

TRP 35 RB 3rd Round RAI Buried Pipe Allik

10 CFR § 54.21(a)(3) of 10 CFR requires an applicant to demonstrate that the effects of aging for structures and components will be adequately managed so that the intended function(s) will be maintained consistent with the current licensing basis for the period of extended operation. One of the findings that the staff must make to issue a renewed license (10 CFR § 54.29(a)) is that actions have been identified and have been or will be taken with respect to the managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under § 54.21, such that there is reasonable assurance that the activities authorized by the renewed license will continue to be conducted in accordance with the current licensing basis (CLB). As described in SRP-LR, an applicant may demonstrate compliance with 10 CFR 54.21(a)(3) by referencing the GALL Report. In order to complete its review and enable making a finding under 10 CFR § 54.29(a), the staff requires additional information in regard to the matters described below.

RAI B.1.4-1b

Background:

The response to RAI B.1.4-1, dated April 4, 2018, provided updated design information regarding the type of coatings applied to buried stainless steel piping. The subject letter states that in addition to coal tar epoxy, buried stainless steel piping is specified to be coated with silicone-based heat-resistant coatings, specifically Thurmalox ® 70 or Carboline 4674.

The staff reviewed the technical product data sheets for Thurmalox ® 70 and Carboline 4674 and noted that these coatings are not recommended for immersion service.

The *Encyclopedia of Chemical Processing and Design: Volume-50*, John J. McKetta Jr, 1994, page 250, states “[a]lthough typical silicone-based heat-resistant coatings work well, they do have some limitations. They are not intended for immersion service” and “[e]ven when properly cured, these coatings are softer than most organic finishes.”

Issue:

Although appropriate for high temperature applications, silicone-based heat-resistant coatings are not consistent with the “preventive actions” program element of GALL Report AMP XI.M41, as modified by LR-ISG-2015-01, “Changes to Buried and Underground Piping and Tanks Recommendations.” GALL Report AMP XI.M41, “Buried and Underground Piping and Tanks Inspection,” as modified by LR-ISG-2015-01, states that a broader range of coatings may be used if justification is provided in the LRA; however, it is unclear to the staff how silicone-based heat-resistant coatings can be capable of restricting moisture penetration and electrically isolating the base metal given that they are not recommended for aqueous environments (e.g., groundwater) and may be more susceptible to damage and wear due to ground movement of deleterious material in backfill.

Request:

State the basis for why silicone-based heat-resistant coatings, specifically Thurmalox ® 70 or Carboline 4674, meet the intent of the “preventive actions” program element of GALL Report AMP XI.M41, as modified by LR-ISG-2015-01 in regard to the unsuitability for immersion service and potential issues with durability of the coating.

Absent an adequate basis associated with the above two limitations, state how many inspections will be conducted per 10-year period and the basis for why the number of inspections will be adequate to manage associated aging effects.