

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

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

**SUBJECT: EXPLORATORY SHAFT FACILITY  
ALTERNATIVES STUDY -  
RESUMPTION OF DESIGN  
ACTIVITIES**

**PRESENTER: EDGAR H. PETRIE**

**PRESENTER'S TITLE  
AND ORGANIZATION: ACTING DIRECTOR, ENGINEERING AND DEVELOPMENT DIVISION  
YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT**

**PRESENTER'S  
TELEPHONE NUMBER: (702) 794-7961**

**DENVER, COLORADO  
MARCH 6-7, 1991**

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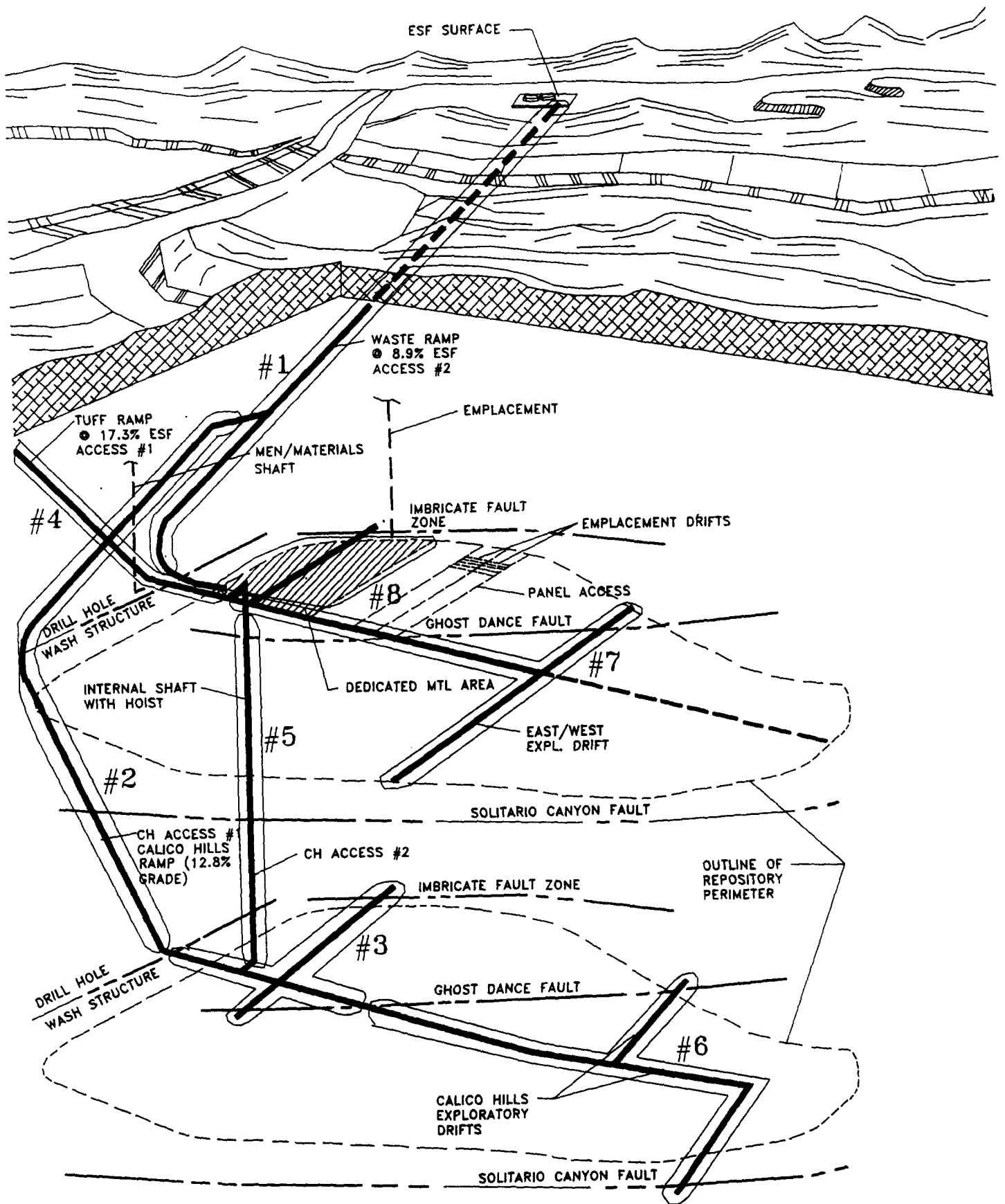
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# **RESUMPTION OF ESF DESIGN ACTIVITIES**

