

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

PRESENTATION TO
THE NUCLEAR WASTE TECHNICAL REVIEW BOARD

**SUBJECT: OCRWM OPERATIONS PLANNING
 ACTIVITIES**

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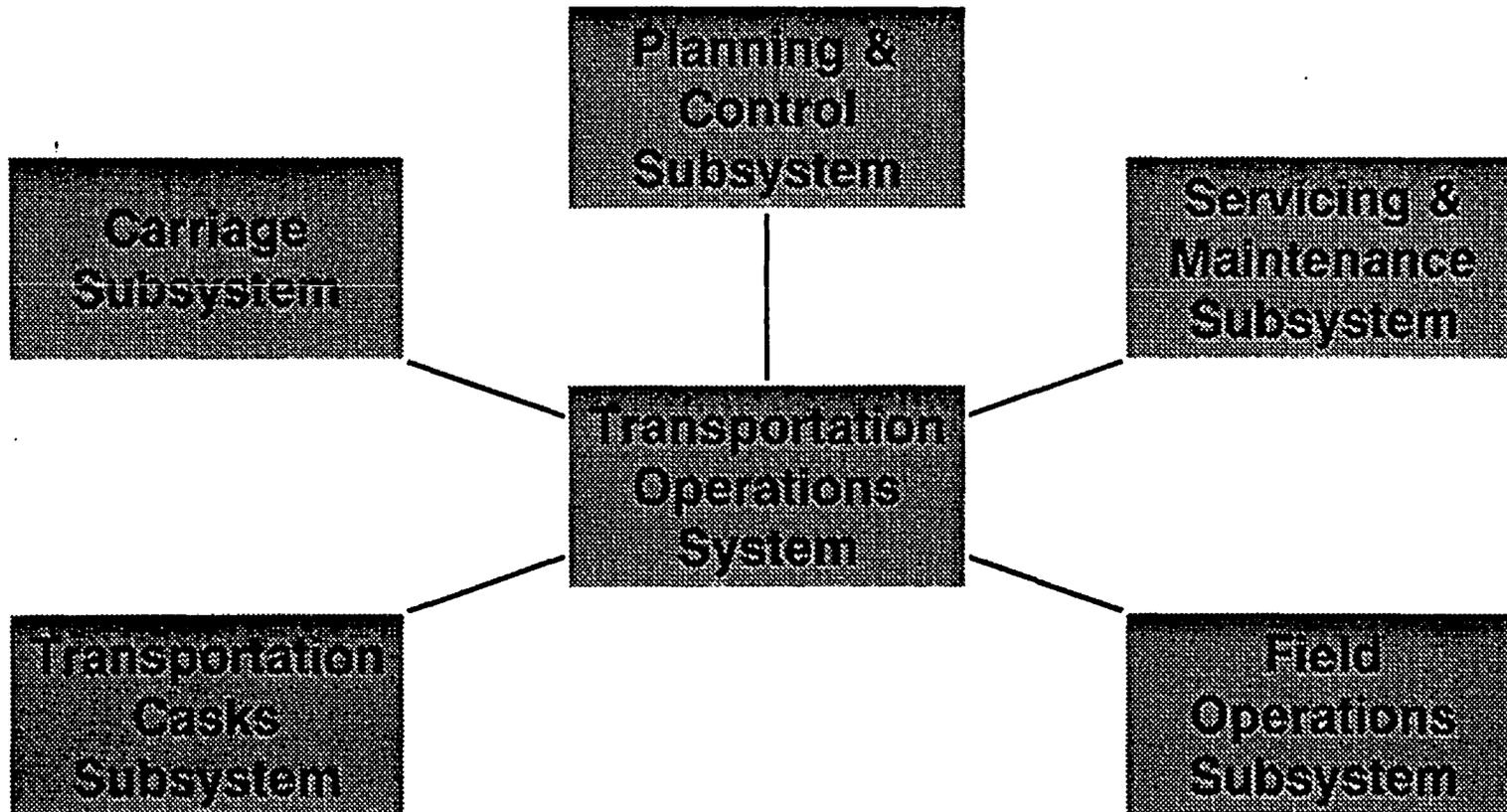
OCTOBER 22, 1990

Requirements for the Transportation System

- **Must be capable of:**
 - **Receiving spent fuel and high level waste**
 - **Transporting the waste from the sites to a federal facility**
 - **Providing the support needed to maintain acceptance and shipment operations**
- **Must have transportation and support equipment**
 - **Casks in appropriate #'s and types**
 - **Vehicles**
 - **Ancillary/support**

