

**U.S. DEPARTMENT OF ENERGY  
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT**

**PRESENTATION TO  
THE NUCLEAR WASTE TECHNICAL REVIEW BOARD**

**SUBJECT:      OPENING REMARKS  
                  PROJECT STATUS**

**PRESENTER:     CARL P. GERTZ**

**PRESENTER'S TITLE  
AND ORGANIZATION:   PROJECT MANAGER  
                          YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT  
                          LAS VEGAS, NEVADA**

**PRESENTER'S  
TELEPHONE NUMBER:   (702) 794-7900**

**OCTOBER 8 - 10, 1991**

# Project Status

- **1991 Accomplishments**
- **1992 Plans and priorities**
- **Status of lawsuits**
- **Status of permits**

# 1991 Major Accomplishments

- **Started limited new work at Yucca Mountain July 8, 1991, at 3:20 p.m.**
- **Developed site suitability methodology, criteria and data requirements**
- **Continued non-surface disturbing activities**
- **Completed four on-going major studies:**
  - **Test prioritization task**
  - **Exploratory studies facility (ESF) alternatives study**
  - **Calico Hills risk/benefit analysis**
  - **Alternative license application strategy**
- **Completed revised ESF Title I Design Summary Report**

**Yucca Mountain Project has  
started major new  
site characterization activities**

# **Major 1992 Priorities Reflect Limited Funding**

- **Complete initial early site suitability evaluation draft report. Continue ongoing suitability evaluation**
- **Initiate new surface disturbing (drilling) site characterization activities including:**
  - **Prototype drilling at Yucca Mountain**
  - **Park Service monitoring borehole**
  - **Unsaturated zone boreholes**
  - **Geologic investigation boreholes**
  - **Field trenching**
  - **Test pits**
- **Continue ongoing surface-based site characterization activities**
- **Begin limited ESF Title II design in October 1991 (update repository design as appropriate)**

# **Major 1992 Priorities**

(Continued)

- **Maintain a sound environmental program and provide support to field activities as necessary**
- **Conduct performance assessment to support project priorities/activities**
- **Continue to fully implement a YMP-wide Quality Assurance program and planning and control system (PACS)**
- **Conduct a minimal waste package/EBS/near-field environment/waste form characterization program**

