

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

**NUCLEAR WASTE TECHNICAL REVIEW BOARD
FULL BOARD MEETING**

**SUBJECT: INTEGRATION OF
PERFORMANCE ASSESSMENT,
ESSE, OTHER SPECIAL STUDIES**

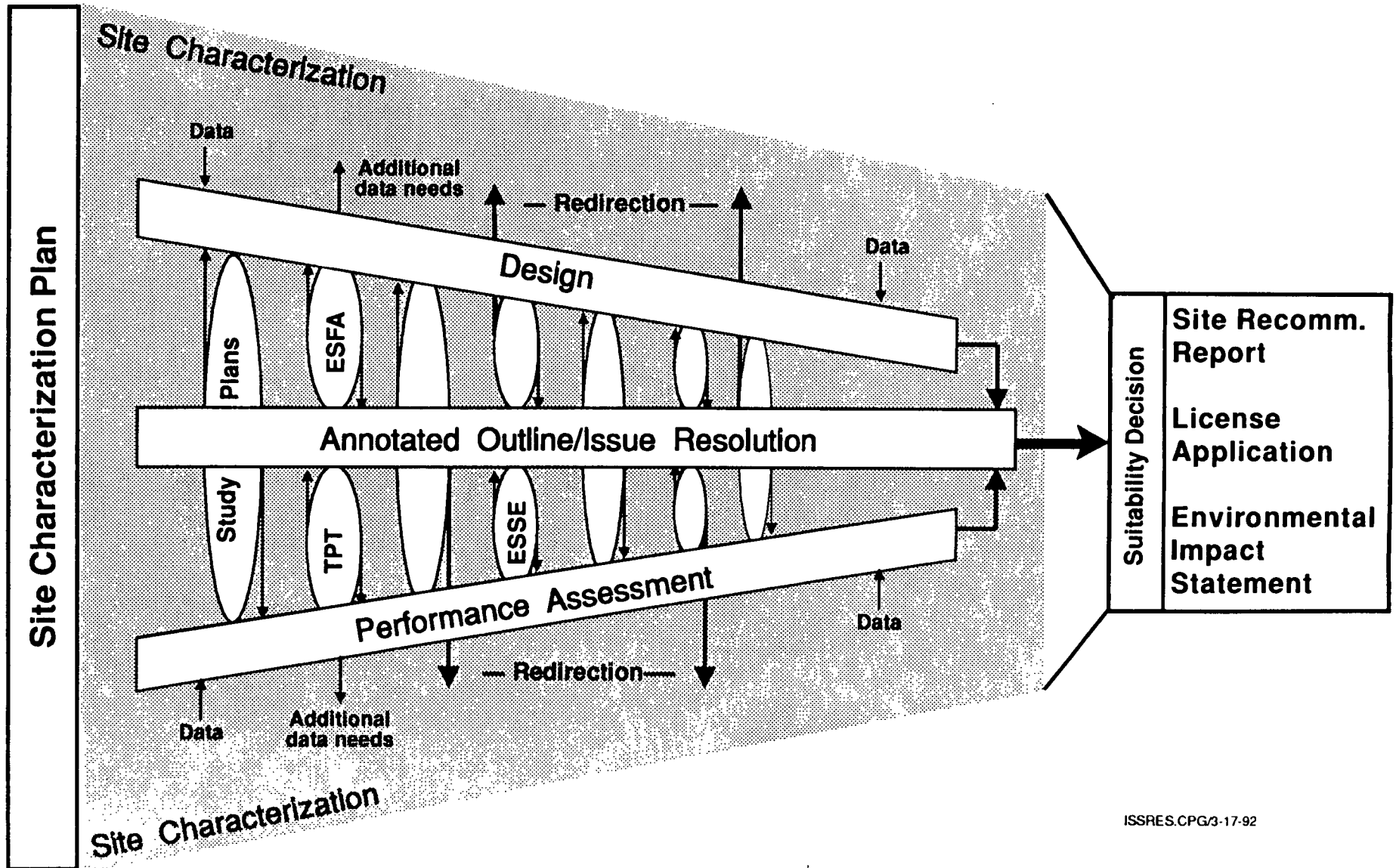
PRESENTER: DR. J. R. DYER

**PRESENTER'S TITLE
AND ORGANIZATION: DIRECTOR, REGULATORY AND SITE EVALUATION DIVISION
YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT
LAS VEGAS, NEVADA**