- **Must have facilities**
 - **For cask, vehicle, equipment maintenance and storage**
 - **For operations management and day-to-day operations control**
 - **For personnel training**
- **Must have documentation and software**
 - **Policies and procedures**
 - **Equipment and operations records**
- **Must have people**
 - **Field operations representatives**
 - **Maintenance technicians**
 - **Traffic managers**
 - **Engineers**
 - **Compliance specialists**

Subsystem Breakdown of the Transportation Operations System



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Operations Planning Activities

- **Standard utility contract - implications for transportation operations**
- **Service planning documents - site/campaign planning**
- **Operations input to cask development**
- **Observation of ongoing shipments**
- **Summary of other activities - highway transport and cask maintenance**
- **Long range planning**

Transportation Operations Analysis of the Standard Disposal Contract

Objectives

- **Understand operations implications and requirements resulting from the contract**
- **Identify and prioritize operations problems for further analysis**
- **Design the transportation system to satisfy contract requirements**

Features of Contract Impacting Receipt of Waste

- **Allocation of Delivery Rights**
 - **To purchaser**
 - **Based on oldest fuel first**
- **Distribution of Rights**
 - **By purchaser**
 - **Within its system**

General Implications of the Contract

The contract provides the criteria and procedures from which requirements for transportation services are being derived:

- **Sites to be served each year**
- **Characteristics and quantity of fuel to be taken**
- **Cask to be used to serve a site**

Example of Uncertainties in Number of Sites Served, Number of Shipments, and Modes of Service

<u>Number of sites</u>		<u>Truck shipments</u>		<u>Rail shipments</u>	
Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
13	24	150	305	17	41

Transportation Operations - Service Planning Documents

Objectives:

- **Develop facility-specific document for facilities to be served**
- **Provide information and data for satisfying transportation-related responsibilities at that facility**
- **Provide service planning reference document for each facility to initiate operational dialogue**

Service Planning Document Format and Content

- **Transportation capabilities summary**
- **Facility, site and infrastructure constraint(s) to transportation operations**
- **Alternatives for removing identified constraints**
- **Current facility information and data**
 - **Local infrastructure data**
 - **Site layout and facility arrangement**
 - **Fuel information**
 - **Facility operating information**
- **Institutional interfaces**

Operations Inputs to Cask Development

Objective

- **Support cask development by providing operations perspective**

Approach

- **Provided input through cask design review process**
- **Provided analysis on specific issues**
- **Provided workshop for cask designers**
- **Participating in the cask handling working group and program review meetings**

Operational Considerations in Cask Design

Provided suggestions on improving factors relating to:

- **Turnaround time**
- **Worker radiation exposure/safety**
- **Human error**
- **Equipment handling**
- **Inspection time**
- **Servicing and maintenance time**

Example of Operations Input

Impact Limiter Design: Operation Preferences

- **Handle without a crane**
- **Few, easily operated attachments**
- **Stay on transporter**
- **Removable for other operations**

Observe and Incorporate Experience from Past and Ongoing SNF Shipments

Objectives

- **Develop first-hand knowledge, forming an experience base**
- **Understand regulatory requirements that impact operations at reactors**
- **Facilitate incorporation of industry experience and lessons learned into OCRWM planning base**

Transportation Operations - Observe and Incorporate Experience from Past/Ongoing Shipment Activities

Observations reported

- **Core debris shipping from Three Mile Island to Idaho National Engineering Laboratory**
- **Observation of intermodal CASTOR V/21 cask transfer**
- **Dry handling of NLI-1/2 cask**
- **San Onofre transshipment**
- **Carolina Power and Light shipments**

Other Operational Related Planning Activities

Highway transport

- **Developing tractor specification**
- **Working with American Association of State Highway Transportation Officials to develop a uniform overweight truck permit**
- **Developing and evaluating uniform vehicle inspection procedures - Commercial Vehicle Safety Alliance Pilot Study**

Cask Maintenance

- **Developing cask maintenance facility design**
- **Defining servicing and maintenance requirements**
- **Identifying interim maintenance options**

