
Abstract

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Title

Decontamination in preparation for dismantlement - AREVA's chemical decontamination technologies, projects performed and results obtained in the period 2011-2016

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Content

As a consequence of the nuclear phase-out decreed by the German government, several nuclear power plants in the country have already ceased operation. The remaining ones will cease operation by 2022.

This has turned Germany into one of the most active regions worldwide in the field of nuclear decommissioning, with new and emerging technologies being deployed on the field, and already pre-existing technologies being put to the test, optimized and developed into full maturity.

The chemistry services division of AREVA GmbH has already performed five Full System Decontaminations (FSD) in preparation for decommissioning in this period – three in PWRs and two in BWRs - along with other international projects of relevance for decommissioning operations.

During a FSD, the complete primary circuit of a nuclear power plant including auxiliary systems is subject to a chemical treatment; designed to remove radioactive matter accumulated onto system surfaces during operation. Through the effective removal of this radioactive accumulations contact dose rates on the different components of the primary circuit can be consistently reduced by factors larger than 50. This results in much lower ambient dose rates and, hence, in very significant dose savings for subsequent decommissioning activities. Additionally, dismantlement operations of large components are considerably simplified and can be performed under conditions that wouldn't have been possible before.

The project specific objectives and challenges, the technologies employed, and the results obtained are presented and commented here.