

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

NUCLEAR WASTE TECHNICAL REVIEW BOARD

**SUBJECT: EXPLORATORY STUDIES
FACILITY CONSTRUCTION
UPDATE**

PRESENTER: RICHARD CRAUN

**PRESENTER'S TITLE
AND ORGANIZATION: ASSISTANT MANAGER FOR ENGINEERING AND FIELD OPERATIONS
YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT OFFICE
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**AUSTIN, TEXAS
APRIL 30 - MAY 1, 1996**

Outline

- **Tunnel Boring Machine Operations**
- **Exploratory Studies Facility Main Loop Completion**
- **Ground Control Lessons Learned**
- **Thermal Test Alcove**
- **Board of Consultants Third Visit**

ESF Tunneling Operations Update

- **TBM at Station 49 + 14 on April 25, 1996**
- **Forecast “Hole Out” - October 1996 to January 1997**
- **Started preparations for excavation of first Ghost Dance fault**
- **Thermal Test Facility at Station 0 + 65 on April 25, 1996. Thermal Mechanical Alcove Completed April 12, 1996**
- **On April 10, 1996 the TBM Passed the Three Mile mark**

ESF Tunneling Operations Update

(continued)

- **1500 hour maintenance completed April 22, 1996**
 - **Approximately 100 items were checked, including**
 - * **Cutter head**
 - * **Main bearing & seal**
 - * **Conveyor**
 - * **Forward & gripping shields**
 - * **Back decks**
 - * **Automatic fire suppression system**
 - * **Oil, hydraulic fluids and seals**
 - **No indication of unusual contamination**
 - **More wear than expected**

