

(NOTE: This is an internal NRC version of the briefing package. It focuses on potential problems in SCR review and alternative approaches to those problems. This package has been modified for presentation to DOE and other outside groups.)

See memo dated  
9/30/82

NRC HIGH LEVEL WASTE LICENSING  
SITE CHARACTERIZATION REVIEW PROCESS

SEPTEMBER 1982

8303300120 820930  
PDR WASTE PDR  
WM-10  
Rec'd w/enc 8303300122 820930

SITE CHARACTERIZATION  
REVIEW PROCESS

- 0 INFORMAL, PRELICENSING ACTIVITY
- 0 BEGINS WITH DOE SITE CHARACTERIZATION REPORT (SCR)
- 0 SCR CONTENTS
  - WHAT IS KNOWN FROM INVESTIGATIONS TO DATE
  - WHAT ARE ISSUES - UNCERTAINTIES OR QUESTIONS THAT MUST BE RESOLVED TO DETERMINE COMPLIANCE WITH 10 CFR 60 AND PASS NEPA TEST (10 CFR 51)
    - ALL ISSUES TO BE COVERED AT LEAST IN SOME LEVEL OF DETAIL
  - WHAT ARE DOE PLANS FOR RESOLVING ISSUES
- 0 NRC SITE CHARACTERIZATION ANALYSIS (SCA) DOCUMENTS STAFF POSITIONS ON COMPLETENESS AND ADEQUACY OF DOE ISSUE IDENTIFICATION AND PLANS
- 0 PROVIDES FOR SCRUTINY BY PUBLIC AND TECHNICAL COMMUNITY BEFORE DOE PROGRAMS CARRIED OUT
- 0 ONGOING PROCESS - DOE SEMIANNUAL REPORTS UPDATE SITE CHARACTERIZATION INVESTIGATIONS

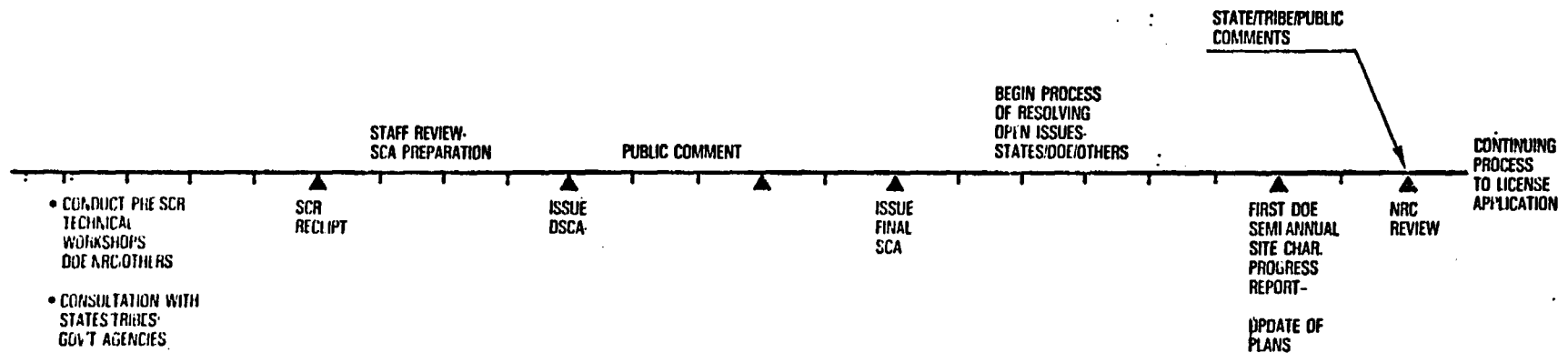
SITE CHARACTERIZATION ANALYSIS (SCA)  
AND NMSS DIRECTOR'S OPINION (DO)

- 0 NO LICENSING ACTION; BEGINNING OF PROCESS
- 0 TIGHT SCHEDULE - 8 TO 10 MONTHS TO FINALIZE IN ORDER  
TO ASSURE ANY PROBLEMS WITH DOE PLANS ARE ADDRESSED EARLY
- 0 CRITIQUE OF DOE PLANS FOR SITE CHARACTERIZATION
  - REVIEW DOE SITING PROCESS
  - EMPHASIZE SELECTED MAJOR ISSUES
- 0 READER MUST REFER TO DOE SCR FOR DETAILS
- 0 BRIEF - 50 PAGE TEXT SINGLE SPACED
- 0 DOCUMENTATION OF SUPPORTING REVIEWS
  - DETAILED TECHNICAL APPENDICES
  - SITE ISSUE ANALYSES -- PUBLIC DOCUMENT ROOM
- 0 DRAFT SCA/DO PUBLISHED FOR PUBLIC COMMENT

