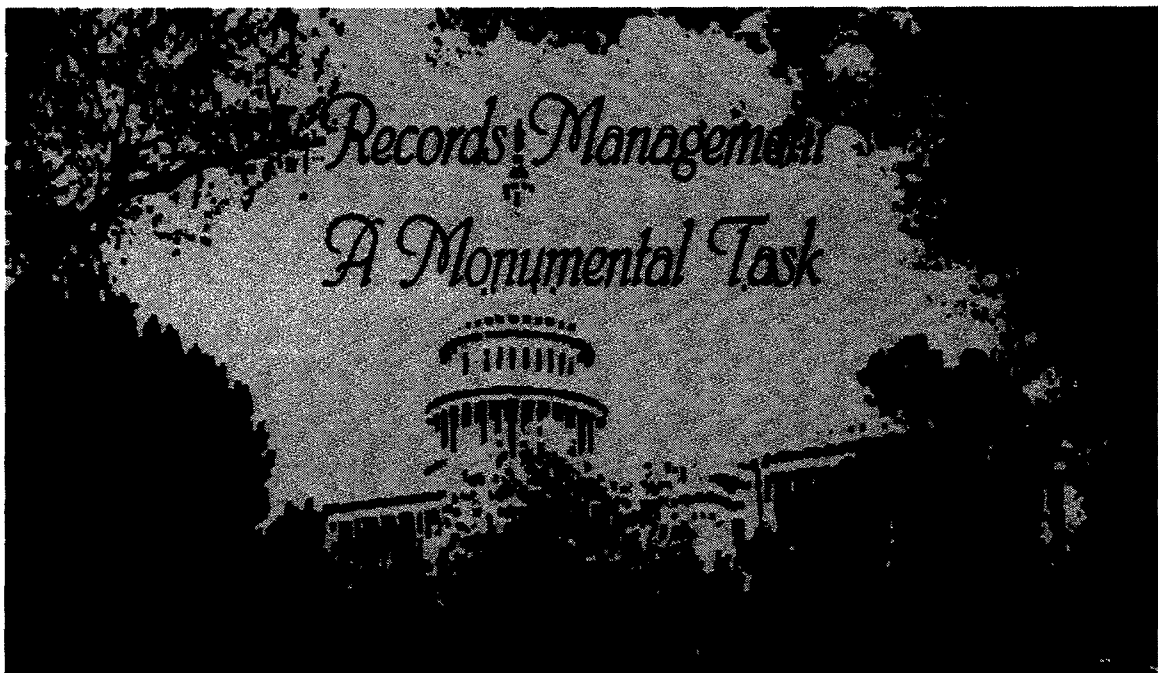


**1998 Department of Energy
Records Management Conference
July 20-23, 1998**

Proceedings



U.S. Department of Energy
Office of Information Management

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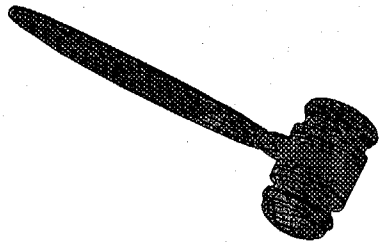
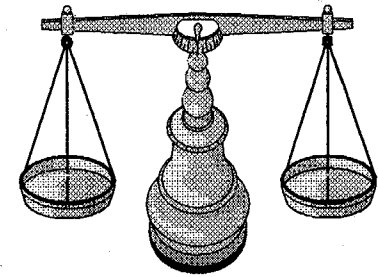
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Laws, Regulations, and Records Management

Gail Ellett
Day & Zimmermann

Federal Records Management

Laws and



Regulations



Day & Zimmermann LLC
Waste Isolation Pilot Plant
Project Records Services
Carlsbad, NM

LAWS

44 U.S.C. Chapter 21 National Archives and Records Administration

- **Section 2102 - created the National Archives & Records Administration**
- **Section 2107 - Acceptance of records for historical preservation**
 - Archivist shall direct the transfer of records from federal agencies to the National Archives
- **Section 2108 - Responsibility for custody, use, and withdrawal of records**
 - Including restricted access, if applicable

LAWS - (cont.)

44 U.S.C. Chapter 29

Records Management by the Archivist of the United States and by the Administrator of General Services

● Section 2901 - Definitions

- 2) "Records Management" means the planning, controlling, directing, organizing, training, promoting, and other managerial activities involved with respect to records creation, records maintenance and use, and records disposition in order to achieve adequate and proper documentation of the policies and transactions of the Federal Government and effective and economical management of agency operations

● Section 2902 - Objectives of records management

- 1) Accurate and complete documentation of government activities
- 2) Control of the quantity and quality of records
- 3) Establishment and maintenance of mechanisms of control with respect to records creation in order to prevent the creation of unnecessary records with respect to the effective and economical operations of an agency

LAWS - (cont.)

44 U.S.C. Chapter 29

Records Management by the Archivist of the United States and by the Administrator of General Services

● Section 2902 - Objectives of records management (cont.)

4) Simplification of the activities, systems, and processes of records creation, maintenance, and use

5) Judicious preservation and disposal of records

6) Direction of continuing attention on records from their initial creation to their final disposition

7) Establishment and maintenance of such other systems or techniques as the Administrator or Archivist considers necessary to carry out the purposes of this Chapter, and Chapters 21, 31, and 3 of this Title

LAWS - (cont.)

- **Section 2903 - Custody and control of property**
- **Section 2904 - General Responsibilities for records management**
- **Section 2905 - Establishment of standards for selective retention of records; security measures**
 - The Archivist shall establish standards for the selective retention of records of continuing value, and assist agencies in applying the standards to records in their custody.
 - Archivist shall notify agency head or Attorney General of unlawful removal or destruction of records.

LAWS - (cont.)

- **Section 2906 - Inspection of agency records**
- **Section 2907 - Records centers and centralized microfilming services**
- **Section 2908 - Regulations**
- **Section 2909 - Retention of records**
 - **Retention period may be extended with proper approval from the Archivist**

LAWS - (cont.)

44 U.S.C. Chapter 31

Records Management by Federal Agencies

- **Section 3101 - Records management by agency heads; general duties**
- **Section 3102 - Establishment of program of management**
- **Section 3103 - Transfer of records to records centers**
- **Section 3104 - Certifications and determinations on transferred records**

LAWS - (cont.)

- **Section 3105 - Safeguards**

→ The head of each agency shall establish safeguards against the removal or loss of records he determines to be necessary and required by regulations of the Archivist. Safeguards shall include making it known to officials and employees of the agency -

- 1) that records in the custody of the agency are not to be alienated or destroyed except in accordance with Sections 3301-3314 of this Title, and
- 2) the penalties provided by law for the unlawful removal or destruction of records.

- **Section 3106 - Unlawful removal, destruction of records**

→ Agencies notify Archivist, or vice-versa, to request action for recovery through the Attorney General

LAWS - (cont.)

44 U.S.C. Chapter 33 - Disposal of Records

- **Section 3301 - Definition of Records**

- ★ Includes all books, papers, maps, photographs, machine-readable materials or other documentary materials, regardless of physical form or characteristics, made or received by an agency of the US Government under Federal law or in connection with the transaction of public business and preserved or appropriate for preservation by that agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations or other activities of the Government or because of the informational value of the data in them

LAWS - (cont.)

- **Section 3302 - Regulations covering lists of records for disposal, procedure for disposal, and standards for reproduction**
- **Section 3303 - Lists and schedules of records to be submitted to the Archivist by the head of each Government Agency**
- **Section 3303a - Examination by Archivist of lists and schedules of records lacking preservation value; disposal of records**
 - a) The Archivist shall examine the lists and schedules submitted to him under Section 3303 of this Title. If the Archivist determines that any of the records listed in a list or schedule submitted to him, do not, or will not after the lapse of the period specified, have sufficient administrative, legal, research, or other value to warrant their continued preservation by the Government, he may, after publication of notice in the Federal Register and an opportunity for interested persons to submit comment thereon . . .

LAWS - (cont.)

18 U.S.C. Chapter 101 Records and Reports

- **Section 2071 - Concealment, removal, or mutilation generally**

→Whoever willfully and unlawfully conceals, removes, mutilates, obliterates, or destroys, or attempts to do so, or, with intent to do so takes and carries away any record, proceeding, map, book, paper, document, or other thing, filed or deposited with any clerk or officer of any court of the United States, shall be fined not more than \$2,000 or imprisoned not more than three years, or both.

REGULATIONS

36 CFR Chapter XI, Subchapter B

PART 1220 - Federal Records; General

Section 1220.1 - Scope of subchapter - prescribes policies for Federal agencies' records management, including creation, maintenance, adequate documentation & proper records disposition.

Section 1220.2 - Responsibility for records management programs:

- NARA (adequacy of documentation and records disposition); AND
- GSA (economy and efficiency in records management).

Subpart A - General Provisions

Section 1220.10 - Authority - *NARA Act of 1984*

Section 1220.12 - Applicability - applies to all Federal agencies

Section 1220.14 - General definitions

REGULATIONS - (cont.)

Section 1220.16 - Reports to the Congress and the Director of the OMB

Section 1220.18 - Inspection of records subject to the Privacy Act of 1974

Subpart B - Agency Records Management Programs

Section 1220.30 - Authority - head of each Federal agency

Section 1220.32 - Program content - requirements to be met

Section 1220.34 - Creation of records - adequate and proper documentation

Section 1220.36 - Maintenance and use of records - ensure preservation and ability to locate

Section 1220.38 - Disposition of records - in a timely manner

Section 1220.40 - Liaison offices - interface with NARA

Section 1220.48 - Agency internal evaluations - periodic self-assessments to determine compliance

REGULATIONS - (cont.)

PART 1222 -Creation and Maintenance of Records; Adequate and Proper Documentation

Subpart A - General

Section 1222.10 - Authority

Section 1222.12 - Defining Federal Records

- A) The statutory definition of Federal records is contained in 44 USC 3301 . . .
- B) Several key terms, phrases, and concepts in the statutory definition of records are defined as follows:
 - 1) ***Documentary materials*** is a collective term for records, nonrecord materials, and personal papers that refers to all media containing recorded information, regardless of the nature of the media or the method(s) or circumstance(s) of recording.
 - 2) ***Regardless of physical form or characteristics*** means that the medium may be paper, film, disk, or other physical type or form; and that the method of recording may be manual, mechanical, photographic, electronic, or any other combination of these or other technologies.

REGULATIONS - (cont.)

Section 1222.12 (B) - Defining Federal Records - (cont.)

- 3) **Made** means the act of creating and recording information by agency personnel in the course of their duties.... The act of recording is generally identified by the circulation of the information to others or by placing it in files accessible to others.
- 4) **Received** means the acceptance or collection of documentary materials by agency personnel in the course of their official duties regardless of their origin (for example, other units of their agency, private citizens, public officials, other agencies, contractors, Government grantees) and regardless of how transmitted....
- 5) **Preserved** means the filing, storing, or any other method of systematically maintaining documentary materials by the agency. This term covers materials not only actually filed or otherwise systematically maintained but also those temporarily removed from existing filing systems.
- 6) **Appropriate for preservation** means documentary materials made or received which in the judgment of the agency should be filed, stored, or otherwise systematically maintained by an agency because of the evidence of agency activities or information they contain, even though the materials may not be covered by its current filing or maintenance procedures.

REGULATIONS - (cont.)

Subpart B - Program Requirements

Section 1222.20 - Agency Responsibilities

Subpart C - Standards for Agency Recordkeeping Requirements

Section 1222.30 - Purpose

Section 1222.32 - General Requirements

Section 1222.34 - Identifying Federal Records

- A) *General* - To ensure that complete and accurate records are made and retained in the Federal Government, it is essential that agencies distinguish between records and nonrecord materials by the appropriate application of the definition of records. . .
- B) *Record status* - Documentary material are records when they meet the following conditions:

REGULATIONS - (cont.)

- 1) They are made or received by an agency . . . under Federal law or in connection with the transaction of agency business; AND
 - 2) They are preserved or are appropriate for preservation as evidence of agency organization and activities or because of the value of the information they contain.
- C) *Working files and similar materials* - Working files, such as preliminary drafts and rough notes, and other similar materials shall be maintained for purposes of adequate and proper documentation if:
- 1) They were circulated or made available to employees, other than the creator, for official purposes such as approval, comment, action, recommendation, follow-up, or to communicate with agency staff about agency business; AND
 - 2) They contain unique information, such as substantive annotations or comments included therein, that add to a proper understanding of the agency's formulation and execution of basic policies, decisions, actions, or responsibilities. . . .
- F) *Nonrecord materials* are Government-owned documentary materials that do not meet the conditions of record status, such as:
- 1) Library and museum material made or acquired and preserved solely for reference or exhibition purposes; OR

REGULATIONS - (cont.)

2) Extra copies of documents if the sole reason such copies are preserved is for convenience of reference, OR

3) Stocks of publications and of processed documents, where the record copy is maintained elsewhere.

Section 1222.36 - Identifying personal papers

Section 1222.38 - Categories of documentary materials to be covered by record keeping requirements

Section 1222.40 - Removal of records

Section 1222.42 - Removal of nonrecord materials

Section 1222.44 - Directives documenting agency programs, policies, and procedures

Section 1222.46 - Recordkeeping requirements of other agencies

Section 1222.48 - Data created or received and maintained for the Government by **contractors**

e) All data created for Government use and delivered to, or falling under the legal control of, the Government are Federal records and shall be managed in accordance with records management legislation as codified at 44 U.S.C. Chapters 21,29,31,and 33, the Freedom of Information Act (5 U.S.C. 552), and the Privacy Act (5 U.S.C. 552a), and shall be scheduled for disposition in accordance with 36 CFR part 1228.

Section 1222.50 - Records maintenance

REGULATIONS - (cont.)

PART 1228 - Disposition of Federal Records

- Subpart A - Records Disposition Programs**
- Subpart B - Scheduling Records**
- Subpart C - General Records Schedules**
- Subpart D - Implementing Schedules**
- Subpart E - Loan of Permanent**
- Subpart F - Emergency Authorization to Destroy Records**
- Subpart G - Damage to, Alienation, and Unauthorized Destruction of Records**
- Subpart H - Transfer of Records from the Custody of One Executive Agency to Another**
- Subpart I - Transfer of Records to the Federal Records Centers**
- Subpart J - Transfer of Records to the National Archives**
- Subpart K - Agency Records Centers**

RECORDS DESTRUCTION MORATORIUMS

- **Epidemiological**
- **Nuclear Weapons**
- **Mound**
- **Hanford**
- **Rocky Flats**

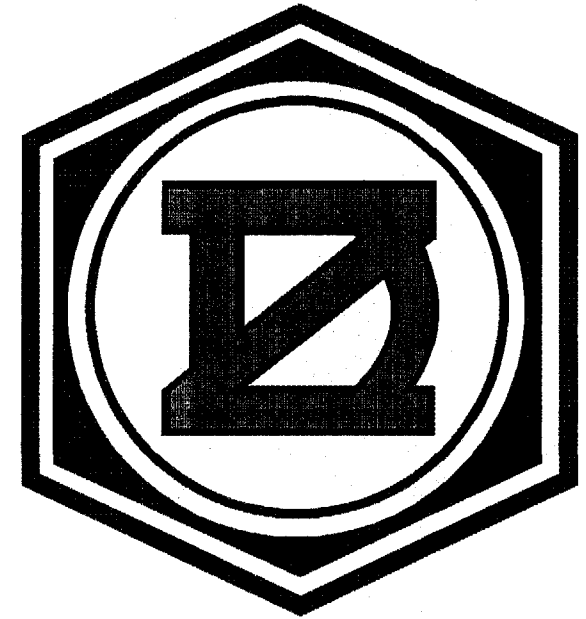
CONSEQUENCES OF FAILURE TO COMPLY WITH THE LAW

- **Loss of Rights**
- **Loss of Time and Money**
- **Obstruction of Justice**
- **Contempt of Court**
- **Adverse Inference in Litigation**
- **Sanctions (\$\$)**

Records Information and General Helpful Tips (RIGHT)

Mike Fox
Day & Zimmermann

*Records
Information &
General
Helpful
Tips*



A Handbook for Records Inventory Field Work

Day & Zimmermann LLC

INTRODUCTION

- **Reference Tools**
- **Common Methods
and Forms**



SCOPE OF ORGANIZATION RECORDS REVIEWS

- **Permitting & Compliance Activities**
- **Compliance with Laws and Regulations**

Records Review Checklist

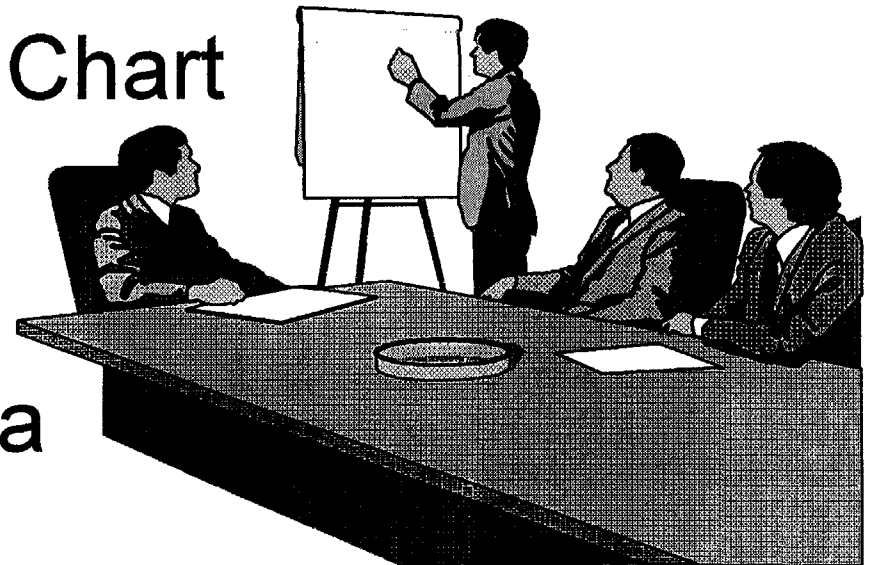
- ✓ **Meet with Organization**
- ✓ **Review and Inventory Centrally Located Files**
- ✓ **Review and Inventory Files Located in Offices**
- ✓ **Provide Interim Status to Organization**
- ✓ **Identify Like Records Series and Match to Existing RIDS**

Records Review Checklist (cont.)

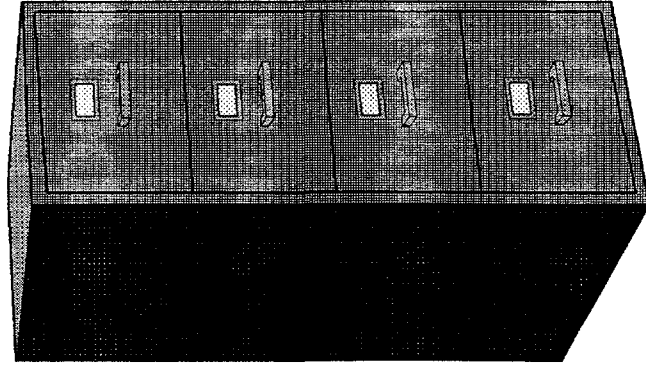
- ✓ Provide Guidance in Updating RIDS
- ✓ Provide Guidance/Assistance in Prioritizing Records to be Processed
- ✓ Provide Guidance/Assistance in Transferring Records to Inactive Storage
- ✓ Provide Guidance/Assistance to Improve Filing Methods
- ✓ Provide Closing Status to the Organization

Meeting With the Organization

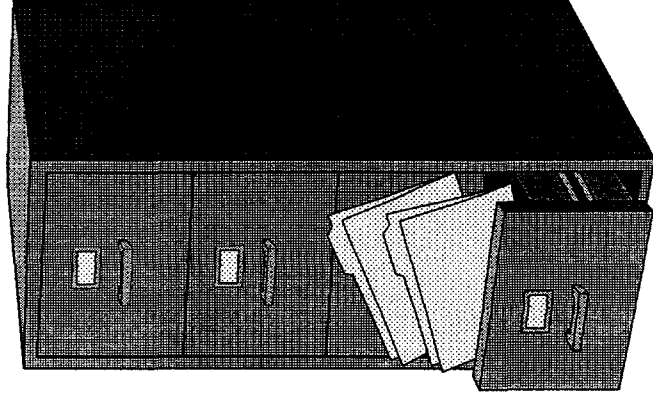
- Explain Process
- Establish Point of Contact
- Obtain Organizational Chart
- Establish Working Area



Inventory Central Files



- Department Name
- RIDS Reference
- Record/Series Description
- Original or Copy
- Year(s) of Record(s)
- Record Location
- Applicable RCRA Section



Inventory Individual Work Areas

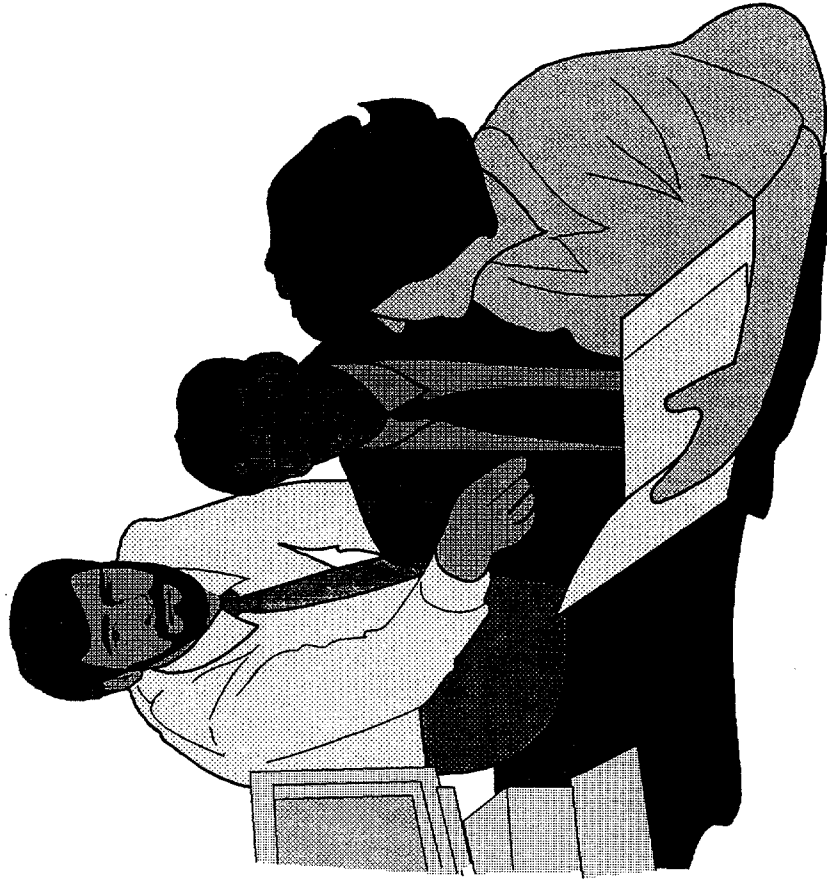
- Individual Files Review Checklist
- Field Inventory Sheet



Updating The Organization

- In-Person

- Written



Identifying Like Record Series

- **Match with Existing RIDS**
- **Non-Matching Records**

RIDS

- Adding and Deleting a Series
- Completing Records Inventory Work Sheet

Prioritization of Records to be Processed

- Destruction
- Transfer to Inactive Storage



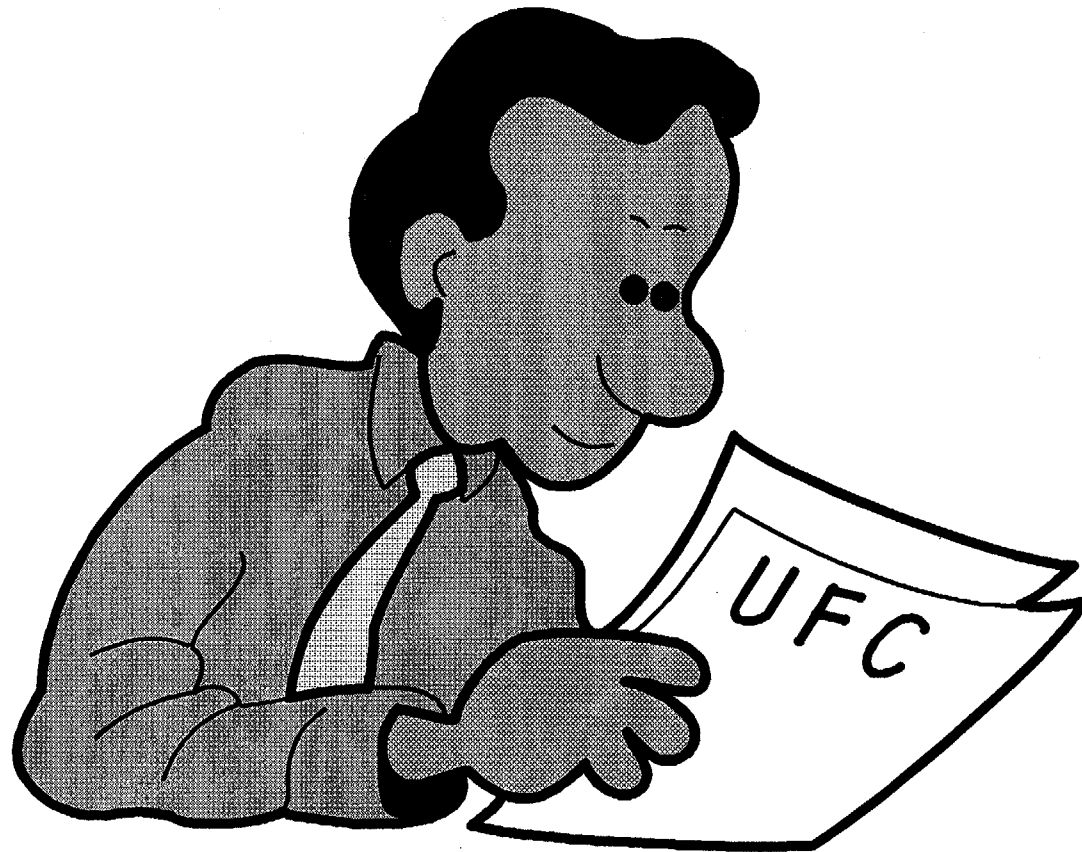
Processing Records For Transmittal to Inactive Storage

- Assisting the records coordinator



Improving Filing Methods

- Identifying Better Practices
- Uniform File Code

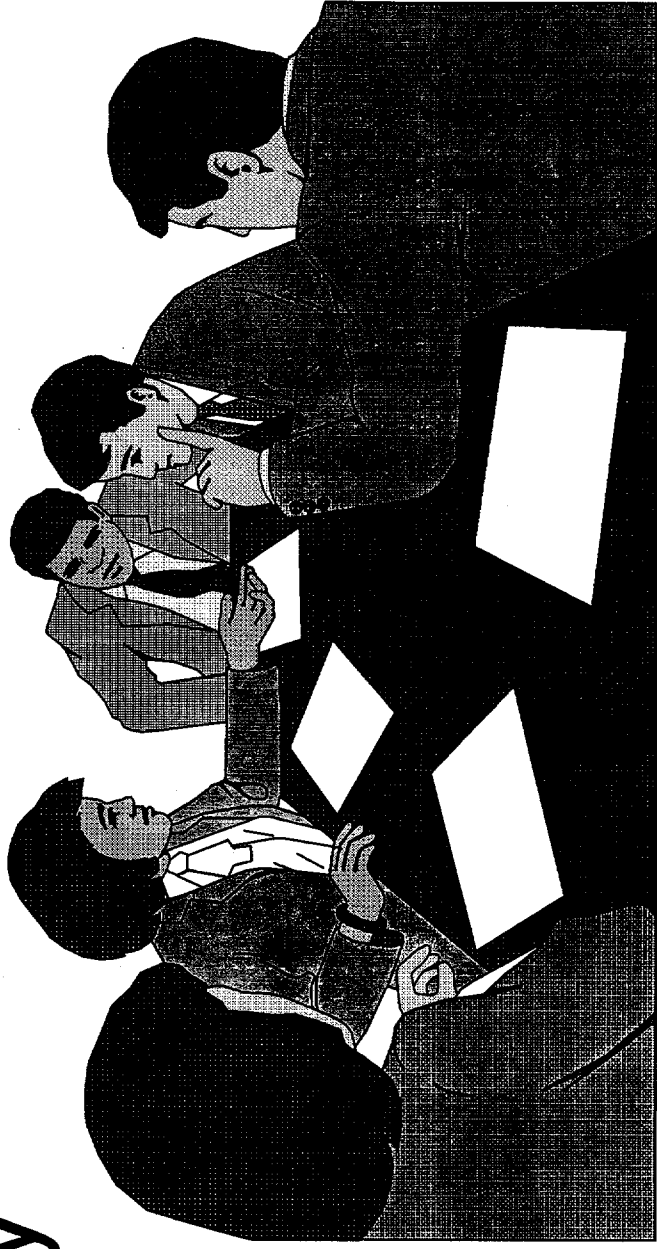


Closing Status to Organization

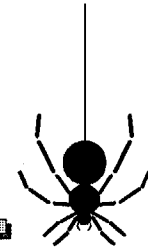
- Inventory

- Memo

- Meeting



Web Site



RIGHT Handbook
for Records Inventory Field Work

Available via the WIPP Technology
Transfer Site:

<http://www.wipp.carlsbad.nm.us/techtran/wipptt.htm>

An Overview of the Internal NARA Review Process for DoD 5015.2-STD – The Records Management Applications Standard

Mark Giguere
National Archives and Records Administration

An Overview of the Internal NARA Review Process for DoD 5015.2-STD - the Records Management Application Standard

**Dr. Mark Giguere, Information Management
Specialist**

**Modern Records Programs, National Archives &
Records Administration**

Wednesday, July 22, 1998, 8:30 A.M. - 10:00 A.M.

