



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

August 11, 2008

10 CFR 52.80

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

In the Matter of)
Tennessee Valley Authority)

Docket Numbers 52-014 and 52-015

BELLEFONTE COMBINED LICENSE APPLICATION – RESPONSE TO ENVIRONMENTAL REPORT REQUEST FOR ADDITIONAL INFORMATION – NEED FOR POWER AND BENEFIT COST

Reference: Letter from Mallecia Hood (NRC) to Ashok S. Bhatnaker (TVA), Request for Additional Information Regarding the Environmental Review of the Combined License Application for Bellefonte Nuclear Plant, Units 3 and 4, dated July 11, 2008 [ML081840493].

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

The status of the NRC requests related to Need for Power and Benefit Cost is provided in the enclosure. The enclosure also provides a response to four of these requests, as well as identifying any associated changes that will be made in a future revision of the BLN application.

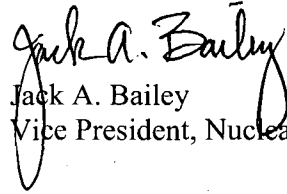
If you should have any questions, please contact Thomas Spink at 1101 Market Street, LP5A, Chattanooga, Tennessee 37402-2801, by telephone at (423) 751-7062, or via email at tespink@tva.gov.

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

Executed on this 11th day of AUG, 2008.



Jack A. Bailey
Vice President, Nuclear Generation Development

Enclosure:

Response to Environmental Report Requests for Additional Information – Need for Power
and Benefit Cost

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cc (Enclosure):

M. A. Hood, NRC/HQ

cc (w/o Enclosure):

S.P. Frantz, Morgan Lewis
M.W. Gettler, FP&L
R.C. Grumbir, NuStart
P.S. Hastings, NuStart
P. Hinnenkamp, Entergy
R.H. Kitchen, PGN
M.C. Kray, NuStart
A.M. Monroe, SCE&G
C.R. Pierce, SNC
L. Reyes, NRC/RII
R.F. Smith-Kevern, DOE/HQ
G.A. Zinke, NuStart

ENCLOSURE
RESPONSE TO ENVIRONMENTAL REPORT REQUESTS FOR ADDITIONAL INFORMATION
NEED FOR POWER and BENEFIT COST

**RESPONSE TO ENVIRONMENTAL REPORT
REQUESTS FOR ADDITIONAL
INFORMATION**

NEED FOR POWER and BENEFIT COST

TVA Letter Dated: August 11, 2008

Responses to Environmental Report Requests for Additional Information – Need for Power and Benefit Cost

This enclosure provides the status of the five requests for additional information (RAI) related to Need for Power and Benefit Cost and provides the BLN responses to four of these requests.

Status of Requests for Additional Information Related to Need for Power and Benefit Cost

<u>RAI Number</u>	<u>Date of TVA Response</u>
• 8.0-1	This letter – see following pages.
• 8.2.2-1	August 4, 2008. (Reference 1)
• 10.4.1-1	This letter – see following pages.
• 10.4.1-2	This letter – see following pages.
• 10.4.2-1	This letter – see following pages.

Reference:

1. Letter from Jack A. Bailey (TVA) to NRC Document Control Desk, “Bellefonte Combined License Application – Response to Environmental Report Request for Additional Information – Resolved Information Needs,” dated August 4, 2008.

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Responses to Environmental Report Requests for Additional Information – Need for Power and Benefit Cost

NRC Review of the BLN Environmental Report

NRC Environmental Category: NEED FOR POWER AND BENEFIT COST

NRC RAI NUMBER: 8.0-1

Provide a brief description of the process by which TVA develops and updates its IRP and by which it reviews the forecasts for power and energy requirements, factors affecting growth of demand, power supply, and its assessment of need for power that are included in the ER.

BLN RESPONSE:

TVA's resource planning process (Integrated Resource Plan [IRP]) results in a least-cost, robust portfolio plan that identifies the long- and short-term actions TVA anticipates undertaking to meet future demand for peak and energy needs and to achieve its objectives. This is an annual, iterative process that operates under the umbrella of the TVA Act, Strategic Plan, and other overall policy decisions, financial goals, and objectives.

First, the projected need for power is determined, which is based on detailed load forecasts and reserve criteria. Both supply-side and demand-side options are considered consistent with overall evaluation criteria. Traditional technologies, along with a broad spectrum of renewable and customer options, are included in this mix of potential expansion alternatives. These options and strategies are considered under a macro future "world" that is approved by executives. Different future scenarios are also evaluated to test the robustness of the portfolio plan along with sensitivity risk analyses.

