

# **Report of Inspection Results of the First Dry Storage Cask at Fukushima Daiichi Nuclear Power Station**


**March 27, 2013**

**Tokyo Electric Power Company**

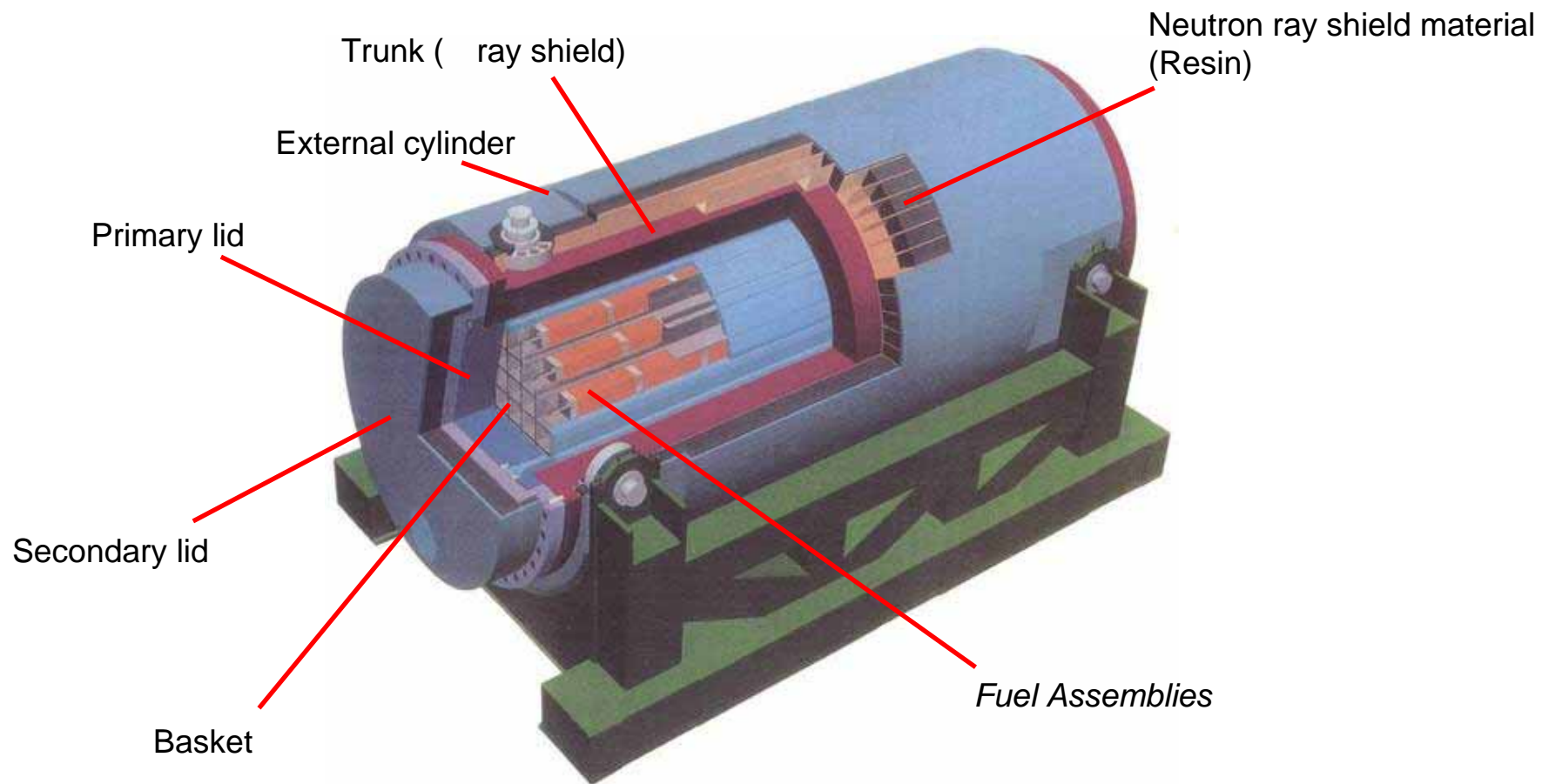
TEPCO has performed inspection of the first dry storage cask, one out of the nine dry storage casks stored at the cask storage facility at Fukushima Daiichi Nuclear Power Station. The cask was transported from the cask storage facility to the common pool building on site for inspection.

