



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

April 13, 2015

Mr. G. T. Powell
Site Vice President
STP Nuclear Operating Company
P.O. Box 289
Wadsworth, TX 77483

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
SOUTH TEXAS PROJECT, UNITS 1 AND 2, LICENSE RENEWAL
APPLICATION – SET 29 (TAC NOS. ME4936 AND ME4937)

Dear Mr. Powell:

By letter dated October 25, 2010, STP Nuclear Operating Company submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54, to renew operating licenses NPF-76 and NPF-80 for South Texas Project, Units 1 and 2, for review by the U.S. Nuclear Regulatory Commission (NRC) staff. The NRC 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.

This request for additional information has been discussed with Mr. Arden Aldridge of your staff, and we request your response within 60 days of the date of this letter. If you have any questions, please contact me by telephone at 301-415-3873 or by e-mail at john.daily@nrc.gov.

Sincerely,

/RA/

John W. Daily, Senior Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket Nos. 50-498 and 50-499

Enclosure:
As stated

cc w/encl: Listserv

April 13,2015

Mr. G. T. Powell
Site Vice President
STP Nuclear Operating Company
P.O. Box 289
Wadsworth, TX 77483

SUBJECT: REQUESTS FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE SOUTH TEXAS PROJECT, UNITS 1 AND 2, LICENSE RENEWAL APPLICATION – SET 29 (TAC NOS. ME4936 AND ME4937)

Dear Mr. Koehl:

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John W. Daily, Senior Project Manager
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ADAMS Accession No. ML15083A304

*concurrence via email

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SOUTH TEXAS PROJECT, UNITS 1 AND 2
REQUESTS FOR ADDITIONAL INFORMATION - SET 29
(TAC NOS. ME4936 AND ME4937)

RAI B2.1.13-2, FWS

Background

As amended by letter dated June 3, 2014, LRA Section B2.1.13 states that the interior of the fire water storage tanks will be inspected every 5 years. This response states that the LRA is revised to inspect the fire water storage tanks "in accordance with NFPA 25, 2011 Edition Sections 9.2.5.5, 9.2.6, and 9.2.7." Neither the LRA nor the UFSAR indicates whether these tanks are coated or not.

Issue

National Fire Protection Association (NFPA) Section 9.2.6 states that uncoated tank interiors should be inspected every 3 years and coated tank interiors can be inspected every 5 years. It is not clear to the staff whether the fire water storage tanks are internally coated.

Request

State whether the interior of the fire water storage tanks are coated; and if they are not coated, the basis for why inspecting the tank's interior every 5 years is adequate.

RAI B2.1.13-3, FWS

Background

As amended by letter dated June 3, 2014, LRA Section B2.1.13 references NFPA 25, 2011 Edition, Sections 9.2.5.5, 9.2.6, and 9.2.7, and states that bottom thickness ultrasonic tests of the fire water storage tanks will be conducted every 10 years. Section D, of the June 3, 2014, letter states that for fire water storage tank steel surfaces exposed to raw water, "[n]ondestructive ultrasonic readings are taken to evaluate the wall thickness where there is evidence of pitting or corrosion." In addition, in relation to steel tank bottom surfaces the LRA states, "[b]ottom thickness ultrasonic tests are performed on each tank during the first 10-year period of extended operation."

Issue

NFPA 25, Sections 9.2.6.4 and 9.2.7 state that tank bottoms should be tested for metal loss (in conjunction with the internal inspections) whenever there is evidence of pitting, corrosion, or failure of the internal coating. It is not clear to the staff that bottom thickness measurements will be conducted whenever inspections detect pitting, corrosion, or failure of the internal coating of the tank bottom.

Request

State whether bottom thickness measurements will be conducted whenever inspections detect pitting, corrosion, or failure of the internal coating of the tank bottom.

ENCLOSURE

RAI B2.1.13-4, FWS

Background

As amended by letter dated June 3, 2014, LRA Section B2.1.13 references NFPA 25, 2011 Edition, Section 13.2.5, and states that main drain tests will be conducted every 18 months.