Line organizations develop inputs, assumptions, and forecasts and collaborate with the planning organization based on identified input parameters. The planning organization develops the least-cost expansion portfolio using state-of-the-art planning tools and screens results for further portfolio analysis.

Detailed fuel-burn and dispatch plans are produced along with the accompanying fuel plans and financial impacts, including any rate, debt, cash flow, and other financial results. These rate impacts feed back into the iterative process as price response inputs into the load forecast for the next resource planning cycle. TVA executives review and approve the portfolios and assumptions.

This response is PLANT-SPECIFIC.

ASSOCIATED BLN COL APPLICATION TEXT CHANGES:

None.

ATTACHMENTS:

None.

TVA Letter Dated: August 11, 2008

Responses to Environmental Report Requests for Additional Information – Need for Power and Benefit Cost

NRC Review of the BLN Environmental Report**NRC Environmental Category: NEED FOR POWER AND BENEFIT COST****NRC RAI NUMBER: 10.4.1-1**

Verify that the benefit and cost estimates in ER chapter 10 are consistent with the data and analysis in previous subsections, particularly those being revised or updated. As a specific example, verify that the benefit estimates are consistent with those developed in ER Sections 4.4 and 5.8, that the geographic areas in which the benefits occur are clearly identified, that multipliers are appropriately applied and interpreted, and that the estimate indicates whether it is in current or constant dollars. Also, verify that the assessed impact level is consistent between ER Section 10.4 and the ER sections upon which the statements are based.

BLN RESPONSE:

Benefit cost information in ER Chapter 10 has been compared with text from Chapters 4 and 5 for consistency. Assessed impact levels have also been reviewed for consistency with previous chapters. Geographic areas in which the benefits apply are identified in the respective benefit discussions. Dollar values are reported in constant dollars for the year indicated. ER Chapter 10 Subsections 10.4.1.1.1, 10.4.1.1.2, and 10.4.1.2.3 are revised as shown below, based on the comparisons and recent changes associated with RAI responses.

This response is PLANT-SPECIFIC.

ASSOCIATED BLN COL APPLICATION TEXT CHANGES:

1. Change COLA Part 3, ER Chapter 10, Subsection 10.4.1.1.1, fourth through sixth paragraphs, as follows:

The State of Alabama retains 17 percent out of its TVA payment for general fund purposes. The State of Alabama then distributes 78 percent of the TVA tax equivalent payments to the 16 TVA-served counties. These counties may share a portion of their payments with municipalities. Some of these payments may be used in support of school systems, hospitals, and other public services within their boundaries. The remainder of the tax equivalent payments is either retained for the State's general fund or distributed to counties not served by TVA. During FY 2007, the state of Alabama allocation was \$112.1 million. The state paid \$87.4 million to the TVA-served counties. Of this, Jackson County received \$10.4 million.

Personal annual taxable income in excess of~~greater than~~ \$6000 is taxed at a rate of 5 percent (**Reference 9**). During peak construction, there are an estimated 3250 ~~3000~~ construction workers on-site (see **Subsection 4.4.2.1**). U.S. Department of Labor reports that moderate-level construction workers in the Huntsville, Alabama, area were paid an average of \$13.77 an hour in 2004 (**Reference 10**). At this wage and tax rate, site construction workers would add an estimated \$3.7 ~~4~~-million to the annual state tax base. During this same peak construction period, approximately 650 operations workers (security personnel are included among these operations workers) are also expected to begin working at the site. U.S. Department of Labor reports that engineering technicians in the Huntsville, Alabama, area were paid \$24.37 an hour in 2004 (Reference 11). At this wage and the

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Responses to Environmental Report Requests for Additional Information – Need for Power and Benefit Cost

above tax rate, operations workers would add an estimated \$1.4 million to the annual state tax base, for a total of \$5.1 million added during peak construction. Based on information discussed in Subsection 4.4.2.2.1, the average person-year salary is expected to be \$65,000. For the construction cycle of both units, a total of 10,631 person-years are expected, resulting in a total economic input as a result of wages of \$691 million. Based on the RIMS II direct-effect economic multiplier for construction within the region, the total economic impact related to wages is expected to be approximately \$994.7 million (Subsection 4.4.2.2.1).

