

NRR-PMDAPEm Resource

From: George, Andrea
Sent: Tuesday, January 14, 2014 3:57 PM
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Cc: mpmurray@stpegs.com; Singal, Balwant; Stang, John; Smith, Stephen; Dozier, Jerry; Parillo, John
Subject: RAI's Regarding South Texas Project's Submittal for Risk-Informed Resolution of GS-191 (TAC Nos. MF2400 and MF2401)
Attachments: GSI-191AADBRAIs.docx

Good afternoon,

By letter dated June 19, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession Number ML131750250), STP Nuclear Operating Company (STPNOC, the licensee) for South Texas Project (STP), Units 1 and 2, submitted a request for exemptions and license amendment request (LAR) for a risk-informed approach to resolving generic safety issue (GSI)-191. STPNOC provided a supplement to the LAR by letter dated November 13, 2013 (ADAMS Accession No. ML13323A128). The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed the submittals and requests additional information (RAI) as detailed in the attachment.

In accordance with our procedures, a clarification call regarding these RAI's was held on January 14, 2014. During the clarification call, South Texas Project agreed to respond to these RAIs in 60 days, which is March 15, 2014.

Please let me know of any questions; I can be reached at 301-415-1081.

Thank you,

Andrea George, Project Manager
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Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation
301-415-1081

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Risk Informed GSI-191 Accident Dose Branch (AADB) RAI 1

To ensure a complete and accurate review of the dose consequence analyses, please provide additional information in tabular form describing, for each design basis accident affected by the proposed Risk Informed GSI-191 submittal, all the basic parameters used in the dose consequence analyses. For each parameter, please indicate the current licensing basis (CLB) value, the revised GSI-191 value where applicable, as well as the basis for any changes to the CLB. An example of the input/assumptions needed is provided in Table 4.3-11 "Dose Analysis Inputs for LOCA" provided in STP's alternate source term submittal [Agencywide Documents Access Management System (ADAMS) Accession No. ML070890474]. The staff requests that the information provided include all of the basic parameters whether or not the individual parameter is being changed for the GSI-191 amendment. The staff also requests that the information be provided in separate tables for each affected accident (i.e., loss-of-coolant accident (LOCA), the fuel handling accident (FHA), the main steam line break accident (MSLB), the steam generator tube rupture accident (SGTR), the control rod ejection accident (CREA), and the locked rotor accident (LRA)).

Risk Informed GSI-191 AADB RAI 2

STP identified the following condition related to the alternative source term (AST) license amendments currently in effect at STP Units 1 and 2. Westinghouse Electric Company Nuclear Safety Advisory Letter (NSAL)-06-15, dated December 13, 2006, advised operators of Westinghouse plants that the single-failure scenario for the SGTR analysis that licensees used in their accident analysis may not be limiting. As stated in the STP AST NRC Safety Evaluation dated March 6, 2008 (ADAMS Accession No. ML080160013), "The licensee has evaluated the applicability of NSAL-06-15 against the accident analysis assumptions and has determined that the current single-failure assumption for the STP SGTR analysis is not limiting. Therefore, the licensee is operating under compensatory measures to meet regulatory dose guidelines. The licensee plans to resolve this condition at the earliest opportunity so that the assumptions, including the limiting single failure, for the SGTR accident analysis described herein are consistent with the plant response to this event. To support the limiting single-failure assumptions in the SGTR analysis, STP will maintain an administrative limit for reactor coolant system (RCS) dose equivalent iodine 131 (DEI) so that the radiological dose reference values for the SGTR analysis remain bounding, and the licensee will continue to comply with GDC 19."

Has this condition been resolved? If so, how? Also, provide justification that GDC 19 continues to be met.

Risk Informed GSI-191 AADB RAI 3

The LOCA analysis assumes that iodine will be removed from the containment atmosphere by containment spray and natural diffusion to the containment walls. As a result of these removal mechanisms a large fraction of the released activity will be deposited in the containment sump. The sump water will retain soluble gases and soluble fission products such as iodines and cesium, but not noble gases. The guidance from RG 1.183 specifies that the iodine deposited in the sump water can be assumed to remain in solution as long as the containment sump pH is maintained at or above 7.

The AST application indicates:

"After the first day, the containment sump pH will begin to decrease, reaching 6.8 by the end of the 30-day duration of the radiological consequence analysis for the DBA LOCA, and the impact of that decrease has been reflected in the Control Room and offsite doses."

It is noted that the AST application further indicates:

"The design inputs for calculating the containment sump pool pH were conservatively established by the licensee to maximize the acidic contribution to sump pH and minimize the basic contribution."

The GSI-191 application indicates the possibility that debris generated during a LOCA could clog the containment sump strainers in pressurized-water reactors (PWRs) and result in loss of net positive suction head (NPSH) for the ECCS and CSS pumps, impeding the flow of water from the sump.

Discuss the exemption justification as they relate to the effects on sump water pH, radiological consequences, and loss of the containment spray system.