PMBelCOL PEmails

From: Habib, Donald
Sent: Wednesday, March 17, 2010 2:34 PM
To: Peng, Shie-Jeng; Tammara, Seshagiri
Cc: Jackson, Christopher; Snodderly, Michael; Samaddar, Sujit; Sebrosky, Joseph; Joshi, Ravindra; BelCol Resource; VogtleCOL Resource
Subject: FW: Courtesy copy - RAI Letter 169 - Habitability Systems (BLN Chapter 6)
Attachments: BLN RAI Response to RAI Letter 169 final.pdf

Rao & Peng -

This response from TVA concerns our RAI requesting information about which chemicals require design features (elevated CR intake) to stay below CR IDLH level.

We are expecting the formal response from TVA through ERIDS in a day or two. This is the courtesy copy response.

There appear to be several significant changes in the table that may require re-evaluation. For example, the quantity and distance data for some of the standard chemicals has changed.

Don

Donald C. Habib
NRO/DNRL
AP1000 Projects Branch 1
301-415-1035

From: Spink, Thomas E [mailto:tespink@tva.gov]
Sent: Tuesday, March 16, 2010 9:20 AM
To: Comar, Manny; Sebrosky, Joseph; Joshi, Ravindra; Habib, Donald
Cc: Eddie Grant; Aughtman, Amy G.; Slays, Kim
Subject: Courtesy copy - RAI Letter 169 - Habitability Systems

Please find attached as a courtesy, the response to RAI Letter 169 – Habitability Systems. The official submittal has been submitted to the Document Control Desk via paper copy using Federal Express services. The paper copy should arrive on March 17, 2010.

If you have any questions, please do not hesitate to call me.

Thomas E. Spink
Licensing Project Manager
Nuclear Generation Development
1101 Market Street, LP 5A
Chattanooga, TN 37402
423-751-7062; FAX (423) 751-6509

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Subject: FW: Courtesy copy - RAI Letter 169 - Habitability Systems (BLN Chapter 6)
Sent Date: 3/17/2010 2:33:46 PM
Received Date: 3/17/2010 2:33:51 PM
From: Habib, Donald

Created By: Donald.Habib@nrc.gov

Recipients:
"Jackson, Christopher" <Christopher.Jackson@nrc.gov>
Tracking Status: None
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Tracking Status: None
"Tammara, Seshagiri" <Seshagiri.Tammara@nrc.gov>
Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

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Options
Priority: Standard
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Reply Requested: No
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Expiration Date:
Recipients Received:

Tennessee Valley Authority, 1101 Market Street, LP 5A, Chattanooga, Tennessee 37402-2801

March 15, 2010

10 CFR 52.79

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

In the Matter of) Docket No. 52-014 and 52-015
Tennessee Valley Authority)

BELLEFONTE COMBINED LICENSE APPLICATION – RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION – HABITABILITY SYSTEMS

Reference: Letter from Donald Habib (NRC) to Andrea L. Sterdis (TVA), Request for Additional Information Letter No. 169 Related to SRP Section 06.04 for the Bellefonte Units 3 and 4 Combined License Application, dated January 7, 2010

This letter provides the Tennessee Valley Authority's (TVA) response to the Nuclear Regulatory Commission's (NRC) request for additional information (RAI) item included in the reference letter.

A response to the NRC request in the subject letter is addressed in the enclosure which also identifies any associated changes that will be made in a future revision of the BLN application.

If you should have any questions, please contact Tom Spink at 1101 Market Street, LP5A, Chattanooga, Tennessee 37402-2801, by telephone at (423) 751-7062, or via email at tespink@tva.gov.

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

Executed on this 15th day of March, 2010.

Andrea L. Sterdis
Manager, New Nuclear Licensing and Industry Affairs
Nuclear Generation Development & Construction

Enclosure
cc: See Page 2

Enclosure
TVA letter dated March 15, 2010
RAI Responses

Responses to NRC Request for Additional Information letter No. 169 dated January 7, 2010
(3 pages, including this list)

Subject: Habitability Systems in the Final Safety Analysis Report

RAI Number	Date of TVA Response
06.04-08	This letter – see following pages

Associated Additional Attachments / Enclosures	Pages Included
06.04-08A	3

NRC Letter Dated: January 7, 2010

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 06.04-08

Supplemental RAI to NRC RAI Number: 02.02.03-10 & BLN RAI ID: 2223

1. Credit being taken for the chemical hazard analysis to support Table 6.4-202 in COLA Part 2, FSAR Chapter 6

Do any of the analyses of the chemicals in Table 6.4-202 credit design features, such as an elevated control room intake, to keep the chemical concentration in the control room below the IDLH (Immediately Dangerous to Life and Health) levels? If so, please provide a description of the design features credited in the safety analyses in the FSAR (a simple annotation to Table 6.4-202 to acknowledge these design features would be sufficient).

