

System Decision Roadmap

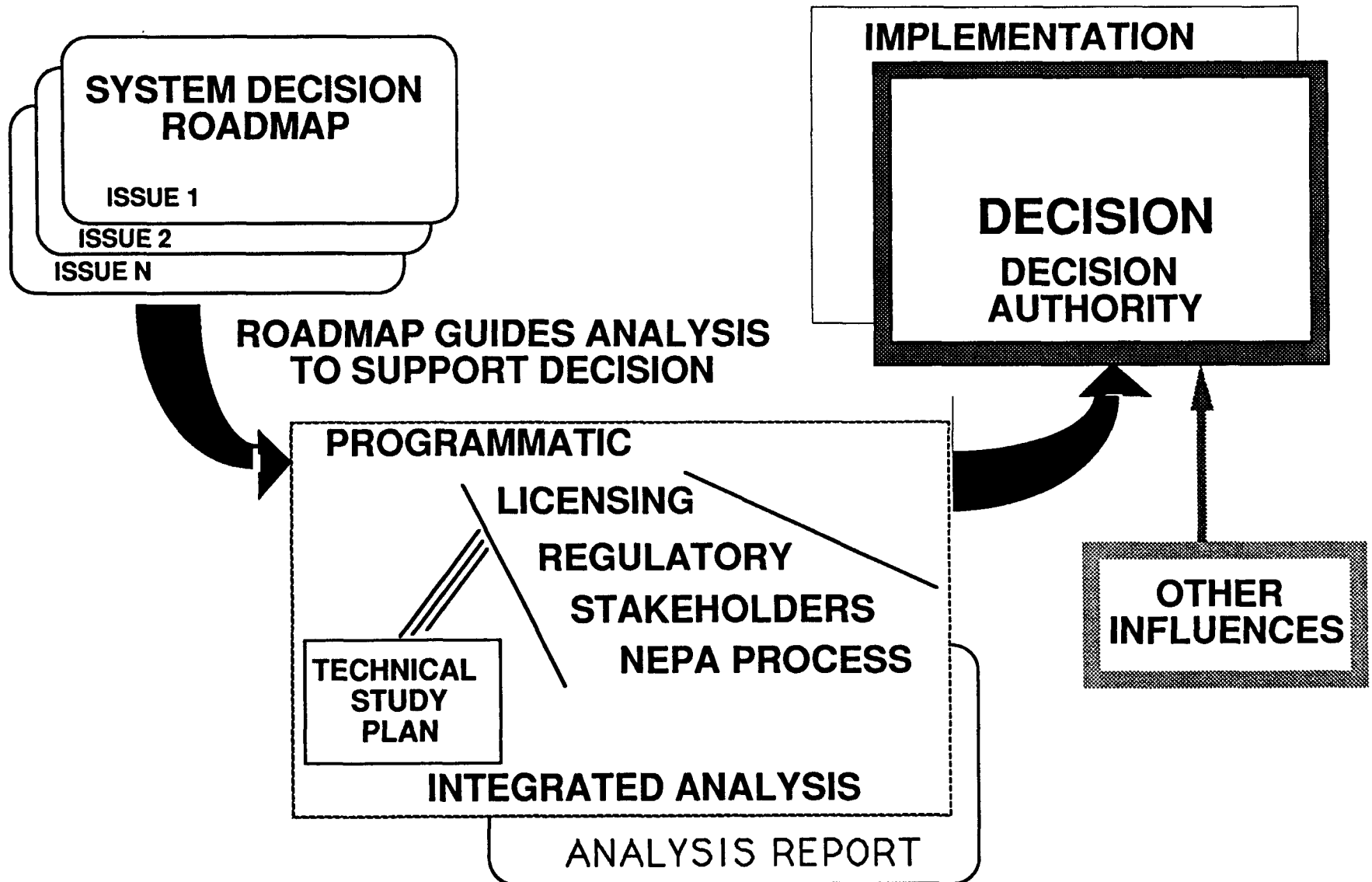
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Presented to

