



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

February 11, 2014

Mr. George H. Gellrich, Vice President  
Calvert Cliffs Nuclear Power Plant, LLC  
Calvert Cliffs Nuclear Power Plant  
1650 Calvert Cliffs Parkway  
Lusby, MD 20657-4702

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2 -  
REQUEST FOR ADDITIONAL INFORMATION REGARDING RELIEF  
REQUEST RR-ISI-04-08, REVISION 1, MITIGATION OF BURIED SALTWATER  
SYSTEM PIPING DEGRADATION (TAC NOS. MF3413 AND MF3414)

Dear Mr. Gellrich:

By letter dated January 29, 2014, Calvert Cliffs Nuclear Power Plant, LLC, the licensee, submitted a request for authorization of a proposed alternative to the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code Section XI, IWA-4000 for Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2. Specifically, the licensee proposed the installation of a sleeve assembly primarily consisting of a pressure retaining backing plate, an internal rubber gasket and four retaining bands, as a repair system for defects in the buried saltwater system piping.

The Nuclear Regulatory Commission (NRC) staff is reviewing the submittal and has determined that additional information is needed to complete its review. The specific questions are found in the enclosed request for additional information (RAI). The NRC staff requested a response to the RAI by February 14, 2014.

If you have any questions regarding this issue, please contact me at (301) 415-1016.

Sincerely,

A handwritten signature in black ink, appearing to be "Nadiyah S. Morgan".

Nadiyah S. Morgan, Project Manager  
Plant Licensing Branch I-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosure:  
Request for Additional Information

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION  
REGARDING RELIEF REQUEST RR-ISI-04-08, REVISION 1  
ALTERNATIVE REPAIR FOR BURIED SALTWATER SYSTEM PIPING  
CALVERT CLIFFS NUCLEAR POWER PLANT, LLC  
CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-317 AND 50-318

By letter dated January 29, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML14034A173), Calvert Cliffs Nuclear Power Plant, LLC (Calvert Cliffs), the licensee, submitted a request for authorization of a proposed alternative to the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, IWA-4000 for Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2. Specifically, the licensee proposed the installation of a sleeve assembly primarily consisting of a pressure retaining backing plate, an internal rubber gasket and four retaining bands, as a repair system for defects in the buried saltwater system piping.

In order to complete its review, the Nuclear Regulatory Commission (NRC) staff requests the following information:

1. Page 4 of the RR-ISI-04-08, Rev. 1 contains text which states:

Prior to installation of the sleeve, the cement lining for the entire length of the sleeve assembly will be removed and repaired with an approved sealant. To prevent galvanic corrosion, the outer surface of the backing plate will be wrapped with a 1/8" thick rubber gasket so that the stainless steel backing plate does not come in direct contact with ductile cast iron piping.

Page 4 of the RR-ISI-04-08, Rev. 1 also contains Figure 2. Figure 2 appears to be either in conflict with or an over simplification of the above text. Based primarily on the above text, the NRC staff believes that the process of installing the repair will include the following steps:

- Identification and characterization of the location to be repaired
- Removal of the all the mortar lining from the pipe for a length equal to the length of the rubber seal
- Application of sealing material (sealant) in the location from which the mortar has been removed
- Insertion of the 1/8-inch rubber gasket on top of the sealant to ensure that the backing plate will not contact the ductile iron pipe
- Insertion of the A16XN backing plate
- Insertion of the rubber gasket
- Insertion of the A16XN bands

Enclosure

Please correct the text and diagrams in RR-ISI-04-08, Rev. 1, and/or the NRC staff's understanding of the repair process as appropriate.

2. In the last paragraph on Page 4 of RR-ISI-04-08, Rev. 1, you stated that an approved sealant will be used to repair the cement lining at the defect area prior to installing the rubber seal.
  - a) Reference the industry standards (e.g., American Society for Testing and Materials sections) to which the sealant was qualified, discuss the qualifying conditions (the temperature and pressure under which the sealant is qualified), and the qualified service life of the sealant.
  - b) Will the sealant be hard or remain pliable when it is applied to the excavated area of the inside surface of the pipe?
  - c) How thick or deep will the sealant be when it is applied?
  - d) Will the backing plate have good contact with the sealant? If not, have the stress calculations, which permit this repair to be used for pipe degradations up to 3 inches in diameter, considered this lack of contact between the backing plate and the sealant?
3. On page 6 of RR-ISI-04-08, Rev. 1, you stated that the proposed repair will not apply to through-wall degradation. Discuss the minimum wall thickness of the pipe base metal and at the bell-spigot joint beyond which the proposed seal repair would not be applicable.
4. Attachment 2 to RR-ISI-04-08, Rev. 1 specifies two regulatory commitments to inspect one installed seal after two operating cycles for Unit Nos. 1 and 2, respectively. The NRC staff finds that these commitments are an essential aspect of whether or not the proposed alternative should be authorized. The NRC's Office of the General Counsel has indicated to the NRC staff that regulatory commitments on the part of licensees may not be used in NRC safety evaluations as a basis for meeting the criteria contained in Title 10 of the *Code of Federal Regulations* Section 50.55a(a)(3). The Office of the General Counsel has indicated that when regulatory commitments must be relied upon in authorizing an alternative to the ASME Code, the safety evaluation should clearly state that the commitment is a condition of the authorized alternative. Once the regulatory commitment has been deemed to be a condition of the alternative, the commitment becomes a condition of the NRC's authorization. Please confirm that Calvert Cliffs understands that the regulatory commitments provided as part of this request will become conditions of the authorized alternative.
5. In the NRC staff's previous review of this proposed alternative, it considered only sections of straight pipe and not joints between those sections. As a result, the NRC staff did not consider the potential for axial, angular, or rotational motion between opposite ends of the repair.
  - a) Given the potential for these motions, due to changes in the soil around the pipe caused by changes in temperature, moisture, or seismic activity, and especially in light of the

fact that the sealant material is applied over exactly the length of the repair gasket, please discuss the potential for cracks to develop in the sealant which allow water ingress into the joint.

- b) Discuss the potential for and results of a seismic event of sufficient magnitude to cause sliding between pipe segments along the bell and spigot joint, which appears to be constrained only by gasket friction, addressing whether the motion may exceed the ability of the repair to expand or contract.
  - c) Would such an event result in the rubber gasket washing downstream and plugging safety related equipment?
6. The NRC staff notes that post-installation pressure testing was not included in RR-ISI-04-08, Rev. 1. In its May 13, 2013, letter, in response to the NRC request for additional information RAI-19, the licensee provided the requirements for the post-installation pressure testing for RR-ISI-04-08 (ADAMS Accession No. ML13141A270). Discuss whether the post-installation pressure testing for RR-ISI-04-08, Rev. 1 will be performed the same as for RR-ISI-04-08.
7. The NRC staff notes that the duration for the proposed alternative was not included in RR-ISI-04-08, Rev. 1. In its November 13, 2013, letter, the NRC authorized RR-ISI-04-08 for the fourth inservice inspection interval which ends on June 30, 2019 for both units (ADAMS Accession No. ML13297A293). Discuss whether the duration for RR-ISI-04-08, Rev. 1 is also applicable for the fourth inservice inspection interval which ends on June 30, 2019 for both units.

February 11, 2014

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Sincerely,

*/ra/*

Nadiyah S. Morgan, Project Manager  
Plant Licensing Branch I-1  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

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**ADAMS Accession No: ML14041A427**

\*See dated email

\*\* via e-mail

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