

Preparation of Phased and Merged Safety Analysis Reports for New DOE Nuclear Facilities

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Objective:

Present the experience to-date of the Spent Nuclear Fuels Project (SNFP) at DOE's Richland Field Office in preparing phased and merged preliminary and final nuclear safety analysis reports for new SNFP facilities at Hanford.

Description of Work:

The Spent Nuclear Fuels Project (SNFP) is charged with moving to storage 2,100 metric tons of spent nuclear fuel elements left over from plutonium production at DOE's Hanford site in Washington state. Two new facilities, the Cold Vacuum Drying Facility (CVDF) and the Canister Storage Building (CSB) are in final construction. In order to meet aggressive schedule commitments, the SNFP chose to prepare the safety analysis reports (SAR's) in phases that covered only specific portions of each facility's design as it was built. Each SAR also merged the preliminary and final safety analysis reports into a single SAR, thereby covering all aspects of design, construction, and operation for that portion (phase) of the facility. A policy of "NRC equivalency" was also implemented in parallel with this effort, with the goal of achieving a rigor of safety analysis equivalent to that of NRC-licensed fuel processing facilities.

Relevance and Results:

DOE Order 5480.23, "Nuclear Safety Analysis Reports" allows preparation of both a phased and a merged SAR to accelerate construction schedules. However, project managers must be aware that such acceleration is not guaranteed. Managers considering this approach for their project should be cognizant of numerous obstacles that will be encountered. Merging and phasing SAR's will create new, unique, and unanticipated difficulties which may actually slow construction unless expeditiously and correctly managed. Pitfalls to be avoided and good practices to be implemented in preparing phased and merged SAR's are presented. The value of applying NRC requirements to the DOE safety analysis process is also discussed. The SNFP has completed and approved a SAR for the CVDF. Approval of the SAR for the CSB is pending.

Benefits:

Benefit will be gained from this paper by any DOE site considering preparing a merged or phased SAR for a new facility. Building bridges to 21st Century nuclear safety analysis should include remembering relevant lessons from the late 20th.