The inspection confirmed that there were no abnormalities in the cask body. On top of that, there were no abnormalities to the external appearance of the fuel assemblies that were taken out as representative samples.

Inspection schedule of the first cask (performed)

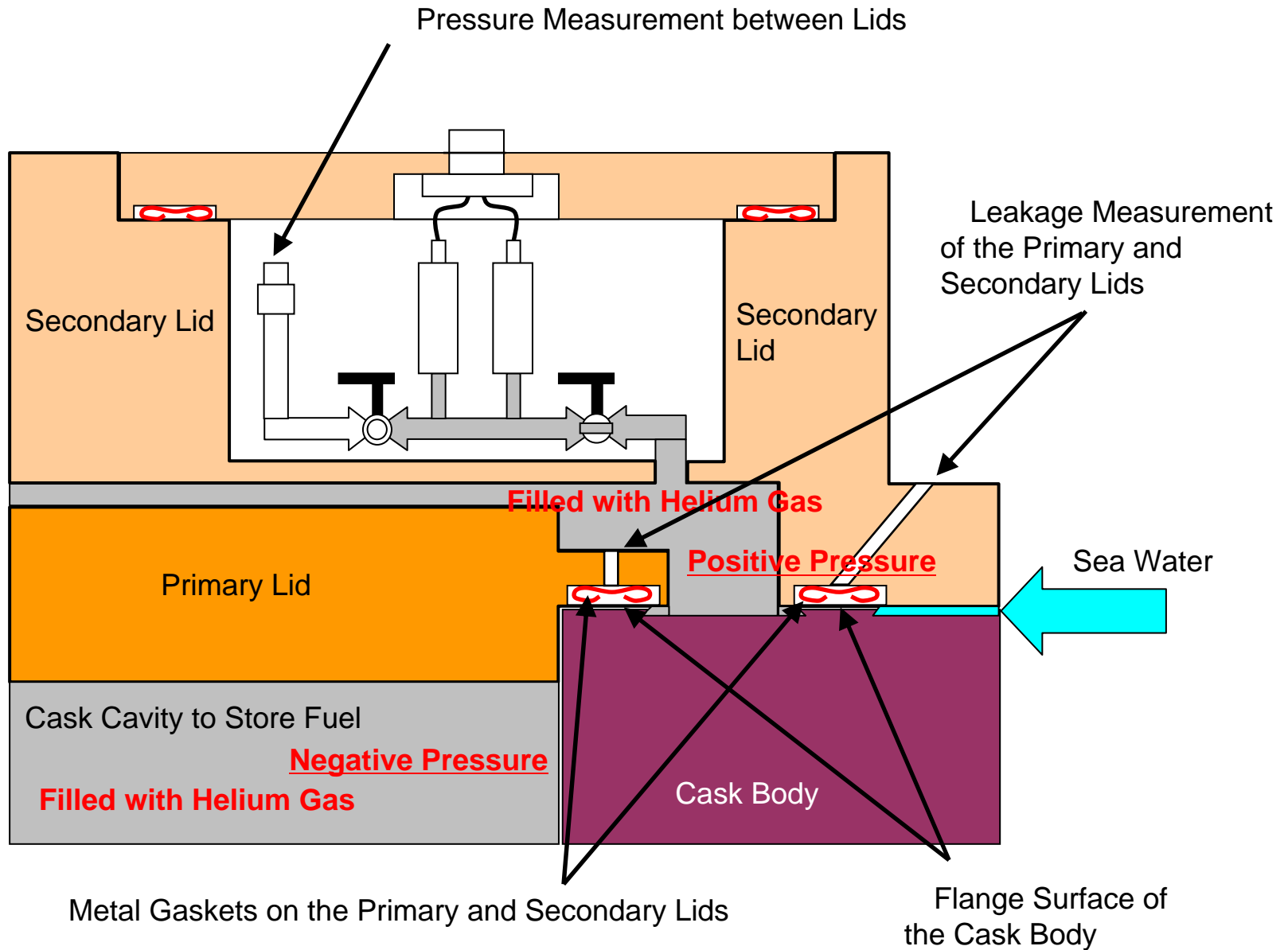
	2013
	March
inspection of the first dry cask	3/22 ~ 25 

## Bird's Eye View of the Dry Storage Cask



	Medium size cask ( inspected one)
Outer Diameter	2.2 m
Total Length	5.6 m
Total weight (including fuels)	96 tons
Number of stored fuels	37

# Cross Section of the Lid Structure of the Dry Storage Cask



## Inspection Result of the First Dry Storage Cask

---

### (Containment Function)

#### 1 . Leakage Rate of the Primary and Secondary Lids

-It was confirmed to be less than the criterion,  $1 \times 10^{-6} \text{ Pa} \cdot \text{m}^3/\text{s}$ .

