

Lubinski, John

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To: Lubinski, John
Subject: Industry's Comments on Position Paper on Regulatory Requirements for Application of Weld Overlays in Piping Systems Approved for Leak-Before Break (LBB)

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The NRC did a good job of defining the issue and providing a thorough analysis on the regulatory requirements. Most of the discussion is solid. The industry comments are captured in two categories, methodology and interim non-conformance guidance.

As stated at the public meeting, we appreciate the opportunity for public comment on the draft generic communication.

Methodology: There is no question regarding the need to obtain NRC approval for the first time an LBB analysis is applied in order to exclude the dynamic effects associated with postulated pipe ruptures from the design basis. As pointed out in the paper, GDC-4 is specific in that regard. The question presented here, however, is whether updates to approved LBB analyses to account for the application of weld overlays constitute a "departure from a method of evaluation described in the FSAR" as defined in 10 CFR 50.59. If so, approval of the updated LBB analysis is required prior to application of the weld overlay. If not, a licensee may apply the weld overlay without prior NRC approval of the updated LBB analysis. Each licensee will need to determine if the updated LBB analysis triggers the requirement for prior approval under 10 CFR 50.59.

NEI believes that updating LBB analyses to take weld overlays into account will not constitute a "departure from a method of evaluation" in all circumstances. Thus, prior NRC approval of such updates will not be required in all cases. The basic concepts are delineated in NEI 96-07, revision 1, "Guidelines for 10CFR 50.59 Implementation". Under Definition 3.10, "Methods of Evaluation", the LBB method clearly constitutes a methodology described in the UFSAR since it demonstrates that design basis limits of a fission product barrier (the reactor coolant system) are being met. Therefore, the question becomes, "Is the change a departure from that method?"

Definition 3.4, Departure from a Method of Evaluation Described in the FSAR (as updated), "departure from a method of evaluation described in the FSAR (as updated) means (i) changing any of the elements of the method described in the FSAR (as updated) unless the results of the analysis are conservative or essentially the same; or (ii) changing from a method described in the FSAR to another method unless that method has been approved by NRC for the intended application."

The meaning of (ii) changing from one method to another method is "relatively" straightforward. For example, if the addition of the weld overlay results in the assumed crack growing through both the original pipe wall and the overlay, the change in crack morphology and leak rate correlation is a change in methodology that requires prior NRC approval.

For other changes, (i) may apply. It is acceptable for the licensee to change inputs parameters based upon modifications to the plant (such as weld overlay) even if the specific input considerations (such as crack morphology) change, provided either the overall methodology is not affected or the results are conservative or “essentially the same” (which can be shown if previously used acceptance criteria continue to be met).

When reviewing an item such as this under 50.59, a change to an input parameter may not involve a change to a method of evaluation (see input parameter discussion above). If the input parameter change is considered to be part of a methodology, then a change to an element of a methodology is involved and review in a 50.59 evaluation is required. If the analysis can be shown by inspection to be conservative or yield results that are “essentially the same”, then the 50.59 evaluation would conclude that prior NRC approval is not required. Note that “conservative results” in this case refers to creating additional margin with respect to design basis limits. NEI 96-07 Section 4.3.8 reinforces this: “In general, licensees can make changes to elements of a methodology without first obtaining a license amendment if the results are essentially the same as, or more conservative than, previous results.”

An example of this concept related to the issue of leak rate methodology would be: a licensee determines that the addition of the overlay changes the position of the assumed crack such that it grows outside the area covered by the overlay. In this case, the leak rate methodology would not change, but the analysis inputs would. The need for NRC approval would depend on how the LBB analysis was affected.

However, if the results that are “essentially the same” or conservative in nature cannot be expected based on the change, such that the analysis must be re-run in order to determine the acceptability, then the change would screen in, and the results of the re-analysis would be required to address the 50.59 evaluation to determine if prior NRC approval was required.

In summary, the addition of an overlay to a LBB location may result in a change in the LBB analysis methodology or it may only result in changes to inputs that do not change the results significantly. One case would require NRC approval, and the other would not. The anticipated generic communication should discuss these possibilities and let the responsibilities for determining which case applies remain with the licensee.

Interim non-conformance: The anticipated generic communication needs to be specific on the applicable regulatory process for the non-conforming conditions.

As the position paper points out, some licensees may have already applied weld overlays to piping systems without prior NRC approval of an updated LBB analysis. These licensees may be subject to enforcement action if it is determined that prior NRC approval of the updated LBB analysis was required before application of the weld overlay. Given the safety benefits associated with the performance of weld overlays, more details on whether, and if so under what circumstances, the NRC will consider granting enforcement discretion with regards to the potential non-conformances should be provided. Furthermore, inspection guidance to the staff on how to address interim potential non-conformance situations would be helpful and appropriate.

In the case of the licensees with near term or emergent plans to perform weld overlays, licensees are obliged to comply with the regulations prior to performance of the overlay. As described above, in some situations prior NRC approval of an updated LBB analysis may be required prior to application of weld overlays. However, Section 12 of the position paper seems to suggest that a licensee could knowingly apply a weld overlay without first obtaining NRC approval of the updated LBB analysis, even where such prior approval is required. Given the safety benefits of performing the weld overlays, the anticipated generic communication should define the regulatory process (e.g., exemptions, enforcement discretion, etc.) to be used in situations where prior NRC approval of the updated LBB analysis is necessary, but weld overlays will be applied prior to obtaining such approval.

Thank you again for the opportunity to comment and we would appreciate the opportunity for public comment on the draft generic communication.

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