Issue

NFPA 25, Section 13.2.5 states that main drain tests should be conducted annually. A basis for why conducting main drain tests every 18 months is adequate was not provided.

Request

State the basis for why conducting main drain tests every 18 months is adequate.

RAI B2.1.13-5, FWS

Background

As amended by letter dated June 3, 2014, LRA Section B2.1.13 states that:

Procedures will be enhanced to perform coating inspections of the coatings installed on the internals of in-scope fire water components. The coatings are visual inspected every six years, and tested after 12 years of service at a six-year frequency. The coating tests performed are low voltage holiday test per ASTM D5162, dry film thickness test per ASTM D7091 and Steel Structures Painting Council, and (SSPC) PA-2 and pull off adhesion test per ASTM D4541. Coating inspections and tests are performed by a qualified Nuclear Coating Specialist (NCS) as defined by ASTM D7108 or by Coatings Surveillance Personnel (CSP) under the technical direction of the NCS.

The LRA also states that: (a) coatings will be monitored and trended; (b) the acceptance criteria for coatings will be, “[n]o erosion, corrosion, cavitation erosion, flaking or peeling of the coatings installed on the internals of in-scope fire water components is observed;” and (c) a condition report will be written for coatings that do not meet acceptance criteria. The response to RAI 3.0.3-2:

- Stated that visual inspections are conducted on 100 percent of the internal coated surface.
- Clarified that monitoring and trending will include a pre-inspection review of previous inspection results and the coatings specialist will prepare a post-inspection report that will include the location of all degraded coatings and where possible, photographs indexed to the locations.
- Stated that coatings that do not meet acceptance criteria “are repaired as needed.”

Issue

LR-ISG-2013-01, “Aging Management of Loss of Coating or Lining Integrity for Internal Coatings/Linings on In-Scope Piping, Piping Components, Heat Exchangers, and Tanks,” states the following:

- a. When visual inspections detect peeling, delamination, blisters, or rusting, subsequent inspections should be conducted in 4 years. A basis for conducting inspections every 6 years regardless of the results of a previous inspection was not provided.
- b. The training and qualification of individuals involved in coating inspections is conducted in accordance with an ASTM International standard endorsed in RG 1.54. SRP-LR Table 3.0-1, "FSAR Supplement for Aging Management of Applicable Systems," recommends that the training and qualification requirements for inspection personnel be included in the updated final safety analysis report (UFSAR) supplement. The qualification requirements for Coatings Surveillance Personnel who conduct coating inspections and tests were not provided in either the program or UFSAR Supplement.
- c. The post-inspection report should include a prioritization of the repair areas into areas that must be repaired before returning the system to service and areas where repair can be postponed to the next refueling outage. The program does not provide this level of detail for areas requiring repair.
- d. In regard to acceptance criteria, blisters are evaluated by a coatings specialist qualified in accordance with an ASTM International standard endorsed in RG 1.54 and are limited to a few intact small blisters that are completely surrounded by sound coating bonded to the substrate and the size and frequency should not be increasing between inspections. The program does not address acceptance criteria for blisters.
- e. In regard to acceptance criteria, cracking and rusting are to be evaluated by a coating specialist qualified in accordance with an ASTM International standard endorsed in RG 1.54. The program does not address acceptance criteria for cracking or rusting.
- f. Coatings that do not meet acceptance criteria are repaired, replaced, or removed; and testing or examination is conducted to ensure that the extent of repaired or replaced coatings encompasses sound coating/lining material. The response stated that repairs are conducted "as needed." It is not clear to the staff which degraded conditions that do not meet the acceptance criteria will be repaired. In addition, the program does not address followup testing to ensure that the extent of repaired or replaced coatings encompasses sound coating material.