#### 2 . Pressure between Lids

-It was confirmed to be more than the criterion,  $0.29 \text{ MPa} \cdot \text{abs}$ .

#### 3 . External Appearance of the Flange Surface of the Cask Body

-It was confirmed that there were no abnormalities such as flaws, cracks, etc.

#### 4 . External Appearance of the Metal Gaskets for the Primary and Secondary Lids.

-It was confirmed that there were no abnormalities such as flaws, cracks, etc.  
on the primary gasket.

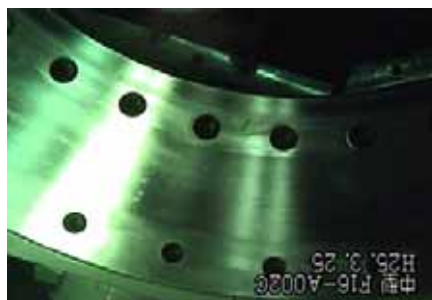
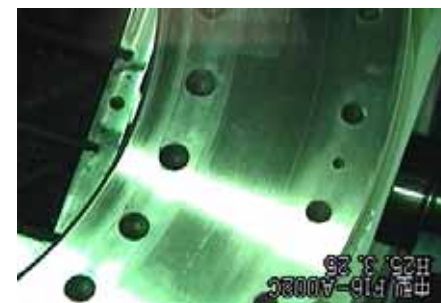
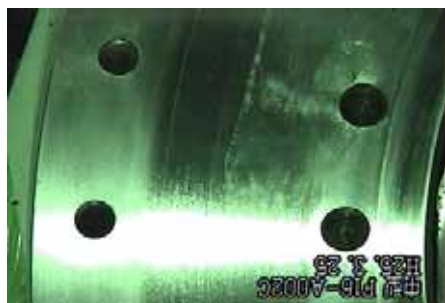
-It was confirmed that the metal gasket for the secondary lid was corroded at the outer circumference by the sea water intrusion, but that there was no penetration and the cask cavity was separated from the external environment.



It was confirmed that there was no problem to the containment function.

## External Appearance of Cask Flange Surface

Observation of the flange surface of the dry storage cask



It was confirmed that there were no abnormalities such as flaws, cracks, etc.