BLN RAI ID: 4024

BLN RESPONSE:

The FSAR Section 6.4 table that identifies the evaluated onsite toxic chemicals is revised to identify those chemicals for which the control room habitability evaluation credits design features. Additional information is also identified to support the new table column.

Several updates to the STANDARD and PLANT-SPECIFIC onsite toxic chemical quantities and locations are provided as a result of Westinghouse design finalization.

These identified COL application revisions will be included in a future revision of the COLA.

This response is expected to be STANDARD for the S-COLAs; however some of the identified COL Application Revisions are PLANT-SPECIFIC as specified in the change discussion and as shown in Attachment 06.04-08A.

ASSOCIATED BLN COL APPLICATION REVISIONS:

1. COLA Part 2, FSAR Chapter 6, table of toxic chemical evaluations (Table 6.4-202 for BLN) title will be revised from (This change is expected to be STANDARD for the S-COLAs):

   ONSITE CHEMICALS(1)

   To read:

   MAIN CONTROL ROOM HABITABILITY EVALUATIONS OF ONSITE TOXIC CHEMICALS(1)

2. COLA Part 2, FSAR Chapter 6, table of toxic chemical evaluations (Table 6.4-202 for BLN) will be revised to divide the table into two parts, a portion identifying AP1000 standard toxic chemical evaluations (those expected to be applicable to most AP1000 COL applications) with an LMA of STD COL 6.4-1 [these and items that were previously identified with an LMA of STD SUP have been updated and all STD items revised to an LMA of STD COL] and a portion identifying site-specific toxic chemical evaluations with an LMA of NPP COL 6.4-1 where NPP is replaced with the site-specific plant designator. This change is shown in Attachment 06.04-08A and the division of the table into STANDARD and site-specific portions are expected to be STANDARD for the S-COLAs. The site-specific portion of the table is PLANT-SPECIFIC.

3. COLA Part 2, FSAR Chapter 6, table of toxic chemical evaluations (Table 6.4-202 for BLN) will be revised to include an additional column for the "MCR Habitability Impact Evaluation" as shown below and in Attachment 06.04-08A. (The addition of the column is STANDARD, but the content of the column entries is mixed as identified by the LMAs. In addition, the column headers will be revised from: (This change is expected to be STANDARD for the S-COLAs.)

Material	State	Quantity	Distance to MCR intake	Location

To read:

Evaluated Material	Evaluated State	Evaluated Maximum Quantity	Evaluated Minimum Distance to MCR intake	Evaluated Location	MCR Habitability Impact Evaluation

4. COLA Part 2, FSAR Chapter 6, table of toxic chemical evaluations (Table 6.4-202 for BLN) footnotes will be revised and combined into a single footnote that reads as shown in Attachment 06.04-08A. This change is expected to be STANDARD for the S-COLAs.

5. If needed on a PLANT-SPECIFIC basis (for those chemicals that utilize main control room (MCR) design features in addition to the height of the intake), the new footnote may also include:

   MCR - Chemicals with an Impact Evaluation designation of "MCR" indicates the evaluation of this chemical considered additional design details of the main control room (beyond IH), such as volume, envelope boundaries, ventilation systems, and occupancy factor.

   This addition to the note would be PLANT-SPECIFIC.

6. COLA Part 2, FSAR Chapter 2, Subsection 2.2.3.1.1.4 will be revised to add the following after the 4th paragraph (this change is PLANT-SPECIFIC):

   Table 6.4-202 identifies additional site specific chemicals that are outside the scope of DCD evaluations. These site specific chemicals were screened for solid material explosion, confined, unconfined vapor explosion, flammability, and toxic gas release event hazards. These chemicals are not in solid state and are not flammable; therefore, solid material explosion hazard, confined and unconfined vapor explosion hazard, and flammability hazard evaluations are not required. Based on the screening guidance provided in Regulatory Guide 1.78, none of the site specific chemicals used in CWS were found to be a credible habitability threat to main control room occupants in case of release.

