

See Packet for  
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### Department of Energy

Nevada Operations Office

P. O. Box 14100

Las Vegas, NV 89114-4100

SEP 10 1984 - 01

Philip Altomare, NRC, Washington, D.C.  
J. O. Bunting, NRC, Washington, D.C.  
P. T. Prestholt, NRC-OR, Las Vegas, NV  
C. H. Johnson, State of Nevada, Carson City, NV  
Brenda Langkopf, Sandia, Albuquerque, NM

#### ISSUE TRACKING AND INFORMATION MANAGEMENT SYSTEMS MEETING, AUGUST 31, 1984

The final minutes for the subject meeting between the NNWSI Project and the NRC are attached. The agenda, attendee list, and copies of viewgraphs used during the meeting are also included.

Please contact J. S. Szymanski of my office if you have any questions regarding this matter.

*Donald L. Vieth*  
Donald L. Vieth, Director  
Waste Management Project Office

WMPO:MBB-1176

Enclosures:  
As stated

cc w/encl:  
T. O. Hunter, SNL, Albuquerque, NM  
M. A. Glora, SAI, Las Vegas, NV  
S. M. Coplan, NRC, Washington, D.C.  
N. K. Stablein, NRC, Washington, D.C.  
J. S. Szymanski, WMPO, DOE/NV

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see folder for Mr.  
To PA Ann. Vieth  
9-10-84  
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DEPARTMENT OF ENERGY/NUCLEAR REGULATORY COMMISSION  
PUBLIC MEETING ON INFORMATION SYSTEMS  
SUMMARY OF MEETING MINUTES

August 31, 1984  
NNWS, Las Vegas, Nevada

The meeting was held to discuss issue tracking and information management activities of the Nuclear Regulatory Commission (NRC), Department of Energy (DOE) and the State of Nevada. A Copy of the agenda is attached as Enclosure 1 and copies of the viewgraphs are attached as Enclosure 2.

NRC

Phil Altomare, Avi Bender, and Reggie Brown of the NRC described current efforts in developments of automated issue and information management systems. A basic concept of an issue management system was described and it was noted that a system is anticipated to be implemented in 1985. Efforts to develop an information management system are presently limited to performing a requirements analysis, and evaluating existing systems. Actual implementation of an information management system is felt to be several years away, but consideration is being given to an interim system that may use time sharing programs. A guideline in NRC development of information management systems is that they should be compatible with and capable of communicating with other information systems to the greatest extent practicable.

Comments Noted by NRC During the Meeting

- o Concern was raised with regard to how issues will be identified and resolved.
- o It is desirable that there be an early consensus on the issues.
- o Both DOE and NRC are attempting to establish procedures for processing issues and there was agreement that as the respective systems are developed, lines of communications should be established to foster some compatibility and uniform coordination.
- o DOE would like to receive expanded guidance on the licensing process and the process of "rulemaking" to resolve issues. It was requested that NRC legal staff representatives meet with the NNWSI staff.
- o DOE would like to be briefed by NRC legal staff on the nature of the Discovery Process and have to define the data/information needed for the discovery phase.
- o There is a need for communication and information exchange and this should be done as soon as possible.

## DOE

D. L. Vieth presented an overview of NNWSI Project status in the areas of issue and information management. B. Langkopf of SNL described and ran a demonstration of the system 2000 data base. Viewgraphs used in all presentations are attached to this summary. As a result of the NNWSI and NRC presentations DOE has the following points noted:

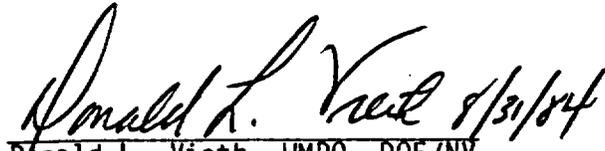
1. DOE recognizes the need for a Information Management System as well as the Issue Management System. The importance of both systems cannot be over-emphasized. Therefore, careful planning is critical to developing useful and manageable systems. Furthermore, the coordination of DOE and NRC efforts is essential.
2. DOE understands that the principal function of the Issue Management System is to assure that in the view of the NRC staff and DOE, all relevant issues are identified and that all these issues are properly addressed.
3. DOE understands that an important function of the Information Management System is to assure that "Discovery Process" can proceed in a timely and efficient manner.
4. DOE recognizes that effectiveness of the Issue Management System is directly related to: a) the issue identification process; and b) clear understanding of the issue resolution process and methods. In the view of DOE, the technical issues as well as their resolution process and methods are identified through: a) SCP, b) SCP revisions; and c) review of the SCP and State and public comments on the SCP and its revisions.
5. DOE recognizes that development of effective Information Management System requires full understanding by DOE of the Discovery Process. At this time understanding of the Discovery Process is less than adequate. DOE invites further guidance from NRC on this topic.

## State of Nevada

Carl Johnson discussed the State's planning relative to issue and information management systems. This planning is still in the discussion stage. State's list and ranking of issues may be different from NRC or DOE, but a state-specific issue system is proposed for development. State has already initiated independent technical studies at the site and intends to develop an information management system to manage this data. State is anticipating access to NRC and DOE issue tracking and information management systems. State intends to review and evaluate information developed by other sites selected for characterization as well as NNWSI.

Action Items

- o NRC will investigate the possibility of having a briefing on the legal process in the near future.
- o As soon as reasonable, a meeting will be arranged to further discuss issue and information management system.

  
Donald L. Vieth, WMPO, DOE/NV

  
Phil Altomare, NRC

AGENDA

ISSUE TRACKING AND INFORMATION SYSTEM MEETING FOR NRC

Date: August 31, 1984

Time: 9:00 a.m. - 4:00 p.m.

Place: NNWSI Project Office, Las Vegas, Nevada

9:00 a.m.	Introduction Purpose/Objectives of Meeting	A11 NRC
10:30 p.m.	Description of current NRC efforts and objectives in developing an automated issue tracking system and an information management system	NRC
	Description of current Issue Tracking and Information Management Systems used by NNWSI, their objectives, and access to the system	D. L. Vieth
1:00 p.m.	Discussion of specific NNWSI systems and access: --type of information handled, search and retrieval capability, etc.	B. Langkopf SNL
2:00 p.m.	Discussion of plans to update or consolidate NNWSI system(s) with other DOE repository issue tracking or information systems	DOE
3:00 p.m.	Prepare Summary Meeting Notes	NRC/DOE
4:00 p.m.	Adjourn	

NNWSI PROJECT/NRC  
ISSUE TRACKING & INFORMATION MANAGEMENT MEETING  
LAS VEGAS, NV  
8/31/84

<u>NAME</u>	<u>AFFILIATION</u>	<u>TELEPHONE</u>
Avi Bender	NRC	(301)427-4530
Phil Altomare	NRC	(301)427-4677
Reggie Brown	NRC	(301)427-4676
Joe Bunting	NRC	(301)427-4590
Cathy Russell	NRC	(301)427-4020
Mike Glora	SAI	FTS 575-1463
Ed Miller	Aerospace Corp.	(202)488-6068
Laurana McCants	Aerospace Corp.	(202)488-6102
Joe LaRue	SAI	FTS 575-1464
Jack Plunkett	SAI	(813)799-0663
Paul Prestholt	NRC-OR	(702)388-6125
Carl Johnson	State of Nevada	(702)885-3744
Jerry Szymanski	WMPO, DOE/NV	FTS 575-1503
Brenda Langkopf	Sandia	FTS 844-8777
Donald Vieth	WMPO, DOE/NV	FTS 575-3662
Mitchell Kunich	WMPO, DOE/NV	FTS 575-3662
David Jorgenson	SAI	FTS 575-1204
John Waddell	SAI	(614)486-8519
Maxine Dunkelman	NRC-Repository Projects Br.	(301)427-4685
Edward Shepherd	Sandia	FTS 846-0184
M. J. Wise	SAI	(703)827-4955
Bruce Foster	SAI	FTS 575-1203