## Inspection Results of the First Dry Storage Cask

---

### (Sub-Criticality Function and Fuel Integrity)

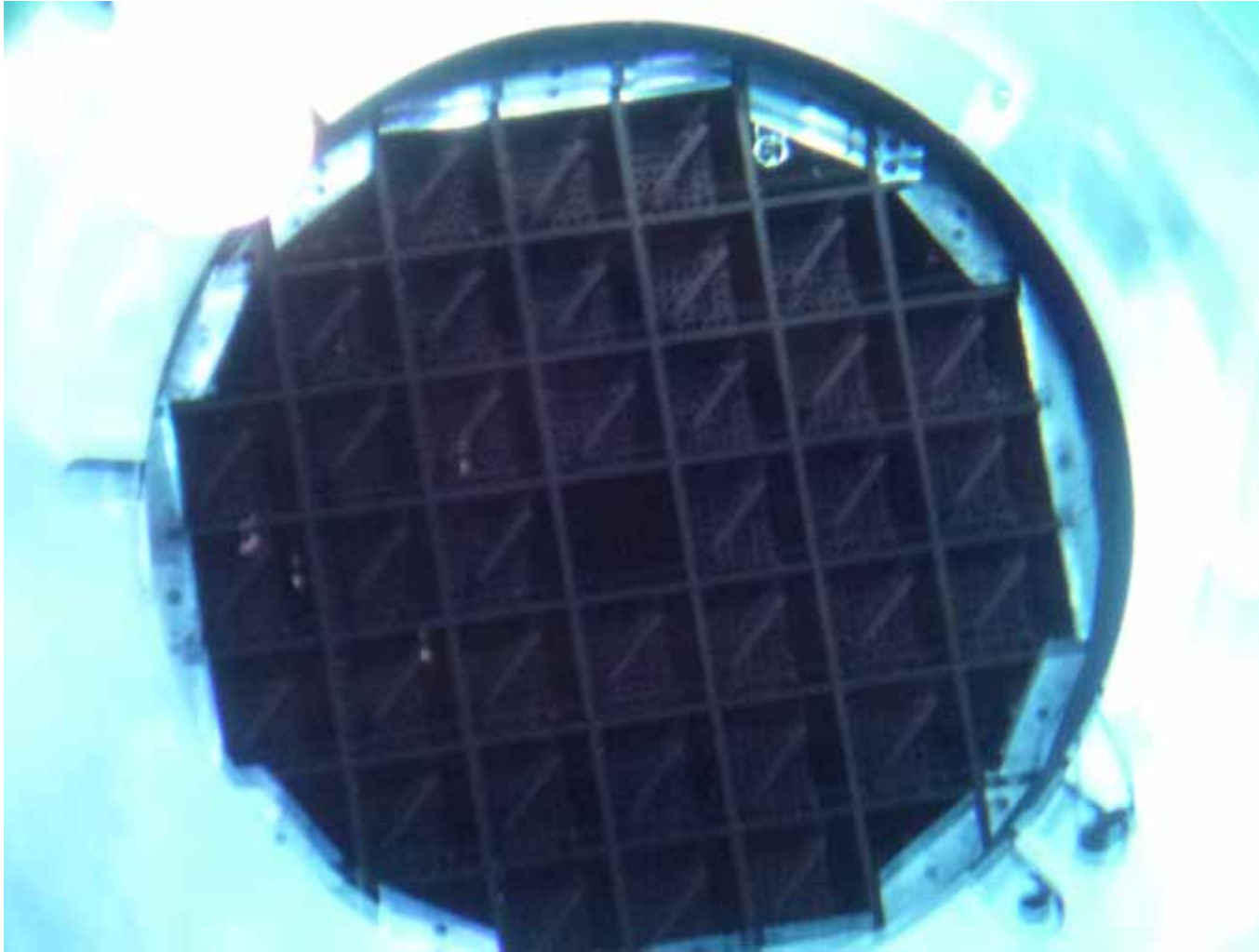
- 1 . Result of External Appearance Observation of Basket
  - It was confirmed that there were no abnormalities such as deformation, damage, etc. in the basket (by the overall observation from above).
- 2 . Result of External Appearance Observation of Fuel Assemblies
  - It was confirmed that there were no abnormalities such as deformation, damage, etc. to three representative samples of fuel assemblies by external observation (four sides).
- 3 . Result of Internal Gas Sampling from the Dry Storage Cask
  - It was confirmed that there was no significant change in the monitoring Krypton gas and that the stored fuel claddings were sound.



It was confirmed that there was no problem to the sub-criticality function and fuel integrity.