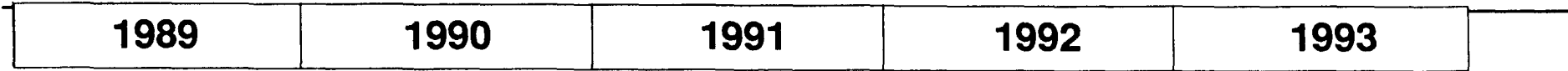
Nuclear Waste Technical Review Board

January 6, 1993

AN INTEGRATED PROCESS



ROADMAP BACKGROUND



WESTON

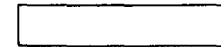
- Compile Extensive Issue List
- Group Issues
- Integrate Issues & Schedule

M&O Transition



DECISION ROADMAP

Phase I



PHASE I

- Develop Top Down Approach
- Define Key Issues
- Identify Key Decision Analyses
- Schedule Key Decisions

Phase II



Analysis Plan



Modeling Plan



PHASE II

- Define Detailed Decision Data Needs
- Detailed Analysis Definition
- Detailed Requirements Evaluation

**MAKE RECOMMENDATIONS TO DECISION
AUTHORITY**

DECISIONS



ISSUES

- **Identification of an MRS site**
- **The thermal management of the repository**
- **The use of multi-purpose canisters or casks**
- **The forms and quantities of waste to be emplaced at the repository**
- **The MRS storage and transfer modes**
- **The system waste throughput**
- **The operations approach after waste receipt begins**