NUCLEAR REGULATORY COMMISSION

DIVISION OF WASTE MANAGEMENT

ISSUE AND INFORMATION

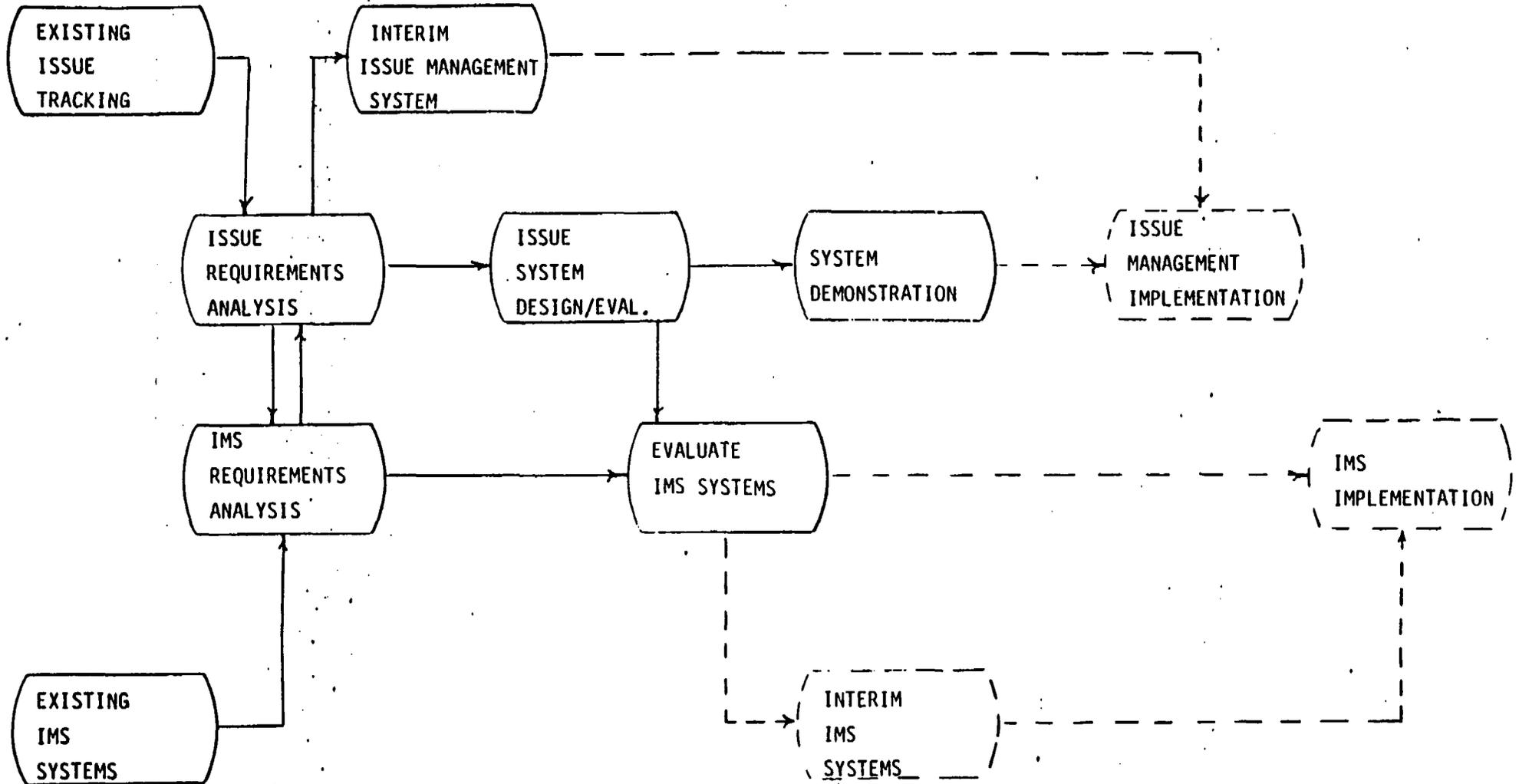
MANAGEMENT SYSTEMS

PHIL ALTOMARE  
AVI BENDER  
REGGIE BROWN  
AEROSPACE

### PURPOSE OF MEETING

- INFORM BWIP, STATES AND INDIAN TRIBES OF WHAT NRC IS PLANNING IN ISSUE MANAGEMENT AND INFORMATION MANAGEMENT SYSTEMS
- FIND OUT WHAT OTHERS ARE DOING, SYSTEMS IN PLACE, AND PLANS
- OPEN LINES OF COMMUNICATION