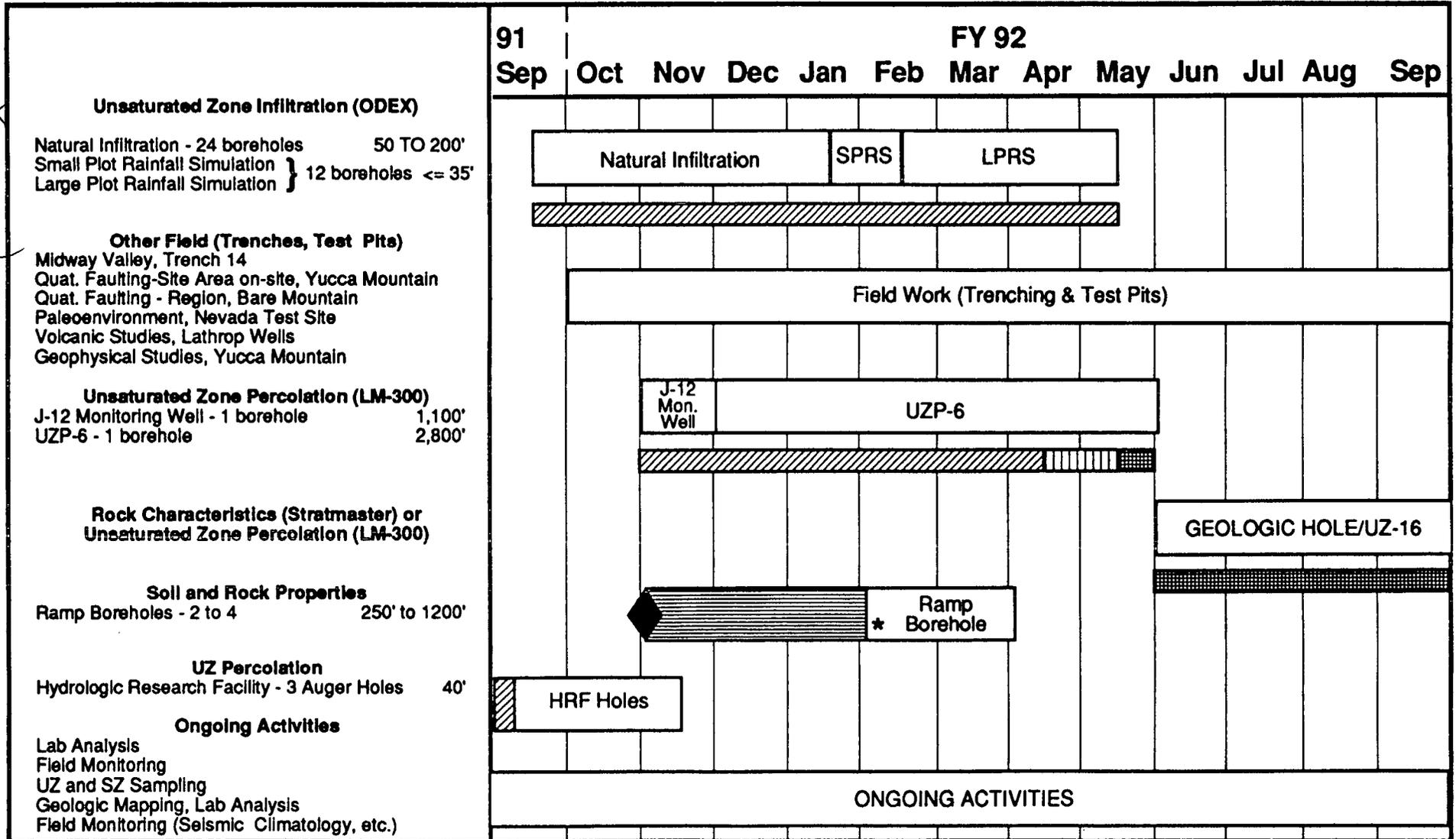
# **Major 1992 Priorities**

(Continued)

- **Maintain fixed cost items (i.e., roads, buildings, records centers, etc.)**
- **Conduct institutional/outreach programs**
- **Transition M&O (TRW) into project activities**

