

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

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

**SUBJECT: PROJECT IMPLEMENTATION
PROCESS: SYSTEMS**

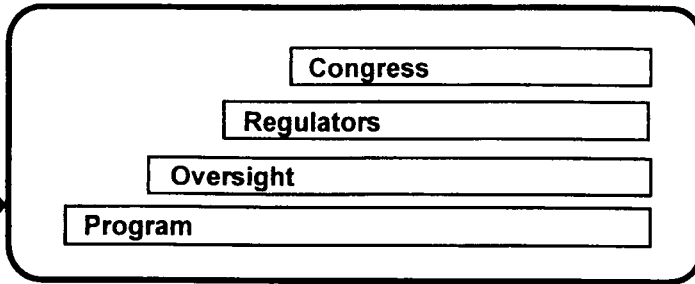
PRESENTER: DENNIS ROYER

**PRESENTER'S TITLE
AND ORGANIZATION: SYSTEMS AND REQUIREMENTS TEAM LEADER
YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT OFFICE
LAS VEGAS, NEVADA**

TELEPHONE NUMBER: (702) 794-1358

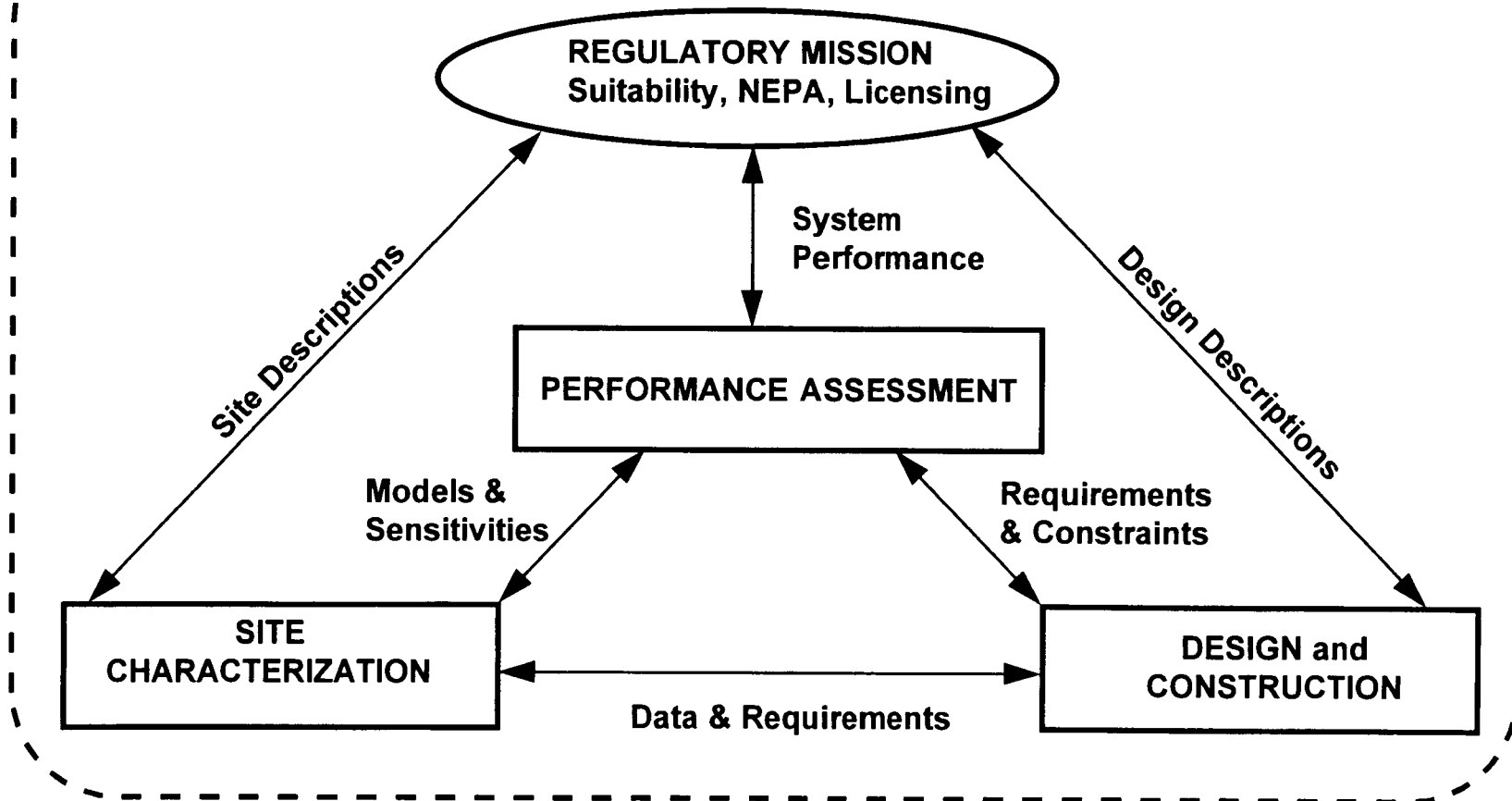
**AUSTIN, TEXAS
APRIL 30 - MAY 1, 1996**