# ISSUE AND INFORMATION MANAGEMENT SYSTEMS DEVELOPMENT

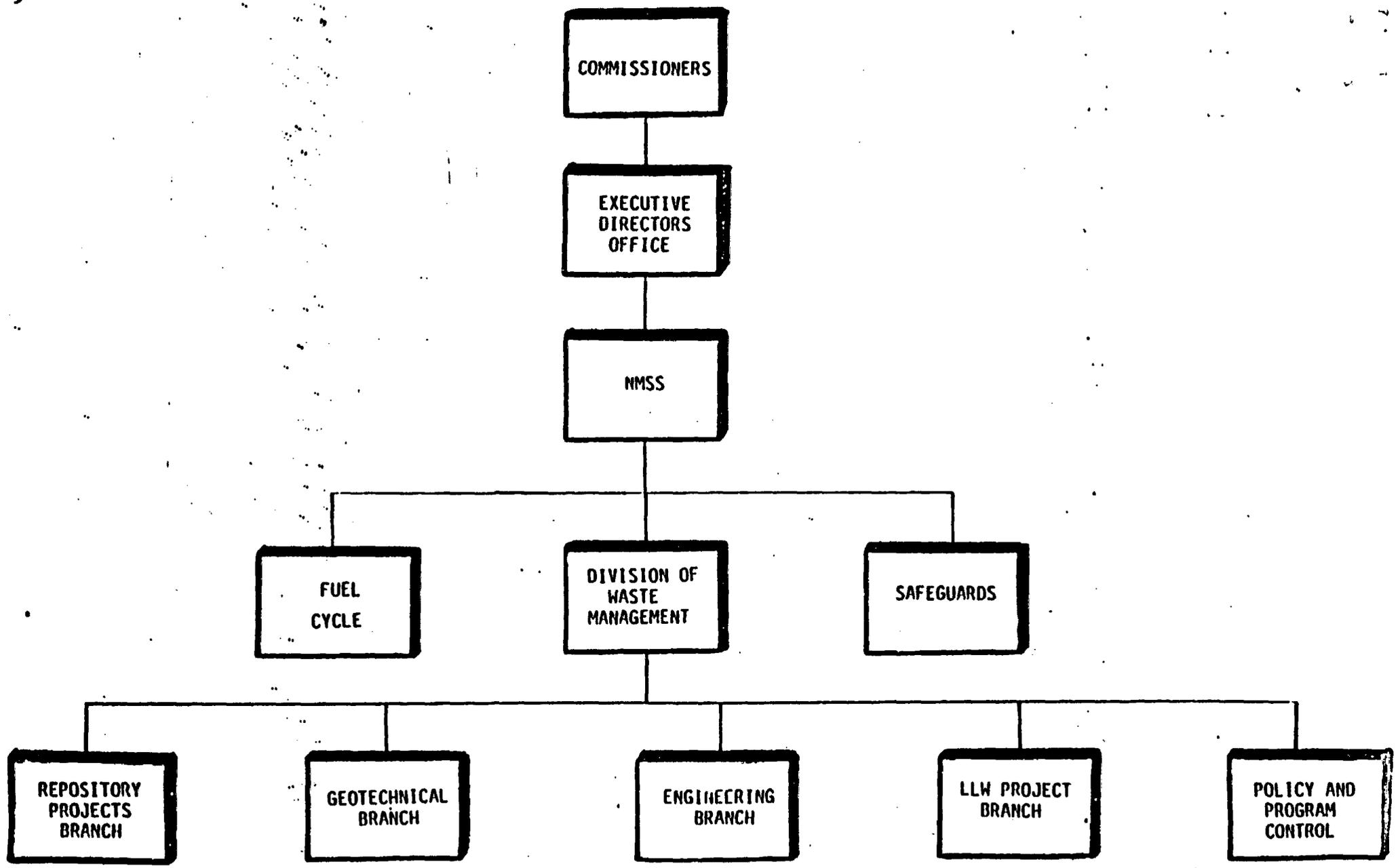


## GENERAL GUIDELINES FOR ISSUE AND INFORMATION MANAGEMENT SYSTEM

- TO THE GREATEST EXTENT PRACTICAL NRC SYSTEMS SHOULD BE COMPATIBLE AND CAPABLE OF COMMUNICATION WITH OTHER INFORMATION SOURCE
  - CONCEPT OF DISTRIBUTED SYSTEMS

NRC SHOULD

- ADAPT EXISTING SYSTEMS WHERE PRACTICAL
  - AVOID INDEPENDENT DEVELOPMENT
- THE SYSTEM SELECTED MUST BE USER DESIRABLE
  - MORE EFFICIENT FOR USER VERSUS SLAVES TO FEED THE BEAST
- THE DESIGN SHOULD CONSIDER UPDATING TO NEW TECHNOLOGY
  - MAJOR ADVANCES IN INFORMATION HANDLING ARE EXPECTED



ISSUE MANAGEMENT SYSTEM STATUS REVIEW

NUCLEAR REGULATORY COMMISSION (NRC)

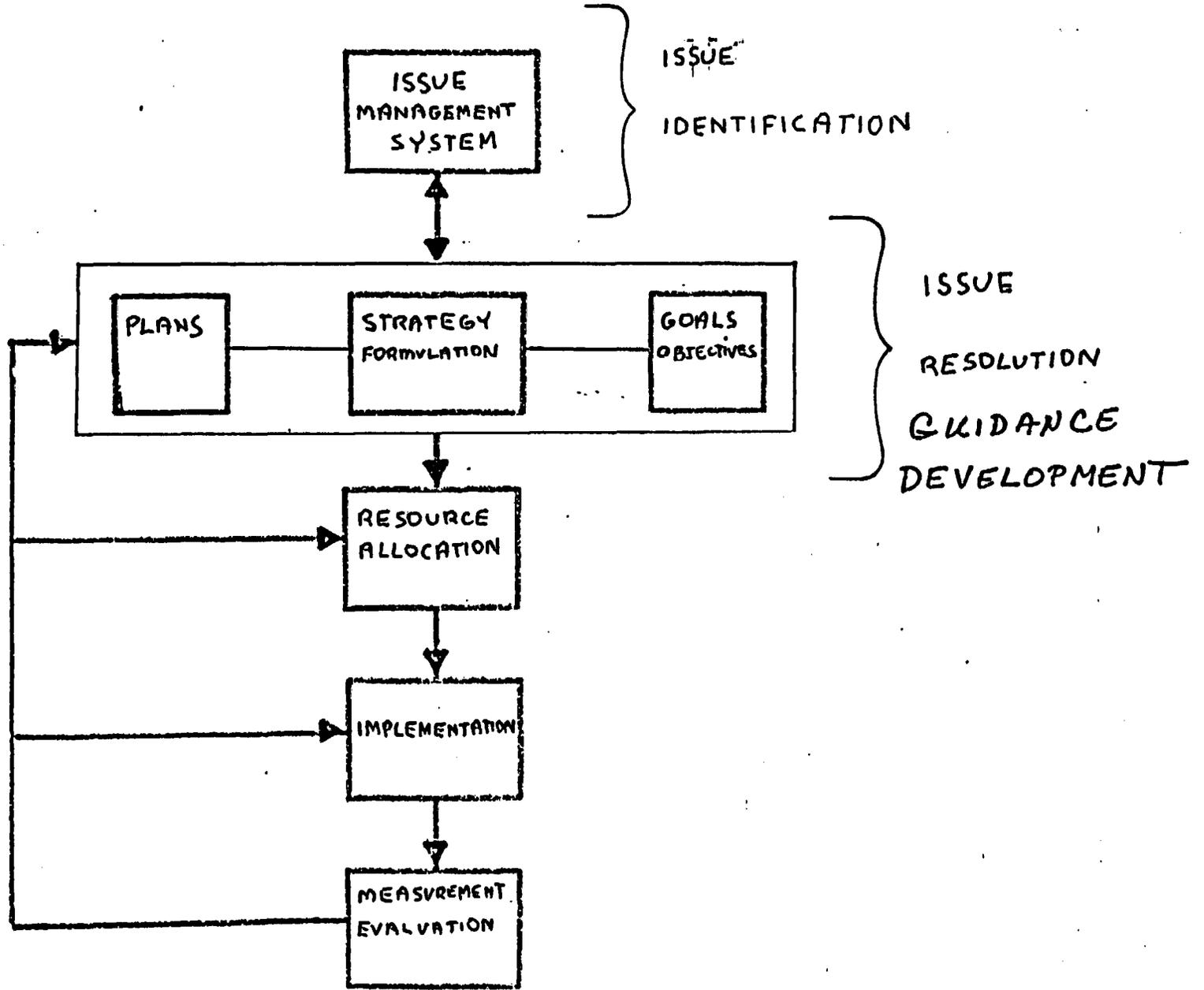
DIVISION OF WASTE MANAGEMENT (DWM)

PURPOSE OF THIS MEETING

- INFORM DOE OF WHAT WE ARE DOING
- FAMILIARIZE NRC STAFF WITH CURRENT/PLANNED DOE ISSUE MANAGEMENT SYSTEMS

### WHY THE NEED FOR ISSUE MANAGEMENT

- NRC IS IDENTIFYING ISSUES RELEVANT TO LICENSING WASTE REPOSITORIES
- SYSTEMATICALLY AND LOGICALLY TRACK AND DOCUMENT STEPS TO IDENTIFY AND RESOLVE ISSUES IN ORDER.  
TO FACILITATE LICENSING
- DWM MANAGEMENT TOOL FOR USE BY TECHNICAL/MANAGERIAL STAFF -- ISSUE MANAGEMENT AND STRATEGIC PLANNING
- IMMEDIATE ACCESS TO STATUS OF KEY ISSUES IMPACTING NRC/DOE



