February 10, 2011

Mr. Scott Head, Manager
Regulatory Affairs
Nuclear Innovation North America, LLC
P. O. Box 289
Wadsworth, TX 77483

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 373 RELATED TO SRP SECTION 3.9.6 FOR THE SOUTH TEXAS PROJECT COMBINED LICENSE APPLICATION

Dear Mr. Head

By letter dated September 20, 2007, STP Nuclear Operating Company (STP) submitted for approval a combined license application pursuant to 10 CFR Part 52. The U. S. Nuclear Regulatory Commission (NRC) staff is performing a detailed review of this application to enable the staff to reach a conclusion on the safety of the proposed application.

The NRC staff has identified that additional information is needed to continue portions of the review. The staff's request for additional information (RAI) is contained in the enclosure to this letter.

To support the review schedule, you are requested to respond within **30** days of the date of this letter. If changes are needed to the safety analysis report, the staff requests that the RAI response include the proposed wording changes.

If you have any questions or comments concerning this matter, I can be reached at 301-415-8484 or by e-mail at Tom.Tai@nrc.gov or you may contact George Wunder at 301-415-1494 or George.Wunder@nrc.gov.

Sincerely,

/RA/

Tom M. Tai, Senior Project Manager
ABWR Projects Branch
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-012
52-013

eRAI Tracking No. 5453

Enclosure:
Request for Additional Information

cc: William Mookhoek
John Price
Loree Elton

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NAME	TScarbrough	MNorato	TTai	GWunder
DATE	1/31/2011	1/31/2011	2/10/2011	2/7/2011

***Approval captured electronically in the electronic RAI system.**

OFFICIAL RECORD COPY

Request for Additional Information No. 5453 Revision 4

2/7/2011

South Texas Project Units 3 and 4
Nuclear Innovation North America, LLC
Docket No. 52-012 and 52-013
SRP Section: 03.09.06 - Functional Design Qualification and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints
Application Section: 3.9.6

QUESTIONS for Component Integrity, Performance, and Testing Branch 2 (ESBWR/ABWR Projects) (CIB2)

03.09.06-27

On December 15, 2010, STP submitted a supplemental response to RAI 03.09.06-5 to justify relief from the inservice testing (IST) requirement for flow rate testing in the ASME *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code) for the Residual Heat Removal (RHR) system fill pumps. In its RAI response, STP proposes to modify the STP FSAR to include Subsection 3.9.6.9.3, "Relief Requested Pursuant to 10 CFR 50.55a(f)(5)(iii) for Testing RHR Fill Pumps." The proposed subsection states that the primary function of the three RHR system fill pumps is to maintain a water-solid condition in the RHR pump discharge piping. The proposed subsection indicates that the RHR system fill pumps will not meet the requirement for measurement of flow rate in ASME OM-2004, Table ISTB-3000-1, "Inservice Test Parameters," during the Group A tests and Comprehensive Tests for these pumps. The proposed subsection asserts that measurement of flow rates is impractical for the RHR system fill pumps because the pump flow rate is expected to vary considerably around a small value due to variations in leakage through the RHR system. The proposed subsection states that the ISTB-3000 requirement for measuring pump differential pressure and peak vibration velocity will assure detection of any significant degradation in the pumps' hydraulic or mechanical performance. The proposed subsection indicates that the plant technical specifications will require confirmation of a water-solid RHR pipeline on a 31-day frequency. The proposed subsection also specifies that the RHR system pressure will be continuously monitored and alarmed in the plant control room. The proposed subsection asserts that the operation of the pumps on the flat portion of their pressure-flow curve and the planned monitoring of pump performance will provide an acceptable level of quality and safety. The COL applicant is requested to discuss compliance with the ASME OM Code requirement to perform Comprehensive Testing every 24 months for the RHR system fill pumps. The applicant is also requested to clarify why the proposal is submitted as relief from the OM Code based on 10 CFR 50.55a(f)(5)(iii) as an impractical test, rather than as an alternative to the OM Code based on 10 CFR 50.55a(a)(3)(i) that provides an acceptable level of quality and safety.