# Proposed FY 1992 Surface Disturbing Activities

*Flux*  
*Crust*

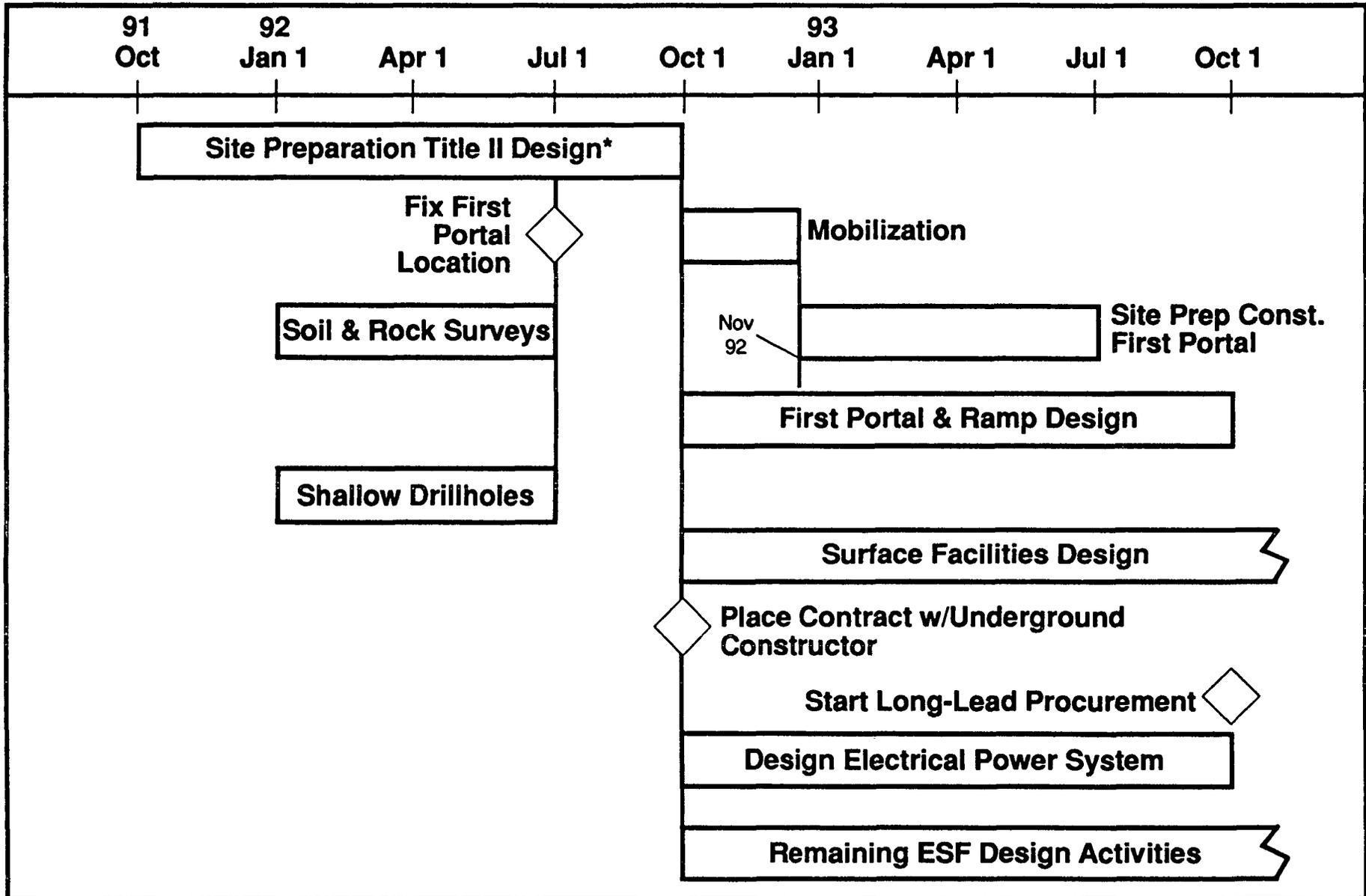


## RIG WORK SCHEDULE

-  8 Hours/Day, 5 Days/Week
-  16 Hours/Day, 5 Days/Week
-  24 Hours/Day, 5 Days/Week

