

PMBelCOL PEmails

From: Joseph Sebrosky
Sent: Thursday, July 03, 2008 10:30 AM
To: rgrumbir@gmail.com; alsterdis@tva.gov; erg-xl@cox.net; pshastings@duke-energy.com; Ray, Phillip M; kslays@duke-energy.com; Bob Hirmanpour
Cc: PMBelCOL PEmails; Mark Thaggard; Brian Hughes; RidsNroDnrlNwe1 Resource; Stephanie Coffin; Manny Comar; RidsNroLAKGoldstein Resource; Tanya Simms; Ann Hodgdon; RidsOgcMailCenter Resource; Ravindra Joshi; Mark McBride; RidsAcrsAcnw_MailCTR Resource; Patrick Moulding; RidsRgn2MailCenter Resource
Subject: RAI Letter No. 063 Related SRP Section 2.4.13 for Bellefonte Units 3 and 4
Attachments: BLN-RAI-LTR-063.pdf

To All,

Attached is RAI Letter No. 063 related SRP Section 2.4.13 for Bellefonte Units 3 and 4. The ADAMS accession number is ML081850165

Joseph Sebrosky

Hearing Identifier: Bellefonte_COL_Public_EX
Email Number: 384

Mail Envelope Properties (C4A4C9A16294FB4CBA5A36312D05FFAC0A9AD4778C)

Subject: RAI Letter No. 063 Related SRP Section 2.4.13 for Bellefonte Units 3 and 4
Sent Date: 7/3/2008 10:30:27 AM
Received Date: 7/3/2008 10:30:28 AM
From: Joseph Sebrosky

Created By: Joseph.Sebrosky@nrc.gov

Recipients:

"PMBelCOL PEmails" <PMBelCOL.PEmails@nrc.gov>
Tracking Status: None
"Mark Thaggard" <Mark.Thaggard@nrc.gov>
Tracking Status: None
"Brian Hughes" <Brian.Hughes@nrc.gov>
Tracking Status: None
"RidsNroDnrlNwe1 Resource" <RidsNroDnrlNwe1.Resource@nrc.gov>
Tracking Status: None
"Stephanie Coffin" <Stephanie.Coffin@nrc.gov>
Tracking Status: None
"Manny Comar" <Manny.Comar@nrc.gov>
Tracking Status: None
"RidsNroLAKGoldstein Resource" <RidsNroLAKGoldstein.Resource@nrc.gov>
Tracking Status: None
"Tanya Simms" <Tanya.Simms@nrc.gov>
Tracking Status: None
"Ann Hodgdon" <Ann.Hodgdon@nrc.gov>
Tracking Status: None
"RidsOgcMailCenter Resource" <RidsOgcMailCenter.Resource@nrc.gov>
Tracking Status: None
"Ravindra Joshi" <Ravindra.Joshi@nrc.gov>
Tracking Status: None
"Mark McBride" <Mark.McBride@nrc.gov>
Tracking Status: None
"RidsAcrsAcnw_MailCTR Resource" <RidsAcrsAcnw_MailCTR.Resource@nrc.gov>
Tracking Status: None
"Patrick Moulding" <Patrick.Moulding@nrc.gov>
Tracking Status: None
"RidsRgn2MailCenter Resource" <RidsRgn2MailCenter.Resource@nrc.gov>
Tracking Status: None
"rgrumbir@gmail.com" <rgrumbir@gmail.com>
Tracking Status: None
"alsterdis@tva.gov" <alsterdis@tva.gov>
Tracking Status: None
"erg-xl@cox.net" <erg-xl@cox.net>
Tracking Status: None
"pshastings@duke-energy.com" <pshastings@duke-energy.com>
Tracking Status: None
"Ray, Phillip M" <pmray@tva.gov>
Tracking Status: None

"kslays@duke-energy.com" <kslays@duke-energy.com>
Tracking Status: None
"Bob Hirmanpour" <bobhirman@live.com>
Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

Files	Size	Date & Time
MESSAGE	177	7/3/2008 10:30:28 AM
BLN-RAI-LTR-063.pdf	161333	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

BellefonteRAIsPEm Resource

From: Joseph Sebrosky
Sent: Thursday, July 03, 2008 9:38 AM
To: BellefonteRAIsPEm Resource
Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 063 RELATED TO SRP
SECTION 2.4.13 FOR THE BELLEFONTE UNITS 3 and 4 COMBINED LICENSE
APPLICATION
Attachments: BLN-RAI-LTR-063.doc