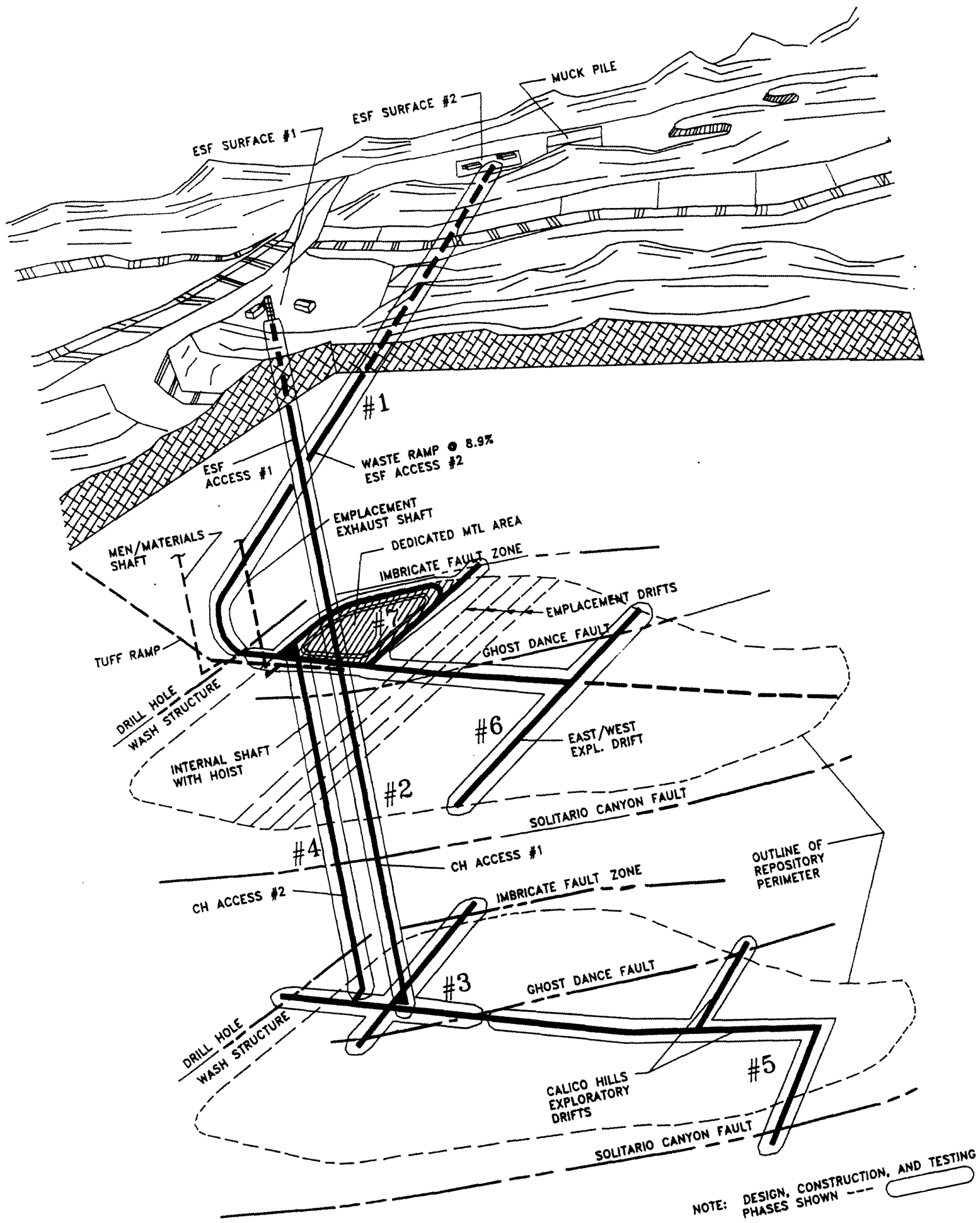
- **RW-1 PROVIDED GUIDANCE LETTER TO YMPO FOR COMPLETION OF ESF DESIGN ON FEBRUARY 12, 1991. INCLUSIVE IN THE GUIDANCE WERE**
  - **CONDUCT A DESIGN STUDY FOCUSING ON FAVORABLE FEATURES OF THE HIGHEST RANKED ESF ALTERNATIVES**
  - **PROCEED WITH THE DESIGN STUDY BASED ON POST-1988 DATA, THE ESF ALTERNATIVES STUDY AND THE CALICO HILLS STUDY, PROVIDING THE FLEXIBILITY TO PENETRATE THE CALICO HILLS UNIT IN THE FIRST PHASE AS AN AID TO EVALUATING SITE SUITABILITY AS SOON AS POSSIBLE**
  - **PREPARE PLANS FOR THE PHASED APPROACH TO DESIGN DEVELOPMENT AND ESF IMPLEMENTATION IN ORDER TO PRESERVE FLEXIBILITY AND TO TAKE ADVANTAGE OF FINDINGS AS DATA ACQUISITION PROCEEDS**



