



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 27, 2017

Mr. Anthony Vitale
Site Vice-President, IPEC
Entergy Nuclear Operations, Inc.
450 Broadway, GSB PO Box 249
Buchanan, NY 10511-0249

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
INDIAN POINT LICENSE RENEWAL APPLICATION RAI SET 2017-06 (CAC
NOS. MD5407 AND MD5408)

Dear Mr. Vitale:

By letter dated April 30, 2007, Entergy Nuclear Operations, Inc. submitted an application pursuant to Title 10 of *the Code of Federal Regulations* (10 CFR) Part 54, to renew the operating license Nos. DPR-26 and DPR-64 for Indian Point Nuclear Generating, Unit Nos. 2 and 3, for review by the U.S. Nuclear Regulatory Commission (NRC or the staff). The staff is reviewing the information contained in the license renewal application and has identified, in the enclosure, areas where additional information is needed to complete the review to ensure compliance with 10 CFR Part 54.

These requests for additional information were discussed with Richard Louie, and a mutually agreeable date for the response is within 30 days from the date of this letter. If you have any questions, please contact me at 301-415-6332 by e-mail at william.burton@nrc.gov.

Sincerely,

/RA/

William Burton, Senior Project Manager
License Renewal Project Branch
Division of Materials and License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-247 and 50-286

Enclosure:
Requests for Additional Information

cc w/encl: Listserv

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ADAMS ACCESSION NO. ML17170A286

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DATE	6/26/2017	6/26/2017	6/27/2017	6/27/2017

OFFICIAL RECORD

INDIAN POINT
LICENSE RENEWAL APPLICATION (LRA)
REQUESTS FOR ADDITIONAL INFORMATION (RAI)

RAI 3.0.3.1.2-1

Background:

GALL Report AMP XI.M41, "Buried and Underground Piping and Tanks," as modified by LR-ISG-2015-01, "Changes to Buried and Underground Piping and Tank Recommendations," includes the following recommendations:

1. The "preventive actions" program element recommends that coatings are provided for buried stainless steel or the applicant provides justification when coatings are not provided.
2. Table XI.M41-2, "Inspection of Buried and Underground Piping and Tanks," recommends one inspection of buried stainless steel piping during each 10-year period, commencing 10 years prior to the period of extended operation.

Issue:

The number of recommended inspections for buried stainless steel in GALL Report AMP XI.M41, as modified by LR-ISG-2015-01, is based on coatings being provided or adequate justification when coatings are not provided. It is unclear to the staff if buried stainless steel piping is coated, and if it is not coated, the justification for why coatings do not need to be provided.

Request:

State if buried stainless steel piping is coated. If buried stainless steel piping is not coated, provide justification (e.g., increased extent or frequency of inspections, soil parameters) for why coatings do not need to be provided.

RAI 3.0.3.1.2-2

Background:

Attachment 1 of letter dated April 28, 2017, states that polyvinyl chloride (PVC) piping exposed to soil has no aging effects due to the lack of stressors in a soil environment and non-aggressive soil as confirmed by soil samples.

GALL Report AMP XI.M41, as modified by LR-ISG-2015-01, includes the following recommendations:

1. The "parameters monitored or inspected" program element recommends visual inspections of the external surface condition of polymeric materials to detect loss of material due to wear.
2. Table XI.M41-2, "Inspection of Buried and Underground Piping and Tanks," recommends one inspection of buried polymeric piping when backfill is in accordance with the "preventive actions" program element, and the smaller of one percent of the

Enclosure

length of the pipe or two inspections when backfill is not in accordance with the “preventive actions” program element.

Issue:

As noted above, GALL Report AMP XI.M41, as modified by LR-ISG-2015-01, recommends reducing the number of inspections for polymeric piping based on backfill quality, but does not recommend eliminating inspections based on soil aggressiveness. It is unclear to the staff how lack of stressors in a soil environment and non-aggressive soil as confirmed by soil samples precludes the need to perform visual inspections to detect loss of material due to wear.

Request:

State the basis for why loss of material due to wear is not an aging effect requiring management for PVC piping exposed to soil. Alternatively, revise the program to address loss of material due to wear for buried PVC piping.

RAI 3.0.3.1.2-3

Background:

Attachment 1 of letter dated April 28, 2017, states “[c]athodic protection levels are maintained as described in NL-13-132 [response to RAI 3.0.3.1.2-4a dated October 3, 2013] and soil conditions are not aggressive such that cracking is not an aging effect requiring management. In addition, the stainless steel piping in the program operates at temperatures below 140°F, which is the threshold for stress corrosion cracking in stainless steel.”