## Result of External Appearance Observation of Basket

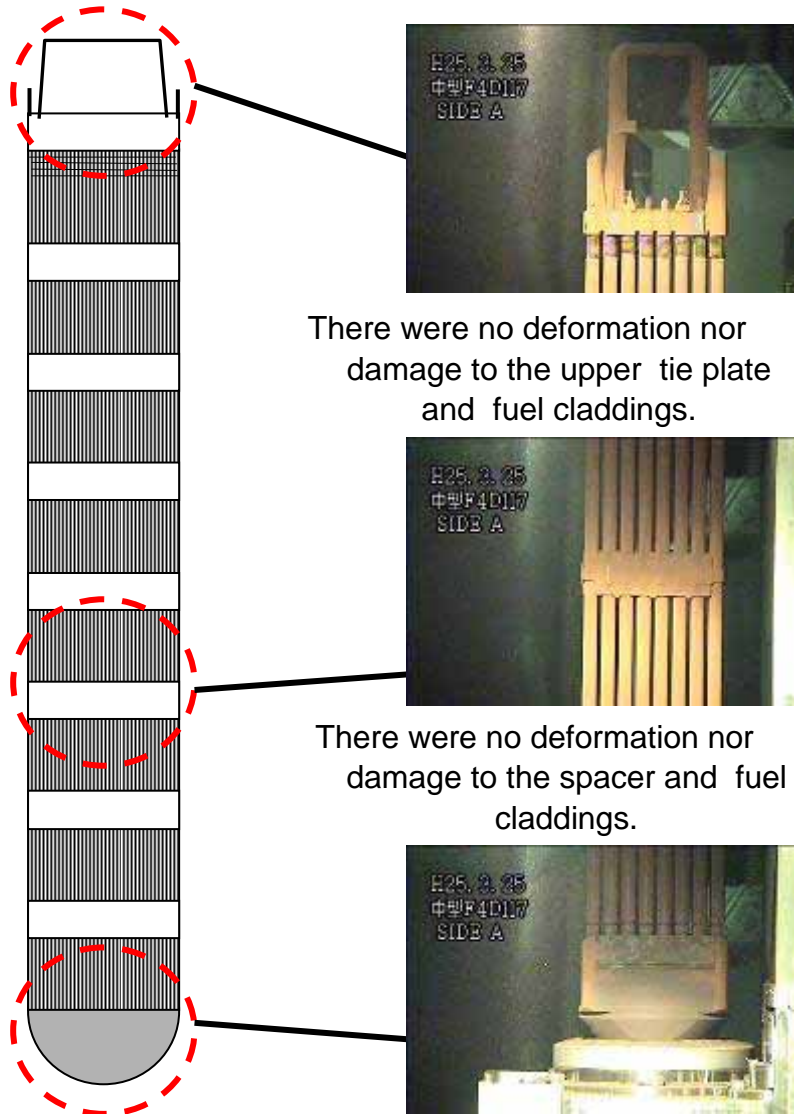
---



It was confirmed that there were no abnormalities such as deformation, damage, etc.



## Result of External Appearance Observation of Fuel Assemblies



There were no deformation nor damage to the upper tie plate and fuel claddings.

There were no deformation nor damage to the spacer and fuel claddings.

There were no deformation nor damage to the lower tie plate and fuel claddings.

Examples of Inspection Results

It was confirmed that there were no abnormalities such as deformation, damage, etc. in the three spent fuel assemblies.

It was observed that there was crud flaking from the surface of one of the three claddings, which does not affect the fuel integrity.



## Inspection Results of the First Dry Storage Cask

---

### (Heat Removal and Shielding Functions)

It has been confirmed that there were no abnormalities in the surface temperature and radiation level of the cask and that there were no problems in the heat removal and shielding functions.

---

After the inspections, the cask will be installed with the primary and secondary lids, and restored with vacuum drying process, etc. After the restoration and preparation, the cask will be transferred on site to the dry cask temporary storage facility and stored.

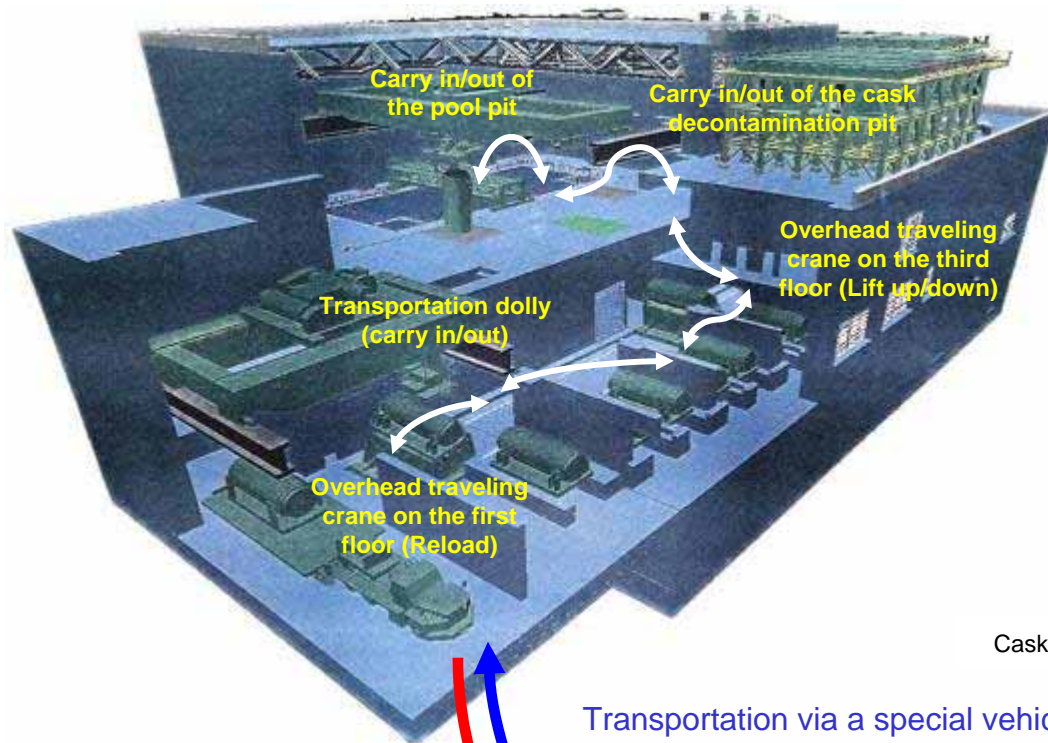


This cask is used for the first storage of fuel at the dry cask temporary storage facility. After the transfer, the operational commencement of the dry cask temporary storage facility will be reported.