SCA PREPARATION -  
QUESTIONS ABOUT APPROACH

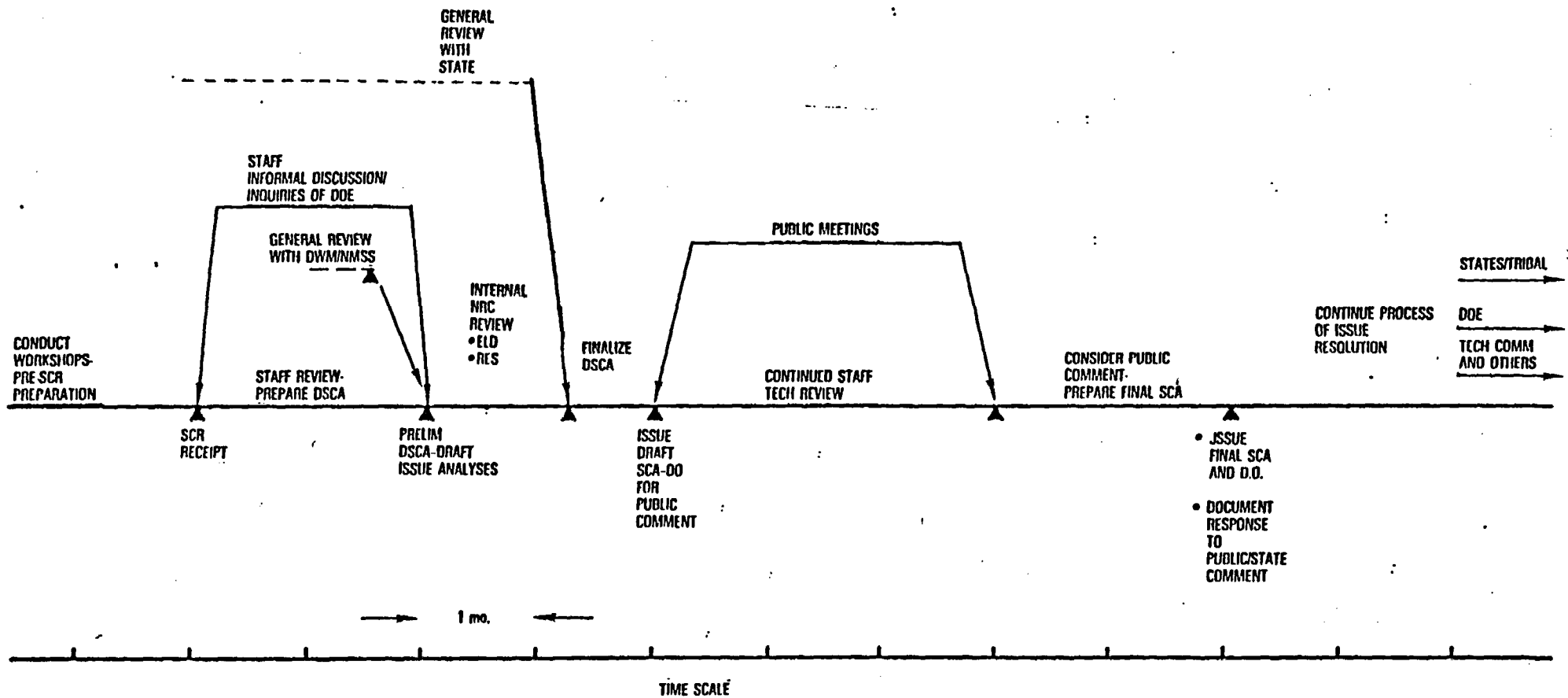
- o HOW TO COMPLETE REVIEW AND CRITIQUE OF 1800 PAGE SCR  
IN ONLY SEVERAL MONTHS
- o HOW TO HANDLE INSTITUTIONAL AND NEPA ISSUES?
  - o SITE SELECTION
  - o ALTERNATIVE SITES
  - o SCOPING OF GENERAL ENVIRONMENTAL IMPACTS
  - o TRANSPORTATION
- o HOW TO COORDINATE WITH STATES/DCE
- o HOW TO CONVINCE SKEPTICAL READER ABOUT THOROUGHNESS  
OF NRC REVIEW
- o HOW TO HANDLE PUBLIC COMMENTS

