



# *Preparation of Waste Shipments Cask Vendor Perspective*

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**NWTRB Meeting, Las Vegas, NV, January 21, 2004**

## Information Flow

- ▶ **What are your key Yucca Mountain security and safety concerns?**
- ▶ **How have you been able to address those concerns on the basis of the information and resources that DOE has provided to date?**
- ▶ **What concerns have you been able to address? What does DOE need to provide to allow this to happen?**
- ▶ **How long will it take you to address those outstanding concerns once the DOE has provided what you need?**

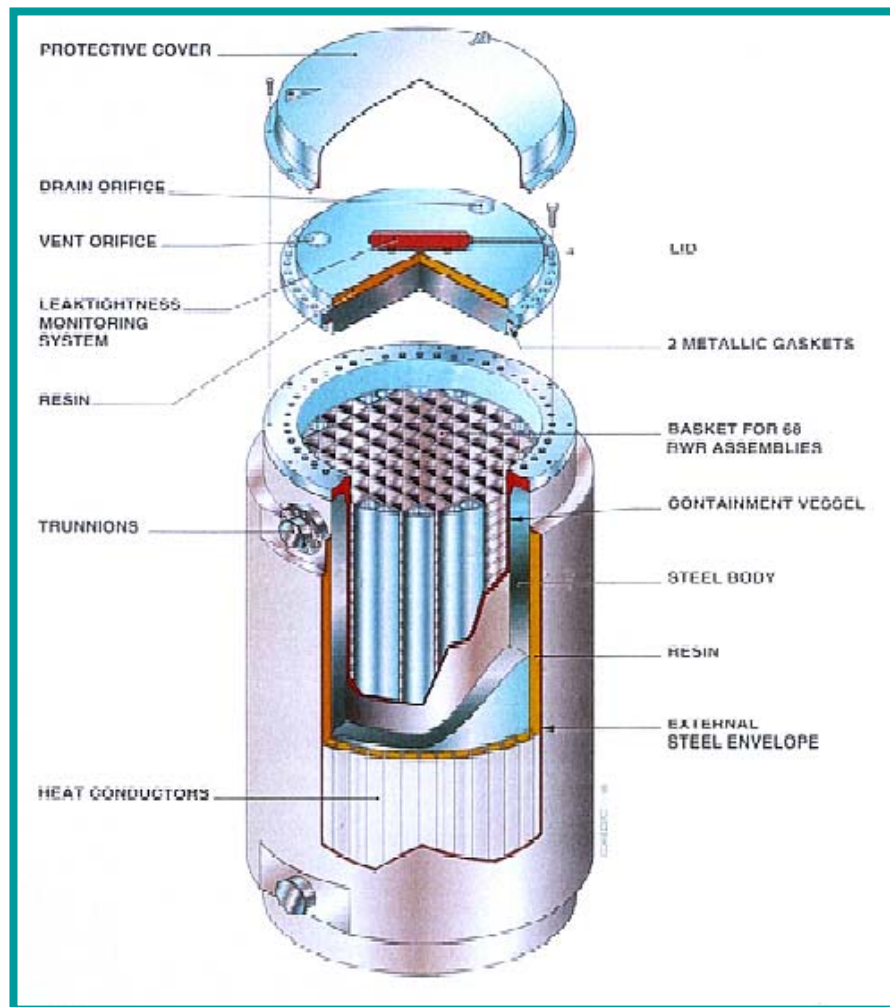
## Lessons Learned

- ▶ **What were (are) the objectives and characteristics of the shipping campaign?**
- ▶ **From a safety and security perspective, what worked (works) well and what did not (does not)?**
- ▶ **What experiences and lessons learned may be transferable to the Yucca Mountain Transportation Program?**

- ▶ **More than 3 decades of safe spent fuel transportation**
- ▶ **Comprehensive experience in all aspects of transportation**
- ▶ **A well established US presence**
  - ◆ **Transnuclear, Inc. was formed in 1965 specifically for spent fuel transport**
  - ◆ **TN, Inc. has a team of almost 100 Engineers specializing in nuclear material packaging and transportation**

Example:

TN68 Dual Purpose Cask – Part 71 and Part 72 certificates



- ▶ Vitrified residues (HLW) are routinely transported in heavy casks
- ▶ Up to 28 HLW canisters per cask