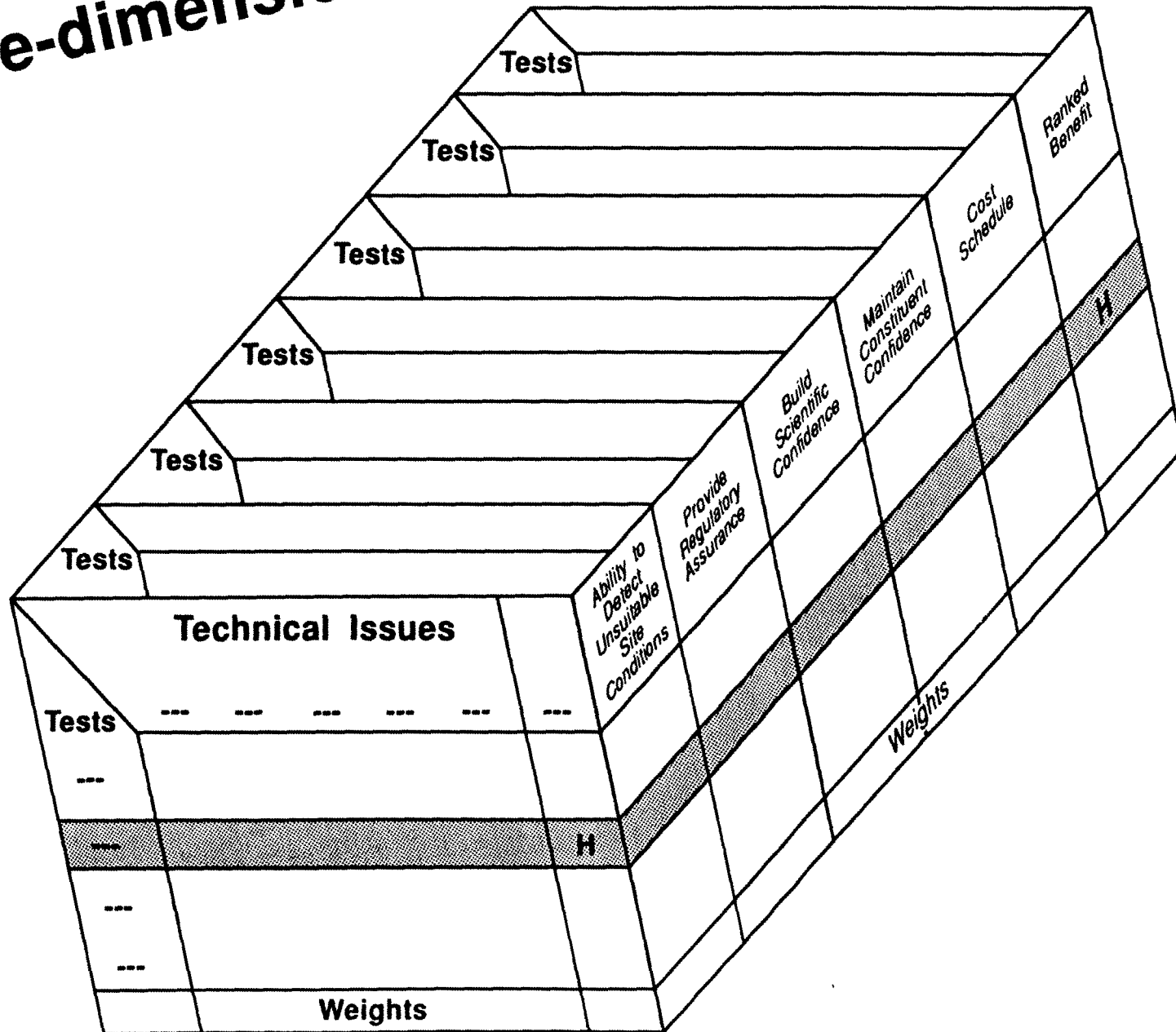
**PRESENTER'S
TELEPHONE NUMBER: (702) 794-7586**

**DALLAS, TX
APRIL 7-8, 1992**

Integration of Program Activities



Three-dimensional Spreadsheet Model



Focus Of Ongoing Evaluations: Integrate ESSE, TPT, and PA Results by Evaluating the Ability of "Tests" to Detect Unsuitable Site Conditions

"Tests" (from SCP)	Technical issues to be Resolved (from ESSE Results)					Ability to Detect Unsuitable Conditions
	Sustained Flow	Ground Water Travel Time	Radionuclide Retardation	Colloidal Species	Gaseous Migration	
Geohydrology/Hydrochemistry <i>Unsaturated zone surface-based package</i> 8.3.1.2.2.1 Unsaturated zone (UZ) Infiltration 8.3.1.2.2.3 Surface/based UZ percolation 8.3.1.2.2.7 UZ hydrochemistry 8.3.1.2.2.8 UZ fracture flow 8.3.1.2.2.9 UZ modeling and synthesis	Assessments of indicators 0 Negligible contribution 1 Marginal contribution 2 Potential contribution as part of package 3 Sufficient single test					
Weights for combining columns Probability condition is present Probability site is unsuitable, given condition Weight (TPT report)	These factors extracted from TPT report, where appropriate					

