

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
rsgarro@pplweb.com



June 04, 2009

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

**BELL BEND NUCLEAR POWER PLANT
RESPONSE TO RAI SET NO. 3
BNP-2009-097 Docket No. 52-039**

References: 1) M. Canova (NRC) to R. Sgarro (PPL Bell Bend, LLC), Bell Bend COLA – Request for Information No. 3 (RAI No. 3) – RSCA-2423, email dated May 7, 2009

The purpose of this letter is to respond to the request for additional information (RAI) identified in the referenced NRC correspondence to PPL Bell Bend, LLC. This RAI addresses the Onsite Meteorological Measurements Programs, as discussed in Section 2.3 of the Final Safety Analysis Report (FSAR), as submitted in Part 2 of the Bell Bend Nuclear Power Plant Combined License Application (COLA).

Enclosure 1 provides our response to RAI No. 3, Questions 02.03.03-1 and 02.03.03-2.

Enclosure 2 is the data in electronic format requested in Question 02.03.03-1.


Our responses to Questions 02.03.03-1 and 02.03.03-2 do not include any new regulatory commitments.

If you have any questions, please contact the undersigned at 570-802-8102.

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

Executed on June 04, 2009

Respectfully,


Rocco R. Sgarro

Enclosures: As stated

DD79
NRO

cc: 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
11555 Rockville Pike
Rockville, MD 20852

Enclosure 1

Response to NRC Request for Additional Information Set No. 3
Bell Bend Nuclear Power Plant

RAI Set No. 3

Question 02.03.03-1

Standard Review Plan (SRP) Section 2.3.3, Section II (Acceptance Criteria), SRP Acceptance Criterion (2) and Regulatory Guide 1.206, *Combined License Applications for Nuclear Power Plants* (June 2007) (Reg Guide 1.206), Section C.I.2.3.3 (Para. 2 & 3), call for the submittal of an hour-by-hour listing of the hourly-averaged parameters in the format described in Regulatory Guide 1.23, Rev. 1, *Meteorological Monitoring Programs for Nuclear Power Plants* (March 2007) (Reg Guide 1.23). Regulatory Guide 1.194, *Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments for Nuclear Power Plants* (June 2003) (Reg Guide 1.194), Section C.3.1 provides information on the structure and content of the meteorological data set and related input parameters used by the ARCON96 dispersion model.

Please provide the following validated data sets for the 2001 to 2007 period of record (POR) that corresponds to the data used in the dispersion modeling analyses in the combined license final safety analysis report (COL FSAR), Sections 2.3.4 and 2.3.5:

(a) Sequential hourly data listings in the format specified in Appendix A of Reg Guide 1.23. Please provide this data as ASCII-character files in electronic format on CD-ROM or DVD, with a separate file for each year in the POR. The Staff requests that each composite data set correlate with the joint frequency distribution (JFD) tables of wind speed, wind direction, and atmospheric stability and other onsite data summaries presented in COL FSAR Section 2.3.

(b) Sequential hourly data set(s) input to the ARCON96 dispersion model in a manner consistent with the suggested format in Appendix A of Reg Guide 1.194. The Staff requests that the values in this composite data set correlate with the sequential hourly data set in Item (a) above.

Response

The accompanying compact disc contains the meteorological data files requested in Question 02.03.03-1 (a) and (b).

The files on the accompanying compact disc are as follows:

<u>Date/Time</u>	<u>File Name</u>	<u>File Description</u>
Apr 17 2008 17:17	bb2001.nrc	RG 1.23 format 2001 met data
Apr 17 2008 17:17	bb2002.nrc	RG 1.23 format 2002 met data
Apr 17 2008 17:32	bb2003.nrc	RG 1.23 format 2003 met data
Apr 17 2008 17:33	bb2004.nrc	RG 1.23 format 2004 met data
Apr 17 2008 17:33	bb2005.nrc	RG 1.23 format 2005 met data
Apr 17 2008 17:33	bb2006.nrc	RG 1.23 format 2006 met data
Apr 17 2008 17:33	bb2007.nrc	RG 1.23 format 2007 met data
Apr 18 2008 09:35	metrose.xoqdoq.jfd.6936	xoqdoq format jfd for 10m level
Apr 18 2008 09:35	metrose.xoqdoq.jfd.6990	xoqdoq format jfd for 60m level
Apr 18 2008 10:16	ss10	excerpt 10m jfd
Apr 18 2008 09:34	ss10.m3	metrose input for 10m level
Apr 18 2008 09:35	ss10.out	metrose output for 10m level
Apr 18 2008 10:16	ss60	excerpt from 60m jfd
Apr 18 2008 09:34	ss60.m3	metrose input for 60m level
Apr 18 2008 09:35	ss60.out	metrose output for 60m level
Apr 18 2008 10:17	transjfd.bb10.out	reformatted 10m jfd
Apr 18 2008 10:17	transjfd.bb60.out	reformatted 60m jfd
Apr 18 2008 10:38	jfd_translation.xls	Excel spreadsheet; RG 1.23 format
Apr 24 2009 11:18	sses01.met	ARCON96 format 2001 met data

Apr 24 2009 11:17	sses02.met	ARCON96 format 2002 met data
Apr 24 2009 11:18	sses03.met	ARCON96 format 2003 met data
Apr 24 2009 11:18	sses04.met	ARCON96 format 2004 met data
Apr 24 2009 11:18	sses05.met	ARCON96 format 2005 met data
Apr 24 2009 11:17	sses06.met	ARCON96 format 2006 met data
Apr 24 2009 11:18	sses07.met	ARCON96 format 2007 met data

The file named "A listing of the files on the CD.doc" is also on the compact disc and is this listing in a MS Word file.