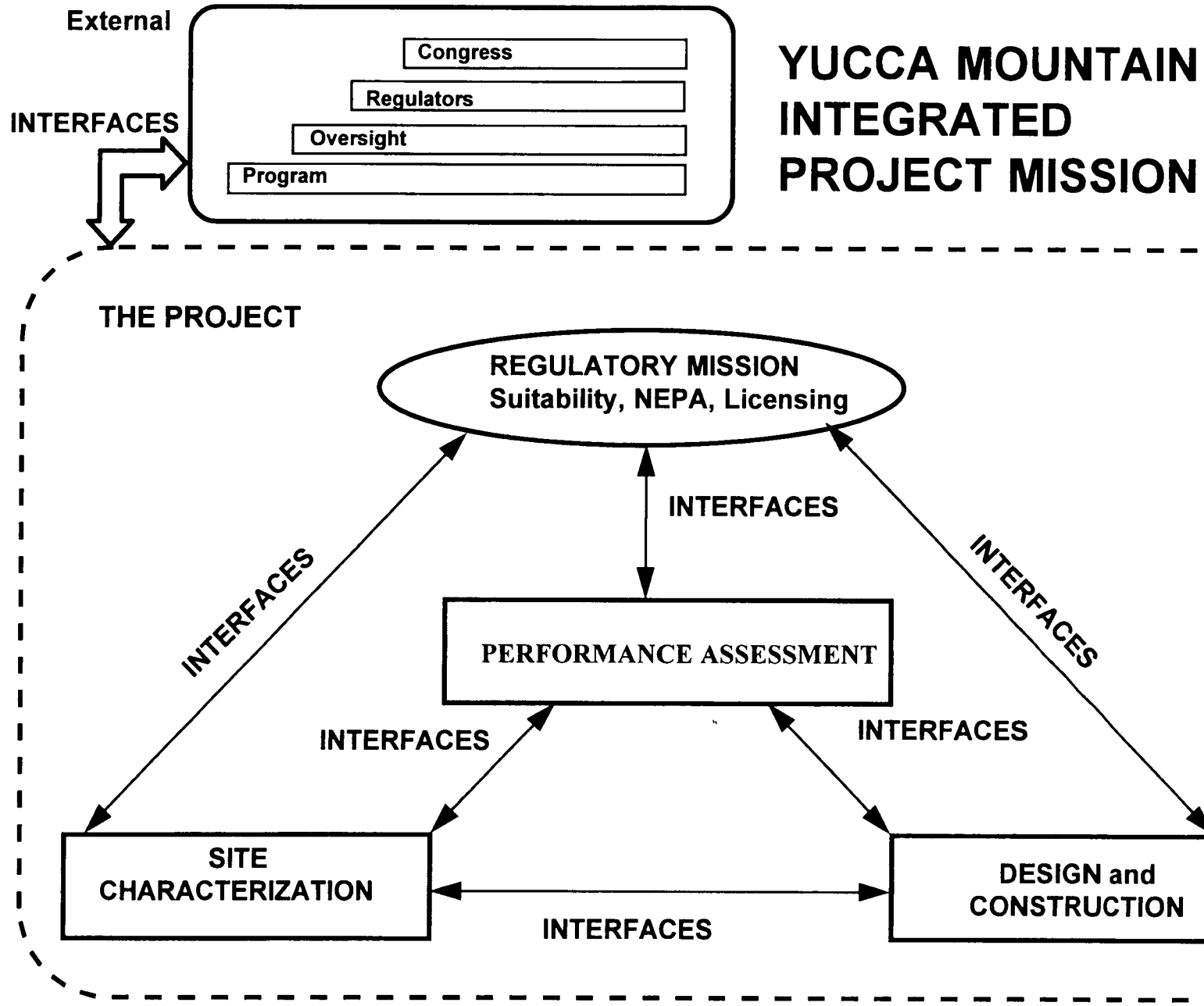
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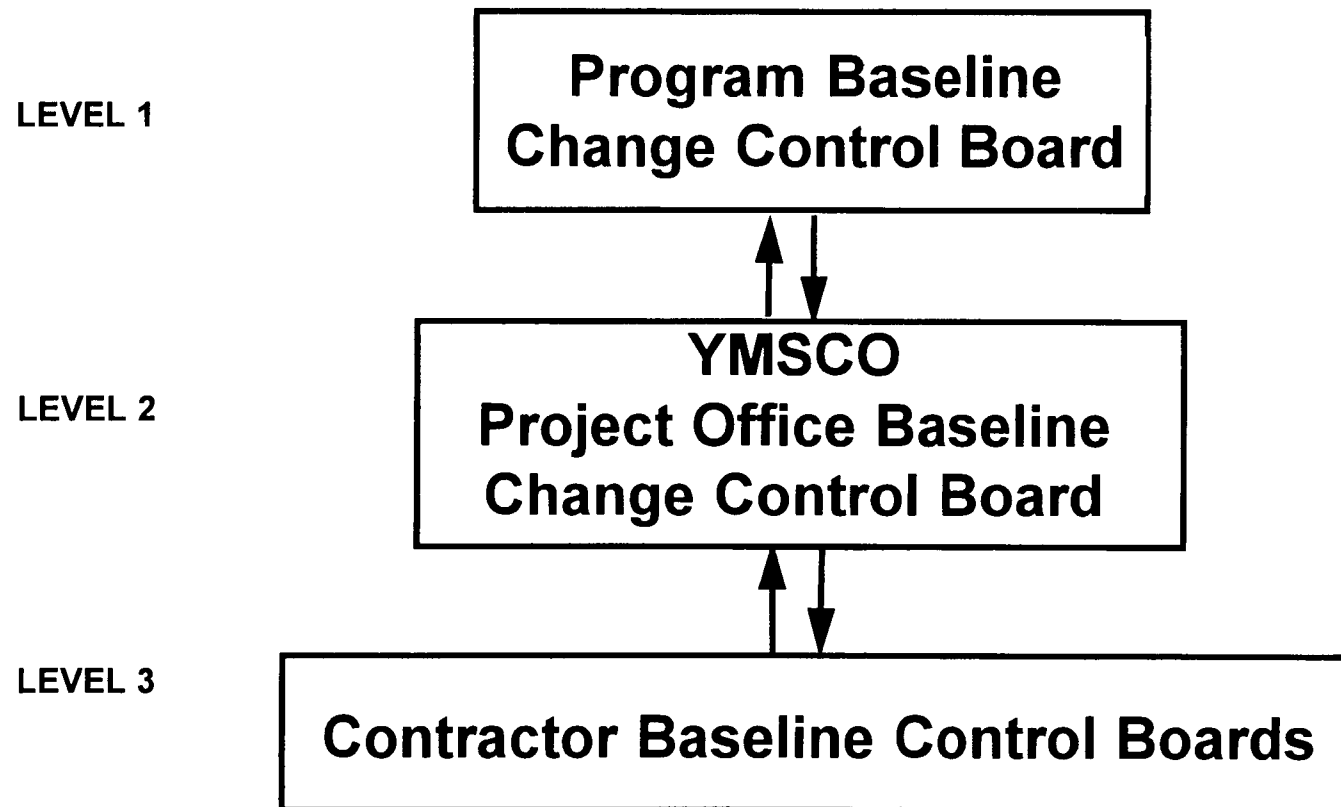
YUCCA MOUNTAIN INTEGRATED PROJECT MISSION

