

YUCCA
MOUNTAIN
PROJECT

Studies

Performance Confirmation (PC) Program

Presented to:
Nuclear Waste Technical Review Board

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Office of Civilian Radioactive
Waste Management

Outline

- **Regulatory Background for Performance Confirmation (PC) Program**
- **PC is Part of Test and Evaluation Program**
- **PC Program Approach**
- **Identification of PC Parameters**
- **Important Processes and Parameters**
- **Performance Confirmation Concepts**
- **Design Implementation of PC**
- **Transition to PC Program Testing**
- **Planned Activities**

Regulatory Background for PC Program

Consists of tests, experiments, and analyses to evaluate whether or not the performance objectives will be met for the period following permanent closure

Provides data which indicates that

- Actual subsurface conditions encountered and changes in those conditions are within the limits assumed in the licensing review
[10CFR60.140(a)(1)]**

Regulatory Background for PC Program

(Continued)

Provides data which indicate that

- **Natural and engineered systems and components either required for repository operation or that are either designed or assumed to operate as barriers after permanent closure, are functioning as intended and anticipated [10CFR60.140(a)(2)]**

Starts during site characterization and continues to permanent closure [10CFR60.140(b)]

PC is Part of Test and Evaluation Program

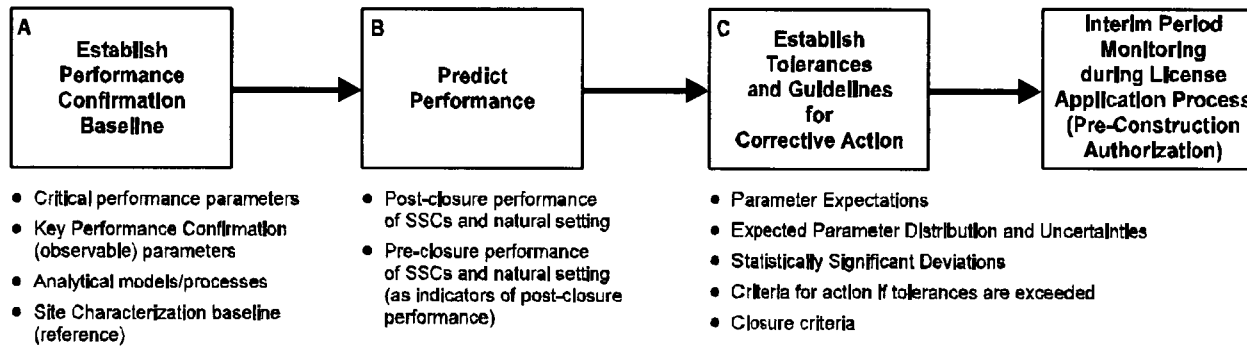
Test and evaluation program will

- **Perform necessary system verification throughout MGDS life cycle to validate the MGDS for receipt, handling, retrieval, disposal, and isolation of waste**