03.09.06-28

On December 15, 2010, STP submitted a supplemental response to RAI 03.09.06-7 to revise the STP FSAR to include Section 3.9S, "Inservice Testing Program (OM-2004)," that provides an updated IST table that incorporates the requirements in the 2004 Edition of the ASME *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code). In the RAI response, STP states that the new Table 3.9S-1, "Inservice Testing Program Plan," supersedes the existing Table 3.9-8, "Inservice Testing Safety-Related Pumps and Valves," which will be deleted in a future departure. The RAI response also indicates that Note (f) in Table 3.9S-1 provides additional justification in response to RAI 03.09.06-8 for

Cold Shutdown and Refuel test frequencies. The RAI response also indicates that Note (h) in Table 3.9S-1 provides additional justification in response to RAI 03.09.06-9 for deferring tests of valves where such testing might cause valve damage or impact power operations.
The NRC staff requests that the COL applicant address the following items regarding Table 3.9S-1:

(a) The IST table does not specify the type of pump (such as centrifugal pump, vertical line shaft centrifugal pump, or positive displacement pump) for each application to identify the applicable OM Code requirements. The table does not indicate the bases for the specified test parameters for the Group A, Group B, and Comprehensive Tests for each pump.

(b) The IST table indicates that specific valves will receive an exercise test. The table does not appear to indicate that active power-operated valves (POVs) will receive a stroke-time test as part of the exercise test requirement in accordance with the ASME OM Code requirements.

(c) The OM Code requires that valves within the scope of the IST program receive a position indication test if the valve is equipped with a remote position indicator. The table does not indicate this requirement for some POVs, manual valves, check valves, relief valves and vacuum breaker valves. See, for example, B21-F002, F004, F006, F021, and F022; B31-F008; C41-F003 and F004; E11-F002, F016, F024, F028, F036, F037, F039, F051, F101, and F102; E22-F002, F020, and F021; E31-F702 and F704; E51-F002, F017, F054, and F055; G31-F018; G41-F016, F018, and F020; G41-F016; P11-F141; P21-F006, F010, F025, and F175; P25-F005, F012, F016, and F022; P41-F010; P51-F131; P54-F011; P81-F251 and F252; and Y52-F002.

(d) The OM Code requires that valves categorized as A or A/C receive a leakage test. The IST table does not specify leakage testing for many valves identified as OM Code Category A or A/C. Most of these valves reference Note k4 (Appendix J Type C Leak Test not required as noted in Table 6.2-7) in the IST table. The basis for not meeting the OM Code leakage test requirement for these individual valves is not clear. Also, some Category A valves in the IST table do not indicate leakage testing and do not reference Note k4. See, for example, P41-F003 and F005; and P54-F012.

(e) The OM Code requires that relief valves be tested in accordance with its Appendix I, “Inservice Testing of Pressure Relief Devices in Light-Water Reactor Nuclear Power Plants.” The IST table indicates that the test frequency of some relief valves might be as long as 10 years. The table does not indicate that the OM Code requires sampling of relief valves on a 24-month interval for Code Class 1 relief valves, and a 48-month interval for Code Class 2 and 3 relief valves. See, for example, B21-F010; C41-F003; E11-F028, F039, and F051; E22-F020; E51-F017; P21-F175; P41-F010; P54-F011; and Y52-F002.

(f) The IST table identifies some check valves as passive valves although check valves within the IST program should be identified as active valves with an exercise test. See, for example, E11-F048; P11-F142; and P41-F007 and F008.

(g) The IST table identifies Manual Valve C51-J011 as an OM Category A and C valve. The basis for this dual categorization is not clear.

(h) The IST table specifies that MOV E22-F001 will receive a stroke exercise test and position indication test. However, the test frequencies are indicated to be 2 year, 2 year, and 3 month intervals. The basis for three frequency indications is not clear.

(i) The IST table identifies Relief Valve P41-F010 as a passive valve. The basis for the relief valve being categorized as passive is not clear.

(j) The IST table specifies E1 (operational convenience) as part of the test frequency for MOV P41-F015. The basis for this test frequency together with E2 (regular use) is not clear.