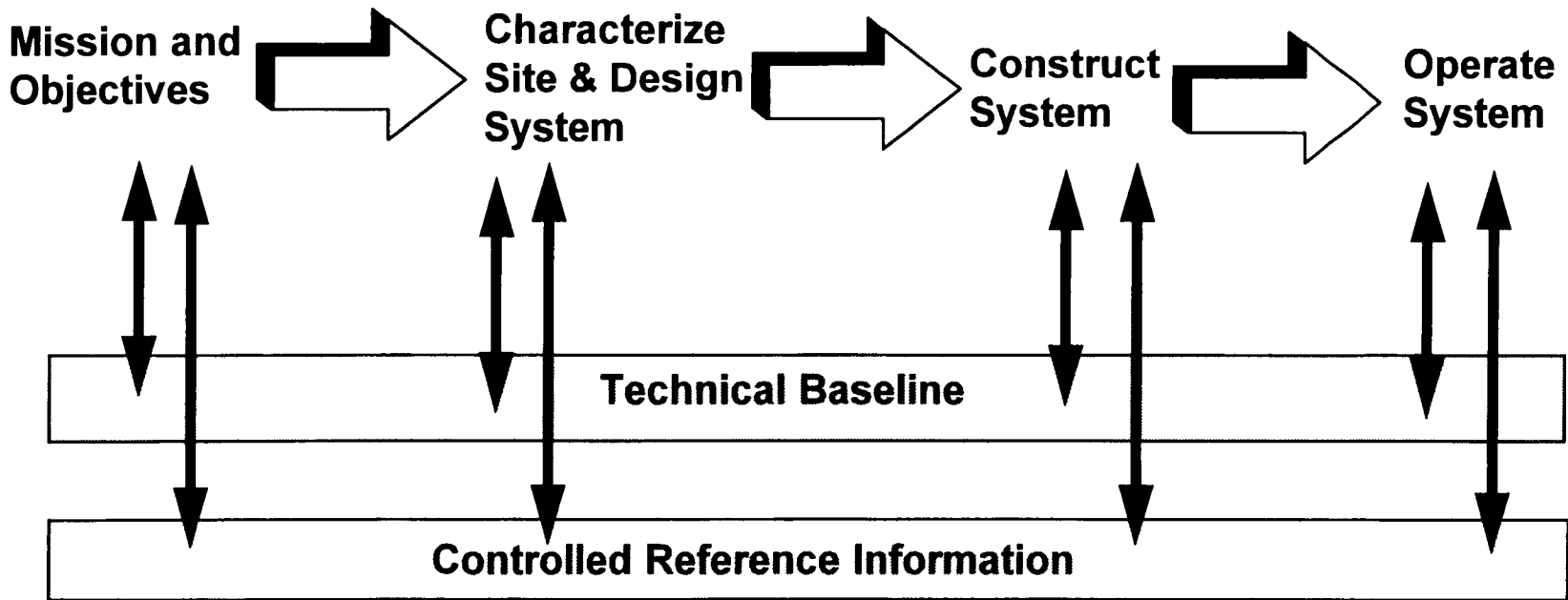
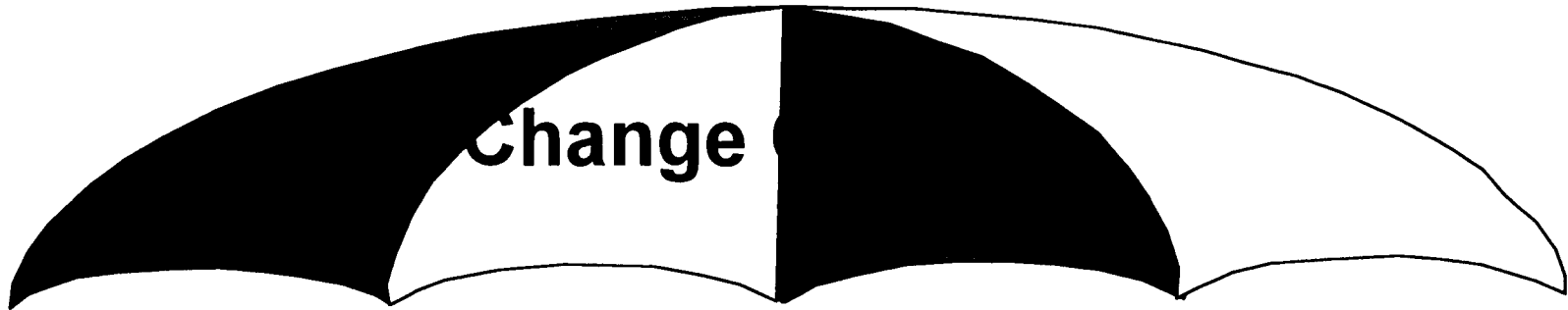
THE PROJECT





