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

NUCLEAR WASTE TECHNICAL REVIEW BOARD
FULL BOARD MEETING

SUBJECT: APPLICATION OF PERFORMANCE ASSESSMENT STUDIES AND FUTURE PLANS

PRESENTER: DR. SURESH PAHWA

PRESENTER'S TITLE AND ORGANIZATION: MANAGER, PERFORMANCE ASSESSMENT CRWMS/M&O/INTERA

PRESENTER'S TELEPHONE NUMBER: (702) 794-7696

DALLAS, TX
APRIL 7-8, 1992

Outline

- Accomplishments
- Performance Assessment (PA) Program Direction
- Iterative PA
- Next Iteration PA and its Application
- Conceptual Schedule
- Summary

Accomplishments

- **Total System Analyses (PACE-89, PACE-90, TSPA-91)**
  - **Completed various codes exercised individually and**
  - **Linked through input/output**
- **Multiple scenarios modeled**
- **CCDFs generated**

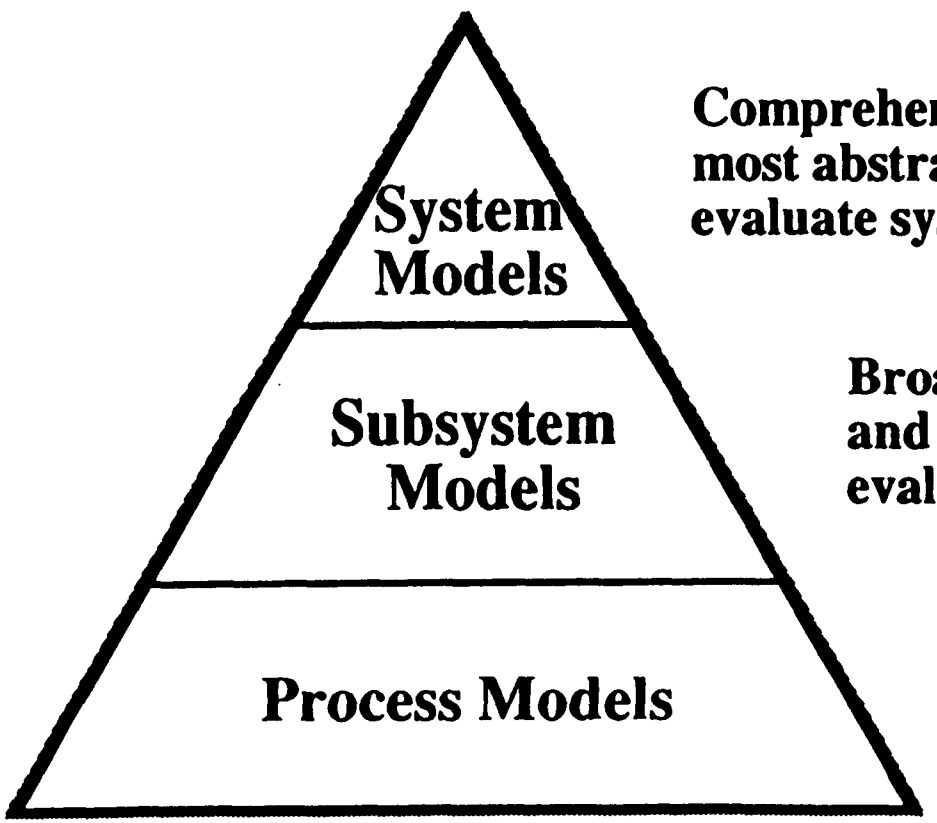
Performance Assessment Program Direction

- Implement iterative performance assessment
- Define iteration objectives addressing regulatory compliance and supporting site characterization and design based upon program activities and milestones
- Provide direct input to issue resolution and annotated outline for license application
- Emphasize analyses and verification and validation (V&V) activities

What is One Performance Assessment Iteration?

- **An exercising of all pertinent levels of the Performance Assessment models**
  - **Models to be robust, if possible; or, conservative if, not possible**
  - **Sensitivity analyses**
- **Model abstractions based upon detailed analyses of processes and conceptual models**

The PA Pyramid:
A Hierarchy of System Assessment Tools



Comprehensive scope, stochastic input, most abstracted process simulation, evaluate system sensitivities

Broader scope, partial abstraction and some coupling of processes, evaluate critical processes

Limited scope, comprehensive treatment of modeled process, for comprehension of phenomena

What is One Performance Assessment Iteration?

