

## PMBelCOL PEmails

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**From:** Spink, Thomas E [tespink@tva.gov]  
**Sent:** Tuesday, August 05, 2008 11:58 AM  
**To:** Joseph Sebrosky  
**Cc:** Sterdis, Andrea Lynn; erg-xl@cox.net  
**Subject:** Courtesy email copy of TVA's Response to RAI Letter # 67 - Groundwater  
**Attachments:** BLN RAI Response to RAI Letter 067 finalt 20080804.pdf

Joe:

I have enclosed a pdf copy of our response to RAI Letter 067 with this email as a courtesy. The attachment file is too large to email. As always, the official submittal has been submitted to the Document Control Desk via paper copy using Federal Express services. The paper copy should arrive on August 5, 2008.

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

**Hearing Identifier:** Bellefonte\_COL\_Public\_EX  
**Email Number:** 894

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**Subject:** Courtesy email copy of TVA's Response to RAI Letter # 67 - Groundwater  
**Sent Date:** 8/5/2008 11:58:27 AM  
**Received Date:** 8/5/2008 11:59:13 AM  
**From:** Spink, Thomas E

**Created By:** tespink@tva.gov

**Recipients:**

"Sterdis, Andrea Lynn" <alsterdis@tva.gov>  
Tracking Status: None  
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Tracking Status: None  
"Joseph Sebrosky" <Joseph.Sebrosky@nrc.gov>  
Tracking Status: None

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

August 4, 2008

10 CFR 52.79

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

In the Matter of )  
Tennessee Valley Authority )

Docket No. 52-014 and 52-015

BELLEFONTE COMBINED LICENSE APPLICATION – RESPONSE TO REQUEST FOR  
ADDITIONAL INFORMATION – GROUNDWATER

Reference: Letter from Joseph Sebrosky (NRC) to Andrea L. Sterdis (TVA), Request for  
Additional Information Letter No. 067 Related to SRP Section 02.04.12 for the  
Bellefonte Units 3 and 4 Combined License Application, dated July 7, 2008

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

A response to each 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 Thomas 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 4<sup>th</sup> day of Aug, 2008.

Jack A. Bailey  
Vice President, Nuclear Generation Development

Enclosure

cc: See Page 2

Document Control Desk

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August 4, 2008

J. P. Berger, EDF  
J. M. Sebrosky, NRC/HQ  
E. Cummins, Westinghouse  
S. P. Frantz, Morgan Lewis  
M. W. Gettler, FP&L  
R. Grumbir, NuStart  
P. S. Hastings, NuStart  
P. Hinnenkamp, Entergy  
M. C. Kray, NuStart  
D. Lindgren, Westinghouse  
G. D. Miller, PG&N  
M. C. Nolan, Duke Energy  
N. T. Simms, Duke Energy  
K. N. Slays, NuStart  
G. A. Zinke, NuStart

cc: (w/o Enclosure)

B. C. Anderson, NRC/HQ  
M.M. Comar, NRC/HQ  
B. Hughes/NRC/HQ  
R. G. Joshi, NRC/HQ  
R. H. Kitchen, PGN  
M.C. Kray, NuStart  
A.M. Monroe, SCE&G  
C. R. Pierce, SNC  
R. Reister, DOE/PM  
L. Reyes, NRC/RII  
T. Simms, NRC/HQ

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Responses to NRC Request for Additional Information letter No.067 dated July 7, 2008  
(16 pages, including this list)

Subject: Groundwater as discussed in the Final Safety Analysis Report

<u>RAI Number</u>	<u>Date of TVA Response</u>
02.04.12-06a	This letter – see following pages
02.04.12-06b	This letter – see following pages
02.04.12-06c	This letter – see following pages
02.04.12-06d	This letter – see following pages
02.04.12-06e	This letter – see following pages
02.04.12-06f	This letter – see following pages
02.04.12-06g	This letter – see following pages
02.04.12-06h	This letter – see following pages
02.04.12-06i	This letter – see following pages

Associated Additional Attachments / Enclosures

Attachment 02.04.12-06A, Core Boring Logs  
sheet

Pages Included

372 including the cover

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**NRC Letter Dated: July 7, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 02.04.12-06a**

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 2, of the May 13-16, 2008 trip report stated that TVA should provide a subject matter expert (SME) to identify the local water users including those around Town Creek. The applicant stated that the State of Alabama does not require registration of groundwater wells and that the wells on the other side of Town Creek are generally located in a formation distinct from the formation on the plant side of Town Creek. According to the applicant the closest large capacity well (Hollywood #2) is over 2 miles away and has been abandoned.