Implementation is Accomplished Through the Baseline Control Process





Items Controlled by the Project Change Control Board

- **The Technical Baseline is controlled by the Project Change Control Board and contains**
 - **Technical requirements for design**
 - **Technical requirements for site characterization**
 - **Design specifications**
 - **Design configurations**
 - **Controlled reference information***
 - **Interfaces and interface drawings**

* Controlled not baselined

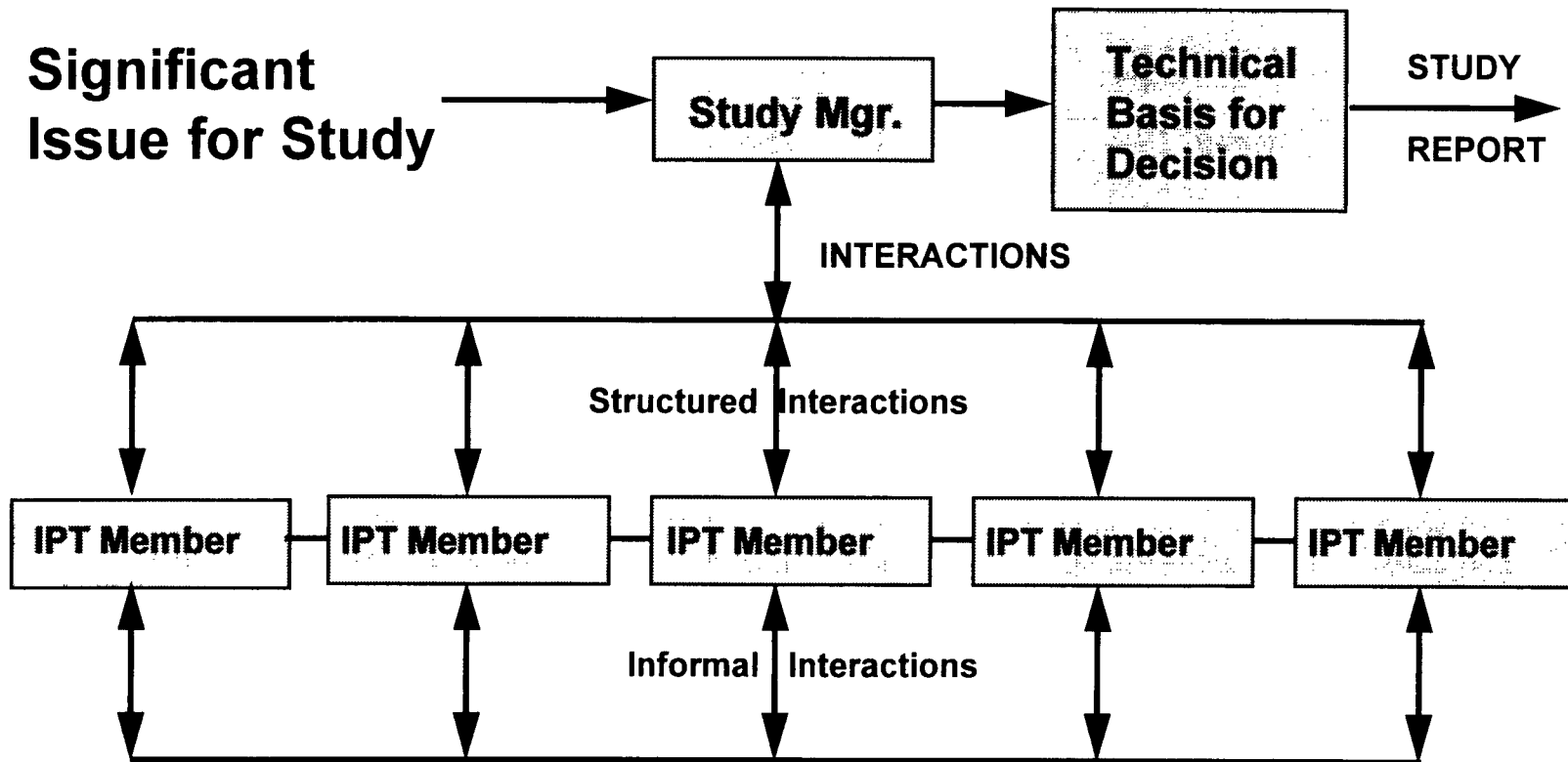
Why Do We Use A Technical Baseline Approach?

