



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

October 12, 2010

Mr. Thomas Joyce
President and Chief Nuclear Officer
PSEG Nuclear LLC
P.O. Box 236
Hancocks Bridge, NJ 08038

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
HOPE CREEK GENERATING STATION LICENSE RENEWAL APPLICATION
FOR BURIED PIPING (TAC NO. ME1832)

Dear Mr. Joyce:

By letter dated August 18, 2009, Public Service Enterprise Group Nuclear, LLC, submitted an application pursuant to Title 10 of the *Code of Federal Regulations* Part 54 (10 CFR Part 54) for renewal of Operating License No. NPF-57 for the Hope Creek Generating Station. The staff of the U.S. Nuclear Regulatory Commission (NRC or the staff) is reviewing this application in accordance with the guidance in NUREG-1800, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants." During its review, the staff has identified areas where additional information is needed to complete the review. The staff's request for additional information is included in the Enclosure. Further requests for additional information may be issued in the future.

Items in the enclosure were provided to John Hufnagel and other members of your staff, 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 by telephone at 301-415-2981 or by e-mail at bennett.brady@nrc.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Bennett Brady".

Bennett M. Brady, Project Manager
Projects Branch 1
Division of License Renewal
Office of Nuclear Reactor Regulation

Docket No. 50-354

Enclosure:
As stated

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE
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RAI B.2.1.24-02

Background:

Given that there have been a number of recent industry events involving leakage from buried or underground piping, the U.S. Nuclear Regulatory Commission (NRC or the staff) required further information to evaluate the impact that these recent industry events might have on the applicant's Buried Piping Inspection and Buried Non-Steel Piping Inspection Programs. By letter dated August 6, 2010, the staff issued request for additional information (RAI) B.2.1.24-01 requesting that the applicant provide information regarding how Hope Creek Generating Station (HCGS) will incorporate the recent industry operating experience into its aging management reviews (AMRs) and programs. The applicant responded on September 1, 2010. In reviewing the response, the staff had further questions.

Issue:

- a) The applicant's response stated that "Planned direct visual inspections of excavated piping typically cover the entire circumference and a length of approximately 8 feet for larger pipe (based on a standard shoring box size), when practical." The staff does not have enough information to evaluate the statement, "when practical." While the staff acknowledges that examining buried pipe from the exterior surface may sometimes not be possible due to plant configuration (e.g., the piping is located underneath foundations); nevertheless, it is important to expose a large enough length of the piping in order to establish reasonable assurance of the condition of the piping system. The staff believes that in instances where it is not possible to expose eight feet of piping during each inspection, an alternative examination should be proposed. The staff notes that it is reasonable to substitute an ultrasonic volumetric examination from the interior of the pipe provided the surface is properly prepared.
- b) The applicant's response stated that, "Included among the systems that are cathodically protected are some portions of in-scope carbon steel Fire Protection System buried piping, and some portions of in-scope stainless steel Condensate Storage and Transfer System buried piping. Only a small amount of Condensate Storage and Transfer System is buried carbon steel pipe (less than 10 linear feet of 1½ inch piping) and this portion of piping is not within the scope of license renewal." The applicant also stated that "The only other buried piping system within the scope of license renewal (Service Water System) has approximately 12 linear feet of 36 inch nominal carbon steel pipe. The remaining approximately 2,050 feet of Service Water System buried piping within the scope of license renewal is pre-stressed concrete pipe." The staff believes that cathodic protection is an important preventive measure for steel piping where soil resistivity values are below 20,000 ohm cm. The license renewal application (LRA) and supplemental documents lack sufficient detail for the staff to understand which portions of systems that contain steel piping are cathodically protected.

ENCLOSURE

- c) The applicant's response did not discuss if annual NACE potential surveys were being conducted at the station. The staff believes that annual NACE potential surveys are important to ensure that the appropriate protection is provided to the buried piping, trending data is obtained on cathodic protection field output, and potential coating holidays are located.
- d) The staff does not have enough information to determine if the condensate storage and transfer system contain hazardous material during normal operation (i.e., material which, if released, could be detrimental to the environment such as diesel fuel and radioisotopes that exceed the Environmental Protection Agency drinking water standards). The staff believes that there is a minimum set of excavated and visual inspections of buried piping segments that contain hazardous materials that should be conducted to establish a reasonable basis of assurance that aging effects are not adversely impacting buried pipe and resulting in the release of hazardous materials to the environment.
- e) Neither the LRA nor RAI response described the quality of the backfill in the vicinity of buried in-scope piping. The staff understands that the presence of rocks and sharp objects in the backfill around buried pipes is a leading precursor of degradation of buried piping when over time; ground movement causes these materials to come in contact with the buried pipe resulting in damage to the pipe's coating or external surfaces.

Request:

- a) Define what is meant by "when practical" in relation to the length of piping being excavated for inspection. Additionally, where it is not practical to excavate and inspect eight feet of piping for each inspection, state what alternative means will be utilized to determine the condition of the piping material, or justify why inspecting less than eight feet of piping in the context of all planned inspections for each discrete material type provides a reasonable assurance of the condition of the buried pipe and coatings where applicable.
- b) For buried in-scope steel piping respond to the following:
 - i. What portions of the Fire Protection System, discriminated by material type, are provided with cathodic protection?
 - ii. LRA Table 3.4.2-1, Condensate Storage and Transfer System, lists an AMR line item, Piping and Fittings (Pipe Sleeves), constructed of carbon steel exposed to soil and being managed for loss of material by the Buried Piping Inspection Program. Reconcile this line item with the above statement that there is no in-scope buried carbon steel piping in the Condensate Storage and Transfer System.
 - iii. Is the approximate 12 linear feet of 36" service water carbon steel piping provided with cathodic protection?

- iv. If there are in-scope buried carbon steel piping segments that are not cathodically protected, justify why it is acceptable to inspect only one carbon steel piping segment in each ten year period starting ten years prior to the period of extended operation.
- c) Clarify the periodicity of conducting NACE potential surveys, and if not annual, justify the proposed periodicity in light of ensuring appropriate protection is provided to the buried piping, trending data is obtained on cathodic protection field output, and potential coating holidays are located.
- d) For buried in-scope piping respond to the following:
 - i. Does the condensate storage and transfer system contain hazardous material during normal operation?
 - ii. If the condensate storage and transfer system contains hazardous material during normal operation, state what percent of total linear feet of buried in-scope condensate storage and transfer system piping will be inspected by excavation and direct inspection during each ten year period starting ten years prior to the period of extended operation. If there are no planned inspections for this piping, justify why it is acceptable to not inspect in-scope buried pipe containing hazardous materials.
- e) For buried in-scope piping respond to the following:
 - i. Provide details on the quality of the backfill in the vicinity of in-scope buried pipes.

If there is no information on the condition of the quality of backfill beyond initial installation specifications (i.e., no documented observations of the quality of the backfill), justify why the planned inspections are adequate to detect potential degradation as a result of coating damage or holidays, or damage to the exterior surface of non-coated piping.

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/RA/

Bennett M. Brady, Project Manager
Projects Branch 1
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ADAMS Accession No.: ML102780422

*via e-mail

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NAME	B. Brady	I. King *	B. Pham	B. Brady
DATE	10/07/10	10/7/10	10/12/10	10/12/10

OFFICIAL RECORD COPY

Letter to Thomas Joyce from Bennett Brady dated October 12, 2010

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