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RESIN OXIDATION PROCESS IMPROVEMENTS

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Objectives: Summarize the latest developments of the Resin Oxidation Process. This is a method developed by EPRI to reduce the volume of ion exchange resin waste arising from reactor decontaminations.

Comments: The resin oxidation process is a low temperature and low pressure wet oxidation process developed primarily for destroying the organic content of ion exchange resins generated at nuclear power plants. The process is designed to be operated by mobile temporary equipment taken to the site where the resin is generated.

The presence of organic materials in radioactive waste can be detrimental to the stability and long term isolation of waste. The resin oxidation process was conceived with the objective of oxidizing the ion exchange resin waste under water at much lower temperatures than incineration. The process also destroys chelants in the resin wastes arising from decontamination operations.

A pilot-scale resin oxidation system was built by LN Technologies and operated at their premises and later at the EPRI NDE Center in Charlotte, NC. Several laboratory tests has been done to verify the process.

Remarks/Potential for dose limitation: This process has the potential to significantly reduce the cost of decontaminations by minimizing the ion exchange resin waste needed to be disposed.

References: Bradbury, D., Elder, G.R., and Kalinauskas, G.L., "Resin Oxidation Process Improvements," *Fifth Workshop on Chemical Decontamination*, Electric Power Research Institute, Charlotte, North Carolina, 1993.

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