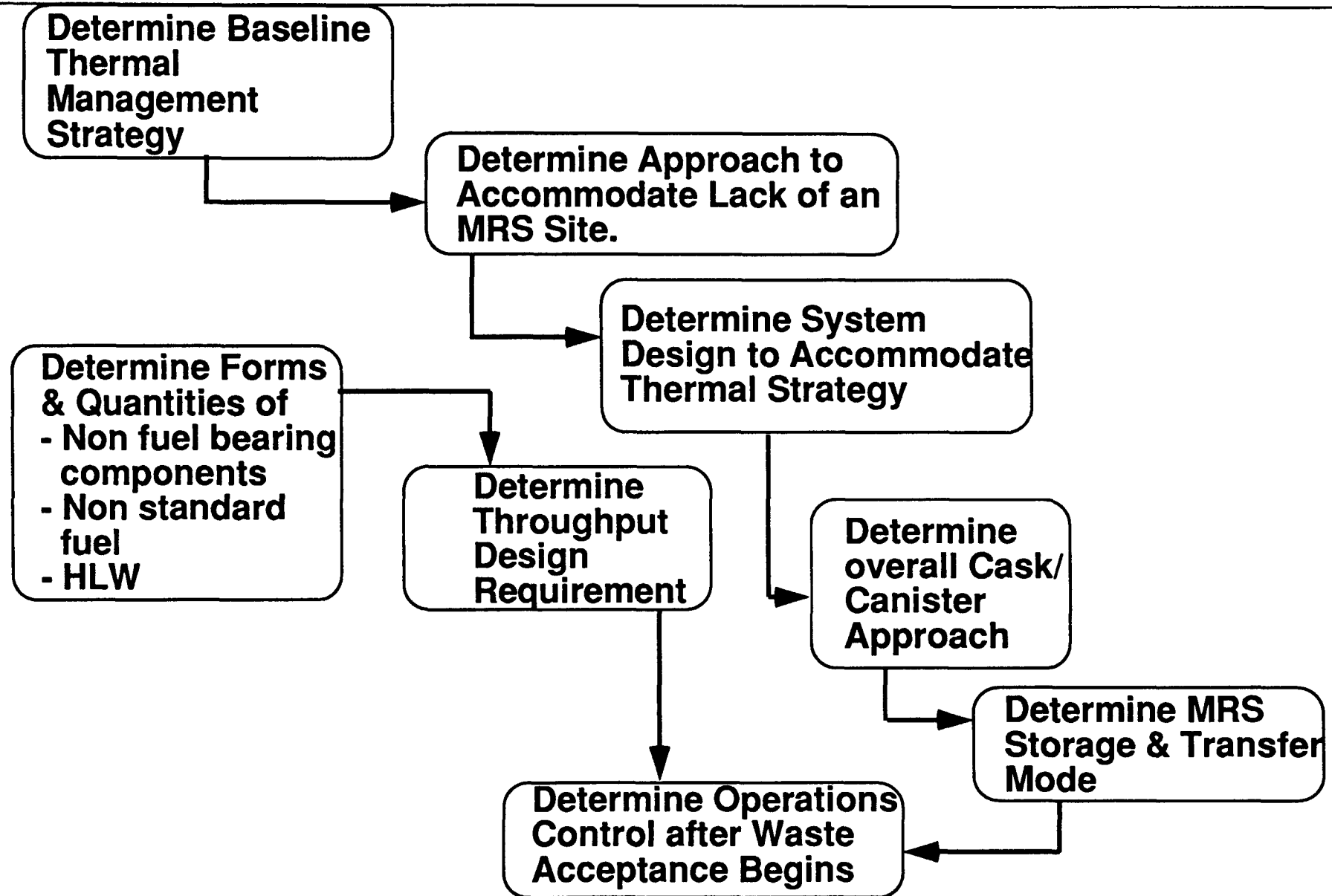
REQUIREMENTS IMPACT

ISSUE	Sys. Arch.	CRD	SRD			
			Waste Accept.	Trans.	MRS	MGDS
Identification of an MRS Site	X	X	X	X	X	P
Thermal Management Strategy		P	P	P	P	X
Multi-Purpose Casks/Canisters	P	P	X	X	X	X
Forms & Quantities of Waste		P	X	X	X	X
MRS Storage & Transfer Modes				X	X	
Waste Throughput		P	X	X	X	X
Operations Approach		X	X	X	X	X