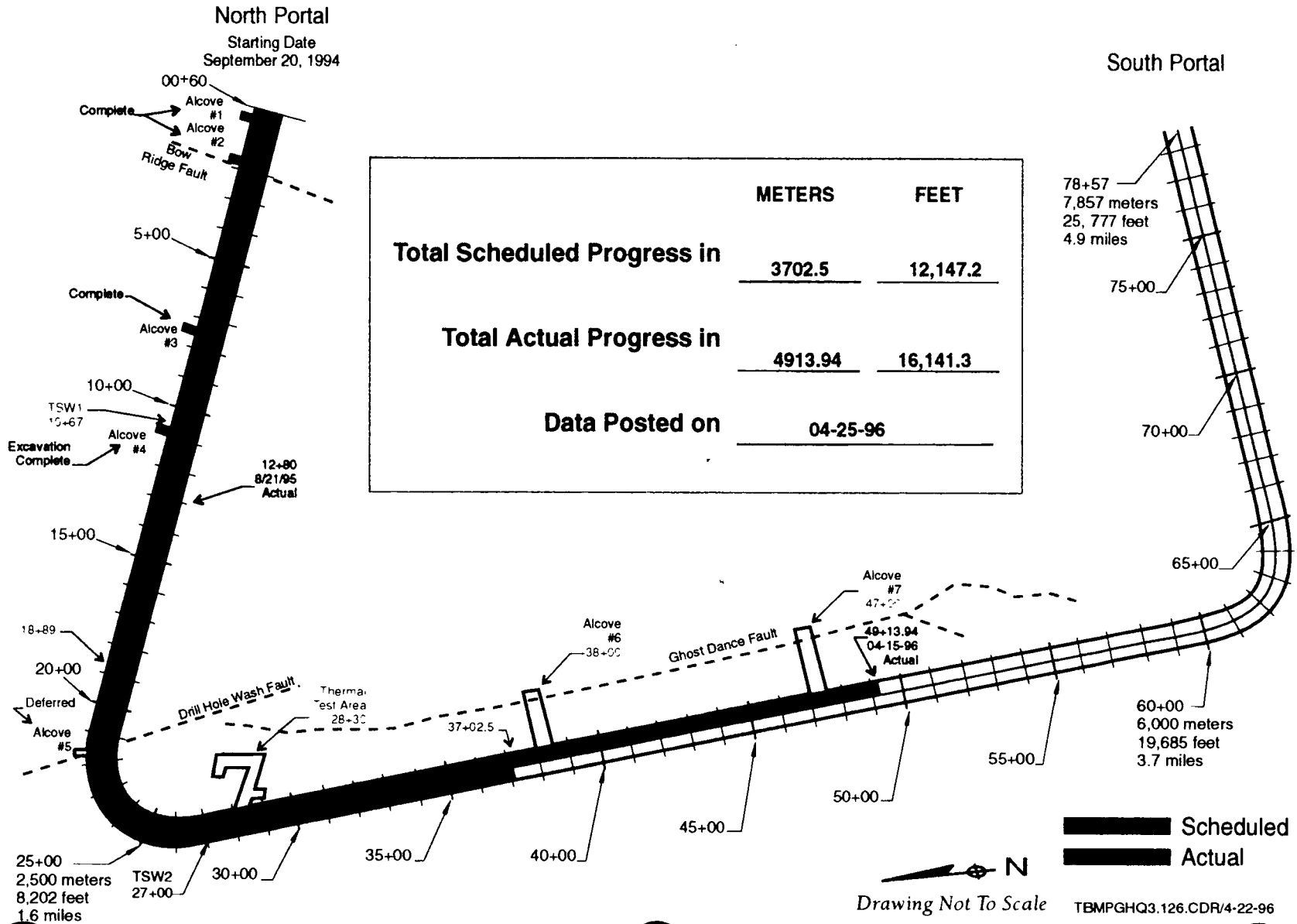
Operational Issues

- **Ventilation**
 - **Total respirable Silica Dust and Cristobalites**
 - **Ventilation repairs/modification**
 - **Collapsed/repared vent line**
- **Assembled team of Environment Safety and Health and ventilation experts**