Commitment: TVA is to identify location of the discussion of the wells in a separate formation in the final safety analysis report.

**BLN RAI ID: 643**

**BLN RESPONSE:**

The Town Creek Embayment exhibits strike-oriented erosional development along the more soluble belts of the lower Stones River Group and Upper Knox formations and separates the BLN site from the adjacent community and its private wells. The Knox Group underlies the Stones River Group and outcrops to the northwest side of the Town Creek Embayment near the reservation boundary (FSAR Figure 2.5-230). The Knox/Stones River Group contact dips beneath the BLN site toward the southeast and away from the residential areas across the Town Creek Embayment (FSAR Figure 2.5-231); therefore, the private water wells are completed in the Knox Group and cannot be completed in the Stones River Group.

This response is PLANT-SPECIFIC.

**ASSOCIATED BLN COL APPLICATION REVISIONS:**

1. COLA Part 2, FSAR, Chapter 2, Subsection 2.4.12.2.4.2, 1<sup>st</sup> paragraph, will be revised to add the following as the new second paragraph:

As discussed in Subsection 2.5.1.2, the Town Creek Embayment exhibits strike-oriented erosional development along the more soluble belts of the lower Stones River Group and Upper Knox formations and separates the BLN site from the adjacent community and its private wells. The Knox Group underlies the Stones River Group and outcrops to the northwest side of the Town Creek Embayment near the reservation boundary (Figure 2.5-230). The Knox/Stones River Group contact dips beneath the BLN site toward the southeast and away from the residential areas across the Town Creek Embayment (Figure 2.5-231);

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therefore, the private water wells are completed in the Knox Group, cannot be completed in the Stones River Group, and thus do not withdraw groundwater from the same geologic formation associated with the BLN.

**ASSOCIATED ATTACHMENTS/ENCLOSURES:**

None

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TVA letter dated August 4, 2008  
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**NRC Letter Dated: July 7, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 02.04.12-06b**

b) Attachment 5, item 3, of the May 13-16, 2008 trip report stated that TVA should provide a subject matter expert (SME) to describe the evidence for the existence of perched or semi-perched conditions at the site. The applicant stated that the terms 'perched' and 'semi-perched' do not well represent the conditions at the site.

Commitment: TVA will document changes to the final safety analysis report to eliminate the use of these terms.

**BLN RAI ID: 644**

**BLN RESPONSE:**

The use of the terms "perched" and "semi-perched" in Subsection 2.4.12.1.2 was determined to be inappropriate in defining the subsurface hydrologic conditions at the BLN site. Field investigations show no evidence of an unsaturated zone below the first groundwater potentiometric surface; thus, no perched water or semi-perched groundwater zones are apparent.

This response is PLANT-SPECIFIC.

**ASSOCIATED BLN COL APPLICATION REVISIONS:**

1. COLA Part 2, FSAR, Chapter 2, Subsection 2.4.12.1.2, eighth paragraph, last sentence, will be revised from:

However, the rate of water recharge into the epikarst aquifer is much greater than the drainage rate provided by the epikarst and bedrock fractures, joints, and solution channels, resulting in perched or semi-perched conditions.

To read:

However, the rate of water recharge into the epikarst aquifer is much greater than the drainage rate provided by the epikarst and bedrock fractures, joints, and solution channels.

2. COLA Part 2, FSAR, Chapter 2, Subsection 2.5.4.5.2.2, second paragraph, will be revised from:

Based on information gathered from monitoring wells screened above the rock surface, there is a water table trapped in the soil zone (perched water). In the Unit 3 area, the maximum perched groundwater level is about elevation 605 ft. At Unit 4, the maximum level is at about elevation 615 ft. Table 2.5-243 shows this information. Additional information regarding groundwater conditions can be found in Subsection 2.5.4.6.

To read:

Based on information gathered from monitoring wells screened above the rock surface, there is a water table in the epikarst aquifer as discussed in Subsection 2.4.12. In the Unit 3 area, the maximum groundwater level in the epikarst aquifer is about elevation 605 ft. At Unit 4,



the maximum level in the epikarst aquifer is at about elevation 615 ft. Table 2.5-243 shows this information. Additional information regarding groundwater conditions can be found in Subsection 2.5.4.6.

