PMSTPCOL PEmails

From: Govan, Tekia
Sent: Tuesday, September 15, 2009 5:56 PM
To: STPCOL
Subject: FW: Response to RAI
Attachments: U7-C-STP-NRC-090126.pdf

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From: Scheide Richard [mailto:rhscheide@STPEGS.COM]
Sent: Monday, September 14, 2009 2:14 PM
To: Muniz, Adrian; Sosa, Belkys; Dyer, Linda; Wunder, George; Eudy, Michael; Plisco, Loren; Anand, Raj; Foster, Rocky; Joseph, Stacy; Govan, Tekia; Tai, Tom
Subject: Response to RAI

Attached is an electronic copy of letter U7-C-STP-NRC- 090126, which provides the response to NRC Request for additional Information Letter Number 216.

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From: Govan, Tekia

Created By: Tekia.Govan@nrc.gov

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Nuclear Operating Company

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September 14, 2009
U7-C-STP-NRC-090126

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
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South Texas Project
Units 3 and 4
Docket Nos. 52-012 and 52-013
Response to Request for Additional Information

Attached are the responses to the NRC staff questions included in Request for Additional Information (RAI) letter number 216 related to Combined License Application (COLA) Part 2, Tier 2, Sections 5.02 and 5.03. This submittal completes the response to this RAI letter.

The attachments address the responses to the RAI questions listed below:

RAI 05.02.01.01-1 RAI 05.03.03-1

When a change to the COLA is indicated, it will be incorporated in the next routine revision of the COLA following the NRC acceptance of the RAI response.

There are no commitments in this letter.

If you have any questions, please contact me at (361) 972-7136, or Bill Mookhoek at (361) 972-7274.

STI 32527574

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 9/14/09

Scott Head
Manager, Regulatory Affairs
South Texas Project Units 3 & 4

rhs

Attachments:
1. Question 05.02.01.01-1
2. Question 05.03.03-1

cc: w/o attachment except*
(paper copy)

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RAI 05.02.01.01-1

QUESTION:

Section 5.2, "Integrity of Reactor Coolant Pressure Boundary," of the Final Safety Analysis Report (FSAR) in the South Texas Project (STP) Units 3 & 4 Combined License (COL) application incorporates by reference Subsection 5.2.1.1, "Compliance with 10 CFR 50, Section 50.55a," of the ABWR Design Control Document (DCD) Tier 2, which refers to DCD Tier 2, Table 3.2-3, "Quality Group Designations – Codes and Industry Standards," for the ASME Code applied to plant components. ABWR DCD Tier 2, Subsection 5.2.1.1 states that the Code edition, applicable addenda, and component dates will be in accordance with 10 CFR 50.55a. The STP COL applicant is requested to specify the Code edition and addenda to be applied to the STP components. The STP COL applicant is also requested to specify the edition and addenda of the American Society of Mechanical Engineers (ASME) *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code) to be applied to pumps, valves, and dynamic restraints at STP Units 3 & 4.

RESPONSE:

The Code edition and addenda to be applied to the STP components are listed in ABWR DCD Table 1.8-21 and COLA Tier 2, Table 1.8-21a, as discussed in response to RAI 03.02.02-5 (U7-C-STP-NRC-090111, dated August 26, 2009).

The ASME OM Code edition and addenda to be applied to pumps, valves and dynamic restraints is addressed in responses to RAIs 03.09.06-1 and 03.09.06-2 (U7-C-STP-NRC-090097, dated August 17, 2009).

No COLA change is required as a result of this RAI response.

RAI 05.03.03-1

QUESTION:

The staff has reviewed Standard Departure (STD DEP) T1 2.1-2 and determined that additional information is needed to determine its acceptability. The staff requests the following:

a) STP COL FSAR Tier 1, Section 2.1.1 and FSAR Tier 2, Section 5.3.3.1.1.1 state that the reactor internal pump (RIP) motor casings are clad with stainless steel only in the stretch tube region and around the bottom of the reactor internal pump motor casings. However, STP 3 & 4 COL Part 7 (Departures Report), Section 2.1, STD DEP T1 2.1-2 states that the standard ABWR design for installed applications includes stainless steel cladding from the top portion of the casing to the motor secondary seal and around the bottom of the RIP motor casing. The applicant also states that the design change represents an improvement based on ABWR operating experience. Please clarify which portions of the RIP motor casing will have cladding and provide the specific operating experience used to justify the design change.