US DoE Records Management Conference

Overview

- **Introductions**
- **Memorandum of Understanding**
- **Task 1: NARA vetting of DoD5015.2-STD**
- **Results of internal assessment**
- **Task 2: Evaluation of JITC software certification testing program**

US DoE Records Management Conference

What is DoD5015.2-STD?

- **DoD Records Management Directive**
- **Scope: applies to DoD 'Components'**
- **Specifies design criteria for electronic records management application software**
- **Detailed functional (sub)requirements**
 - E.g., implementing file plans, identifying/filing/scheduling/screening/retrieving records, etc.

US DoE Records Management Conference

NARA Strategic Goals

- **"Ready Access to Essential Evidence"**
 - Strategic Plan, 1997 - 2007
- **1. Essential evidence will be created, identified, scheduled & managed for as long as needed**
 - We will take the initiative with Federal agencies to develop & adopt standards that will make possible the preservation of & access to electronic records of continuing value.

US DoE Records Management Conference

Background

- **12/12/97 MOU between NARA & DoD**
- **“NARA will evaluate the DoD Baseline Requirements for RMAs, with a view towards endorsing the requirements...”**
- **“NARA will review the test & certification program being developed by JITC... to enable NARA to approve the... program & extend its benefits to other Federal agencies...”**

US DoE Records Management Conference

NARA Progress

- **02/98: NARA designates internal team to conduct evaluations necessary to fulfill MOU tasks**
- **05/98: NARA team issues report recommending endorsement of standard (task #1)**
- **2nd/3rd quarters of 98: NARA team conducts evaluation/make recommendation re. JITC certification program (task #2)**

US DoE Records Management Conference

NARA Clarification

- NARA endorsement of standard (i.e., task 1) is separate from, and not equivalent to endorsement of JITC-certified RMA software
- NARA task 2 evaluates JITC certification testing program

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What was DoD5015.2-STD evaluated against?

- 44 USC Chapters 21, 29, 31, & 33
- 36 CFR Chapter XII Parts 1220, 1222, 1228, 1230, 1234, & 1236
- *Requirements for Electronic Recordkeeping in an Office Environment [draft]*
- *Disposition of Federal Records: A Record Management Handbook*
- *Managing Electronic Records: Instructional Guide Series*
- *Agency Recordkeeping Requirements*
- Various NIST FIPS standards

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Team Recommendation

- “The Team recommends that NARA endorse the DoD Standard for use by Federal agencies in acquiring commercial RMA software products or designing systems to carry out records management, subject to certain noted cautions.”

US DoE Records Management Conference

In Task 1, Endorsement = ?

- Non-exclusive
 - Other approaches to RMA’s exist
- Non-binding
 - Other approaches can be used
- Limited
 - I.e., to current version of CFR & standard
- Caveats:
 - DoD 5015.2-STD doesn’t cover entire record lifecycle
 - Endorsement of standard.NE.endorsement of software

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MOU Task #1 Report Details

- **Recommend NARA endorsement of DoD 5015.2-STD**
- **Four cautionary areas:**
 - Intelligent representation of e-mail name
 - Disposition of back-up tapes
 - Version identification
 - Thesaurus for RM metadata
- **'Other Findings & Concerns' @ 11**
 - E.g., Y2K inter-application dependencies
- **'Instances Extending NARA's Guidance' @7**

US DoE Records Management Conference

Where are we now?

- **Informally sharing substantive findings in Task 1 report with DoD representatives**
- **Developing a plan to conduct Task 2 [i.e., evaluation of JITC software certification testing program]**
- **On-site evaluation of testing process before end of '98**

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MOU Task 2 Details

- “NARA will review the test & certification program being developed by JITC... to enable NARA to approve the... program & extend its benefits to other Federal agencies...”
- Evaluate conformance testing procedures
- Evaluate detailed testing reports for certified products
- Go on-site during test to evaluate process & personnel

US DoE Records Management Conference

Thank you!

**Dr. Mark D. Giguere, Information
Management Specialist**

NARA, NWM

mark.giguere@arch2.nara.gov

US DoE Records Management Conference

Federated Collections Synergy Through Sharing

Lowell Langford
Office of Scientific and Technical Information

FEDERATED COLLECTIONS*
SYNERGY THROUGH SHARING

Presented by

Lowell Langford, CRM

Office of Scientific and Technical Information

P.O. Box 62

Oak Ridge, TN 37831

423/576-4372

lowell.langford@ccmail.osti.gov

July 22, 1998

Presented to
Department of Energy
Records Management Conference
Renaissance Mayflower Hotel
Washington, DC

* Federated Collections - <http://kratos.osti.gov/federate/torium.htm>

Abstract

Title: Department of Energy Federated Collections

Author: Robert E. Donohue,* Lowell Langford

Date: July 22, 1998

The DOE research community requires easy and timely access to both current and legacy scientific and technical information in order to carry out the research and development missions of the Department. Using existing information to supplement and support their projects and programs, researchers create new information that expands the scientific and technical knowledge base available for future research activities. Through this cyclic phenomenon, science is advanced, breakthroughs are accomplished, and new technologies, processes, and products are developed. Critical to this process is the sharing of information in a consistent and organized manner to facilitate its reuse by the research community.

At present, the results of DOE-sponsored research are provided to the Department's Office of Scientific and Technical Information (OSTI) for organizing and announcing availability in compliance with DOE mandates; however, there is a great deal of data and information that does not meet the criteria for submission to OSTI that has significant potential value to researchers. This information and the full-text information submitted to OSTI generally resides in repositories at the originating sites, frequently supplemented with organized metadata and full text information residing on electronic databases for site-specific uses. Each organization builds these information systems to meet its own unique requirements, with little regard for the information needs of others who could potentially benefit from the information these systems contain. Information sharing that occurs now is largely performed through many ad hoc, point-to-point system interfaces.

With the migration from paper-based systems to an electronic environment, new opportunities are provided in the sharing and access of information that currently resides in these site-specific information systems through a distributed collections concept that allows for information searching, discovery, and retrieval across systems, greatly enhancing the availability and value of information in the research process.

The Federated Collections project is the proof-of-concept in terms of developing user options, exploring search efficiencies and information access and retrieval capabilities.

To ensure success, this rapid prototyping effort, in the form of a proof-of-concept project, requires the collective expertise and involvement of partners who share the common vision and goals of the STI Program. OSTI is actively seeking collaborators who are willing to participate on the Federated Collections rapid prototyping team.

* bob.donohue@ccmail.osti.gov

Federated Collections - Synergy Through Sharing

The Department of Energy (DOE) research community requires easy and timely access to both current and legacy scientific and technical information (STI) in order to carry out the research and development missions of the Department. Using existing information to supplement and support their projects and programs, researchers create new information that expands the scientific and technical knowledge base available for future research activities. Through this cyclic phenomenon, science is advanced, breakthroughs are accomplished, and new technologies, processes, and products are developed. Critical to this process is the sharing of information in a consistent and organized manner to facilitate its reuse by the research community.

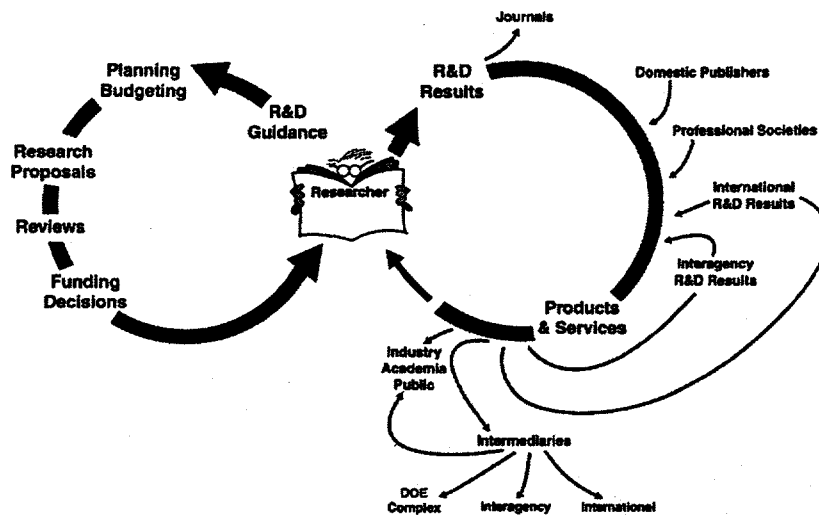


Figure 1 *STI Creation Cycle*

At present, the results of DOE-sponsored research are provided to the Department's Office of Scientific and Technical Information (OSTI) for organizing and announcing availability in compliance with DOE mandates; however, there is a great deal of data and information that does not meet the criteria for submission to OSTI that has significant potential value to researchers. This information and the full-text information submitted to OSTI generally resides in repositories at the originating sites, frequently supplemented with structured metadata and full text information residing on electronic databases for site-specific uses.

Federated Collections may be described on two levels: 1) on a technical level we are addressing multiple-source collections and federating (mapping and merging) them and searching the material as a single virtual collection - that is, one query searches across multiple repositories of STI where ever it may reside ; 2) on another level we are suggesting that each site or laboratory is part of a federation that

has similar interests in the accessibility and preservation of STI. Federation suggests collective sharing of responsibility, accountability and participation in these activities.

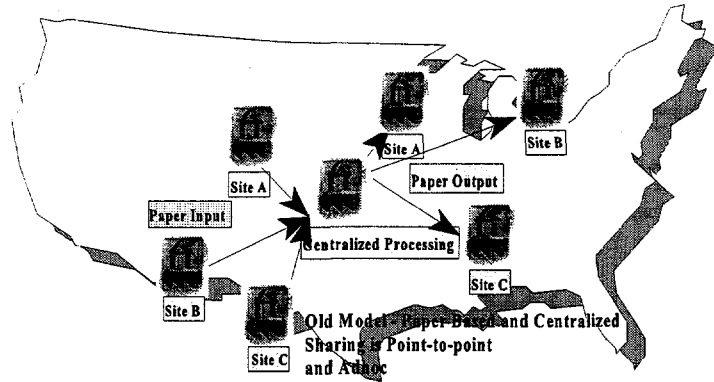


Figure 2 *The Old Model*

The Old Model

Each organization, understandably, builds these information systems to meet its own unique and parochial requirements, with little regard for the information needs of others who could potentially benefit from the information these systems contain. Information sharing that occurs now is largely performed through many ad hoc, point-to-point system interfaces.

The New Model

With the migration from paper-based systems to an electronic environment, new opportunities are provided in the sharing and access of information that currently resides in these site-specific information systems through a distributed collections concept that allows for information searching, discovery, and

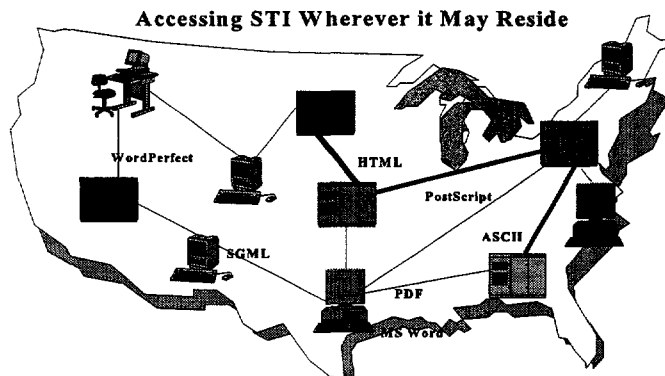


Figure 3 *The New Model*

retrieval across systems, greatly enhancing the availability and value of information in the research process.

Vision

Federated Collections provides an opportunity for those within the Department of Energy's scientific community to realize use of energy-related scientific and technical information (STI) through connected worldwide energy resources. This initiative, a component of the Department's EnergyFiles effort, will also explore how the researcher can access information collections, electronic journals and preprints, applied and engineering standards, database and document delivery services and regulatory, funding information and reference material, accessing STI where ever it may reside. In addition, state-of-the-art tools and technologies that facilitate scientific research and collaboration will be investigated and incorporated.

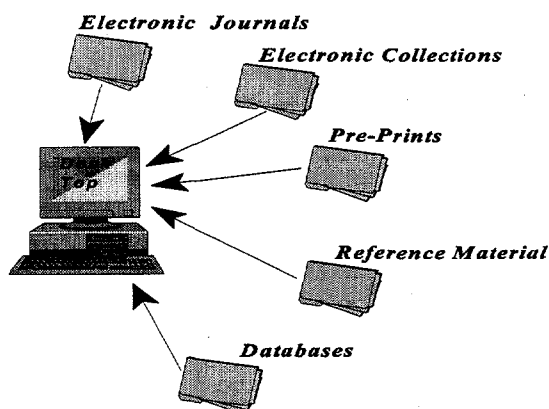


Figure 4 An Objective of this Initiative is to bring Information to the Researcher's Desktop

Architecture

The Internet leverages existing computer networks, extending and enhancing the ability of users to access information quickly and efficiently.

The Internet has become the universal mechanism for accessing and disseminating information. TCP/IP is the universal language of the Internet and is the basis for organizing and linking the vast amount of information available from the Internet. It is not a separate network but rather a set of information servers that can be accessed by client applications to access the data. This data can be text, pictures, sounds, video, or other multimedia format. A significant feature of the Web is its intuitive point and click interface, requiring minimal training, if any, to quickly become a competent user.

TCP and IP, two of the most popular communications protocols today, allow different kinds of computers using different operation systems to communicate with each other over a LAN or a WAN. The term TCP/IP is frequently used to refer to the collection of communication protocols that make up the full TCP/IP protocol suite.

The key facts that have contributed to TCP/IP becoming a universal protocol are the following:

- TCP/IP is based on open and well-published standards, thereby making it easy to write applications based on TCP/IP protocols for any type of operating system
- TCP/IP is not dependent on any specific operating system, and has been implemented for all types of computers, from PCs to mainframes.
- Many TCP/IP protocol implementations and applications are available in the public domain, reducing costs for implementation.
- TCP/IP works effectively and efficiently over a variety of LAN and WAN technologies.
- TCP/IP provides a common set of standard applications to provide services such as electronic mail, file transfer, and remote access to computers.

Because of the user friendly character and universality of the World Wide Web, it provides the optimal foundation for finding, accessing and using STI across the Department.

There are a number of approaches as to how data can be stored, accessed and shared across an architecture based on the Internet: for example, STI documents that reside in directories in the HTTP tree structure and are indexed on a routine schedule; local repositories of searchable indexes that contain pointers to full - text documents; repositories of STI documents that contain metadata that is searchable that are routinely indexed; a searchable repository of metadata that contains pointers to full-text residing in remote dispersed repositories.

For the Federated Collections Pilot, the team chose to establish a central index of searchable metadata with pointers to full text STI because we believe it provides the most efficient way of establishing the functionality needed to discover STI quickly and inexpensively over a distributed network of document repositories. It also entails the least cost, overhead and effort for organizations to participate. In one case, a participating organization's repository of STI was identified, and the OSTI technical staff quickly created a Python script to extract it's Standard Generalized Markup Language (SGML) encoded metadata and add it to the central, searchable, index of metadata - all without any resources expended by the participating site.

Providing researchers and scholars with readily accessible information about the existence and location of materials held continues to be an important and valued feature of bibliographic databases; in contrast to the state of the Internet where the functionality of full text searching may be characterized as difficult, inexact and tiresome. And while the available information on the Internet is typically unstructured, increasing the difficulty of finding information, many information objects are simply not amenable to access via the Internet, such as repositories of paper, video, microfiche, microfilm and art where metadata may be the only means to determine the existence and location of these materials. As the enabling technology matures and becomes widely adopted for full text search across distributed repositories of information objects, bibliographic searching, which implies a standard metadata structure, we believe, remains the viable option of determining the existence and availability of information - and this, in conjunction with the availability of full text, provides an extremely powerful tool for our STI consumers.

Federated Collections will allow the DOE STI Community to:

- Publish once where many can access and read at the point of origin.
- Deliver information when the user wants it and in the form the user wants it.
- Facilitate sharing of information among information producers and information users
- Deliver quality information
- Manage scientific and technical information as a DOE-wide resource

Based upon the solicitation of user requirements and needs, this system should be based on the following requirements and characteristics.

- System response time should be within two seconds of entering queries for data
- System should be reliable
- System should be easy to use.
- Information should be easily shared among participants
- System should provide guidance, including online help
- System should be cross platform
- System should be scalable
- System should be reliable over WANs
- System should promote information integrity and security
- System should use commercial off the shelf or government off the shelf software where possible
- System should address heterogeneous document/data access
- Query Interface should be unified, consistent and seamless
- The system should be as non-invasive as possible, both to current and legacy collections.
- The system should ultimately be non-proprietary.
- Documents should be hosted and managed by the organization that created them

Federated Collections - Pieces to the Puzzle

- Shareable STI in DOE information systems
- The information repository and the access mechanisms used by participating systems

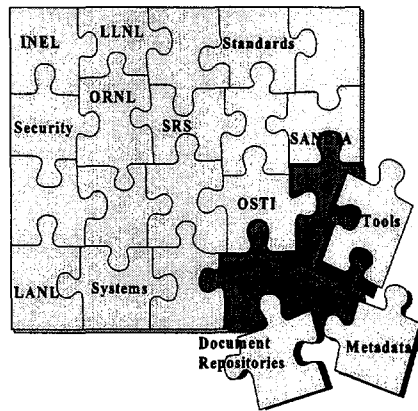


Figure 5 Pieces to the Federated Collections Puzzle

- Methods and tools, e.g., metadata, for accessing STI that are shared across the Department
- A repository system for storing this metadata and making it accessible at the point of origin
- Tools for creating, maintaining, and using the metadata
- Tools and procedures for controlling user and application access to common repositories of STI
- Standard tools and procedures for administering and maintaining shared repositories of STI
- Mechanisms for ensuring the security and integrity of the Department's STI.

What Have We Accomplished To Date?

The Los Alamos National Laboratory (LANL), Bechtel Hanford (BHI), SANDIA National

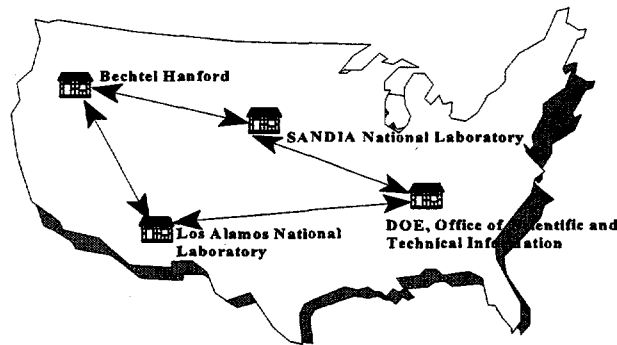


Figure 6 A DOE Office of Scientific and Technical Information and National Laboratory Collaboration

Laboratory (SNL) and OSTI have conducted a proof-of-concept pilot that takes the first step towards realizing a truly distributed capability to search via a single user interface among widely distributed repositories of information.

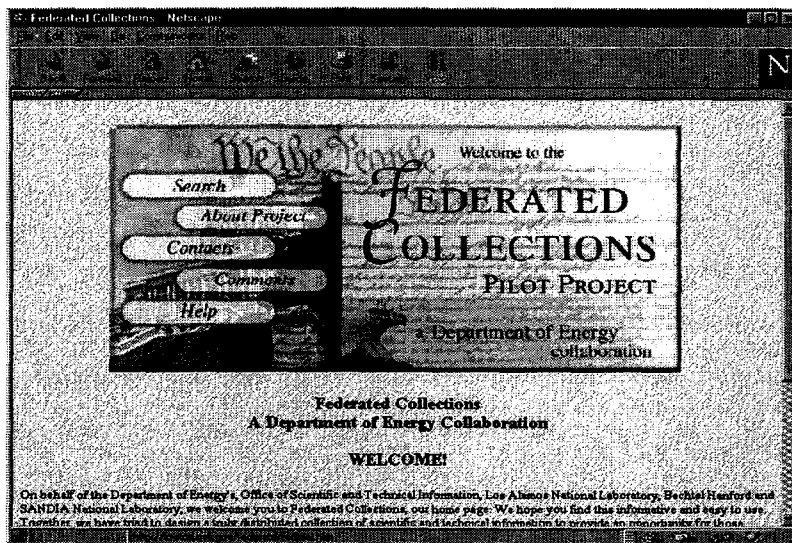


Figure 7 The Federated Collections Home Page -
<http://kratos.osti.gov/federate/federal.htm>

Over a period of six months, each pilot participant provided a sub-set of scientific and technical documents to be used as a test information set. In addition to the pilot document test sets, LANL provided their knowledge and experience in search and retrieval technologies while SNL and BHI provided their significant expertise in technical information issues and management.

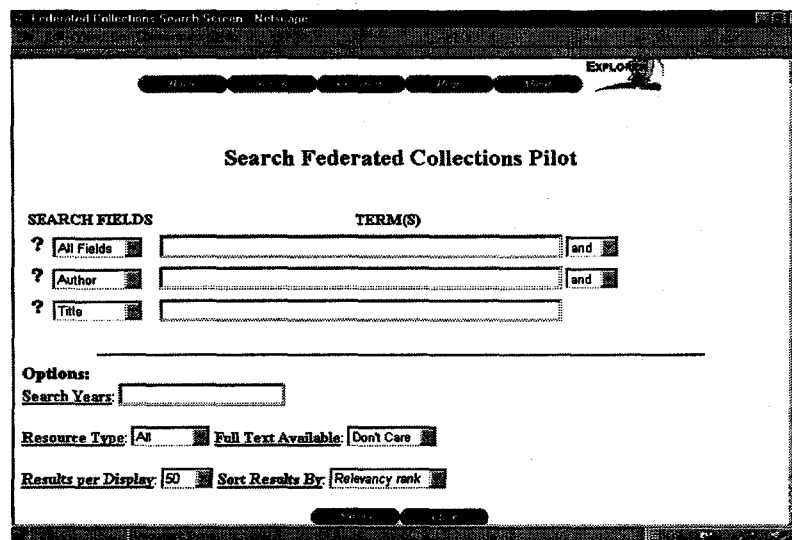


Figure 8 Search Interface for the Federated Collections Pilot

Meanwhile, the DOE, Office of Scientific and Technical Information contributed resources in the development of the user interface design and experience in deploying applications on the Internet.

The approach the Federated Collections Team agreed upon was to rapidly establish a working prototype and then continue to enhance it, evolving the prototype to reflect the requirements

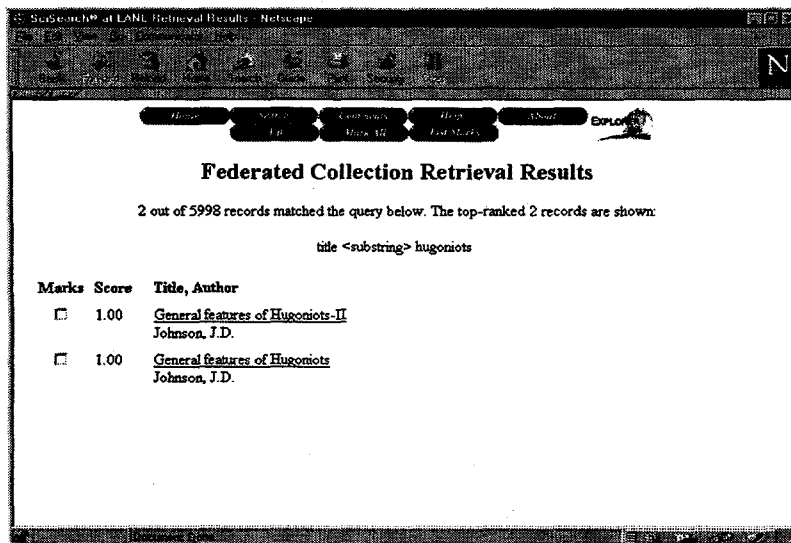


Figure 9 Federated Collections Retrieval Results

and team vision. This distributed search and retrieval system is based upon Verity's Search 97 and Innovative Web Applications Explorer, using metadata extracted from the DOE, Office of Scientific and Technical Information's database of scientific and technical information bibliographic

```

<TITLE>Preliminary Hazard Classification for the 100-d
Site Remediation Project (Group 2)</TITLE>
<AUTH>D. K. Oestreich</AUTH>
<PUBDT>19961115</PUBDT>
<URL>http://www.bhi-
erc.com/library/bhi/bhi00913.pdf</URL>
<DOCTYPE>Report</DOCTYPE>
<AB>This document provides the preliminary hazard
classification for the 100-D Group 2 Sites Remediation
Project. This report provides project description
information in sufficient detail to support the assumptions
and conclusions as provided in this preliminary hazard
classification. The 100-D Group 2 Site Remediation
Project is targeted at excavation of contaminated soils
from nine waste sites in the 100-D Area and the
transportation of these wastes to the Environmental
Restoration Disposal Facility.</AB>
<DE>preliminary hazard classification; Hanford Site;
100-D; material-at-risk</DE>

```

Figure 10 Sample Metadata

citations as a central, searchable index. Embedded in the metadata are uniform resource locators that point to documents that reside on remote repositories at OSTI, LANL SNL and Bechtel - Hanford.

While the metadata for the pilot is currently derived from OSTI's database of bibliographic information, other metadata schemes are being investigated including the Dublin Core.

The Dublin Core constitutes a important consensus building effort by library, information management, networking and digital library communities, on a global scale, to develop a basic set of 15 data elements that facilitates the discovery and access of information on wide area networks, like the Internet (http://purl.org/metadata/dublin_core). In fact, OSTI is evaluating the Dublin Core as an alternative to its current metadata scheme that includes 160, or more, data elements. The user search interface provides the user flexibility and speed in using sophisticated search techniques to rapidly narrow a query to find information rapidly and accurately.

The search interface also provides the user the option to search upon subject, title, author, institution and report number. Boolean combinations are available as well.

The retrieval results provide ranking and relevancy, as well as the title and author. Once a document is selected, the user will see the bibliographic citation as well a pointer to the full-text document residing at the institution that is currently holding the document (see below). One of the interesting unintended outcomes of the pilot was to show that there is, indeed, duplication of processes to create electronic documents among the participating sites; researchers will find, based on a single query, the same electronic full-text residing at a number of sites of distributed repositories - just one of the redundancies that can be eliminated.

General features of Hugoniot-II
Johnson, J.D.
Jan 31, 1997

Report No(s): LA--13217-MS
Doc. Type: Report (18 p)
Description: SHOCK WAVES/frankine-hugoniot equations; SHOCK WAVES/differential equations; EQUATIONS OF STATE; THERMODYNAMIC PROPERTIES
Institution: Los Alamos National Lab., NM (United States)
Abstract: The author has derived a differential version of the Principal Hugoniot jump relations for a shock wave. From this algebraic equation, relating equation of state and $U(\text{sub } s) - U(\text{sub } p)$ Hugoniot variables, I explain the general features of the Hugoniot, including two regions of linearity, limiting forms, and insensitivity to shell structure.

Full-text of article available at:

OSTI: <https://spollo.osti.gov/cgi-bin/finderate?field=BC&data=M97003311>
LANL: <http://fb-www.lanl.gov/la-pubs/00326189.pdf>

The above data are extracted from the Energy Database of OSTI Copyright © 1997.