ISSUE MANAGEMENT - INTEGRAL ELEMENT OF STRATEGIC PLANNING

## WHAT IS AN ISSUE

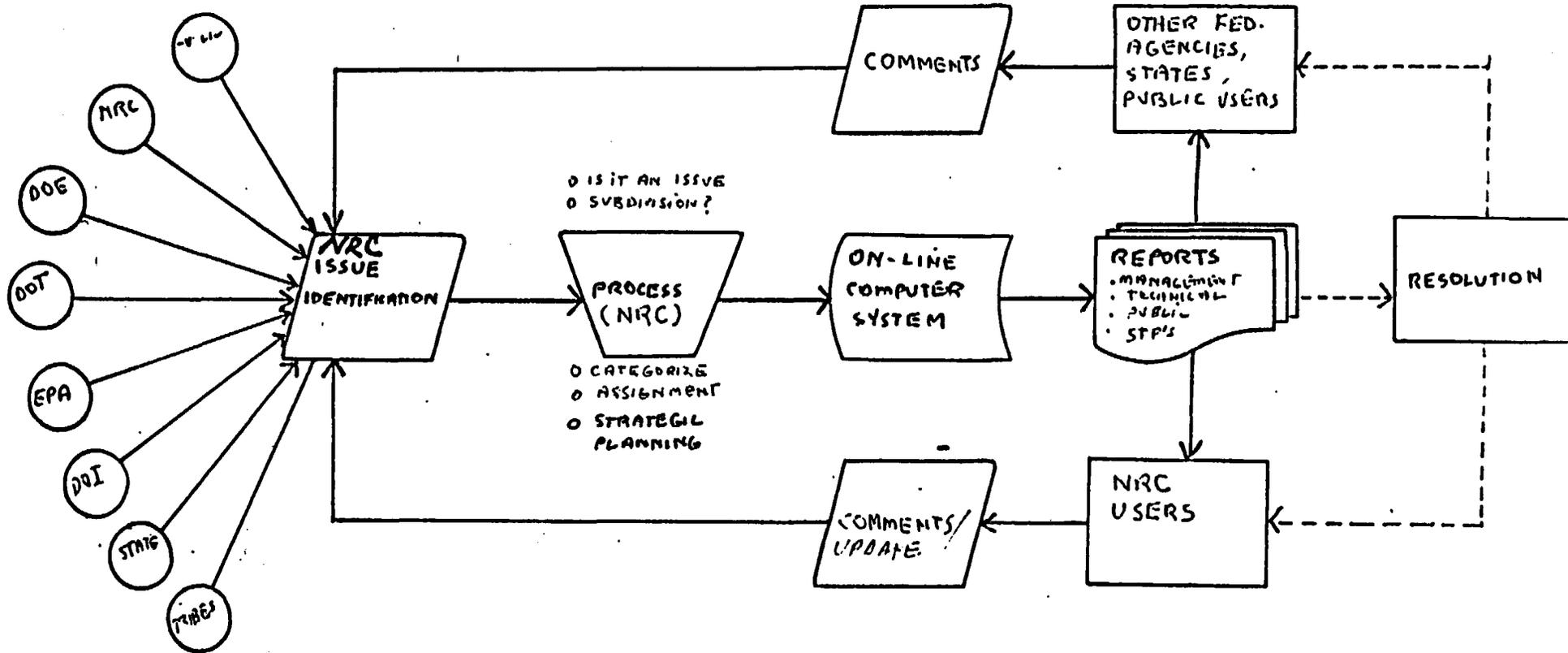
- AN ISSUE MAY BE A TECHNICAL OR PROCEDURAL POINT OF CONCERN, ORIGINATING FROM THE FEDERAL OR PRIVATE SECTOR, WHICH IMPACTS NRC'S MISSION FOR AUTHORIZING AND LICENSING WASTE REPOSITORIES
- INCLUDES ISSUES AS DEFINED IN NUREG 0960 APPENDIX C - A QUESTION ABOUT A SPECIFIC SITE THAT MUST BE ANSWERED TO COMPLETE LICENSING
- POTENTIAL TYPES OF ISSUES
  - GEOTECHNICAL
  - WASTE PACKAGE
  - DESIGN/PERFORMANCE
  - SAFETY/NEPA
    - ENVIRONMENTAL
    - POLICY
    - TRANSPORTATION
    - INSTITUTIONAL

## SOURCES OF ISSUES

- DOE INVESTIGATIONS
- NRC TECHNICAL REVIEWS OF SCA/SCP
- MEETINGS/WORKSHOPS
- PUBLIC COMMENTS
- NEWS MEDIA
- CONGRESSIONAL

### WHAT IS AN ISSUE MANAGEMENT SYSTEM?

- A SYSTEM IS A SET OF COMPONENTS THAT INTERACT WITH ONE ANOTHER TO ACHIEVE A COMMON PURPOSE
- THE COMPONENTS OF AN ISSUE MANAGEMENT SYSTEM ARE:
  - INTERNAL PROCESSES AND PROCEDURES
  - HARDWARE/SOFTWARE PACKAGE
  - USERS
- PURPOSE - TIMELY IDENTIFICATION, TRACKING AND RESOLUTION OF ISSUES IMPACTING NRC'S LICENSING MISSION



NRC ISSUE TRACKING SYSTEM  
CONCEPT

CURRENT ISSUE MANAGEMENT SYSTEM WITHIN DWM

● SITE TECHNICAL POSITIONS

- IDENTIFY TECHNICAL ISSUES
- SOLICIT DOE/STATE/PUBLIC COMMENTS

● NRC ANALYSIS OF HANFORD SITE CHARACTERIZATION PLANS

(NUREG 0960 APPENDIX C)

- STAFF ANALYSIS OF TECHNICAL ISSUES
- EARLY STEP IN PRELICENSING CONSULTATION BETWEEN NRC AND DOE

## PROBLEM AREAS

- HOW ARE ISSUES IDENTIFIED?
  
- HOW DO YOU STATE AN ISSUE?
  - COMPATIBILITY BETWEEN NRC/DOE ISSUES
  - NOMENCLATURE/SEMANTICS
  - CORRELATION
  - CATEGORIZATION
  - CROSS REFERENCING
  
- HOW MUCH IS ENOUGH/HOW MUCH IS COUNTERPRODUCTIVE?

## PLANNED ACTIVITIES

### ● SHORT TERM

- DEVELOP INTERIM APPROACH TO PROCESS ISSUES FOR DWM
- BEGIN PROCESSING ISSUES NOW

### ● LONG TERM

- REQUIREMENTS ANALYSIS
- SYSTEM DESIGN
- EVALUATION OF HARDWARE/SOFTWARE
- FINALIZE INTERNAL PROCEDURES
- SYSTEM DEMONSTRATION
- IMPLEMENTATION

INFORMATION MANAGEMENT SYSTEM (IMS) STATUS REVIEW

NUCLEAR REGULATORY COMMISSION (NRC)

DIVISION OF WASTE MANAGEMENT (DWM)

### BASIC OBJECTIVE OF NRC DWM IMS

- THE DWM IMS BASIC OBJECTIVE IS TO HAVE TIMELY AVAILABILITY OF INFORMATION THAT IS NEEDED FOR LICENSING REVIEWS AND HEARINGS.
- THE INFORMATION/DATA IN THE DWM IMS WILL REFLECT THE UNIQUE ROLE, ACTIVITIES AND PRODUCTS OF NRC.
- THE INFORMATION IN THE DWM IMS TOGETHER WITH DOE INFORMATION/DATABASE WILL BE THE TWO MAJOR SOURCES OF INFORMATION NEEDED TO SUPPORT PRELICENSING AND LICENSING.
- THE INFORMATION IN THE DWM IMS WILL NOT RELIEVE DOE OF ITS RESPONSIBILITY TO PRODUCE COMPLETE INFORMATION NEEDED FOR LICENSING.

### LEGAL INFORMATION RETRIEVAL REQUIREMENTS OF NRC

- NRC REGULATIONS (10 CFR 9 SUBPART A - FREEDOM OF INFORMATION ACT REGULATIONS) REQUIRE ANY IDENTIFIABLE RECORD, WHETHER IN THE POSSESSION OF THE NRC, ITS CONTRACTORS, ITS SUBCONTRACTORS, OR OTHERS, SHALL BE MADE AVAILABLE FOR INSPECTION AND COPYING PURSUANT TO THE PROVISIONS OF THIS PART, UPON REQUEST OF ANY MEMBER OF THE PUBLIC.
- NRC REGULATIONS (10 CFR 2.741(2) (d)) REQUIRE WRITTEN RESPONSE WITHIN 30 DAYS TO WRITTEN REQUESTS FOR THE PRODUCTION OF RECORDS AND DOCUMENTS SUBMITTED DURING THE DISCOVERY PART OF A HEARING.
- THE SYSTEM SHOULD HAVE THE CAPABILITY TO IDENTIFY THE EXISTENCE, DESCRIPTION, NATURE, CUSTODY, AND LOCATION OF ANY BOOKS, DOCUMENTS, OR OTHER TANGIBLE THINGS THAT ARE DISCOVERABLE MATTER.

