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## FULL SYSTEM DECONTAMINATION AND COUNTERMEASURES AGAINST RECONTAMINATION OF THE FUGEN NUCLEAR POWER STATION

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**Principal Investigator:**

Y. Naoi  
Power Reactor and Nuclear Fuel  
Development Corporation  
3 Myojin-cho  
Tsuaruga-shi, FUKUI-KEN 914  
JAPAN

**Phone:** +81 770 26 1221

**Project Manager:**

T. Kitabata  
Power Reactor and Nuclear Fuel  
Development Corporation  
3 Myojin-cho  
Tsuaruga-shi, FUKUI-KEN 914  
JAPAN

**Phone:** +81 770 26 1221

**Objectives:** This study describes the full system decontamination experiences and effects of endeavors against recontamination at Fugen Nuclear Power Station in Japan.

**Comments:** The system decontamination procedure consisted of four processes:

1. heating - the temperature of the reactor coolant was raised to 120°C after nitrogen had been injected to deoxidize the coolant
2. decontamination - the decontamination reagent Kuridecon-203 (KD-203) was added and circulated for 24 hours
3. purification - the decontaminate was purified to remove the reagent and radionuclides; conductivity of the coolant was reduced to 10 $\mu$ S/cm
4. purification and flushing - drain and bent tubes were flushed out or rinsed with pure water, and the primary coolant was purified completely until its conductivity was less than 1 $\mu$ S/cm; all the coolant was then discharged and refilled, and the purification, flushing and draining procedures were repeated.

**Remarks/Potential for dose limitation:** The two decontaminations in 1989 and 1991 saved occupational radiation doses of 6.6 and 7.8 man-Sv respectively. The ultrasonic fuel crud cleaning slightly lowered the recontamination rate after the decontamination of 1991 compared to that of 1989 without the cleaning. As a further countermeasure against recontamination, high-efficiency crud removal resins which reduce crud iron concentration in feedwater to less than 1 ppb are under evaluation at Fugen.

**References:** Naoi, Y. et al, "Full System Chemical Decontamination and Countermeasures Against Recontamination of the Fugen Nuclear Power Station," *Water Chemistry of Nuclear Reactor Systems 6*, Vol. 1, pp. 97-104, British Nuclear Energy Society, London, 1992.

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