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FINAL DISPOSITION OF MTR FUEL

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ABSTRACT

The final disposition of power reactor fuel has been investigated for a long time and some promising solutions to the problem have been shown. The research reactor fuels are normally not compatible with the zirconium clad power reactor fuel and can thus not rely on the same disposal methods. The MTR fuels are typically Al-clad UAl_x or U_3Si_2 , HEU resp. LEU with essentially higher remaining enrichment than the corresponding power reactor fuel after full utilization of the uranium. The problems arising when evaluating the conditions at the final repository are the high corrosion rate of aluminum and uranium metal and the risk for secondary criticality due to the high content on fissionable material in the fully burnt MTR fuel.

The newly adopted US policy to take back Foreign Research Reactor Spent Fuel of US origin for a period of ten years have given the research reactor society a reasonable time to evaluate different possibilities to solve the back end of the fuel cycle. The problem is, however, complicated and requires a solid engagement from the research reactor community.

The task would be a suitable continuation of the RERTR program as it involves both the development of new fuel types and collecting data for the safe long-term disposal of the spent MTR fuel.

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