



Nuclear Innovation
North America LLC
4000 Avenue F, Suite A
Bay City, Texas 77414

March 31, 2011
U7-C-NINA-NRC-110051

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

South Texas Project
Units 3 and 4
Docket Nos. 52-012 and 52-013
Response to Request for Additional Information

Attached are the Nuclear Innovation North America LLC (NINA) responses to the NRC staff questions included in Request for Additional Information (RAI) letter number 375 related to Combined License Application (COLA) Part 2, Tier 2, Section 9.4 "Air Conditioning, Heating, Cooling and Ventilating Systems." This submittal completes the response to this RAI letter.

The two (2) attachments to this letter are the responses to the RAI questions listed below:

09.04.03-2 09.04.03-3

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

There are no commitments in this letter.

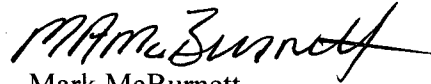
If you have any questions, please contact Scott Head at (361) 972-7136 or Bill Mookhoek at (361) 972-7274.

DO91
MKD

STI 32846740

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

Executed on 3/31/2011



Mark McBurnett

Senior Vice President, Oversight & Regulatory Affairs

Nuclear Innovation North America LLC

jaa

Attachments:

- 1) Question 09.04.03-2, Response
- 2) Question 09.04.03-3, Response

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

Director, Office of New Reactors
U. S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

Regional Administrator, Region IV
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
Arlington, Texas 76011-8064

Kathy C. Perkins, RN, MBA
Assistant Commissioner
Division for Regulatory Services
Texas Department of State Health Services
P. O. Box 149347
Austin, Texas 78714-9347

Alice Hamilton Rogers, P.E.
Inspection Unit Manager
Texas Department of State Health Services
P. O. Box 149347
Austin, Texas 78714-9347

*Steven P. Frantz, Esquire
A. H. Gutterman, Esquire
Morgan, Lewis & Bockius LLP
1111 Pennsylvania Ave. NW
Washington D.C. 20004

*Rocky Foster
Two White Flint North
11545 Rockville Pike
Rockville, MD 20852

(electronic copy)

*George F. Wunder
*Rocky Foster
Loren R. Plisco
U. S. Nuclear Regulatory Commission

Steve Winn
Joseph Kiwak
Jamey Seely
Eli Smith
Nuclear Innovation North America

Peter G. Nemeth
Crain, Caton and James, P.C.

Richard Peña
Kevin Pollo
L. D. Blaylock
CPS Energy

RAI 09.04.03-2**QUESTION:****Changing the Service Building HVAC System Charcoal-bed filter efficiency from 95% to 99%:**

In Standard Review Plan (NUREG-0800) Section 15.0.3, the acceptance criterion for the radiological habitability design of the Technical Support Center (TSC) is the same as that for the control room, i.e., 5 rem (TEDE) for the duration of the design basis accident. RAI 13.03-73 (eRAI 3427) requested information on the radiological analysis for the TSC including the HEPA filter and charcoal adsorber fission product removal efficiencies used in the analysis. As a result of this RAI, an audit (ML102010690) was conducted by the staff on June 25, 2010 on the dose analysis. The audit showed that the analysis assumed a 99% charcoal filter efficiency in order to meet the 5 rem (TEDE) post-accident dose limit inside the TSC. Consequently, the applicant increased the charcoal filter bed thickness from 5.1 cm to 10.2 cm under Item (6) of the departure STD DEP 9.4-3, in Subsection 9.4.8.2 of the STP Units 3&4 FSAR Revision 4. According to Reg Guide 1.140, the 10.2 cm bed thickness typically corresponds to 99% filter efficiency. The applicant also revised the description of standard departure STD DEP 9.4-3 in Chapter 3.0 of the departure report (Part 7), to include the following:

“Additionally, design upgrades are made to provide automatic start of the emergency filter train and increase efficiency of the charcoal filters **from 95% to 99%.**”

However, in Table 2.15.5m of the ABWR DCD Tier 1 ITAAC, the acceptance criterion for the Service Building HVAC System emergency filtration unit efficiency is “**at least 95%**”. The IRed acceptance criterion of “at least 95%” in the Tier 1 ITAAC Table 2.15.5m is not consistent with the 99% charcoal filter efficiency required by the site-specific TSC dose analysis and the Tier 2 departure STD DEP 9.4-3 in Subsection 9.4.8.2. As the increase in filter efficiency in STD DEP 9.4-3 is proposed regardless of the ITAAC Item 4 in Table 2.15-5m, the intent of the ITAAC to verify the as-built design against the design requirements will not be met by the current application. Therefore, the applicant’s evaluation of STD DEP 9.4-3 does not meet the requirements described in 10 CFR 52, Appendix A, Section VIII.B.5.a.

Provide a justification for the absence of a site-specific ITAAC to verify the 99% charcoal filter efficiency, and explain why a Tier 1 exemption under Part 52, Appendix A, Section VIII.A.4 is not appropriate. In the response, please address the current language in FSAR Tier 1 Section 2.15.5 and, where necessary, to ensure consistency between the design, construction, and licensing; provide assurance that the installed filtration system will meet the appropriate design requirements, supporting analyses, and commitments.