NOTE: THIS IS PICTORIAL ONLY AND NOT DRAWN TO SCALE

NOTE: DESIGN, CONSTRUCTION, AND TESTING PHASES SHOWN --- #2

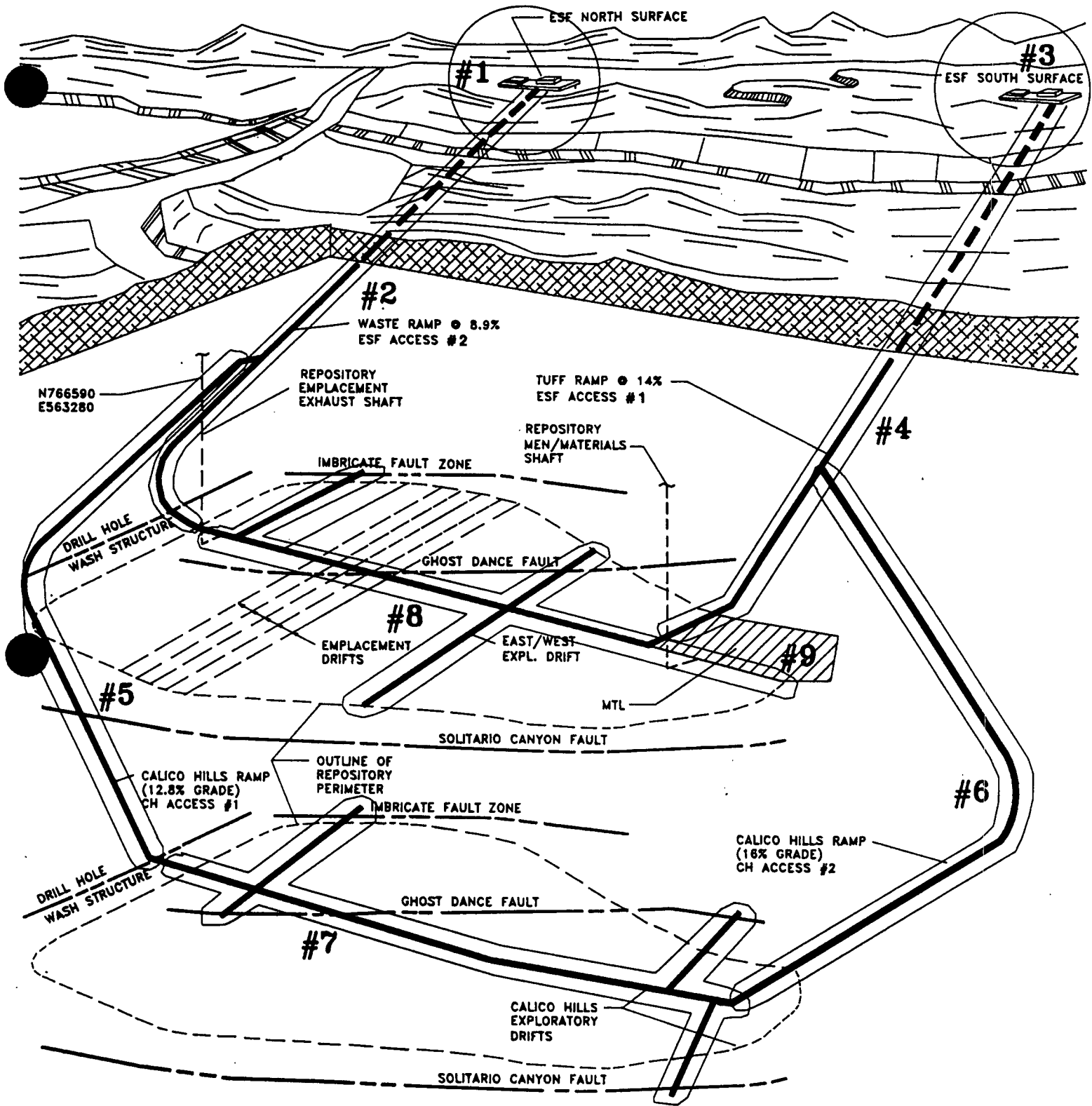
### OPTION #23



NOTE: THIS IS PICTORIAL ONLY  
NOT DRAWN TO SCALE

NOTE: DESIGN, CONSTRUCTION, AND TESTING  
PHASES SHOWN

OPTION #24

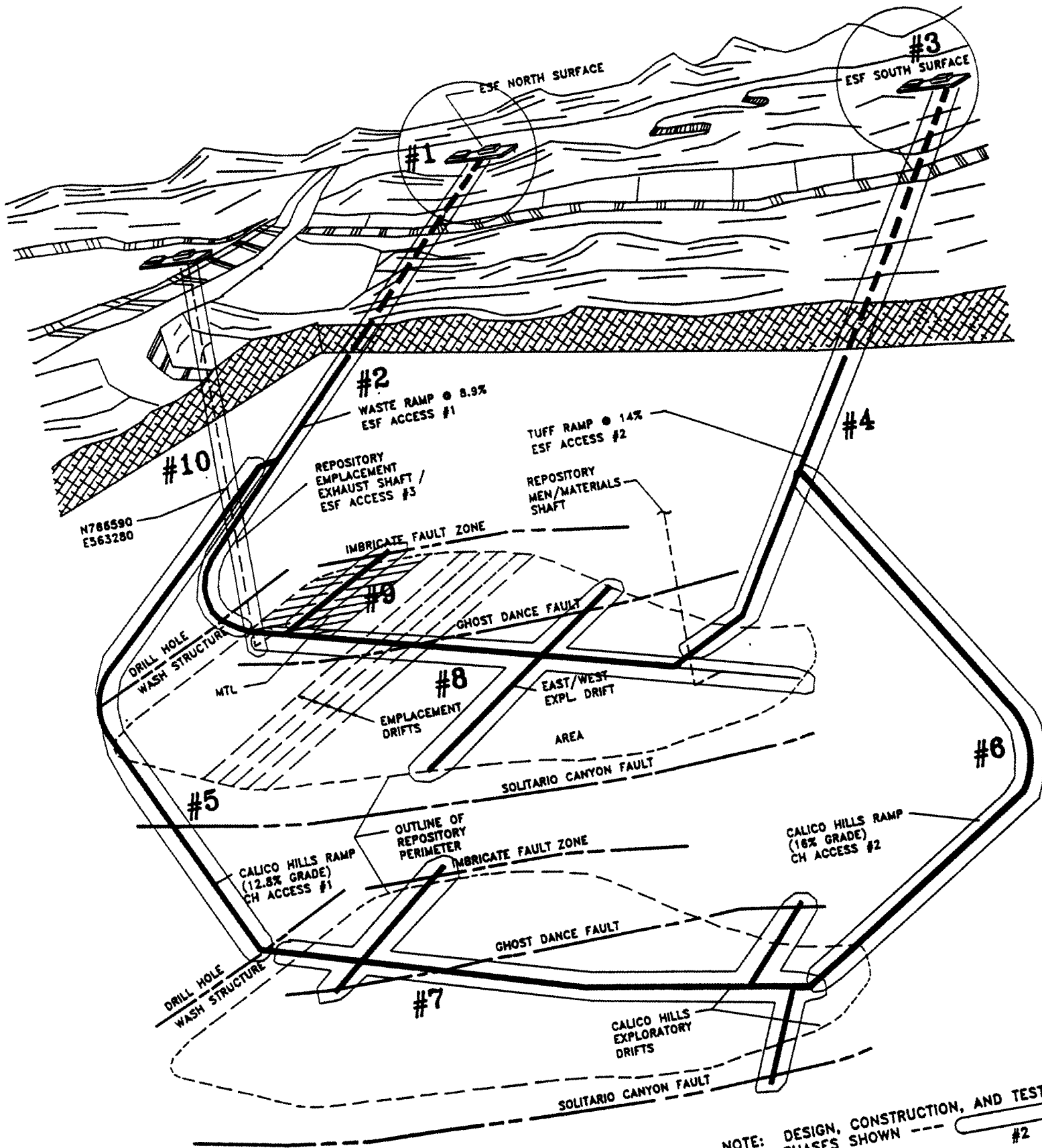


NOTE: THIS IS PICTORIAL ONLY AND NOT DRAWN TO SCALE

NOTE: DESIGN, CONSTRUCTION, AND TESTING PHASES SHOWN

#2

OPTION #30



N786590  
E563280

NOTE: THIS IS PICTORIAL ONLY AND NOT DRAWN TO SCALE

REFERENCE DESIGN CONCEPT FOR COMMENCING STUDY