3. COLA Part 2, FSAR, Chapter 2, Subsection 2.5.4.6.1, 1<sup>st</sup> paragraph, 1<sup>st</sup> through 4<sup>th</sup> sentences, will be revised from:

Information on groundwater conditions was collected from boreholes at the time of drilling and from monitoring wells with long-term water level readings. Monitoring wells were installed, at locations shown on Figure 2.4.12-212, in groups of two or three wells that penetrate to different depths. The wells were denoted A, B, or C depending on the depth of penetration with A being the shallowest. The A-series wells were installed with the screen interval in the soil, above the rock to allow checks of potential perched water.

To read:

Information on groundwater conditions was collected from boreholes at the time of drilling and from monitoring wells with long-term water level readings. As discussed in Subsection 2.4.12, there is a shallow epikarst aquifer underlain by the bedrock aquifer. Monitoring wells were installed, at locations shown on Figure 2.4.12-212, in groups of two or three wells that penetrate to different depths. The wells were denoted A, B, or C depending on the depth of penetration with A being the shallowest. The A-series wells were installed with the screen interval in the epikarst aquifer above the bedrock, to allow checks for water occurrence and fluctuation in the epikarst aquifer.

4. COLA Part 2, FSAR, Chapter 2, Subsection 2.5.4.6.1, 4<sup>th</sup> paragraph, first two sentences, will be revised from:

Monitoring wells terminating at different depths indicate that independent and varied piezometric levels may exist in a given profile. Typical causes of this are perched water conditions and the nature of the joint connectivity in the bedrock.

To read:

Monitoring wells terminating at different depths indicate that independent and varied piezometric levels may exist in a given profile. Typical causes of this are the greater porosity in the epikarst aquifer relative to the bedrock below and the nature of the joint connectivity in the bedrock.

5. COLA Part 2, FSAR, Chapter 2, Subsection 2.5.4.6.1, 5<sup>th</sup> paragraph, first sentence, will be revised from:

The groundwater records from shallow wells screened only in the soil reflect perched groundwater conditions above the bedrock whereas those from deeper wells reflect groundwater conditions within the bedrock.

To read:

The groundwater records from shallow wells screened only in the soil reflect groundwater conditions in the epikarst aquifer above the bedrock whereas those from deeper wells reflect groundwater conditions within the bedrock.

6. COLA Part 2, FSAR, Chapter 2, Subsection 2.5.4.6.1, 6<sup>th</sup> paragraph, 3<sup>rd</sup> and 4<sup>th</sup> sentences, will be revised from:

Based on these limited data, the perched groundwater near Unit 3 fluctuates between elevations lower than 601.1 ft. to elevation 605.2 ft. With respect to top of rock elevations, the perched groundwater is 3.4 to 9.4-ft. above the top of rock.

To read:

Based on these limited data, the groundwater in the epikarst aquifer near Unit 3 fluctuates between elevations lower than 601.1 ft. to elevation 605.2 ft. With respect to top of rock elevations, the groundwater level in the epikarst aquifer is 3.4 to 9.4-ft. above the top of rock.

7. COLA Part 2, FSAR, Chapter 2, Subsection 2.5.4.6.1, 7<sup>th</sup> paragraph will be revised from:

For the two A-series monitoring wells near Unit 4, the highest recorded groundwater elevation is 614.7 ft., and the lowest recorded level is 605.1 ft., corresponding to 4.5-ft. to 10.7-ft. above the bedrock.

To read:

For the two A-series monitoring wells near Unit 4, the highest recorded groundwater elevation in the epikarst aquifer is 614.7 ft., and the lowest recorded level is 605.1 ft., corresponding to 4.5-ft. to 10.7-ft. above the bedrock.

8. COLA Part 2, FSAR, Chapter 2, Subsection 2.5.4.6.3, 2<sup>nd</sup> paragraph, last sentence, will be revised from:

Lowering of the perched groundwater in the soils is not expected to cause settlement of adjacent ground because the soil overlying the bedrock is mostly composed of stiff overconsolidated clays and the amount of water level reduction is slight.

To read:

Lowering of the groundwater in the epikarst aquifer is not expected to cause settlement of adjacent ground because the soil overlying the bedrock is mostly composed of stiff overconsolidated clays and the amount of water level reduction is slight.