Similarly, the remaining 8 dry storage casks will be transferred from the cask storage building after necessary preparation to the common pool for inspection. After inspections and confirmation of the safety functions, those casks will be transferred on site to the dry cask temporary storage facility and stored.

# (Information) Transfer of Existing Dry Storage Casks and Inspection

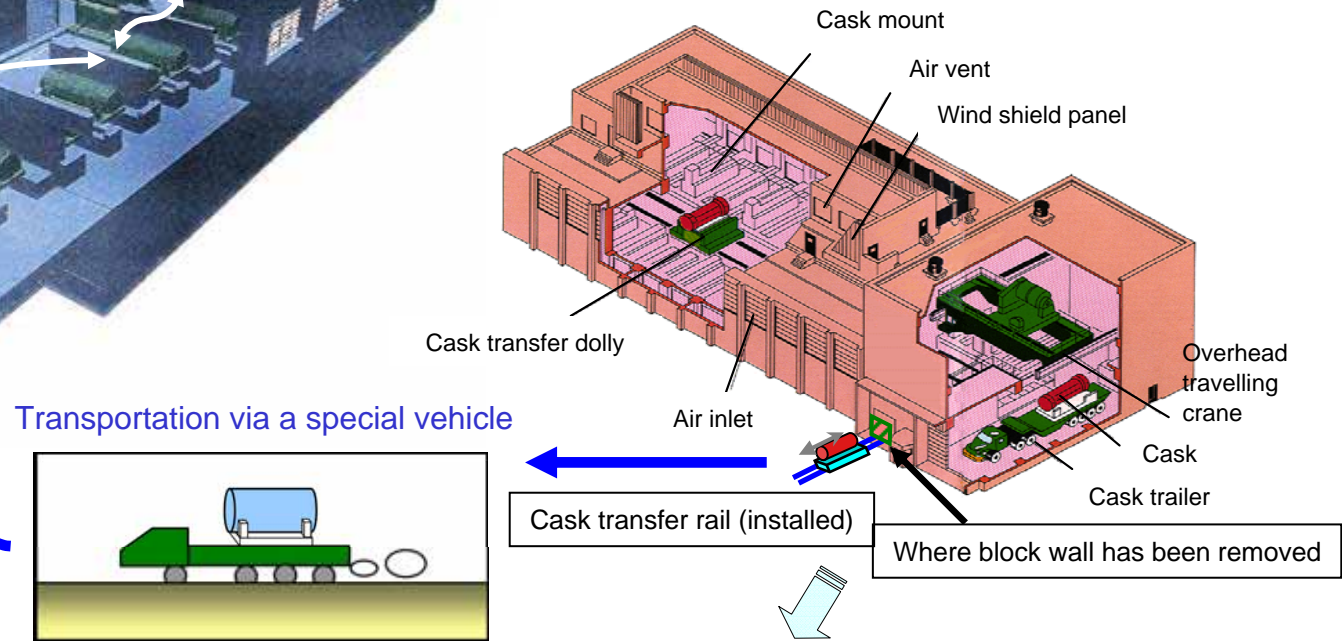
## Common pool



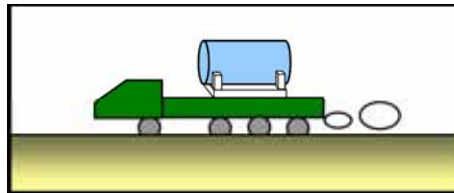
## Transfer of Dry Storage Cask

1. From the cask storage building to the common pool
2. Inspection and maintenance at the common pool
3. From the common pool to the dry cask temporary storage facility