### USE OF OTHER AGENCIES' IMSS

- PROPOSALS INVOLVING NRC RELIANCE ON DOE, NATIONAL LABS, OR DOE CONTRACTOR INFORMATION MANAGEMENT SYSTEMS WILL BE REVIEWED BY LEGAL STAFF FOR CONFLICT OF INTEREST IMPLICATIONS (BEYOND TECHNICAL REVIEWS TO DETERMINE RELIABILITY OF BASIC DATA).
- IF DOE MAKES ITS IMSS AVAILABLE TO STATES, TRIBES, OR THE GENERAL PUBLIC THEN THERE SHOULD BE NO CONFLICT OF INTEREST IMPLICATIONS. NRC SHOULD HAVE NO SPECIAL PRIVILEGES.
- NRC IS NOT RESPONSIBLE FOR MAKING AVAILABLE DOCUMENTS PRODUCED BY OR FOR OTHER AGENCIES.

EXAMPLES OF THE TYPE OF TECHNICAL DATA AND INFORMATION EXPECTED IN NRC DWM IMS

- SITE TECHNICAL POSITIONS
- SITE CHARACTERIZATION ANALYSES
- TECHNICAL REPORTS
- REGULATIONS
- REGULATORY GUIDES
- IMPACTS/ASSESSMENTS
- CORRESPONDENCE
- NRC/DOE PROCEDURAL AGREEMENTS
- STATE/INDIAN TRIBE MEETINGS
- FORMAL MINUTES OF MEETINGS HELD UNDER NRC/DOE PROCEDURAL AGREEMENTS

## PLANNED ACTIVITIES

### ● REQUIREMENTS ANALYSIS

- REVIEW OF PRESENT AND ANTICIPATED FUTURE NRC DWM OPERATIONS
- ESTABLISHMENT OF INFORMATION HANDLING REQUIREMENTS

### ● EVALUATION OF HARDWARE/SOFTWARE SYSTEMS

- IDENTIFICATION, DESCRIPTION, AND EVALUATION OF PRESENT AND FUTURE NRC, DOE, AND OTHER AGENCY SYSTEMS
- DETERMINATION OF THE COMPATIBILITY OF THESE SYSTEMS WITH THE INFORMATION HANDLING REQUIREMENT

### ● GENERAL SYSTEM DESIGN (INVESTIGATION OF ALTERNATIVE APPROACHES)

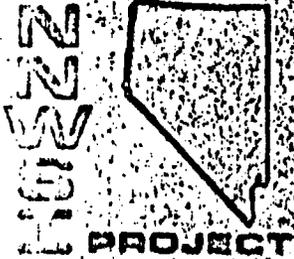
- INFORMATION RETRIEVAL (KEYWORD, FULL TEXT, KEY PHRASES, ETC.)
- SYSTEM SECURITY (ACCT #, PASSWORD, USER I.D.#, ETC.)
- REPORTING REQUIREMENTS TO ESTABLISH SYSTEM SPECIFICATION

## EXAMPLES OF THE TYPES OF PROBLEMS TO BE ADDRESSED

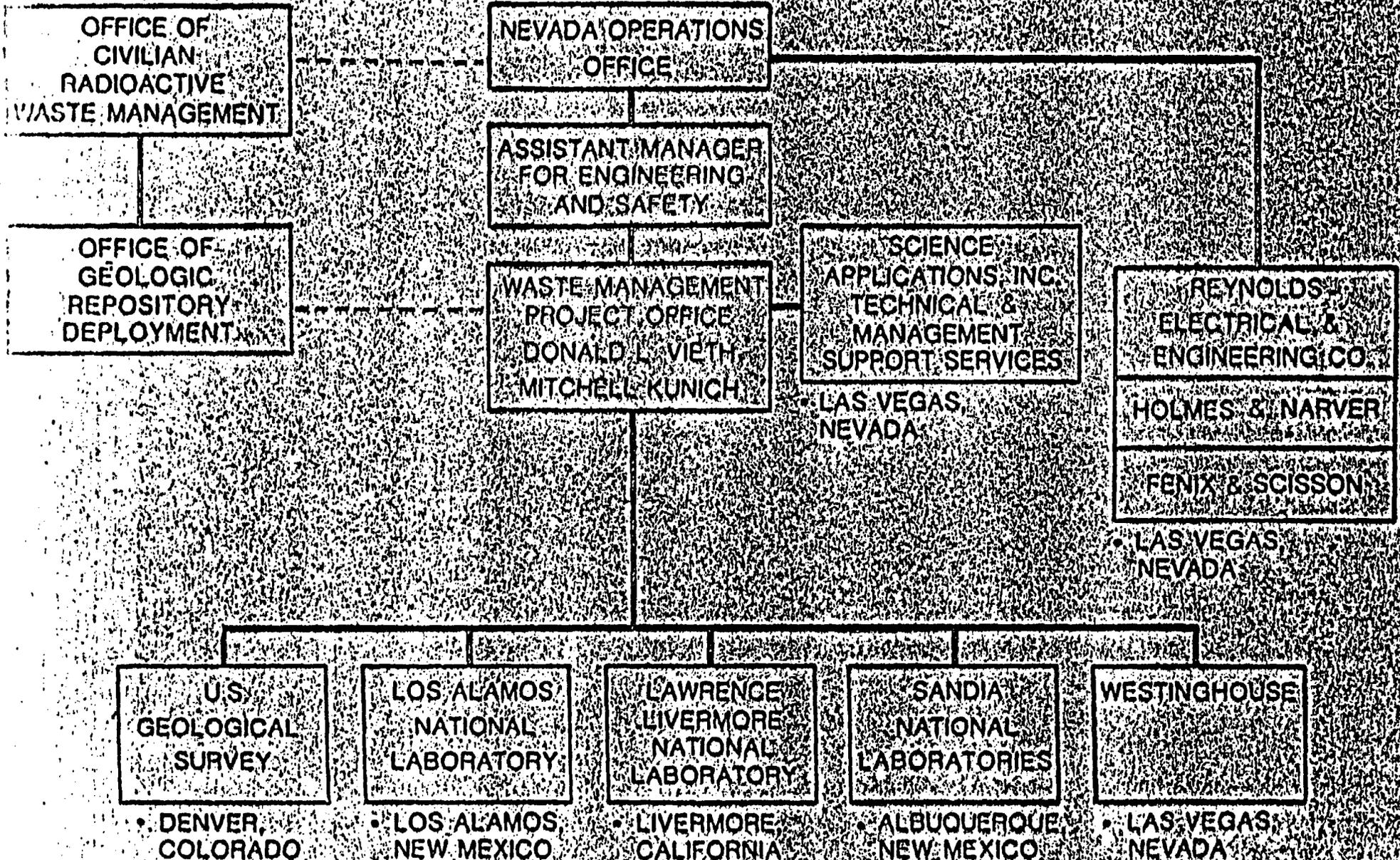
- INTERFACING BETWEEN SYSTEMS
  - WITH DOE SYSTEMS
  - TERMINAL ACCESS OF LOCAL PUBLIC DOCUMENT ROOMS
- INFORMATION/DATA RELIABILITY AND QUALITY CONTROL
  - HOW TO INSURE THAT THE DATA IS RELIABLE
  - HOW TO CONTROL DATA ENTRY AND UPDATE THROUGH A CENTRAL POINT ●
- TYPE OF INFORMATION STORAGE, SEARCH AND RETRIEVAL
  - FULL TEXT
  - DOCUMENT IMAGES (MAPS, DATA LOGS SIGNATURE COPIES)
  - KEY WORDS (TITLE, AUTHOR, DATE, ETC.)
  - KEY PHRASES (HIGH LEVEL WASTE, REPOSITORY LOCATION, ETC.)
  - REFERENCE CITATIONS INCLUDING ABSTRACTS
- SYSTEMS RELIABILITY AND BACKUP
  - BACKUP TAPE SYSTEM
  - BACKUP MICROFICHE SYSTEM
  - SYSTEM RECOVERY/RECONSTRUCTION IN CASE OF SYSTEM FAILURE

