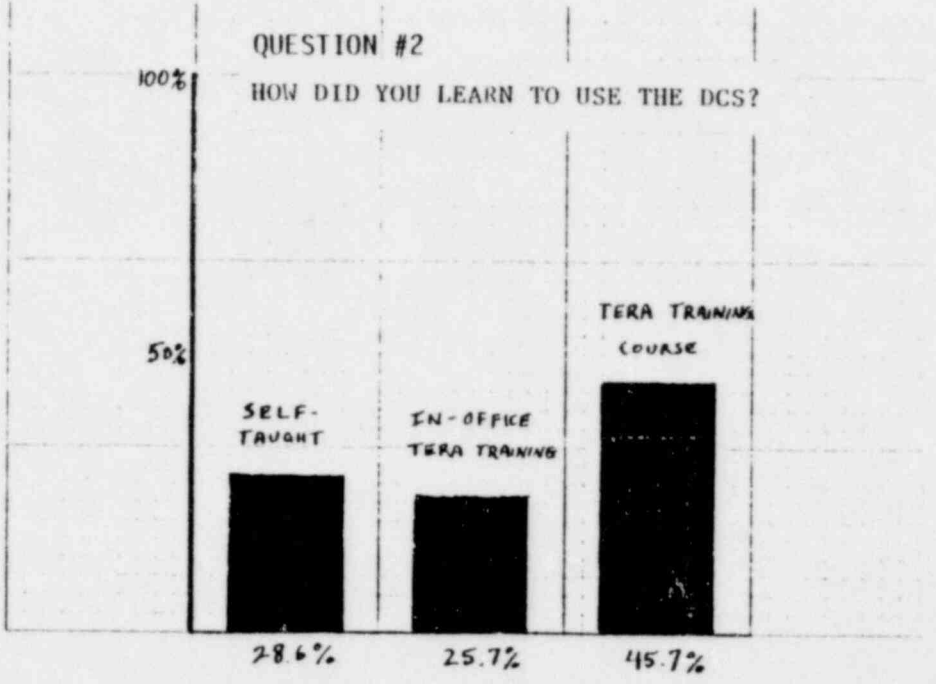
Three qualifications must be made. First, we surveyed a number of people whom we thought were DCS users. Second, the questionnaire was designed to highlight problems with the system. As a consequence, the responses may appear to be overly negative about the system. None of those interviewed, however, wanted to eliminate the system outright and those who offered numerous recommendations for improvement were those who were most in favor of the system.

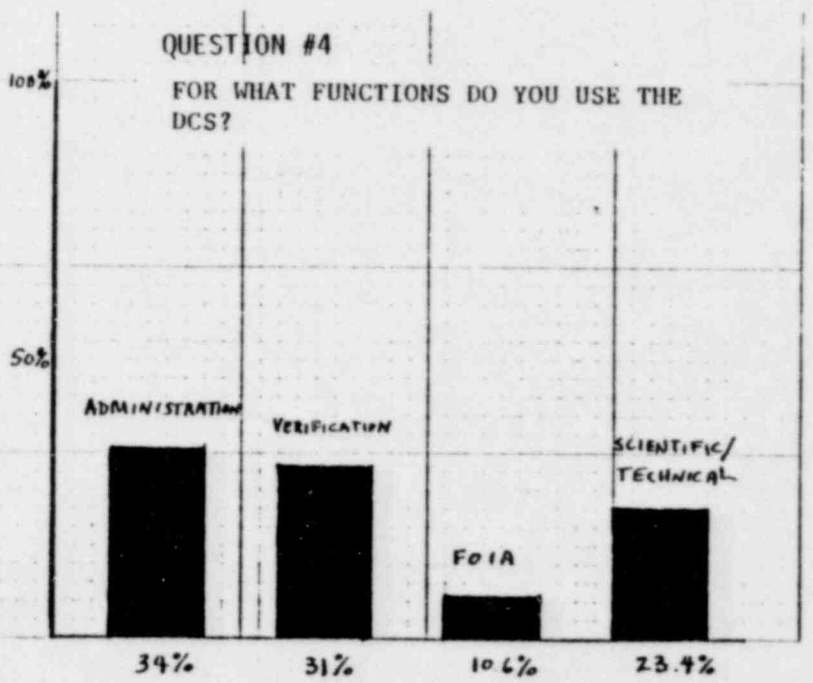
Number of Individuals Interviewed in DCS User Survey