- **Requirements and reference information must be documented and/or controlled in the technical baseline to ensure**
 - **All participants use the same information in the development of the entire system**
 - **All changes to the baseline are evaluated and controlled by a uniform process**
 - **All changes and impacts of changes are traceable**

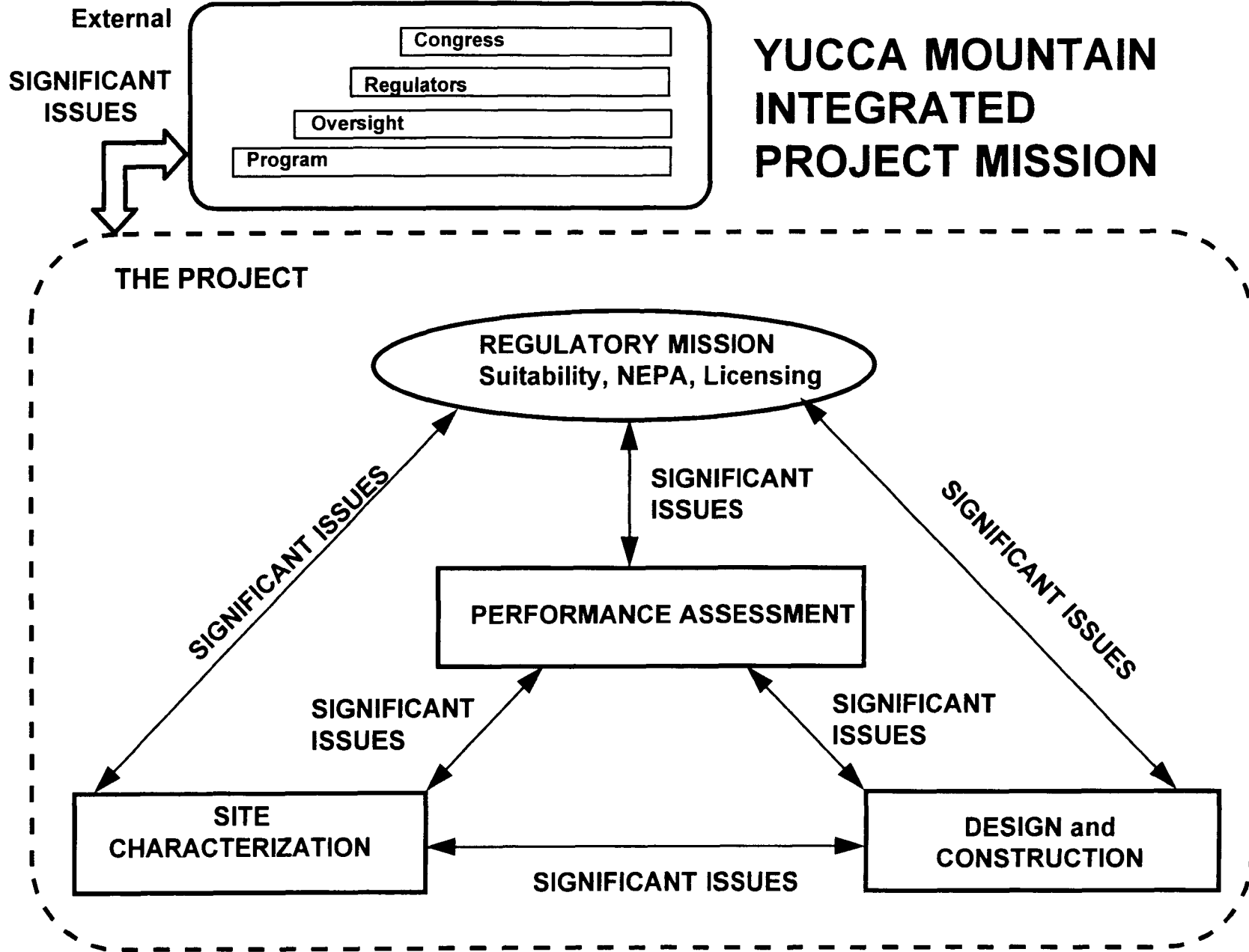
Systems Engineering Activities/Products Influence Integration

- **Systems products are developed using the Integrated Product Team (IPT) philosophy**
- **System studies provide a clear example of integrated products**

Integration Through System Studies



YUCCA MOUNTAIN INTEGRATED PROJECT MISSION



Significant System Studies Examples

- **FY93**
 - **Issue**
 - » Thermal loading of repository
 - **Key Customers**
 - » Design/Performance Assessment/Site Characterization
 - **Recommendations**
 - » Keep thermal load below 100 MTU/acre; maintain SCP thermal goals
 - **Program Implementation**
 - » Preferred loading 80-100 MTU/acre; thermal goals maintained
- **FY94**
 - **Issue**
 - » Length of retrievability period
 - **Key Customers**
 - » Design/ Performance Assessment /Performance Confirmation
 - **Recommendations**
 - » 50 years is sufficient, up to 100 years can be achieved cost effectively
 - **Program Implementation**
 - » Adopted 100-year retrievability period