**HLW Cask  
Loading  
Operations**



**TN 28 V HLW  
CASK**

- ▶ **Foreign research reactor fuel to Savannah River and Idaho, more than 250 shipments**
- ▶ **TN9 cask shipments (1980's)**
  - ◆ **Dresden fuel to West Valley**
  - ◆ **Oyster Creek fuel to West Valley**
- ▶ **TN8 cask shipments**

**PWR fuel shipped from Oconee to McGuire**
- ▶ **Numerous PIE shipments**



▶ The COGEMA group has safely transported LWR Spent Fuel from world-wide customers:

- ◆ 30 000 MTHM over 30 years



▶ Transportation of Vitrified Residues Canisters (HLW):

- ◆ 900 tons of HLW (1800 canisters)



▶ 50 Heavy Transport Casks



▶ 10 Special Heavy Haul Trailers



▶ 30 Dedicated Railcars



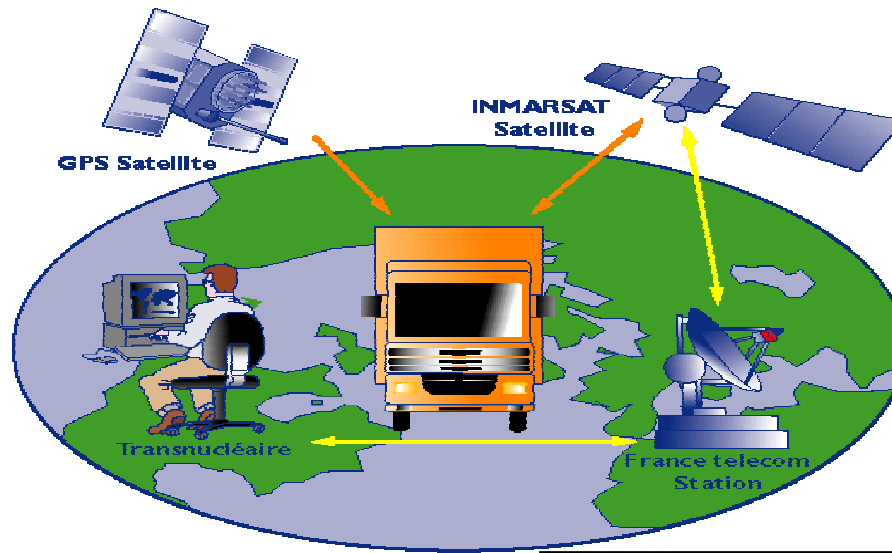




- ▶ **The Valognes terminal. The world's biggest facility dedicated to the transfer of casks from rail to truck.**



# REAL TIME TRACKING, CONTINGENCY PLANS



- ▶ **Expertise in emergency response plan**
  - ◆ Provide requirements and guidelines in the event on off-normal event or emergency
  - ◆ Heavy load recovery system
  - ◆ Address co-ordination with on-scene response personal, notifications with authorities (local, central, international jurisdictions), media communication.
  
- ▶ **Expertise in security measures**
  - ◆ Provide guidelines and requirements for establishing, acquiring, maintaining and integrating physical security
    - (organisation, threat assessment, staffing, security procedures, security communication, training)



- ▶ **International experience in dealing with opposition groups**
- ▶ **A database of Q&A**
- ▶ **Experienced lobbyists**
- ▶ **Trained media staff**



## ► Expertise in multi-modal transportation

- ◆ (Sea, air, road, rail)

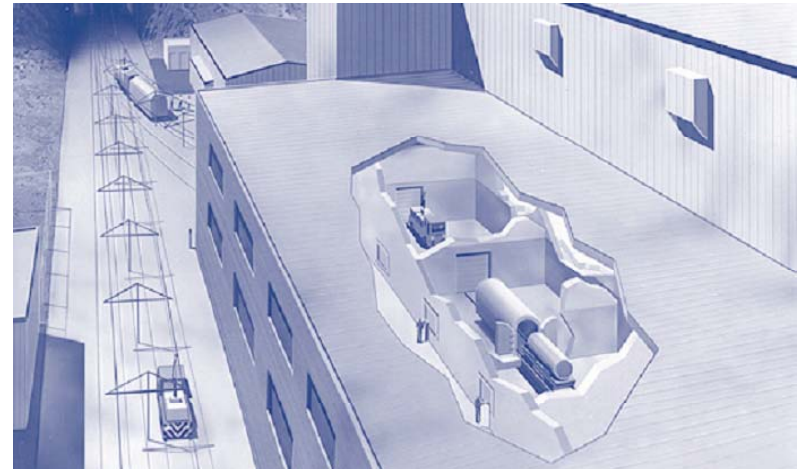
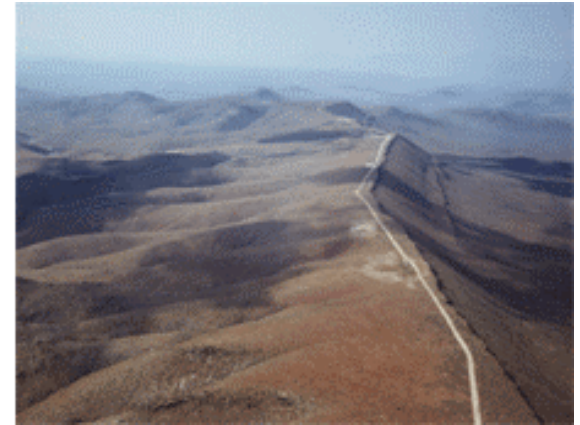