Figure 10 Bibliographic Citation and Source of Documents

Challenges

Federated Collections is the first, in a series of steps, toward building consensus on the technical and organizational requirements for future iterations of an increasingly sophisticated system of distributed and shared scientific and technical information repositories. The challenges are many and, not surprising, the least daunting of those challenges reside in the technical arena. With the right organizational support, processes, participants and technologies, Federated collections will grow to be a robust foundation for future expansion that will enable users within the Department to access STI collections where ever they may reside.

Challenges that Federated Collections should address in the near term are:

- Investigation, testing and implementation of a metadata standard
- Investigation, testing of information brokering technologies
- Full-text indexing
- Security - firewall issues, authentication, access and digital certificates/signatures
- What constitutes a record or true copy?
- PURL - or equivalent system to address the need to manage the problem of drifting URLs.
- Increased participation and commitment of stakeholders

Key Products:

EnergyFiles

<http://www.doe.gov/EnergyFiles>

DOE Information Bridge

(DOE and DOE Contractor Website)

<https://apollo.osti.gov/dds>

DOE Information Bridge

(Public Website)

<http://www.doe.gov/bridge>

DOE R&D Project Summaries

<http://www.doe.gov/rnd/dbhome.html/>

OpenNet

<http://www.doe.gov/osti/opennet/opennet1.html>

DOE Home Page

<http://www.doe.gov>

Technical Standards Program

<http://apollo.osti.gov/html/techstds/techstds.html>

DOE Reports Bibliographic Database

<http://www.doe.gov/dra/dra.html>

Electronic publications

Full-text DOE document delivery

Scientific software products

Classified dictionary and thesaurus

Technical Information Monitoring System

Energy Science and Technology Database

Nuclear Science Abstracts

Program Specific Web Sites

Key Services:

Information technology applications

Repository for DOE-sponsored R&D reports

Web site design and maintenance

DOE Scientific and Technical Information
Program coordination

Energy Science and Technology Software
Center

Electronic arts and publications services

Electronic journals access

Machine-generated translations

U.S. Representative to international
organizations (IAEA/INIS and IEA/ETDE)

Operating Agent for multinational exchange
(ETDE)

Systems design, development, and maintenance

Document request and delivery services

Information search and retrieval systems

Classified information service

For further information on accessing or using
OSTI's products and services, please contact:

DOE Technical Information Services
Office of Scientific and Technical Information
P.O. Box 62

Oak Ridge, Tennessee 37831

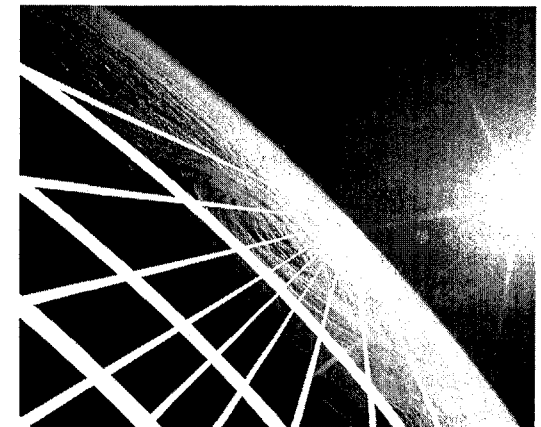
Telephone: 423-576-8401

or visit the Information Resources page on
OSTI Web site at:

<http://www.doe.gov/osti/resource.html>

U.S. Department of Energy

**Office of Scientific and
Technical Information**



***Bringing
Science Information
to the Desktop***

Office of Scientific and Technical Information (OSTI)

Bringing Science Information to the Desktop

Service to Customers:

OSTI brings timely science information to the desktop of users in government, industry, academia, and the public.

Over 900,000 users served annually with:

- Fast, free, and instantly searchable and retrievable full-text electronic information;
- Worldwide scientific and technical energy information;
- Information expertise and tools to accomplish effective information analysis.

A key contributor to DOE's science mission, OSTI:

- Meets DOE mandates to broadly disseminate results of its R&D missions, including interagency requirements;
- Serves as U.S. representative to multinational organizations, leveraging R&D investment to gain U.S. access to worldwide energy information;
- Facilitates Departmental access to scientific and technical information through innovative application of information technologies.

OSTI is a Hammer Award recipient with over 50 years of service in disseminating scientific and technical information.

OSTI's Information Resources:

OSTI is a national resource of energy-related research and development information, and has the world's most comprehensive collection of energy-related scientific and technical information, including:

- Over 1.5 million full-text reports of energy research in a centralized repository, over 27,000 accessible electronically, 14,000 added annually.
- Approximately 5 million electronically accessible, indexed, and organized references citing DOE and worldwide energy research results. About 150,000 added annually.
- World's largest collection of information on nuclear energy, dating back to the Manhattan Project.
- Sole source of specialized collections containing results of closed-out projects.
- Data systems that provide accountability for the results of DOE's annual \$6 billion R&D investment.
- Highly skilled staff of scientists, engineers, information experts, and computer and systems design specialists.

Strategic Direction:

The Vision:

- Transition to a fully electronic environment.

- Create a fully functional virtual library environment.
- Build the foundation for a National Library of Energy Science and Technology.

Major Projects and Initiatives:

- **EnergyFiles**—the umbrella under which the Department's information resources are linked and accessible electronically
- **Information Bridge**—access and delivery for 27,000 full-text DOE reports (1.5 million pages)
- **Research and Development Tracking System and Project Summaries**—descriptions of active DOE research projects to the public and Departmental accountability for its R&D investment
- **Machine Translations**—capability to translate foreign literature into English
- **Push Technologies**—automatic user notification of new developments and materials in a specific area of interest
- **Electronic Journal Access**—consolidated access to published literature for a potential cost avoidance of \$8 million annually (currently available to DOE HQ, soon DOE-wide)
- **Federated Collections**—mechanism for searching information residing at multiple sites with a single inquiry (available in 1998)

**Challenges and Solutions to Downsizing
and Realignment –
The Oak Ridge Y-12 Plant**

Connie Malarkey
Betty Robinette
Lockheed Martin Energy Systems

Challenges and Solutions to Downsizing and Realignment - The Oak Ridge Y-12 Plant

Presented by
Connie Malarkey and Betty Robinette
at the DOE Records Management Conference
Washington, DC
July 21, 1998

Managed by Lockheed Martin Energy Systems, Inc.
for the US Department of Energy
under contract DE-AC05-84OR21400

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Once Upon a Time...

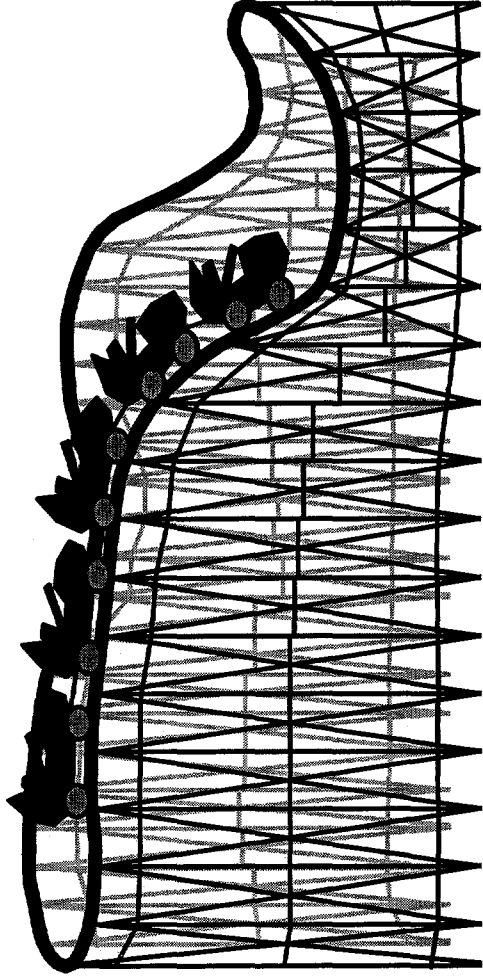
- Single company consisting of 20,000 people, five sites, three states
- Broadly based contract with diverse missions - Energy R&D, Environmental Management, Defense Programs, and the re-industrialization of a former gaseous diffusion site
- Established corporate records management system with decentralized implementation
- Single enterprise-wide records management application - Electronic Information Content Management System (EICMS) being implemented in a phased approach for entire company

Design Expectations for EICMS

- Capture consistent metadata on active and inactive records, regardless of location, for efficient retrieval
- Automate records center operations
- Eliminate redundant processes
- Automate records analysis and records custodian reviews
- Desktop access to records metadata
- Facilitate control at document level for select documents and automate document transfers/receipt functions

Change Happens

- Contract reform and reengineering
- Decreasing budgets and downsizing
- Outsourcing and privatization
- Shutdown of selected production processes
- Increased need for local and external access and delivery of records, sometimes in electronic format (Health Studies, NWIG)



Reconfiguration

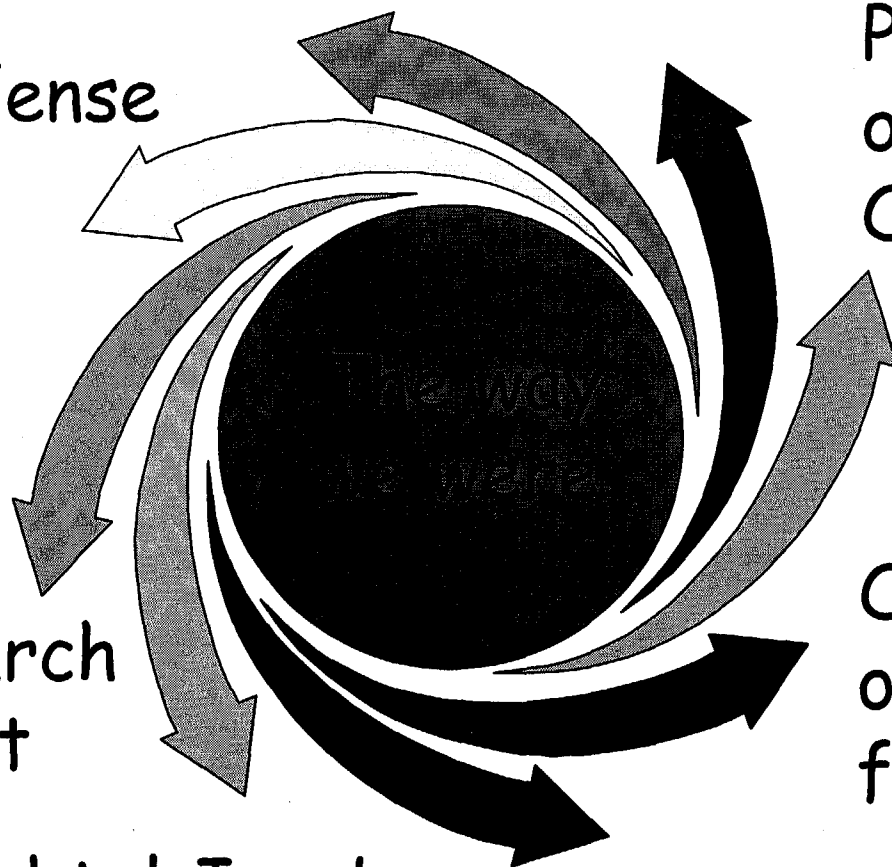
LMES = Defense Programs

Privatization of Computing Organization

LMER = Research & Development

Outsourcing of some functions

Bechtel Jacobs
= Environmental Management



Realignment Issues

- Split contract and company into multiple companies and contracts
- Changed custodianship for records - required identification of records and forms transferring as well as those staying
- Some shared information systems and legacy records split
- Contractor owned records removed
- Split resources from central and shared services
- Established agreements for continued access and retrieval of legacy records - metadata on records even more critical now

Challenges

- Environment
- Aging facilities and inadequate infrastructure to meet today's needs
- Changing workforce/loss of expertise
- Extreme budget reductions
- Continued moratorium on records destruction
- Minimal metadata on records existed but increasing demands for searches
- Partially classified environment
- Weapons records declared vital by DOE

Rising to the Challenge

■ Partnerships

- established Weapons Records Archiving Program (WRAP) and published multiple planning documents
- through NWIG, collaborated with other NWC sites to develop a strategy for weapons information
- collaborated with “techies” to address electronic records and technology issues, especially in the area of archiving
- partnered with line organizations at Y-12 to meet their needs with existing tools like EICMS
- utilized GPO and other DOE sites for procurement of microfilming services
- developed working relationships with new companies in support of mutual goal to protect and preserve DOE records

Rising to the Challenge continued

- Management activities
 - evaluated and responded to impact of changes
 - reengineered records management processes @ \$450K/yr savings
 - captured corporate knowledge of staff where loss was imminent
 - supported review and evaluation of records management processes and infrastructure
 - determined that similar efforts within company should be integrated and supported
 - proposed a strategy for determining which weapons records were vital

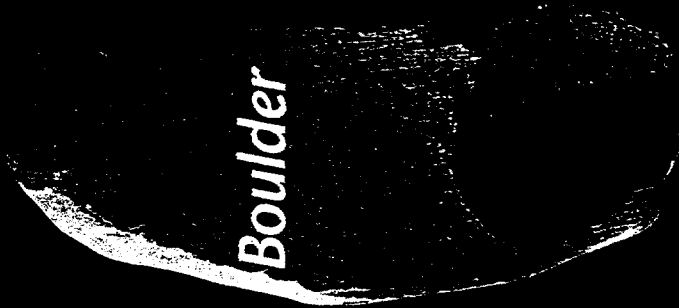
Draft Vital Weapons Record Definitions

Vapor

Rock

Boulder

Avalanche



Draft Vital Weapons Record Definitions

- ▶ **Vapor** – No Y-12 weapons record is vital
- ▶ **Pebble** – Y-12 records that document QA requirements and data for specific weapons in the enduring stockpile.
- ▶ **Rock** – Y-12 records that document QA requirements and data for specific weapons, parts, materials, production streams and processes for weapons in the enduring stockpile



Draft Vital Weapons Record Definitions (cont'd.)

- ▶ **Boulder** – Same as rock, but not limited to enduring stockpile (i.e., includes every weapon program and every phase of production for past 50 years)
- ▶ **Avalanche** – All Y-12 records that relate to weapons, parts, processes, materials, etc.



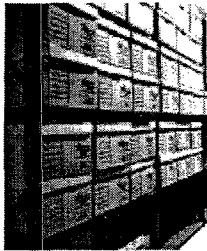
Reengineering Activities

- Evaluated procedures, processes, equipment and people for strategic and operational opportunities
 - Eliminated in-house microfilming
 - Automated records processes through use of EICMS and bar coding
 - Automated company forms, reduced forms inventory and retired archival collection
 - Eliminated paper distribution of some records
 - Implemented desktop access for some functions

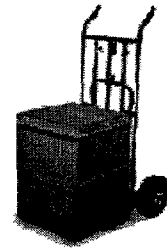
Rising to the Challenge continued

- Technology activities
 - capitalized on the development of EICMS to help transition and support restart efforts for shutdown processes
 - developed web-based desktop applications to streamline tasks
 - introduced bar coding in records center
 - expanded functionality of EICMS
 - developed a preliminary technical architecture for capturing and preserving weapons records

EICMS



Welcome to the **EICMS** *Home Page*



Electronic Information Content Management System

Computerized Bar-coded information management process providing:

- Improved access to information
- Greater in-depth knowledge about information
- Higher efficiency in the information management process

Stores information in all physical formats:

- Documents, forms, notebooks
- Videos, photos
- Books, presentations

Information is managed through the entire life cycle:

- Active use
- Inactive storage
- Disposition

Information is managed according to your requirements:

- Classification
- Retention periods
- Controls

One-point management and query of all records

- Interfaces with fulltext products for on-screen viewing of records


RAILS: Web access to Documents and Document Information

 **Built on an ORACLE Database**


EICMS Data Dictionary

 **CASE Tools Technology:**

Client/Server Interface uses Composer, an IEF product written by TEXAS INSTRUMENTS and recently acquired by Sterling Software.

 **Bar-coded data collection:**

INTERMEC JANUS®
Portable Radio frequency connectivity.

 **More about EICMS:**

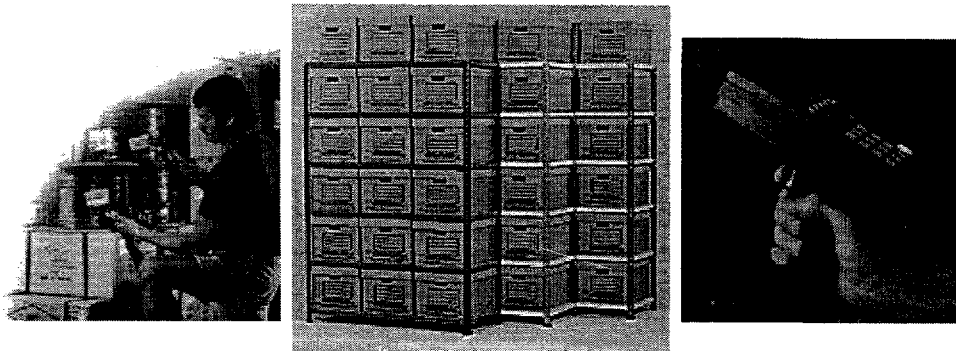
EICMS Database
EICMS Client/Server interface
Search Tool - ACCESS
Implementation History and Planned Enhancements

EICMS is a Lockheed Martin Energy Systems software product.

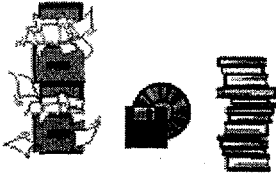


Sponsoring Organization: Information Management Services division.
Administrative Contact: Lola Roseberry, e-mail: lmj@ornl.gov, phone: (423) 241-3049
Developed by: Software Engineering Group in Data Systems Research and Development
Technical Contact: Rick Lewis, e-mail: rli@ornl.gov, phone: (423) 574-3905.

Web Page created by: Katy Kendall, e-mail: kpk@ornl.gov, phone: (423) 574-3923.



Last Modification: .



RAILS

Records and Information Locator System

Welcome to the RAILS World Wide Web Interface! What exactly are "records", and why are you here? [RAILS Instructions](#) answers this and other questions regarding the inventory management of records.

The records information you are viewing is for **BK ROBINETTE (Badge: 017878)**.

● ***RAILS Functions Available Now***

- [Update Your Nonrecords Inventory](#)
- [View/Modify Your Current Records Series Inventories](#)
- [Add a New Records Series to Your Inventory](#)
- [Delete Existing Records Series from Your Inventory](#)
- [Review Your Records that are Eligible for Destruction](#)
- Request further assistance from [Records Analysis](#)
- [Records Management and Document Control](#) provides policy, procedural guidance, and information on records series retention.

● ***RAILS Phase II Functions (Coming Soon!)***

- Transfer Records to the Site Record Center for Storage

[LMES Internal](#)

RAILS V1.1

Provided by Information Management Services * [Comments/Questions](#) [Records Analysis](#)

Created by the [DMSI Web Development Team](#)

Revised 8/1/97

[About RAILS](#)

RAILS: View/Modify Records Series Inventories

The records shown below are under the ownership of **BK ROBINETTE (Badge: 017878)**.

Please select the record that you would like to view or modify. When you have made your selection, click on the "Select Record Series Inventory" button at the bottom of the page.

Select	Series Inventory Title	Description
<input type="radio"/>	Central Policy Manager (CPM) File	This file consists of the programmatic documentation for the Central Policy Manager for Information Flow and Operations. It is comprised of those programs and processes that identify, integrate, administer, implement, transmit, assess, and train to requirements for information management so that information is managed as a DOE/corporate resource.
<input type="radio"/>	General Administrative Files	These files relate to the internal administration activities of the office such as office organization, staffing, and procedures, and communications; budgets, travel, supplies and office services and equipment requests and receipts; the use of office space and utilities, internal activity reports, etc. for the Information Policy section. These do not document the programs of the office.
<input type="radio"/>	Position Interview Packages	Job interview packages including job posting, job criteria, interview questions and responses, resumes, and justification letter for selection.
<input type="radio"/>	Procedures History File	This is the record copy file for Level 1 procedures developed under the Central Policy Manager for Information Flow and Operations in the Information and Records Program Management Section. They are maintained temporarily during development. When approved, these documents are consolidated into the official procedures history file in the Document Management Center of the Energy Systems Procedures organization. This follows the company procedure on procedures.
<input type="radio"/>	Records Management Program Files	This file is the programmatic file of the Energy Systems Records Officer for those activities and processes associated with managing the Energy Systems Records Management Program. It includes DOE correspondence, reports, self assessments, corrective actions, vital records management, etc. concerning all aspects of the program.
<input type="radio"/>	Records Disposition Files	This series contains voided and current schedules for the company (includes UCN-1978's).
<input type="radio"/>	Retention and Inventory Disposition Schedule (RIDS) System	Electronic data and documentation from the electronic system for the comprehensive records series retention schedule for LMES. Includes information on the system as it evolved from DBase to ACCESS to EICMS. Information provided by company divisions and business units. Database is composed of record series titles and descriptions, owner (Division, department, contact), location, inclusive dates,

RAILS: View/Modify Records Series Inventory

You have requested to view or modify the record displayed below. The record is under the ownership of **BK ROBINETTE (Badge: 017878)**. Please make any necessary modifications to the information contained in the fields below. When you have finished, click on the **"Submit Request to Modify"** button at the bottom of the page.

WARNING: Please do not input classified information into RAILS

Inventory Number: 60311

Regulation: GENERAL RECORD SCHEDULE 16 16.7
Records Management Files

Moratoriums: NONE

Retention: Destroy when no longer needed for reference.

User Series Title: Information Retention and Disposition Services (IRDS) Requests

User Description : Original copy and back up documentation of requests for information and the responses on record series, schedules, retentions, etc. that come to the IRDS section from LMES staff, corporate and DOE and DOE contractors.

Classifications: UNCLASSIFIED / NONSENSITIVE

ACTIVE RECORD INVENTORY

Most Recent Document Date:	MM: <input type="text" value="10"/> DD: <input type="text" value="01"/> YYYY: <input type="text" value="1997"/>
Cubic Feet of Records in Offices:	<input type="text" value="0.75"/>
Transfer ownership to Badge No.:	<input type="text"/> Go to Web Whos to look up a badge number.

INACTIVE RECORD INVENTORY

Number of Boxes in Site Record Center:	<input type="text" value="0.00"/>
Inclusive Dates From: To:	

A small charge will be incurred in order to process your request.

To modify the record, please enter a valid **Account or Work Order Charge Number:**

RAILS: Add a New Record Series Inventory

You are requesting to add a new record series inventory under the ownership of **BK ROBINETTE (Badge: 017878)**. Please enter the information requested in the fields below. When you have finished, click on the "Submit Add Request" button at the bottom of the page.

WARNING: Please do not input classified information into RAILS

User Series Title:

User Description :

Classifications:

Medium:

Most Recent Document Date: MM: DD: YYYY:

Earliest Document Date: MM: DD: YYYY:

Cubic Feet of Records in Offices:

LOCATION OF RECORDS:

Site: **Building:** **Room:**

You may suggest a schedule for your inventory that you think best applies to these records by reviewing the approved schedules at the [LMES Comprehensive Records Schedule](#).

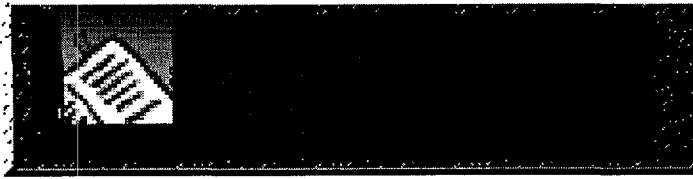
Suggested Record Schedule:

A small charge will be incurred in order to process your request.

Please enter a valid **Account or Work Order Charge Number:**

[Main Menu](#) | [View/Modify Record](#) | [Delete Record](#) | [LMES Internal](#)

RAILS V1.1
Provided by Information Management Services * [Comments/Questions](#) [Records Analysis](#)



EICMS Document Control and Records Management

Elements of the Integrated LMES Configuration Management Program

This web page interfaces with the EICMS document control and records management data base. Select one of the following options to search EICMS:

- [Verify a Working Copy of a Controlled Document](#)
- [Find Users with Current Verified Working Copies by Document or Badge](#)
- [Find the Latest Effective Revision of a Controlled Document \(Do not use this option to verify a working copy\)](#)
- [Controlled Document Index](#)
- [Review a Document/Record's History](#)



For more information on EICMS, please click here: [EICMS Home Page](#)

This WEB database site has been developed by DSRD-SE staff.

