R. R. Sgarro
Manager-Nuclear Regulatory Affairs

PPL Bell Bend, LLC
38 Bomboy Lane, Suite 2
Berwick, PA 18603
Tel. 570.802.8102 FAX 570.802.8119
rrsgarro@pplweb.com

September 10, 2009

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

BELL BEND NUCLEAR POWER PLANT
RESPONSE TO RAI Nos. 40 and 43
BNP-2009-258 Docket No. 52-039

References: 1) M. Canova (NRC) to R. Sgarro (PPL Bell Bend, LLC), Bell Bend COLA – Request for Information No. 43 (RAI No. 43) – CHPB - 3326, email dated August 11, 2009

2) M. Canova (NRC) to R. Sgarro (PPL Bell Bend, LLC), Bell Bend COLA – Request for Information No. 40 (RAI No. 40) – CHPB - 3313, email dated August 18, 2009

The purpose of this letter is to respond to the requests for additional information (RAI) identified in the referenced NRC correspondences to PPL Bell Bend, LLC. These RAIs address Radiation Sources, as discussed in Section 12.2 of the Final Safety Analysis Report (FSAR), as submitted in Part 2 of the Bell Bend Nuclear Power Plant Combined License Application (COLA).

The enclosure provides our responses to RAI No. 40, Questions 12.02-1 and 12.02-2; and RAI No. 43, Question 12.02-3, which include revised COLA content. A Licensing Basis Document Change Request has been initiated to incorporate these changes in a future revision of the COLA. This future revision of the COLA is the only new regulatory commitment.

If you have any questions or need additional information, please contact the undersigned at 570.802.8102.

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

Executed on September 10, 2009

Respectfully,

Rocco R. Sgarro

RRS/kw

Enclosure: As stated

DOP NRO

cc: (w/o Enclosures)

Mr. Samuel J. Collins
Regional Administrator
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406-1415

Mr. Michael Canova
Project Manager
U.S. Nuclear Regulatory Commission
11545 Rockville Pike, Mail Stop T6-E55M
Rockville, MD 20852

Mr. Joseph Colaccino
Branch Chief
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852

Enclosure 1

Response to NRC Request for Additional Information No. 40, Questions 12.02-1, 12.02-2 and RAI No. 40, Question 12.02.-3
Bell Bend Nuclear Power Plant

RAI 40
Question 12.02-1

NRC regulation 10 CFR 20.1501(b) requires, in part, that instruments and equipment used to perform dose rate surveys be calibrated periodically for the radiation to be measured.

In response to Combined License Information Item 12.2-1, the applicant provided a table of radiation sources in BBNPP FSAR Section 12.2.1.13 as follows below,

Isotope	Quantity	Form	Use
Cf-252	0.5 Ci	Sealed Source	Primary Start-up
Sb-Be	3E+06 Ci	Sealed Source	Secondary Startup
Cs-137	400 Ci	Sealed Source	Calibration
Cs-137	130 mCi	Sealed Source	Calibration
Am-241	0.03 µCi	Sealed Source	Calibration

However, this source listing does not include a neutron source for portable neutron survey instrumentation calibration.

a. Provide the information for such a source or an alternative method or system for such instrument calibration.

Response

Source checking of the portable neutron instruments will be performed using a suitable neutron source. The table in FSAR Section 12.2.1.13 will be supplemented to reflect an AmBe neutron source.

COLA Impact

FSAR Section 12.2.1.13 will be supplemented as shown in the response to RAI 43 Question 12.02-3.

RAI 40
Question 12.02-2

NRC regulation 10 CFR 20.1801 requires licensees to secure from unauthorized removal or access licensed materials that are stored in controlled or unrestricted areas.

a. Describe how the contained sources described in FSAR Section 12.2.1.13 (response to COL item 12.2-1), and any additional by-product, source, or special nuclear material sources that are not a part of the permanent plant design, will be secured in accordance with 10 CFR 20.1801.
b. Describe how the materials will be tracked, including the procedures that will govern the control and use of these sources.

Response

a. Source Security and Tracking

NEI 07-03A, Generic FSAR Template Guidance for Radiation Protection Program Description, presents the applicable program specifications for the secure storage and tracking of contained radiation sources. BBNPP COLA FSAR Section 12.5 incorporates NEI 07-03A by reference. NEI 07-03A, Section 12.5.3.1 states, "A radioactive materials storage area(s) is established, as needed and in accordance with 10 CFR 20.1801, that provides for secure storage of licensed radioactive material to prevent unauthorized removal or access." In addition, NEI 07-03A, Section 12.5.4.10, Radioactive Material Control, states, "(p)rocedures are established, implemented and maintained that assure compliance with the requirements of 10 CFR 20.1801... to assure positive control over licensed radioactive material."

To aid in the security and tracking of sources, 10 CFR 20.2207 requires each licensee who receives a nationally tracked source to complete and submit a National Source Tracking Transaction Report (NRC Form 748). Of the sources listed in FSAR 12.2.1.13, the 400 curie Cs-137 source meets the requirements of 10 CFR 20.2207 (sources greater than 27 curies and less than 2700 curies are Cat 2); and, therefore, a report must be submitted to the NRC no later than the next business day after the transaction to procure the source has occurred.

b. Procedures

Radiation protection plant procedures are part of the BBNPP Radiation Protection Program. NEI 07-03A, Section 12.5 part 1.d states, "procedures will be established, implemented and maintained sufficient to maintain adequate control over the receipt, storage and use of radioactive materials possessed under this license and as necessary to assure compliance with 10 CFR 19.11 and 19.12 and the applicable portions of 10 CFR Part 20, commensurate with the types and quantities of radioactive materials received and possessed under this license." The procedures described in NEI 07-03A, Section 12.5.4 (including 12.5.4.10), establish the controls for the use of the additional contained byproduct, source or special nuclear material sources. Specifically, NEI 07-03A Section 12.5.4 states, "(r)adiation protection procedures are established, implemented and maintained sufficient to provide adequate control over the receipt, possession, use, transfer, and disposal of byproduct, source and special nuclear material to assure compliance with applicable requirements in 10 CFR Part 19, 20, 50, 70 and 71."

