

**TURKEY POINT NUCLEAR GENERATING UNITS 3 AND 4 (TURKEY POINT)  
SUBSEQUENT LICENSE RENEWAL APPLICATION (SLRA)  
REQUESTS FOR ADDITIONAL INFORMATION (RAIS)  
SAFETY - SET 10**

**1. Buried and Underground Piping and Tanks, GALL AMP XI.M41**

**RAI B.2.3.28-1b**

Regulatory Basis:

Section 54.21(a)(3) of Title 10 of the *Code of Federal Regulations* (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 subsequent 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 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 10 CFR 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-SLR, an applicant may demonstrate compliance with 10 CFR 54.21(a)(3) by referencing the NUREG-2191, Rev. 0, "Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report," dated July 2017. 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.

Background:

By letter dated February 6, 2019, (ADAMS Accession No. ML19037A398) the staff issued follow-up RAI B.2.3.28-1a requesting that a basis be provided for why Preventive Action Category F is appropriate for buried steel piping during the 10-year period prior to the subsequent period of extended operation (SPEO). The basis for issuing this RAI was that: (a) operating experience (OE) at Turkey Point has indicated several instances of leaks/significant degradation of buried steel piping; and (b) Preventive Action Category F is limited to instances where plant-specific OE identifies only a few (i.e., as opposed to several) instances of leaks/significant degradation. The staff's assertion that there have been several instances of leaks/significant degradation of buried steel piping due to external corrosion is based on the following:

- SLRA Section B.2.3.28, "Buried and Underground Piping and Tanks," states:

Turkey Point has experienced a number of pipe leaks and/or breaks in buried piping. Most of these pipe breaks have been in the piping for the fire water and service water systems. These breaks have been documented in the corrective action program (CAP). A review of the documentation in the CAP indicates that typically they have been caused by localized corrosion.

- During the audit the staff noted that: (a) several leaks and locations of localized external corrosion have occurred in buried service water and fire water system piping; (b) an action report (AR) from 2008 documents that corrosion of buried carbon steel piping is a known problem at the station; and (c) the Structures Monitoring program basis report documents that groundwater/soil at Turkey Point is aggressive with chlorides greater than 500 parts per million (ppm), which indicates an aggressive groundwater/soil classification.

Follow-up RAI B.2.3.28-1 was responded to by letter dated March 6, 2019, (ADAMS Accession No. ML19070A113). Each of the ARs that were cited by the staff in the OE audit report (ADAMS Accession No. ML18183A445) were addressed. For several of the ARs which identified leaks, the response states that the buried piping is not within the scope of subsequent license renewal (SLR) and is therefore not related to the Buried and Underground Piping and Tanks program. The overall conclusion stated in the response was that: (a) there has not been significant degradation and only one minor leak was identified; and (b) no additional inspections beyond those currently planned are required for buried steel piping during the 10-year period prior to the SPEO.

Issue:

The response to follow-up RAI B.2.3.28-1a focused on addressing each of the ARs that were cited by the staff in the OE audit report. The staff has two issues with the response:

1. The staff does not agree with the claim that leaks/degradation in out-of-scope buried piping are not relevant to the Buried and Underground Piping and Tanks program. In-scope piping would be just as susceptible to degradation as out-of-scope piping unless a technical justification is provided for why the two are not representative of each other (e.g., similar material composition, degradation mechanisms, coatings, environmental conditions, age of installation, operational history of cathodic protection if installed). GALL-SLR Report Aging Management Report (AMP) XI.M41 states:

If cathodic protection is not provided for any reason, the applicant reviews the most recent 10 years of plant-specific operating experience (OE) to determine if degraded conditions that would not have met the acceptance criteria of this AMP have occurred. This search includes components that are not in-scope for license renewal if, when compared to in-scope piping, they are similar materials and coating systems and are buried in a similar soil environment.

Although cathodic protection will be installed at least 7 years prior to the SPEO, AMP XI.M41 clearly establishes the purpose of using plant-specific operating experience related to buried components that are not in-scope.

2. The response addressed each of the ARs listed in the OE audit report; however, this listing of ARs was not intended to be an exhaustive list documenting all instances of buried piping leaks/degradation at Turkey Point. The staff's review of operating experience spans approximately 10 years, not the entire life of the plant. The staff also notes that corrosion of buried carbon steel piping was known to be an issue in 2008

(approximately 10 years ago). Therefore, there could be examples of buried steel piping leaks/degradation that were not included in the OE audit report.

Request:

State the basis for why additional inspections, beyond those recommend for Preventive Action Category F, are not appropriate for buried steel piping during the 10-year period prior to the SPEO.