OFFICE	TYPE OF INTERVIEWEE				
	ASSISTANT DIRECTOR	SCIENTIFIC/ TECHNICAL/ ENGINEERING	PROGRAM SUPPORT	ADMINISTRATIVE/ CLERICAL/ETC.	TOTAL
NRR	1	7	3	2	13
I&E	2	3		2	7
NMSS		4	1	2	7
SD		2	1	1	4
RES					
ELD		1	1	1	3
SP		1		1	2
ADM				1	1
EDO			1		1
ACRS					
PDR			2		2
TOTAL	3	18	9	10	40

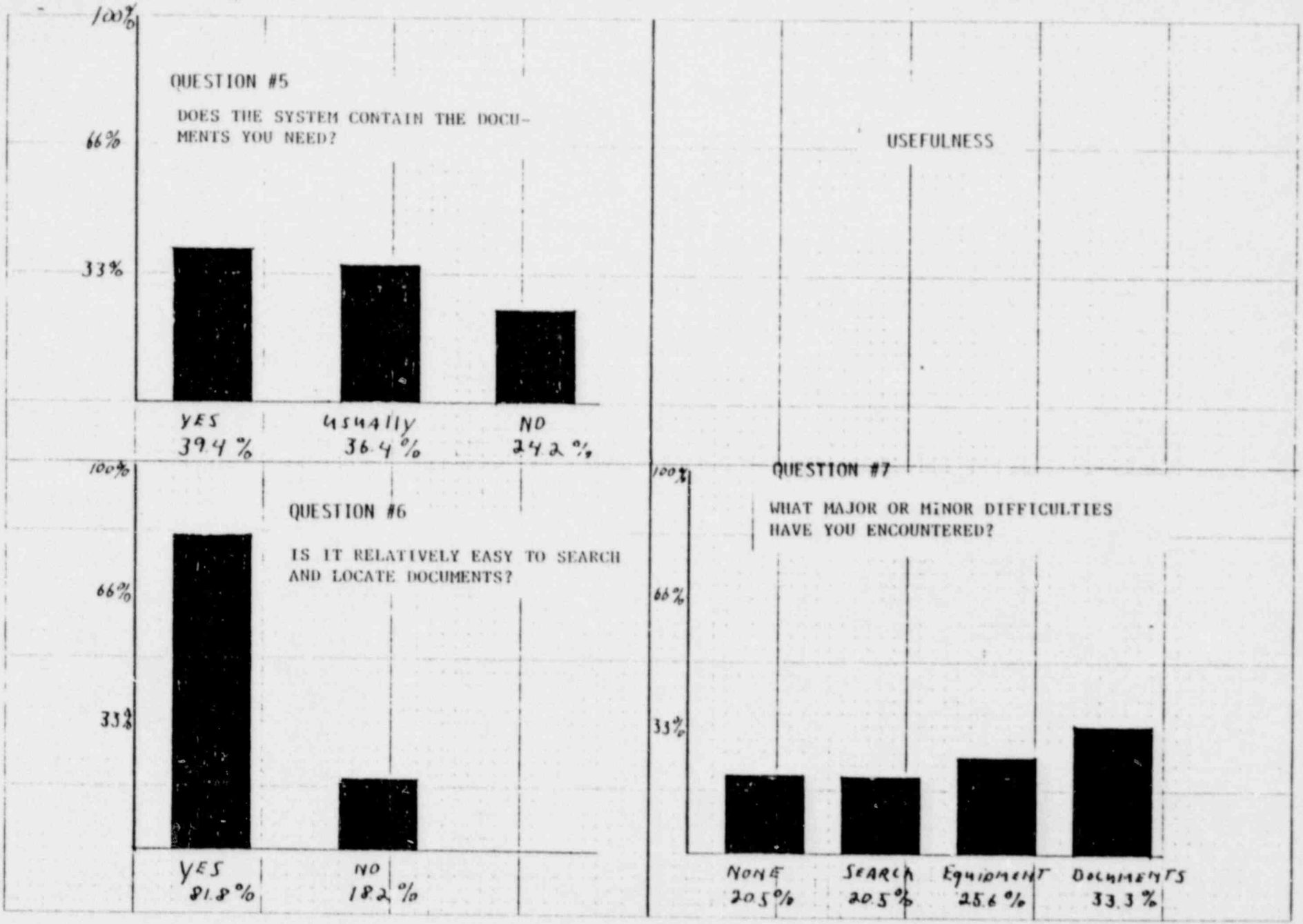








Analysis of Responses to Questions in User Survey



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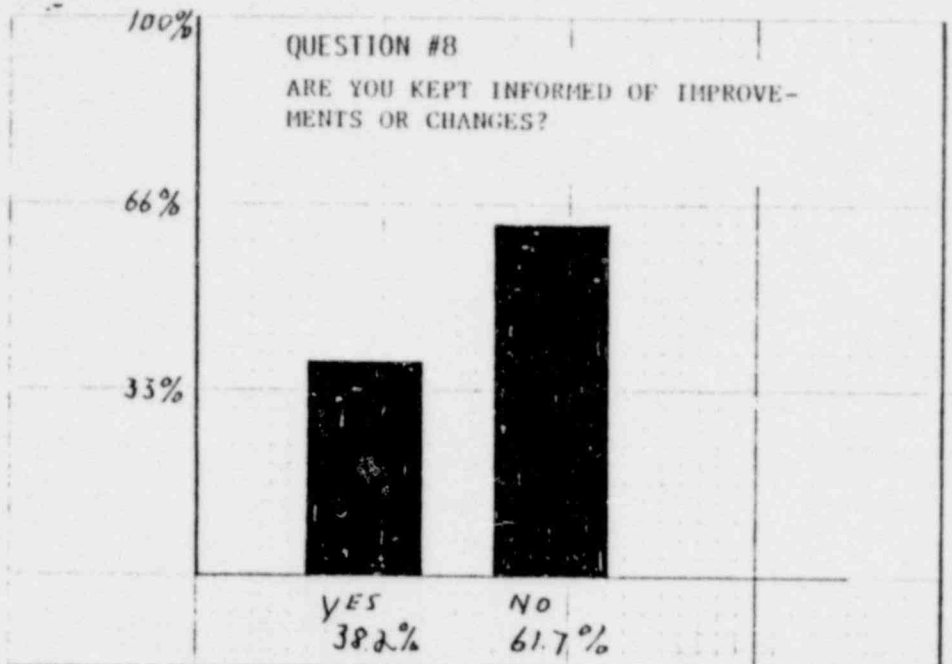