COLA Impact

FSAR Section 12.2.1.13 will be supplemented as shown in the response to RAI 43 Question 12.02-3.

RAI 43
Question 12.02-3

In response to Combined License Information Item 12.2-1, the applicant provided a table of radiation sources in BBNPP FSAR Section 12.2.1.13 as follows below,

Isotope	Quantity	Form	Use
Cf-252	0.5 Ci	Sealed Source	Primary Start-up
Sb-Be	3E+06 Ci	Sealed Source	Secondary Start-up
Cs-137	400 Ci	Sealed Source	Calibration
Cs-137	130 mCi	Sealed Source	Calibration
Am-241	0.03 uCi	Sealed Source	Calibration

However, Section 12.2, Radiation Sources, of NUREG-0800, "Standard Review Plan for Licensing of Nuclear Power Plants," states:

> "...Contained Sources. The description of radiation sources, ... This description should include isotopic composition, location in the plant, source strength and source geometry, and the basis for the values..."
> The applicant's FSAR, in Section 12.2.1.13, does not include a description of the location of the sources, the source geometry or the basis for the values in the source list as described in NUREG-0800. Please provide this information to demonstrate compliance with 10 CFR 20.1201 and 10 CFR 20.1202, or justify an alternative.

Response

The primary and secondary neutron source rods are discussed in U.S. EPR FSAR Section 4.2.2.10, and are shown in U.S. EPR FSAR Figures 4.2-19 and 4.2-20. U.S. EPR FSAR Section 12.3.1.6 and U.S. EPR Figure 12.3-16 describe the portable instrument calibration facility, which stores the calibration sources.

The Bell Bend Nuclear Power Plant COLA FSAR Section 12.2.1.13 will be revised to include the source geometry, source location, and basis for the source strength values provided.

COLA Impact

The Bell Bend Nuclear Power Plant COLA FSAR Section 12.2.1.13 will be revised to include the source geometry, source location, and basis for the source strength values provided. The BBNPP COLA FSAR Sections 12.5.1 "References," FSAR Table 1.6-1 "Reports Referenced," and COLA Part 11D "NEI References" will be revised to reflect the current revision to NEI 07-03A.

12.2.1.13 Miscellaneous Sources

The U. S. EPR FSAR includes the following COL Item in Section 12.2.1.13:
A COL applicant that references the U.S. EPR design certification will provide site-specific information for required radiation sources containing byproduct, source, and special nuclear material that may warrant shielding design considerations. This site-specific information will include a listing of isotope, quantity, form, and use of all sources in this latter category that exceed 100 millicuries.

This COL Item is addressed as follows:

The following radiation sources have been identified to be required.

Isotope	Quantity	Form	Geometry	Use	Location
Cf-252	0.5 Ci (note a)	Sealed Source	Source Rod	Primary Start-up Source	Reactor Core
Sb-Be	3E+06 Ci (note b)	Sealed Source	Source Rod	Secondary Source	Reactor Core
Cs-137	400 Ci (note c)	Sealed Source	Special form sealed capsule	Calibration	Elevation 0 feet of Access Building
{Cs-137	130 mCi (note c)	Sealed Source	Special form sealed capsule	Calibration}	Elevation 0 feet of Access Building}
{Am-241	0.03 µCi (note d)	Sealed Source	Planchet	Calibration}	Elevation 0 feet of Access Building}
{AmBe	3 Ci (note e)	Sealed Source	Special form sealed capsule	Calibration	Elevation 0 feet of Access Building}

Notes:

a. As calculated, based on 2E+09 neutrons/sec at the beginning of life, 2.3E+12 neutron/sec-g spontaneous fission neutron emission rate, and 538 Ci/g specific activity for Cf-252.

b. Based on an end of fuel cycle activation of 5.95E+08 Ci/m^3 and 4.22E-3 m^3 volume for three secondary source rods.

c. Based on data from box calibrator vendors.

{d. Based on data from source manufacturers.}

{e. Nominal size required to achieve proper dose rates for performing source checks of neutron detecting instruments.}

12.5 OPERATIONAL RADIATION PROTECTION PROGRAM

This COL Item is addressed as follows:

This section incorporates by reference NEI 07-03A, "Generic FSAR Template Guidance for Radiation Protection Program Description" (NEI, 2009 ~~2007~~).

12.5.1 REFERENCES

{NEI, ~~2007~~ 2009. Generic FSAR Template Guidance for Radiation Protection Program Description, NEI 07-03A, Revision ~~3~~ 0, Nuclear Energy Institute, ~~October 2007~~ May 2009.}

1.6 MATERIAL REFERENCED

Table 1.6-1 {Reports Referenced}

Report No.	Title/Revision	Date Submitted to the NRC	FSAR Section
NEI 07-03A	Generic FSAR Template Guidance for Radiation Protection Program Description, Revision ~~2~~ 0	May 2009 ~~October 2007~~	12.5

COLA Supplement Part 11 D, "NEI References."

COLA Part 11D

NRC Accession Number	Title
ML091490684	NEI 07-03A, Rev. 0, "Generic FSAR Template Guidance for Radiation Protection Program Description."