b) ABWR DCD states that the reactor vessel bottom head is clad with Ni-Cr-Fe alloy, while STP 3 & 4 COL Part 7 (Departures Report), Section 2.1, STD DEP T1 2.1-2 states that the RIP motor casings are clad with stainless steel from the top portion of the casing to the motor secondary seal. Provide details about the material types and procedures used to join the RIP motor casing and the bottom reactor vessel head.

Revise the applicable COLA sections accordingly.

RESPONSE:

a) COLA Part 7 (Departures Report) STD DEP T1 2.1-2 will be made consistent with the markup of COLA Part 2, Tier 1, Section 2.1.1 and COLA Part 2, Tier 2, Section 5.3.3.1.1.1, as marked below. The attached figure shows the cladding regions of the reactor internal pump (RIP) motor casings. ABWR DCD Tier 2, Figure 5.4-1 shows the RIP cross section.

   The inner surface of the RIP casing, where the cladding is applied, is protected from the potential corrosive environment. The purge flow rate remains unaffected due to prevention of corrosion degradation. This cladding design of the RIP casing has been applied to the K-6 and H-5 ABWR units which have been operating in Japan since 1996 and 2005, respectively. The experience with these plants is that the RIPs have performed properly.

b) The attached figure shows the welding of a RIP motor casing with RIP penetration of the RPV bottom head. The RPV bottom head is made of forging material (Low alloy steel, SA-508, Class 3). The forging of the RPV bottom head ring (knuckle region) includes RIP penetrations. The inner surface of the RPV bottom head ring has stainless steel cladding and Ni-Cr-Fe alloy (Alloy 82) cladding. The inside of the RIP penetration has