NNWSI ISSUE MANAGEMENT  
AND  
INFORMATION MANAGEMENT SYSTEMS

D. L. VIETH  
WASTE MANAGEMENT PROJECT OFFICE



# NNWSI PROJECT ORGANIZATION CHART



NNWSI  
PROJECT



# NNWSI PROJECT

## CONTRACTORS AND SCOPE OF WORK

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- USGS** - GEOLOGIC AND HYDROLOGIC EXPLORATION AND DATA ANALYSIS
- LANL** - GEOCHEMICAL, MINERALOGIC AND PETROGRAPHIC PROPERTIES OF HOST ROCK, VOLCANISM STUDIES, COORDINATION OF EXPLORATORY SHAFT DESIGN AND TEST PLAN
- LLNL** - SPENT FUEL TEST AT CLIMAX, AND WASTE PACKAGE DESIGN, TESTING AND ANALYSIS
- SNL** - THERMAL AND MECHANICAL PROPERTIES OF HOST ROCK, CONCEPTUAL DESIGN OF REPOSITORY, PERFORMANCE ASSESSMENT OF SYSTEM, DEVELOPMENT OF SEALS FOR REPOSITORY, EQUIPMENT DEVELOPMENT
- WESTINGHOUSE** - OPERATE E-MAD FACILITY

**NRC'S ISSUE MANAGEMENT AND INFORMATION MANAGEMENT SYSTEM**

- WHAT IS IT?
- WHAT ROLE IS DOE EXPECTED TO PLAY?

## CURRENT NNWSI PROJECT INFORMATION MANAGEMENT RESOURCES

### ● BIBLIOGRAPHY

- \* NVO-196-24
- \* UPDATED PERIODICALLY

### ● WRITTEN DOCUMENTS

- TECHNICAL FILE
- QUARTERLY TECHNICAL REPORTS
  - \* INPUT PROVIDED BY PARTICIPANTS
  - \* COMPILED BY SAI FOR WMPO
  - \* AVAILABLE THROUGH NTIS
- FINAL TECHNICAL REPORTS
  - \* UCRS REQUIREMENT
  - \* PROVIDED BY CONTRACTORS AT COMPLETION OF TECHNICAL TASK

### ● DOCUMENT REPOSITORIES

- RECORDS CENTER
  - \* LOCATED AT NTS (HOLMES & NARVER)
  - \* PROJECT DOCUMENTS/CORRESPONDENCE
  - \* ALL FILES
- LIBRARY
  - \* DOE-WMPO
  - \* SAI
  - \* DOE/NV
  - \* COMPLETED PUBLICATIONS

### ● COMPUTER SYSTEM

- SYSTEM 2000
  - \* LOCATED AT SNL
  - \* CONTAINS DATA TO BE USED IN PERFORMANCE ASSESSMENT CALCULATIONS
- APPLICON
  - \* CAD SYSTEM INTENDED FOR USE IN PROVIDING 3-D ANALYSIS OF STRUCTURE
  - \* LOCATED AT SNL

NNWSI PROJECT ISSUE MANAGEMENT SYSTEM CONCEPT

● IDENTIFICATION OF ISSUE

- BASED ON NRC REGULATIONS
- BASED ON EPA STANDARD
- BASED ON DOE SITING GUIDELINES

ISSUE MUST BE SPECIFIC AND IN FORM OF VALID TECHNICAL QUESTION

● TECHNICAL DATA COLLECTION

OBJECTIVE OF DATA COLLECTION MUST BE TRACEABLE TO THE "ISSUE" AND COMPATIBLE WITH SCHEDULE FOR LICENSING

● PREPARATION OF ARGUMENT/INTERPRETATION

THE "RESOLUTION OBJECTIVE" MUST BE QUANTIFIABLE/MEASURABLE

● ESTABLISHMENT OF CONSENSUS REGARDING ARGUMENT INTERPRETATION

CURRENT NNWSI PROJECT ISSUE MANAGEMENT SYSTEM APPROACH

- ISSUES ARE ESTABLISHED IN CHAPTER 10 OF THE SCP
- TECHNICAL WORK IS DETERMINED IN CHAPTER 10 OF SCP
- ARGUMENTS WILL BE PREPARED WHEN DATA ARE AVAILABLE
  - \* REPORTS DOCUMENTING POSITION WILL BE PREPARED
- CURRENTLY NO FURTHER MECHANISM EXISTS TO ESTABLISH CONCURRENCE ON EXPERIMENTAL APPROACH OR INTERPRETATION OF DATA

22200000



# NNWSI PROJECT

## CONTRACTORS AND SCOPE OF WORK

(CONTINUED)

- H&N** - SITE PREPARATION FOR DRILLING, EXPLORATORY SHAFT DESIGN, SURVEYING
- EG&G** - ENVIRONMENTAL STUDIES AT SITE
- RECO** - NTS SUPPORT SERVICES INCLUDING DRILLING, ROADS, TRENCHING, RADIOLOGICAL MONITORING
- F&S** - MINING AND DRILLING ENGINEERING, FIELD GEOLOGY SUPPORT TO USGS
- SAI** - TECHNICAL AND MANAGEMENT SUPPORT SERVICES INCLUDING REPORTING, SCHEDULING, LICENSING AND PROJECT QUALITY ASSURANCE
- UNIVERSITY OF NEVADA** - ARCHAEOLOGICAL STUDIES AT SITE

# NNWSI PROJECT

## TECHNICAL AND SOCIETAL OBJECTIVES



PROJECT

- IS THE INTRINSIC CHARACTER OF THE GEOLOGIC, HYDROLOGIC AND GEOCHEMICAL ENVIRONMENT CAPABLE OF PROVIDING LONG ISOLATION?
- IS IT POSSIBLE TO DESIGN, BUILD AND OPERATE A HIGH-LEVEL RADIOACTIVE WASTE REPOSITORY WITHIN THIS ENVIRONMENT WITHOUT DISRUPTING ITS INTRINSIC CHARACTER TO ISOLATE THE WASTE?
- IS IT POSSIBLE TO CONSTRUCT AND OPERATE A REPOSITORY WITHOUT DISRUPTING THE SOCIETAL STRUCTURE IN THE AREA SURROUNDING THE REPOSITORY?

## NWWSI KEY ISSUES

**KEY ISSUE 1.0** The quantity of waste radionuclides released from a repository at Yucca Mountain under current conditions and processes must be small enough and transport time to the accessible environment long enough to meet the radiation release limits specified by the EPA and NRC.

**Issue 1.1** What period and degree of radionuclide containment will be provided by a waste package designed for use in a repository at Yucca Mountain?

### Need

**INFORMATION NEED 1.1.1** Estimates of and bounds on the flow of steam, air and water in the waste package emplacement environment.

**INFORMATION NEED 1.1.2** Estimates of and bounds on the chemical characteristics of steam, air and water within the repository horizon and the waste packages.

**INFORMATION NEED 1.1.3** Material properties relevant to design specifications for waste forms and estimates of and bounds on the leaching of the waste forms during repository storage.

**INFORMATION NEED 1.1.4** Material properties relevant to design specifications for canister and/or overpack composition, thickness, fabrication and filling.

**INFORMATION NEED 1.1.5** Performance characteristics for backfill, and material properties relevant to design specifications for backfill composition and amount, if required.