Significant System Studies Examples

(Continued)

- **FY95**

- **Issue**
 - » Necessary characterization of Calico Hills unit
- **Key Customers**
 - » Site Characterization/Design/Performance Assessment
- **Recommendations**
 - » Satisfaction of most potential performance standards (long-term or short-term cumulative release) has little dependence on CHn unit
 - » If greater understanding and confidence in CHn desired, then borehole and minimal drifting required
- **Program Implementation**
 - » CHn exploration postponed
- **Issue**
 - » Feasible Nevada transportation
- **Key Customers**
 - » Design/Regulatory (NEPA)
- **Recommendations**
 - » Identified four rail corridors, showed feasibility of heavy haul
- **Program implementation**
 - » Rail corridors and heavy haul options utilized in Repository EIS scoping hearings

Significant System Studies Examples

(Continued)

- **FY96**
 - **Issue**
 - » **Engineered barrier performance requirements - backfill?**
 - **Key Customers**
 - » **Design/Performance Assessment**
 - **Recommendations**
 - » **In progress**
 - **Program Implementation**
 - » **To be determined; due 8-30-96**
 - **Issue**
 - » **Performance confirmation program definition/requirements**
 - **Key Customers**
 - » **Design/Regulatory/ Performance Assessment**
 - **Recommendations**
 - » **In progress**
 - **Program Implementation**
 - » **To be determined; due 8-30-96**

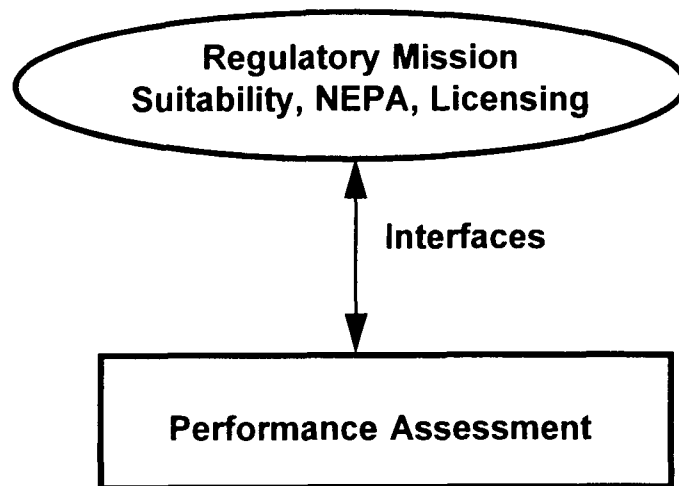
Significant System Studies Examples

(Continued)

- **FY96** (continued)
 - **Issue**
 - » Thermal loading alternatives
 - **Key Customers**
 - » Design/Performance Assessment/Site Characterization
 - **Recommendations**
 - » In progress
 - **Program Implementation**
 - » To be determined; due 8-30-96