9. COLA Part 2, FSAR, Chapter 2, Subsection 2.5.4.7.4, 5<sup>th</sup> paragraph, will be revised from:

The groundwater table at the site occurs in the residual soils slightly above the bedrock surface. The groundwater table elevation is laterally variable based on groundwater measurements in both monitoring wells screened in the residual soils and the bedrock as described in Subsection 2.5.4.3. In the proximity of Unit 3, groundwater was measured in boreholes at approximate elevations ranging from 601 to 596 ft. In the proximity of Unit 4, groundwater is measured in boreholes at approximate elevations ranging from 612 to 601 ft. Based on information gathered from monitoring wells screened above the rock surface, there is a water table trapped in the soil zone (perched water). In the Unit 3 area, the maximum perched ground water level is about elevation 605 ft. At Unit 4, the maximum level is at about elevation 615 ft.

To read:

The groundwater table at the site occurs in the epikarst aquifer slightly above the bedrock surface. The groundwater table elevation is laterally variable based on groundwater measurements in both monitoring wells screened in the residual soils and the bedrock as

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described in Subsection 2.5.4.3. In the proximity of Unit 3, groundwater was measured in boreholes at approximate elevations ranging from 601 to 596 ft. In the proximity of Unit 4, groundwater is measured in boreholes at approximate elevations ranging from 612 to 601 ft. Based on information gathered from monitoring wells screened above the rock surface, there is a water table in the epikarst aquifer. In the Unit 3 area, the maximum ground water level in the epikarst aquifer is about elevation 605 ft. At Unit 4, the maximum ground water level in the epikarst aquifer is at about elevation 615 ft.

**ASSOCIATED ATTACHMENTS/ENCLOSURES:**

None

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TVA letter dated August 4, 2008  
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**NRC Letter Dated: July 7, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 02.04.12-06c**

c) Attachment 5, item 6, of the May 13-16, 2008 trip report stated that TVA should provide a SME to explain the large variability in wells WT2 and WT5 (and WT1?) during the 1970s seen in Fig. 2.4.12-211. In response the applicant stated that the variability was a result of construction activities and dewatering. Excavations occurred between 1974 and 1975 and were documented in photos of the excavation activities. The applicant also stated that the flood in 1973 may have affected water levels.

Commitment: TVA will change the application to indicate that the historical data in Figure 2.4.12-211 is not inconsistent with the applicant's conceptual model of the groundwater conditions at the site.

**BLN RAI ID: 645**

**BLN RESPONSE:**

The WT series wells were installed in 1973 with the construction of BLN Units 1 and 2 commencing in September, 1974. Variability of the water levels in the WT-series wells in 1974 through 1976 was attributed to construction activities during the building of BLN Units 1 and 2. Fluctuations in groundwater levels prior to 1974 are not explained in historic documentation; however, the pre-construction groundwater hydrologic system has been modified and is no longer applicable to the evaluation of present groundwater conditions. Therefore, the pre-1974 groundwater conditions were not considered during the present evaluation. The FSAR text will be modified to clarify this position.

This response is PLANT-SPECIFIC.

**ASSOCIATED BLN COL APPLICATION REVISIONS:**

COLA Part 2, FSAR, Chapter 2, Subsection 2.4.12.2.3, 4<sup>th</sup> paragraph, will be revised from:

Long-term groundwater level fluctuations were observed monthly in bedrock monitoring wells WT1 – WT6 between January 1973 and February 1993 (Reference 205). Historic groundwater level elevations in monitoring wells WT1 –WT6 are presented in Table 2.4.12-202 and graphically illustrated in Figure 2.4.12-211.

To read:

Long-term groundwater level fluctuations were observed monthly in bedrock monitoring wells WT1 – WT6 between January 1973 and February 1993. Historic groundwater level elevations in monitoring wells WT1 –WT6 are presented in Table 2.4.12-202 and graphically illustrated in Figure 2.4.12-211. Groundwater level fluctuations depicted from 1974 to 1976 are attributed to construction activities associated with BLN Units 1 and 2.

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Fluctuations observed prior to 1974 are not associated with construction; however, due to the permanent changes in the subsurface hydrology from the construction of the BLN Units 1 and 2, pre-construction fluctuations in water level changes do not have an effect on the post construction geohydrologic system and were not considered during this assessment.

