

# Additional Comments Structural Issues with DRAFT SLR GALL/SRP

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Public Meeting Discussion of Draft Guidance Documents for  
Subsequent License Renewal

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# GALL XI.S1: ASME Section XI, Subsection IWE

**Recommendation remove Addition of Liner Plate Bulge evaluation and acceptance of bulges to be based on quantitative criteria.**

## Abbreviated basis:

- ▶ Bulges are a result of original construction.
- ▶ Creep & shrinkage insignificant during SLR versus to early plant life.
- ▶ Past investigations have found liner bulges to be acceptable.
- ▶ Liner is examined by IWE and also periodically verified by Appendix J program testing. Additionally separate coatings inspections periodically examine condition of the coated liner.
- ▶ No industry OE for liner/anchor failures at bulges exists.
- ▶ The liner is a leak tight membrane, whose function is unaffected by bulges, which are expected.
- ▶ Bulges are a secondary effect and as a result, not explicitly considered in original design. As a result, there is no meaningful acceptance criteria regarding the magnitude of a bulge if the liner is not cracked.
- ▶ Recording criteria is problematic. Small bulges are indistinguishable from imperfections in roundness. The magnitude of bulges varies due to differences between liner and concrete temperatures.

# GALL XI.S3: ASME Section XI, Subsection IWF

Periodic examination of additional 5 % of the sampled number of IWF supports for class I, II, and III is not warranted by a technical basis or OE. No OE indicates any issues with IWF supports due to any lack of sampling material and environment combinations.

Due to limited number of M&E combinations for IWF, the already large sample sizes, and distribution of samples between systems in scope, it is very unlikely that an omission would occur.

If needed, recommend the following to clarify adequacy of existing sample. SLRAs could document in the IWF OE section that the M&E combinations in the Table 2 are addressed by the IWF support selection sample.

Recommend the following to clarify changes to the existing sample , if needed.

Instead of random samples that would inefficiently, if ever, address the concern with M&E combinations, refer to NUREG 2192 (SLR-SRP) App. A (BTP RSLB-1) A.1.2.3.4 item 4, which already states samples are biased toward locations most susceptible to the specific aging effect of concern in the subsequent period of extended operation.

# IWF - Continued

Similar wording such as the following could be added to an SLR GALL IWF AMP element to address sample adequacy concerns:

“The sample should include locations which are representative of the specific aging effect(s) of concern.” A sample addition would be required if a support is identified in an aggressive environment that is not bounded by an existing material–environment–aging effect combination.

# GALL XI.S7: Inspection of Water Control Structures

## Underwater Concrete Inspections – Suggest the following clarifications:

- Concrete structures located underwater will not be accessible with the same visual acuity as structures above water. Even with cleaning, small imperfections will not be visible to the same degree as for concrete elements above the waterline.
- The general condition can be observed using divers or dewatering. When using divers, the observations should be detailed enough to detect obvious, major damage or deterioration due to over-stress, or severe deterioration, or corrosion. Underwater inspections could also detect undermining or exposure of normally buried elements. A limited sampling approach and increased interval could be considered when conditions are not aggressive depending on previously observed conditions.

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# Underwater Concrete - Continued

- Inspection of exposed portions of the structures at and above the waterline should serve as a primary leading indicator of condition of submerged concrete
- The results of waterline inspections and underwater observations (where implemented) should be used to determine whether any additional inspection measures are warranted or to prioritize any further inspection or evaluation efforts

The above suggested wording is based on wording from: ACI 349.3R, ACI 546.2R, commercial industry practice (as described in an EPRI Underwater Concrete Inspection report), and ASCE Manuals/Reports Engineering Practice No. 101. It is also consistent with the recognition in RG 1.127 R2 that underwater concrete is inaccessible for the normal inspections and visual acuity above the water line (for reasons stated above), but also adds the expectation to do some underwater condition monitoring on a sampling basis to confirm the general condition is as expected.

# Questions ? Discussion