

Abstract

Inspection of fuel cladding and metal gasket in metallic dry cask at TOKAI No.2 power station**Takeshi FUJIMOTO**

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The metallic dry cask storage of spent fuel started in December 2001 at TOKAI No.2 power station. The cask for the storage can accommodate 61 fuel assemblies of BWR. The storage facility can contain 24 casks. Fifteen casks are in charge at the moment in the facility. The inspection of cask and spent fuel assemblies was conducted in January 2009.

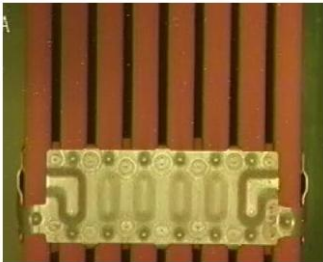
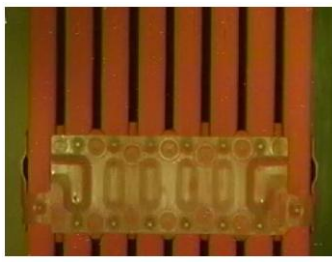
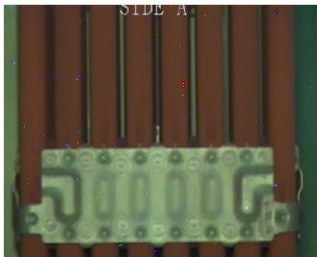
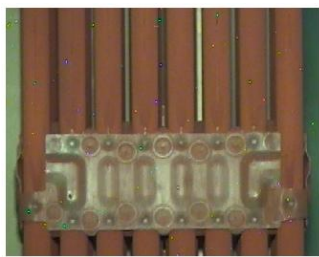

The cask that had served for 7 years was inspected. The objective of this inspection is confirmation of fuel cladding and metal gasket integrity. This cask accommodates 8X8 Zirconium liner type fuel. The gasket applied to this cask consists of aluminum outer lining and Inconel spring.

The integrity of fuel cladding was confirmed with Kr-85 gas monitoring and visual inspection of fuel assemblies. In the gas monitoring, Kr-85 was not detected. In the visual inspection, two assemblies of the highest burn up in the cask were selected. The result of visual inspection is shown in Table 1. The appearance of fuel assemblies remains the same as observed at the time the storage started.

The integrity of metal gasket was confirmed with Helium gas leak test and visual inspection. As shown in Table 1, the result of leak rate was nearly the same as obtained at the time the storage started. The result of visual inspection is shown as the pictures in Table 1. The gasket was intact. No scratch, crack or oxidation was observed.

This inspection confirmed that there had been no damage in fuel cladding and metal gasket during the storage for 7 years.

Table 1 Result of inspection of fuel cladding and metal gasket

	Fuel ID	HTK016	TLJ011	
	Fuel Type	8X8 Zirconium liner bearing		
	Storage period at the time of inspection conducted	Approx. 7 years		
	Burn up	Up to approx. 33,500MWd/t		
	Cooling period in wet pool before storage	Approx. 8 years	Approx. 9 years	
Fuel assemblies	Visual inspection of fuel	At the beginning of storage in 2002		
		At the inspection in 2009		
Gasket	Visual inspection of primary lid metal gasket			
	Leak rate of primary lid metal gasket	At the beginning of storage in 2002	1.6X10 ⁻¹⁰ Pa·m ³ /s	
		At the inspection in 2009	9.0X10 ⁻¹¹ Pa·m ³ /s	