**INFORMATION NEED 1.1.6** Calculated estimates of and bounds on the release initiation time (period of containment) and the rate of releases (degree of containment) from the waste package subsystem.

KEY ISSUE 2.0 Changes from current conditions and processes (Key Issue 1.0) in the waste isolation environment that have reasonable potential of occurring must not adversely and significantly affect the ability of a repository and its surroundings to contain and isolate radioactive waste consistent with NRC and EPA requirements.

Issue 2.1 Do any natural processes or events provide reasonable potential for physical disruption of the repository and release of radionuclides to the surface?

Need

INFORMATION NEED 2.1.1 Calculated estimates of and bounds on the hazards of igneous extrusion through the repository; and the distribution and concentrations of radionuclides in extruded material.

INFORMATION NEED 2.1.2 Calculated estimates of and bounds on future climatic and fluvial conditions.

INFORMATION NEED 2.1.3 Calculated estimates of and bounds on anticipated rate of tectonism.

INFORMATION NEED 2.1.4 Calculated estimates of and bounds on anticipated depths of erosion.

INFORMATION NEED 2.1.5 Calculated estimates of and bounds on the direct radionuclide releases at the land surface associated with reasonably likely tectonic, climatic, and erosional conditions.

KEY ISSUE 3.0 Construction, operation, and decommissioning of a repository must be timely, safe, economic, and environmentally acceptable.

Issue 3.1 Will the waste package designed for use at Yucca Mountain be cost effective and compatible with the regulatory requirements for safe transportation, handling, emplacement, and retrieval?

Need

INFORMATION NEED 3.1.1 Summary of all the regulatory requirements affecting a waste package including transportation, handling, emplacement, containment, release control, and retrieval.

INFORMATION NEED 3.1.2 Designs and specifications developed to meet regulatory requirements and cost effectiveness goals.

INFORMATION NEED 3.1.3 Technical analyses showing that proposed waste package designs and specifications are compatible with the regulatory requirements.

INFORMATION NEED 3.1.4 Economic analyses of waste package and related repository systems showing that the chosen designs and specifications are cost effective.

PERFORMANCE ASSESSMENT DATA BASE

-- SYSTEM 2000 --

BRENDA LANGKOPF  
SANDIA NATIONAL LABORATORIES



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# THE TUFF DATA BASE



## GENERAL CHARACTERISTICS OF TUFF DATA BASE

- LOCATED ON SANDIA'S CDC CYBER 170/855
- MANAGED WITH SYSTEM 2000 SOFTWARE (DEVELOPED & MAINTAINED BY INTEL)
- PRESENT DATA BASE SIZE IS  
(IN OCTOBER OF 1983, IT CONTAINED  $1.2 \times 10^6$  CHARACTERS  
AT PRESENT IT CONTAINS  $2.0 \times 10^6$  CHARACTERS)

## DATA BASE OBJECTIVES

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- PROVIDE A DATA BASE MAINLY DIRECTED TOWARDS NEEDS OF PERFORMANCE ASSESSMENT OF REPOSITORY
- COMPILE AND MAINTAIN DATA SYSTEMATICALLY
- ESTABLISH SYSTEM TO OBTAIN NEW DATA IN A TIMELY MANNER
- PROVIDE UPDATED MICROFICHE OF DATA ON QUARTERLY BASIS
- PROVIDE COMMUNICATION WITHIN PROJECT OF NEEDED AND APPLICABLE DATA
- PROVIDE A LISTING OF REFERENCE DATA
- ESTABLISH USER-FRIENDLY INTERFACE FOR SYSTEM 2000

## PROCEDURES

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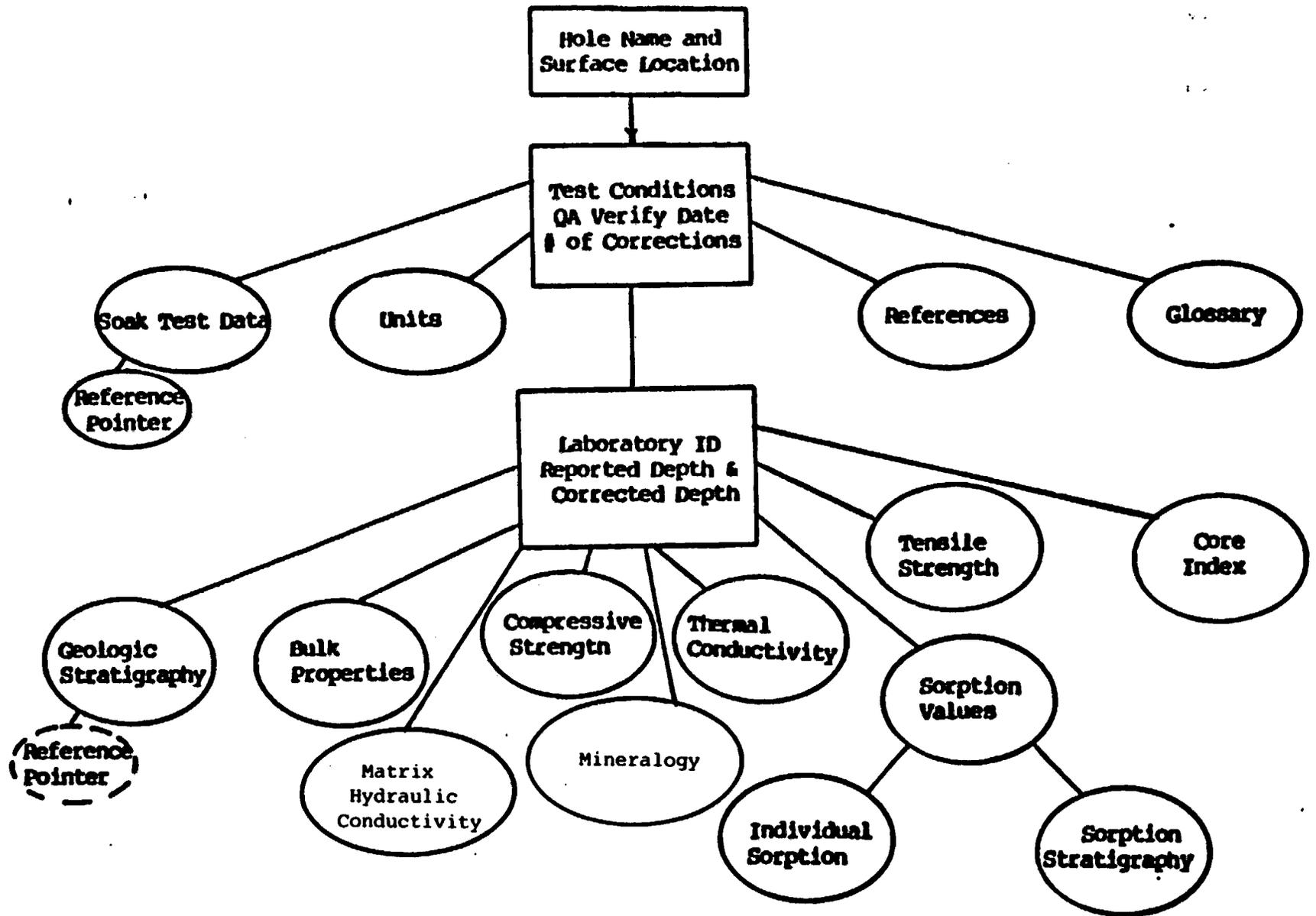


- DEFINITION OF DATA BASE STRUCTURE
- OBTAINING AUTHORIZATIONS FOR INPUT OF DATA
- MODIFICATION OF THE DATA BASE AND ADDITION OF NEW DATA
- VERIFICATION OF INPUT DATA
- RELEASE OF DATA
  - QUARTERLY DATA BASE DOCUMENT
  - DIRECT ACCESS (SYSTEM 2000)
  - PRIMER INTERFACE
  - TUFF DATA BASE INTERFACE
- BACKUP PROCEDURES
- DATA AUDITS