# **SITE CHARACTERIZATION REVIEW PROCESS**



→ 1 mo. ←  
SCALE

# PREPARE SCA-DIRECTORS OPINION



SITE CHARACTERIZATION REPORT  
10CFR60 REQUIREMENTS  
(SECT. 60.11)

- 0 DESCRIPTION OF SITE TO BE CHARACTERIZED
- 0 CRITERIA USED TO ARRIVE AT CANDIDATE AREA
- 0 METHOD BY WHICH SITE WAS SELECTED FOR SC
- 0 IDENTIFICATION OF ALTERNATIVE MEDIA AND SITES WHERE  
DOE INTENDS TO CONDUCT SC
- 0 DECISION PROCESS BY WHICH SITE WAS SELECTED - INCLUDING  
PUBLIC, INDIAN TRIBAL AND STATE VIEWS
- 0 DESCRIPTION OF SC PROGRAM
  - EXTENT OF PLANNED EXCAVATION AND PLANS FOR IN SITU TESTING
  - REPOSITORY CONCEPTUAL DESIGN
  - SAFETY CONTROL PROGRAMS
  - ALL SC PLANS (IN SOME LEVEL OF DETAIL) FOR GENERATING  
INFORMATION REQUIRED FOR FULL 10CFR60 LICENSE REVIEW
- 0 DESCRIPTION OF QUALITY ASSURANCE PROGRAM
- 0 ANY OTHER ISSUES DOE WISHES NRC TO REVIEW

ALTERNATIVE SITES/SITE SELECTION  
NRC SCA APPROACH

0 ALTERNATIVE MEDIA AND SITES

- 0 GENERAL REVIEW TO ASSESS THAT DOE IS DEVELOPING "SLATE OF CANDIDATE SITES THAT ARE AMONG THE BEST THAT CAN REASONABLY BE FOUND" (46 FR 13973)
- 0 DETAILED REVIEW OF ALTERNATIVE SITES TO BE COMPLETED IN REVIEW OF SCR FOR EACH SITE
- 0 NOT EVALUATING TO ASSURE "BEST SITE" IS SELECTED

0 SITE SELECTION

- 0 USING DOE SITING PLAN FRAMEWORK, REVIEW SELECTION FROM AMONG:
  - 0 OTHER FED-OWNED LANDS
  - 0 OTHER SITES WITHIN PASCO BASIN
- 0 REVIEW SELECTION OF COLD CREEK SYNCLINE
  - 0 CRITERIA
  - 0 SPECIFIC METHODS OF EVALUATION
- 0 REVIEW IN TERMS OF FOLLOWING FACTORS:
  - 0 TECHNICAL - E.G., SEISMIC AND GEOLOGIC ANOMALIES
  - 0 ENVIRONMENTAL
  - 0 INSTITUTIONAL



ENVIRONMENTAL ISSUES --  
SCA APPROACH

- 0 BEGIN INFORMAL "SCOPING PROCESS"
  - 0 CONSISTENT WITH CEQ GUIDELINES, IDENTIFY POTENTIAL ENVIRONMENTAL ISSUES TO BE EVALUATED IN LICENSING
  - 0 ASSESS DOE PLANS FOR COMPLETENESS AND ADEQUACY IN RESOLVING ISSUES ..
  - 0 REVIEW TO BE GENERAL IN NATURE AND LEVEL OF DETAIL -- LEAD TIME FOR ENVIRONMENTAL STUDIES TYPICALLY MUCH LESS THAN SAFETY (GEOTECHNICAL AND DESIGN) ISSUES
- 0 RELY ON DOE TO SATISFY ANY NEPA REQUIREMENTS FOR ENVIRONMENTAL IMPACTS OF SITE CHARACTERIZATION ACTIVITIES
  - 0 E.G., THE DOE EA OF SITE CHARACTERIZATION IMPACTS?
  - 0 NRC WILL COMMENT ON DOE NEPA DOCUMENTS