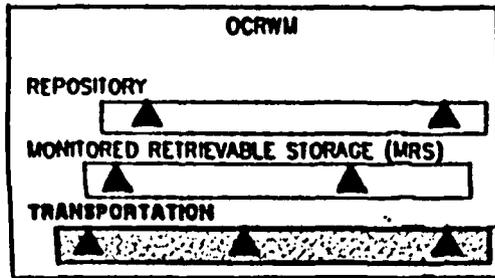
Transportation Operations - Long-Range Planning

Objective: Develop milestone schedule charts which:

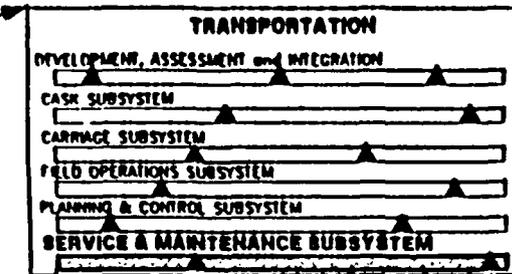
- **Define work needed to plan, develop, acquire, test, startup, and operate a transportation system**
- **Provide increasing levels of details in scheduling to serve as a long-range plan to budgeting/scheduling work**
- **Provide a basis for ultimately developing a transportation system network**

HIERARCHY OF SCHEDULE BAR CHARTS

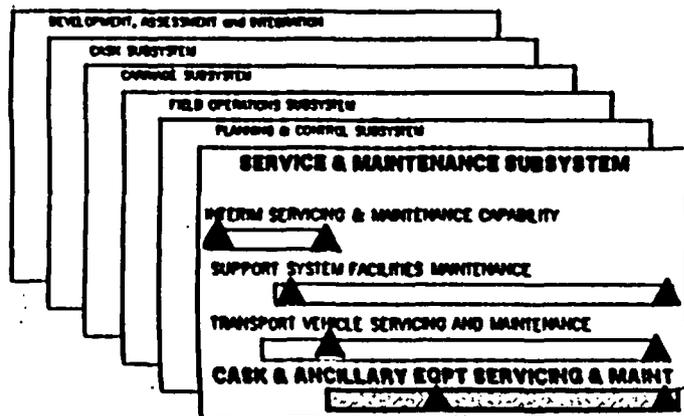
LONG-RANGE TRANSPORTATION OPERATIONS PLANNING



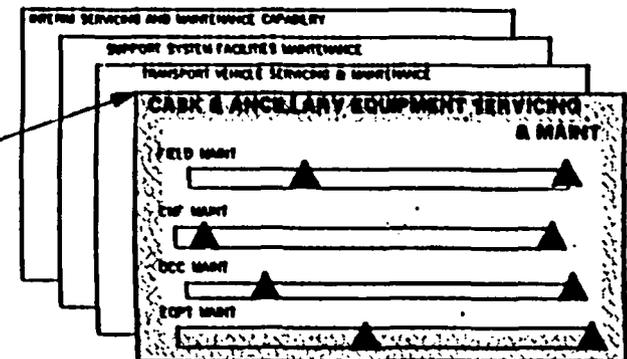
Schedule from 80 Day Report to Congress
LEVEL 0



Transportation Operations System
LEVEL 1



Service & Maintenance
LEVEL 2



Cask & Ancillary Equipment
Servicing & Maintenance
LEVEL 3

Addressing “Gridlock” Issues

- **Development of detailed traffic management policies and procedures planned in 1993 - 1995**
- **Assessment of need for procedures to address traffic congestion issues included for traffic management planning**

Estimate of Maximum Exposure to Members of Public in “Gridlock”

International Atomic Energy Agency (IAEA) Regulation

- **Implements philosophies and principles**
- **Defines annual public dose equivalent limits**
 - **Applies to “Critical Group” (homogeneous, exposure typical of individuals receiving highest dose)**
 - **Limit is 0.5 rem (exclusive of background and medical exposure)**

Estimate of Maximum Exposure to Members of Public in “Gridlock” (Cont’d.)

Maximum exposure of critical group in gridlock

- **Assumptions:**

- **Group located 1 m from vertical plane of trailer**
- **4 - 8 people in vehicles closest to trailer**
- **Gridlock lasts 2 - 4 hours**
- **No remedial action to move group members**
- **Exposure rate to group, 5 - 10 mrem/hr**

- **Conclusions:**

- **Exposure to group member, 10 - 40 mrem**
- **Exposure would be 2 - 8% of IAEA annual public dose equivalent limits**

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