Nb of annual transports	1999	2000	2001	2002
French spent fuel	157	191	145	185
European spent fuel	9	12	44	61
Vitrified waste (incl. Japan)	6	11	20	22
PuO <sub>2</sub> and MOX (incl. Japan)	150	149	187	175
Low Level Waste	643	684	757	700
<b>Total</b>	<b>965</b>	<b>1047</b>	<b>1153</b>	<b>1143</b>

- ▶ **COGEMA is a partner with Duke Energy and Stone & Webster in the DOE MOX project**
- ▶ **COGEMA is designing packaging for the MOX assemblies and assisting DOE with the transport.**



- ▶ **Cogema, Inc has been contracted by BSC for designing the handling equipment for the YM Surface Facilities.**



# *DOE- WIPP Package for Remote Handled TRU*

- ▶ **PacTec, has taken the RH 72B Transportation Cask from initial conceptual design and licensing, initiated in '97, through production of the first six packages**



***We deliver solutions to some of DOE's biggest problems***

- ▶ PacTec is developing TRUPACT-III for DOE/WTS, based on the TN Gemini.

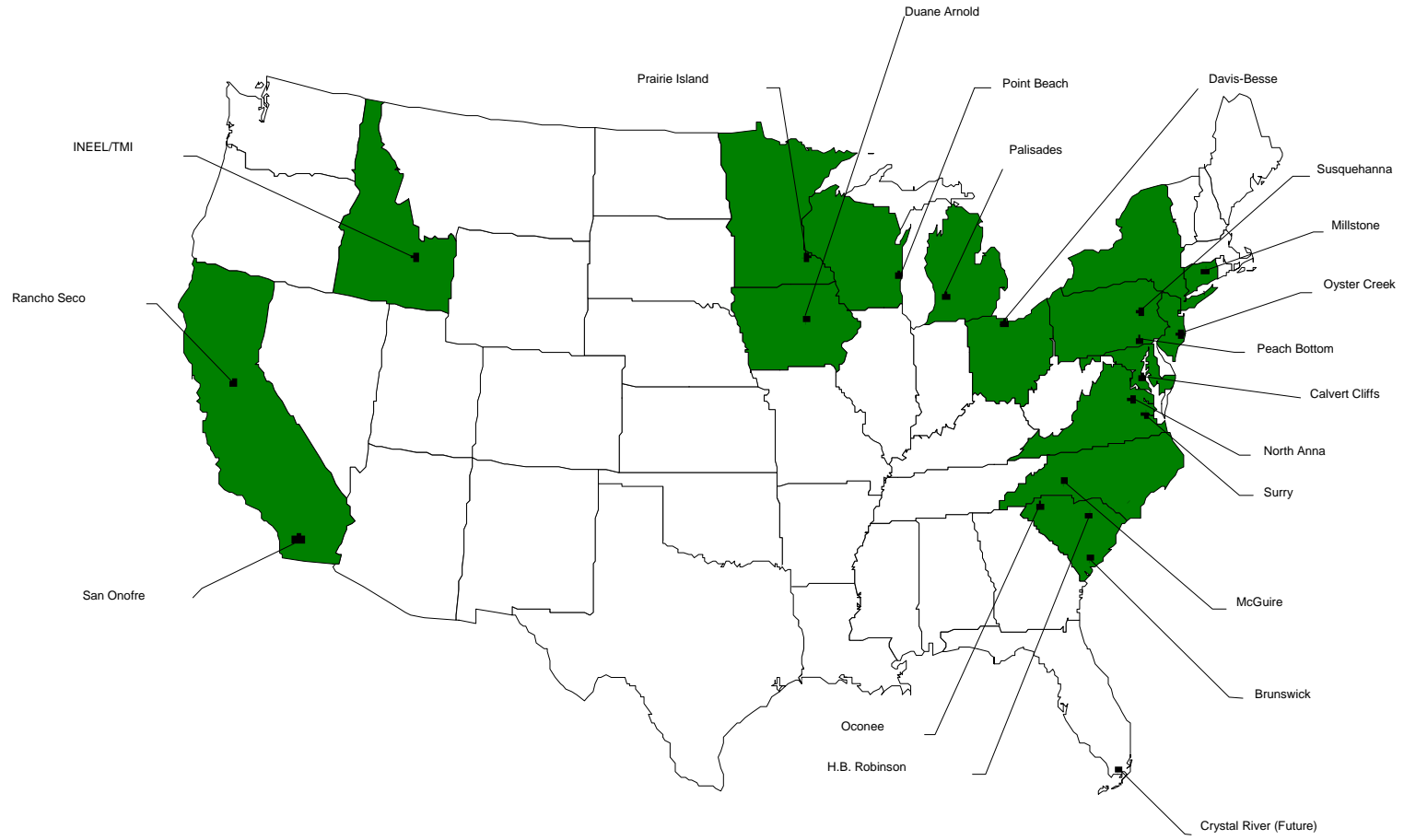


- ▶ **TN supplied DOE casks for West Valley shipments**



**TN REG and TN BRP casks were safely shipped in 2003**

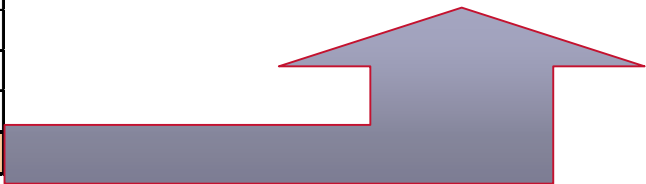
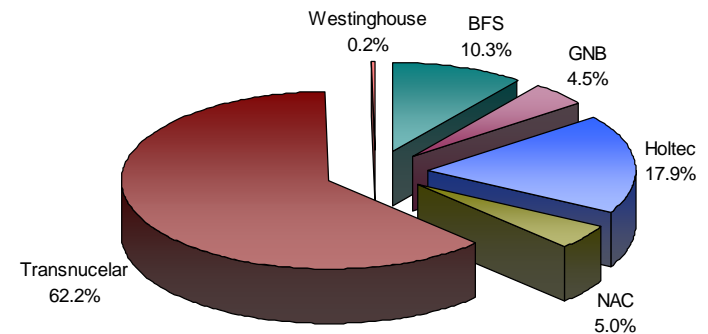
# TN DRY STORAGE SERVING TWENTY ISFSI LOCATIONS



9700 of the approximately 13,000 SFAs in dry storage are stored in TN systems

	ISFSI	Model	Loaded	
			Casks	SFA
NUHOMS®	Brunswick	61BT	—	—
	Calvert Cliffs	24P	40	960
	Crystal River	32PT	—	—
	Davis-Besse	24P	3	72
	Duane Arnold	61BT	10	610
	INEEL/TMI-2	12T	29	177
	Millstone	32PT	—	—
	North Anna	32PTH	—	—
		24PTH	—	—
	Oconee	24P	78	1872
	Oyster Creek	61BT	8	488
	Palisades	32PT	—	—
	Point Beach	32PT	—	—
	Rancho Seco	MP187	21	493
		24PTH	—	—
	Robinson	7P	8	56
		24PT1	5	120
	SONGS	24PT4	—	—
	Surry	32PTH	—	—
		52B	25	1300
	61BT	—	—	
TN Cask	McGuire	TN-32	10	320
	North Anna	TN-32	19	608
	Peach Bottom	TN68	20	1360
	Prairie Island	TN-40	17	680
	Surry	TN32	20	640
	<b>Total</b>		<b>313</b>	<b>9756</b>

