



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

September 9, 2010

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: REQUEST FOR ADDITIONAL INFORMATION RE: REQUEST FOR
APPROVAL OF ALTERNATIVE (RELIEF REQUEST) FOR DISSIMILAR METAL
WELD REPAIRS (ISI-04-05) - CALVERT CLIFFS NUCLEAR POWER PLANT,
UNIT NOS. 1 AND 2 - (TAC NOS. ME3963 AND ME3964)

Dear Mr. Gellrich:

By letter dated May 18, 2010 (Agencywide Document Access and Management System Accession No. ML101410060), Calvert Cliffs Nuclear Power Plant, LLC, the licensee, submitted relief request (RR) ISI-04-05 for Nuclear Regulatory Commission (NRC) review and approval. RR ISI-04-05 pertains to the use of full structural weld overlays (FSWOL) as an alternative repair technique for Alloy 82/182 dissimilar metal (DM) welds at Calvert Cliffs Nuclear Power Plant (Calvert Cliffs), Unit Nos. 1 and 2.

The NRC staff has reviewed the information provided and has determined that additional information is needed to complete its review. Enclosed is the staff's request for additional information (RAI) regarding repairs to DM welds. As discussed with your staff, we understand that you intend to respond to this RAI within 60 days of the date of this letter.

Please contact me at 301-415-1364 if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Douglas V. Pickett".

Douglas V. Pickett, Senior 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:
As stated

cc w/encl: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2

REPAIRS TO DISSIMILAR METAL WELDS

DOCKET NOS. 50-317 AND 50-318

1. RR ISI-04-05 specifically stated that the relief is requested for the spring 2011 refueling outage at Calvert Cliffs, Unit No. 2, but did not identify the refueling outage at Calvert Cliffs, Unit No. 1, for which the relief is requested. Please clarify and/or include the refueling outage of Calvert Cliffs, Unit No. 1 for which the relief is requested.
2. Section I of RR ISI-04-05 does not contain the applicable ASME Code, Section XI, Examination Category and Item Number, for each component for which the relief is requested. Please specify the Examination Category and Item Number from the applicable ASME Code, Section XI, for each component for which the relief is requested.
3. Section III of RR ISI-04-05 does not contain the ASME Code, Section XI, Appendix VIII, Supplement 11, as the applicable Code requirement. Clarify and/or include the ASME Code, Section XI, Appendix VIII, Supplement 11, as the applicable Code requirement. Specify the edition and addenda of the ASME Code, Section XI, that will be used for Appendix VIII, Supplement 11.
4. RR ISI-04-05 did not commit to submit to the NRC the following documents or reports.
 - a. Within 14 calendar days of completion of the ultrasonic testing (UT) examinations of the subject welds, the final nondestructive examination (NDE) report that includes the following:
 - i. Listing of any indications detected and the type and nature of the indications,
 - ii. Disposition of all indications using the acceptance standards of the ASME Code, Section XI, IWB-3514-2 and/or IWB-3514-3 criteria,
 - iii. Discussion of any repairs to the weld metal, the overlay material, and/or the base metal,
 - iv. Reason for the needed repairs.
 - b. Before Mode 4:
 - i. The design analysis of FSWOL demonstrating that the application of the FSWOL satisfies the ASME Code, Section III, NB-3000, requirements,

Enclosure

ii. The crack growth evaluation of flaws demonstrating the life of the overlay, Commit to provide the above reports or justify why they are not needed to be submitted.

5. Confirm that the duration of the proposed RR ISI-04-05 is for the fourth 10-year inservice inspection (ISI) interval at Calvert Cliffs, Unit Nos. 1 and 2. The NRC staff may approve the FSWOL design for the life of the repair. However, the staff will not approve the ISI requirements of RR ISI-04-05 for the life of the repair because the ISI requirements may change based on future NRC regulatory requirements or improved examination techniques. The staff suggests that a section titled "Duration of Proposed Alternative" be added to RR ISI-04-05.
6. For those safe ends or pump casings that are made of cast austenitic stainless steel (CASS) material and are joining the DM weld, the UT examinations of the DM weld will not achieve 100% coverage because the current UT technology is not qualified in accordance with the ASME Code, Section XI, Appendix VIII, to examine the CASS material. Therefore, the structural integrity of Alloy 82/182 weld will not be fully understood. Discuss whether the CASS pipe prevents 100% examination coverage of the DM weld.
7. On page 2 of Enclosure 1, Item 1.2(d)(3) specifies that the filler material used shall meet the minimum requirement for delta ferrite. Specify the minimum requirement for delta ferrite content.
8. On page 3 of Enclosure 1, Item 2.2(a) specifies that the axial length of the weld overlay is $0.75\sqrt{Rt}$. Clarify if this distance is required to be applied to both sides of the weld overlay (i.e. the nozzle side and the safe end side).
9. On page 8 of Enclosure 1, Footnote (a) of Figure 1 states that "Dimension b is equivalent to the nominal thickness of the nozzle or pipe being overlaid, as appropriate." Dimension b is the UT distance away from the toe of the original weld. The above requirement is inconsistent with Footnote (1) of Figure 2 which requires that the examination extent shall be at least $\frac{1}{2}$ inch beyond the as-found flaw. The NRC staff suggests the following wording:

"...Dimension b is equivalent to the nominal thickness of the nozzle or pipe being overlaid, as appropriate; however it shall not be less than $\frac{1}{2}$ inch from the toe of the original weld..."

Revise Footnote (a) of Figure 1 or justify why the proposed footnote (a) of Figure 1 is adequate.

10. On page 3 of Enclosure 2, Section 3.0(e)(1) states that "Direct temperature measurement (e.g., pyrometers, temperature-indicating crayons, and thermocouples) during welding or if direct measurement is impractical, one of the following methods shall be used to determine the interpass temperature:" The NRC staff considers temperature measurements to be impractical if excessive radioactive dose or inaccessibility prevents the direct temperature measurements. Identify the impracticality in taking direct measurements for the proposed weld overlays.

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Sincerely,
/RA/

Douglas V. Pickett, Senior Project Manager
Plant Licensing Branch I-1
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