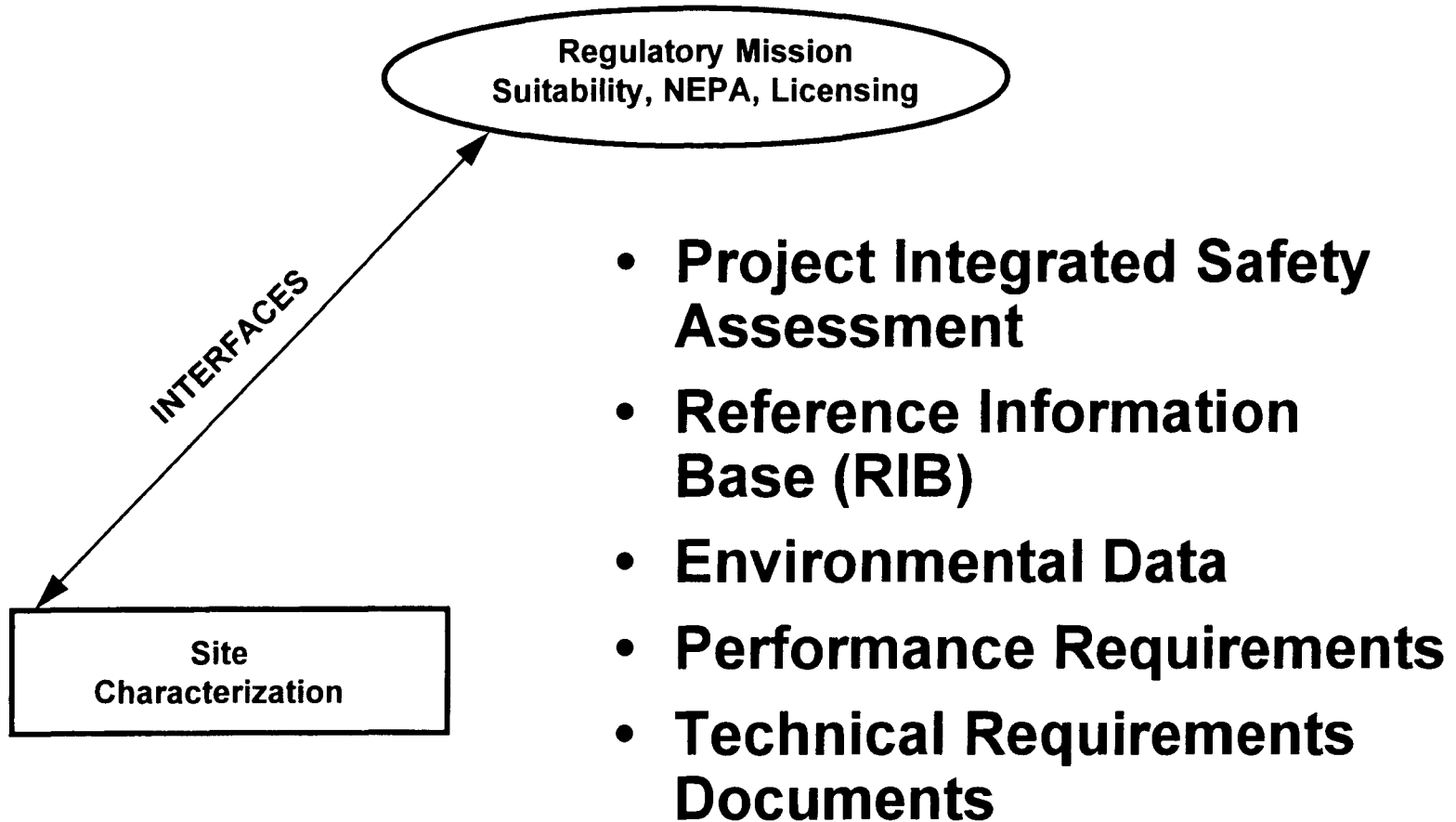
Additional Information

Regulatory - Performance Assessment Interfaces

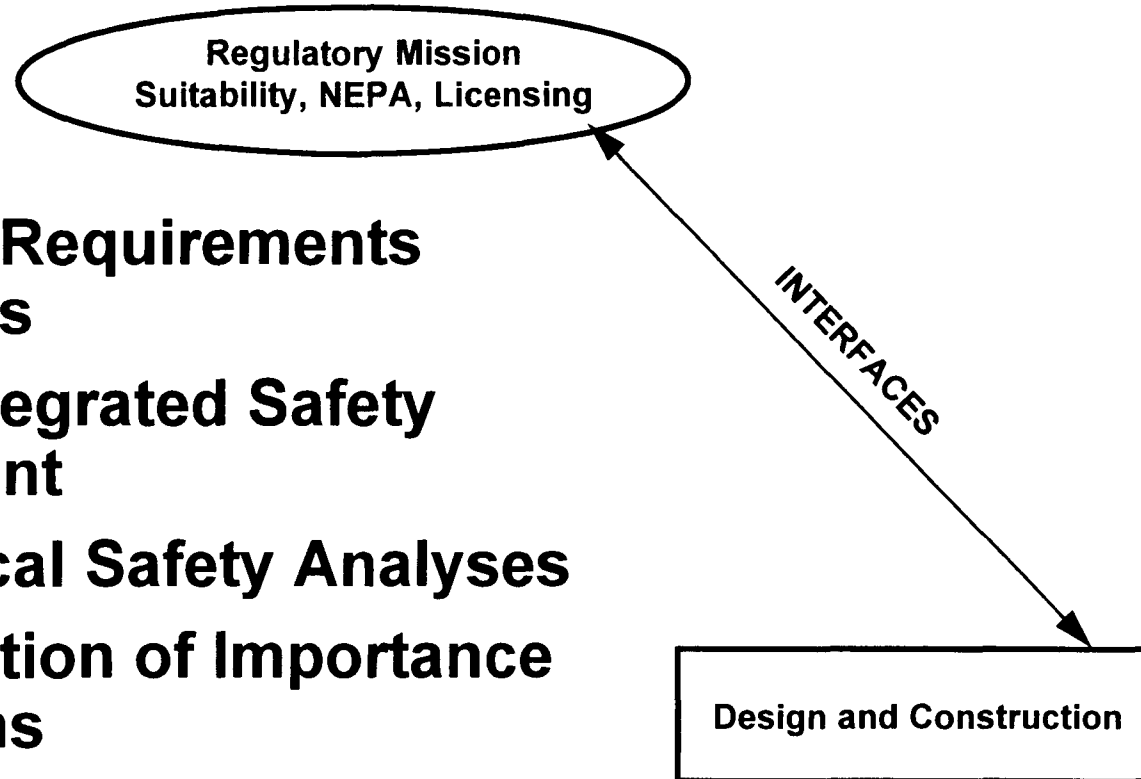


- **Project Integrated Safety Assessment (PISA)**
- **Input to Site Recommendation Report**
- **Compliance Arguments**
- **Total System Performance Assessment (TSPA)**
- **Input to NEPA Process**