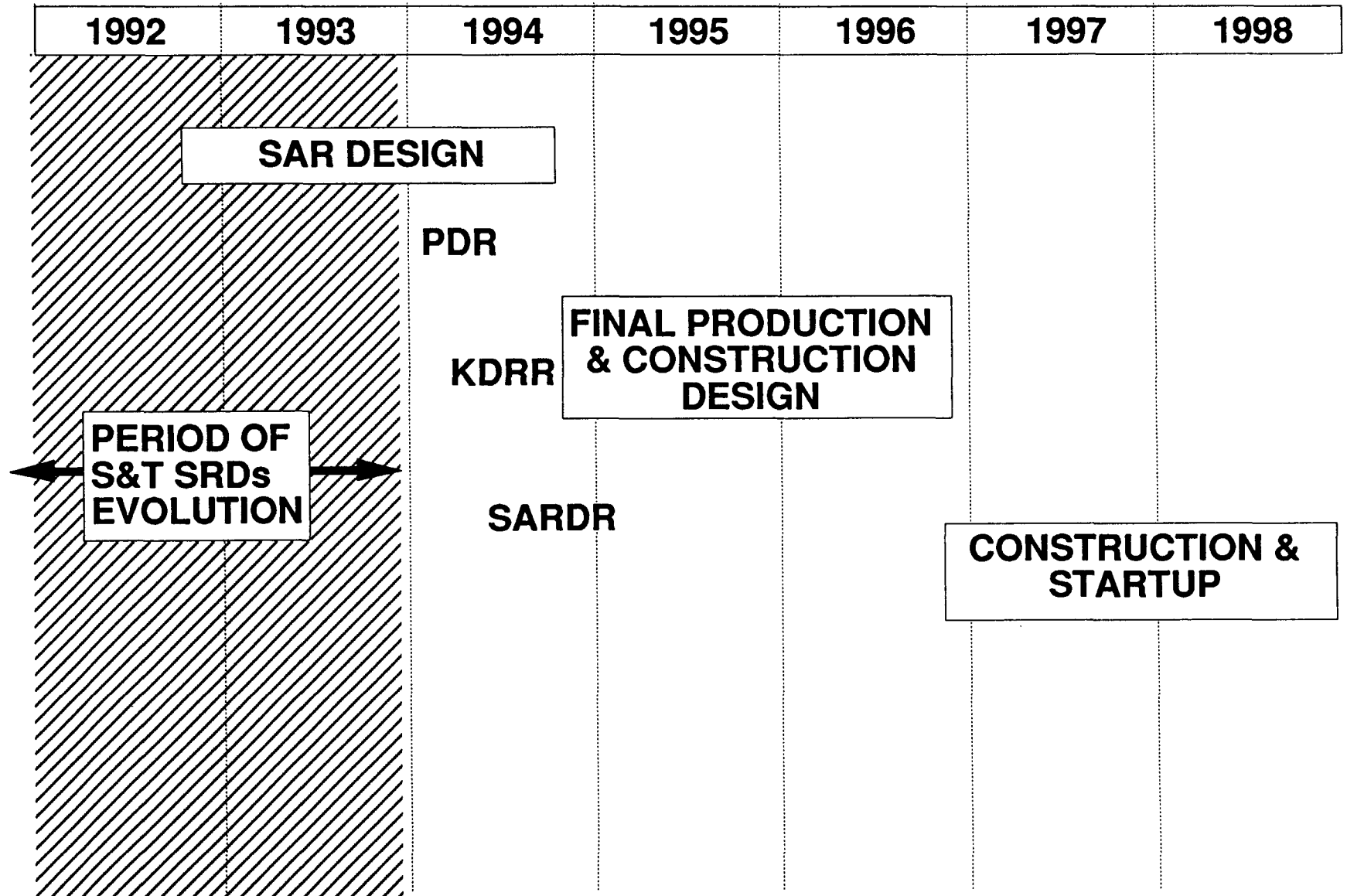
X = Impact

P = Potential Impact

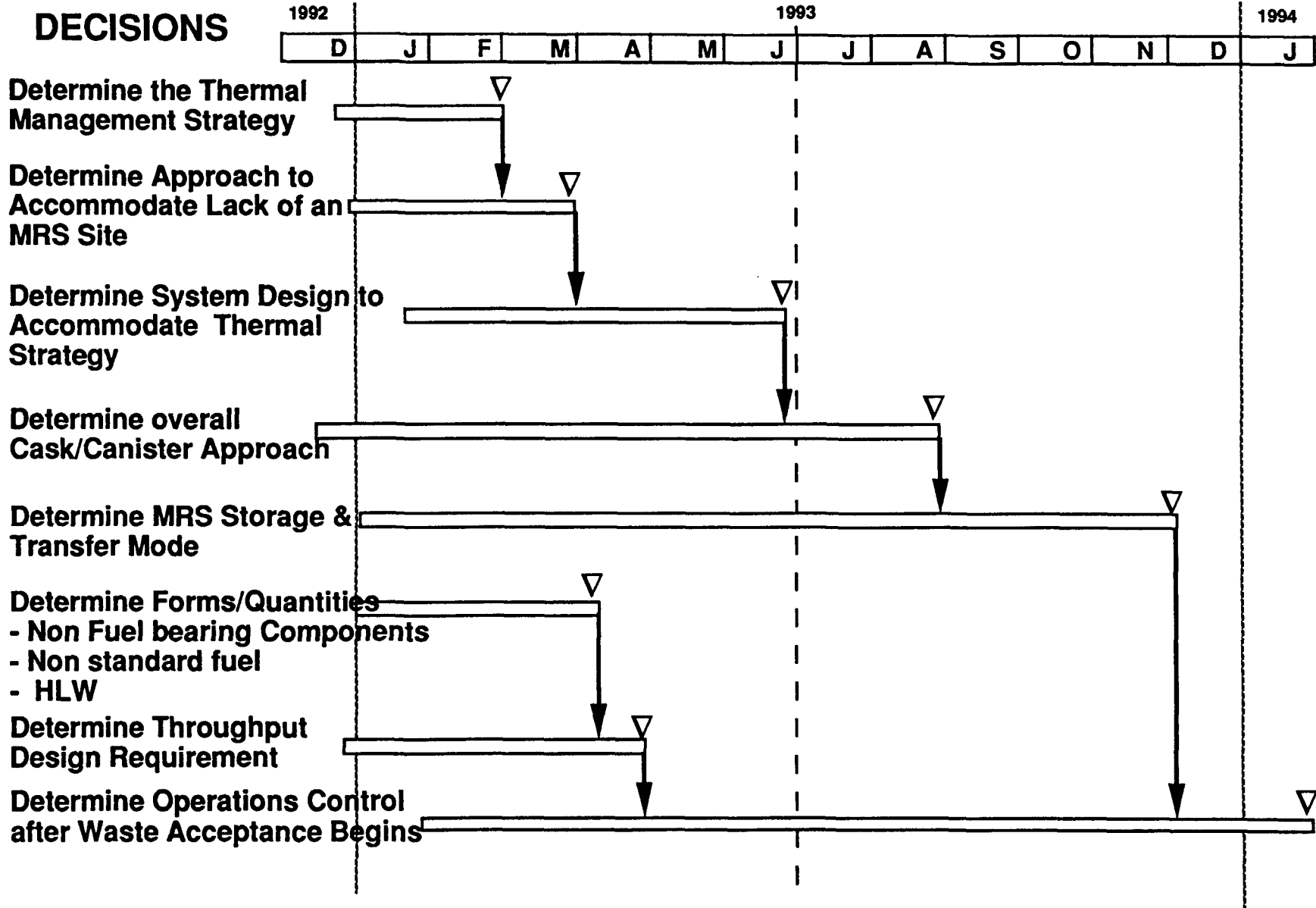
DECISION HIERARCHY



MRS SCHEDULE CONSIDERATIONS



DECISION SCHEDULE



PHASE II ROADMAP DEVELOPMENT

- **Define detailed decision data needed**
- **Identify detailed analysis tasks to support specific requirements**
- **Decompose decisions and relate to specific system requirements within the document hierarchy**
- **Develop detailed task schedule**
- **Update Roadmap in conjunction with program dynamics**

EXAMPLE OF ISSUE BREAKDOWN

ISSUE: Use of Multi-Purpose Canisters or Casks

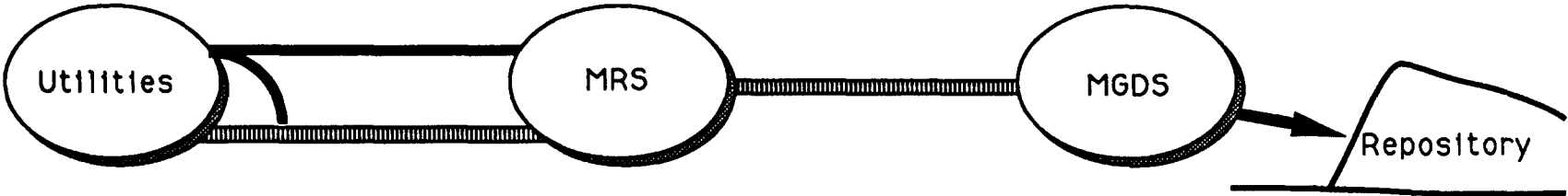
WHY AN ISSUE?

- **Potential system optimization**
 - **Safety advantages**
 - **Operational simplification**
- **Strong utilities interest**
- **TRB interest**

DECISION

What is the overall system cask/canister approach for transportation, storage, and emplacement.

SYSTEM ALTERNATIVES



RAIL TRUCK	HEAVY HAUL	STORAGE	RAIL	WASTE PACKAGE	
Rail Cask	LWT cask	TBD	DVCC	Rail Cask	Reference Design
MPC's with Trans.	Overpack	MPC w/ Overpack	Large and grouped small MPC w/ OP	MPC w/ mods as needed or a separate Package	
Large	Small	Large	TSC	TSC	Reference Design
Transportable Storage Cask					
(TSC)					
Universal Cask (UC)		UC	UC	UC	UC

