



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

November 3, 2009

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

BELLEVILLE COMBINED LICENSE APPLICATION – RESPONSE TO REQUEST FOR
ADDITIONAL INFORMATION – ACCIDENTAL RELEASES OF RADIOACTIVE LIQUID
EFFLUENTS IN GROUNDWATERS

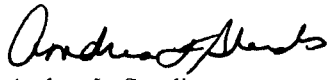
- References: 1) Letter from Joseph Sebrosky (NRC) to Andrea L. Sterdis (TVA), Request for Additional Information Letter No. 063 Related to SRP Section 02.04.13 for the Bellefonte Units 3 and 4 Combined License Application, dated July 3, 2008.
- 2) Letter from Andrea L. Sterdis (TVA) to NRC Document Control Desk, Response to Request for Additional Information – Groundwater, dated August 1, 2008.

This letter provides the Tennessee Valley Authority's (TVA) supplemental response to the Nuclear Regulatory Commission's (NRC) request for additional information (RAI) items included in the Reference 1 letter. Reference 2 provided the response to the original request. This response provides a revised response RAI 02.04.13-04a based on a revised calculation that resulted in a need for a change to the data provided in the FSAR. This transmittal also contains revised RESRAD data files included on the enclosed compact disk.

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 3rd day of Nov, 2009.


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

Enclosure
cc: See Page 2

D085
NRC

Document Control Desk

Page 2

November 3, 2009

cc: (w/ Enclosures)

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
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M. C. Nolan, Duke Energy
N. T. Simms, Duke Energy
K. N. Slays, NuStart
G. A. Zinke, NuStart

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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

Enclosure
TVA letter dated November 3, 2009
RAI Response

Responses to NRC Request for Additional Information letter No. 063 dated July 3, 2008
(3 pages, including this list)

Subject: Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Water as
detailed in the Final Safety Analysis Report

<u>RAI Number</u>	<u>Date of TVA Response</u>
02.04.13-01	August 1, 2008
02.04.13-02	August 1, 2008
02.04.13-03	August 1, 2008
02.04.13-04a	August 1, 2008, as supplemented by this response
02.04.13-04b	August 1, 2008
02.04.13-04c	August 1, 2008
02.04.13-04d	August 1, 2008
02.04.13-04e	August 1, 2008
02.04.13-04f	August 1, 2008

Associated Additional Attachments / Enclosures
Attachment 02.04.13-04B revised

Pages Included
1 (Cover Sheet) and CD

Enclosure
TVA letter dated November 3, 2009
RAI Response

NRC Letter Dated: July 3, 2008
NRC Review of Final Safety Analysis Report
NRC RAI NUMBER: 02.04.13-04a

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.

BLN RAI ID: 3905
BLN RESPONSE:

Following the requests for information, the liquid effluent tank accident release model has been adjusted and re-evaluated with the compilation of the various input parameters. The revised electronic RESRAD input files are provided in Attachment 02.04.13-04B. These files contain the changes required due to revised porosity information, minimum Kd, correction of a calculation process error, and other changes identified during the review of the tank rupture analysis methodology. These files are only readable from within the RESRAD program.

As a conservative estimate an approximately 800 square feet portion of Town Creek of is assumed to be the receptor location for the affected groundwater from the tank failure. Using the two small inlets to the northwest of MW-1212 as the bounding discharge points and using an average water depth of 5 feet, the water volume for Town Creek is 9,249,342 cubic feet.

The analysis conservatively assumes that the flow of surface water through the affected portion of Town Creek does not cause radionuclide movement for a period of one year. Individual radionuclide concentrations in Town Creek were modeled using RESRAD-Offsite. The concentrations were calculated on a periodic interval for a maximum of 1000 years. This time period allows the radionuclides to either appear in the receptor body or to be removed by radioactive decay.

The lowest available site specific Kd values were used in the conceptual model for conservatism. For those radionuclides not evaluated for the site specific Kd values, the most conservative value of "0" was used. RESRAD was rerun using the revised site specific Kd values or a Kd value of "0."

FSAR Tables 2.4.13-203 and 2.4.13-204 were updated based on the results of the new RESRAD run as identified in the Application Revisions section below.

This response is PLANT-SPECIFIC.

Enclosure
 TVA letter dated November 3, 2009
 RAI Response

ASSOCIATED BLN COL APPLICATION REVISIONS:

COLA Changes 1 through 7 are not changed from the August 1, 2008 response.

8. COLA Part 2, FSAR Chapter 2, Section 2.4, Table 2.4.13-204 values will be revised from:

Detected Radionuclide	Radionuclide Concentration microcuries/ml	10 CFR 20 Appendix B Table 2 Column 2 microcuries/ml	Sum of Fractions Contribution(a)
Ag-110m	5.22E-10	6.00E-06	8.70E-05
Ce-144	2.30E-10	3.00E-06	7.68E-05
H-3	3.77E-05	1.00E-03	3.77E-02
Nb-95	2.52E-13	6.00E-09	4.20E-05
Pr-144	2.30E-10	2.00E-05	1.15E-05
			Sum of Fraction Unity Rule Value
			3.79E-02

a) Those radionuclides with Sum of Fractions Contribution less than 1.0E-5 are negligible and not included in the table.

To read:

Detected Radionuclide	Maximum Radionuclide Concentration (microcuries/ml)	10 CFR 20 Appendix B Table 2 Column 2 (microcuries/ml)	Sum of Fractions Contribution(a)
Ag-110m	2.51E-10	6.00E-06	4.18E-05
Ce-144	1.11E-10	3.00E-06	3.69E-05
H-3	3.77E-05	1.00E-03	3.77E-02
			Sum of Fraction Unity Rule Value
			3.78E-02

(a) The Sum of Fraction unity value is calculated as the maximum concentration divided by 10CFR Part 20 Appendix B Limit. Those radionuclides with a Sum of Fraction unity value less than 1.0E-5 are negligible and not included in the table.

ASSOCIATED ATTACHMENTS/ENCLOSURES

Attachment 02.04.13-04B – revised RESRAD input files (2) on compact disk (CD):
 1- BELLEFONTE LIQUID TANK FAILURE REV2A.ROF
 2- BELLEFONTE LIQUID TANK FAILURE REV2A.CHN

Attachment 02.04.13-04B
TVA letter dated November 3, 2009
RAI Response

Attachment 02.04.13-04B

(Separate CD)

Bellefonte Liquid Tank Failure Rev2A.ROF

Bellefonte Liquid Tank Failure Rev2A.CHN



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Attachment 02.04.13-04B

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Bellefonte Liquid Tank Failure Rev2A.ROF

Bellefonte Liquid Tank Failure Rev2A.CHN