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TOPICAL REPORT ON FSD FOR BWRs

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Objectives: Initial evaluation of the feasibility of a FSD of a BWR (with fuel removed) using the LOMI process with specific emphasis on:

1) Long term materials compatibility and performance
2) LOMI process review and system interaction/flow paths
3) Radwaste management
4) Recontamination and dose savings
5) Cost benefit analysis
6) Safety review and licensing

Comments: The primary concern with BWR full system decontaminations (FSD) is corrosion of the reactor internals. This report evaluates the applicability of FSD based on:

1) work previously performed to qualify the LOMI process
2) results of LOMI system and subsystem decontaminations
3) experience worldwide of FSD with LOMI

Based on this study, there appears to be no significant corrosion/materials concern for the application of LOMI for BWR FSD. Tests have shown that LOMI neither causes intergranular attack (IGA) or intergranular stress corrosion cracking (IGSCC), nor does it exacerbate existing IGA or IGSCC.

However, the NP-LOMI process is not recommended for FSD use because of some instances of IGA, enhanced crack growth rates, and SCC. The AP-LOMI process appears promising but additional testing is required before it can be considered fully FSD qualified.

Remarks/Potential for dose limitation:

- The program was successful in qualifying LOMI for BWR FSD with the fuel removed. No BWR plant or fuel material has been identified to be incompatible with LOMI.
- Documentation is now available to utilities for performing a BWR FSD. (EPRI Report TR-100049)
- Instead of being a potential risk to reactor internal integrity, FSD may become an integral part of the Optimum Water Chemistry's strategy for SCC minimization.

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References: Gordon, B.M., "Topical Report on FSD for BWRs," *Fifth Workshop on Chemical Decontamination*, Electric Power Research Institute, Charlotte, North Carolina, 1993.

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