TRANSPORTATION -  
SCA APPROACH

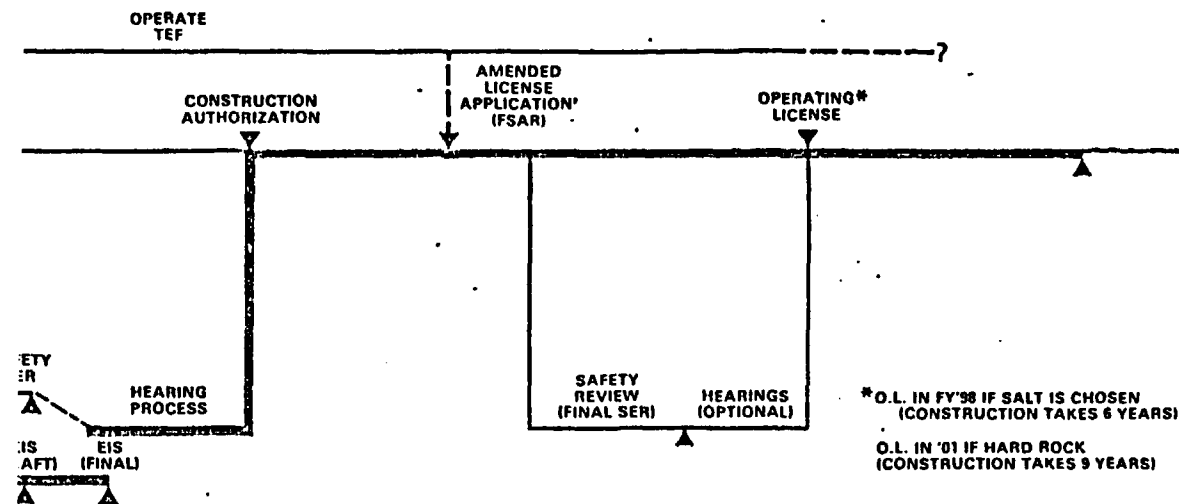
- 0 INSTITUTIONAL ISSUE OF LIKELY CHIEF CONCERN IN NEPA LICENSING EVALUATIONS
  - 0 ALTERNATE SITE COMPARISON
  - 0 IMPACT MITIGATION
- 0 SIMILAR TO REVIEWS IN OTHER AREAS --
  - 0 HAS DOE IDENTIFIED ALL POTENTIAL LICENSING ISSUES?
  - 0 ARE DOE PLANS FOR ISSUE RESOLUTION ADEQUATE?
- 0 SOME POTENTIAL KEY ISSUES
  - 0 ARE POTENTIAL TRANSPORTATION IMPACTS IDENTIFIED?
    - 0 RAD
    - 0 NON-RAD
    - 0 OTHERS?
- 0 NOT REVIEW OF --
  - 0 TRANSPORT CONTAINER DESIGN
  - 0 ADEQUACY OF REGULATORY FRAMEWORK
  - 0 OTHERS?

SUPPLEMENTARY  
MATERIAL

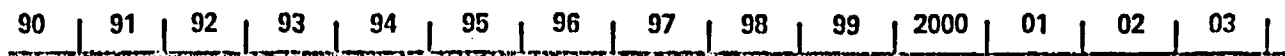
NRC HIGH-LEVEL WASTE  
LICENSING APPROACH

- 0 BROAD REGULATORY REQUIREMENTS
- 0 DEALS WITH MANY NEW, UNCONVENTIONAL TECHNICAL AND INSTITUTIONAL PROBLEMS
- 0 CHARACTERIZATION OF AT LEAST THREE SITES
- 0 AT DEPTH TESTING
- 0 PROCESS FOR EARLY PUBLIC INVOLVEMENT AND IDENTIFICATION OF ISSUES
  - INFORMAL PRELICENSING INTERACTIONS WITH DOE AND OTHER ORGANIZATIONS
  - SITE CHARACTERIZATION REPORT AND CONTINUING UPDATES
- 0 SPECIAL ROLE FOR STATES, INDIAN TRIBES
- 0 FLEXIBLE TO MEET CHANGES IN DOE PLANS, SCHEDULES, OTHER CONSTRAINTS

# IGH LEVEL WASTE / LICENSING SCHEDULE

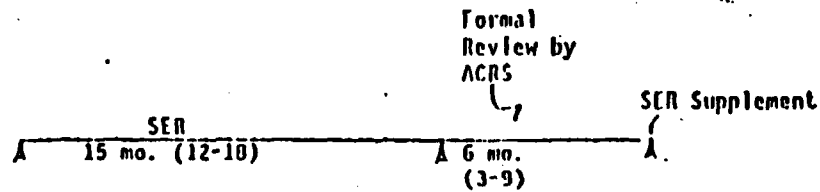


\*APPLICATION ADVANCED SUFFICIENTLY BEFORE  
COMPLETION OF CONSTRUCTION/INITIATION  
OF WASTE EMPLACEMENT TO KEEP NRC OFF  
CRITICAL PATH



