

## Self-disposal of aluminum material radioactive waste through applying radioactive waste classification and self-disposal standards

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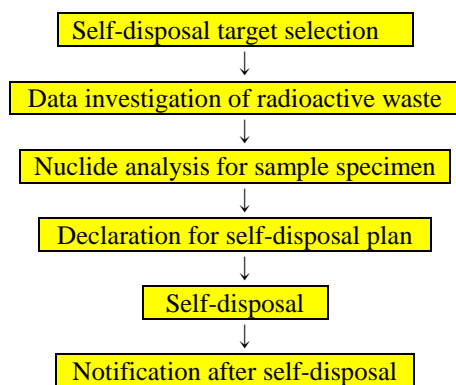
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### 1. Introduction

Research reactor fuel division in Korea Atomic Energy Research Institute(KAERI) has HANARO nuclear fuel manufacturing project. One of the goals of the project is the in-house production and supply of the nuclear fuel assemblies required for HANARO research reactor operation. During the nuclear fuel manufacturing process, aluminum radioactive waste is generated in the aluminum-clad concentric extrusion process and the CNC machining process. Self-disposal is one ways of reducing low and intermediate level radioactive waste. Here is an introduction to self-disposal carried out to reduce aluminum radioactive waste which is generated during HANARO research nuclear fuel assemblies manufacture.

### 2. Method and Results

This section describes the procedure for self-disposal of aluminum radioactive waste that is concerned about surface radiocontamination from radiation controlled area.



#### 2.1 Target selection and data investigation of self-disposal object

According to “radioactive waste classification and self-disposal standards” in notice of Nuclear Safety and Security Commission, wastes subject to self-disposal must meet the standards of allowable concentration for self-disposal. Also. We need to investigate data of wastes subject to self-disposal such as contamination type, quantity, reason of generation, period of

generation etc. These are information about aluminum self-disposal radioactive waste we investigated.

category of radioactive waste	aluminum
generation facility	SAEBIT fuel science building 203ho
type of contamination (surface or volume contamination)	surface contamination
weight(kg)	396
main nuclide	U-235, U-238

#### 2.2 Confirmation for nuclide and contamination level through sample analysis

Through sample analysis, the nuclides and contamination levels of radioactive waste can be determined. After that check whether self-disposal is possible by comparing the analysis result with the allowable concentration for self-disposal.

##### 2.2.1 Surface contamination measurement

The measuring device should be calibrated.

- Radiation does rate measurement : gamma survey meter
- Surface contamination measurement : proportional counter

##### 2.2.2 U-235, U-238 Allowable concentration

Sample analysis result is satisfied with allowable concentration.

- Self-disposal allowable concentration for low and intermediate level radioactive waste : 1 Bq/g

#### 2.3 Declaration for self-disposal plan

After collecting the data for the self-disposal, declare the self-disposal plan to Korea Institute of Nuclear Safety(KINS).

#### 2.4 Self-disposal

Once the self-disposal plan is approved, radioactive waste subject to self-disposal can be disposed of by itself. The aluminum radioactive waste is disposed of for recycling.

#### 2.5 Notification after self-disposal

After finishing self-disposal, notify the result of self-disposal to KINS.

### **3. Conclusions**

After self-disposal of low and intermediate level aluminum radioactive waste through radioactive waste classification and self-disposal standards, we could reduce radioactive waste and resource recycling. These are very helpful to preserve our environment and natural resources.

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