*For more information please contact: e-mail: Webmaster@ornl.gov or the **Enriched Uranium Operations Document Management Center** at 576-7580.*

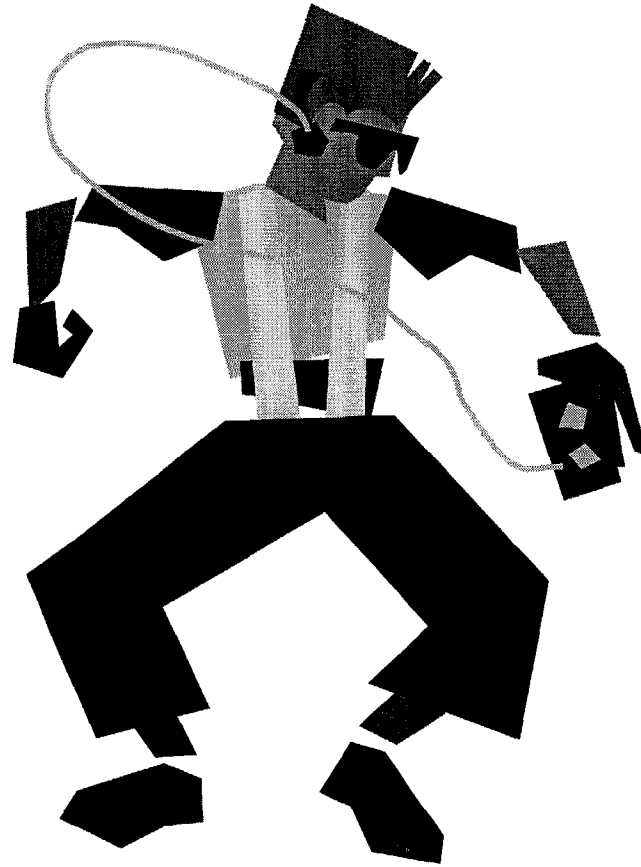
Last Updated: March 13, 1998

URL: <https://www-internal-lmes1.ornl.gov/eicms/eicmsdoc.htm>

Rising to the Challenge continued

- Technology Activities continued
 - prototyped preservation of videotapes
 - developed preliminary physical and electronic record data maps for weapons records
 - evaluated document capture (e.g. scanning) systems

WRAP



LOCKHEED MARTIN 

Objectives of WRAP

- ▶ Develop a new standard for information generation, indexing, storage, retrieval, and management
- ▶ Decide what information is important for the future, and significantly improve safeguards, storage, and accessibility
- ▶ Ensure urgent needs are addressed
- ▶ Partner with the design laboratories to improve processes, systems, and understanding



WRAP



WRAP Tasks

- ▶ **Preserve and protect (band-aid) high risk, badly deteriorated, technologically obsolete, and contaminated records**
- ▶ **Inventory and catalog weapons records**
- ▶ **Develop and populate web-accessible weapons information catalog system and information retrieval system**
- ▶ **Improve processes and procedures**
- ▶ **Relocate and consolidate weapons records in improved facility**
- ▶ **Capture unrecorded knowledge**



Types of Storage Media

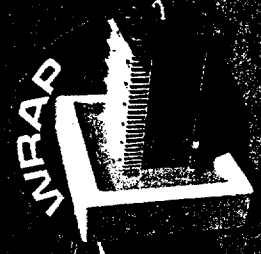
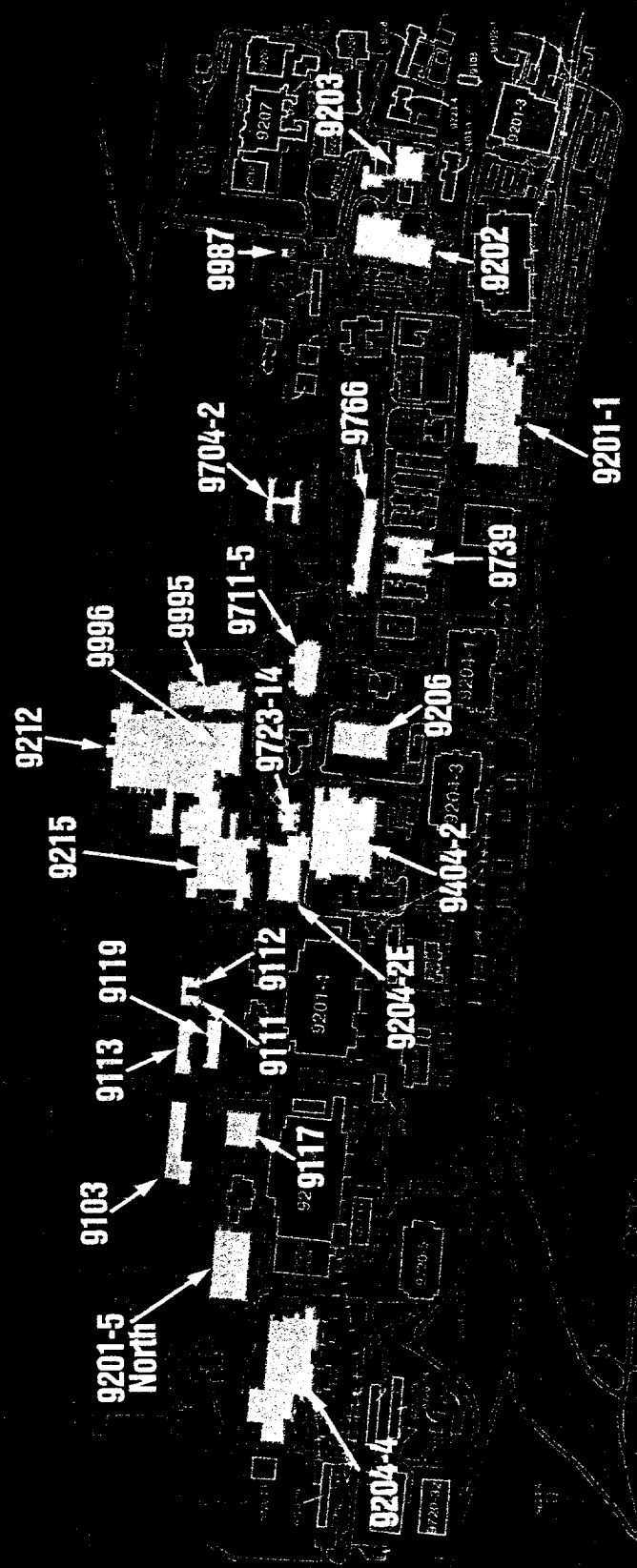
WRAP

- Posters
- Thermal Paper
- Log Books
- Hard Disks
- Xerox Copies
- Tapes
- Videotapes
- Floppy Disks
- Mylar Tape
- Analog Cassette Tapes
- Sepia Paper
- Microfiche
- Cloth & Cards
- X-ray Film
- Microfilm
- Labels
- Calculator Printouts
- Strip Charts
- Aperture Cards
- Computer Printouts

Verbatim
DataLife
MF2-D

WRAP

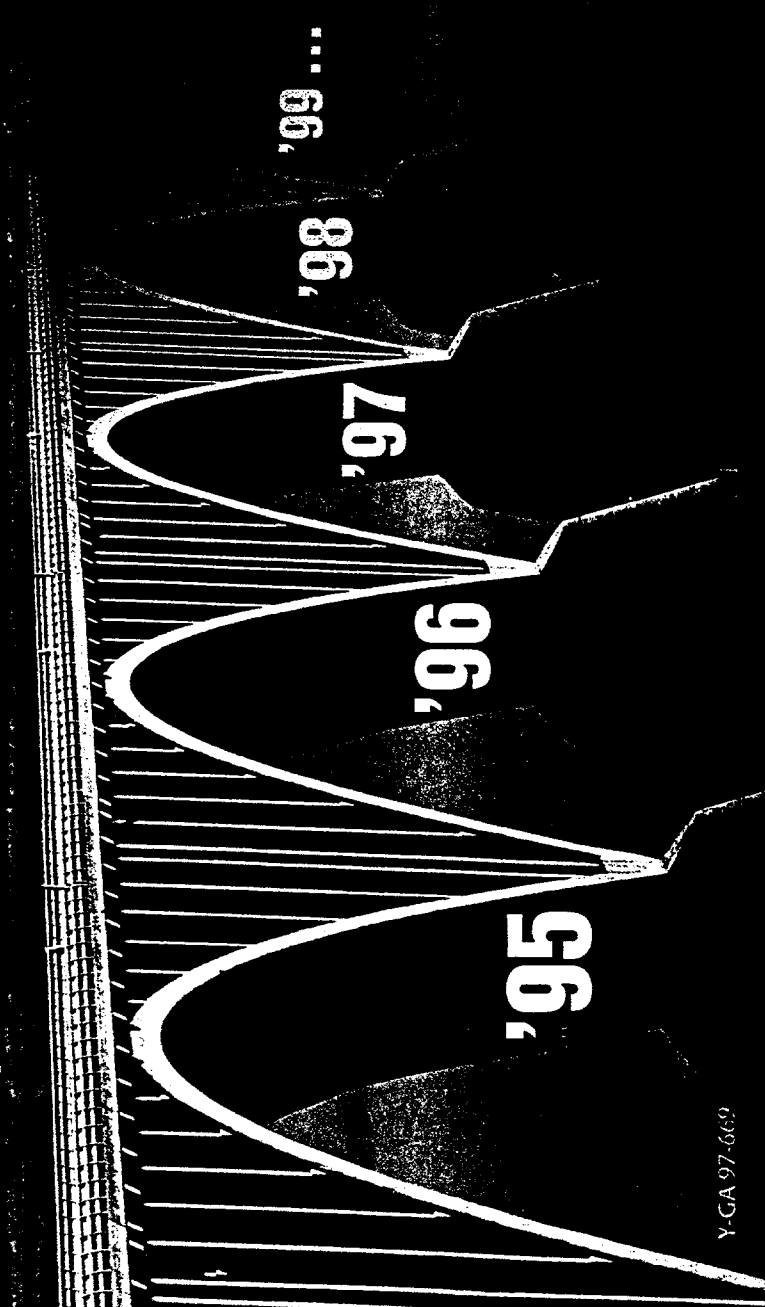
Storage Locations For Weapons Records



Pay Me Now Or Regret It Later (Y-12 Drivers)

- ▶ Loss or knowledge
- ▶ Increasingly difficult retrieval and use
- ▶ Deteriorating records and facilities
- ▶ Space Limitations

If nothing is done to archive and preserve records, then at some time it will be impossible to save them—records will be worthless and knowledge will be permanently lost.



Our Vision for Weapons Records

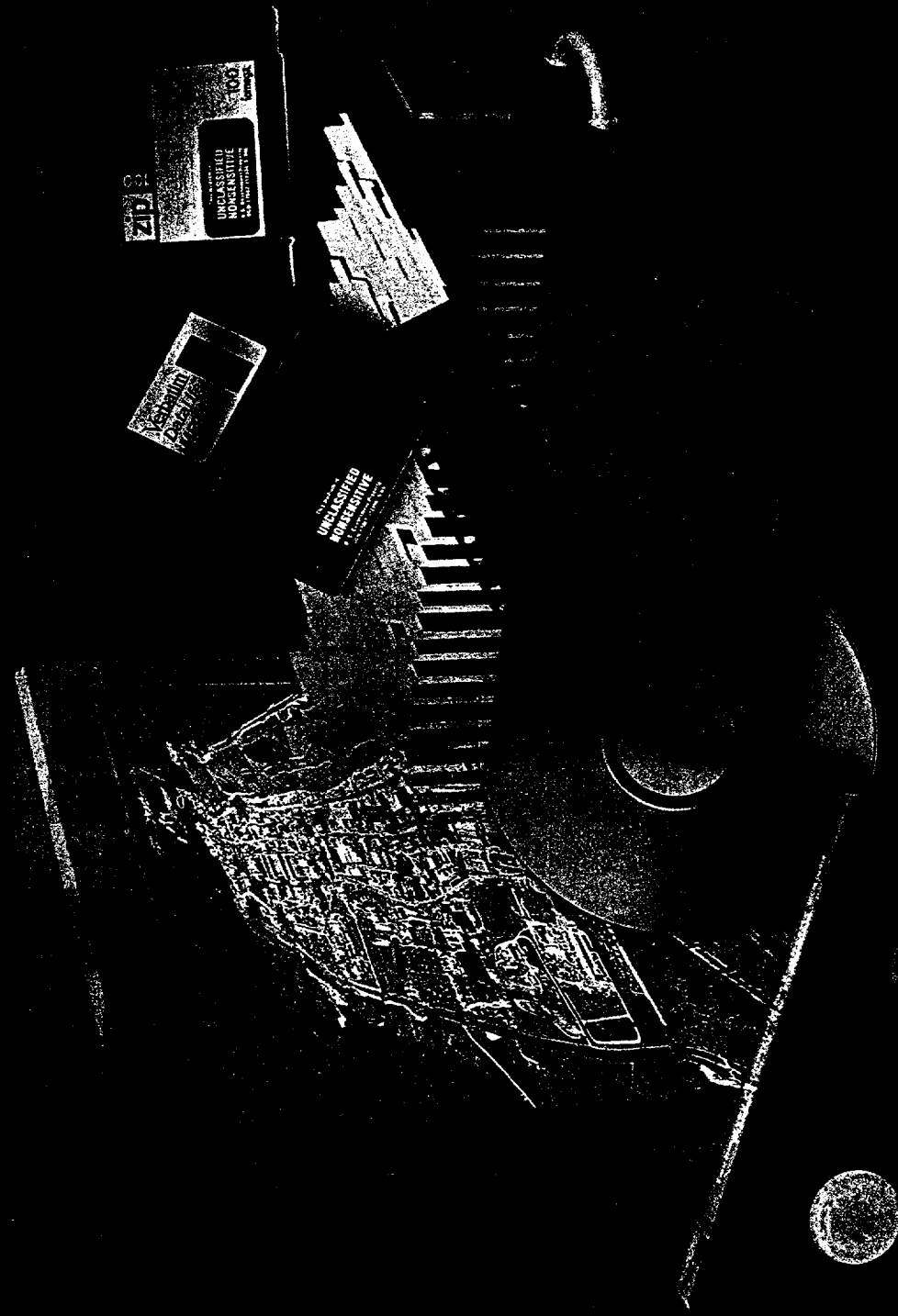
- Formulated a strategic plan and technical architecture document for weapons records
 - Integrate related activities to provide a comprehensive approach to capturing weapons related data and making it available
 - Generate a new standard for information generation, indexing, storage, access, and retrieval and overall management of key weapons information
 - Focus on vital records for most rigorous control

Our Vision continued

- Continue to capture metadata on paper archives and office holdings and archive future records during creation - adopt NWIG standard formats
- Establish a web-accessible catalog of all Y-12 weapons records
- Consolidate information applications and interconnect the remaining ones
- Developed enhanced infrastructure rather than continue band-aids
- Evaluate condition of records and preserve as needed

Today

- Separate records management programs at each company
- Shared services across companies for select functions
- EICMS shared by two companies
- Records management more closely aligned with funded programs but funding continues to decline
- Current "concept paper" represents even greater change with a proposed single consolidated weapons production contract in multiple states



"Securing our future by preserving the past"

Y-CA 97-670

Challenges And Solutions To Downsizing And Realignment at The Oak Ridge Y-12 Plant *Part II*

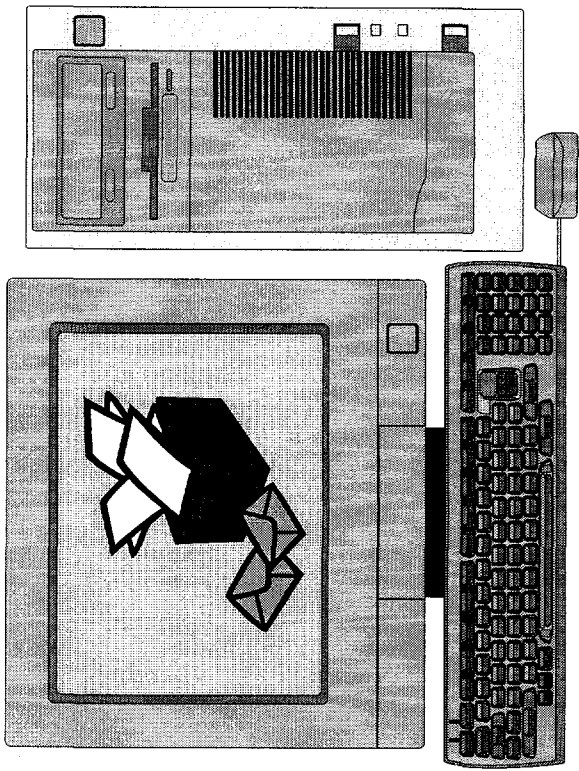
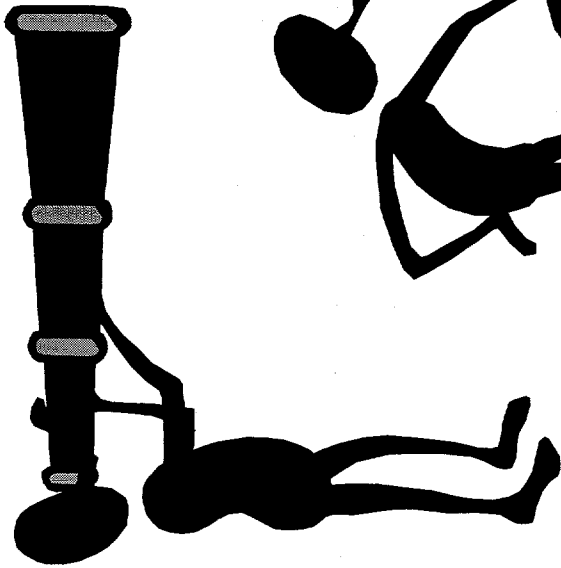
Presented by
Connie Malarkey and Betty Robinette
at the

DOE 1998 Records Management Conference
July 21, 1998

Start With A Plan

- Methodology
 - EICMS - Software Designed and Developed using Information Engineering Techniques
 - WRAP plan and technical architecture defined using multi-team approach
- Decision Support Tools
- Paradigm comparisons in software engineering
- Considerations for COTS software solutions

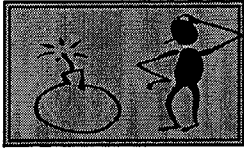
EICMS: A Traditional Software Development Life Cycle



The Computer Project Cycle



- **Wild Enthusiasm**



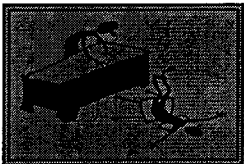
- **Disillusionment**



- **Total Confusion**



- **Search for the Guilty**



- **Punishment of the Innocent**



- **Promotion of Non-participants**

EICMS: How We did It

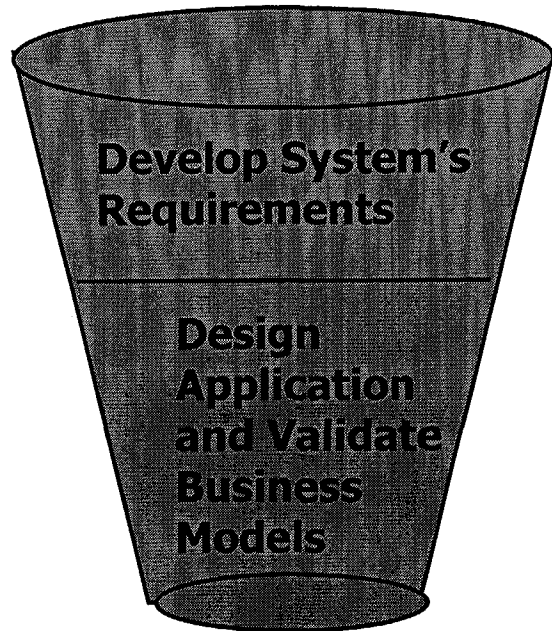
- Information Engineering used for software development
 - Top down methodology
 - Users and systems analysts define business rules
 - Data and process models designed
- CASE tool design and construction
- Phased approach

Joint Application Design Sessions

Knowledgeable users and systems analysts design an application based on business processes

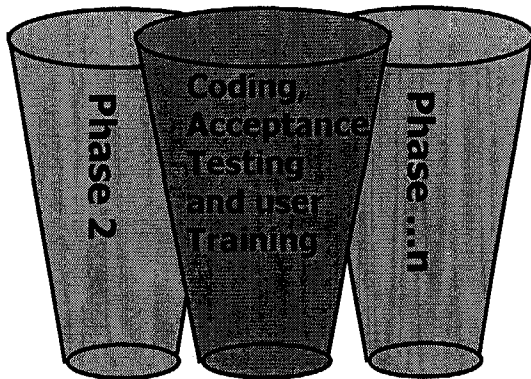


EICMS Design And Development



Analyze the records management business to determine requirements

Create data and process models that represent total records management function

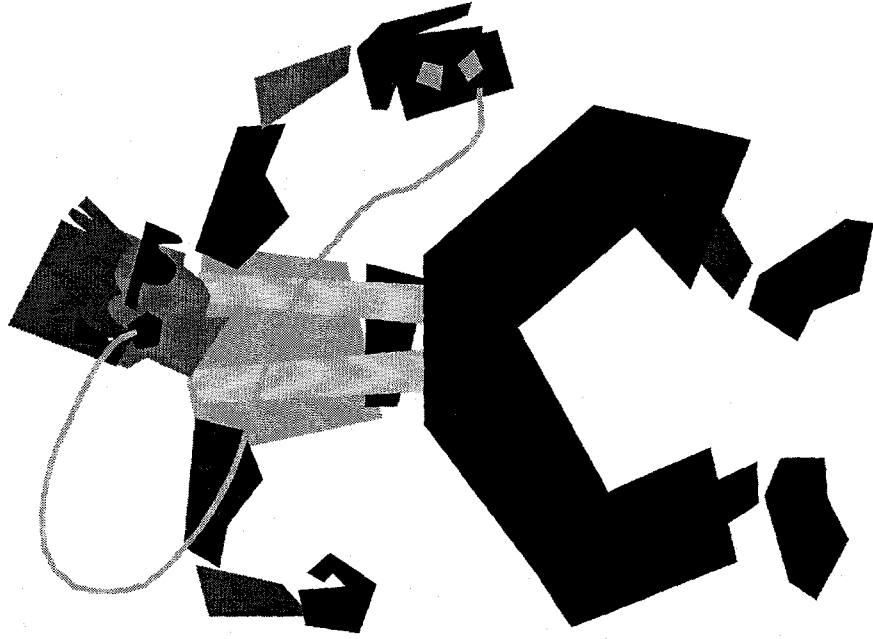



Program priority functions for phase 1 implementation - Following phases re-validate the design and begin coding

EICMS Phases

- Phase 0 - Created records management process and data models
- Phase 1 - Implemented prioritized records management functions
- Phase 2 - Implemented configuration management document control capability
- Phase 3 - Completed more functional requirements from original model and added some new design requirements for LMES
- Future - Defining enhancements that leverage existing functionality

WRAP



LOCKHEED MARTIN 

WRAP: Pulling together

- One steering team to define and publish deliverables, coordinate efforts of multi-teams and eliminate redundant activities and costs
- DP initiatives led to multi-team approach
 - DP initiatives focused on preservation and exchange of nuclear weapons data
 - Accelerated Strategic Computing Initiatives (ASCI)
 - Advanced Design and Production Technologies (ADaPT)
 - Stockpile Life Extension Programs
 - Nuclear Weapons Information Group
 - Same individuals involved in multiple initiatives
 - teams developed plans, technical architecture, etc.

WRAP: Building the Team

- Steering Team

- **Records Officer**
- Manufacturing Engineers
- Software Engineer
- Information Specialist
- DP Initiatives Leaders

- Expanded Team

- Product Engineers
- Quality Engineers
- Design Engineers
- Software and Technology Analysts
- Product and Quality Certification Staff
- Information Specialists

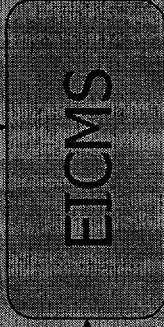
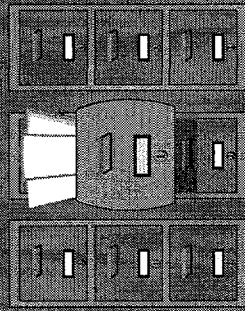


WRAP: What we wanted to do

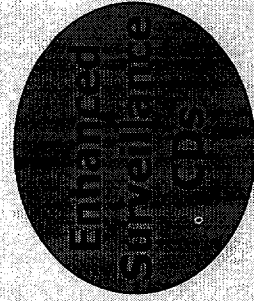
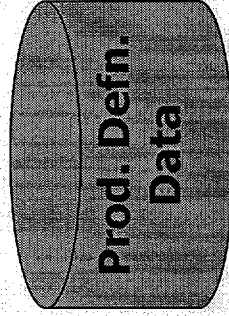
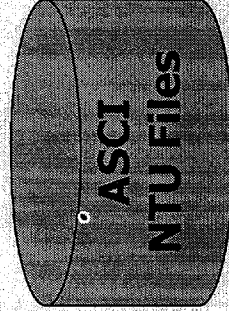
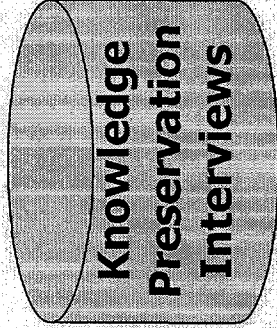
- Objectives
 - Analyze the state of the archives
 - Develop a plan
 - Define a Technical Architecture
 - Focus on COTS software
 - Technology is “purchasable”
 - Requires integration of diverse systems
- Leverage decisions about hardware and software architectures being made for electronic repositories by other NWC sites

What we Looked Like

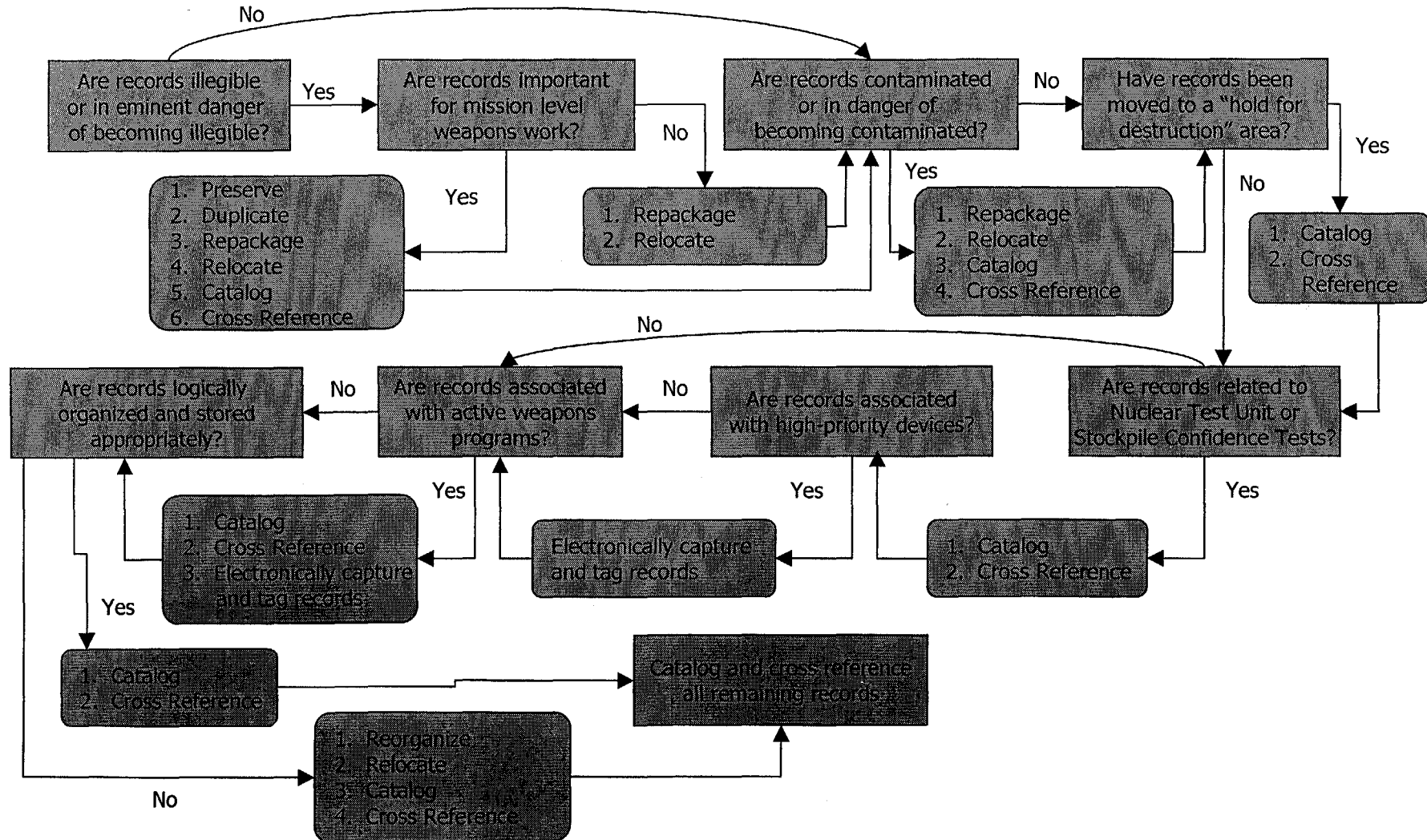
Record Management Activities



Weapon Record Archive Activities



Decision Support Tool



Interview Questions

- ? What data elements/attributes are being captured
- ? What is the typical format of retrieval requests
- ? How do you look up information
- ? Is there any existing electronic capture of information
- ? What is the frequency of your information requests
- ? How are access requirements or restrictions determined
- ? What is the classification of the whole collection; Of individual records
- ? What would you require in an electronic card catalogue

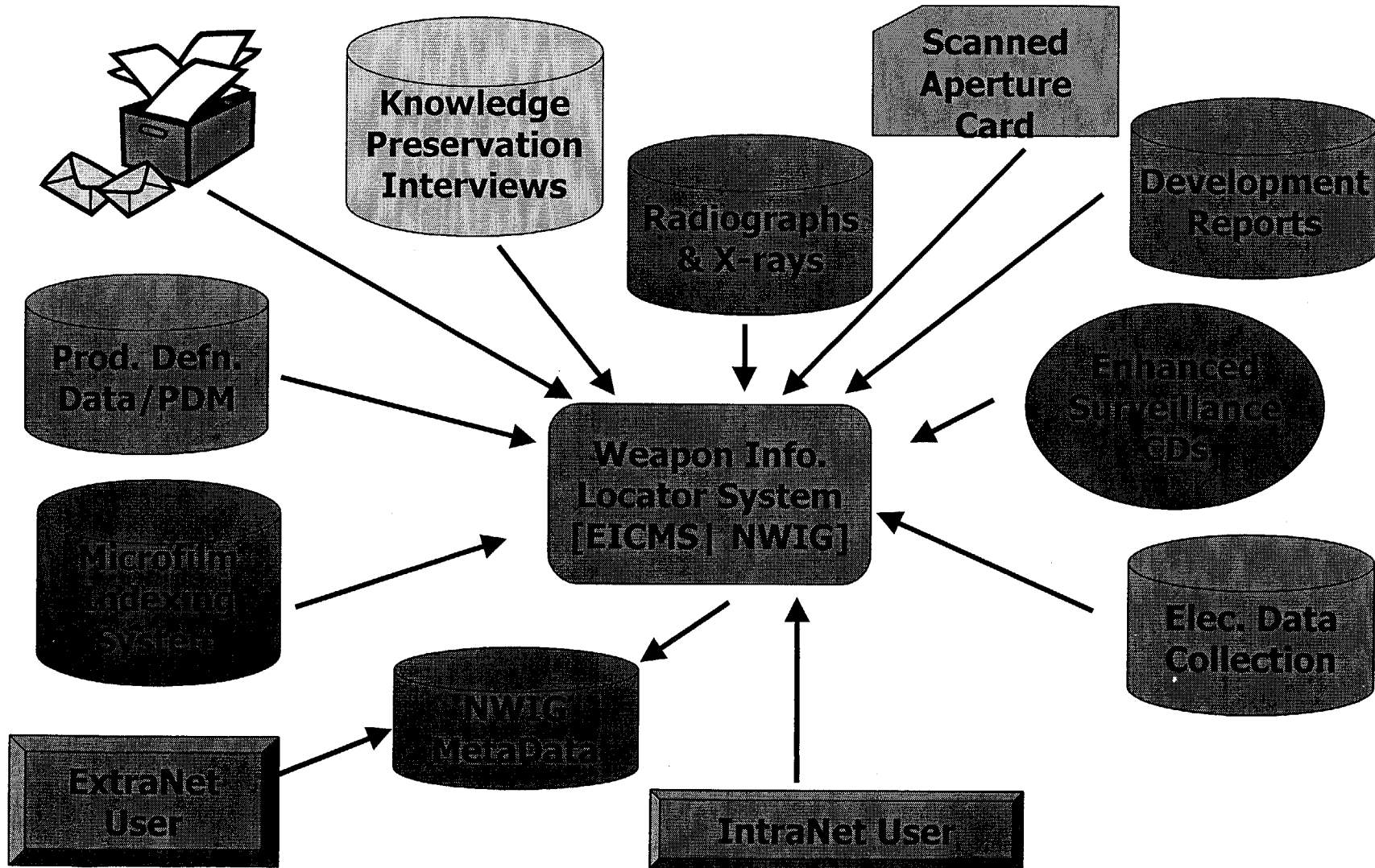
Record Request Matrix

Holding	Frequency of Request	Request Type	Retrieval Time
Z-Histories	Weekly	Internal and External	Avg: 1-2 days; Min. 2 hours; Max: 2.5 months
Cert Cards	Daily	Internal and External	Avg: 0.5 day
Aperture Cards	Continuous	Internal and External	Avg: 4 hours
Roll file Index of Weapons Procedures	Daily	Internal and External	Avg: 5 days; Min: 5 minutes; Max: never
Stream Cert Data	Seldom	Internal	Avg: 6 hours; Min: 2 hours; Max: 2 days

Records Collection Analysis

Record Collection	Catalog Entry	Scan Document	OCR Text	SME Summary
Z-History Log Book Entries	Yes	No	No	No
Z-History Books	Yes	On demand	Yes	Yes
Work Requests	Yes	No	No	Yes
Assembly Procedures	Yes	On demand	Yes	No
Development Reports	Yes	Yes	Yes	Yes

The WRAP Vision



Information Architecture

How do we get there?

