BellefonteRAIsPEm Resource

From: Joseph Sebrosky
Sent: Thursday, July 03, 2008 8:20 AM
To: BellefonteRAIsPEm Resource
Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 062 RELATED TO SRP SECTION 2.4.12 FOR THE BELLEFONTE UNITS 3 and 4 COMBINED LICENSE APPLICATION
Attachments: BLN-RAI-LTR-062.doc

Hearing Identifier: Bellefonte_COL_RAI_Public
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Subject: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 062 RELATED TO SRP SECTION 2.4.12 FOR THE BELLEFONTE UNITS 3 and 4 COMBINED LICENSE APPLICATION
Sent Date: 7/3/2008 8:20:08 AM
Received Date: 7/3/2008 8:20:09 AM
From: Joseph Sebrosky

Created By: Joseph.Sebrosky@nrc.gov

Recipients:
"BellefonteRAIsPEm Resource" <BellefonteRAIsPEm.Resource@nrc.gov>
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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. 062 RELATED TO SRP SECTION 2.4.12 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. 396, 397, 404, 405, 406

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. 396, 397, 404, 405, 406

Enclosure:
Request for Additional Information

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DATE	6/4/08	6/5/08		6/10/08	7/3/08

*Approval captured electronically in the electronic RAI system.

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Request for Additional Information
Bellefonte Units 3 and 4
Tennessee Valley Authority
Docket No. 52-014 and 52-015
SRP Section: 02.04.12 - Groundwater
Application Section: FSAR 2.4.12.2.1

QUESTIONS from Hydrologic Engineering Branch

02.04.12-1
Information provided in the FSAR on private residential water wells across Town Creek is from the 1980's. Specifically, the FSAR states that

> *Private water wells listed in Table 2.4.12-201 were identified during construction of Bellefonte Units 1 and 2, and may have changed since these wells were surveyed. The State of Alabama does not require registration of private water wells; therefore, no records of existing or new private water wells were available.* (FSAR 2.4.12.2.1, p. 2.4-49)

The private residences across Town Creek are the groundwater users closest to the site with the greatest potential to be impacted by any site activities. Provide a description of the efforts undertaken to obtain updated information on these wells. Such information may include, but is not limited to, locations of private homes and other facilities likely to use water, areas served by public water supplies, locations of new wells, well depth, and water use. This issue is associated with Attachment 5, items 2 and 4, of the May 13 -16, 2008, hydrology-related safety site trip report dated June 12, 2008 (ADAMS accession number ML081610308).

Application Section: FSAR 2.5.1.2.2

02.04.12-2
Applicant stated at the hydrology site visit the week of May 13, 2008, that the private residential wells across Town Creek from the proposed plant were completed in the Knox Group, and that the Knox Group and Stones River Group are hydraulically isolated from each other. (Such isolation could help to protect the private residential wells if releases occurred at the plant.) The FSAR states that

> *Within the Knox Group deposits northwest of the BLN site, large shallow closed depressions in the land surface, or sinkholes, show where significant karst development has occurred.* (FSAR 2.5.1.2.2, p. 2.5-35)

Given the potential karst development of the Knox Group and the Stones River Group, provide the technical basis for the assumption that these formations are hydraulically isolated from each other in the area of Town Creek. This issue is associated with Attachment 5, item 8, of the May 13 -16, 2008, hydrology-related safety site trip report dated June 12, 2008 (ADAMS accession number ML081610308).

Application Section: FSAR 2.4.12.2.3

02.04.12-3

The FSAR states that:

> *During dry periods (July and August, 2006) a groundwater depression was observed adjacent to Town Creek to the northwest of Unit 3. This appears to represent a depletion of the epikarst aquifer and slow drainage into the lower bedrock zone. As precipitation events occur with greater frequency in September and the following fall and winter months, the*

epikarst aquifer refills and groundwater reestablishes its normal drainage pattern to Town Creek. (FSAR 2.4.12.2.3, p. 2.4-51; Fig. 2.4.12-214)

This interpretation of the groundwater head observations indicates downward movement of groundwater at MW-1212. Discuss why and how such downward movement of groundwater may occur.

This statement from the FSAR implies that the downward movement of groundwater (drainage into the lower bedrock zone) occurs only during relatively dry periods. Provide the technical basis for this conclusion. If the implication was not intended, provide a discussion of the relevance of the downward movement of groundwater at this location to subsurface pathways.

Please provide any other plausible explanations for the groundwater depression.

This issue is associated with Attachment 5, item 8, of the May 13 -16, 2008, hydrology-related safety site trip report dated June 12, 2008 (ADAMS accession number ML081610308).

Application Section: FSAR 2.4.12.2.4.2

02.04.12-4
From an examination of the pumping test and borehole packer test reports, it appears that the pumping test assumed a 14 ft. saturated thickness and the packer tests used 10 ft. intervals in computing hydraulic conductivity values from transmissivity estimates. It is not clear from the pumping test and borehole packer test reports whether the tests were interpreted in a manner consistent with the fractured flow observed at the site. If flow is primarily through fractures, then these hydraulic conductivity values may not be representative of the fracture permeability, and groundwater velocities based on them may underestimate the true velocities. In the pumping test report, increased head during the later part of the pumping test were attributed to a precipitation event. A rapid head response to precipitation appears consistent with high-velocity fracture flow. Provide the technical basis for interpreting the pumping test and borehole packer test results in the fractured flow geologic setting.

The pumping test report also stated that the test was conducted as a constant-drawdown test. However, the pumping level was not stabilized for several hours after the test began. Describe why the hydraulic conductivity value derived from the test is considered valid in light of this departure from constant-drawdown test conditions.

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

Application Section: FSAR 2.4.12.2.4.2

02.04.12-5
Provide the technical basis for determining porosity (total and effective) and calculating groundwater velocities consistent with the conceptual model of groundwater flow and the occurrence of fracture flow at the site. This issue is associated with Attachment 5, item 11, of the May 13 -16, 2008, hydrology-related safety site trip report dated June 12, 2008 (ADAMS accession number ML081610308).