# SCHEDULE ESTIMATES FOR NEW REPOSITORY LICENSING

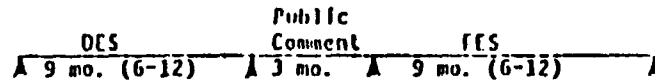
## SAFETY REVIEW



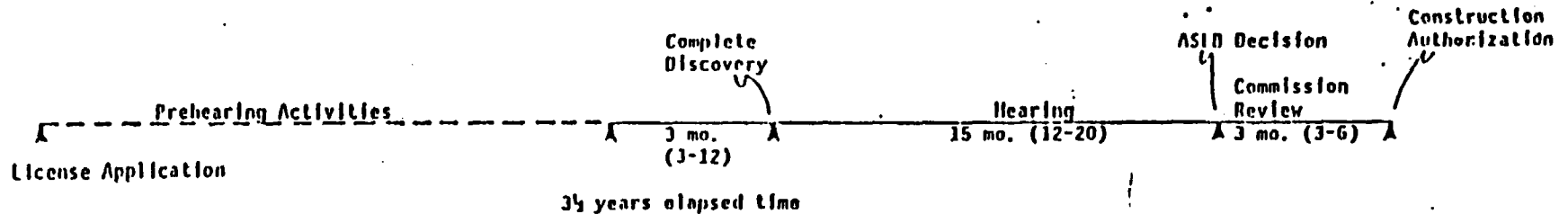
## Informal Consultation with Interested Parties

- ACRS
- Participating States
- Other Agencies
  - o USGS
  - o EPA
- Intervenors

## ENVIRONMENTAL REVIEW



## HEARING PROCESS



## FOOTNOTES

1. A high quality and complete license application is assumed. All technical work and testing needed to make the finding required in 10 CFR 60.31 are assumed complete.
2. A free and open exchange between the DOE and NRC to establish what information will be needed for the license application and that the NRC will be kept abreast of information and data as it is developed at sites being characterized is assumed.
3. Uncertainties in times are shown in parentheses. Greatest uncertainties are associated with the hearing process.

OUTLINE OF DRAFT SCA

	<u>NO. OF PAGES</u>
EXECUTIVE SUMMARY	3
DIRECTOR'S OPINION	6
1. INTRODUCTION - DESCRIPTION OF LICENSING AND SITE CHARACTERIZATION PROCESS	3
2. DESCRIPTION OF SITE AND CONCEPTUAL DESIGN	4
3. SITE SELECTION PROCESS	4
4. GROUNDWATER FLOW	6
5. GEOLOGIC STABILITY	4
6. GEOCHEMICAL RETARDATION	4
7. DESIGN OF FACILITIES	6
8. WASTE PACKAGE	4
9. INSTITUTIONAL AND ENVIRONMENTAL FACTORS	4
10. QUALITY ASSURANCE PROGRAM	3
11. SUMMARY OF ISSUES	3
APPENDICES	100
0 DETAILED SYSTEMATIC TABULATION/EVALUATION OF SCR ISSUES	
0 SITE UNCERTAINTY AND SENSITIVITY ANALYSIS	
0 OTHER SELECTED DETAILED TEAM EVALUATIONS	

OPPORTUNITY FOR  
STATE PARTICIPATION  
(10CFR60 - SUBPART C)

- 0 GOVERNOR MAY MAKE FORMAL PROPOSAL ON STATE PARTICIPATION
- 0 NRC STAFF MAY BE REQUESTED TO PROVIDE CONSULTATION
  - NRC FORMAL NOTICE OF OPPORTUNITY GIVEN AFTER RECEIPT OF SCR
  - AVAILABLE TO STATE, TRIBAL, & LOCAL REPRESENTATIVES UPON REQUEST FROM STATE
- 0 NRC MUST RESPOND TO WRITTEN STATE, TRIBAL, AND LOCAL GOVERNMENT COMMENTS AND QUESTIONS AS APPROPRIATE
- 0 AFFECTED INDIAN TRIBES HAVE SAME OPPORTUNITIES AS STATES