## TYPES OF INFORMATION/DATA ELEMENTS



- (REFERENCE DATA)
- (INTERPRETED DATA)
- REDUCED DATA
- SUPPORTING INFORMATION



## YUCCA MOUNTAIN DATA TO BE INPUT

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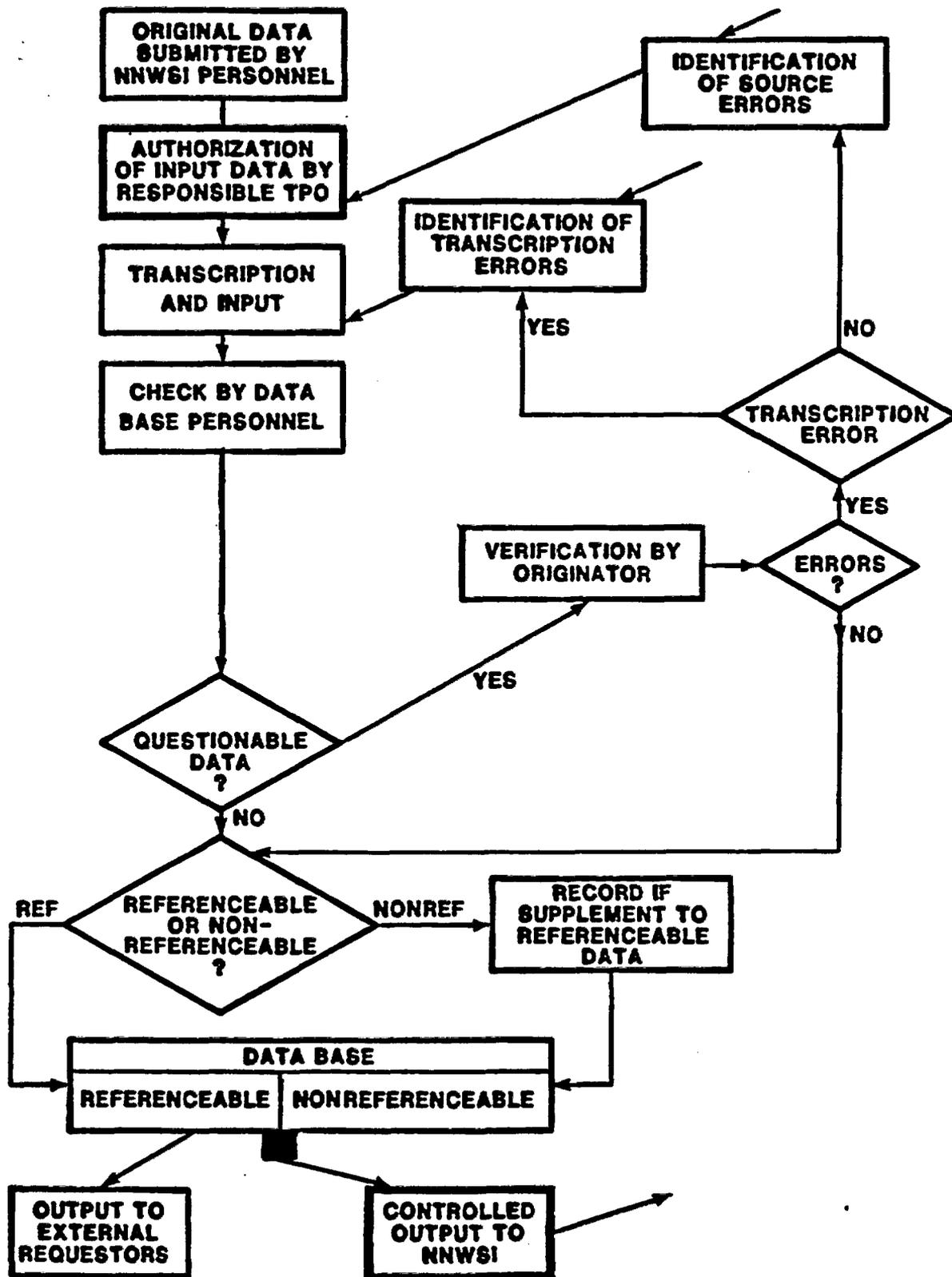
- GEOLOGY
- GEOCHEMISTRY
- MINERALOGY
- HOLE INFORMATION
- HYDROLOGY
- IN SITU STRESS
- BULK PROPERTIES
- THERMAL PROPERTIES
- THERMOMECHANICAL AND MECHANICAL PROPERTIES
- REPOSITORY DESIGN INFORMATION
- WASTE PACKAGE DESIGN INFORMATION

## ERRORS

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- SOURCE ERROR
- TRANSCRIPTION ERROR



## RESPONSIBILITIES OF PERSONS INVOLVED WITH DATA BASE

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- DATA BASE ADMINISTRATOR\*

(DESIGN DATA BASE, PROVIDE A DIRECTION OF WHAT INFORMATION TO INPUT, DIRECT DEVELOPMENT OF INTERFACE SOFTWARE, MANAGE DATA BASE PROJECT)

- DATA BASE PROGRAMMERS

(DEVELOP SOFTWARE FOR INTERFACE AND DATA BASE DOCUMENT, COMPLETE COMPUTER AUDITS AND HELP DESIGN DATA BASE)

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\*ONLY TWO PEOPLE HAVE WRITE ACCESS AND DIRECT ACCESS TO THE PRODUCTION DATA BASE

**RESPONSIBILITIES OF PERSONS INVOLVED WITH DATA BASE (CONT'D)**

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- **DATA BASE APPLICATION SPECIALISTS\***  
(INPUT INFORMATION, KEEP RECORDS, DEVELOP SOFTWARE FOR  
DATA INPUT, BACKUP FILES, VERIFY DATA)
  
- **ORIGINATOR**
  
- **RESPONSIBLE TPO**  
(AUTHORIZE UNPUBLISHED DATA FOR INPUT TO DATA BASE)
  
- **NNWSI PROJECT REPRESENTATIVE**  
(AUTHORIZE NNWSI PERSONNEL TO RECEIVE A DATA BASE PASSWORD)

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**\*ONLY TWO PEOPLE HAVE WRITE ACCESS AND DIRECT ACCESS TO THE  
PRODUCTION DATA BASE**

## ASSURANCE OF SYSTEM RELIABILITY

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- BACKUP OF EACH DATA BASE AND FILES MODIFYING DATA BASE  
USING IBM COMPUTER (MASTOR) COMPATIBLE WITH CDC COMPUTER  
ONTO CARTRIDGE TAPES
- ANOTHER TEMPORARY BACKUP IS DONE BY SANDIA COMPUTING SYSTEM
- PAPER AND MICROFICHE COPIES CREATED OF FILES MODIFYING  
DATA BASE
- TWICE A YEAR AUDIT OF DATA BASE

INTERFACES WITH OTHER DOE SYSTEMS

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PRC DOCKET NUMBER

DOCKET NUMBER ASSIGNED BY PROJECT RECORD CENTER (PRC)

## CHARACTERISTICS OF DIRECT ACCESS VIA PRIMER INTERFACE AND TUFF DATA BASE INTERFACE.

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- DATA BASE ACCESSED FROM AREA REMOVED FROM DATA BASE STORAGE AREA
- READ-ONLY ACCESS
- INFORMATION MAY BE REPORTED IN SCREEN DISPLAYS AND PRINTOUTS (WILL PROVIDE CAPABILITY FOR CREATION OF FILES AND PLOTS)
- PASSWORDS NEEDED FOR SANDIA COMPUTING SYSTEM AND INTERFACES