Task No.	Task Description
1.0	Develop and implement electronic data and records index and catalog
2.0	Purchase and install Web-based search tools on classified server and purchase an image database
3.0	Install additional high-speed, secure computer drops
4.0	Develop and implement Web communications systems and data exchange interfaces and provide systems management
5.0	Implement secure communications and data exchange protocols and procedures, include Need-to-Know
6.0	Establish electronic weapons data and records repositories and procure servers and software
7.0	Select, purchase, and develop capture system, mechanisms, and processes
8.0	Load software systems tables, user profiles, and configuration data and provide systems testing and integration
9.0	Conduct weapons records knowledge capture interviews with SMEs
10.0	Consolidate weapons records storage
11.0	Write procedures for implementing electronic data capture and systems operations
12.0	Develop and implement training in systems operation and capture procedures

Paradigm Shifts: Traditional Systems Development

- Long analysis and requirements definition phase with shorter implementation phase
- Emphasis on data capture and preprogrammed reports
- Ensure conformance with enterprise infrastructure implementation plan
- Enterprise wide applications or large central systems

The Latest Software Paradigm

- COTS software provides application base but conformance with enterprise infrastructure is critical
- Shorter analysis phase requires an enterprise strategic plan
- Implementation phase is extended
- Emphasis moving to ad hoc retrieval and on-line access

Other Paradigm Shifts

- Long-term electronic archive being created at the time of data capture
- Most business functions are already automated
- Re-engineering for technology upgrade has to show ROI and significant productive improvements
- Enterprise solutions still required

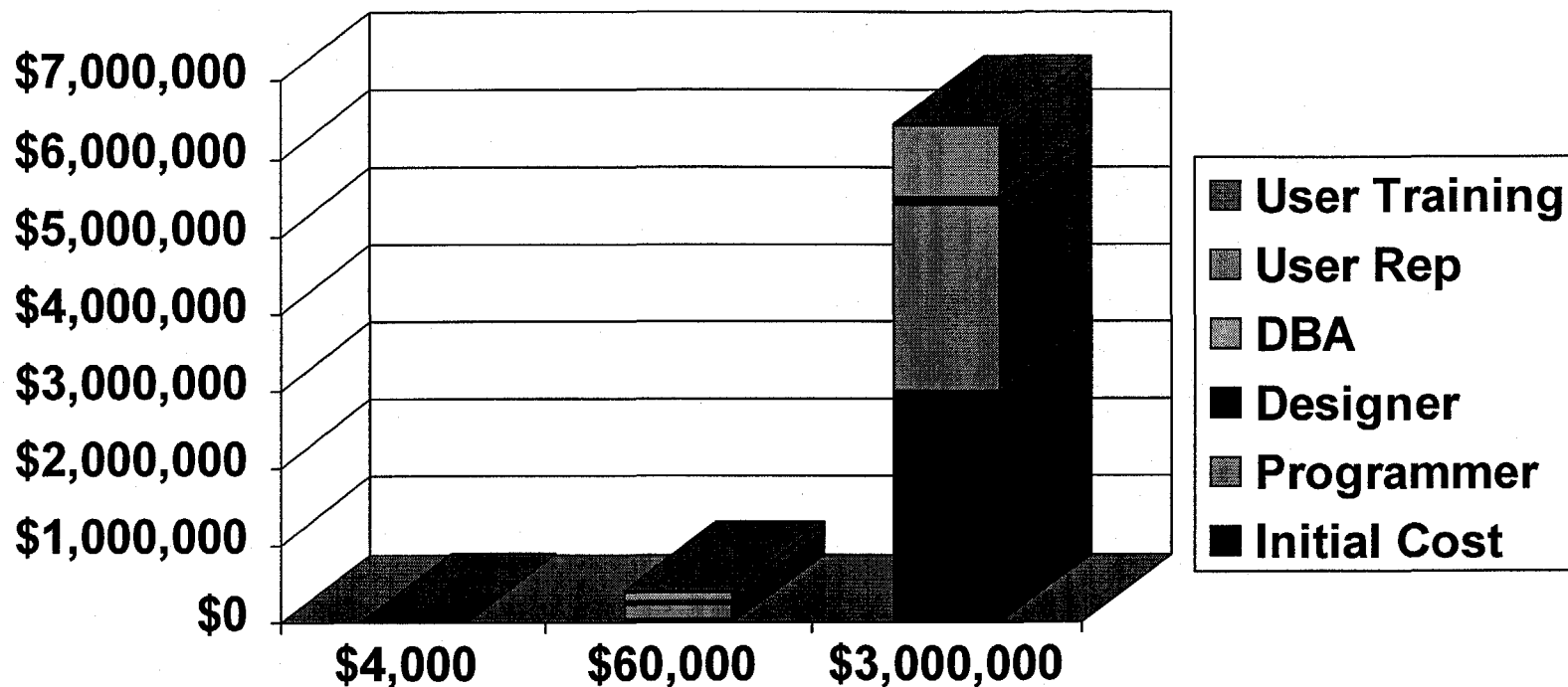
COTS Software Solutions

- Purchase of stand alone solutions
- Integration between applications required for enterprise applications
- Business analysis and requirements definition critical to success
- Purchase of commercial business rules
- Skills and training of IS staff and users have to be upgraded

COTS Software Solutions

- Package purchase price is not the total cost
- Implementation issues
 - infrastructure support
 - hardware and software architecture fit
 - integration with existing applications
 - tailoring of business rules expensive
- Annual operation and maintenance costs

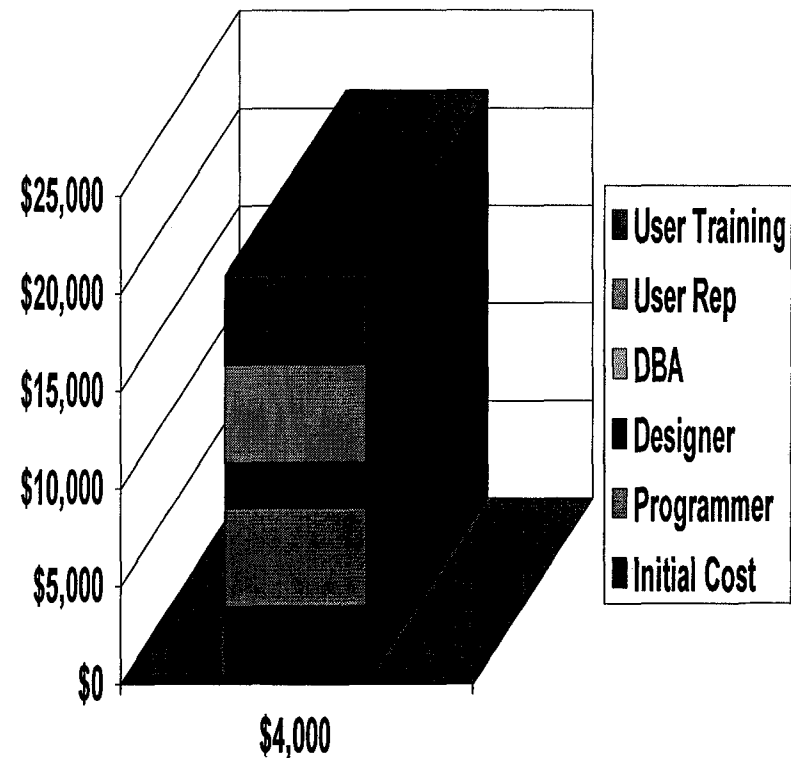
COTS: What does it really cost



NOTE: Cost estimated at \$58.00 per hour of direct effort.

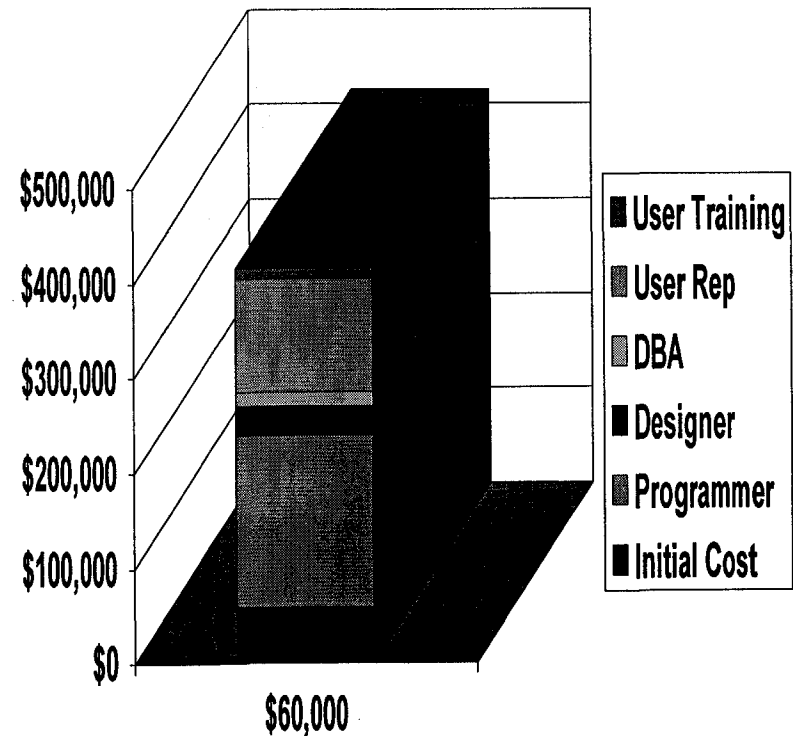
COTS: What does it really cost

- \$4000 purchase price
- Immediate desktop productivity
- Limited enterprise wide business rules
- Requires purchase and implementation of multiple packages for full functionality
- Implementation effort
 - 1 IS programmer; 0.5 months
 - 1 user; 0.5 months



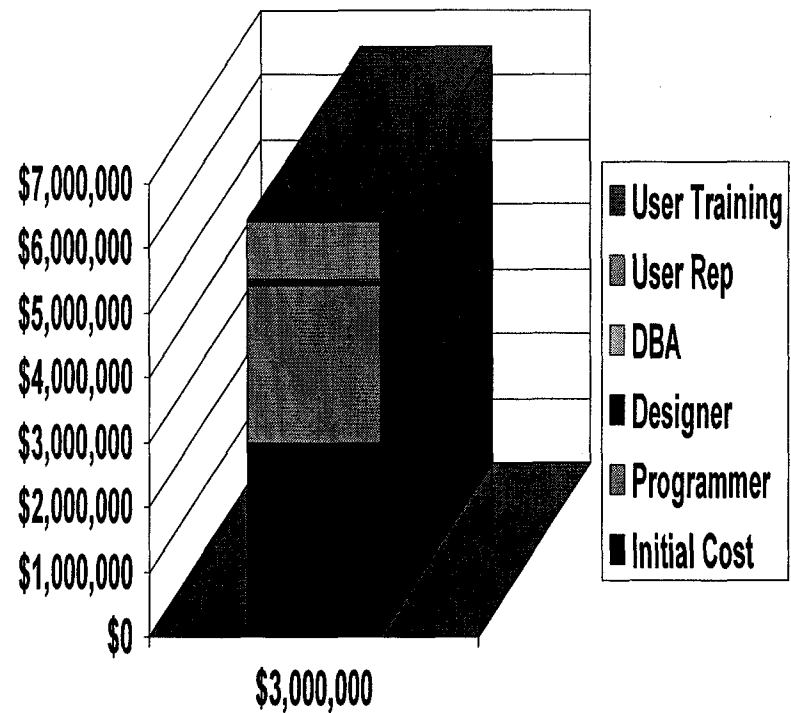
COTS: What does it really cost

- \$60,000 purchase price
- Implementation effort
 - 2 programmers, 9 months
 - 2 user reps 6 months
- Annual operating expenses include:
 - license fees
 - seat or concurrent user fee
 - maintenance contracts
- Usually requires additional production equipment
- Layered products frequently require additional infrastructure support



COTS: What does it really cost

- Purchase price \$3 million
- Implementation effort
 - 20 programmers 12 months
 - 5 user reps, 18 months
- Annual license fee - \$100K
- Annual systems support >\$500K
- Required in-house modification to support mandated business rules
- Once in-house modifications are done, cost of vendor supplied upgrades increases



COTS: What does it really cost

	\$4,000	\$60,000	\$3,000,00
Programmer	\$5,017	\$180,612	\$2,408,16
Designer	\$2,320	\$30,102	\$60,20
DBA	\$0	\$15,051	\$40,13
User Rep	\$5,017	\$120,408	\$903,06
User Training	\$4,640	\$10,034	\$25,08
TOTAL COST	\$20,994	\$416,207	\$6,436,64

Costs Savings

- Team approach reduces cost by reducing redundant efforts
- Integration of stand alone systems reduces effort of collecting information multiple times into different systems for different purposes
- Security features tailored to the enterprise and implemented only once

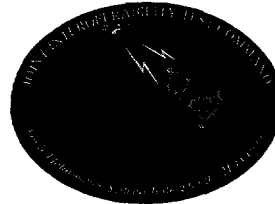
Lessons Learned

- Change is inevitable - consider it an opportunity
- Partnerships and mission alignment critical to success of records management programs
- Keep the big picture in mind - all records belong to DOE
- Recognize and compensate for loss of corporate knowledge about our business and their associated records
- Protect and preserve what you have while building for the future
- Plan information systems to improve the process and not to automate the paper flow
- Analyzing your business needs is a critical success factor
- Consider the human element in the midst of change

DoD 5015.2-STD Certification Program

Stephen Matsuura
Defense Information Systems Agency

DoD 5015.2-STD Certification Program

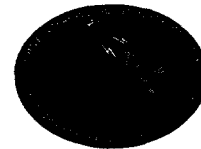


**Defense Information Systems Agency
Joint Interoperability Test Command**

Stephen T. Matsuura



Topics



- Overview
- Testing Strategy
- Testing Status
- Available Information

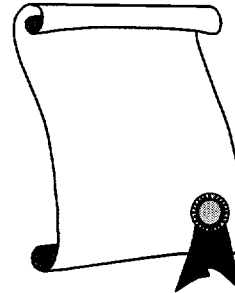




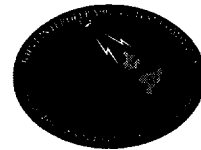
Certification Test Program



- Must Pass All Mandatory Requirements
- Non Mandatory Functionality Tested if Requested by Sponsor
- Sponsor/Vendor Covers Cost of Testing
- Certification Expires in Two Years



Testing Strategy



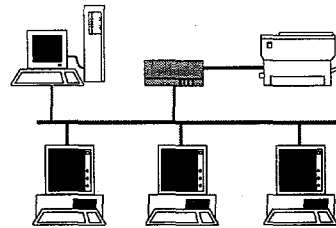
- Functional Testing
- Generic Procedures
 - Tailored for Product at Time of Test
 - Standard Test Data
- Search for Work-Arounds





Products Tested

- ForeMost (Provenance Systems)
- TRIM (Tower Software)
- CS-CIMS/ForeMost (Dyn Solutions/Provenance)
- FileNET Products/ForeMost



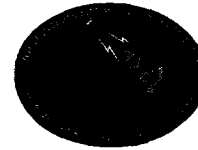
Products Scheduled

- Cuadra - 3 August
- PCDOCS/USI/ForeMost - 1 September
- Educom - 21 September
- PSSoftware - 19 October

ID	Task Name	August	September	October	November	December
		August	September	October	November	December
1	Cuadra STAR	█				
3	PCDocs/USI/ForeMost		█			
5	EDUCOM			█		
7	PSSoftware				█	
9						
10						
11						
12						
13						
14						
15						
16						



Web Page



- <http://jitc.fhu.disa.mil/recmgt/>
- Download Standard
- Download Certification Testing Process and Procedures
- DoD 5015.2-STD Enhancement Information
- Certified Products Register
- Download Application Forms



Posted Information



- Vendor POC Information
- Test Configuration
 - Platforms, OS
 - DBMS
 - E-Mail
 - Other Software
- Summary Report





Detailed Report



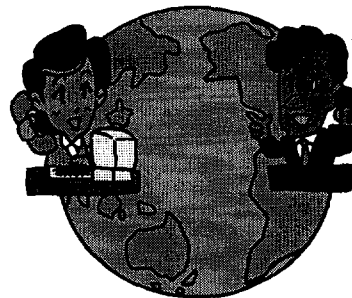
- FOUO
- Limited to Government Organizations
- By Request
- Vendors Can Distribute
- Provide Information to Assist in Selection of RMA



Contact Information

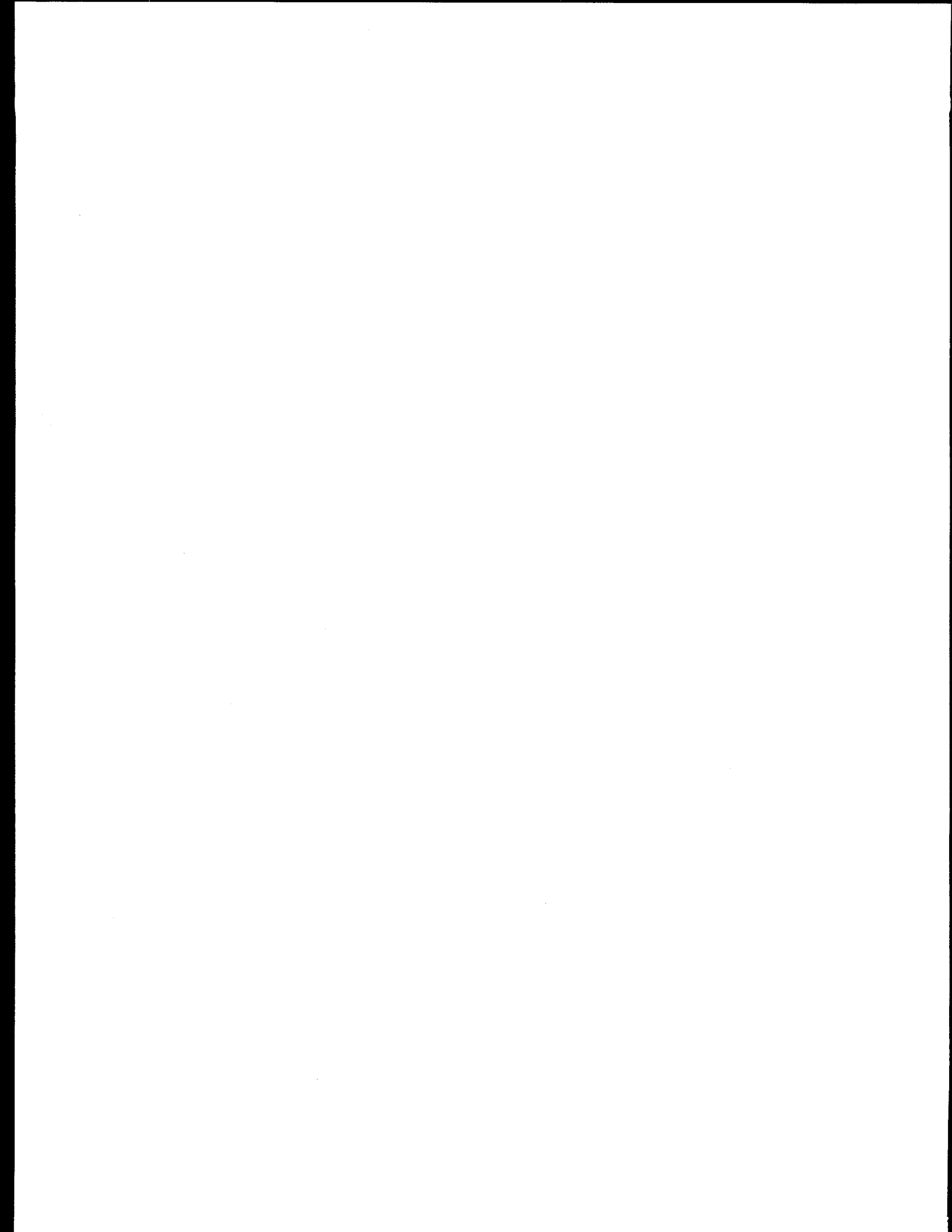


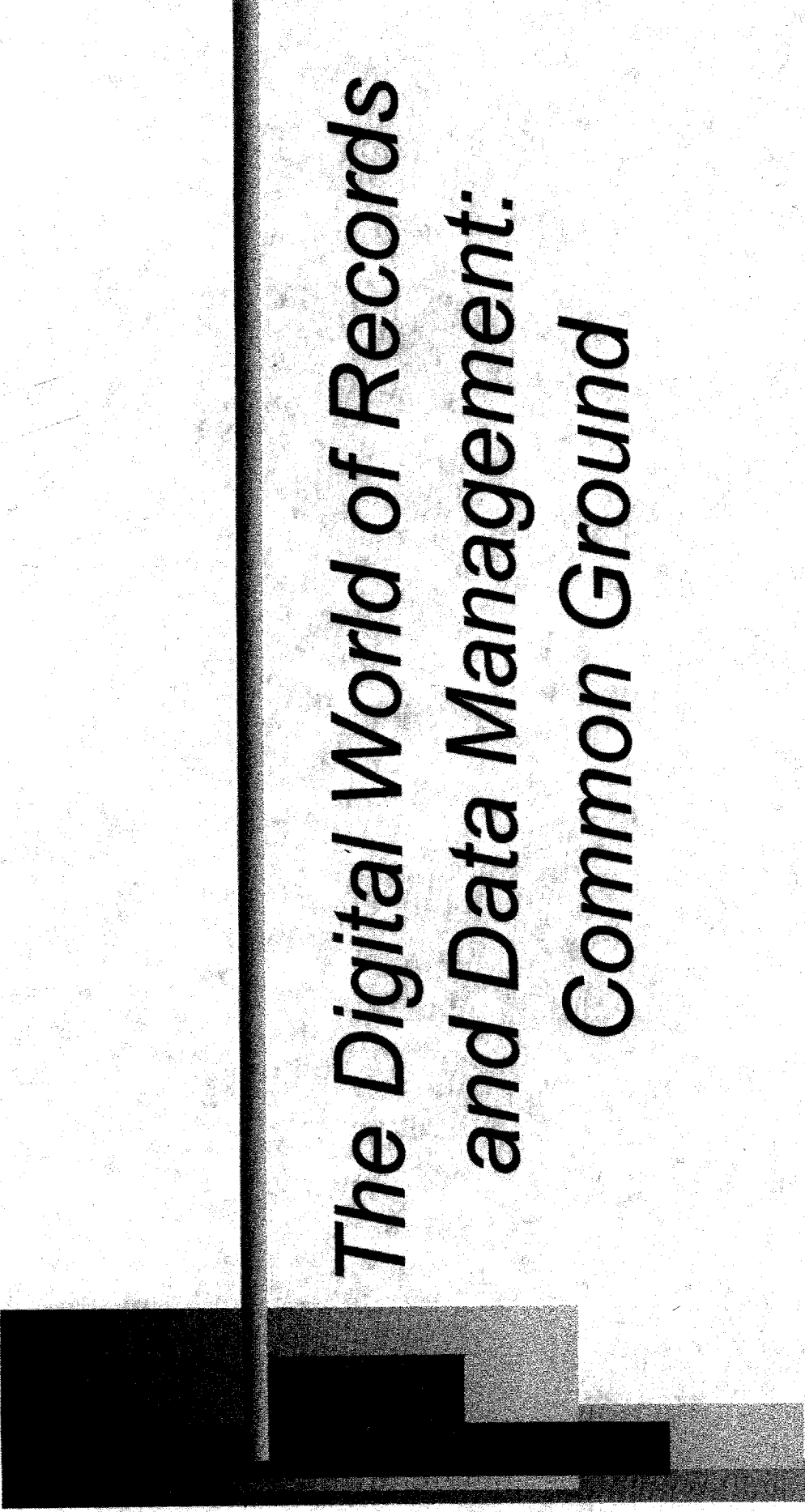
Steve Matsuura
JITC
ATTN: JTDB
Ft Huachuca, AZ 85613
Phone: (520)538-5169
FAX: (520)538-4375
E-Mail:
matsuurs@fhu.disa.mil



The Digital World of Records and Data Management: Common Ground

Al Minnick, National Archives and Records Administration





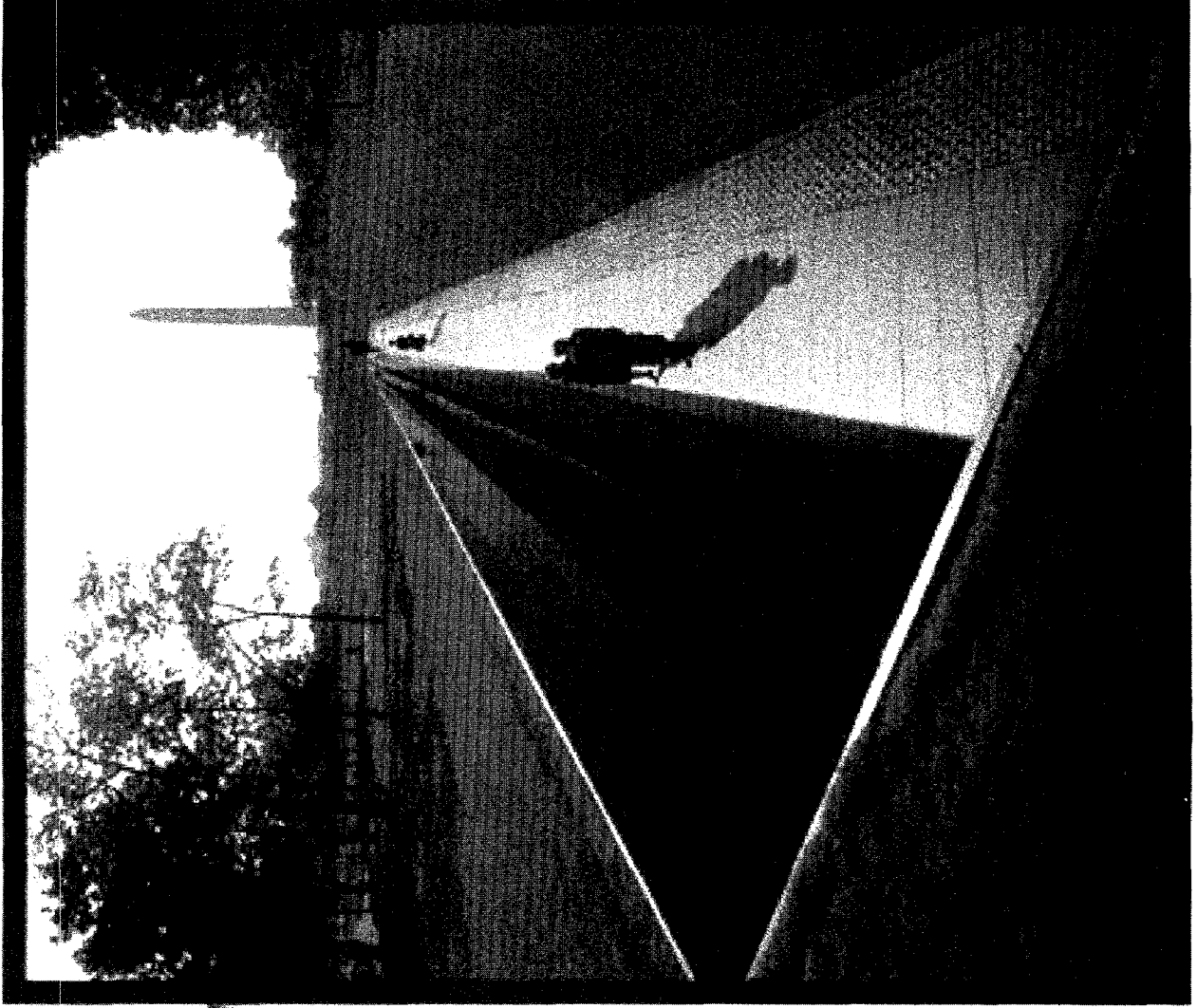
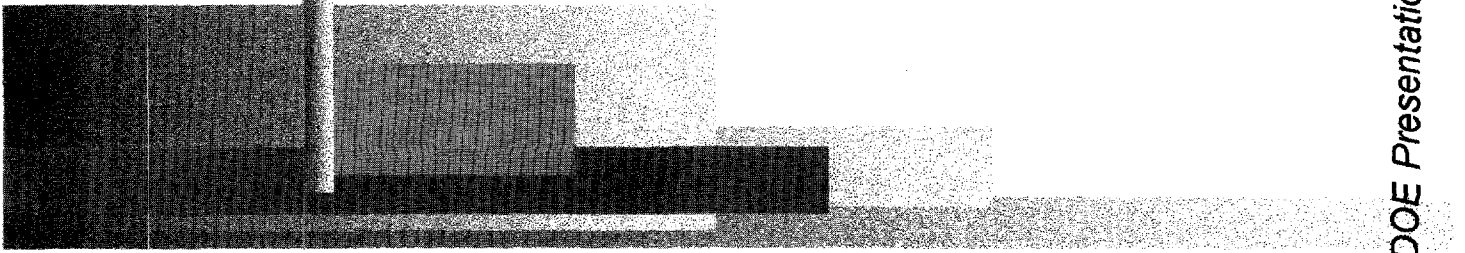
*The Digital World of Records
and Data Management:
Common Ground*

Finding common ground with data managers by:

- *Envisioning information;*
- *Enhancing communication; and*
- *Expanding the records manager's role.*

Envisioning information

- *Input: beauty is in the eye of the beholder*
- *Throughput: data processing existentialism*
- *Output: ensuring longevity of electronic records*



Common Ground: Communication

Archiving: *Out of sight, out of mind;*

Data Warehousing: *Just in time data.*

Standard(s): *The Tower of Babel.*

Backup: *One person's ceiling is another person's floor.*

Recordkeeping System(s):*Electronic?*

Common Ground: Communication

Groupware: *Where is the record?*

Application: *What applications does the system support ?*

Format: *first SGML then XML, what's next...*

Record(s): *Logical and Physical.*

Documentation: *"You want what?"*

Expanding the records manager's role:

- *Pursuing professional development;*
- *Becoming an information partner;*
and
- *Taking interdisciplinary training.*

How to stand on common ground?