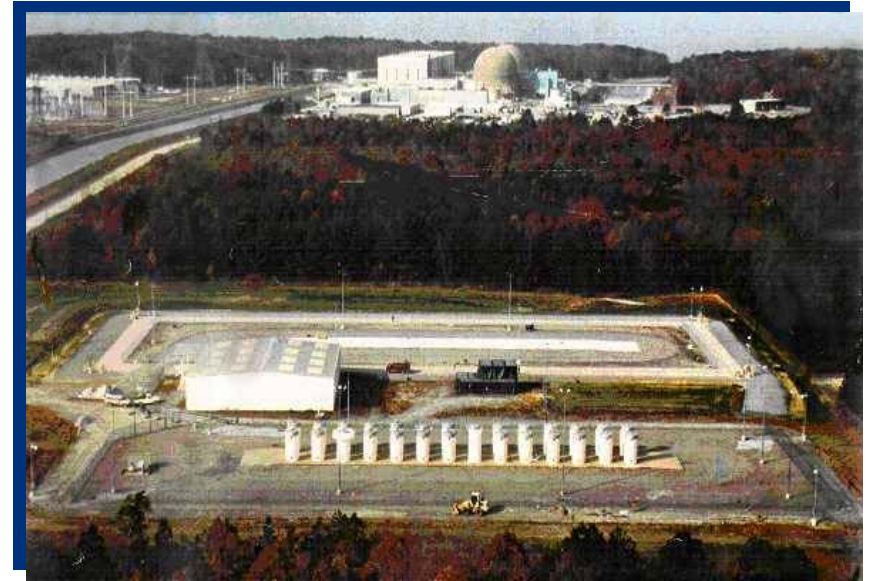
Total Fuel Stored By Vendor





## ► Site Specific license

- ◆ First TN 32 loaded in 1996
- ◆ 20 casks loaded at Surry
- ◆ 19 casks loaded at North Anna
- ◆ 53 casks ordered



- ▶ **Dual Purpose BWR casks (Part 71 & Part 72 licensed)**
- ▶ **20 Casks loaded**
- ▶ **44 Casks Ordered**
- ▶ **Ready to ship to Yucca Mountain**





- ▶ **Transnuclear, Inc. provides cask and transport solutions to the commercial sector**
- ▶ **Transnuclear, Inc. has also provided DOE with shipping casks**
- ▶ **Transnuclear, Inc. can provide DOE a gateway to the worldwide operational experience of COGEMA is a safe spent fuel transport system which spans more than three decades.**

## CHARACTERISTICS OF THE YM SHIPPING CAMPAIGN?

- ▶ Long distances from the sites to the YM facility
- ▶ Multi modal shipments will be required (Truck/rail/barge)
- ▶ Multiple stakeholders – states, tribes etc.
- ▶ Safety and Security are of PRIMARY IMPORTANCE

### COGEMA'S WORLDWIDE SHIPPING CAMPAIGNS

Same order of magnitude, Multimodal shipping,  
Trans-continental distances, Multiple  
Stakeholders etc.

**SIMILAR CHARACTERISTICS TO YM**

## WHAT WORKS WELL?

- ▶ **The regulations for packaging and transportation are well established and effective**
- ▶ **IAEA regulations adopted worldwide**
- ▶ **Cask safety has been demonstrated by:**
  - ◆ **An excellent safety record**
  - ◆ **Public demonstration tests**

**Any 'Package Performance tests' should be at regulatory limits. This will increase public confidence.**

## USING LESSONS LEARNED?

- ▶ **US experience-domestic and FRR programs**
- ▶ **WORLDWIDE – COGEMA experience in safely shipping thousands of casks over long distances**
  - ◆ **Pre planning, public outreach, logistics, fleet management, emergency planning, etc.**
  - ◆ **Security aspects**
    - **COGEMA casks have been tested for sabotage/aircraft crash**
    - **Shipments have been carefully managed from a security aspect. (convoys of casks)**

**Public outreach is an industry priority. We share a collective responsibility for promoting safe transportation systems.**

## OTHER LESSONS LEARNED FOR YM?

- ▶ **COGEMA Worldwide experience can be adapted for use in the US**

### Examples

- ◆ **YM Surface Facility mechanical handling equipment is being designed by a COGEMA team of engineers in Las Vegas right now.**

**COGEMA has the technology and infrastructure to help DOE make the best use of our experience**



## WHAT SHOULD DOE PROVIDE TO VENDORS?

- ▶ **An opportunity to learn what the COGEMA Group has to offer DOE**
  - ◆ Initial meeting with G. Lanthrum's team scheduled for January 27, 2004
  - ◆ Other meetings?
- ▶ **A clear statement of DOE needs for casks**
  - ◆ Bare fuel only?
  - ◆ Heavy casks/LWT casks?
  - ◆ Fuel specifications
  - ◆ Interfaces/constraints

**CONTINUE TO TALK TO US**

**INDUSTRY WANTS THE PROGRAM TO SUCCEED**

**THANK YOU**