Experience of Spent Fuel Transportation at Tokai and Tokai-2 Power Stations

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Tokai Power Station was an improved version of the Colder Hall type power plant that was originally developed and put into operation in the UK.

Tokai Power Station is the first commercial nuclear power plant in Japan and has kept steady operation since its commissioning in 1966, but stopped operation in 1998 because of economical reasons such as increase of operation and maintenance cost.

Spent fuel elements (natural uranium with Magnox sheath) had been transported from Tokai Power Station to the Sellafield reprocessing plant of British Nuclear Fuels plc (BNFL), utilized TK and TK-MK2 with ships of Pacific Nuclear Transport Limited (PNTL).

TK flasks designed and manufactured by BNFL had been in use until 1983 to transport spent fuels from Tokai Power Station.

TK-MK2 flasks (improved TK flasks) had been in use since 1984 and re-licensed in accordance with the Japanese law and IAEA Transport Regulations, 1985 Edition.

From 1969 until 2001, 71 shipments (about 130000 spent fuel elements (1,500tU)) had been transported from Tokai Power Station.

It indicates that ships travel enormous distances of about 1.6 million kilometers.

The last spent fuel element was transported in June 2001.

Tokai-2 Power Station is continually updating the Japan record for accumulated power generated by the Boiling Water Reactor (BWR) unit.

About 2000 spent fuel assemblies are transported from Tokai-2 Power Station to BNFL (used Excellox-3B/3 and Excellox-4 casks) or La Hague of COGEMA, France (used TN-17 casks) or Tokai of Japan Nuclear Cycle Development Institute (JNC), Japan (used HZ-75T casks) or Rokkasho of JNFL, Japan (used NFT-32B casks).

So far transportation has been performed without any significant accident.

This experience would be utilized for the operation of onsite dry storage system and domestic transport to the reprocessing plant or interim storage facility in the future.