- *Envisioning information exercises;*
- *Electronic discussion lists for information technology vocabulary (not jargon); and*
- *Classes or workshops in Information Resources Management (IRM).*

Information Technology communication sources

- *Online Computing Dictionaries,
<<http://wombat.doc.ic.ac.uk/folddoc/index.html>>*
- *Trade journals: Government Computer News and Federal Computer Week*
- *Online Disussion Lists*

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Decentralized Records Management Teaming With Your Customers

Kermitt Nicks
Westinghouse Savannah River Company

DECENTRALIZED RECORDS MANAGEMENT TEAMING WITH YOUR CUSTOMERS

**Kermitt Nicks, CRM
Westinghouse Savannah River Company**

Introduction

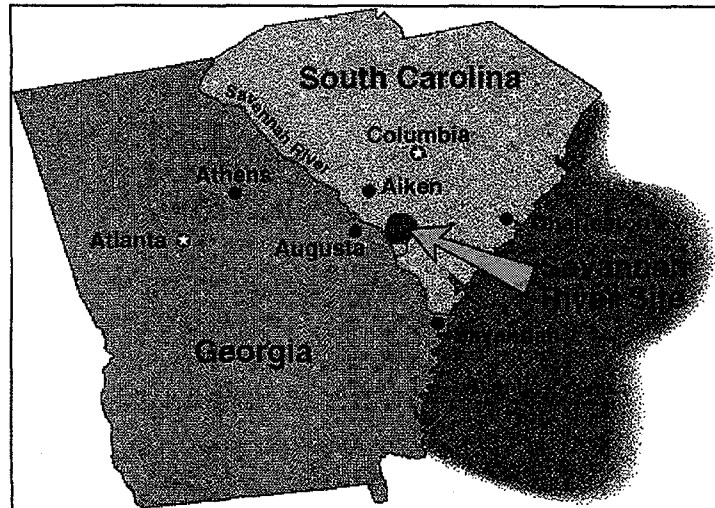
With the onset of downsizing and the need to expand the records management responsibilities, a revitalized Records Management Coordinator Program was implemented at the Savannah River Site (SRS). This new program, the Division Records Officer (DRO) Program, enhances the lines of communication and improves the training efficiency for designated program personnel. It also provides for the consistent and uniform resolution of records issues across all site organizations.

There are 3 levels of functional responsibilities in the DRO program. These are the Division Records Officer, the Records Management Coordinator (RMC), and the Records Management Liaison (RML). Each receives communication and training commensurate with their duties and levels of responsibilities. This delineation adds organizational structure that ensures that the information delivered to program participants is tailored to their functional needs.

Appointing a Division Records Officer gives us a single point of contact to disburse records management policy and program information. This improves our ability to ensure consistent and accurate communication across the SRS. With the hierarchical structure in place for each Division, information is transferred through the DROs to the RMCs and RMLs. Policy changes and issue resolutions are communicated consistently within the framework of this program. The program has been instrumental in the roll-out of the site Electronic Document Workflow System (EDWS). Also, the restructuring of the program has resulted in a 75% reduction of assigned RMCs in the program.

SRS Background

The Savannah River Site (SRS) is a key Department of Energy (DOE) facility, focusing on national security work; economic development and technology transfer initiatives; as well as environmental and waste management activities. Owned by DOE and operated under contract by the Westinghouse Savannah River Company (WSRC), the complex covers 310 square miles in western South Carolina along the Savannah River, which forms the site's border for 27 miles on the South Carolina and Georgia border.



SRS was constructed during the early 1950s to produce the basic materials used in the fabrication of nuclear weapons, primarily tritium and plutonium-239. Five reactors were built on the site. The reactors produced nuclear materials by irradiating target materials with neutrons. Also built were support facilities including two chemical separations plants, a heavy water extraction plant, a nuclear fuel and target fabrication facility, Defense Waste Processing Facility and other waste management facilities.

The mission of the Savannah River Site is to serve the interests of the nation and surrounding region by applying its technical, physical, and human resources to:

- protect and improve environmental quality
- support a secure national defense and reduce the nuclear danger
- enhance industrial competitiveness and economic development in a safe, environmentally sound, socially responsible, cost-effective manner in partnership with its stakeholders.

Today, about 14,000 people are employed at SRS, making it one of the largest employers in South Carolina. About 80 percent are employees of WSRC and its prime subcontractors, Bechtel Savannah River Inc., British Nuclear Fuels Limited, and Babcock & Wilcox . DOE employees represent about 2 percent of the SRS population. The rest are other Westinghouse and DOE subcontractors; the site's security contractor, Wackenhut Services Incorporated; the Savannah River Ecology Laboratory; and the U.S. Forest Service.

Implementation of the Division Records Officer Program

In the fall of 1996 it was decided that the existing RMC Program was not as functional as it should be. Records Administration (RA), the parent organization responsible for

WSRC records management policies and related activities, decided to survey program participants and look at areas for improvement. Based on the survey results, it was evident that 95% of the 240 RMCs were performing little or no records activities for their organization. The appointment of RMCs at the time was based on a site level procedure requirement that all level 2 managers appoint an RMC for their department or work group. This resulted in a minimally functional program with most participants not aware why they were chosen or what their responsibilities were. RA decided to either to streamline the program making it viable or terminate it entirely. The streamlining effort resulted in the development of the Division Records Officer Program.

The implementation of the Division Records Officer Program was completed May 1997. All divisions are represented by an assigned Records Officer with supporting personnel identified and assigned. There are 14 DROs in the program serving 20 Divisions. The DRO assigned to the Administration & Infrastructure Division represents 6 additional Divisions that were determined, based on records creation and/or activity levels, not to merit an assigned DRO. The number of DROs and the level of support at the division level was determined through the survey of the RMCs in the previous program.

The program consists of a three tier communication structure. Records Management Coordinators and Records Management Liaisons are identified by the DROs based on levels of record processing activity and responsibility. Each receives communication and training commensurate with their duties and levels of responsibility. This delineation adds organizational structure that ensures that information delivered to program participants is tailored to their functional needs. DRO functional organization charts (See Attachment 1) are maintained by the DROs with assistance from Records Administration personnel. A breakdown of program responsibilities are as follows:

WSRC Records Officer - has overall responsibility for the implementation and management of the WSRC Records Management Program, including the DRO Program and the Records Management Training Program at the SRS in accordance with Management Requirements Procedure 3.31.

DRO Program Manager - is responsible for the development, implementation, and the monitoring of the DRO Program. This includes developing and maintaining the DRO Program Divisional organizational charts and scheduling BI- monthly meetings with the DROs.

Division Records Officer (DRO) - is responsible for the coordination and development of Site and Division level records management policies and programs in conjunction with Records Administration. The DRO determines the need for and identifies the RMCs and RMLs for their division. DROs ensure that RMCs and RMLs are scheduled for Records Management training through their Division Training Coordinator.

Records Management Coordinator (RMC) - is responsible for the development and coordination of Section/Work Group level records policies, procedures, and processing

requirements and receives direction from the DRO concerning records management issues.

Records management Liaison (RML) - is responsible for coordinating Section/Work Group level records processing, including indexing records into EDWS and preparation for transmittal to Records Administration. The RML receives direction from the DRO and/or the applicable Department RMC concerning records management issues.

Benefits of the DRO Program

Implementation of the DRO Program has provided RA an opportunity to address many records management issues within each organization. Some of these are identified below and are differentiated as administrative or programmatic.

Administration

Centralize records capture and assembly/preparation points within divisions, departments and sections as applicable.

- Minimize training and UNIX, hardware/software costs
- Minimize the number of RMCs and RMLs
- Standardize and improve records processing within division and departments

Identify and assign records "retrieval experts" in each division to facilitate the search and retrieval of EDWS managed records and images.

- Reduce retrieval times and enhance access to archival records
- Eliminate unnecessary copying and distribution of paper
- Reduce training and multiple user impact on the system

Develop administrative requirements for processing EDWS enhancement requests from site users and addressing any database problems they may be having. (RA/DRO task)

Programmatic

Document the indexing and processing requirements for site customers.

- Box building/indexing methods for various records indexing profiles
- Preparation requirements for records designated for media conversion
- Identify/document exceptions to standards, (i.e. oversized, color, original signature, etc.)

Perform inventory of records being processed and evaluate retention requirements with the Retention Schedule Matrix (RSM)

Evaluate candidates for imaging and the feasibility of performing customer in-house scanning/importing.

Identify candidates for submitting electronic records only with no paper to be generated for archival storage (i.e. MSWord documents not requiring signature).

- DRO team to address requirement(s) for signature authentication on selected records
- Document program for “electronic authentication” acceptance by management

A DRO checklist was developed and issued to aid DRO personnel in establishing their responsibilities within their respective organizations. (See Attachment 2)

DRO Program and the Roll-out of EDWS

Implementation of the DRO Program has been instrumental in the site roll-out of the Electronic Document and Workflow System (EDWS) and customer indexing. All EDWS classroom training and on-site hands-on training has been provided by RA and coordinated through the applicable DRO. This has allowed RA to prioritize the needs of the various divisions, expedite the loading of the application software, and initiate fast-track remote customer indexing.

Effectiveness of Customer Indexing in the EDWS Database

Records Administration (RA) is continuing to Roll-out the EDWS database for use by site customer organizations. Currently there are 40 non RA indexing personnel employing the system to perform on-site records preparation and indexing. In the past year approximately 30,000 records indexes (875 boxes) have been entered into the system by the remote indexing process. These include the four indexing profiles (Package, Individually Managed, Box, and Partial Box) used to input records submitted to and managed by Records Administration. Many of these records are being converted from hard copy to microfilm or an image file. The implementation of the EDWS across the Site field has facilitated the education and training of RA customers in proper record filing, compilation and preparation techniques. These methods are essential in the effort to streamline indexing techniques and reduce paper holdings through our media conversion program.

EDWS Future Roll-out

An additional 70+ site personnel were scheduled for training by their DRO's and attended the classroom and hands-on training provided by RA. We anticipate that most of these RMLs will be performing remote indexing into EDWS in the near future. A chargeback system for RA performance of indexing is currently under evaluation and is proposed to be put in place in FY 99. It is anticipated that through implementation of a chargeback program, many customers will be motivated to coordinate with RA and begin indexing their records into EDWS.

Benefits from EDWS Roll-out

As stated above, the roll-out of indexing has had numerous benefits for both our customers and RA. Training customers to accumulate and file their records in a pre-determined order on an as-you-go basis has reduced the amount of indexing time by 4 to 6 hours per box (where Date and Document number ranges are utilized). Also by utilizing the "Partial Box" indexing profile to process the majority of the completed operating procedures and records, RA is able to convert most of these files to imaged record copies and dispose of the hard copy. The new indexing profiles implemented with the EDWS database actually enhance search and retrieval capabilities while greatly reducing indexing labor.

Remote Scanning and Indexing

Currently we are working with a number of customers to implement remote scanning and indexing of their records. RA is operating in a supporting roll in these efforts. As such, RA will perform Quality Assurance audits of our customer's work and programmatically certify their imaging/indexing operation to established standards. We have provided the customers with RA desktop instructions for imaging, importing, and indexing, which they will incorporate into their working program. Customer remote scanning and indexing will result in a considerable reduction of the number of hard copy records being transmitted to RA.

Electronic Approval for Record Copies

RA is working closely with our customers to implement electronic approval and transfer of records in their native file format. The "workflow router" function of EDWS will be used to document approval and acceptance of the electronic file for record copy purposes. Records submitted to RA in electronic format must conform to the applicable procedural requirements and be created in one of the site licensed software applications. The EDWS router associated with the each electronic record serves as the documented record identifying the person responsible for approving and submitting the record.

Success of EDWS roll-out

The roll-out of EDWS and implementation of customer indexing has been a great success. Many customers have expressed an appreciation for the benefits that the new system provides in both the indexing and retrieval of information. Customer indexing directly into EDWS has reduced the use of multiple data systems and eliminated numerous hours of duplicate indexing. Through roll-out of EDWS and partnering with our customers, RA is on course to full implementation of an electronic records management environment. (less paper, not paperless!)

DRO Program Implementation Results

Appointing a Division Records Officer gives us a single point of contact to disburse records management policy and program information. This improves our ability to ensure consistent and accurate communication across the SRS. With the hierarchical structure in place for each Division, information is transferred through the DROs to the RMCs and RMLs. Policy changes and issue resolutions are communicated consistently within the framework of this program. Also, the restructuring of the program has allowed us to reduce the number of assigned personnel at the RMC level from 240 to 62.

DRO CHECK LIST

ADMINISTRATIVE

- Position confirmed by Vice President
- Learn DRO Roles and Responsibilities (attend DRO training)
- Communicate DRO position assignment, responsibilities to Division personnel
- Solicit support in terms of designated RMCs and RMLs from Department organizations as appropriate
- Meet with Division RMCs and RMLs to explain Division RM program and plan
- Prepare/verify organizational chart of RMCs and RMLs as appropriate and communicate to RA (lists are on-line on the RA Web Page)
- Schedule Records Management and EDWS training for DRO, RMCs, and RMLs
- Attend DRO bi-monthly meetings

PROGRAMATIC

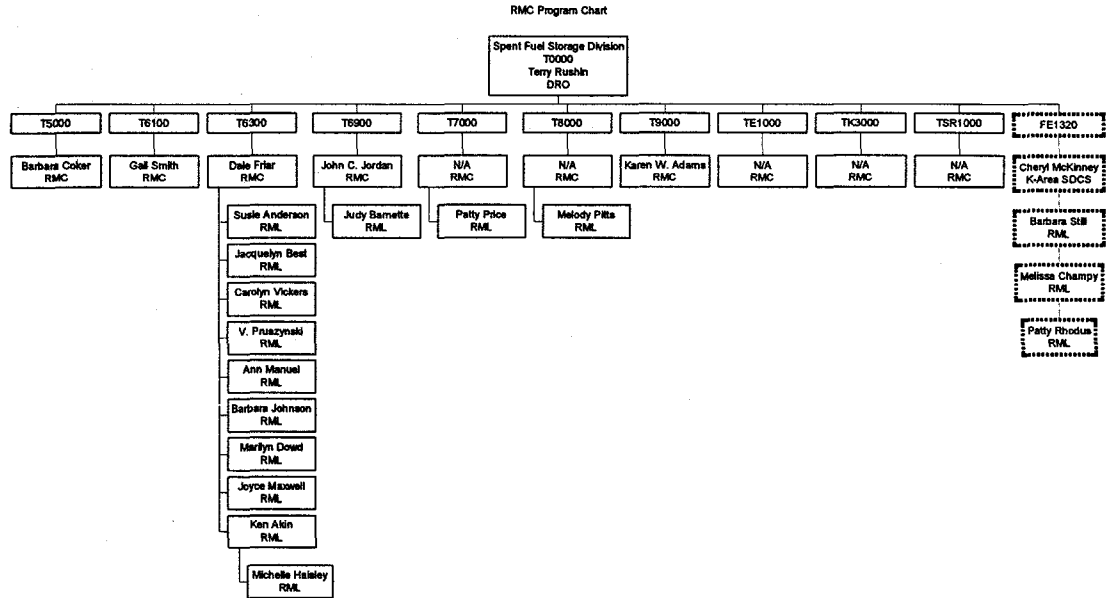
- Participate on issue resolution task teams as needed
- Identify record types and process flows from the record creators to the Document Control Satellites and Records Processing/Archive
- Identify changes to business processes to support systematic field indexing into EDWS of specific records
- Identify Division computer systems/databases for proper handling of record information
- Review Division procedures for impact on Division and WSRC records programs
- Identify Vital records and ensure adequate handling of 'Emergency Operating' and 'Rights and Interests' records
- Develop and implement facility specific Disaster Recovery Plan(s) in accordance with the SRS Disaster Preparedness and Recovery Plan
- Approve destruction of records in temporary storage (Form OSR 17-43/Expired Retention)

AUDIT

- Inventory records to identify those records created or received by the Division
- Identify all temporary records storage locations under Division control and ensure that records are adequately protected and that unauthorized access is prevented
- Review Division handling, storage, turnover, and retention policies and practices to ensure WSRC compliance

- Audit Division RM program and list all deficiencies discovered; develop corrective action plans for each
- Verify that Division Quality Assurance Records are identified and cited with the appropriate RSM track/disposal authority

ATTACHMENT 2



6/19/98

Knowledge, Information, and Records: A Management Continuum for the Future

Anna Nusbaum
Carmen Ward
Sandia National Laboratories

1998 DOE Records Management Conference
Records Management: A Monumental Task



Knowledge, Information & Records: A
Management Continuum for the Future

Anna Nusbaum, CRM

Carmen Ward

Sandia National Laboratories

July 22, 1998

Knowledge, Information & Records



- Review Knowledge Management “in the world”
- Introduce Sandia
- Knowledge Management at Sandia
- Future KM plans at Sandia
- How Knowledge Management connects to Records Management

Knowledge, Information, & Records: Knowledge Management



- What is “it”?
- Who’s doing what about “it”?
- What does “it” all mean?

Knowledge, Information & Records: KM -- What is "it"?



- Multiple views of what Knowledge Management is...
 - Software solutions
 - "Net mining"
 - Technology solutions
 - Succession planning
- ...and isn't
 - the same as information

Knowledge, Information & Records: KM = Software Solution



- Kanisia, Inc.

- “Platform supports the *entire* knowledge lifecycle: knowledge capture, storage, processing, and distribution
- “We leverage our library of knowledge functions to build applications”
- “We are among the first companies to enhance your existing IT infrastructure”

Knowledge, Information & Records: KM = "Net Mining"



- Plumtree Software

- "Enterprise-ready information management system for next-generation Intranets"
- "Creates an electronic card catalog of files, Web, electronic mail...which users can browse"

Knowledge, Information & Records: KM = Technology Solutions



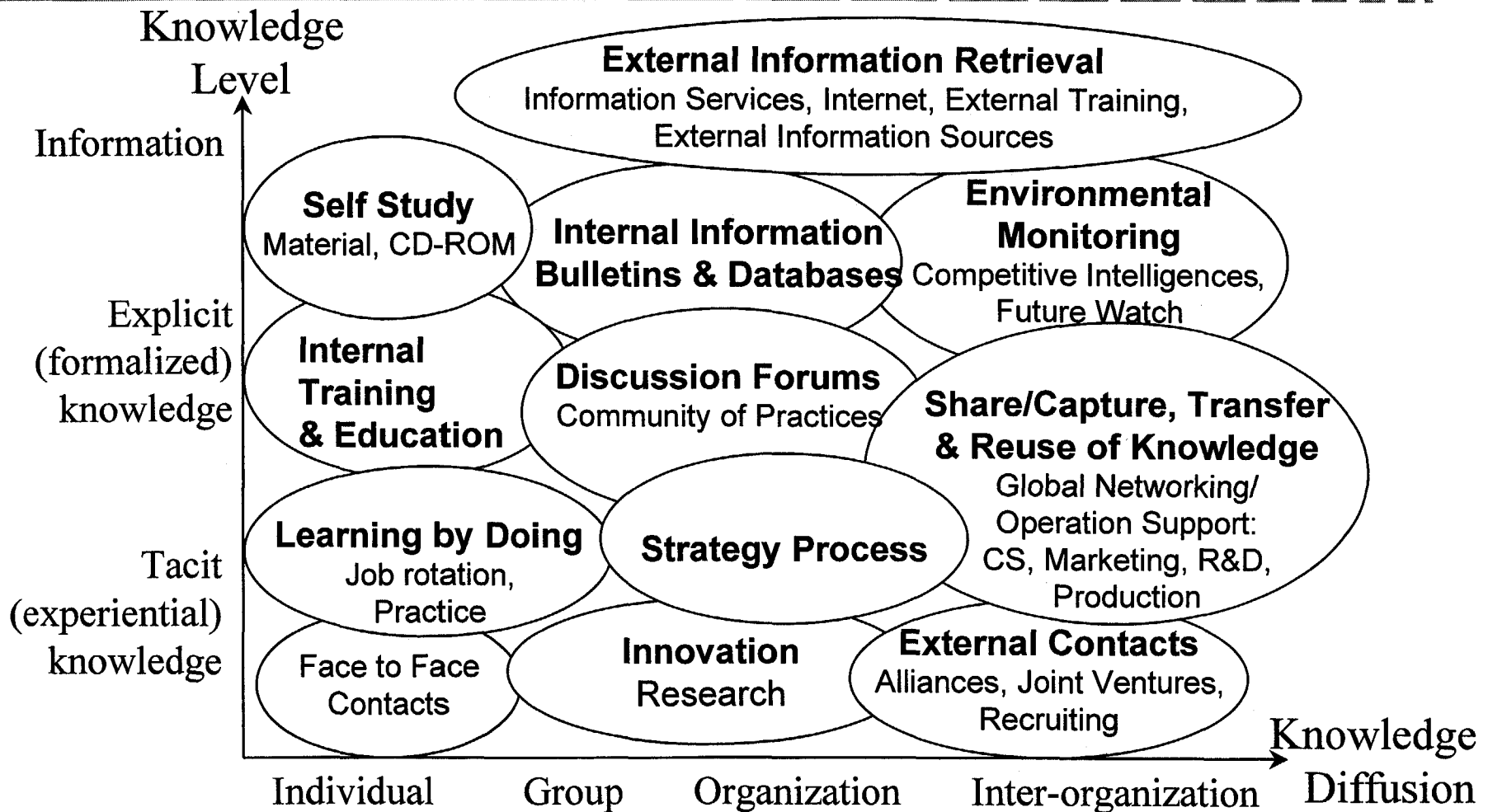
- Applied intelligence Atelier (AiA) inc.
 - “Our technologies are the basis of our knowledge management strategy”
 - “AiA’s technologies are ‘Applied intelligence Ateliers’, the place where knowledge craftsmen work together representing problems, building prototypes, and creating solutions.”
 - “...include collaborative ‘ideaprocessing’ and interactive data mining.”

Knowledge, Information & Records: KM = Succession Planning



- HR Horizons, from Advanced Information Management, Inc.
 - Broad range of development approaches (assessment, profiling, what-if planning, position matching)
 - Allows a company to standardize data-capture and report-generation
 - Prepares bench strength and succession analyses

Knowledge, Information & Records: Knowledge Management Map



Knowledge, Information & Records: What does KM mean?

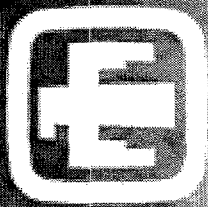


- KM represents a quantum shift for most organizations
- It is a form of *expertise-centered management*
- Aim is for businesses to become more competitive through the capacities of their people to be more flexible and innovative
- Knowledge work is inherently hard to manage
- Context is critical

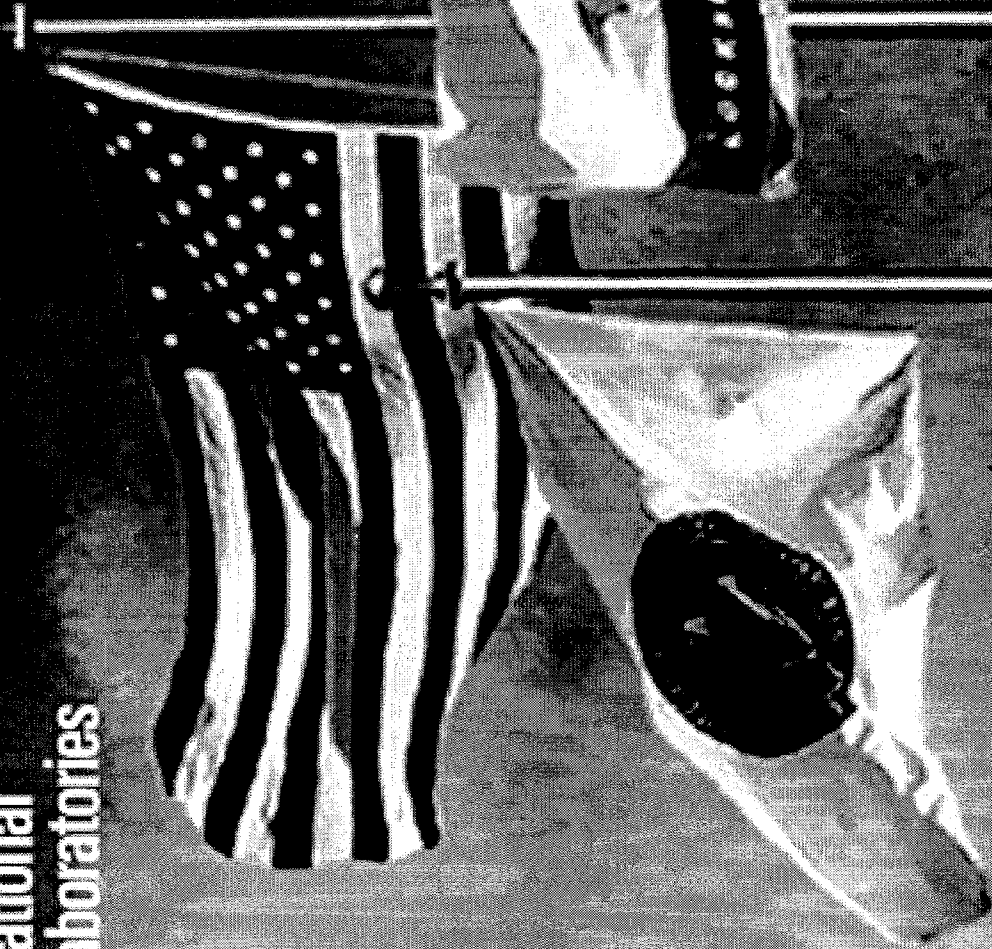
Knowledge, Information & Records: About Sandia National Laboratories



- “And now, a few words from our sponsor...”