NRC REPORTS  
ON  
SITING AND DESIGN SUITABILITY ISSUES

- 0 EARLY IDENTIFICATION OF POTENTIAL LICENSING ISSUES
- 0 PREPARED BY DIVISION OF WASTE MANAGEMENT-STAFF FOR EACH SITE
  - BWIP - MAY 1982
  - NTS - AUGUST 1982
- 0 DEVELOPED FROM SEVERAL SOURCES
  - EXISTING PUBLISHED INFORMATION
  - NRC TECHNICAL REVIEWS OF SITE
  - 10 CFR 60 PERFORMANCE OBJECTIVES AND CRITERIA
- 0 EXPEDITE LICENSING PROCESS
  - FORM BASIS FOR REACHING CONSENSUS OF VIEWS AMONG DOE, NRC AND OTHER INTERESTED/AFFECTED PARTIES
  - PROVIDE BASIS SCR REVIEW PROCESS
- 0 COMPLETE, SYSTEMATIC REVIEW OF ALL ISSUES
  - EACH ISSUE STATED BRIEFLY AND IN BROAD TERMS
  - TECHNICAL ISSUES BASED ON 10 CFR 60 SUBPART E
- 0 ISSUES ORGANIZED INTO TOPICAL GROUPS
  - BWIP: RADIONUCLIDE TRANSPORT, STABILITY, REPOSITORY DESIGN, ENGINEERED BARRIERS, INSTITUTIONAL CONCERNS
  - NTS: GROUNDWATER FLOW, WASTE FORM AND WASTE PACKAGE, RETARDATION, FACILITY DESIGN, STABILITY, INSTITUTIONAL

SITE CHARACTERIZATION  
ANALYSIS PRODUCTS

- 0 SITE CHARACTERIZATION ANALYSIS (SCA) AND DIRECTORS OPINION (DO)
  - o DRAFT - NUREG
  - o FINAL - NUREG
  - o CRITIQUE OF SELECTED MAJOR ISSUES
- 0 APPENDICES
  - o DETAILED TECHNICAL SUPPORT FOR SELECTED ASPECTS OF REVIEW
  - o CONTAINED IN SCA
- 0 SITE ISSUE ANALYSIS
  - o DETAILED TREATMENT OF ALL ISSUES
  - o AVAILABLE IN PUBLIC DOCUMENT ROOM
- 0 REFERENCES
  - o SELECTED KEY TECHNICAL AREAS ADDRESSED IN DETAILED TECHNICAL REPORTS
  - o EXAMPLES
    - o IN-SITU TESTING - GOLDER ASSOCIATES REPORT
    - o HYDROGEOLOGIC INVESTIGATIONS - LBL
    - o GEOCHEMISTRY INVESTIGATIONS - LBL

### SITE ISSUE ANALYSIS

- 0 PREPARED FOR ALL ISSUES
- 0 DEVELOPMENT BEGINS PRIOR TO SCR RECEIPT
- 0 BRIEF-2 PAGES, WITH DETAILED TECHNICAL BACKUP MATERIAL
- 0 SENT TO PUBLIC DOCUMENT ROOM
- 0 SITE-SPECIFIC CONTENTS
  - STATEMENT AND IMPORTANCE OF ISSUE
  - APPLICABLE SECTIONS OF 10 CFR 60
  - SUMMARY OF PRESENT STATE OF KNOWLEDGE, WITH ANALYSIS OF UNCERTAINTIES
  - SUMMARY OF INFORMATION NEEDED TO RESOLVE ISSUE
  - SUMMARY OF PLANS FOR INVESTIGATIONS AND TESTS TO ACQUIRE INFORMATION
  - EVALUATION OF PLANS FOR COMPLETENESS, PRACTICALITY AND LIKELIHOOD OF SUCCESS

SITE CHARACTERIZATION REPORT -  
10CFR60  
REQUIREMENTS  
(Sect. 60.11)

- (1) description of site to be characterized
- (2) criteria used to arrive at candidate area
- (3) method by which site was selected for site characterization
- (4) identification and location of alternative media and sites at which DOE anticipates submitting subsequent Site Characterization Reports
- (5) description of decision process by which site was selected for characterization including means used to obtain public, Indian tribal and State views during selection
- (6) description of site characterization program including:
  - (i) extent of planned excavation and plans for in situ testing,
  - (ii) a conceptual design of a repository appropriate to the named site in sufficient detail to allow assessment of site characterization program with respect to investigation activities which address the ability of site to host a repository and isolate radioactive waste, or which may affect such ability, and,
  - (iii) provisions to control any adverse, safety-related effects from site characterization including appropriate quality assurance programs
- (7) description of quality assurance program to be applied to data collection; and
- (8) any issues related to site selection, alternative candidate areas or site, or design of geologic repository operations area which DOE wishes the Commission to review.