**ASSOCIATED ATTACHMENTS/ENCLOSURES:**

None

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TVA letter dated August 4, 2008  
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**NRC Letter Dated: July 7, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 02.04.12-06d**

d) Attachment 5, item 7, of the May 13-16, 2008 trip report stated that TVA should provide an SME to identify the 12 aquifer test observation wells. The applicant identified the figure in the FSAR.

Commitment: TVA will provide coordinates of observation wells.

**BLN RAI ID: 646**

**BLN RESPONSE:**

The observation well location data (see FSAR Figure 2.4.12-212, sheet 2 of 2) is provided below:

**Bellefonte Nuclear Plant, Units 3 & 4**

**Observation Well Location Data**

**NAD 83 (1992)**

**Alabama Mercator East**

<b>Designation</b>	<b>Northing (ft)</b>	<b>Easting (ft)</b>
<b>OW-1</b>	1532758.0	628739.6
<b>OW-2</b>	1532723.1	628659.5
<b>OW-3</b>	1532669.0	628708.0
<b>OW-4</b>	1532751.6	628804.2
<b>OW-5</b>	1532819.5	628708.5
<b>OW-6</b>	1532631.7	628659.6
<b>OW-7</b>	1532793.7	628292.6
<b>OW-8</b>	1532706.9	628239.1
<b>OW-9</b>	1532802.3	628203.2
<b>OW-10</b>	1532835.4	628236.5
<b>OW-11</b>	1532839.7	628305.6
<b>OW-12</b>	1532780.6	628335.7

The response is PLANT-SPECIFIC.

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TVA letter dated August 4, 2008  
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**ASSOCIATED BLN COL APPLICATION REVISIONS:**

No COLA revisions have been identified associated with this response.

**ASSOCIATED ATTACHMENTS/ENCLOSURES:**

None

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TVA letter dated August 4, 2008  
RAIs

**NRC Letter Dated: July 7, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 02.04.12-06e**

e) Attachment 5, item 10, of the May 13-16, 2008 trip report stated that TVA should provide an SME to discuss the protocols by which samples were classified as soil, epikarst, or bedrock and the methods used to conceptualize the lithology through various cross sections. The applicant's SME described the characterization activities and stated the 'top of rock' elevation is based on interpretation of the geotechnical boring logs by the geology expert. A copy of the FSAR Appendix 2.BB was reviewed by the staff. Staff identified some boring logs that were omitted from the document and possible revisions that were not included in the document.

Commitment: TVA will provide a copy of the FSAR Appendix 2.BB that includes the latest revision of boring logs for all boreholes.

**BLN RAI ID: 647**

**BLN RESPONSE:**

The complete set of boring logs for BLN will be included in a future revision of the BLN FSAR as indicated in the Application Revisions section below.

This response is PLANT-SPECIFIC.

**ASSOCIATED BLN COL APPLICATION REVISIONS:**

COLA Part 2, FSAR Chapter 2, Appendix 2BB will be replaced with the complete set of boring logs provided in Attachment 02.04.12-06A.

**ASSOCIATED ATTACHMENTS/ENCLOSURES:**

Attachment 02.04.12-06A



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**NRC Letter Dated: July 7, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI Number: 02.04.12-06f**

f) Attachment 5, item 11, of the May 13-16, 2008 trip report stated that TVA should provide an SME to discuss methods used to estimate porosity and the depth of the abrupt porosity change. The applicant self-identified an error in the porosity estimate. The applicant stated that FSAR 2.5 describes the calculation of the porosity as the fractional length of voids and/or cavities encountered divided by the length of the borehole, and the minimum fracture size in this estimate was of 1/10 ft. The applicant stated that the two porosity values provided in the FSAR were average values above and below the 20 ft. depth, but that there is no abrupt change in porosity.

Commitment: TVA will advise NRC of the timeline for completing a revised analysis of porosity and all calculations dependent on the porosity estimate. The applicant will provide a discussion of the estimation of both "total porosity" and "effective porosity". The applicant will ensure that the porosity is consistent with discussion in 2.5 regarding porosity.

**BLN RAI ID: 648**

**BLN RESPONSE:**

TVA's letter to NRC dated July 23, 2008, documents the actions taken to resolve specific action items associated with the NRC Hydrology Related Site Visit Trip Report. Action Item 3 required TVA to provide a revised porosity analysis. The Porosity Evaluation Section (2.0) of the enclosure to the July 23, 2008, letter provided the requested information.

This response is PLANT-SPECIFIC.