**Sandia
National
Laboratories**

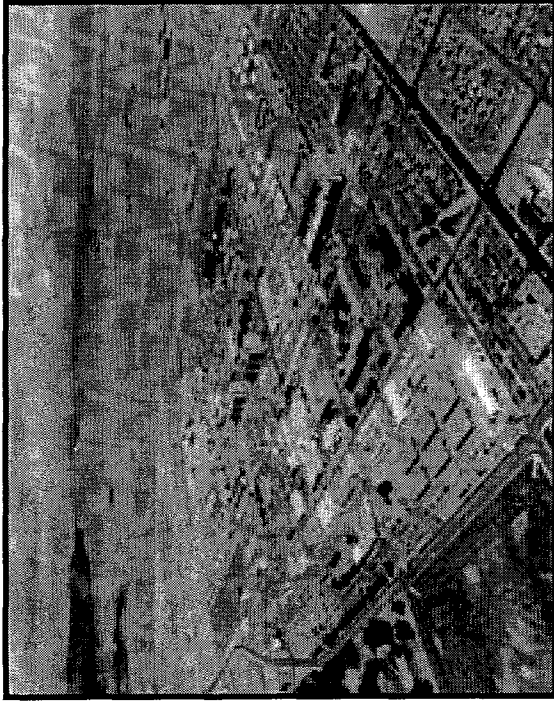


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Sandia is a Multiprogram Laboratory
Operated by Sandia Corporation,
a Lockheed Martin Company,
for the United States Department of Energy
Under Contract DE-ACO4-94AL85000.

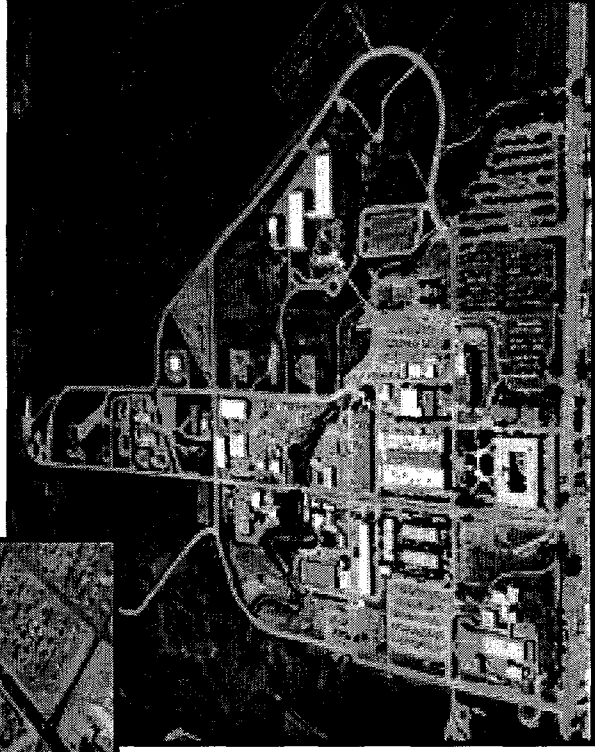
Sandia National Laboratories sites



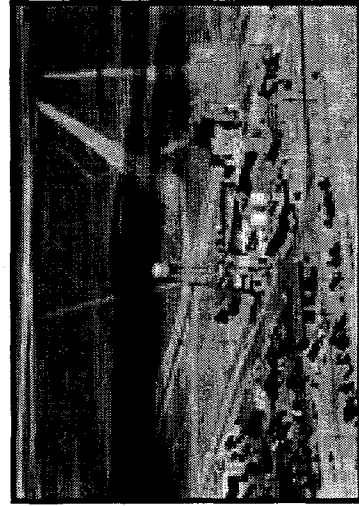
**Kauai Test Facility,
Hawaii**



**Albuquerque,
New Mexico**



**Livermore,
California**

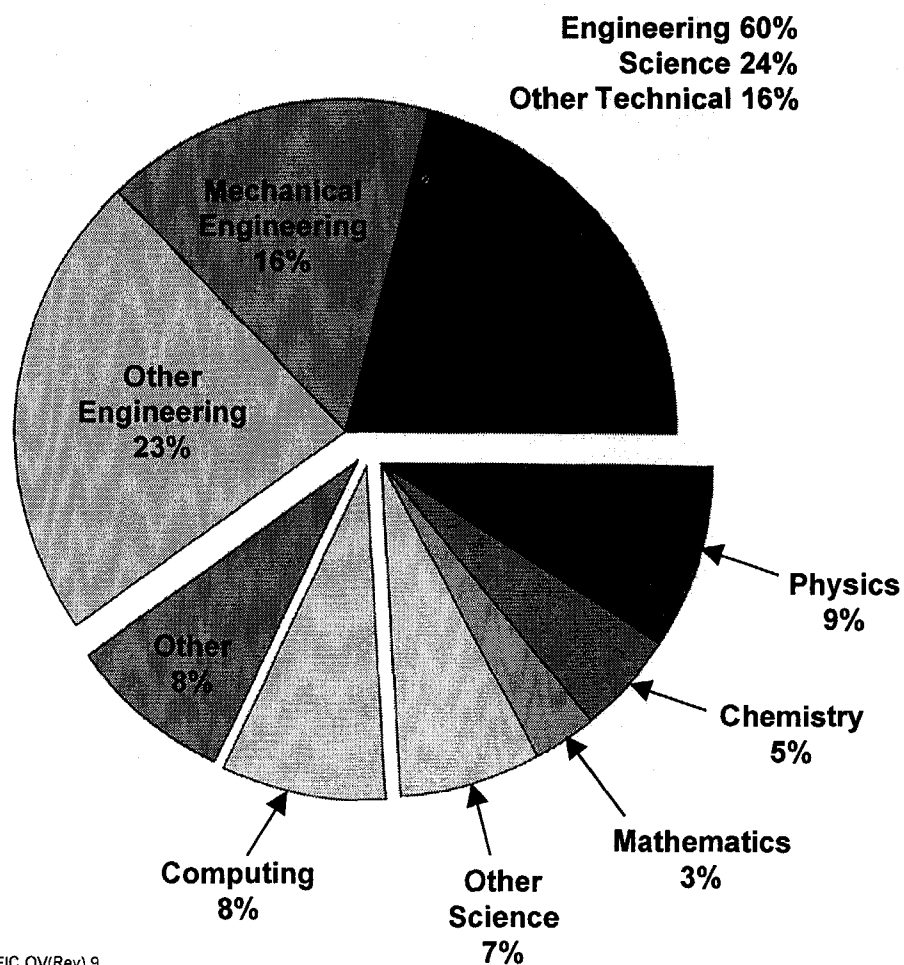


**Tonopah Test Range,
Nevada**

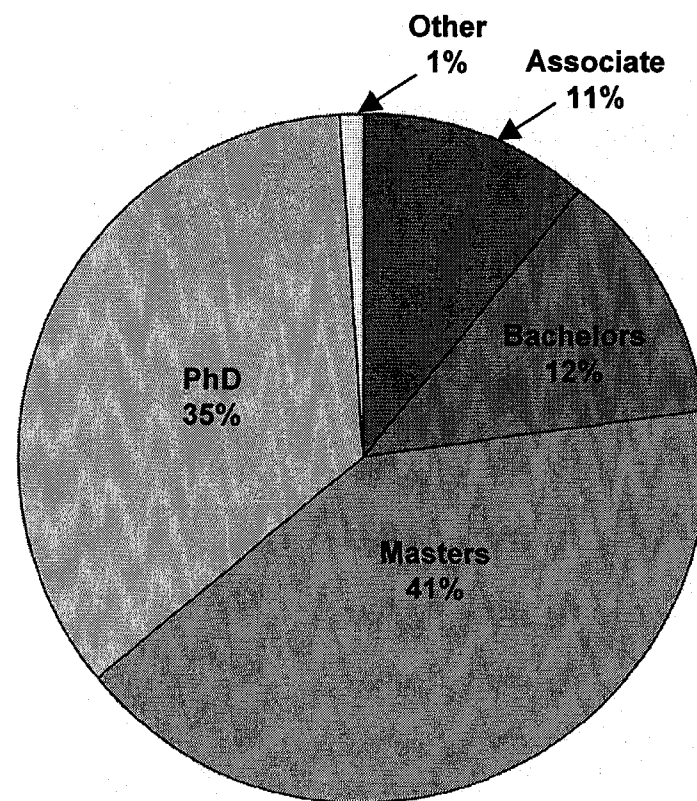


Nearly 4,000 engineers and scientists make up Sandia's technical staff

By discipline



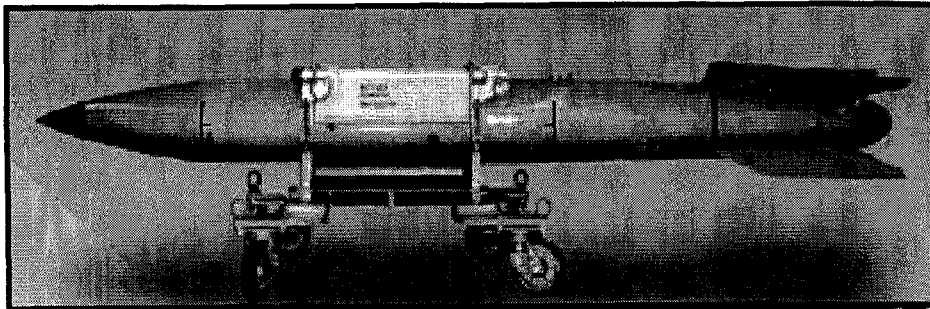
By degree



Sandia's strategic plan identifies four mission objectives in national security

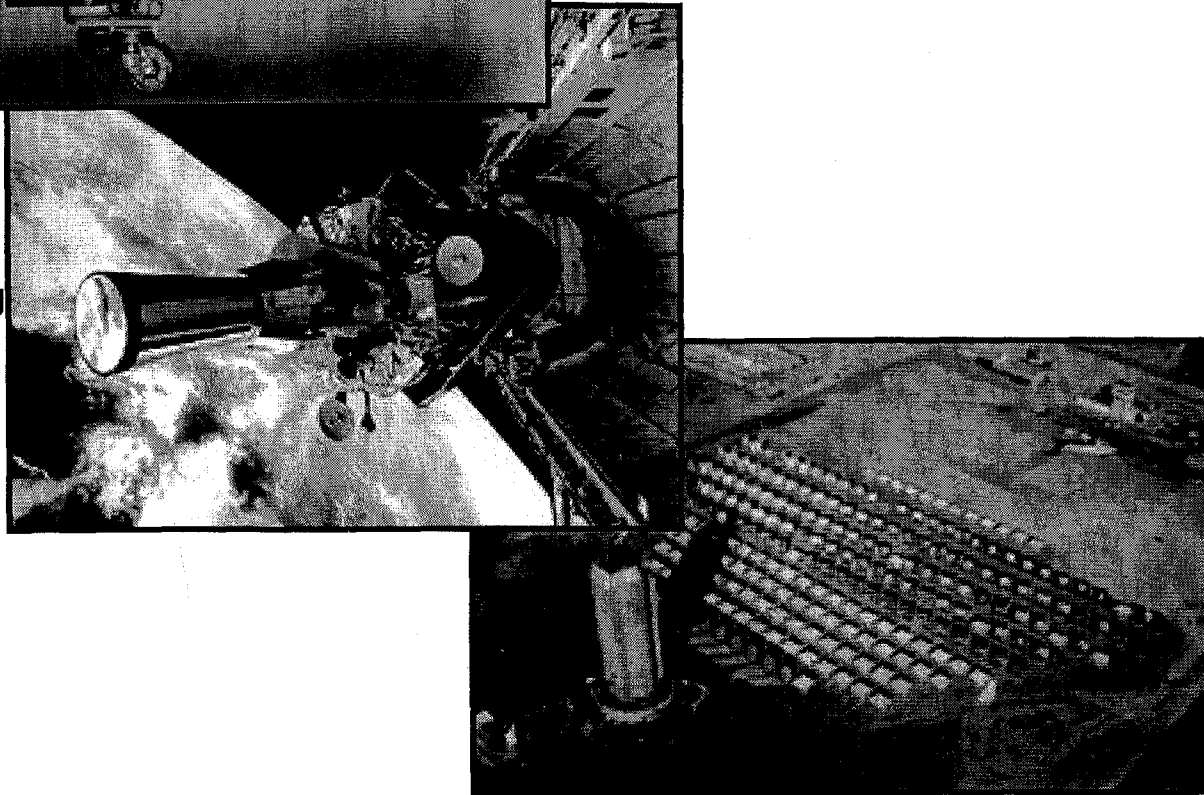
- 
- **Ensure that the nuclear weapons stockpile is safe, secure, and reliable and fully capable of supporting our nation's deterrence policy**
 - **Reduce the vulnerability of the United States to proliferation, use of weapons of mass destruction, and threats of nuclear incidents**
 - **Advance the surety (safety, security, and reliability) of critical global infrastructures**
 - **Develop high-impact responses to emerging national security threats**

Sandia's missions support national security



Our primary mission is stewardship of our nation's nuclear weapons stockpile – from development to dismantlement

We also perform certain derived activities stemming from our nuclear weapons mission (arms control, clean-up, etc.)



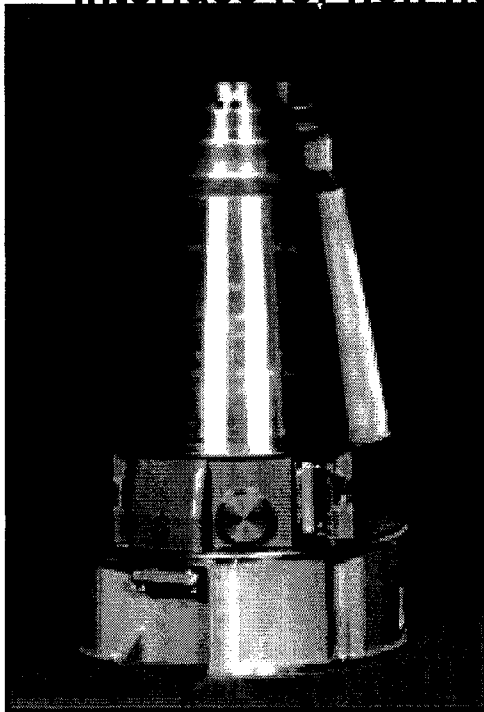
And we have a shared mission with other DOE laboratories in energy research and development



Sandia is responsible for the non-nuclear components and subsystems of nuclear weapons

“Weaponization”

Design, engineering, testing, integration, and production interface for non-nuclear components



W88/MK5

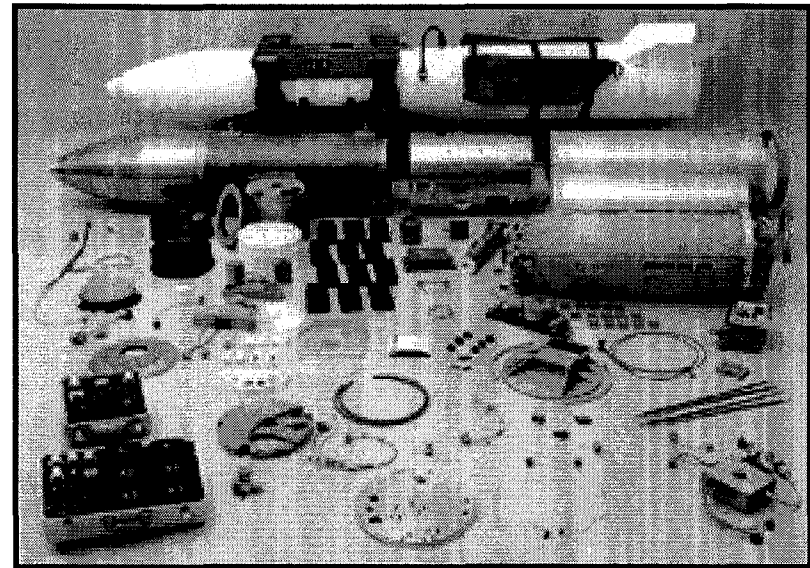
Arming, Fuzing, and Firing System

Total parts > 3000

Eagle.FIC.OV(Rev)

12

- Radars
- Impact fuzes
- Shock absorbers
- Casing
- Detonators
- Firing sets
- Transverters
- Capacitors
- Switches
- Switch tubes
- Rectifiers
- Programmers
- Neutron generators
- Reservoirs
- Stronglinks
- Batteries
- Timers
- Spin generators
- Parachutes
- Ejector systems
- PAL controllers



B83 Strategic Bomb

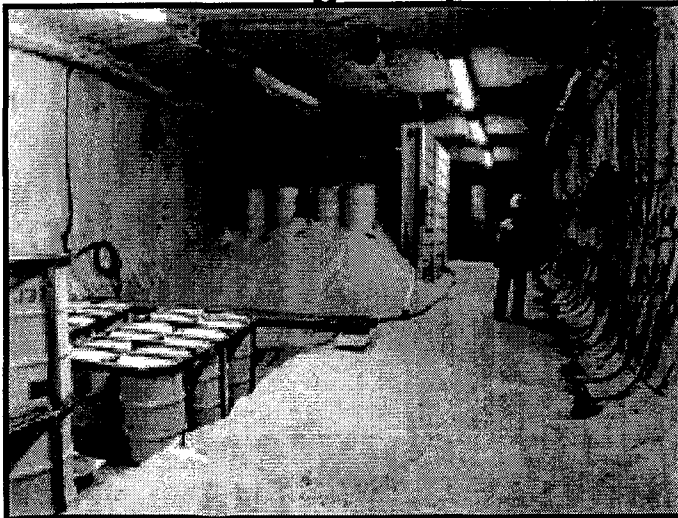
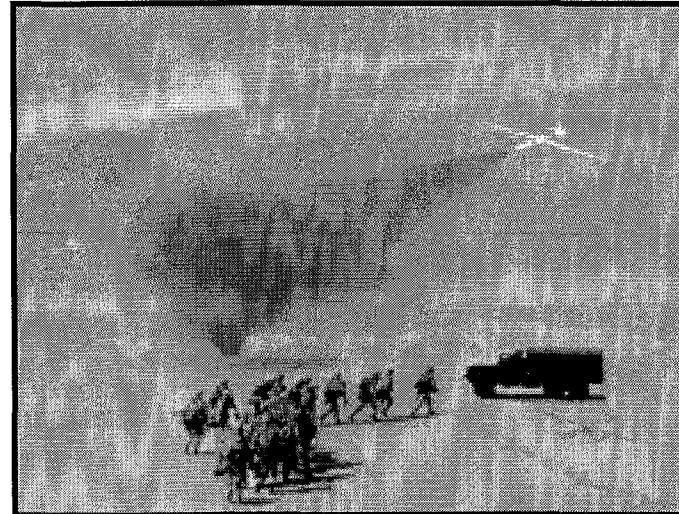
Total parts - 6,519

- Sandia developed - 3,922
- Sandia specified - 2,378

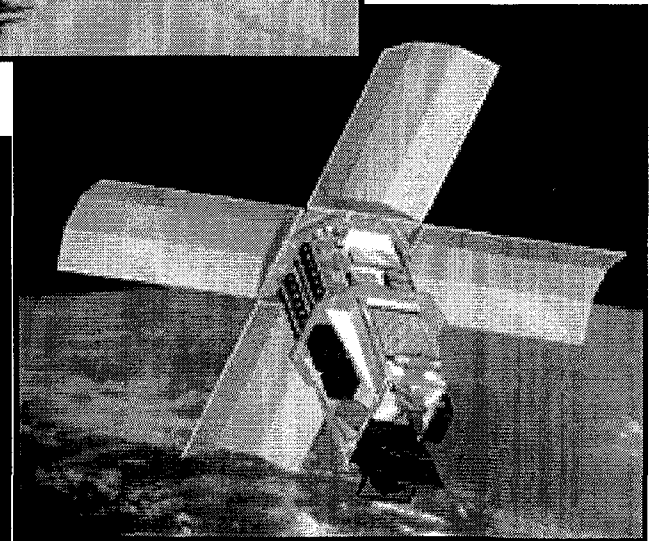
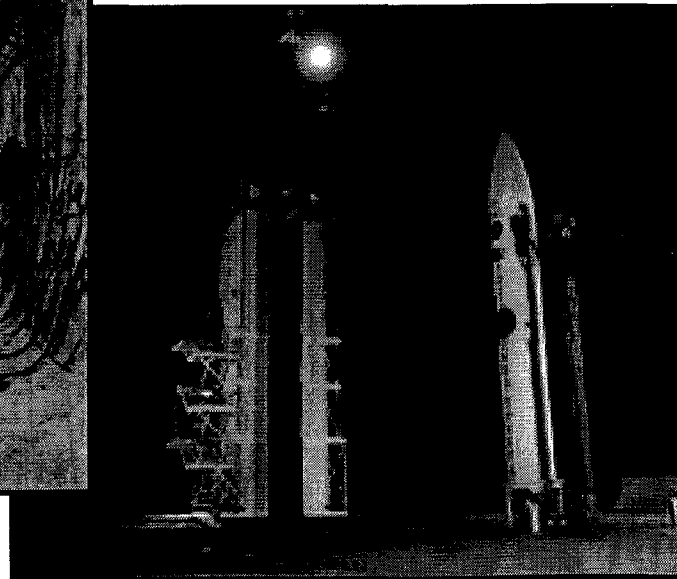


Activities derived from our nuclear weapons mission support vital national security interests

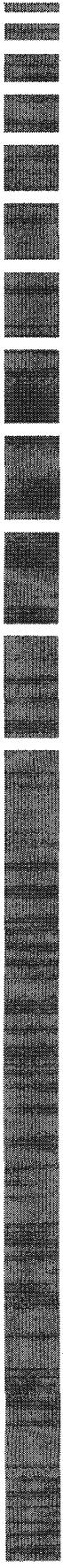
- Arms control and verification
- Non-proliferation
- Foreign technology assessments
- Clean-up of nuclear waste legacy
- Non-nuclear defense related to our capabilities
- Defeating weapons of mass destruction



Eagle.FIC.OV(Rev)



Knowledge, Information & Records:



- More context...
- Knowledge Management at Sandia

Knowledge, Information & Records: KM at Sandia



- *Nuclear Weapon Knowledge* is the unique skills and expertise of the people who have supported the nuclear deterrent for nearly 50 years, along with the data and information and the laboratories capabilities needed to solve the problems of the future.

Knowledge, Information & Records: KM at Sandia



- *The Nineties (1990) Timeline*

- End of the Cold War - no new weapons
- Sandia 40 yrs. Old - loss of corporate memory
- Records Inventory
- DNFSB - Recommendation 93-6
- Knowledge Preservation Project
- NWIG

Knowledge, Information & Records: KM at Sandia



- The *Knowledge Management Program* is collection, sharing, application and adaptation of the unique knowledge to support the nuclear deterrent for the foreseeable future. Focus is on 3 areas:
 - People
 - Data and Information
 - Capabilities and facilities

Knowledge, Information & Records: KM at Sandia - People



- Identify expertise
 - what do you need to know to become an expert
 - how do we grow experts in the future
- What data and information must you have to do your job
- What corporate capabilities and facilities must be maintained for you to do your job

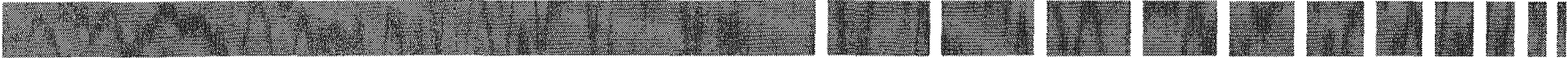
Knowledge, Information & Records: KM at Sandia - People



- Develop Intern Program - educate and train new engineers
- Qualification and Certification Program
- Managers and staff must focus on developing their successors
 - mentoring, rotational assignments, learning and teaching
- Retiree Corps

Create a learning environment

Knowledge, Information & Records: KM at Sandia - Data/Information



- Must answer three basic questions:
 - does the data/information exist?
 - where is it located?
 - what is the retention?
- Retrievability - sharing and re-use
 - common metadata, thesaurus, search
- Access (use of industry standards)
 - NWIG

Knowledge, Information & Records: KM at Sandia - Capabilities



- Identify investments required to support strategic plans
 - What are the critical capabilities & facilities?
- Review status and funding
- Maintain inventory of historical and enduring stockpile weapon artifacts

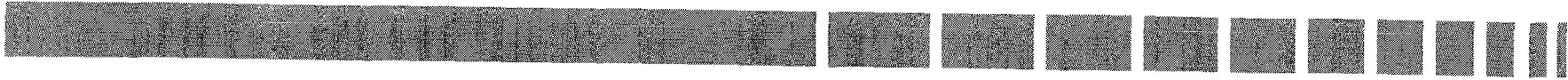
Knowledge, Information & Records: KM at Sandia



WOW - How do I do all that

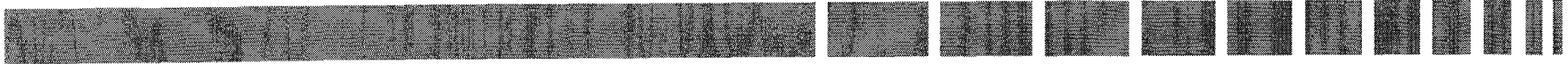
- Get Involved - Be assertive
- Collaboration of HR, RM and IS with the scientists and engineers
 - They are the creators and users of
 - data and information
 - capabilities and facilities

Knowledge, Information & Records: KM at Sandia



- Speaking of Records Management....

Knowledge, Information & Records: KM and Records Management



- In the “Records Management” equation, is it the “record” or is it the “management”?
- The Knowledge Management train

Knowledge, Information & Records: One Records Manager's Opinion



- Records Management equation:
 - That which is managed is accessible, useable, and conservable.
 - If you enable the management of “the stuff”, the odds are improved for managing the records.
 - Managing means working through and with others.

Knowledge, Information & Records: One Records Manager's Opinion



- This thing called Knowledge Management
 - the train is leaving the station
 - has significant implications for Records Management and Managers
 - some traditional *applications* of RM principles will not survive

Knowledge, Information & Records: One Records Manager's Opinion



- The *principles* of RM will not change
- Our roles as Records Managers must change
- We must stretch or shatter our comfortable concepts of how to apply the principles
- It is critical to team, partner, and collaborate like heck
- Records Managers have significant skills and expertise to contribute in Knowledge Management

Knowledge, Information & Records: One Records Manager's Opinion



- Do you, as Records Managers, want:
 - to be in front of the KM train?
 - to ride on the train?
 - to drive the train . . .OR
- Do you want to be part of the team managing the whole transportation system?

Knowledge, Information & Records: One Records Manager's Opinion



- Persist
- Listen
- Persist
- Learn
- Persist

Bibliography
Knowledge Information, and Records:
A Management Continuum for the Future

Books

- Davenport, Thomas H., and Prusak, Laurence, Working Knowledge – How Organizations Manage What They Know, Harvard Business School Press, Boston, MA, 1998, 197 pp.
- Liebowitz, Jay, and Wilcox, Lyle C., editors, Knowledge Management and Its Integrative Elements, CRC Press, Boca Raton, FL, 1997, 205 pp.

Journal Articles

- Broadbent, Dr. Marianne, "The Phenomenon of Knowledge Management: What Does It Mean To The Information Profession?", Information Outlook, May 1998, pp 23-36.
- Anon, "The network discusses: Global recruiting, profit sharing, and succession planning", Compensation and Benefits Review, Volume 30, Number 12, Mar/Apr 1998, pp 38-40.
- Lercel, Mary E., and Field, Lloyd M., "Preparing for the transfer of leadership: Into the void or into a well-planned future?", Canadian Manager, Volume 23, Number 1, Spring 1998, pp 23-26.
- Finnerty, Patrick, "Knowledge management made easier", CMA Magazine, Volume 72, Number 2, March 1998, pp 31.
- Angus, Jeff, Patel, Jeetu, and Harty, Jennifer, "Knowledge Management: Great concept...but what is it?", Informationweek, Number 673, March 16, 1998, pp 58-70

Web Sites (all begin with: http://)

- www.ktic.com (publishes articles on knowledge management)
- www.kanisa.com
- www.plumtreesoft.com
- www.a-i-a.com/englishHomePage

Recent Presentations

- ARMA 1997 Conference (Chicago, IL): Robert F. Williams, "Managing the 'New Corporate Memory'"

Reports

- Military Liaison and Knowledge Management Center, A Sandia Nuclear Weapon Knowledge Management Program Plan for FY1998-2003, Volume 1: Synopsis,

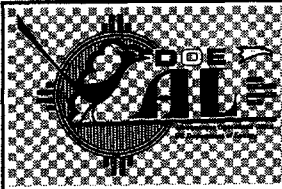
DOE Records Management Conference, July 1998
Knowledge, Information and Records: A Management Continuum for the Future
Anna W. Nusbaum, CRM, and Carmen Ward
Sandia National Laboratories

Sandia National Laboratories, February 1998, SAND97-3083/1, Unlimited
Release.