-  YMPO APPROVE STUDY PLAN
-  PREREQUISITE COMPLETION
-  SCHEDULE TBD

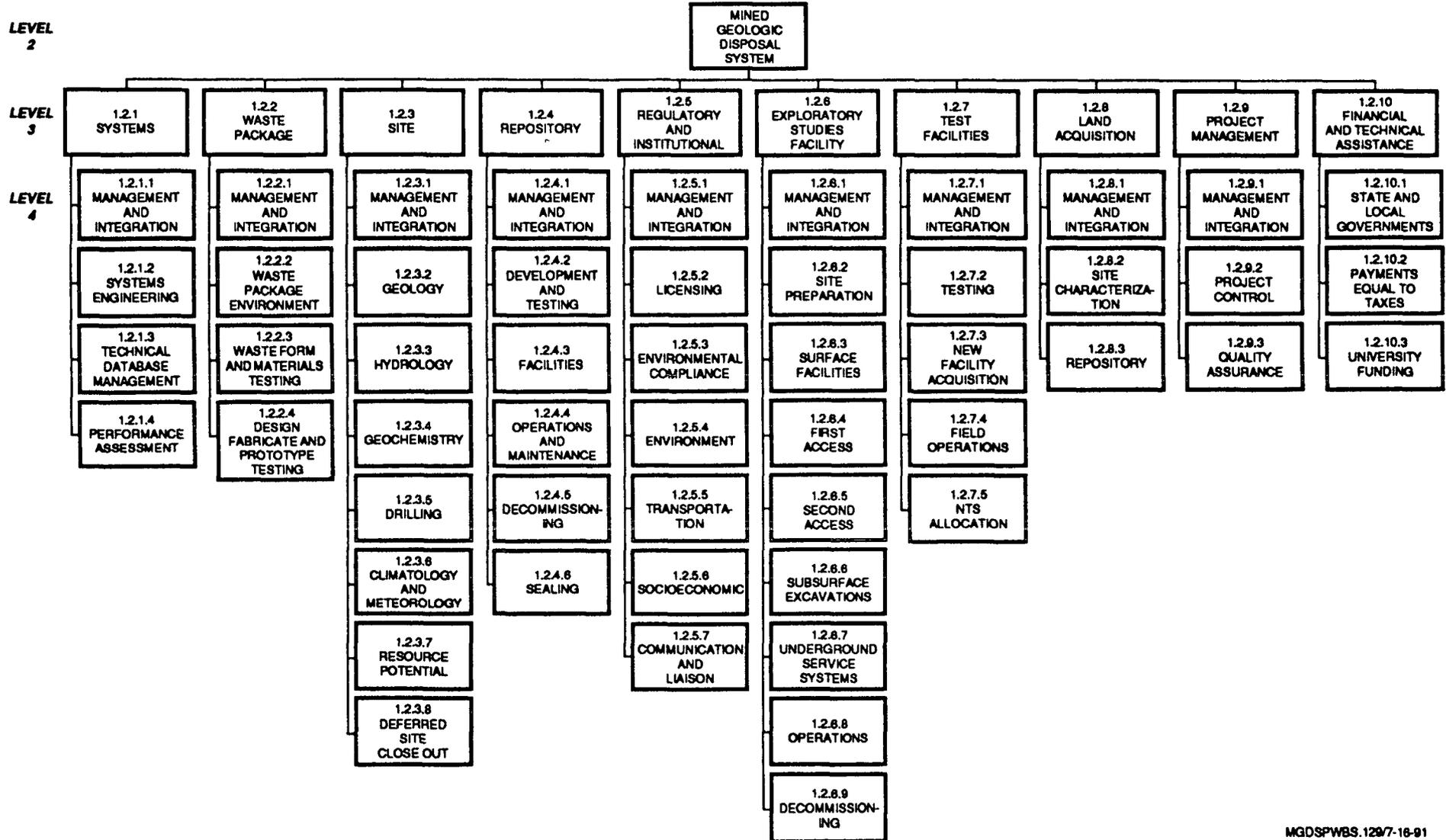
# PROPOSED ESF DESIGN/CONSTRUCTION ACTIVITIES FY 1992 & 1993



- \* INCLUDES
- PORTAL DESIGN SUFFICIENT FOR BLASTING
- AREA DESIGN SUFFICIENT FOR BLASTING AND SITE GRADING
- TOPSOIL AND SUBSOIL STORAGE

- WASTE WATER DISPOSAL
- POTABLE AND INDUSTRIAL WATER DISTRIBUTION
- ELECTRICAL SUBSTATION ENVELOPE
- FACILITY LAYOUTS
- BUILDING ENVELOPES

# YMP Work Breakdown Structure



# WBS Numbers

- 1.2.1 Systems, Performance assessment,  
Technical data**
- 1.2.3 Waste Package/near-field environment**
- 1.2.3 Site investigation**
- 1.2.4 Repository/ESF interfaces**
- 1.2.5 Regulatory, Institutional, Environment**
- 1.2.6 Exploratory Studies Facility**
- 1.2.7 Facilities**
- 1.2.9 Project Management**
  - Management**
  - Administration**
  - Project control**
  - Quality assurance**

# WBS Numbers

<u>WBS</u>	<u>FY 1991 Actuals</u>	<u>FY 1992 Planning</u>
1.2.1 (Systems)	24.7	18.6
1.2.2 (Waste pkg.)	10.8	5.2
1.2.3 (Site)	40.8	47.6
1.2.4 (Repository)	4.8	4.3
1.2.5 (Regulatory/Institutional)	20.3	18.4
1.2.6 (ESF)	13.9	7.0
1.2.7 (Facilities)	6.7	6.0
1.2.8 (Land)	.2	.2
1.2.9		
Management	8.4	7.1
Administration	23.7	19.2
Project Control	7.3	9.2
Quality Assurance	<u>13.5</u>	<u>11.6</u>
Project Subtotal	175.1	154.2
1.2.10 (Assistance)	<u>30.5</u>	<u>15.5</u>
<i>Total</i>	<i>205.6</i>	<i>169.7</i>