General Spreadsheet Mode

(Adapted From Test Prioritization Task, Mattson et al. 1991)

	Criteria				Cost/ Schedule	Ranked Benefit
	Ability to Detect Unsuitable Site Conditions	Provide Regulatory Assurance (NRC)	Build Scientific Confidence	Maintain Constituent Confidence		
Surface-Based Tests Geohydrology/Hydrochem. Geochemistry Gas Flow Rock Characteristics Climate/Paleoclimate Erosion Post Closure Tectonics Human Int./Nat. Res. Site Meteorology Surface Characteristics Preclosure Hydrology Preclosure Tectonics EBS Underground Tests Exploratory Drifting Geomechanics Hydrology Geochemistry Geology Thermal Response Waste-package Envir. Seals Construction-phase test	<div style="border: 1px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> Scores can be assessed directly or computed from lower/level assessments </div>					
Weight						
Normalized Weights						

Resource Summary for Current Prioritization Effort

Organization

Expertise

T&MSS

**Geotechnical (Mineral Resources)
Geological Engineer**

M&O

**Task Manager
Geotechnical
Engineering
Performance Assessment**

SNL

Performance Assessment

LANL

Geotechnical/Geochemist

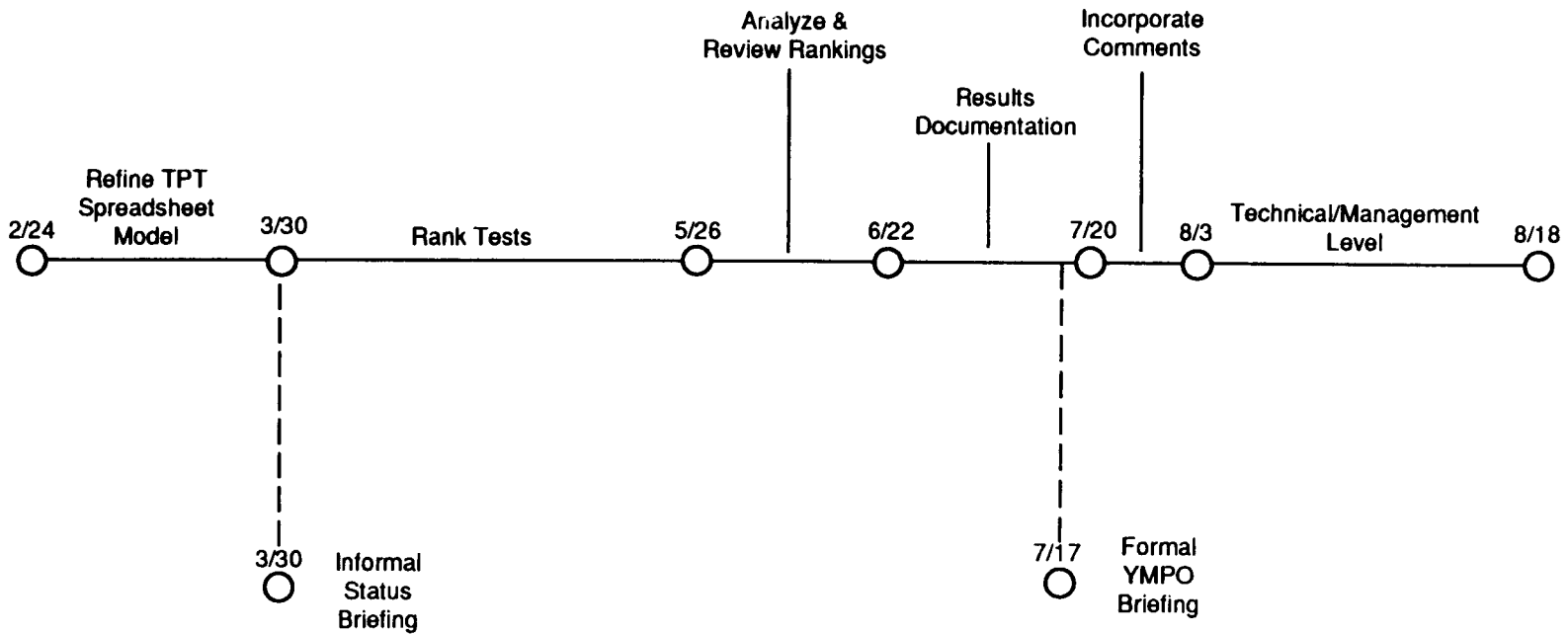
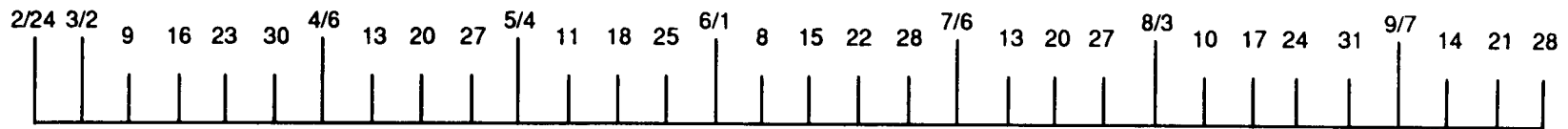
USGS

