

**WASTE MANAGEMENT FOR DECOMMISSIONING OF NUCLEAR POWER PLANTS:  
AN EPRI DECOMMISSIONING PROGRAM REPORT**

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**ABSTRACT**

The Electric Power Research Institute (EPRI) is a non-profit research organization that conducts research related to the generation, delivery, use, and environmental impacts of electricity. EPRI also conducts research for the safe and optimized decommissioning of nuclear power plants through its Decommissioning and Remediation Technology Program.

The decommissioning of a nuclear power plant involves the safe disposition of a large quantity of radioactive, hazardous and conventional waste. The logistics of characterizing, staging, packaging and shipment of this waste needs to be carefully planned so as to support the decommissioning project schedule. The most efficient decommissioning and waste management process is one in which effective waste management and disposal options are available as the waste is being generated so as not to delay or impede the progress of decommissioning.

As the cost of waste disposal is a large component of the total decommissioning budget, the optimal treatment and disposal option needs to be chosen for each type of waste. Waste must be generated, classified, and segregated in such a manner as to take advantage of all available disposal pathways: clearance, very low level waste, non-radioactive/hazardous waste, and low level waste disposal sites. This approach will help to avoid the unnecessary use of scarce disposal capacity for the higher activity waste.

There has been a number of nuclear power plant decommissioning projects successfully completed in the United States. These projects have used various waste disposal options and developed successful methods for handling the large quantities of waste created by the decommissioning. Additionally, decommissioning projects in Europe are in progress or in the planning stages such that strategies for the handling of decommissioning waste are being developed and/or implemented to address the regulatory requirements and disposal options available in these countries.

EPRI is preparing a report on decommissioning waste management experiences that will provide summaries of:

- Waste management experiences in the United States during power plant decommissioning projects.
- Waste management plans and experiences for some of the decommissioning projects in other countries that are in progress where these plans have been developed or are being implemented.

In line with the subject of this symposium, this paper will focus on the disposition of metal waste from decommissioning including the following:

- Experiences in the U.S where disposal costs are relatively low and large components can often be disposed of in one piece in shallow land burial. These factors and lack of clearance levels have limited the cost benefit of metal recycle in the United States.
- In other countries, particularly in Europe, relatively high waste disposal costs and established clearance levels have resulted in the development of processing methods to reduce the volume of radioactive waste requiring disposal. How clearance, decontamination and metal melting contribute to these developments will be discussed in this paper.

In summary, how volume reduction techniques including contaminated metal processing have helped reduce the total quantity of waste resulting from decommissioning will be discussed.