# **State And DOE In Legal Battle**

- **State filed lawsuit against DOE in January 1990**
  - **U.S. 9th Circuit Court of Appeals unanimously ruled in DOE's favor September 1990**
- **Supreme Court denied the state's request to review 9th Circuit Court decision March 1991**
- **State filed a request for reconsideration to the Supreme Court that was also denied on June 14, 1991**
- **Suit considered closed**

# **Lawsuits**

(Continued)

- **DOE filed lawsuit in U.S. District Court against state in January 1990 to obtain permits**
  - **State issued air quality permit on June 12, 1991**
  - **State issued underground injection control (UIC) permit July 17, 1991**
  - **State engineer began hearing on water appropriations request September 24, 1991;**  
**Court continues jurisdiction over this activity**

# **Ninth Circuit Court Of Appeals Recently Ruled In DOE's Favor On The "Guidelines" And "Environmental Assessment" Cases**

**"In 1987, Congress ordered the Secretary to conduct site characterization at Yucca Mountain. Nothing in the NWPA suggests that this clear legislative command is contingent upon the promulgation of a valid, adequate, and sufficient EA. We hold that Congress's 1987 amendments to the NWPA have rendered moot all aspects of Nevada's challenge to the Yucca Mountain EA. Accordingly, the petition is DISMISSED"**

*Meanwhile*

# State Issued Permit Allowing DOE To Use Water From Well VH1 To Conduct Site Characterization Activities

- Well is approximately 45 road miles from current storage tanks
- Permit expires May 1992

# TO DEMONSTRATE FEDERAL RESOLVE DOE NEEDS ASSISTANCE

## YES

- LITIGATION AND/OR LEGISLATION TO OBTAIN PERMITS TO BEGIN NEEDED SURFACE-DISTURBING WORK
- ADMINISTRATION (OMB) AND DEPARTMENTAL (DOE) SUPPORT TO OBTAIN ADEQUATE RESOURCES
- CONGRESSIONAL SUPPORT OF FULL FUNDING

*prog  
will  
stall  
w/o these*

**WITHOUT ALL THREE OF THE ABOVE, THE REPOSITORY PROGRAM  
WILL BECOME STALLED AND THE NUCLEAR POWER OPTION WILL  
BECOME LESS VIABLE AS PART OF THE NATIONAL ENERGY STRATEGY**

# **Nuclear Waste Technical Review Board Full Board Meeting**

## **Evaluation of Ranges of Thermal Loading for High-Level Waste Disposal**

**October 8-10, 1991  
Las Vegas, NV**

### **Tuesday, October 8, 1991**

**8:30 Welcome  
Opening Remarks**

**D. Deere, NWTRB  
C. Gertz, DOE**

**8:45 Strategic implications of heat in a  
high-level radioactive waste repository**

**L. Ramspott, LLNL**

# **NWTRB Full Board Meeting Agenda**

## **Overview Session**

### **Thermal Loading Rationale for the Design of a HLW Repository**

- |              |   |                         |
|--------------|---|-------------------------|
| <b>9:15</b>  | <b>The Swedish geologic repository</b>  | <b>N. Rydell, SKN</b>   |
| <b>10:00</b> | <b>Break (15 min.)</b>                  |                         |
| <b>10:15</b> | <b>The German geologic repository</b>   | <b>K. Kuhn, GFS/IFT</b> |
| <b>11:00</b> | <b>The Canadian geologic repository</b> | <b>G. Simmons, AEC</b>  |
| <b>11:45</b> | <b>Lunch (1 hr. 15 min.)</b>            |                         |

# **NWTRB Full Board Meeting Agenda**

## **Overview Session**

### **The Repository and Thermal Loading Concept for Yucca Mountain**

- |             |  |                         |
|-------------|--|-------------------------|
| <b>1:00</b> | <b>Historical Perspective of U.S. Program</b>  | <b>C. Gertz, DOE</b>    |
| <b>1:30</b> | <b>History of Evolution of Repository Concept for<br/>a Potential Repository at Yucca Mountain</b> | <b>M. Voegele, SAIC</b> |
| <b>3:00</b> | <b>Break (15 min.)</b>   |                         |
| <b>3:15</b> | <b>Repository Design Considerations</b>  | <b>T. Blejwas, SNL</b>  |