 - **Consultant reports due April 29 and May 15**
 - **Collecting ventilation performance data - testing for recirculation**
- **Instituted Personal Protective Equipment Controls (respirators) until all Engineering Controls are in place and performing**

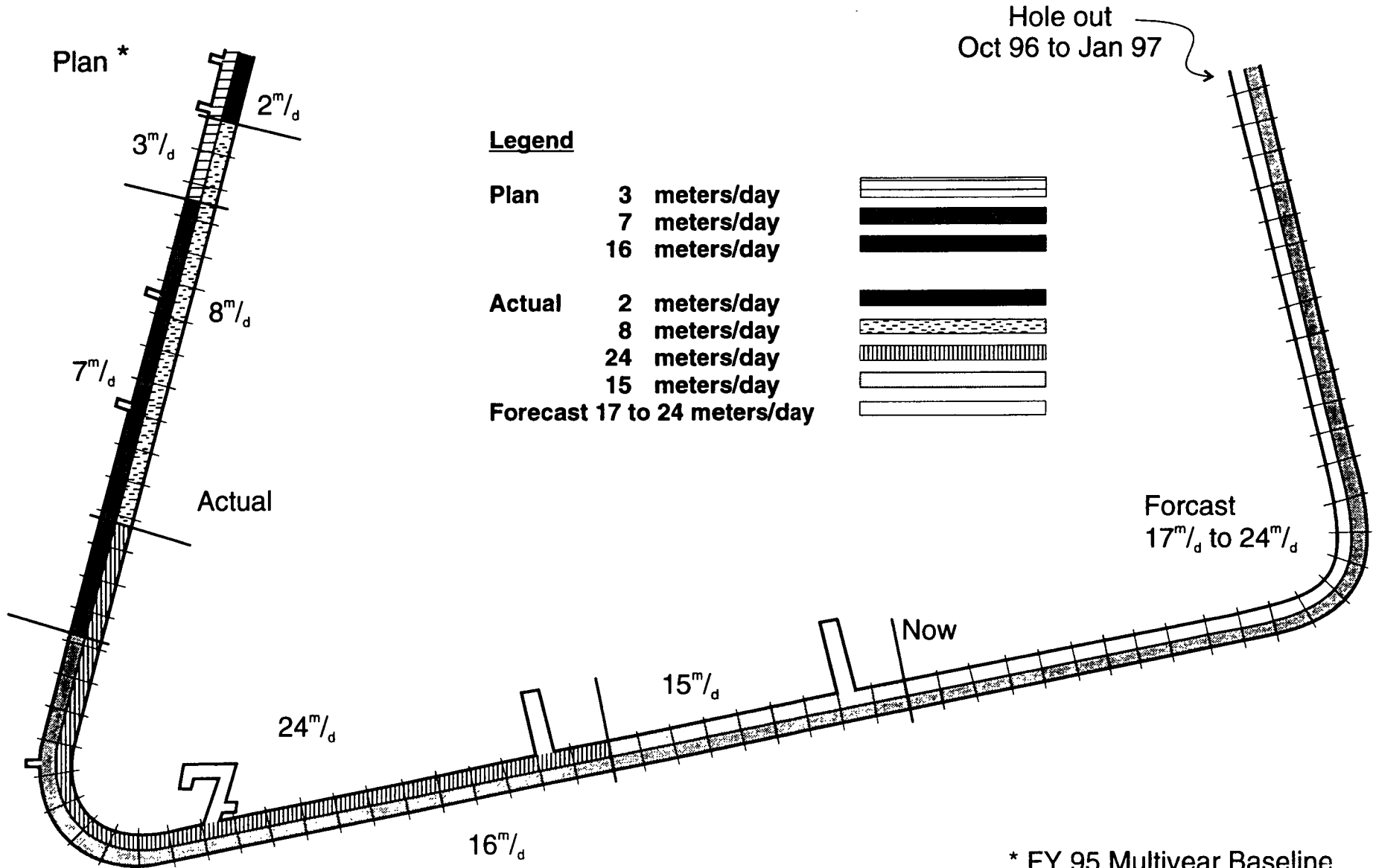
TBM Change Requests (CRs)