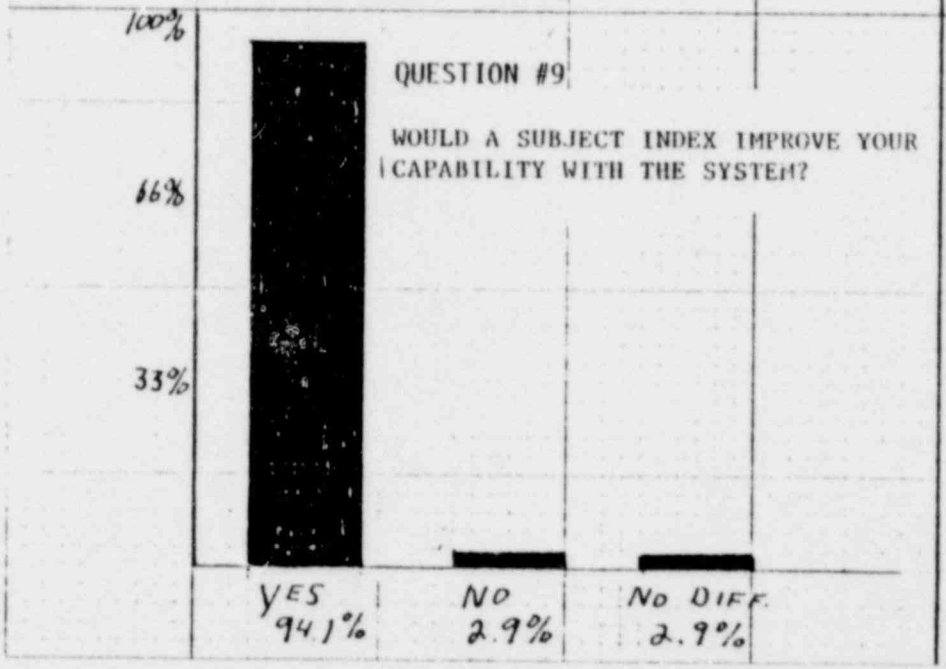

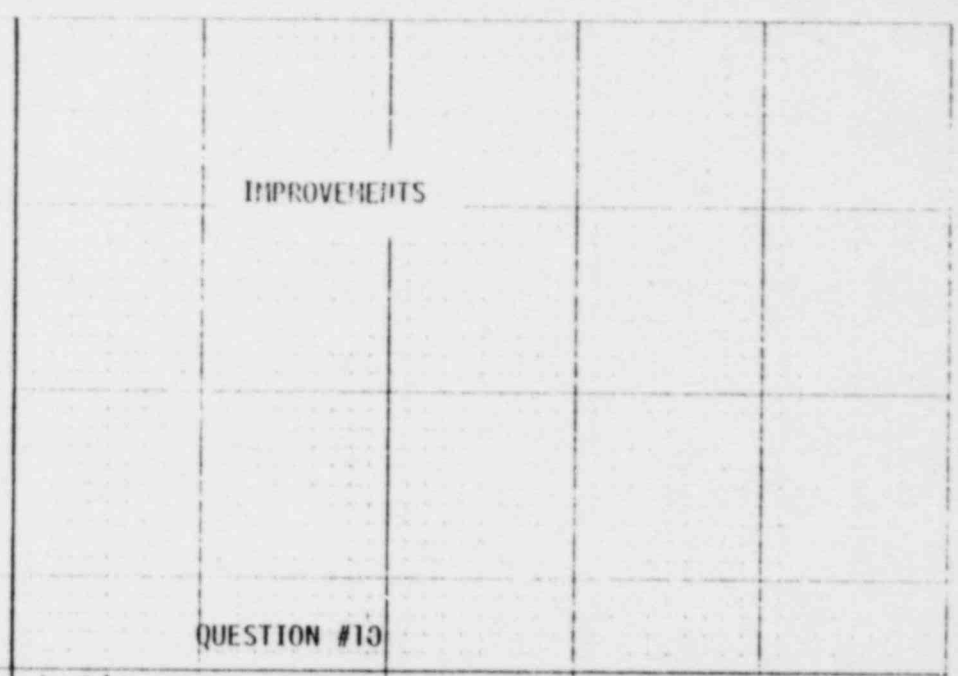

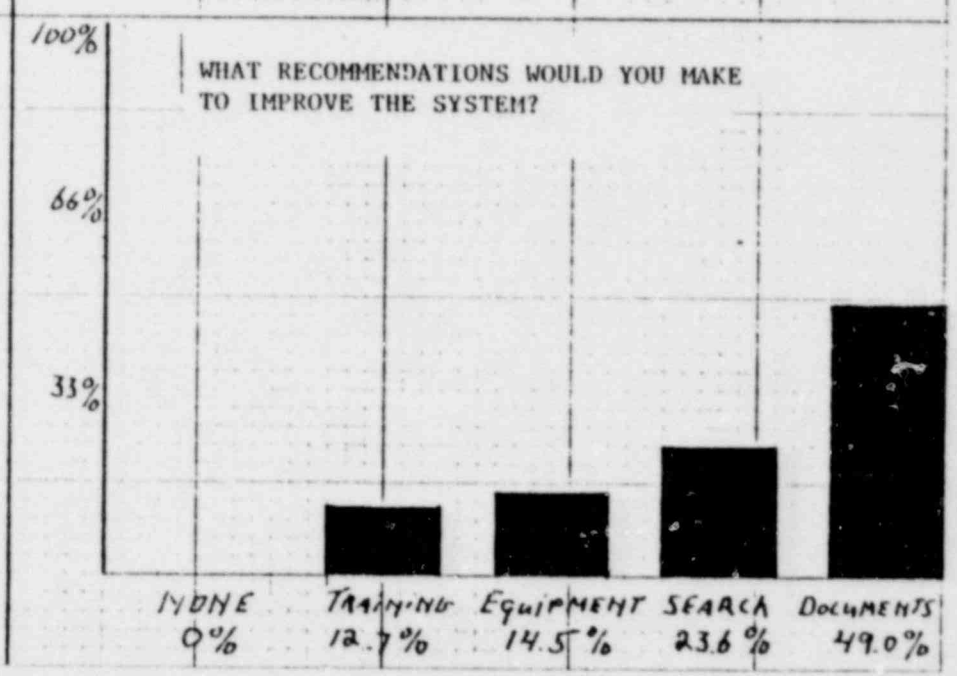

Analysis of Responses to Questions in User Survey

Methodology for MPA Random Survey of Potential DCS Users

To determine the extent of use of the Document Control System, MPA conducted a random telephone survey. Initially, 327 names (approximately twice the number required for the survey pool) were selected at random (using a random number table) from the NRC Telephone Directory. Of those names, 177 were determined not to be current potential users and were eliminated from the sample. Those eliminated included secretarial personnel and personnel from selected offices -- ACRS, OIA, SECY, PA, CON, EEO, IP, and SDBU. The remaining 150 names made up the sample pool. (MPA had planned to interview between 75 and 100 individuals to achieve a 95% confidence interval for the survey results.) When the survey was finished, MPA had interviewed 98 individuals.

The following is a list of the questions asked of each person interviewed and a summary of the responses to the questions:

Question 1: Are you aware of the existence of the NRC's Document Control System, or the TERA DCS as it is sometimes called?
yes -- 95%
no -- 5%

Question 2: Have you taken the TERA training course or any other TERA training?
yes -- 36%
no -- 64%

Question 3: Are you a user of the Document Control System? That is, ... do you use the system at least once a month?
yes -- 26%
no -- 74%

/Questions 4, 5, and 6 were asked only of individuals answering "yes" to Question 3./

Question 4: On the average, how often do you use the system?
daily -- 32%
several times a week -- 20%
about onece a week -- 16%
less than once a week -- 8%
about once a month -- 24%

Question 5: On the whole, are you satisfied with the system?
yes -- 60%
no -- 40%

Question 6: For what work activities do you use the DCS?
administrative -- 16%
technical -- 68%
other professional -- 16%

/Question 7 was asked only of individuals answering "no" to Question 3./

Question 7: What conditions are precluding you from using the system?*
use existing files, or DCS not needed for work -- 64%
no nearby terminals -- 11%
