

Filtration Characteristics of Long-Term Operation in Vitrification Pilot Facility

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Abstract

One of the most promising technologies for the treatment of low- and intermediate-level radioactive wastes (LILWs) is vitrification technology. Korea Hydro & Nuclear Power. Co. Ltd. (KHNP) has launched the vitrification pilot facility with high temperature filter (HTF) system, which is one of air pollution control technologies with high collection efficiency for particulate matters and no need to cool off-gases below 200°C before treatment of off-gas. Ion exchange resins(IERs) and dry active wastes(DAWs) are vitrified in cold crucible melter and off-gas is generated during this vitrification process. Particulate matters(PMs) in off-gas were cleaned at first while passing by HTF system. Operation parameters for HTF system was derived from previous mid-term operation of vitrification and a long-term operation was performed in order to evaluate and adjust them. As a results, pressure drop was maintained stably in the range of 50 ± 10 mmAq during the long-term operation and temperature increased with time of operation and was stabilized eventually. PMs collection efficiency by HTF system increased than that of the mid-term operation. Hence, HTF system was operated stably in the long-term operation and its performance was good. The results of the operation will be used as basic data for the design of a future commercial vitrification facility for nuclear power plant.