### **Repository Thermal Design**

- |             |   |                      |
|-------------|---|----------------------|
| <b>3:45</b> | <b>Technical considerations</b> <ul style="list-style-type: none"><li><b>• Thermal Design Considerations</b></li><li><b>• Temperature Changes Over Time</b></li></ul> | <b>E. Ryder, SNL</b> |
| <b>5:15</b> | <b>Adjourn</b>  |                      |

# **NWTRB Full Board Meeting Agenda**

**Wednesday, October 9, 1991**

## **Uncertainties Associated with High and Low Thermal Loading**

- **During this session, the following questions will be asked for both high and low thermal loading concepts, in the areas listed below. An attempt will be made to quantify the answers.**

### **Questions**

- 1. What are the potential problems?**
- 2. What is the significance of each of the potential problems?**
- 3. What are the uncertainties associated with the potential problems?**
- 4. Can these uncertainties be resolved?**
- 5. What are the time and cost risks associated with the resolution?**
- 6. Will there be residual uncertainties?**

# **NWTRB Full Board Meeting Agenda**

## **Uncertainties Associated with High and Low Thermal Loading**

- |              |   |                            |
|--------------|---|----------------------------|
| <b>8:30</b>  | <b>Opening Remarks</b>  | <b>W. North, NWTRB</b>     |
| <b>8:40</b>  | <b>Introduction</b>   | <b>M. Cloninger, DOE</b>   |
| <b>8:45</b>  | <b>Geomechanical Uncertainties</b>                            | <b>L. Costin, SNL</b>      |
| <b>9:15</b>  | <b>Hydrogeologic Uncertainties</b>                            | <b>T. Buscheck, LLNL</b>   |
| <b>10:00</b> | <b>Geochemical Uncertainties</b>                              | <b>B. Viani, LLNL</b>      |
| <b>10:15</b> | <b>Break (15 min.)</b>  |                            |
| <b>10:30</b> | <b>Mineralogical Uncertainties</b>                            | <b>D. Bish, LANL</b>       |
| <b>11:00</b> | <b>Waste Form Degradation and Materials<br/>Uncertainties</b> | <b>G. Gdowski, LLNL</b>    |
| <b>11:30</b> | <b>Biological Resource Concerns</b>                           | <b>K. Ostler, EG&amp;G</b> |
| <b>12:00</b> | <b>Lunch (1 hr. 15 min.)</b>                                  |                            |

# **NWTRB Full Board Meeting Agenda**

## **Implications of Higher and Lower Thermal Loading**

- |             |  |   |
|-------------|--|---|
| <b>1:15</b> | <b>Introduction</b>  | <b>M. Cloninger, DOE</b>                    |
| <b>1:20</b> | <b>Repository Design Enhancements</b>                      | <b>T. Blejwas, SNL</b>                      |
| <b>1:35</b> | <b>Repository Testing Considerations</b>                   | <b>T. Blejwas, SNL</b>                      |
| <b>2:05</b> | <b>Near-Field Environment Testing<br/>Considerations</b>   | <b>W. Lin, LLNL</b>                         |
| <b>2:25</b> | <b>Waste Form and Materials Testing<br/>Considerations</b> | <b>G. Gdowski, LLNL</b>                     |
| <b>2:35</b> | <b>Candidate Engineered Barrier Concept</b>                | <b>P. Stevens-Guille,<br/>Ontario Hydro</b> |
| <b>3:05</b> | <b>Break (15 min.)</b>                                     |   |

# **NWTRB Full Board Meeting Agenda**

## **Implications of Higher and Lower Thermal Loading**

- |             |  |  |
|-------------|--|--|
| <b>3:20</b> | <b>Preclosure Thermal Enhancements</b>   | <b>G. Danko, UNR</b>   |
| <b>3:50</b> | <b>Geologic Heat Pipes</b> <ul style="list-style-type: none"><li>• State-of-the-art review geologic heat pipes</li></ul> | <b>H. Rosenberg, TRW</b>   |
| <b>4:20</b> | <b>Overview of Preclosure Ventilation Options</b>  | <b>A. Ivans-Smith,<br/>Tunneling Tech. Corp./<br/>G. Sandquist, U. of Utah</b> |
| <b>4:50</b> | <b>Adjourn</b>   |  |