Request

State:

- a. The basis for conducting inspections every 6 years regardless of the results of a previous inspection.
- b. The training and qualification requirements for Coatings Surveillance Personnel who conduct coating inspections and revise the appropriate portions of the LRA accordingly.
- c. Whether the post-inspection report will include a prioritization of the repair areas into areas that must be repaired before returning the system to service and areas where repair can be postponed to the next refueling outage.
- d. The acceptance criteria for blisters.
- e. The acceptance criteria for cracking and rusting.
- f. Which degraded conditions that do not meet the acceptance criteria will be repaired. Also state what followup testing will be conducted to ensure that the extent of repaired or replaced coatings encompasses sound coating material.

RAI B2.1.13-6, FWS

Background

LRA Section A1.13, as amended by letter dated June 3, 2014, does not address the following recommendations from SRP-LR Table 3.0-1, as modified by LR-ISG-2012-02 and LR-ISG-2013-01:

- Fouling and flow blockage will be managed by the Fire Water System Program.
- Training and qualification requirements for the Coatings Surveillance Personnel who conduct the coating inspections. This is addressed in RAI B2.1.13-5, above.
- Followup testing requirements of coatings that are repaired.

Issue

A basis for why these recommendations were not addressed in the licensing basis for the period of extended operation was not provided.

Request

State the basis on how the UFSAR supplement does not include a statement that fouling and flow blockage will be managed by the Fire Water System Program, the qualifications for the Coatings Surveillance Personnel who conduct the coating inspections, and the followup testing requirements of coatings that are repaired. Please include applicable UFSAR supplement updates also.

RAI B2.1.18-5, Buried Piping

Background

As amended by letter dated June 26, 2014, the Buried Piping and Tanks Inspection program states that when the cathodic protection system has been installed but fails to meet acceptance criteria (LR ISG-2011-03, Table 4a, Category E under the "preventive action" column) that 5 percent of the associated steel piping, up to a maximum of 10 locations, will be inspected in the 10-year period prior to the period of extended operation.

The GALL Report AMP XI.M41, "Buried and Underground Piping and Tanks," as modified by LR-ISG-2011-03, "Changes to the Generic Aging Lessons Learned (GALL) Report Revision 2 Aging Management Program (AMP) XI.M41, 'Buried and Underground Piping and Tanks'," Table 4a, "Inspection of Buried Pipe," states that up to a maximum of 7 inspections should be conducted at a single unit plant for inspection Category E. Element 4.b.vi. of LR-ISG-2011-03 states that for two-unit sites the number of inspections should be increased by 50 percent.

The Buried Piping and Tanks Inspection program also states that in order to conduct inspections in accordance with Category E that the soil will have been demonstrated (e.g., sample locations, periodicity of sampling, evaluation method) to be non-corrosive for the material type. Footnote 7 of Table 4a in LR-ISG-2011-03 provides recommendations related to demonstrating that the soil is not corrosive.

Issue

- a. The inspection criteria in the LRA AMP and LR-ISG-2011-03 are not consistent. The Buried Piping and Tanks Inspection program states that when the cathodic protection

system fails to meet acceptance criteria that up to a maximum of 10 inspection locations will be inspected in the 10-year period prior to the period of extended operation.

LR-ISG-2011-03 recommends that a two unit plant inspect up to 11 locations.

- b. The program does not state how the soil will be demonstrated to be non-corrosive. LRA Section B2.1.18, as amended by letter dated June 26, 2014, does not state that the program will be consistent with GALL Report AMP XI.M41 and therefore the staff lacks sufficient information to understand how the soil will be demonstrated to be non-corrosive. In addition, SRP-LR Table 3.0-1, "FSAR Supplement for Aging Management of Applicable Systems," as modified by LR-ISG-2011-03, recommends that soil sampling be included in the FSAR Supplement when soil corrosivity is used to modify the number of inspections.

Request

- a. State the basis for why a maximum of 10 inspections will be conducted instead of 11.
- b. State how the soil will be demonstrated to be non-corrosive and how soil sampling will be controlled in the current licensing basis.