Regulatory - Site Characterization Interfaces



Regulatory - Design Interfaces



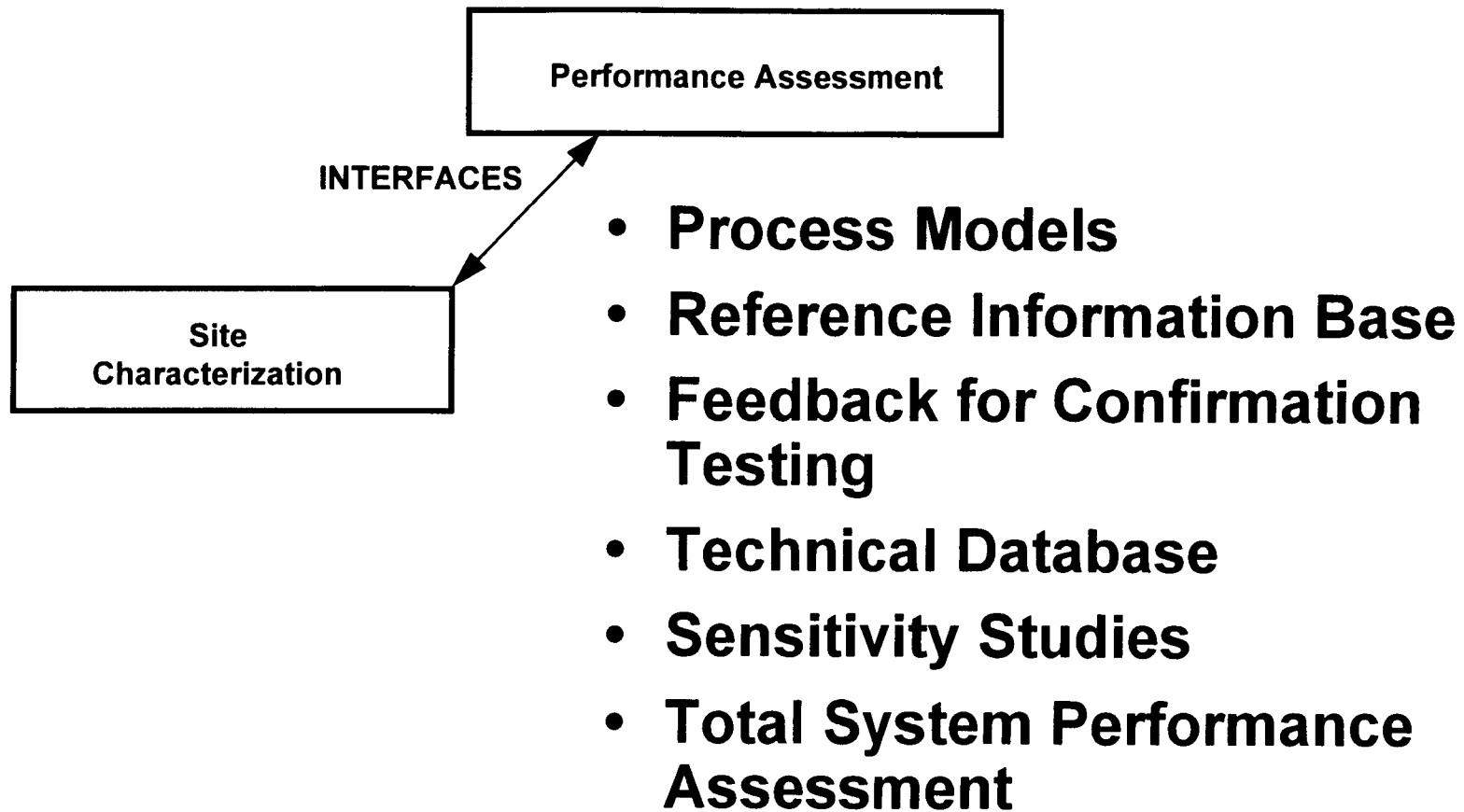
- **Technical Requirements Documents**
- **Project Integrated Safety Assessment**
- **Radiological Safety Analyses**
- **Determination of Importance Evaluations**
- **MGDS Design Products**
- **Sufficiency of Design Detail for Licensing**

Site Characterization - Design Interfaces

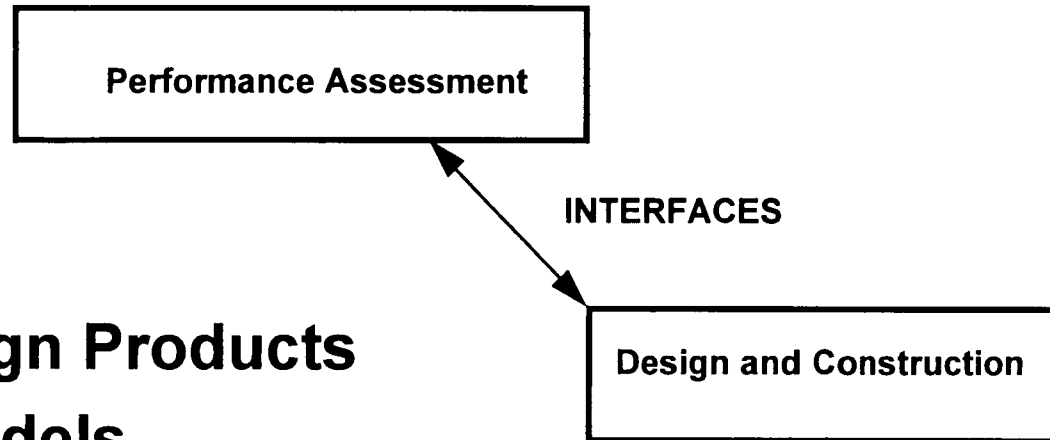


- **Reference Information Base (RIB)**
- **DIE Constraints**
- **Project Integrated Safety Assessment**
- **MGDS Design Products**
- **Technical Database**
- **Technical Requirements Documents**

Performance Assessment - Site Characterization Interfaces



Performance Assessment - Design Interfaces



- **MGDS Design Products**
- **Process Models**
- **Total System Performance Assessment**
- **Sensitivity Studies**
- **Technical Requirements Documents**