# NWTRB Full Board Meeting Agenda

Thursday, October 10, 1991

## Implications of Higher and Lower Thermal Loading

- |              |  |  |
|--------------|--|--|
| <b>8:30</b>  | <b>Opening Remarks</b>   | <b>NWTRB</b>   |
| <b>8:45</b>  | <b>Performance Assessment Considerations</b> <ul style="list-style-type: none"><li>• Time-temperature profiles</li><li>• Waste package integrity</li><li>• Near-field effect</li><li>• Overall performance</li></ul> | <b>McGuire/Ross<br/>Apted/Bullin/<br/>Shaw, EPRI</b> |
| <b>10:15</b> | <b>Break (15 min.)</b>   |  |
| <b>10:30</b> | <b>Introduction to Continued DOE Implications<br/>Discussions</b>  | <b>M. Cloninger, DOE</b>                             |
| <b>10:35</b> | <b>HLW System Comparative Costs</b> <ul style="list-style-type: none"><li>• Repository Costs</li><li>• Transportation Costs</li><li>• Storage Costs</li></ul>  | <b>D. Jones, Weston</b>                              |

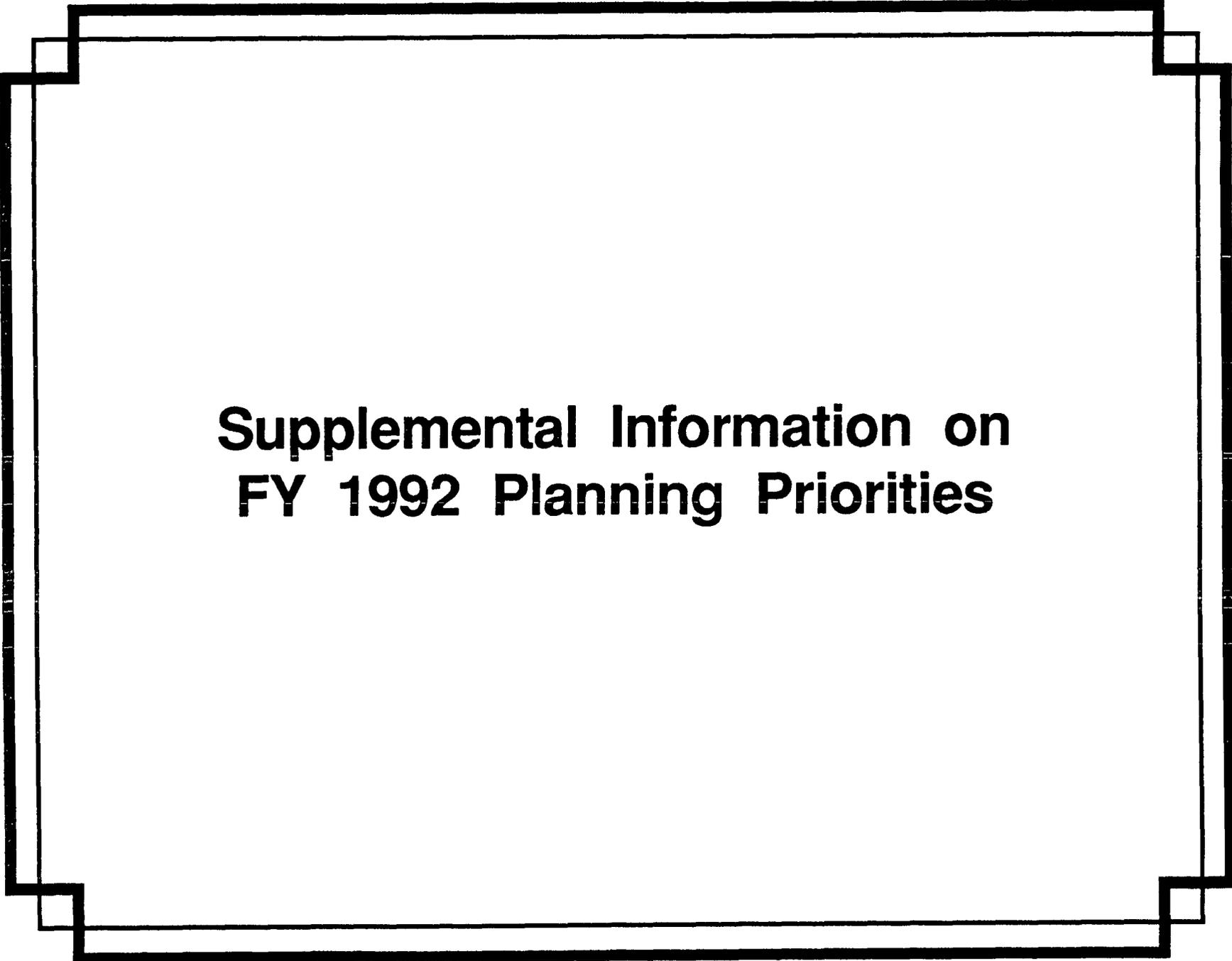
# NWTRB Full Board Meeting Agenda

## Implications of Higher and Lower Thermal Loading

- 11:05 Regulatory and Legislative Considerations M. Lugo, SAIC  
Regarding Thermal Loading
- Human health and safety (i.e. preclosure)
  - Licensing considerations
  - Legislative implications
- 11:35 Conceptual Considerations for Total System M. Voegele, SAIC  
Performance
- 12:05 Summary M. Cloninger, DOE
- 12:10 Lunch (1 hour 15 min.)

## The Thermal Loading Issue, Roundtable Discussion, Conclusions and Comments

- 1:25 Opening Remarks NWTRB
- 1:35 Discussion All
- 5:00 Adjourn



**Supplemental Information on  
FY 1992 Planning Priorities**

# **FY 1992 Planning Priorities**

## **1.2.1 Systems, Performance assessment, Technical data**

- Provide configuration management support**
- Provide plans and procedures support**
- Provide performance assessment support to surface-based testing and ESF**
- Enhance technical data bases**
- Support systems engineering/requirements development**