RAI B.2.1.22-6, Volumetric Inspections of Tanks

Background

Gall Report AMP XI.M29, "Aboveground Metallic Tanks," as revised by LR-ISG-2012-02, states that verification of the effectiveness of the AMP is performed to ensure that degradation is not occurring in inaccessible locations, such as exterior portions of the tanks in contact with concrete. Table 4a, "Tank Inspection Recommendations," in LR-ISG-2012-02 recommends that volumetric inspections be conducted on the external surfaces of tank bottoms and shells exposed to concrete to manage the aging effect of loss of material.

By letter dated June 3, 2014, the Inspection of Internal Surfaces of Miscellaneous Piping and Ducting Components AMP was amended in response to LR-ISG-2012-02. The amended AMP states that volumetric examination will be performed on tanks within the scope of license renewal to confirm that bottoms that are in contact with concrete are not degrading. It also states that the outdoor stainless steel auxiliary feedwater storage tank is completely enclosed in concrete and not exposed to the outdoor environment. Section D of Enclosure 1 in this letter includes an excerpt of LRA Table 3.4.2-6. The excerpt of this table contains partial line items for the stainless steel auxiliary feedwater storage tank side walls and bottom. The aging effect, AMP, and inspections are different for the stainless steel tank side walls and bottom exposed to concrete.

Issue

It is unclear to the staff how the AMP ensures that degradation is not occurring in inaccessible locations of the auxiliary feedwater storage tank, specifically the external surfaces of the tank shell. The aging effect for the stainless steel tank side walls (shell) exposed to concrete is stated as "none" in Enclosure 1. However, the aging effect for the stainless steel tank bottom exposed to concrete is loss of material and managed using volumetric examinations.

Request

State the basis for ensuring that degradation is not occurring in the exterior surfaces of the side walls of the auxiliary feedwater storage tank.

RAI B.2.1.22-7, Aboveground Metallic Tanks' AMR Items

This RAI has been dropped since the associated information was found to be already submitted on the docket (ADAMS Accession Nos. ML11319A026, ML12069A024, and ML11172A096).

RAI 3.0.3-1a, Followup on Recurring Internal Corrosion, Part A

Background

By letter dated June 3, 2014, STPNOC provided its responses to the aging management recommendations in NRC Interim Staff Guidance LR-ISG-2012-02, "Aging Management of Internal Surfaces, Fire Water Systems, Atmospheric Storage Tanks, and Corrosion Under Insulation." This update of the LRA identifies that recurring internal corrosion (i.e., recurring loss of material) has occurred in specific carbon steel, ductile iron, and cast iron components of the fire protection systems that are exposed to a raw water environment. The response also states that recurring internal corrosion of these components will be managed by the Fire Water System Program (LRA AMP B2.1.13).

Issue

The response is not clear in identifying the specific mechanism or mechanisms that induced the recurring loss of material in these components. Without this information, the staff cannot verify that the Fire Water System Program is a valid AMP to use for management of loss of material that is recurring in these fire protection system components. For example, the Fire Water System Program may not be the appropriate AMP to use for recurring internal corrosion (loss of material) that is induced by a selective leaching mechanism.

Request

For those fire protection system components that are made from each of the indicated materials and have had recurring instances of corrosion, identify the specific type(s) of aging mechanism or mechanisms that lead to loss of material in the components. Justify why the Fire Water System AMP is considered to be capable of detecting and managing the recurring loss of material in these fire protection system component materials, as induced by the applicable aging mechanism or mechanisms.

1. Carbon steel
2. Cast iron
3. Ductile iron

In addition, please clarify whether recurring internal corrosion occurs in the FWS only in those portions that are characterized as "normally dry, periodically wetted, and not easily drained," as opposed to potentially also occurring in other components which do not fall into that category.

RAI 3.0.3-1b, Followup on Corrosion Under Insulation, Part E

This RAI has been deleted as agreed to in the conference call for Set 29 (call number 2) dated February 25, 2015 (ADAMS Accession No. ML15035A280).

Letter to G. T. Powell from John W. Daily dated Month xx, 2015

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