no subject search -- 5%
needed documents not on the system -- 2%
no response -- 18%

*Nonusers found it extremely difficult to respond to Question 7. Because they did not use the system, they were unable to conceive that it had any relation to their work.

Methodology for Survey of Document Control Activities of Other Agencies

The MPA staff surveyed 14 federal agencies. The missions of the agencies were varied, including national security concerns (NSA, CIA, State Department), technical/scientific concerns (NASA, NSF), regulatory functions (FERC, FCC, SEC, ICC), and broader administrative functions (HUD, Justice, GAO, Social Security). Each agency's system was examined as to whether the system was automated, what the primary focus of the system was, the number of documents processed per month, whether certain functions were performed by a contractor or within the agency, the cost of the system, and the number of personnel assigned to maintain the system. The results of the survey are included in Table G-2.

Enclosure A3

Summary of Office Responses
to
September 9, 1980 Deputy Executive Director for Operations Request
For Comments on the Document Control System

EDO staff and program offices and Region V were requested to provide their views on the usefulness of NRC's Document Control System (DCS). All offices were asked to provide their general views of the system and to respond to the following four questions:

1. Are you satisfied with the services that the DCS has provided to your office?
2. To the extent possible, estimate the savings in terms of dollars or staff years per year you achieve now or will achieve when the system is fully implemented.
3. If the DCS were terminated, what effect would that have on your office?
4. What might be done to make the DCS more useful to your office?

The following is a summary of the responses.

General Views on the DCS

1. Most indicated that the DCS has potential for improving the effectiveness and efficiency of their offices and support further DCS development. However, if the DCS is to be more useful, several improvements are needed.
2. None of the offices wanted to discontinue the DCS.
3. The DCS seems to be of greatest value to ADM.