SYSTEM ELEMENT IMPACTS

Waste Acceptance - Welding, handling, inspections

Transportation

- Number, type casks (overpack design)
- CMF
- Trailer & rail chassis design

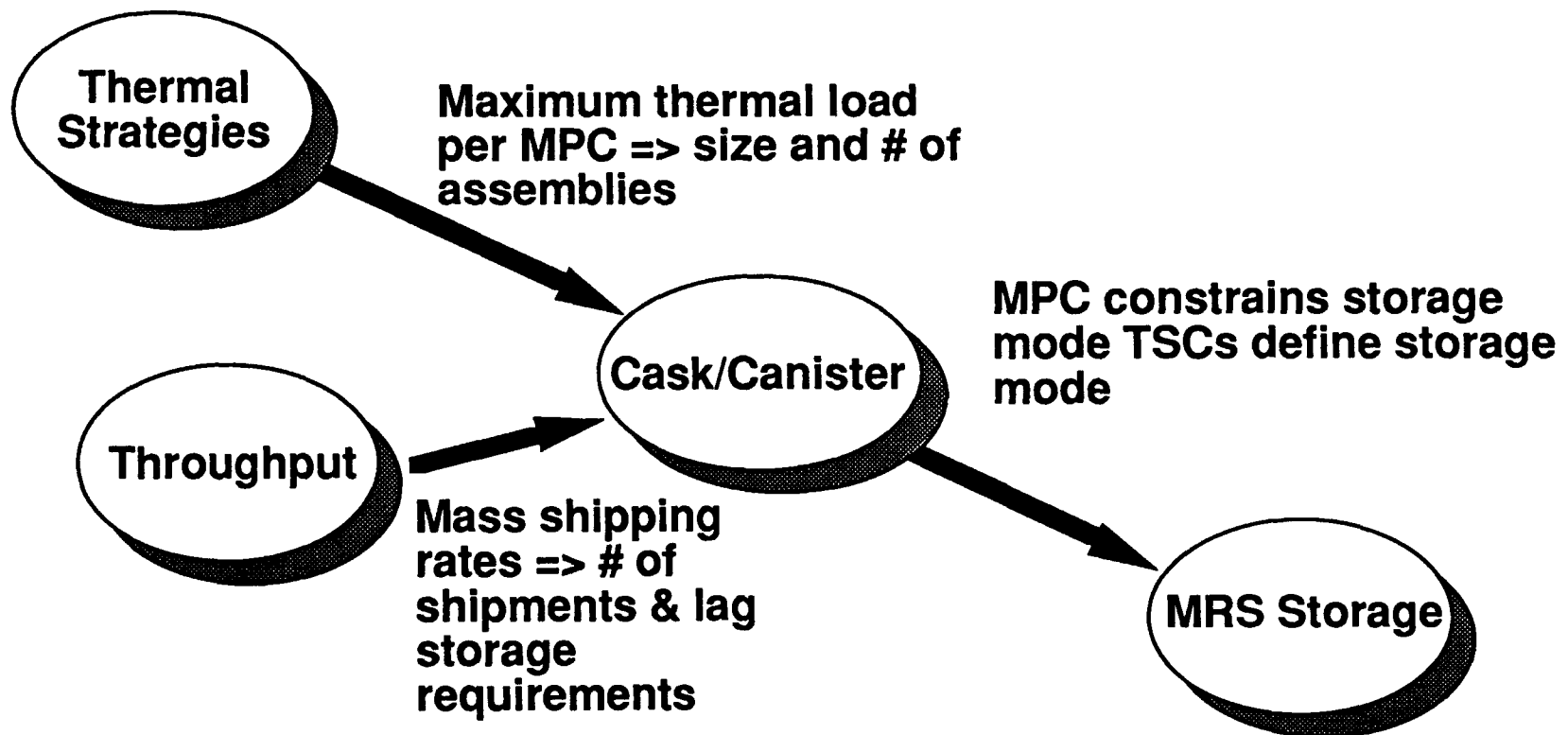
MRS

- Transfer equipment
- Storage

MGDS

- Emplacement
- Overpack configuration
- Inspection\
- Transfer & packaging facilities

EXAMPLE OF DECISION RELATIONSHIP



KEY DECISION DISCRIMINATORS

Quantitative

- **System Cost - Capital and total Life cycle**
- **Radiation exposure - Occupational & Public**
 - **Safety indicator as well as licensing & perception**
- **Handlings - Canistered & uncanistered**
- **Schedule impacts - Waste acceptance, licensing process, procurement process**
- **Waste Package Performance**

KEY DECISION DISCRIMINATORS (cont.)

Qualitative

- **Perception - CRWMS facility host, public**
- **Licensing, regulatory & compliance considerations**
- **Contract impacts (10CFR961)**
- **Design & Operations flexibility - also shows up in cost and schedule**