DOE Records Management Conference, July 1998
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FOIA and Litigation Response The Team Approach

Margarita Sexson
Ray Lyon
Orville Pratt
DOE Albuquerque Operations Office



*FOIA & LITIGATION RESPONSE
THE TEAM APPROACH*

Margarita Y. Sexson

Ray Lyon

Orville Pratt



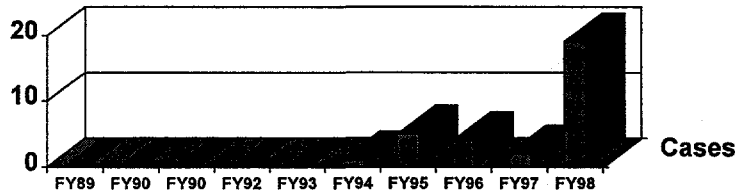
AL's Organizational History

■ *Changes in organizational structure:*

- *Nevada Operations Office*
- *Rocky Flats Operations Office*
- *Pinellas Plant*
- *Mound Facility*
- *UMTRA Project*



Litigation & FOIA Research History at AL



FY89-93 Support not recorded

FY94 1 Case

FY95 5 Cases

FY96 4 Cases

FY97 2 Cases

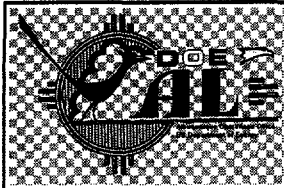
FY98 19 Cases

*Most cases are related
to Environmental Programs
or Safety & Health issues*



FBI Raid

- ⊗ *Unannounced arrival*
- ⊗ *21 cubic feet of records removed*
- ⊗ *No formalized records transfer*
- ⊗ *Lingering after-effects*
- ⊗ *Agencies must consider vulnerabilities*



Risk Management

for FOIA and Litigation Response



Risk and the Records Manager

- *Visibility*
- *Requirements to Respond*
- *Increased Public Interest in Environmental Activity*
- *Increased Inter & Intra Agency and External interests in the agencies activities*



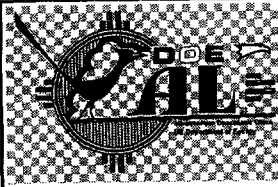
Responding Requirements

- ⊙ *Freedom of Information Act (FOIA)*
- ⊙ *Resource Conservation & Recovery Act of 1976 (RCRA)*
- ⊙ *Comprehensive Environmental Response Compensation & Liability Act of 1980 (CERCLA)*
- ⊙ *National Environmental Policy Act of 1969 (NEPA)*



Responding to Requests

- ☐ *Courts defined "response rules"*
- ☐ *Subpoenas*
- ☐ *Discovery*
- ☐ *Other*



Other Active Responses

- *Courtesy responses*
- *Timeliness*
- *Benefits*
 - *Good Business Practice*
 - *Measure of Effective Program*



Litigation Support Concerns

- ☺ *Prevent "Contempt of Court"*
- ☺ *Demonstrate Accountability*
- ☺ *Demonstrate Consistent RM Practices*



Minimizing Risk

- *Facilitating Responses*
- *Liaison*
 - *Open the lines of communications*
 - *Smooth over 'intrusion' fears*
 - *Information provided as 'need to know'*
 - *Knowledge of handling sensitive information*
- *Lifting the veil of secrecy*



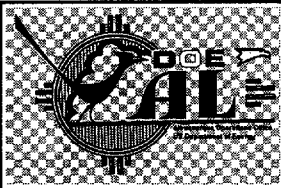
Standardizing Procedures for FOIA and Litigation Response



Standardizing Procedures

Albuquerque Operation Office

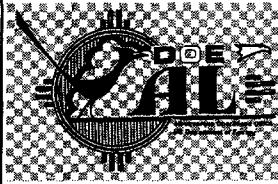
- ∴ Multiple Request Sources*
- ∴ Requests related to Environmental Safety & Health*
- ∴ Most responses:*
 - ◆ Generally "unclassified"*
 - ◆ Will declassify or redact*
 - ◆ Few sensitive or proprietary issues*



Standardizing Procedures

Albuquerque Operation Office Issues

- ❖ Request Process*
- ❖ Notification Process*
- ❖ Handling Classified Information*
- ❖ Records Management Team*



Standardizing Procedures

Albuquerque Operations Office Issues

∴ Requests not formalized by FOIA

∴ Request formats:

May vary for public and federal requesters

FOIA circumvented by "special agreements"

Inter and intra government agency courtesies

– State of Alaska



Standardizing Procedures

Albuquerque Operations Office Issues

∴ Current Notification Process not based in fact

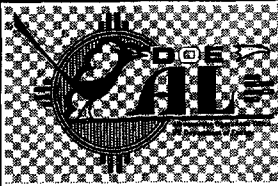
÷ Not always clear who to query

÷ Record owner by program or project

∴ Records Management Team not routinely notified

÷ Albuquerque Records Center - inactive records

÷ ALO Intranet - to include active records



Standardizing Procedures

Albuquerque Operations Office Issues

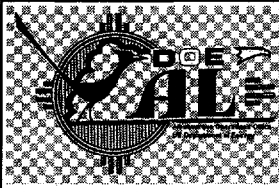
- ∴ Improving Notification Process*
 - € Provides an audit trail*
 - € Ability to re-create similar responses for similar requests*
 - € Standardize response format*



Standardizing Procedures

Albuquerque Operations Office Issues

- ⊛ Classified Matter*
 - ◆ Internal and external reviewers*
 - ◆ Secure locations to review classified matter*
 - ◆ Staff trained and knowledgeable*
 - Authorized Derivative Classifiers*
 - Authorized Derivative Declassifies*
 - ◆ Determinations of declassification and redacting to respond to inquiry*



Standardizing Procedures

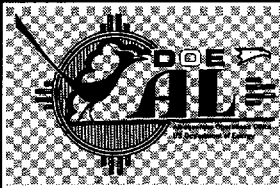
Albuquerque Operations Office Issues

• Teaming

- ★ One Point of Contact for all requests*
- ★ Manage and coordinate Record Center access*
- ★ Monitor effort for litigation & FOIA support*



Continued Improvements for FOIA and Litigation Response



Continued Improvements

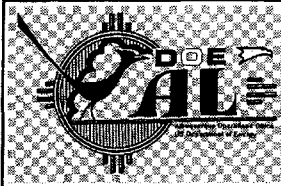
- Software Application*
- Disposition Program*
- Program Awareness*



Continued Improvements

Software Application

- ▽ *Reviewed 4 Packages*
- ▽ *Selected Package for Initial Evaluation*
- ▽ *Anticipated Benefits:*
 - *Capture Records Early in Cycle*
 - *Standardize Finding Aids*
 - *Search Across Division Boundaries*
 - *Simplify Moratorium Implementation*



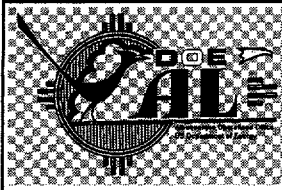
Disposition Program

- I *FOIA & Litigation emphasizes program's importance*
- I *Using this to review/update/improve:*
 - < *Records Inventories / Series Identifications*
 - < *Record Schedule Citations*
 - < *Awareness of Electronic Records*



Program Awareness

- * *Records Management Coordinators*
- * *Ownership of Record Center Contents*
- * *Individual's Roles and Responsibilities*



*FOIA & Litigation Response
The Team Approach*

Conclusion

- ◎ *Risk Management*
- ◎ *Standardizing Procedures*
- ◎ *Continued Improvement*

In the Trenches – Finding Solutions to Our Common Records Management Problems

Juli Stewart
Oak Ridge National Laboratory

David Gayon
Lawrence Livermore National Laboratory

RECORDS MANAGEMENT WORKSHOP

TITLE:

In the Trenches -- Finding Solutions to Our Common Records Management Problems

FACILITATORS:

Juli Stewart, Oak Ridge National Laboratory & David Gaynon, Lawrence Livermore National Laboratory

TEACHING METHODOLOGY:

Participants in this session will learn by doing. You will be presented with a challenging case study based on actual experiences of records managers throughout the DOE complex. Attendees will be subdivided into teams of consultants and tasked with creating an outline of a strategic plan addressing the case's concerns. During the last half hour of the session each team will present their recommendations and answer questions from the larger group. The facilitators will close the sessions by summarizing solutions and identifying areas of the case which may not have been fully addressed. Slides and notes from this session will be posted on the Oak Ridge National Laboratory Records Policy and Management Home Page at URL:

<http://www.ornl.gov/records/>

The Task:

Your job will be to develop a strategic approach to ensure consistent and uniform life cycle management of all information within the organization described in this case study.

The Benefits:

It is the hope of the facilitators that this session will encourage participants to engage in an open exchange of views. In most conference presentations learning is largely occurs in a single direction. This presentation is designed to function interactively to promote learning, team building and networking within an environment that is both fun and challenging.

**Preservation of AEC-Era Employee Medical
X-Rays by the U.S. Department of Energy
Grand Junction Office**

Jeffrey Tack
Wastren – Grand Junction

**Preservation of AEC-Era Employee Medical X Rays
By the U.S. Department of Energy Grand Junction Office**

Jeffrey G. Tack

*WASTREN-Grand Junction**

U.S. Department of Energy Grand Junction Office
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Abstract

The long-term preservation of approximately 2,000 medical x rays was one of the most challenging initiatives undertaken by the Records Management group at the U.S. Department of Energy (DOE) Grand Junction Office (GJO). The films are 14- by 17-inch front and lateral view chest x rays of personnel involved with various U.S. Atomic Energy Commission (AEC) uranium mining and milling operations in western Colorado and eastern Utah from the late 1940s to the early 1960s. Although the x rays are not classified as permanent archival records, these personnel records must be maintained until at least 2036 and perhaps longer. These x rays are valuable to medical health issues associated with uranium miners and mill workers and are frequently requested to support litigation and to substantiate eligibility requirements for benefits paid under the Radiation Exposure and Compensation Act (RECA) passed by the U.S. Congress in 1990.

Several corrective actions were implemented by GJO to restore portions of the collection that exhibited signs of advanced deterioration. The facility also implemented a program to ensure that these valuable records would be preserved until the end of their scheduled life.

Overview

During World War II, the Manhattan Engineer District (MED), under the U.S. Army Corps of Engineers, was charged with the development of atomic weapons. Its activities included research, engineering and design, operation of production facilities for weapons materials and components, testing, and acquisition and processing of uranium, the basic raw material essential to the production of the nuclear weapons. All these functions, and the numerous Government-owned facilities in which they were being performed, were transferred to the U.S. Atomic Energy Commission (AEC) in December 1946.

In late 1947, the Colorado Raw Materials Office was established in Grand Junction, Colorado, to conduct the AEC's domestic uranium research, processing, and procurement program. An Exploration Branch, initially under the direction of the AEC's New York office, was also

*Work performed under DOE Contract Number DE-AC13-96GJ87460 for the U.S. Department of Energy.

established at Grand Junction. In November 1952, the domestic uranium exploration, research, and procurement functions were combined to form the AEC Grand Junction Operations Office (what is now the Grand Junction Office [GJO]).

Grand Junction Office Records Management Program History

As the AEC's mission for locating, milling, and procuring uranium ore came to a end, field offices throughout the Western United States transferred their records to GJO for long-term maintenance and disposition. From the late 1940s through the present day, GJO has identified, collected, and preserved uranium exploration, mining, and mill processing records created in support of the AEC's domestic uranium procurement program.

The Opportunities Begin

In December 1996, the Rocky Mountain Region of the National Archives informed GJO that one of GJO's special media collections appeared to be showing signs of premature deterioration. Several of the storage boxes containing AEC-era medical x rays previously transferred by GJO to the National Archives facility were emitting a strong "acidic-type" odor. From GJO's review of old accession records, it appeared the films were 14- by 17-inch full chest x rays of personnel involved with various phases of uranium mining and milling operations in the Grand Junction, Colorado, and Monticello, Utah, regions during a 2-decade period from the late 1940s to the early 1960s.

After reviewing a sample of the deteriorating x rays and consulting with industry experts and the Special Media Branch of the National Archives in Washington, DC, GJO concluded that these x rays were undergoing classic di-acetate film degradation. This problem is fairly common in pre-1970 film and results in deterioration that occurs in a predictable manner. The film becomes increasingly acidic, shrinks in dimension, gives off a pungent odor, delaminates from the base material, and eventually becomes unreadable. The progression of this condition is accelerated by heat, humidity, and acidic gases given off by any decomposing films.

History of Cellulose Acetate Film

Before the early 1930s, any photographic film not coated onto glass was coated onto a flexible film base composed of cellulose nitrate. This was true of professional sheet films, 35-mm roll films, motion picture films, and x-ray films. However, efforts were made by manufacturers to introduce alternatives because of the high flammability and chemical instability of nitro-cellulose film bases. By the mid-1930s, the transition began to cellulose acetate plastics. Among the first products to be converted to the new cellulose acetate base were x-ray films and professional sheet films. Nitro-cellulose was not used for x-ray films or professional sheet films after about 1933 and 1939, respectively.

The new cellulose acetate film base was relatively nonflammable; it would burn, but not explosively like cellulose nitrate. To differentiate between cellulose acetate film and volatile

nitrate film, all cellulose acetate products were edge printed or edge embossed with the words "safety film," or sometimes merely with the word "safety."

Although cellulose acetate films do not exhibit the extreme fire hazard of cellulose nitrate films, in time it does become chemically unstable. Cellulose acetate decomposes in a fairly predictable manner, becomes increasingly acidic, gives off a pungent odor, shrinks in dimension, wrinkles, delaminates from the gelatine emulsion coatings, becomes extremely fragile, and finally is unreadable. The progression of the deterioration is accelerated by heat, humidity, and the presence of acidic gases from nearby decomposing films.

Cellulose acetate safety films were the industry standard for 3 decades, until the mid-1960s when polyester was substituted as a film base. Polyester film has proven to be stable indefinitely even at room temperature and moderate relative humidity. There are no known adhesion problems between polyester and gelatine emulsion coatings. With proper processing and storage conditions to protect the image, polyester-based photographic and x-ray products can be considered *extremely stable* over a wide range of storage conditions.

Preservation of the Collection

Because of the epidemiological value of the records and the relationship of the collection to the premedical and postmedical examination conditions of past employees at the uranium mines and processing facilities, it was important to preserve the collection until the end of its scheduled life. In addition, the current congressional interest in the hazards to which uranium mill and processing plant workers were exposed indicates possible retention well beyond the year 2036. Because a portion of the collection was already showing signs of deterioration 40 or more years before the target date, it was considered essential to survey the status of the entire collection and propose a program that would provide reasonable assurance that the original records, or acceptable surrogates, would be readable until the end of their scheduled life. These factors required the GJO Records Management group to implement an aggressive approach during the 1997 calendar year to ensure the collection's preservation.

Preservation Survey

Preservation of the collection to the target date would require a more extensive survey. This examination would identify the types of film involved, determine how many of the x rays were affected, and establish a baseline for any corrective actions. The survey would also provide GJO with crucial information concerning the feasibility of restoring those films that were already in advanced stages of deterioration. After completion of the survey, a program for continued preservation of the collection would need to be formulated and implemented. The preservation needs of the collection were apparent. Because of the long-term value, each x-ray image must remain intact and readable, either in its original form or as a 100-percent duplicate.

In February 1997, a contract was awarded to Chicago Albumen Works to conduct a preservation survey of the entire GJO AEC-era medical x-ray collection stored at the Rocky

Mountain Region of the National Archives. Chicago Albumen Works would also propose a program that would provide reasonable assurance that these valuable records, or acceptable surrogates, would be readable through January 2036.

The knowledge gained during the survey, any corrective action, and development of a program to preserve the collection provided a unique opportunity for both DOE and the Rocky Mountain Region of the National Archives. Information collected and the technical expertise provided by the Chicago Albumen Works could be shared by the National Archives with other agencies storing similar material. A contractual agreement stipulated that the survey would be performed jointly with a senior member of the GJO Records Management staff and the Assistant Director of the Rocky Mountain Region of the National Archives. To reduce GJO costs and allow the National Archives staff to gain additional experience with this type of material, the National Archives would provide all labor needed to support the Chicago Albumen Works at no cost to GJO.

In addition, GJO allowed the Rocky Mountain Region of the National Archives to contact the State of Colorado Archives to participate in the survey because that organization has an extensive historical photograph collection. Unfortunately, the State historian was unable to participate because of a significant effort indexing and relocating its historical collection at the same time as our initiative.

Survey Performance

To assess the extent of acetate deterioration, the acidity level needed to be tested in a significant sample of the x-ray films. This test was performed with the Image Permanence Institute's Film Base Deterioration Monitors, or A-D Strips. A-D Strips are essentially a litmus paper designed to undergo marked color changes when exposed to acid vapors.

To conduct the test, a single x-ray film is removed from its paper enclosure and sealed in a self-closing polyethylene bag along with an A-D Strip in direct contact with the film. The package is left to "incubate" approximately 120 hours at room temperature, after which time the color of the strip is identified and recorded.

Every ninth x ray in the storage boxes, or approximately 11 percent of the collection, was sampled. Even though the x rays had been arranged alphabetically by employee last name, this sampling technique would still provide an acceptable distribution of tests for the chronological duration of the collection.

Eleven percent is a high sampling percentage for a collection known to be relatively homogeneous. The majority of the x rays were made at the same hospital and, until time of accession, had the same storage history. This history was confirmed by GJO through discussions and interviews with retired AEC officials. In such cases, a 2-percent sampling would have been adequate. Because of the stringent survival requirements placed on this collection, however, a more conservative sampling routine was adopted. A 10- or 11-percent sampling is more the level used when determining random effects.

To read an A-D Strip test, the results are ranked in eight arbitrary levels on a scale from 0 to 3.5, with 0 representing no detectable acid and 3.5 representing the acid level of rapidly deteriorating film. Of the 156 films tested, 145 films registered an acidity level of 0, and 8 films registered between 0 and 0.5. These 153 films (or 98 percent of the films tested) would be considered close to original condition. Of the other three films tested, one exhibited a color change corresponding to a scale level between 1.0 and 1.5, another had a scale level of 2.5, and the third had a scale level of 3.0.

The one film at the 1.0 to 1.5 scale level was considered relatively stable and only slightly deteriorated. A scale level of 2.5 represents film that has reached the autocatalytic point, where the rate of deterioration will accelerate dramatically. This film was beginning to exhibit the characteristic of "vinegar syndrome" or a strong acidic odor.

A scale level of 3.0 corresponds to film that is noticeably warped, shrunken, pungent, and sometimes already delaminated (although this tested film was not delaminated). In addition to the 156 films tested, 8 films (0.5 percent of the entire collection) were in the obvious final stages of deterioration. These eight films exhibited an extremely strong odor, the front and back emulsion layers were heavily furrowed or delaminated from the acetate film base, and the film base itself was extremely fragile.

These test results were unexpected. How could eight films have proceeded to near total self-destruction while 98 percent of the films tested were in near-original condition? Was there a statistical anomaly? Could there have been a massive error in sampling?

In a homogeneous collection with some films completely deteriorated and others in excellent condition, there would be continuum of degradation levels. But this situation was clearly not the case with these x rays. The vast majority of the films yielded excellent test results, with a few in the mid-zone and a small group totally deteriorated. Rather than the expected bell curve distribution, this was a very lopsided, inverted bell curve.

A closer examination of the eight deteriorated films provided a clue. While nearly all the x rays (including seven of the eight deteriorated films) had been made at the San Juan County Hospital in Monticello, Utah, *all* of those eight films were taken with DuPont x-ray film stock. However, 155 of the 156 films tested were Kodak x-ray film stock. The one non-Kodak film in the original 156 sample group was manufactured by DuPont; that film registered 3.0 on the A-D acid-level scale.

After determining that the x rays represented film from primarily two film manufacturers and that the two brands of film exhibited radically different aging characteristics in this collection, the next question was if the use of the DuPont film was recurrent or isolated. The determination that 155 out of 156 tested films were Kodak film suggested that the presence of DuPont film was an isolated occurrence. This suggestion was corroborated by verifying the dates of the deteriorated films. The seven x rays made at San Juan County Hospital were exposed between December 13, 1949, and January 24, 1950. The eighth deteriorated DuPont

film was from another source; it was made by a private physician in Richfield, Utah, on April 17, 1951.

An item-by-item inspection was immediately conducted on the first three boxes of x rays; one additional DuPont film was identified, also made on January 24, 1950, at the San Juan County Hospital. This discovery lead us to believe that the supply of DuPont film was exhausted on January 24, 1950, because at least three films were identified dating to January 25, 1950, and all were taken at the San Juan County Hospital on Kodak film stock.

In addition to Kodak and DuPont films identified during this review, several films manufactured by Ansco Corporation were identified. The Ansco films appeared quite stable; one x ray, after the 120-hour incubation period with an A-D Strip in contact with the film, registered a test result of 0 acid.

Preservation Program

After GJO completed a thorough review of the results, a series of corrective measures was established in a preservation plan that would need to be implemented to ensure the preservation of the collection until the target date of 2036. These measures have been satisfactorily completed:

- GJO and the Rocky Mountain Region of the National Archives staff jointly completed an item-by-item inspection of the entire collection to locate any additional DuPont film and to identify any x rays that displayed signs of advanced deterioration. This suspect film was segregated from the collection for reconditioning.

The entire x-ray collection was re-sleeved in new, buffered, archival-quality paper sleeves and labeled with critical information such as patient name, address, employer, and work locations.

During the survey, the National Archives tested the storage boxes and determined that the boxes were manufactured with acid-based materials (glue and paper). The boxes were replaced with acid-free document storage boxes that were proportional to the size of the x rays so that the films could be positioned upright to avoid slumping. This practice will prevent pressure marring of the bottom films that would normally occur if they were stacked horizontally during long-term storage.

- While performing the survey, GJO personnel noticed several discrepancies in critical information about the employees identified in the index. This index was furnished by AEC when the collection was initially accessioned to the Rocky Mountain Region of the National Archives. The index was verified against the holdings and any discrepancies or additional information was incorporated into the baseline document. A new master index was submitted to the Rocky Mountain Region of the National Archives for inclusion with the collection.

- All x rays produced on DuPont film stock and any films identified in advanced stages of deterioration (e.g., furrowing or excessive warping) were reconditioned by releasing the two image layers from the deteriorated acetate base. The two released images were then duplicated to compensate for any missing areas in one image that were evident in the other. Alternatives such as point source illumination, which probably could produce duplicates of greater sharpness, or the use of a digital x-ray process, such as that offered by the Polaroid Corporation, were eliminated because of legal requirements for reading the original x ray and the loss of the original radiographers' and physicians' reports when the x rays were taken. The one Kodak x-ray that registered 2.5 on the A-D test and other Kodak films contaminated by adjacent DuPont films were duplicated by common x-ray duplication methods.

Storage — The Final Frontier

The secure storage vault at the Rocky Mountain Region of the National Archives, where the films are currently stored, is maintained at $67^{\circ}\text{F} \pm 1^{\circ}\text{F}$ and 45-percent relative humidity ± 5 percent. At these conditions, accelerated aging tests indicate that cellulose acetate films would begin producing an A-D test result of 2.5 about 60 years after the films were developed. At this test level, the entire collection would require duplication or risk furrowing within a few years.

Where the Kodak (and Ansco) films are on the aging curve is, unfortunately, not known. We know they currently test in *very good* condition. The dry atmospheric conditions in Grand Junction, Colorado, where they were stored before transfer to the Rocky Mountain Region of the National Archives probably retarded the aging process. However, the proximity and subsequent contamination from the deteriorating DuPont films have probably accelerated the aging process. The problem with predicting the useful life of cellulose acetate film in a collection is the same actuarial problem faced in trying to predict the life expectancy of an individual person within a large population group. We know the DuPont film was "genetically" conditioned to deteriorate in 40 to 45 years, but the assessed condition of the Kodak film appears to be good. Consequently, the current storage conditions at the Rocky Mountain Region of the National Archives are not sufficient to ensure survival of the collection to the target date.

To secure longevity of the film until at least 2036, the storage temperature and/or relative humidity conditions must be improved. At the current 45-percent relative humidity condition, the temperature would have to be lowered to approximately 50°F to secure the collection another 40 years. Conversely, at the current $67^{\circ}\text{F} \pm 1^{\circ}\text{F}$ temperature condition, the relative humidity would have to be lowered to 20 percent to achieve the same life expectancy. Lowering both conditions somewhat to 55°F and 40-percent relative humidity would net the same result.

The Rocky Mountain Region of the National Archives has worked closely with GJO to improve the temperature and relative humidity of its storage vault. However, the vault still

poses a problem because of its age. GJO has evaluated several other alternatives since the preservation plan was implemented:

- A frost-free refrigerator/freezer unit of appropriate specifications and size could be purchased. While domestic, commercial, and specialized units could meet the necessary temperature, humidity, and minimal cycling requirements for the anticipated length of service, costs would be prohibitive.
- The entire collection could be duplicated if it is impossible or cost prohibitive to create an adequate storage environment. However, the cost of accurate duplication of this quantity of x rays is commensurate with the cost of cold storage. Duplicates of x rays made in hospital laboratories are known to be noticeably less sharp than the originals because x-ray films have sensitive emulsion on both sides of the film base. In contact duplicating under a diffuse light source that is customarily used, the "rear" emulsion is not in contact with the duplicating film. Consequently, a sharp image is not printed on the duplicating film, even though the duplicating film has only one emulsion. Such duplicates, while quite inexpensive, are rarely used for diagnosis of tissue disorders and are usually considered only for reference purposes.
- Alternative storage options, such as retiring the x rays to a commercial cold storage facility, were considered. Given the required retention period of the records, monthly and annual rental costs would not be reasonable. Access sensitivity (governed by the Privacy Act) concerns about proper archival storage by a commercial facility, the potential loss of the collection during the remaining 38 years until 2036 (possibly longer because of epidemiological value), and costs are crucial factors that eliminate commercial cold storage as a viable option.

GJO is continuing to work with the U.S. Department of Justice to identify the location of the medical files for the employees represented in the AEC x-ray collection. Discussions with knowledgeable retired AEC officials indicate that the corresponding medical files and the radiographer reports were subpoenaed by the U.S. Department of Justice for litigation purposes during the early to mid-1950s. If these medical files are located, they would be submitted to GJO for transfer to the Rocky Mountain Region of the National Archives and stored with the corresponding x rays for their remaining life.

The epidemiological value of the records and the relationship of the collection to the premedical and postmedical conditions of past employees at the Monticello and Grand Junction mills necessitates preservation of these records until the end of their scheduled life. With the current moratorium on the destruction of epidemiological records and current congressional interest in the hazards to which the uranium mill and processing plant workers were exposed, indications are that the records will need to be preserved beyond the scheduled year of 2036.

The problem of storing cellulose-acetate film is not inherent just to the Rocky Mountain Region of the National Archives but also to many of the Federal Records Center storage facilities. The Rocky Mountain Region of the National Archives management has worked

closely with GJO to resolve the problem and has provided assistance in implementing sound preservation measures instead of simply returning the films to the agency, the solution to similar problems at other Federal Records Centers.

GJO has completed the activities necessary to prevent further near-term deterioration of the AEC employee medical x-ray collection. The population of severely deteriorated x rays was identified, images were recovered, films were duplicated, and x rays were preserved. The remaining x-ray films are stable because of preservation measures that were developed and implemented. GJO continues to work with the DOE Albuquerque Operations Office and with other National Archive and Records Administration facilities to locate a facility with adequate storage space and environmental controls to accommodate the long-term storage of the collection.

Grand Junction Office Records Management Program Today

GJO has a very successful records management program documenting the stewardship of disposed materials at Uranium Mill Tailings Radiation Control Act millsites and other environmental remediation sites. GJO has expertise in long-term preservation of records through both document imaging technology and preservation in paper form. GJO uses bar-code technology for managing active and inactive records and has received commendations from the National Archives and Records Administration for archiving achievements of permanent records through the use of microfilm.