

Mihama Unit 1 & 2 Radiological Management of System Decontamination for Decommissioning

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Kansai Electric Power has total 11 units at 3 nuclear power stations. Out of the 11 units, Mihama units 1 and 2 and Ohi units 1 and 2 have been determined to be decommissioned. For Mihama units 1 and 2, system decommissioning was performed in 2017 after its decommissioning plan was approved in April in the same year. The objective of the system decommissioning was to improve the working environment for dismantling plant facilities and reduce the amount of radioactive solid waste. The system decommissioning process, called the “CORD process” was introduced in Mihama, which used existing equipment, such as pumps and heat exchangers, and temporarily installed decontamination equipment, called the AMDA. Radiological management during the system decontamination process mainly consisted of the control of exposure doses, prevention of physical contamination and reduction of radioactive waste. In order to reduce doses received by workers, an effort was made to reduce the dose equivalent rate by assessing the dose equivalent rate in advance and then installing temporary shielding as much as possible for the areas with potential risks. In addition, measures were taken to prevent unnecessary exposure to radiation by introducing a well-established area control system and limiting the access to high radiation areas by workers other than those concerned. For the purpose of prevention of physical contamination, curing enclosure and drain cut-off weirs were installed using heat-resistant, water-proof sheets to prevent highly concentrated, contaminated water from leaking. As the result of the system decontamination, a greater amount of spent ion exchange resin was generated than expected due to a greater amount of dissolved Fe and Ni than expected. For radioactive gaseous waste, degassing devices were installed to dilute the radioactive gas concentration and temporary gas monitors were adopted to enhance the monitoring system. As a result, radioactivity of the released gas was determined to be non-detectable.