RESPONSE:

The revised response to RAI 13.03-73, Letter from Scott Head to NRC Document Control Desk dated June 1, 2010, U7-C-STP-NRC-100113 (ML101550064), provided the calculation results for a radiological analysis of the Technical Support Center (TSC). This calculation was based on conservative assumptions, including a minimum volume of the TSC, unfiltered in-leakage of 10 cfm to the TSC, and a 60-second duration from high radiation actuation signal to realignment of the emergency filter train.

This calculation was based on the current Service Building clean area design (where the TSC is located), which includes NINA's decision to implement design features based on ALARA principles. These specific features, which are considered upgrades to the design, are automatic start of the emergency filter train and increased thickness of the emergency filter train charcoal filter beds from 5.1 cm to 10.2 cm. This design upgrade to add automatic start of the emergency filter train will result in fast realignment as backup to operator manual action during a radiological release event; however, the calculation did not take credit for this faster realignment. The higher efficiency filter allows less frequent replacement and maintenance of the charcoal filters. Tier 1 Section 2.15.5 and Table 2.15.5m, ITAAC 4 require that the Service Building clean air filtration have at least 95% removal for all forms of iodine. Because the STP 3 & 4 10.2 cm charcoal bed corresponds to a 99% filter efficiency (per Reg. Guide 1.140), the charcoal bed design satisfies the requirement of the Tier 1 ITAAC.

The decision to implement these design changes is not an indication that there is any error in the Tier 1 provisions. To provide confirmation, NINA has recalculated the TSC TEDE dose given in the revised response to RAI 13.03-73 as described above, with the exception of using a 95% efficient charcoal filter in the emergency filter train. The new calculations are documented in proprietary references 1 and 2, and can be made available for NRC review.

For the bounding design basis accidents, the calculated doses to TSC personnel due to the activity releases reported in the ABWR DCD for both 99% filter efficiency (as submitted in the revised response to RAI 13.03-73) and 95% are provided below.

	TEDE 99% Filter		TEDE 95% Filter	
	rem	mSv	rem	mSv
LOCA	1.1	11	2.1	21
Main Steamline Break				
Case 1 (Equilibrium Iodine Levels)	6.6E-2	6.6E-1	6.6E-2	6.6E-1
Case 2 (Pre-accident Iodine Spike)	1.4	14	1.4	14
Instrument Line Break	8.5E-4	8.5E-3	3.2E-3	3.2E-2
Cleanup Water Line Break	4.4E-2	4.4E-1	4.4E-2	4.4E-1
Fuel Handling	2.1E-1	2.1	2.5E-1	2.5
Cask Drop	3.3E-3	3.3E-2	6.1E-3	6.1E-2
Gas Waste System Failure	6.7E-3	6.7E-2	7.4E-3	7.4E-2
Liquid Waste System Failure	4.7E-1	4.7	4.8E-1	4.8
Closure of All Main Steam Isolation Valves	1.5E-3	1.5E-2	1.5E-3	1.5E-2

As can be seen from the above table, the doses for the STP 3&4 TSC satisfy the 5 rem (TEDE) requirement for all events with the 95% efficiency filters.

Therefore, NINA believes that changing the Tier 1 ITAAC requirement from at least 95% to at least 99% is not necessary. Further, a site-specific ITAAC is not warranted. The STP 3&4 Service Building HVAC design provides an ALARA design that satisfies the ITAAC as currently written.

No COLA changes are required as a result of this RAI response.

References for RAI Response:

1. CN-CRA-11-13 "South Texas 3 & 4 Technical Support Center LOCA Doses Based on ABWR DCD Releases and 95% Filter Efficiency," Grover J., March 2011.
2. CN-CRA-11-14 "South Texas 3 & 4 Technical Support Center Non-LOCA Doses Based on ABWR DCD Releases and 95% Filter Efficiency," Keller T., March 2011.

RAI 09.04.03-3**QUESTION:**

The charcoal filter efficiency design change from 95% to 99% in STD DEP 9.4-3 may be inherently site-specific, as it is predicated on a site-specific γ/Q used in the post-accident TSC dose analysis. Justify the classification of the departure STD DEP 9.4-3 as “standard”, and not as “site-specific”.

RESPONSE:

NINA will reclassify STD DEP 9.4-3 from a standard departure to a site-specific departure (STP DEP 9.4-3). The following list shows which parts/sections of the STP 3&4 COLA will be revised to implement this change. The change will be provided in COLA Revision 6.

COLA Part 2, Tier 2 Sections/Subsections

- 1.2 General Plant Description
- 1.2.2.16.5 Heating, Ventilating and Air Conditioning
- 9.4 Air Conditioning, Heating, Cooling and Ventilating Systems
- 9.4.8 Service Building HVAC System
- 9.4.8.1.2 Power Generation Design Bases
- 9.4.8.2 System Description
- 19.2 Introduction (Table 19.2-2 PRA Assessments of STP COLA Departures from ABWR DCD)
- 21.0 Large Scale Drawings (Table 21.0-1 List of Chapter 21 Figures with Changes)

COLA Part 7 Sections

- 3.0 Departures Not Requiring Prior NRC Approval (STD DEP 9.4-3, Service Building HVAC System)
- 5.0 Tables and Indexes (Tables 5.0-1 and 5.0-2)