Hearing Identifier: Bellefonte_COL_RAI_Public
Email Number: 40

Mail Envelope Properties (C4A4C9A16294FB4CBA5A36312D05FFAC0A9AD47789)

Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 063
RELATED TO SRP SECTION 2.4.13 FOR THE BELLEFONTE UNITS 3 and 4 COMBINED
LICENSE APPLICATION

Sent Date: 7/3/2008 9:37:57 AM

Received Date: 7/3/2008 9:37:58 AM

From: Joseph Sebrosky

Created By: Joseph.Sebrosky@nrc.gov

Recipients:

"BellefonteRAIsPEm Resource" <BellefonteRAIsPEm.Resource@nrc.gov>

Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

Files	Size	Date & Time
MESSAGE	3	7/3/2008 9:37:58 AM
BLN-RAI-LTR-063.doc	61434	

Options

Priority: Standard

Return Notification: No

Reply Requested: No

Sensitivity: Normal

Expiration Date:

Recipients Received:

July 3, 2008

Ms. Andrea L. Sterdis
Manager, Nuclear Licensing & Industry Affairs
Nuclear Generation Development & Construction
Tennessee Valley Authority
1101 Market Street
Chattanooga, Tennessee 37402-2801

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 063 RELATED TO
SRP SECTION 2.4.13 FOR THE BELLEFONTE UNITS 3 and 4 COMBINED
LICENSE APPLICATION

Dear Ms. Sterdis:

By letter dated October 30, 2007, as supplemented by letters dated November 2, 2007, January 8, 2008 and January 14, 2008, Tennessee Valley Authority (TVA) submitted its application to the U. S. Nuclear Regulatory Commission (NRC) for a combined license (COL) for two AP1000 advance passive pressurized water reactors pursuant to 10 CFR Part 52. The 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 final 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, you may contact me at 301-415-1132.

Sincerely,

/RA/

Joseph M. Sebrosky, Senior Project Manager
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-014
52-015

eRAI Tracking No. 407, 408, 409, 427

Enclosure:
Request for Additional Information

CC: see next page

If you have any questions or comments concerning this matter, you may contact me at 301-415-1132.

Sincerely,

/RA/

Joseph M. Sebrosky, Senior Project Manager
AP1000 Projects Branch 1
Division of New Reactor Licensing
Office of New Reactors

Docket Nos. 52-014
52-015

eRAI Tracking No. 407, 408, 409, 427

Enclosure:
Request for Additional Information

Distribution:

Public	MThaggard	BHughes
RidsNroDnrlNwe1	SCoffin	MComar
RidsNroLAKGoldstein	TSimms	AHodgdon
RidsOgcMailCenter	RJoshi	MMcBride
RidsAcrsAcnwMailCenter	PMoulding	
RidsRgn2MailCenter		
JSebrosky		

NRO-002

OFFICE	RHEB*	RHEB/BC*		OGC	NWE1/L-PM
NAME	MMcBride	MThaggard		AHodgdon*	JSebrosky*
DATE	6/4/08	6/5/08		6/10/08	7/3/08

*Approval captured electronically in the electronic RAI system.

OFFICIAL RECORD COPY

Request for Additional Information
Bellefonte Units 3 and 4
Tennessee Valley Authority
Docket No. 52-014 and 52-015
SRP Section: 02.04.13 - Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters
Application Section: FSAR 2.4.13

QUESTIONS from Hydrologic Engineering Branch

02.04.13-1

The private residences across Town Creek, with their groundwater wells, are the water users closest to the site with a potential to be impacted by an accidental release of radioactive liquid effluents. The potential alternative groundwater pathway to the area of these residences is not evaluated in FSAR 2.4.13. Provide a description of the data and analysis used to determine that this alternative pathway was either implausible or is not a bounding pathway. This issue is associated with Attachment 5, items 2 and 29, of the May 13 -16, 2008, hydrology-related safety site trip report dated June 12, 2008 (ADAMS accession number ML081610308).

