

Waste Characteristics Evaluating Strategy of KRR1&2 Reclassified Wastes by Applying the IAEA TECDOC 1537 (Strategy and Methodology for Radioactive Waste Characterization)

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1. Introduction

TRIGA MARK-2 & 3 was dismantled at the research site of Gongneung-dong, Seoul, and some wastes were reclassified due to the change of the some regulation policy in 2014. These reclassified wastes have historical specificity and extremely low-level wastes. While, even they are extremely low, still it needs to perform same process to disposal but it would be inefficient for these wastes. Therefore, it is believed that establishing a strategy for characterization evaluation in accordance with the IAEA report will help to carry out similar types of decommissioning waste disposal in the future.

2. Characterization of KRR reclassifying the waste

2.1 Waste Occurrence history

In the past, the wastes had been classified as clearance level wastes under 0.4Bq/g and stored, but after 2014 Notice (No.2017), they had to be reclassified as low-level wastes.). Since then, low levels waste between 0.1-0.4Bq/g based on gamma radioactivity have been additionally reclassified. Fig. 1 shows the distribution of Co-60, the representative nuclear species of decommissioning wastes.

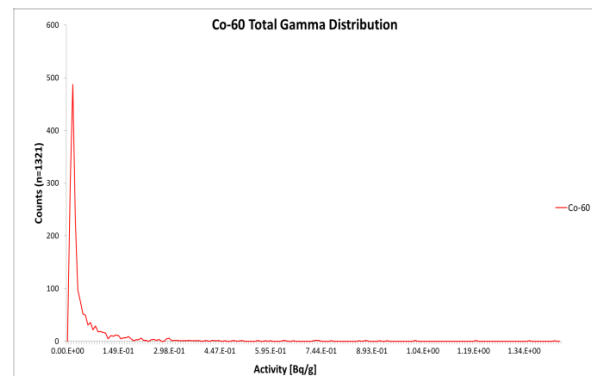


Fig. 1. Total distribution of Co-60 (Reclassified waste).

2.2 Consideration of dividing waste stream

KRR(Korea Research Reactor) basically have various characteristics same as common decommissioning wastes.

At the IAEA Report, it is referred to as “If partitioning is achievable, it will undoubtedly result in easier to manage streams and reduced treatment and disposal costs.” As a result, the feasibility of the separation about waste stream was examined through the results of nuclide analysis of KRR(Korea Research Reactor) Concrete waste disposal in the past.

2.2.1 Co-60 distribution by KRR1&2 stream.

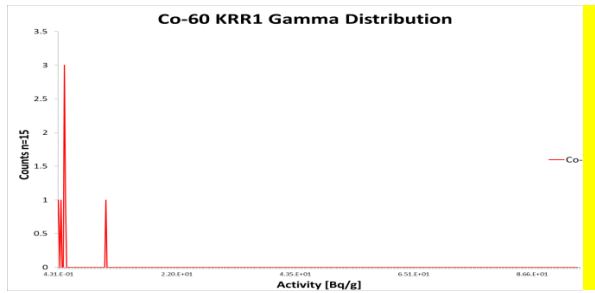


Fig. 2. KRR1 Concrete Co-60 Distribution
(Past disposed waste).

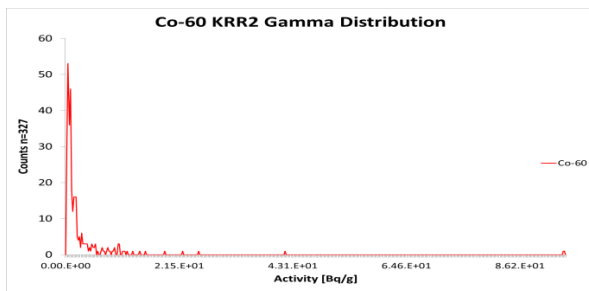


Fig. 3. KRR2 Concrete Co-60 Distribution
(Past disposed waste).

2.2.2 Co-60 distribution by total stream.

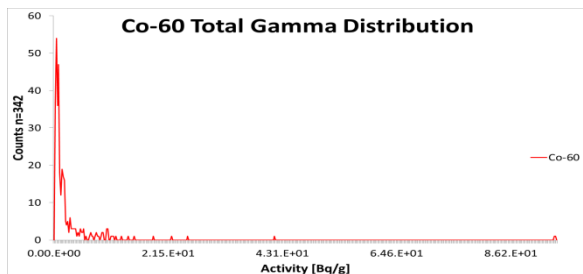


Fig. 4. KRR1&2 Concrete Co-60 Distribution
(Past disposed waste).

For this, the decision of reclassification waste stream cannot identify practical meaning for very low levels waste.

3. Waste Characteristics Evaluating Strategy in KRR

KRR reclassification wastes generated before the revision of the past law, so it is not easy to track the

waste stream through various deconstruction processes. The application of the scaling factor also cannot have practical meaning at present. In the IAEA report, fully detailed inspection or conservative limit values are recommended for waste characterization. But full inspection cannot be used because of the huge amount of decommissioning cost. The use of conservative limits is assessed as appropriate for use in reclassified wastes stored at the KRR.

4. Discussion and Conclusion

In the case of reclassification process in the KRR, it has very low level activity limit.

In addition, classification by stream has no actual meaning in the past history of waste disposal by KRR

Based on these findings, it is necessary to classify the characteristics evaluation groups for securing as many specimens as possible in order to evaluate the characteristics of KRR reclassified wastes. Using conservative limits for Waste Acceptance Criteria satisfaction will be a way to identify adequate and cost effective characterization requirements.

REFERENCES

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