**ASSOCIATED BLN COL APPLICATION REVISIONS:**

COLA Part 2, FSAR Chapter 2 revisions are addressed in the above identified letter.

**ASSOCIATED ATTACHMENTS/ENCLOSURES:**

None

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**NRC Letter Dated: July 7, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 02.04.12-06g**

g) Attachment 5, item 12 of the May 13-16, 2008 trip report stated that TVA should provide an SME to discuss methods used to provide a conservative estimate of the hydraulic conductivity. The applicant stated they will revise calculations and the FSAR to use the highest conductivity value observed. The applicant provided copies of the pump test report and the borehole packer test report which the staff reviewed.

Commitment: TVA will revise calculations and the FSAR to use the highest conductivity value and agreed to provide the pump test data.

**BLN RAI ID: 649**

**BLN RESPONSE:**

TVA's letter to NRC dated July 23, 2008, documents the actions taken to resolve specific action items associated with the NRC Hydrology Related Site Visit Trip Report. Action Item 3 required TVA to provide a revised porosity analysis. The Introduction Section (1.0) and Attachment B, Pump Test Data of the enclosure to the subject letter provides the requested information.

This response is PLANT-SPECIFIC.

**ASSOCIATED BLN COL APPLICATION REVISIONS:**

COLA Part 2, FSAR Chapter 2 revisions are addressed in the above identified letter.

**ATTACHMENTS/ENCLOSURES:**

None

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**NRC Letter Dated: July 7, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 02.04.12-06h**

h) Attachment 5, item 22, of the May 13-16, 2008 trip report stated that TVA should provide the correct citation for second complete paragraph on FSAR p. 2.4-50 (Reference 205 is apparently incorrect). The applicant stated that the citation was in error and would be deleted in future revisions.

Commitment: TVA will delete the reference in future revision.

**BLN RAI ID: 650**

**BLN Response**

The annotation for “(Reference 205)” was incorrect and will be removed from the text as shown in the Application Revisions associated with the response to NRC RAI Number 02.04.12-06c.

This response is PLANT-SPECIFIC.

**ASSOCIATED BLN COL APPLICATION REVISIONS:**

COLA Part 2, FSAR, Chapter 2, Subsection 2.4.12.2.3, 4<sup>th</sup> paragraph, will be revised as shown in the response to NRC RAI Number 02.04.12-06c.

**ATTACHMENTS/ENCLOSURES:**

None

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**NRC Letter Dated: July 7, 2008**

**NRC Review of Final Safety Analysis Report**

**NRC RAI NUMBER: 02.04.12-06i**

- i) Attachment 5, item 23, of the May 13-16, 2008 trip report stated that TVA should provide an SME to discuss the rationale for excluding wells completed in the soil zone in preparation of groundwater piezometric surface maps. The applicant stated that soil zone water level maps were not produced due to limited amount of data with water table in soil zone.

Commitment: TVA will clarify wording.

**BLN RAI ID: 651**

**BLN RESPONSE:**

Of the 14 groundwater monitoring wells screened in the soil zone (MW-12XXa), seven (7) were consistently dry (no groundwater observed in the well or water only within the end cap of the well casing) or exhibited no, or slight, changes in water level over the monitoring period. Of the three (3) aquifer test observation wells screened in the regolith, two (2) exhibited slow recharge and no indication of definite equilibrium conditions.

Based on the lack of data for the wells installed in the soil zone, groundwater potentiometric maps were not constructed.

This response is PLANT-SPECIFIC.

**ASSOCIATED BLN COL APPLICATION REVISIONS:**

COLA Part 2, FSAR, Chapter 2, Subsection 2.4.12.2.3, 9<sup>th</sup> paragraph, last sentence, will be revised from:

Because of inconsistent water availability, groundwater potentiometric surface maps were not constructed for those wells completed in the soil zone.

To read:

Groundwater potentiometric surface maps were not constructed for those wells completed in the soil zone because many of the wells were consistently dry (no groundwater observed in the well or water only within the end cap of the well casing) or exhibited no, or slight, changes in water level over the monitoring period, resulting in insufficient data points to construct contours.

**ASSOCIATED ATTACHMENTS/ENCLOSURES:**

None

Attachment 02.04.12-06A  
TVA letter dated August 4, 2008  
RAIs

**Complete set of Core Boring Logs  
to replace those currently included in  
FSAR Appendix 2BB**