- **1st CR**
 - **2 Shift operations past Station 39 + 40 all year**
- **2nd CR**
 - **Continue operations on 3 shift schedule**
 - **Adds second GDF access excavation start in FY 96**
 - **Attempting to balance multiple headings, FY 96 funding, and TBM operational efficiency**

TUNNEL BORING MACHINE PROGRESS



Tunnel Boring Machine Hole Out Projections



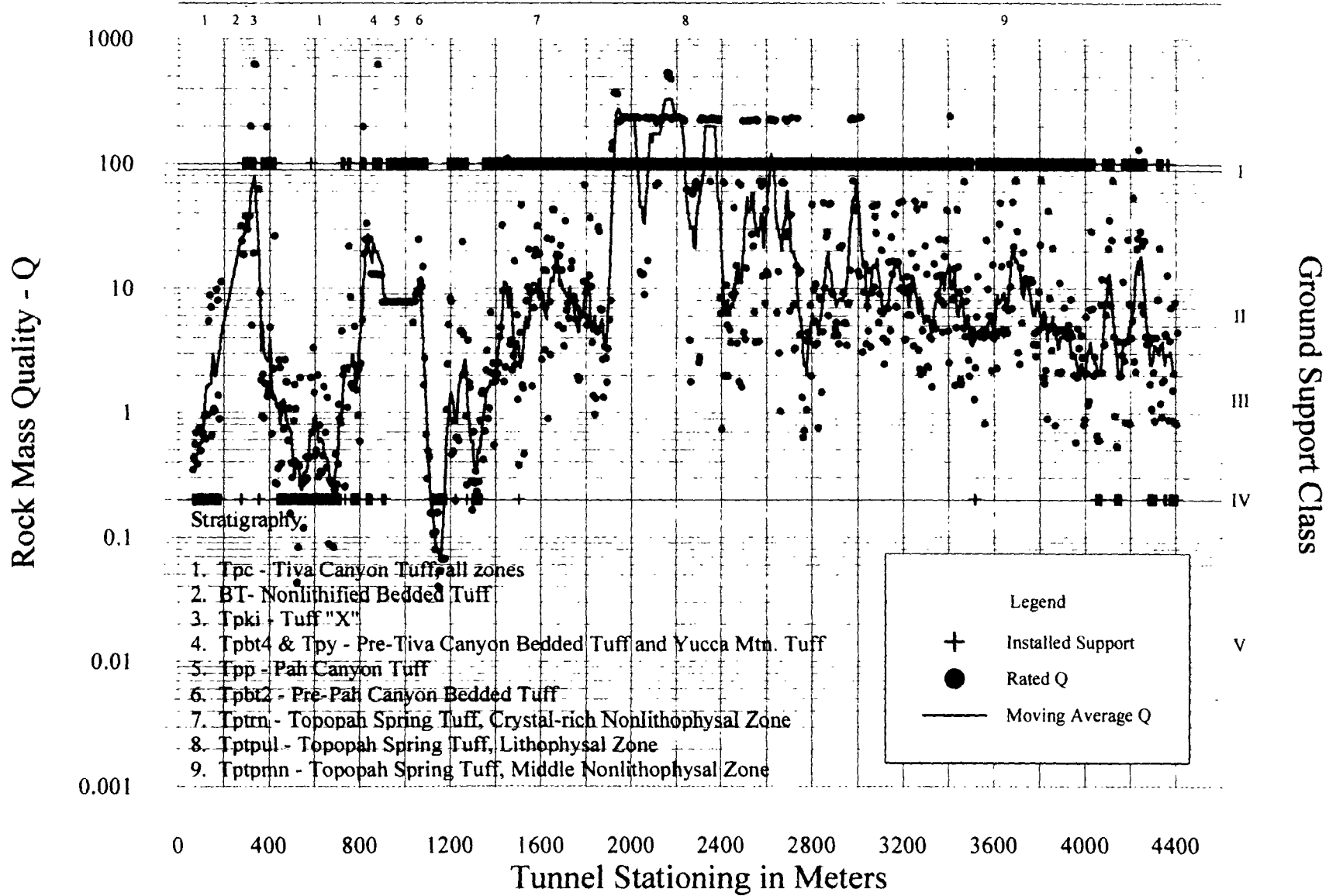
* FY 95 Multiyear Baseline

Ground Control Lessons Learned

- **Categories I and IV installed throughout the tunnel**
- **Construction methods support either category I or IV**
 - **Lost time with changing of ground control materials on TBM**
- **Repository ground control design**
 - **Minimize interference with tunnel construction rate**
 - **Fewer alternatives (may be just one type)**