**Geologist
Hydrologist**

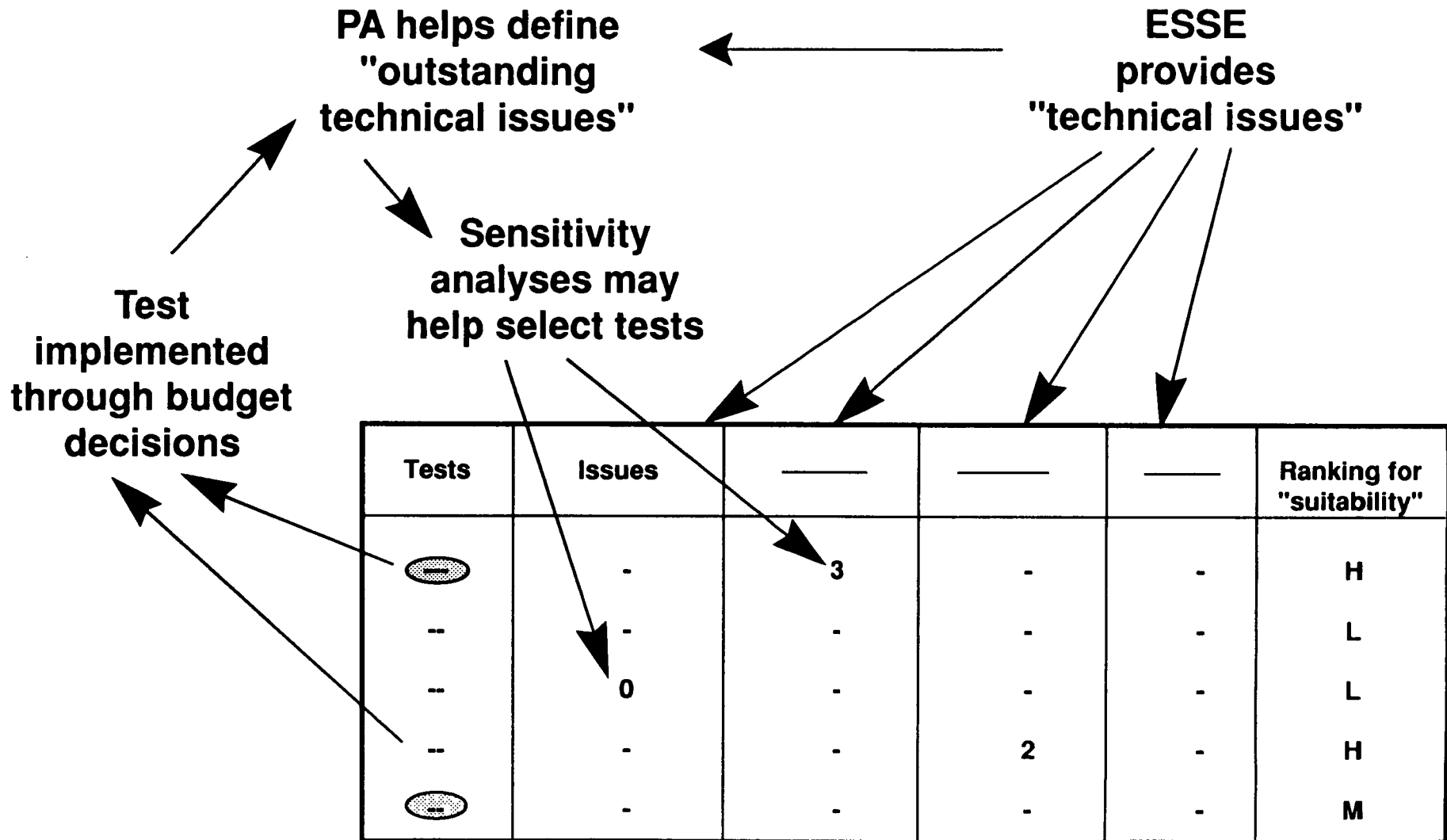
LLNL

Engineered Barrier System

Logic and Schedule for Ongoing Prioritization Task



Integration of PA, ESSE, and Site Characterization



Use of Prioritization Results

- **FY93 allocation of budget to site studies and activities**
- **Input/interface with long-range program planning**
- **Spreadsheet model can be used to consider other priorities and trade-offs, as appropriate**