Current Use by Offices

1. Frequent Use

   IE, Region V, ELD, and ADM say that they use the DCS frequently. (Region V has only had the system since the first of August, but their use is continually increasing.)

a. IE

- Used by technical staff to search for documents.
- Used to track all documents related to each Licensee Event Report.
- Supports Operation Center in providing rapid access to documents in the event of an accident at a nuclear facility.
- IE has already begun to remove selected hard copies of documents available in DCS from IE files for future destruction.

b. Region V

- Reduced need to retain and file hard copies of many documents.
- Greatest value to Public Affairs staff in responding to public, press and industry.

c. ELD (DCS provides three services)

- Agency-wide system of little use, other than occasional document searches.
- OELD antitrust document control file used by Antitrust Division to keep track of voluminous documents in connection with Stanislaus antitrust proceeding.
- OELD subject index special file, still under development, will eliminate time-consuming and inefficient manual searches for legal documents.

d. ADM

- Provides accession lists to PDR and LPDR (replaces Document Accession System (DACS) and Central Files accession lists).
- Provides title list and subject index of documents made publicly available.
- LPDR and FOIA branches use DCS to respond to requests in a timely manner.

- Provides Regulatory Information Distribution System (RIDS) for NRR and IE.
- Conversion to microfiche frees additional space and reduces continued wear and tear and possible loss or misfiling of vital records.

2. Occasional Use

NRR, NMSS, SP and AEOD use the DCS occasionally for document searches. Factors that limit their use are:

a. Too many data gaps in system (NRR, SP, AEOD)

b. Not enough video terminals available (NRR, SP, AEOD)

c. No subject search capability (NRR, SP)

d. Slow backfitting process (NRR, SP)

e. Staff's unfamiliarity with system (NRR)

f. NRR in close proximity to docket room (easier and faster to obtain hard copy or review document there)

g. System not user oriented (NMSS, AEOD)

h. Error rate in encoding documents and time lag in entering documents into system considered inordinate (NMSS)

3. Minimal Use

SD, IP and MPA very seldom use the DCS because of:

a. Staff's unfamiliarity with system (SD, MPA)

b. Unsuccessful experience in finding documents (SD, MPA)

c. Easier to obtain correspondence from other sources (IP, MPA)

Suggested Improvements

1. General

   a. Better search strategies, especially subject search (NRR, NMSS, IE, ELD, AEOD, MPA, IP, SP, Reg. V)

   b. More terminals with video screening and hard copying capability (NRR, IE. SD, ELD, Reg. V, SP, AEOD, ADM)

   c. More frequent training (NRR, NMSS, SD, ELD, MPA) and/or office-specific training (NMSS, SD, ELD)

   d. Ensure that all documents are entered into the system on a timely basis and fill in data gaps (NRR, NMSS, SD, MPA, AOED, Reg. V)

   e. Better QA/QC for data entry and coding (NRR, NMSS, ELD)

   f. Improve backfitting process (NRR, SP)

   g. More terminals for each office (NRR, Reg. V)

   h. Faster delivery of microfiche (AEOD, Reg. V)

   i. Establish a feedback loop (e.g., a committee of DCS users) to provide feedback on problems or errors encountered by system users and to assist in the development of new search strategies (NMSS, AEOD)

   j. Ensure that enclosures to correspondence are included in the system (IE, AEOD)

2. Office-Specific

   a. NRR

      - Terminals for all project managers and licensing assistants

- Assign an accession number to all letters, prior to being signed and mailed, for identification purposes to help both staff and licensee when referring to correspondence
- Consolidate like subject matter on each docket (e.g., a listing of the FSAR and ER and all amendments in a docket, a listing of all requests to utility for information from a utility by docket, a listing of all responses for information from a utility by docket, etc.)

b. SP

- Three-year backfitting of documents
- Digital terminal system with up-to-date microfiche of NRC documents available in all of the regional offices

c. Region V

- A second terminal and microfiche reader
- Inclusion of current and historical industry fabrication codes and standards in the system (ASME, IEEE standards, B&PV codes, power piping codes, etc.)

d. ADM

- Continue 24x microfiche backfit to resolve LPDR space problem
- Continue production of Docket 50 microfiche
- Microfiche entire FOIA file
- Expand RIDS to provide a central agency point for receipt, control, and dissemination of licensing information.