Operation of BLN is expected to require approximately 1000 ~~850~~ workers, which includes approximately 650 operations workers who began working during the construction period (see Subsection 5.8.2.2). ~~U.S. Department of Labor reports that engineering technicians in the Huntsville, Alabama, area were paid \$24.37 an hour in 2004 (Reference 11).~~ Based on the above this wage (\$24.37 per hour) and the above tax rate (5 percent), operations workers would add an estimated \$2.2 ~~\$2~~ million to the annual state tax base.

2. Change COLA Part 3, ER Chapter 10, Subsection 10.4.1.1.2, first and second paragraphs as follows:

The in-migration of construction workers is likely to create new indirect service jobs in the area. Subsection 4.4.2.2 discusses the economic benefits related to construction of BLN. As stated there, every direct construction job at BLN provides 0.422 ~~0.423~~ indirect jobs added to the regional economy. Each additional operations job results in an increase of 0.759 new jobs in the 50-mi. region (Subsection 5.8.2.2). During peak construction, BLN would employ approximately 3900 ~~3000~~ workers. However, only 50 percent of these are expected to migrate into the region. These 3250 ~~1500~~ new construction and 650 operations workers would translate to approximately 1870 ~~635~~ additional indirect jobs within the region. At the hourly construction and operations workers wages ~~worker wage~~ listed above, BLN would pay approximately \$126 ~~\$86~~ million annually for construction and operations workers during peak construction. At the average per capita income of \$23,200 for Jackson County (Subsection 2.5.2.1), indirect jobs created during peak construction would generate approximately another \$43 ~~\$15~~ million annually for the regional economy. In addition to these benefits, every construction dollar spent is multiplied by 0.443 dollars in the regional economy. Estimated regional purchases total about \$41 million throughout the construction period (Subsection 4.4.2.2).

The economic benefits of operation of BLN are discussed in Subsection 5.8.2.2. As stated there, each additional operations job results in an increase of 0.759 new jobs in the 50-mi. region. The employment of approximately 1000 ~~850~~ operations workers (including the approximately 650 workers who begin working during the construction period) is expected to result in the addition of 760 ~~645~~ indirect jobs in the region. At the hourly engineering technician wage listed above, operations workers would earn about \$50,700 annually. This is considerably higher than the average per capita income of \$23,200 for Jackson County (Subsection 2.5.2.1). BLN would pay approximately \$51 ~~over \$43~~ million annually for the 1000 ~~850~~ operations employees. At the average per capita income for Jackson County, the indirect jobs would add approximately another \$18 ~~\$15~~ million to the annual economy. In addition to these benefits, every operational-related dollar spent is multiplied by 0.331 dollars in the regional economy (Subsection 5.8.2.2).

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3. Change COLA Part 3, ER Chapter 10, Subsection 10.4.1.2.3, first paragraph, as follows:

Construction of BLN is anticipated to require a peak workforce of ~~3900~~ 3000 people (see Section 4.4), which creates about ~~1870~~ 635 indirect jobs, for a total of ~~about 5770~~ 3635 new permanent or temporary jobs within the region during the peak construction period. Temporary construction workers and their families increase rental and property demand, spending on goods and services, and sales taxes that most people consider to be a benefit to the local economy. Operation of the plant is anticipated to require approximately 1000 ~~850~~ direct jobs (650 of whom begin working during the construction period see Section 5.8) with an additional 760 ~~645~~ indirect jobs for a total of 1760 ~~1495~~ new jobs in the region (500 of these indirect jobs associated with operations workers were accounted for in discussions of peak construction above).

4. Change COLA Part 3, ER Chapter 10, Table 10.4-2 (Sheet 1 of 4), Regional Productivity, Benefit, first and second paragraphs, as follows:

At peak construction, 3250 construction workers create 1370 ~~An influx of 1500 construction workers (50 percent of the 3000 construction workforce) creates 635 indirect jobs,~~ permanent or temporary, indirect jobs for a total of 4620 ~~3635~~ new jobs within the region (Subsection 4.4.2.2). That results in a MODERATE to LARGE beneficial impact on the local economy.

An influx of 1000 ~~850~~ direct operational jobs results in an additional 760 ~~645~~ indirect jobs for a total of 1760 ~~1495~~ new jobs in the region (Subsection 5.8.2.2), that results in a MODERATE beneficial impact on local economy.