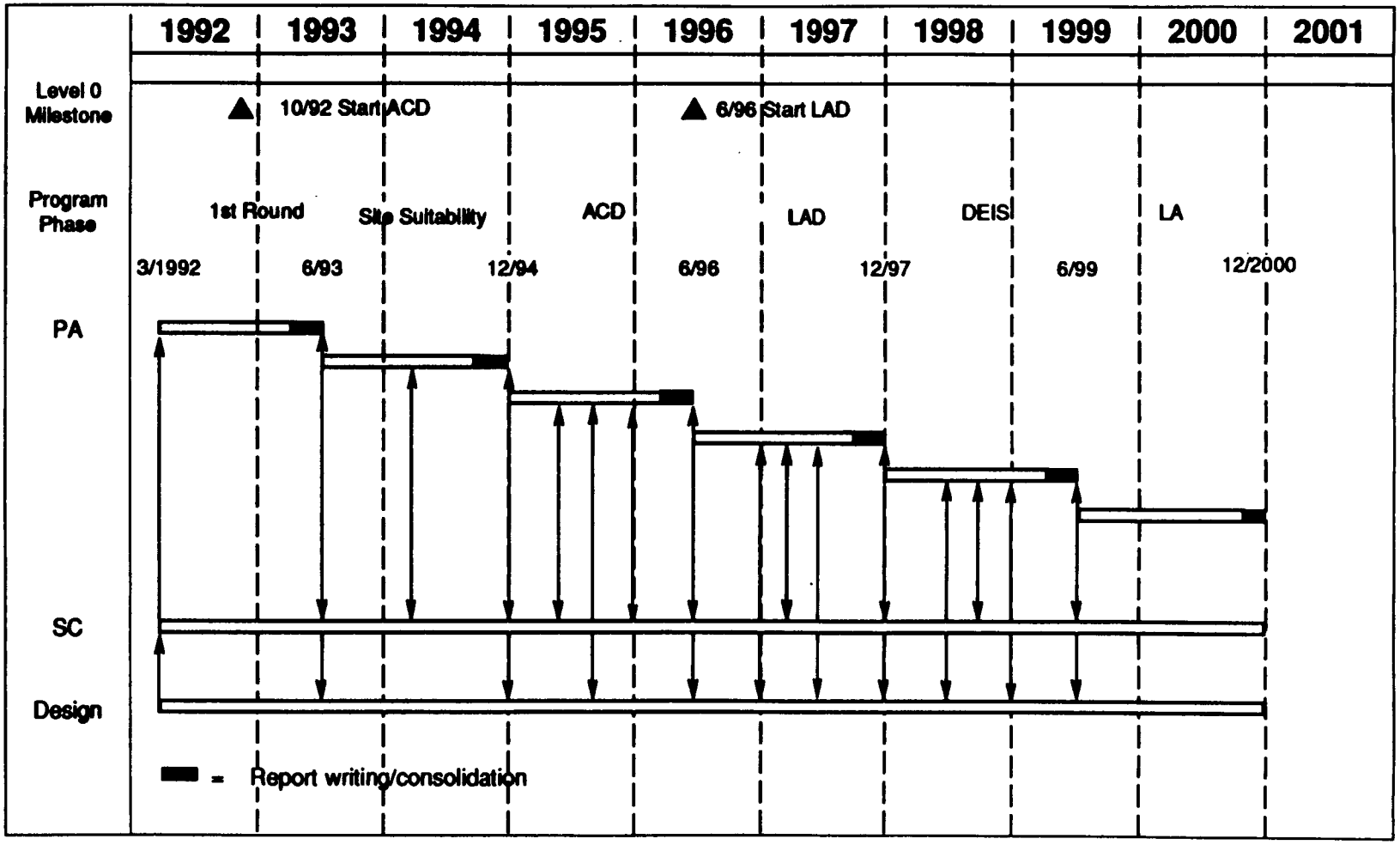
(continued)

- Updates previous baselines
- Iteration is driven by and results are provided to diverse program elements
  - Regulatory/licensing
  - Site characterization
  - Design
  - Uncertainty reduction due to testing
  - Programmatic decisions

Next Performance Assessment Iteration

- **Programmatic Objectives**
  - ESF design implications
  - Surface-based testing
  - Thermal loading
  - Site suitability
  - Issue resolution
- **Implementations**
  - Group scenarios
  - Using complex models to justify abstractions
  - Sensitivity analyses

Concepual Performance Assessment Schedule



Summary

- Codes/models exercised
- Total MGDS performance assessed
- Scenarios developed
- Implement iterative PA approach
- Provide links to other program elements
- Shift emphasis to analyses and V&V
- Conceptual schedule developed
- Identify application priorities and initiate next iteration