Estimated Savings

Most indicated that savings in dollars and staff years will not be realized until some time in the future when the DCS is fully implemented. Some said savings were

minimal. Only a few offices attempted to estimate savings:

1. ELD - 3 staff years per year for Stanislaus antitrust file, 13 staff weeks per year for special subject index
2. Reg. V - Expects 1½ - 2 staff years per year
3. ADM - DCS replaced services for which ADM would have had to pay about $8 million during the last two years. Indicated that return to manual effort would require an additional 10-11 people for RIDS, 15-20 people for PDR lists, and 5-8 people for Records Management.

Effects of DCS termination

1. Great burden on staff for filing, distributing, controlling and copying of records; would definitely require more personnel and space (NRR, IE, ELD, ADM)
2. Increase of lost documents (NRR, IE, ADM)
3. Loss of rapid access to documents which would impair functioning of Operations Center in event of accident at nuclear facility (IE, ADM)
4. Would eliminate only published compilation of information available to public (IP, ADM)
5. Current delivery and document control provided to PDR would stop (ADM)
6. Would impair services provided to the public (Reg. V, ADM)
7. Most LPDRs would have to be moved if microfiche were not available (ADM)
8. Would be forced to revert to pre-1976 methods to handle a volume of paper that has increased by about four fold (ADM)
9. For ADM a number of Divisions would be required to contract for help. Much of that assistance would be duplicative from Division to Division.
10. As DCS stands now, effect of termination would be minimal, but if improved would increase effectiveness and efficiency (SP, NMSS, IP, SD, AEOD)

Suggested Management Improvements

1. In order to make DCS work, NRC management must be fully behind its implementation.(NRR)
2. NRC staff must be fully committed to make DCS work through the difficult adjustment and learning period, so as not to fall back on old ways. (NRR)
3. In order to increase employee awareness of DCS, a newsletter or bulletin should be periodically circulated informing employees of present and future capabilities.(NRR, ADM)
4. Since many people cannot spend the time to attend the TERA training course held in the Ford Building (TERA), TIDC or TERA should hold informal demonstrations, perhaps during lunch time, on terminals in the Phillips Building. (ADM)
5. Use some of our own employees (e.g., those who handle processing, filing, and retrieving documents) to do some of the work TERA is doing. (NRR)
6. A much more careful look must be taken at the type of documents which are being entered into the system to determine if their importance and expected use justify the cost of entering them into the system. (ADM)

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

September 9, 1980

MEMORANDUM FOR: Harold R. Denton, Director, NRR
John G. Davis, Deputy Director, NMSS
Robert B. Minogue, Director, SD
Victor Stello, Jr., Director, IE
Thomas E. Murley, Acting Director, RES
Howard K. Shapar, Executive Legal Director
Norman M. Haller, Director, MPA
James R. Shea, Director, IP
G. Wayne Kerr, Acting Director, SP
Carlyle Michelson, Director, AEOD
Robert H. Engelken, Director, Region V
Daniel J. Donoghue, Director, ADM

FROM: E. Kevin Cornell
Deputy Executive Director for Operations

SUBJECT: NRC'S DOCUMENT CONTROL SYSTEM

We are in the process of assessing the usefulness and costs of NRC's Document Control System (DCS). As you know, the DCS is an automated storage and retrieval system that has been developed and operated for NRC by the TERA Advanced Services Corporation.

We are now contacting members of the staff to determine how widely the DCS is used within the agency. The purpose of this memorandum is to solicit your personal views on the system. In addition to your general views on the usefulness of the DCS, I would be interested in your opinions on the following:

1. Are you satisfied with the services that the DCS has provided to your office?

2. To the extent possible, estimate the savings in terms of dollars or staff years per year you achieve now or will achieve when the system is fully implemented.

3. If the DCS were terminated, what effect would that have on your office?

4. What might be done to make the DCS more useful to your office?

I would appreciate receiving your comments by Friday, September 19. We will give serious consideration to your views in our future deliberations on the DCS. If you have any questions regarding the above, please call Steve Conver, x27721.

E. Kevin Cornell
Deputy Executive Director
for Operations

cc: W. Besaw, DDC