

Requirement to Consider LOOP in Conjunction with Large LOCA – BWR Owners’ Group Topical Report

Lead Office/Division: NRR/DE

Supporting Offices/Divisions: NRR/DSS, NRR/DRA, NRR/DPR

Description

The Boiling Water Reactor Owners’ Group (BWROG) submitted License Topical Report (LTR) NEDO-33148, Revision 2, “Separation of Loss of Offsite Power from Large Break LOCA.” The LTR provides the technical and regulatory basis for an exemption request from the current regulations, which require (in part) the ability for a plant to mitigate large break loss of coolant (LOCA) accidents using only onsite power system operation (assuming offsite power is not available). Granting this exemption would allow a licensee to assume that the offsite power system remains available to mitigate a large break LOCA (LBLOCA).

The stated goal of the LTR was to provide a method for developing an exemption request that will result in a more risk-balanced plant design and improve overall plant safety by the elimination of an unnecessary and burdensome regulatory requirement. The LTR sought to redefine, through the exemption process, the LBLOCA/LOOP combination from a design basis event to a beyond design basis accident, for which some mitigation capability must be assured.

During the review, the potential safety impact of a LOCA followed by delayed LOOP became a major issue. Presently nuclear plants are designed to handle only the simultaneous LOCA and LOOP and the capability of many plants to successfully mitigate upsets causing a delayed LOOP has not been determined. The BWROG topical report proposed an approach that relied on the assumption that the probability of a delayed LOOP can be generically applied to all plants. This assumption conflicts with the resolution of GSI 171, Engineered Safety Features Failure from LOOP Subsequent to a LOCA, which concluded that the probability will vary significantly for specific plants depending on their design. The staff concluded that exemptions could not be processed without an evaluation of the requesting plant’s capability to successfully cope with a delayed LOOP. This staff position resulted in the BWROG concluding that continued development of the LTR was no longer cost effective and that, if ultimately approved in the form desired by NRC staff, adoption by licensees would most likely be prohibitively expensive. By letter dated June 12, 2008, the BWROG withdrew the LTR from further NRC review.

Completed Milestones (date complete)

- NEDO-33148 Rev. 1 (ML041210900) submitted (04/27/04)
- RAIs transmitted to BWROG addressing proposed generic risk assessment (ML053330380) (12/02/05)
- Meeting with BWROG to discuss RAIs. BWROG agreed to submit new Topical emphasizing risk methodology, not generic risk assessment. (02/14/06)
- Meeting with BWROG to discuss content of proposed Revision 2 of the Topical (06/14/06)
- BWROG provided Revision 2 to NEDO-33148 (ML062480321) (08/25/06)
- RAIs on the revised LTR transmitted to the BWROG (ML071630548) (06/15/07)
- Meeting with BWROG to clarify RAIs (07/25/07)
- RAI responses received from BWROG (ML072750041) (09/28/07)
- RAIs on the treatment of delayed LOOP in the LTR (ML080720484) (03/14/2008)

- BWROG withdraws Topical (ML081680048) (06/12/2008)

Future Milestones

Selected Major Milestones and Schedules				
Major Milestones	Original Target Date	Revised Date	Completion Date	NRC Responsibility
Upon request, staff terminated review of the LTR			06/12/2008	NRR/DE NRR/DSS NRR/DRA NRR/DPR