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

NUCLEAR WASTE TECHNICAL REVIEW BOARD
FULL BOARD MEETING

SUBJECT: TESTING PROGRAM COORDINATION AND INTEGRATION

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Testing Integration: Identifying Data Needs

- The Site Characterization Plan (SCP) identifies scientific programs structured to address regulatory needs.
- Scientific programs identify data needs through the Study Plans, work-scope consolidation and test-planning packages.
- Determination of the need for test facilities (e.g., boreholes, test pits, Exploratory Studies Facility) is based on the data requirements identified in the scientific programs.
- Boreholes and underground facilities provide access for collection of information (data) required for scientific programs to address regulatory issues.
Planning Responds to Data Needs

- Testing Integration takes place at many levels
  - Framework development
    * Elaboration of the data needs identified in the SCP into a comprehensive long-range plan
    * Identification of prerequisites (access to data)
  - Near-term planning
    * Development of a 1-3 year detailed plan/schedule
    * Identification of budget planning assumptions from IRB/OMB
    * Distribution of known resources
  - Annual planning
    * Program/Project guidance and funding allocation
    * Evaluation of previous findings
    * Prioritization of technical activities
    * Consolidation of work scope
    * Coordination of support activities and schedule
Framework Development
Long-Range Plan

• Who
  – DOE/RSED Site Investigations Branch
  – Participant Principal Investigators
  – M&O surface-based test Coordinator and Technical Integrators
  – Exploratory Studies Facility test coordination office
  – Activities workshops (drilling, hydrology, geochemistry, geophysics, etc.)

• What
  – A technical plan addressing the life of the Project with well-articulated and measureable intermediate milestones
  – Prerequisites are identified for each intermediate milestone, thus identifying need for testing facilities
    * Surface-Based Testing Program
    * In Situ Testing Program (ESF)
• How
  - Beginning with the framework developed in the SCP, meetings are facilitated with the Participants explicitly identifying the data needs and feeds and the interrelationships among scientific program elements of the plan
Integrated Site Investigation Program

Major Milestones

Draft EIS Implementation Plan
Final EIS Implementation Plan
Interim Suitability Evaluation
Interim Licensing Evaluation
DEIS
FEIS
Data Freeze
SRR
LA

Regulatory Compliance Process

Interim Licensing Evaluation
Interim Licensing Evaluation
Interim Licensing Evaluation
Interim Licensing Evaluation

Site Suitability

Interim Site Evaluation Report
ESSE

Performance Assessment

Interim Site Evaluation Report
Interim Site Evaluation Report
Interim Site Evaluation Report

Repository/Waste Package

ACD

ESF Construction & Testing

Main Ramp
South Ramp
North Ramp
Core Test Area Development and Testing
Ramp Extensions
Calico Hills Drifting and Testing

Site Investigation

Geologic Sub-Models
Preliminary Models
Geology Geochemistry Climate
Interim Models
Geology Geochemistry Climate
Final Models

Surface Based Testing

Hydrologic Sub-Models
Geochemistry Sub-Models
Climatology Sub-Models

ACD
Framework Development
Long-Range Plan
(Continued)
Near-Term Planning

• Who
  – DOE/RSED Site Investigations Branch
  – M&O surface-based Test Coordinator
  – Exploratory Studies Facility Test Coordinator
  – Participants

• What
  – An integrated schedule taking from one to three years from the long-range plan and developing a detailed time-phased plan for data acquisition and the links to major deliverables

• How
  – Project assumptions and funding levels are identified in the IRB/Office of Management and Budget
  – Preliminary work-scope consolidation efforts are undertaken in the context of described milestones
  – Known resources are distributed in most efficient manner to obtain required data, given assumptions and requirements
Flow of Data from Field Activities Identified in Near-Term Plan

Geology Submodels

Structure Description

Components

- Evaluation of Three Structural Scenarios
- Stratigraphic Site Model
- Prelim. Definition of Subsurface Geometry
- Ghost Dance Fault
- Fracture Network Characterization
- Assessment of Bow Ridge Fault

SCP Field Activities

Activity 8.3.1.4.2.2.1 Geologic Mapping of Zonal Features in the Paintbrush Tuff
Activity 8.3.1.4.2.2.2 Surface-Fracture Network Studies
Activity 8.3.1.4.2.2.3 Borehole Evaluation of Faults and Fractures
Activity 8.3.1.4.2.2.4 Geologic Mapping of the Exploratory Studies Facility
Activity 8.3.1.4.2.2.25 Seismic Tomography/Vertical Seismic Profiling
Annual Planning

• Who
  – DOE/RSED Site Investigations Branch
  – M&O site characterization Technical Integrators
  – Participants
  – Exploratory Studies Facility Test Coordinator (consultation)

• What
  – Integrated technical/cost/schedule plan for achieving test objectives within budget provided
  – Incorporates results of data obtained and analyzed in previous years
Annual Planning
(Continued)

• How
  – Project assumptions and funding levels are identified by program and project management
  – Detailed work-scope consolidation efforts are developed that are consistent with scientific program objectives
  – Resources are distributed in the most efficient manner to obtain required data, given assumptions, funding profile, Project priorities, and past information
Annual Planning Process

Draft Annual Plan
-- Outline drawn from Long Range Plan
-- Annual Project priorities
-- Interfaces with other Program elements
-- External Influences, SCA Open Items

Budget Overlay
Funding level allocated and distributed among Project priorities

Annual Plan
-- Prioritized Activities
-- PACS Deliverables
-- Cost/Schedule

Impacts from underfunding identified
- Feed back to Long-Range Plan
- Feed back to Program Goals

Next FY Draft Annual Plan
Site-Investigation Process

Planning Basis

Long-Range Plan
Annual Plan

Detailed Planning

Work-Scope Consolidation

Test Coordination Meetings
Test Specific Design Criteria
Data Catalogs Data Base

Implementation Documentation

Environmental Clearances
Test Interference Evaluations
Waste Isolation Analyses
Test Controls

Implementation and Evaluation

Field Test Implementation

Conduct Test
Distribute Samples
Report on Progress
Manage Change

Evaluation

Assess and Report
Project Office Review
Update Data Base

NWTPC12.125.NWTRB.PPT/10-19,20-93
Site-Investigations
Model, Submodel, Component and Deliverable Hierarchy

Level 2
Milestones

Level 2
Submodel

Submodel
Components

FY93
Participant
Level 3
Deliverables

* (3GGP04M) submit gas
  sample data to PDA (9/30/93)
* (3GGP02M) submit FY93 UZ
  borehole data to PDA (9/30/93)

* (3GUH018M) submit UZ-1 data to PDA
  (11/30/92)
* (3GUH035M) Report: Effects of Core
  Sealing (4/30/93)
* (3GUH015M) Interpretive Report/OFR/
  TDF: UZ-1 Gas and Water Vapor (4/30/93)
* (3GUH016M) WRIR/TDF: monitoring gas
  tracer (9/30/93)
* (3GUH013M) submit gas and water vapor
  data to PDA (9/30/93)
Conclusion

• An integrated testing program links field activities and annual deliverables through scientific programs to regulatory issues
  - Long-range
  - Intermediate
  - Annual

• Integration between surface-based tests and *in situ* tests (ESF) is achieved through a coordinated planning effort at the scientific program level