ASSOCIATED ATTACHMENTS/ENCLOSURES:

Attachment 06.04-08A

Attachment 06.04-08A

Revised FSAR Table 6.4-202

MAIN CONTROL ROOM HABITABILITY EVALUATIONS OF ONSITE TOXIC CHEMICALS[1]

MAIN CONTROL ROOM HABITABILITY EVALUATIONS OF ONSITE TOXIC CHEMICALS[1]

STD COL 6.4-1

A - STANDARD ONSITE TOXIC CHEMICALS

Evaluated Material	Evaluated State	Evaluated Maximum Quantity	Evaluated Minimum Distance to MCR intake	Evaluated Location	MCR Habitability Impact Evaluation
Hydrogen	Gas	500 scf	126.3 ft	Corner of Auxiliary and Turbine buildings	IH
Hydrogen	Liquid	2000 gal	814 ft	Gas storage	IH
Nitrogen	Liquid	3000 gal	814 ft	Gas storage	IH
Carbon Dioxide (CO_2)	Liquid	6 tons	814 ft	Gas storage	IH
Oxygen Scavenger [Hydrazine]	Liquid	1600 gal	203 ft	Turbine building	IH
pH Addition [Morpholine]	Liquid	1600 gal	203 ft	Turbine building	IH
Sulfuric Acid	Liquid	800 gal	203 ft	Turbine building	IH
Sulfuric Acid	Liquid	20,000 gal	436 ft	CWS area	IH
Sodium Hydroxide	Liquid	800 gal	203 ft	Turbine building	S
Sodium Hydroxide	Liquid	20,000 gal	436 ft	CWS area	S
Fuel Oil	Liquid	60,000 gal	197 ft	DG fuel oil storage tank, DG building, Annex building	IH
Corrosion Inhibitor [Sodium Molybdate]	Liquid	800 gal	203 ft	Turbine building	S
Corrosion Inhibitor [Sodium Molybdate]	Liquid	10,000 gal	436 ft	CWS area	S
Scale Inhibitor [Sodium Hexametaphosphate]	Liquid	800 gal	203 ft	Turbine building	S
Scale Inhibitor [Sodium Hexametaphosphate]	Liquid	10,000 gal	436 ft	CWS area	S
Biocide/Disinfectant [Sodium hypochlorite]	Liquid	800 gal	203 ft	Turbine building	S

Evaluated Material	Evaluated State	Evaluated Maximum Quantity	Evaluated Minimum Distance to MCR intake	Evaluated Location	MCR Habitability Impact Evaluation
Biocide/Disinfectant [Sodium hypochlorite]	Liquid	10,000 gal	436 ft	CWS area	S
Algaecide [Ammonium comp. polyethoxylate]	Liquid	800 gal	203 ft	Turbine building	S
Algaecide [Ammonium comp. polyethoxylate]	Liquid	10,000 gal	436 ft	CWS area	S

BLN COL 6.4-1

B – SITE SPECIFIC ONSITE TOXIC CHEMICALS

Evaluated Material	Evaluated State	Evaluated Maximum Quantity	Evaluated Minimum Distance to MCR intake	Evaluated Location	MCR Habitability Impact Evaluation
pH Addition [Sulfuric Acid]	Liquid	Bounded by STANDARD evaluation of Sulfuric Acid.			
Sulfuric Acid	Liquid	Bounded by STANDARD evaluation of Sulfuric Acid.			
Sodium Hydroxide	Not used	Not used	Not used	CWS area	Not used
Dispersant [Polymeric silt dispersant]	Liquid	6000 gal	203 ft	Turbine building	S
Dispersant [Polymeric silt dispersant]	Liquid	10,000 gal	2000 ft	CWS area	S
Corrosion Inhibitor [Ortho polyphosphate]	Liquid	10,000 gal	2000 ft	CWS area	S
Scale Inhibitor [Phosphonate]	Liquid	10,000 gal	2000 ft	CWS area	S
Biocide/Disinfectant [Sodium hypochlorite]	Liquid	Bounded by STANDARD evaluation.			
Algaecide [Quaternary amine]	Liquid	10,000 gal	2000 ft	CWS area	S

Notes:

STD COL 6.4-1

1) This table supplements DCD Table 6.4-1. Quantities are by largest evaluated container content for the evaluated location per unit. Quantities and distances are bounding evaluation values and may not be actual amounts and distances. Smaller quantities of a chemical at further distances from the MCR air intake are not shown on this table. Actual site locations are confirmed to be at or beyond the evaluated distance.

   S - Chemicals with an Impact Evaluation designation of "S" for the MCR Habitability Impact Evaluation were evaluated and screened out based on the chemical properties, distance, and quantities.

   IH - Chemicals with an Impact Evaluation designation of "IH" indicates the evaluation of this chemical considered the design detail of the main control room intake height.