## Cask storage building



Transportation via a special vehicle

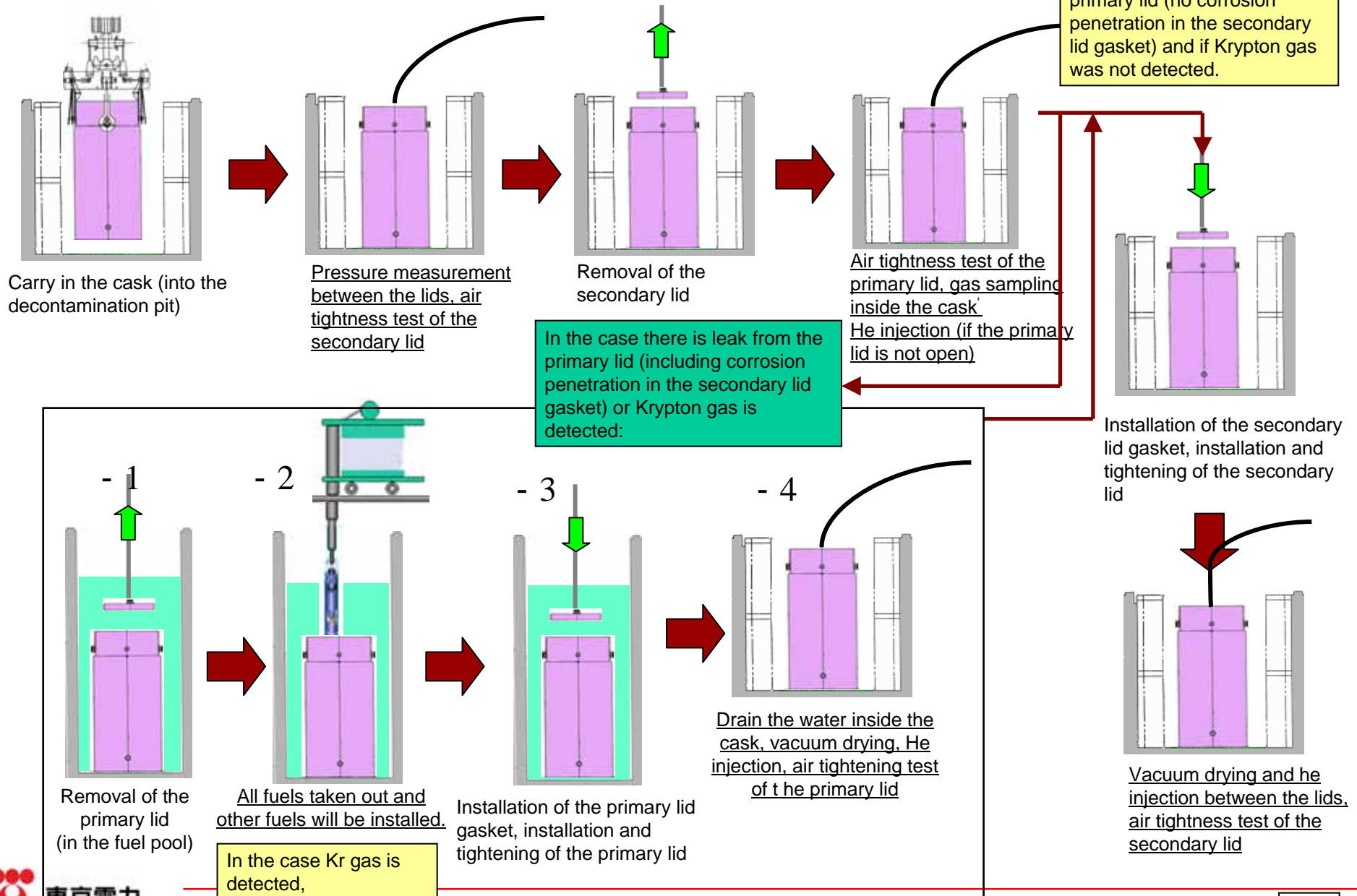


To the temporary dry cask storage facility

New exit and cask transfer rail were installed, because the overhead crane for the dry storage casks can not be used due to the disaster.

# (Information) Inspection of the Dry Storage Cask

## Inspection flow of the remaining 8 casks (in the common pool)



## (Information) Outline of the Temporary Cask Storage Facility

- Number of storage casks : 50 (Space for 15 casks is reserved for future.)
- Each cask is covered with a concrete module.
- Base structure : The ground was improved and the base plate was installed.
- Cask support structures were installed as in the existing cask storage building
- and are tie-downed with fixture bolts.
- A gantry crane is installed to handle the casks, etc.