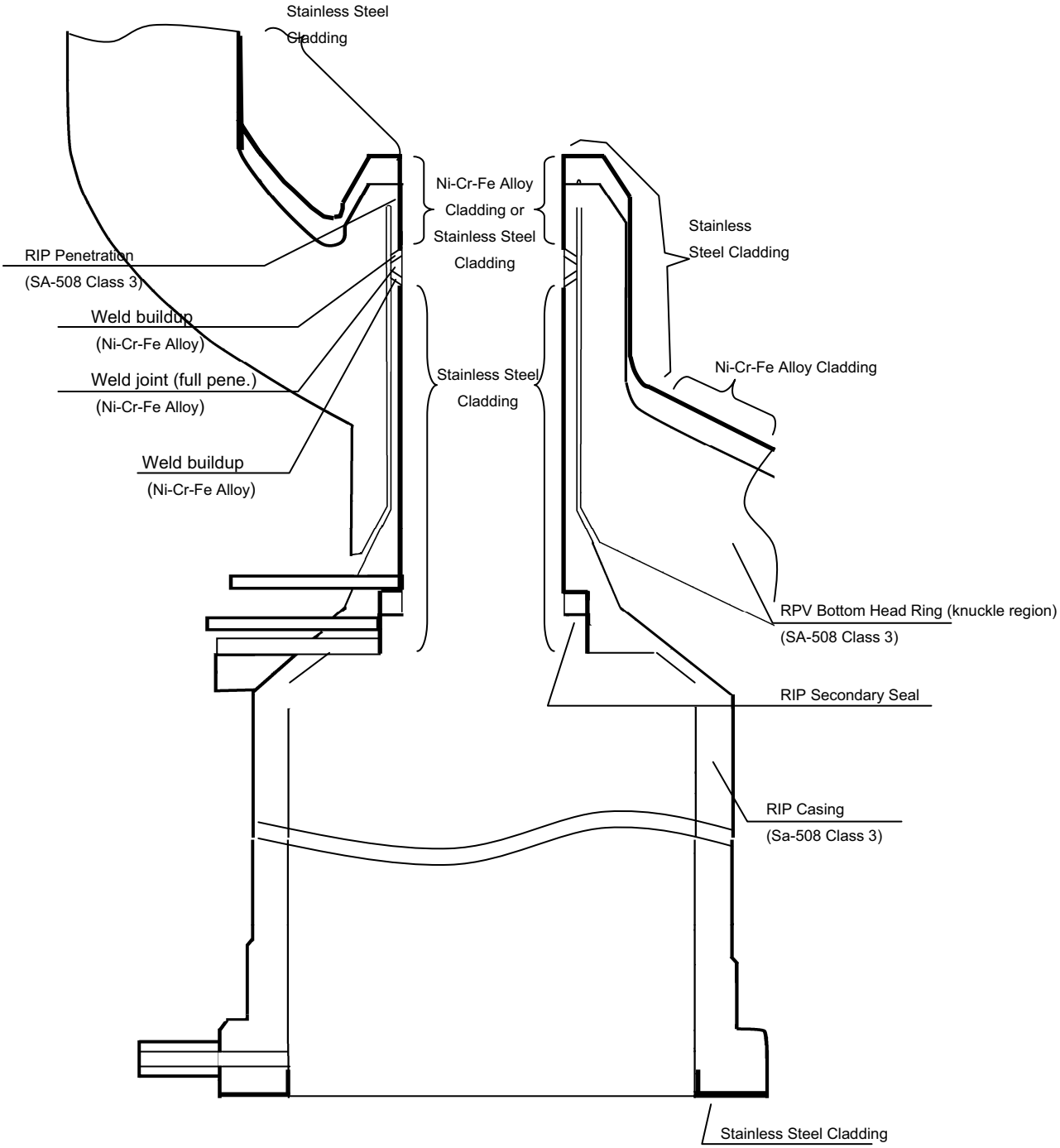
stainless steel or Ni-Cr-Fe alloy (Alloy 82) cladding. The inner surface of the RPV bottom head dome has Ni-Cr-Fe alloy (Alloy 82) cladding. The edge of the RIP penetration has weld buildup of Ni-Cr-Fe alloy (Alloy 82). The RIP casing is made of forging material (Low alloy steel, SA-508 Class 3). The edge of the RIP casing also has weld buildup of Ni-Cr-Fe alloy (Alloy 82). The inside of the RIP casing has stainless steel cladding from the bottom of the weld buildup to the RIP secondary seal area. The weld joint between the RIP penetration weld buildup and the RIP casing weld buildup is made of Ni-Cr-Fe alloy (Alloy 82) by full penetration welding.

The claddings of the inner surface of the RPV bottom head and the RIP penetrations as well as the weld buildups of RIP penetrations are applied prior to the final stress relief heat treatment (FSR) of the RPV. The weld preparation of the RIP penetration edge with weld buildup is made after the FSR. The RIP casing edge with weld buildup is also prepared for welding. The RIP casing then is welded to the RIP penetration by full penetration welding. This welding design and the materials selection are the same as those used in the previously referenced ABWR plants.

COLA Part 7, Revision 2, Section 2.1, STD DEP T1 2.1-2, Reactor Pressure Vessel System RIP Motor Casing Cladding, Description, is changed as shown below. Changes are identified with gray shading.

This requested departure modifies the description of the RIP motor casing to clearly indicate that some portions of the motor casing have cladding.

ABWR DCD Tier 1 describes the cladding applied to the interior of the RPV ~~cylindrical~~ ~~shell~~ and identifies areas of the RPV where there is no cladding. Specifically, DCD Tier 1 Section 2.1.1 states that there is no cladding on the RIP motor casing. The standard ABWR design for installed applications includes stainless steel cladding at two different locations ~~from the top portion~~ of the casing ~~to the motor secondary seal (along the length of the stretch tube) and around the bottom of the RIP motor casing where it interfaces with the motor cover closure~~. The RIP motor casings are clad with stainless steel only in the stretch tube region (up to the motor secondary seal) and around the bottom of the RIP motor casings where they interface with the motor cover closures. The requested departure modifies the DCD Tier 1 RIP motor casing design description to be consistent with the ABWR RIP motor casing design in current use. The design description in the ABWR DCD Tier 2 Section 5.3.3.1.1.1 is also clarified for consistency with Tier 1.



Weld Design of RIP Casing and RPV Bottom Head