NOTE: DESIGN, CONSTRUCTION, AND TESTING PHASES SHOWN #2

# **PHASED APPROACH TO ESF DESIGN CONSTRUCTION AND TESTING**

## **TITLE II DESIGN**

- **PROPOSED DESIGN PHASES, REFERENCE DESIGN CONCEPT**
  1. **SITE PREPARATION AND PORTAL OF NORTH RAMP**
  2. **NORTH RAMP FROM PORTAL TO TOPOPAH SPRING (TS) LEVEL**
  3. **SITE PREPARATION AND PORTAL OF SOUTH RAMP**
  4. **SOUTH RAMP FROM PORTAL TO TS LEVEL**
  5. **NORTH RAMP FROM CALICO HILLS (CH) TURNOUT TO CH LEVEL**
  6. **SOUTH RAMP FROM CH TURNOUT TO CH LEVEL**
  7. **FULL LENGTH DRIFT AT THE CH LEVEL**
  8. **FULL LENGTH DRIFT AT THE TS LEVEL**
  9. **MAIN TEST LEVEL CORE AREA AT THE TS LEVEL**
  10. **SHAFT AT NORTH END: SURFACE TO TS LEVEL**



# **GENERAL APPROACH**

- **A DESIGN STUDY WILL BE CONDUCTED TO DEVELOP AN INTEGRATED PRELIMINARY (REFERENCE) DESIGN, USING PROJECT CONTROLLED REQUIREMENTS**
- **THE STUDY WILL EVALUATE FAVORABLE FEATURES OF HIGHEST RANKED OPTIONS TO PRODUCE A DESIGN WHICH WILL ENHANCE THE CONSTRUCTION AND PERFORMANCE OF THE ESF**
- **GENERAL ARRANGEMENT (GA) DRAWINGS WILL BE PRODUCED BASED ON THE REFERENCE DESIGN**