Stratigraphy

Sandia National Laboratories
Preliminary Data

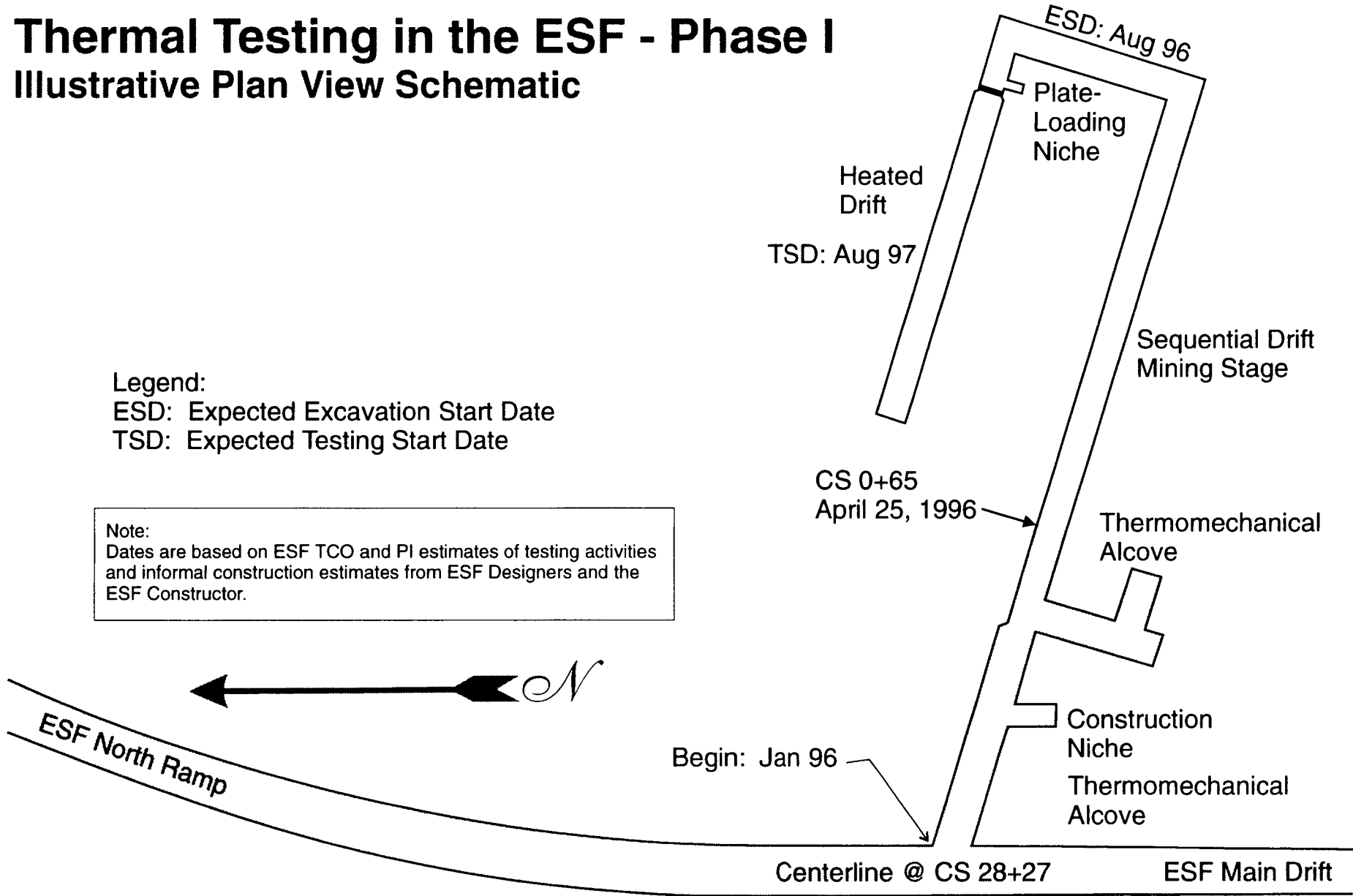


Thermal Testing Schedule

<u>Activity</u>		<u>Original Schedul</u>	<u>Forecast</u>
Complete and control scientific program field work package	Completed	Feb/96	
Complete PI authorized test design		Aug/96	
ESF design for first 125 meter drive including single heater test	Completed	Dec/95	
Breakout access drift from ESF main drift	Completed	Jan/96	
Begin excavation of single heater test area	Completed	Mar/96	
Complete excavation of single heater test area	Completed	Apr/96	
Begin drilling/coring (single heater)	Started	Apr/96	
Complete instrumentation and DAS installation (single heater)		Dec/96	Aug/96
Turn single heater on		Dec/96	Aug/96
Complete single heater test heating cycle and post-test characterization		Sep/97	
Begin long-term monitoring		Sep/98	
Complete excavation of the drift scale test		Mar/97	Jan/97
Complete drilling/coring, instrumentation & DAS installation (drift scale test)		Oct/97	Jun/97
Turn-on drift scale heater test		Oct/97	Aug/97
Complete drift scale heater test heating cycle and post-test characterization		Sep/00	
Begin long-term monitoring		Sep/00	

Thermal Testing in the ESF - Phase I

Illustrative Plan View Schematic



Legend:

ESD: Expected Excavation Start Date

TSD: Expected Testing Start Date

Note:
 Dates are based on ESF TCO and PI estimates of testing activities and informal construction estimates from ESF Designers and the ESF Constructor.

Board of Consultants for Tunneling and Underground Construction Summary of Third Site Visit

- **Safety and health issues were found to continue as a top priority with the project team**
- **Cost Effectiveness**
 - **Need to document construction staff level reporting on a weekly basis**
 - **Communication appears to be better than during previous visits, there is still room for improvement**
 - **Additional discussion of NQA-1 ground control is needed**
- **Adequacy of Design**
 - **The extent to which the Board may aid the project for the remainder of ESF construction is limited**