02.04.13-2

The RESRAD groundwater transport model used in FSAR 2.4.13 embodies a conceptual model of groundwater flow consistent with a continuum porous medium. The site geology is described, however, as karst with groundwater flow occurring in fractures, some of which may be solutionally enlarged. Provide the technical basis for representing a fractured site using a continuum model. Provide a description of the data and analysis used to determine that an alternative model of fractured flow and transport was either implausible or is not a bounding scenario. This issue is associated with Attachment 5, items 29 and 34, of the May 13 -16, 2008, hydrology-related safety site trip report dated June 12, 2008 (ADAMS accession number ML081610308).

02.04.13-3

The RESRAD model provides a default volume of 150,000 m³ of surface water into which radionuclides are discharged at the end of their groundwater flow path. At Bellefonte, this default volume was used to represent a portion of Town Creek. Provide the technical basis for adopting this default volume.

Alternatively, provide the technical basis for a different volume that is more defensible in terms of the actual conditions in Town Creek, and discuss any differences in estimates that result from using this different volume.

Or, as another alternative, use groundwater radionuclide concentrations and flow rates derived from RESRAD as inputs into a surface-water mixing zone model (such as for example CORMIX) that can represent concentrations in surface water in a more physically-based manner. Discuss any differences in estimates that result from using this different modeling approach.

This issue is associated with Attachment 5, item 26, of the May 13 -16, 2008, hydrology-related safety site trip report dated June 12, 2008 (ADAMS accession number ML081610308).

Enclosure

02.04.13-4

During the May 13-16, 2008, hydrology site visit TVA indicated that it would make several changes to the application to clarify issues associated with the ground water review. These clarifications are described below. TVA should provide a commitment or a schedule for when these changes will be made to the Bellefonte COL application. At the beginning of the question there is a cross reference to the item number contained in Attachment 5 of the May 13-16, 2008, hydrology-related safety site trip report dated June 12, 2008 (ADAMS accession number ML081610308).

- a) Attachment 5, item 26 of the May 13-16, 2008 trip report stated that TVA should provide a subject matter expert (SME) to discuss the values in the RESRAD input file(s) used in this section.

Commitment: TVA will provide the RESRAD input files, once the input parameters are revised.

- b) Attachment 5, item 29 of the May 13-16, 2008 trip report stated that TVA should provide an SME to discuss the basis for the sequence of events and time scales used in the transport analysis. The applicant stated that the residence time of one year was chosen to coincide with the annual limits in 10 CFR 20 Appendix B, that the 70-day calculation interval was chosen to reduce computation and the amount of output; and that the 50-year simulation period encompassed all concentration peaks.

Commitment: TVA will provide a technical basis for the selection of a dilution volume in Town Creek.

- c) Attachment 5, item 30 of the May 13-16, 2008 trip report stated that TVA should provide an SME to discuss the basis for using Parameter Values in Table 2.4.13-203 relative to the minimum observed values as reported in Table 2.4.13-202. The applicant stated they used Kds based on closest measurement to the source not the lowest measurement. Given the likely variability along the pathway, the applicant stated that using the minimum Kd would be conservative and appropriate.

Commitment: TVA will revise transport analyses using the minimum Kds.

- d) Attachment 5, item 31 of the May 13-16, 2008 trip report stated that TVA should have a calc package for review (or/and an SME to describe) the computation of the Area of Contaminated Zone in Table 2.4.13-203. The applicant stated the area was based on a 2 meter deep volume sitting atop the saturated zone. The applicant acknowledged an apparent math error in the estimation of the Area of Contaminated Zone.

Commitment: TVA will revise the area based on a corrected computation.

- e) Attachment 5, item 32 of the May 13-16, 2008 trip report stated that TVA should provide an SME to clarify whether the contaminant source is assumed to be directly in the saturated zone as illustrated in Figure 2.4.13-201. If so, explain the use and impact of the contaminated and unsaturated zone parameters. The applicant stated the area was based on a 2 meter deep volume sitting atop the saturated zone.

Commitment: The applicant will revise the figure to identify the correct location of the contaminated zone and assumed pathway.

- f) Attachment 5, item 33 of the May 13-16, 2008 trip report stated that TVA should provide an SME to explain how alternative plausible scenarios, consistent with limited data available, for groundwater radionuclide migration eastward from Unit 4 toward the intake structure on Gunter'sville Reservoir were filtered to determine that the postulated scenario was conservative. The applicant stated that they are already responding to this item in H8 from the environmental audit.

Commitment: The applicant will provide a written response through the environmental responses to NRC.