# PHASED DESIGN MODULES

	<u>#30</u>	<u>#24</u>	<u>#23</u>	<u>DESIGN STUDY CONCEPT</u>
N. RAMP FROM THE EAST TO TS (WASTE RAMP N)	X	X	X	X
S. RAMP FROM THE EAST TO TS (TUFF RAMP S)	X			X
N. RAMP TO THE CH (CALICO HILLS #1 N)	X		X	X
S RAMP TO THE CH (CALICO HILLS #2 S)	X			X
FULL LENGTH CH LEVEL (CH DRIFTING)	X			X
CALICO HILLS PART A		X	X	
CALICO HILLS PART B		X	X	
FULL LENGTH TS LEVEL (TS DRIFTING)	X			X
TS 2/3 LENGTH		X	X	
MTL TEST AREA IN N.		X	X	X
FULL LENGTH SHAFT IN N. (SURFACE TO CH)		X		
SHAFT FROM SURFACE TO TS (DESIGN ONLY)				X
MTL TEST AREA IN S.	X			
N. RAMP FROM THE NORTH (TUFF RAMP N)			X	
RAISED BORE SHAFT (INTERNAL TS-CH SHAFT)		X	X	

# GENERAL APPROACH

(CONTINUED)

- **THE OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT (OCRWM) WILL DEVELOP A SET OF ESF REQUIREMENTS AS PART OF THE MANAGEMENT SYSTEMS IMPROVEMENT STRATEGY (MSIS)**
- **PROJECT CONTROLLED REQUIREMENTS WILL BE ASSESSED AGAINST THE BASELINED OCRWM REQUIREMENTS**
- **DIFFERENCES WILL BE DOCUMENTED, AND THE REFERENCE DESIGN MODIFIED AS APPROPRIATE**
- **OGD (A/E) CONDUCTS A DESIGN REVIEW OF THE DESIGN STUDY AGAINST THE BASELINED OCRWM ESF SYSTEM REQUIREMENTS**

# **GENERAL APPROACH**

(CONTINUED)

- **TITLE I DESIGN SUMMARY REPORT IS TRANSMITTED TO OCRWM ALONG WITH A PLAN FOR PHASED TITLE II DESIGN AND IMPLEMENTATION**
- **OCRWM ACCEPTS ESF CONFIGURATION, TITLE I DESIGN SUMMARY REPORT, AND IMPLEMENTATION PLAN**
- **OCRWM APPROVES RESUMPTION OF ESF TITLE II DESIGN**

# **SIGNIFICANT MILESTONES FOR RESUMPTION OF DESIGN ACTIVITIES**

- **A/E COMMENCES DESIGN STUDY** **2/91**
- **OGD ISSUES ESF REQUIREMENTS DOCUMENTS FOR  
USE IN DESIGN STUDY** **3/31/91**
- **G/A's AND DRAFT REVISED SUMMARY REPORT FOR  
FIRST ACCESS COMPLETE** **5/30/91**
- **DESIGN REVIEW OF FIRST ACCESS** **6/91**
- **OGD TRANSMITS FINAL ESAS REPORT TO OCRWM  
NOTING ANY CHANGES OR FINDINGS** **6/30/91**
- **G/A's AND DRAFT REVISED SUMMARY REPORT FOR  
SECOND ACCESS COMPLETE** **7/31/91**
- **DESIGN REVIEW OF SECOND ACCESS** **8/91**

# **SIGNIFICANT MILESTONES FOR RESUMPTION OF DESIGN ACTIVITIES**

**(CONTINUED)**

- **OGD (A/E) CONDUCTS A DESIGN REVIEW OF THE DESIGN STUDY AGAINST THE BASELINED OCRWM ESF SYSTEM REQUIREMENTS** **8/30/91**
- **OGD PROVIDES OCRWM WITH REVISED TITLE I DESIGN SUMMARY REPORT AND PLAN FOR IMPLEMENTING PHASED TITLE II DESIGN** **9/3/91**
- **OGD RESUMES ESF TITLE II DESIGN** **10/1/91**