PC focuses on system verification for the isolation of waste function

PC Program Approach

Site Characterization/License Application/Pre-Construction Phases



Construction/Operation/Caretaker Phases

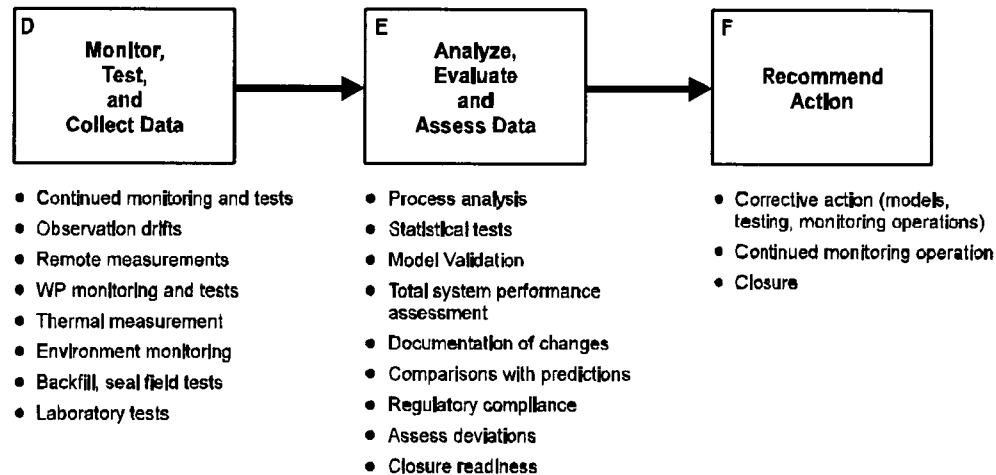


FIG-4.CDR.124DRCT8U.MJ5496

Important Process and Design Features

Site

- Near-field environment
- Far-field environment

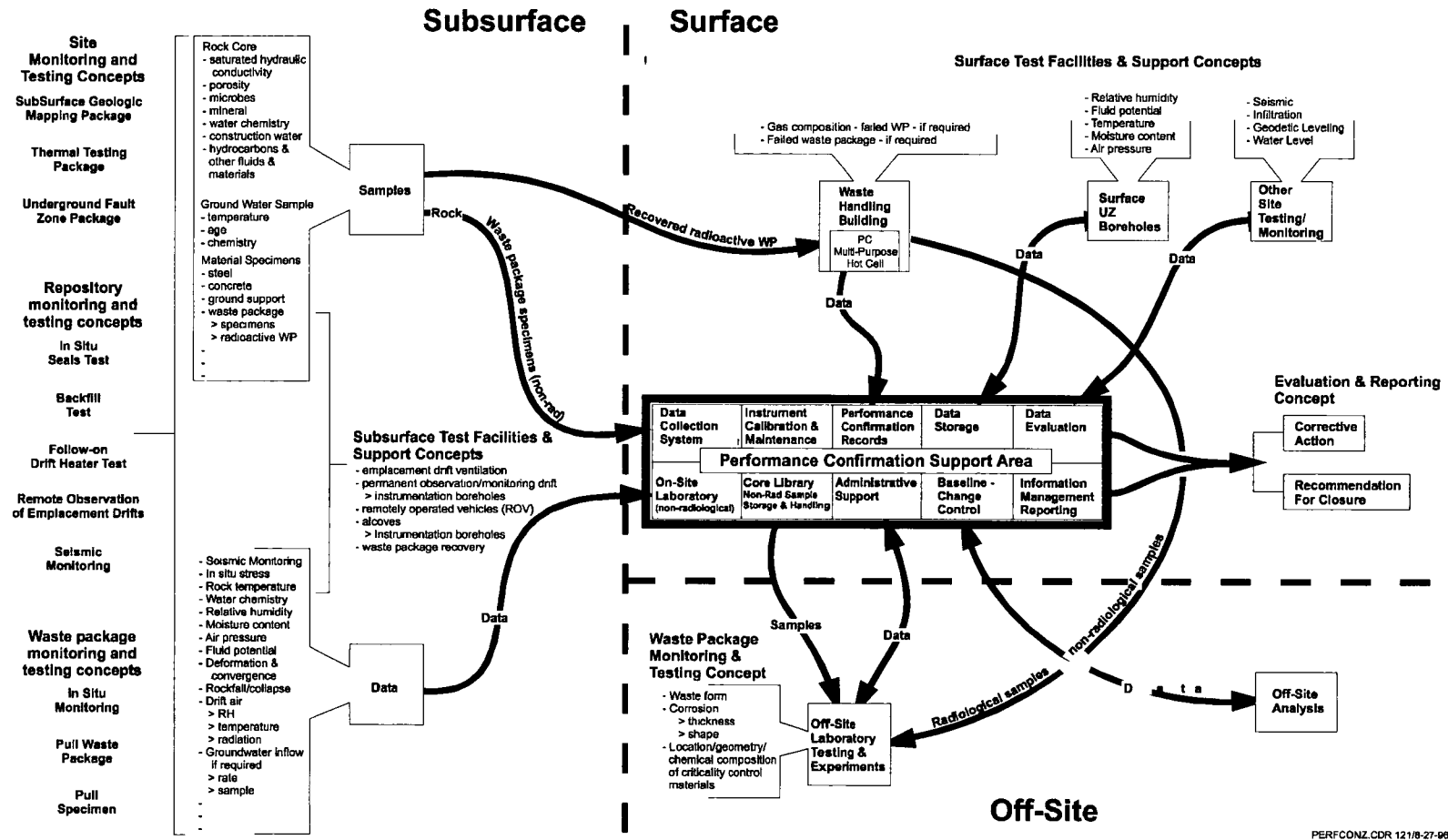
Repository

- In-drift environment
- Emplacement drift liner

EBS

- Waste package degradation

PC Concepts



PERFCONZ.CDR 121/8-27-96

Design Implementation of PC

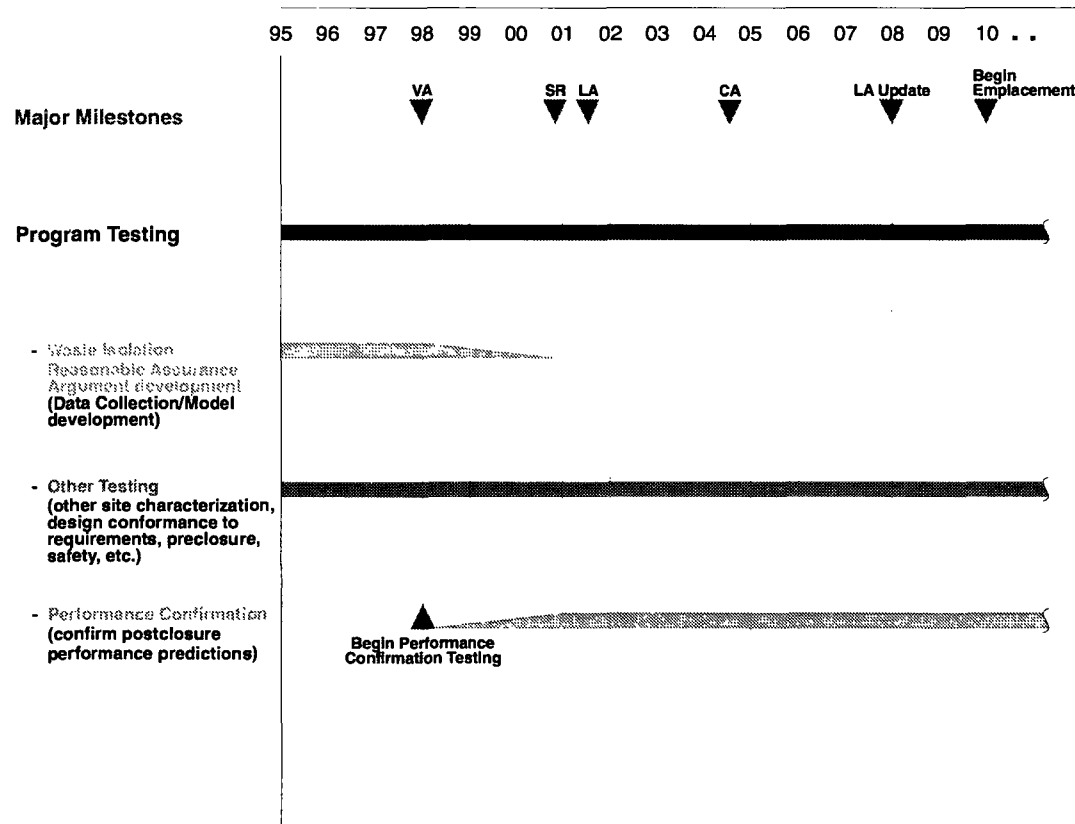
Observation Drift

- **Borehole Instruments in the Altered Zone (examples of parameters for data acquisition)**
 - » **Rock temperature**
 - » **Rock stress and strain**
 - » **Ground-water chemical composition; Eh & pH**
 - » **Moisture content**
 - » **Water vapor content/humidity**

Remote Inspection Gantry

- **Techniques for data acquisition or examples of parameters for data acquisition**
 - » **Waste package temperature**
 - » **Retrieval of waste package material coupons or other EBS materials - corrosion rates**
 - » **Visual inspections of drifts for seepage**

Transition to PC Program Testing



Planned Activities

Near Term

- **Completion and Approval of PC Plan**
- **Preparation for Implementation of PC Program**
- **Begin PC Program Baseline Phase**
- **Shake-out of PC Approach using the Enhanced Characterization of the Repository Block Effort**

Far Term

- **Develop PC Baseline Information**
- **Conduct Design for Tests and Facilities**
- **Implement Planned Activities**
- **Update PC Plan, in Response to Changes in Design, TSPA, Process Models, and Data Collection**