# **FY 1992 Planning Priorities**

## **1.2.2 Waste package/near-field environment**

- Continue ongoing waste form testing**
- Complete systems approach to EBS design concepts for ACD**
- Provide near-field environment, waste form and materials properties reports**

# **FY 1992 Planning Priorities**

## **1.2.3 Site investigation**

- **Continue Midway Valley, Trench-14, and volcanic investigations**
- **Continue ongoing surface-based site characterization activities**
- **Initiate new surface disturbing (drilling) site characterization activities including:**
  - **Prototype drilling on the NTS**
  - **Park Service monitoring borehole**
  - **Unsaturated zone boreholes**
  - **Geologic investigation boreholes**

# **FY 1992 Planning Priorities**

## **1.2.4 Repository/ESF interfaces**

- **Provide repository/ESF design interface support**
- **Provide limited geomechanical testing and thermomechanical development**

# **FY 1992 Planning Priorities**

## **1.2.5 Regulatory, Institutional, Environment**

- **Submit the Early Site Suitability Evaluation report to OCRWM**
- **Provide environmental support to surface-based testing**
- **Conduct institutional program**
- **Support NRC, ACNW, and NWTRB interactions**

# **FY 1992 Planning Priorities**

## **1.2.6 Exploratory studies facility**

- Complete ESF site preparation Title II design for first portal location**
- Implement construction management in preparation for start of first area site prep construction**

# **FY 1992 Planning Priorities**

## **1.2.7 Facilities**

- **Provide field operations center support to surface-based testing site characterization activities**
- **Implement field change control procedures**
- **Assure safety of existing facilities**

# **FY 1992 Planning Priorities**

## **1.2.9 Project management (management, administration, project control, quality assurance)**

- Continue QA program implementation to support surface-based testing and ESF design**
- Continue full implementation of the planning and control system (PACS)**
- Maintain core cost infrastructure**