5. Change COLA Part 3, ER Chapter 10, Table 10.4-3 (Sheet 2 of 2), Hazardous and Radioactive Waste, Cost, as follows:

Storage, treatment, and disposal of high-level radioactive spent nuclear fuel. Impacts are SMALL ~~to MODERATE~~.

Commitment of underground geological resources for disposal of radioactive spent fuel results in SMALL ~~to MODERATE~~ impacts.

6. Change COLA Part 3, ER Chapter 10, Table 10.4-4 (Sheet 1 of 8), Land Use, fourth item, as follows:

Adverse Impact – Construction debris would be disposed in on-site or off-site landfills.

Minimization Measure – Mitigation measures related to land use and construction are discussed in Section 4.1.

Unavoidable Adverse Environmental Impacts – Some land would be dedicated to disposal of construction debris and not available for other uses. Impact to land use from construction is expected to be SMALL to MODERATE.

ATTACHMENTS:

None.

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NRC Review of the BLN Environmental Report

NRC Environmental Category: Need for Power and Benefit Cost

NRC RAI NUMBER: 10.4.1-2

In the discussion of fuel diversity (ER Section 10.4.1.2.2), provide data to indicate TVA's and the region's current and projected fuel mix in the electrical power supply system.

BLN RESPONSE:

Based on a discussion with the NRC staff on July 14, 2008, as documented in the referenced NRC memorandum, it is TVA's understanding that the information requested by this RAI is fundamentally, but not fully, addressed to the reviewer's satisfaction by the information provided in Chapter 8 of the BLN Environmental Report. Consequently, a clarification to this RAI was provided by the NRC reviewer, requesting the following supplemental information:

During the discussion it was agreed that PNNL reviewers would look at information in ER Chapter 8 to confirm that this satisfies their needs. If so, TVA will likely just be able to indicate that the needed information is available.

Since the meeting PNNL staff reviewed Chapter 8 and agree that the material included there provide appropriate information on TVA's fuel mix - there is no statement that indicates TVA is the only power provider in the region and if not what the fuel mix is for other providers in the region.

The requested clarification is addressed as follows:

TVA reviewed the NRC staff's guidance for environmental reviews contained in NUREG-1555, and could not identify the basis for the reviewers question regarding the fuel mix for other power providers in the TVA region. As noted above, data pertaining to TVA's own fuel mix was provided in ER Chapter 8; however, similar data regarding TVA's competitors is not readily available to TVA.

Notwithstanding the above, information pertaining to the fuel mix for other power providers in the region is unnecessary, as TVA is the only power provider in the TVA service area.

This response is PLANT-SPECIFIC.

Reference:

NRC Communication Summary, "Summary of Telecommunication with Tennessee Valley Authority to Discuss Clarification on Request for Additional Information (RAI) for Bellefonte Units 3 and 4."
Contact: Mallecia Hood (DSER/NRO), dated July 28, 2008 [ML082070062]

ASSOCIATED BLN COL APPLICATION TEXT CHANGES:

None.

ATTACHMENTS:

None.

TVA Letter Dated: August 11, 2008

Responses to Environmental Report Requests for Additional Information – Need for Power and Benefit Cost

NRC Review of the BLN Environmental Report

NRC Environmental Category: NEED FOR POWER AND BENEFIT COST

NRC RAI NUMBER: 10.4.2-1

If necessary, update the costs of construction estimates and provide references to support the revised cost estimates. Confirm that the cost of the rework of existing structures, including the cooling towers, intakes, and potentially the discharge structure as well as the cost of managing sediment, e.g., dredging and/or sediment removal from the raw water, is included, or explain its omission. Also, clarify whether spent fuel storage and disposal costs are included. (ER Section 10.4.2.1.1)

BLN RESPONSE:

TVA has considered the need to update the cost of construction estimates, and determined that no updates are necessary at this time. TVA's original cost estimate was inclusive of the cost of rework of existing structures, including the natural-draft cooling towers, intake canal and pumps, inspection of discharge piping, the cost of maintenance dredging and removal of sediment, and other costs that are unique to this brownfield site. Long-term, on-site spent fuel storage (i.e., independent spent fuel storage facility) and disposal costs are not construction costs, and therefore, are not included in the cost of constructing Bellefonte Nuclear Plant, Units 3 and 4.

This response is PLANT-SPECIFIC.

ASSOCIATED BLN COL APPLICATION TEXT CHANGES:

None.

ATTACHMENTS:

None.