GALL Report AMP XI.M41, as modified by LR-ISG-2015-01, provides the following recommendations:

1. Stainless steel components can experience stress corrosion cracking when exposed to soil due to the potential presence of halides.
2. Steel components can experience stress corrosion cracking when exposed to a carbonate/bicarbonate environment depending on cathodic polarization level, temperature, and pH. See NACE SP0169-2013, “Control of External Corrosion on Underground or Submerged Metallic Piping Systems,” Figure 2, “SCC [stress corrosion cracking] Range of Pipe Steel in Carbonate/Bicarbonate Environments.”

Issue:

1. The threshold temperature for stress corrosion cracking of stainless steel in a treated water environment (i.e. water whose chemistry has been altered and is maintained) is 140°F; however, due to the potential presence of halides, stress corrosion cracking is an applicable aging effect for stainless steel piping exposed to soil.
2. The subject letter does not address cracking of steel exposed to soil, which can occur in a carbonate/bicarbonate environment depending on cathodic polarization level, temperature, and pH. It is unclear to the staff if steel piping is exposed to a carbonate/bicarbonate environment, and if it is, how factors such as cathodic

polarization level, temperature, and pH preclude the need to manage steel piping for cracking.

Request:

1. For buried stainless steel components, state the specific soil parameters (e.g., bacteria, presence of halogens) and results that demonstrate that cracking will not occur. Alternatively, revise the program to address cracking of buried stainless steel piping.
2. State the basis for why cracking is not an aging effect requiring management for steel piping exposed to soil. Alternatively, revise the program to address cracking of buried steel piping.

RAI 3.0.3.1.2-4

Background:

As amended by letter dated April 28, 2017, LRA Section B.1.6, "Buried Piping and Tanks Inspection," states "[i]f future inspections reveal significant coating damage caused by non-conforming backfill, then Entergy will double the inspection sample size up to an increase of five (5) inspections."

GALL Report AMP XI.M41, as modified by LR-ISG-2015-01, states that where the coatings, backfill or the condition of exposed piping does not meet acceptance criteria such that the depth or extent of degradation of the base metal could have resulted in a loss of pressure boundary function when the loss of material rate is extrapolated to the end of the period of extended operation, an increase in the sample size is conducted.

Issue:

The staff noted that degradation of the base metal could occur for reasons besides significant coating damage caused by non-conforming backfill (e.g., coating degradation based on coating service life). Significant coating damage caused by non-conforming backfill is only an example of how degradation of the base metal could occur. In addition, in contrast to AMP XI.M41, which defines the degree of degradation (i.e., loss of pressure boundary function), "significant coating damage" is not defined.

Request:

State the basis for why an increase in inspection sample size will only occur when significant coating damage caused by non-conforming backfill is revealed. Alternatively, revise the program to be consistent with LR-ISG-2015-01 regarding criteria for increasing inspection sample size.

RAI 3.0.3.1.2-5

Background:

As amended by letter dated April 28, 2017, LRA Sections A.2.1.5 and A.3.1.5 (Buried Piping and Tanks Inspection program UFSAR summary descriptions for Units 2 and 3, respectively) were revised in response to the issuance of LR-ISG-2015-01.

The UFSAR summary description issued in LR-ISG-2015-01 includes the following recommendations:

- This program manages the aging effects of cracking.
- Inspections are conducted by qualified individuals.
- Where the coatings, backfill or the condition of exposed piping does not meet acceptance criteria such that the depth or extent of degradation of the base metal could have resulted in a loss of pressure boundary function when the loss of material rate is extrapolated to the end of the period of extended operation, an increase in the sample size is conducted.

Issue:

The staff noted that aspects of the UFSAR summary description issued in LR-ISG-2015-01 (bulletized above) were not included in the revised LRA Sections A.2.1.5 and A.3.1.5. The licensing basis for this program for the period of extended operation may not be adequate if the applicant does not incorporate this information in its UFSAR supplement.

Request:

State the basis for not including aspects of the UFSAR Summary Description issued in LR-ISG-2015-01 (bulletized above) in the revised LRA Sections A.2.1.5 and A.3.1.5. Alternatively, revise LRA Sections A.2.1.5 and A.3.1.5 to be consistent with LR-ISG-2015-01.