COLA Impact:

There are no changes required to the BBNPP COLA as a result of this response.

Question 02.03.03-2

Regulatory Guide 1.23, Rev. 1, *Meteorological Monitoring Programs for Nuclear Power Plants* (March 2007) (Reg Guide 1.23), subsection C 5, at p. 10, contains the NRC's regulatory position on instrument maintenance and servicing schedules. Reg Guide 1.23 C.5 states that meteorological instruments should be inspected and serviced at a frequency that will ensure data recovery of at least 90 percent on an annual basis. This specification applies to individual meteorological parameters as well as the composite of all other variables needed to model atmospheric dispersion for each potential release pathway.

Reg Guide 1.23 C.6, which contains the NRC's regulatory position on data reduction and compilation, provides that meteorological monitoring systems should use electronic digital data acquisition systems to record data, and describes the formats in which the data should be compiled and displayed. This Reg Guide also describes the types of data that must be recorded, compiled and displayed, such as wind speed, wind direction, and temperature, as well as the frequency of digital sampling.

Provide the methodology used to reach the conclusions in the combined license application final safety analysis report (COL FSAR), Section 2.3.2 (Para. 3), that the data recovery goal of 90%:

- (1) "was met for each of the six years of data (2001-2006) used for meteorological statistics other than the joint frequency distribution tables;" and
- (2) "for each of the seven years of data (2001-2007) used for joint frequency distribution tables used to determine atmospheric dispersion and deposition factors."

Please also provide all information that supports the methodology used to reach these conclusions. Such information could include:

- (1) a listing of the percent data recoveries for each year and the composite period of record (POR) for:
 - (a) individual parameters;
 - (b) the joint recovery of wind speed and wind direction (for each wind measurement level);
 - (c) the joint recovery of wind speed, wind direction, and atmospheric stability class (for each wind measurement level); and
- (2) the number of hours (by year and parameter), if any, of data substitution to supplement data recovery; and
- (3) a description of the alternate sources of meteorological data relied upon to reach these conclusions.

Response

The Susquehanna Steam Electric Station (SSES) methodology ensures the quality of the meteorological data collected onsite by:

- Having the data undergo a quality assurance check by a meteorologist on a daily basis;
- Performing system calibrations twice a year;
- Conducting maintenance in accordance with approved procedures;
- Using a Condition Reporting system to track conditions adverse to quality.

Tables 1 and 2 present percent data recovery and data counts for each year and for the composite period of record for individual parameters, for wind speed and direction for both levels at which such measurements are taken, and for the joint recovery of wind speed, wind direction, and atmospheric stability for both wind levels.

Details regarding data substitution are as follows:

Meteorological data from the Susquehanna Steam Electric Station (SSES) for the period of January 1, 2001 through December 31, 2007 were used in the accident analysis for the Bell Bend Nuclear Power Plant. At SSES there are three meteorological towers that collect data, the primary, backup and downriver tower. For the accident analysis time period only data from the primary tower were used except for brief periods when data were bad or missing from the primary tower and data from another location were substituted. Table 3 shows the hours for each parameter when data were substituted and the percent of time for each year when substituted data were used. The maximum percentage for any parameter for a given year was 1.62% for the dew point temperature in 2003. The average hours substituted for all parameters over the seven years was 18.5 hours.

The following data sources were used for substitution:

- 10m wind speed and direction used data from the 10m backup tower.
- 60m wind speed and direction used data from the 10m primary level selectively when conditions allowed (i.e. high wind speed conditions)
- 60-10m delta temperature used data from the redundant 60-10m delta temperature. No wind direction sigma theta data were used to substitute for delta temperature.
- Temperature and dew point temperature 10m used data from the 10m downriver tower temperature and dew point temperature.
- Precipitation used data from the NWS stations at Williamsport and Avoca depending on the specific weather conditions during the missing time period.

Details regarding alternate sources of meteorological data are as follows:

Precipitation data from the NWS stations at Williamsport and Avoca are sometimes (0.51% of the time for the period 2001-2007) used to fill in missing onsite precipitation data, depending on the specific weather conditions during the missing time period. Occasional informal comparisons have been made between meteorological data collected onsite and primary National Weather Service stations but, in general, offsite data are not relied upon to maintain the quality of onsite meteorological measurements.

COLA Impact:

There are no changes required to the BBNPP COLA as a result of this response.

Table 1: SSES Meteorological Data Recovery in Percent

Year	10 m wind speed	60 m wind speed	10 m wind direction	60 m wind direction	delta T	10 m wind speed and direction	60 m wind speed and direction	10 m wind and delta T	60 m wind and delta T
2001	100.0	99.4	100.0	99.3	99.3	100.0	99.3	99.3	99.2
2002	99.5	99.5	99.4	99.5	99.0	99.4	99.4	99.0	99.0
2003	99.6	99.3	99.7	99.7	99.1	99.6	99.2	99.0	98.6
2004	99.1	99.1	99.1	99.1	99.0	99.0	99.1	99.0	99.0
2005	99.1	99.1	99.1	82.7	99.0	99.1	82.6	99.0	82.6
2006	99.6	99.5	99.6	99.6	99.3	99.6	99.5	99.3	99.3
2007	99.8	99.3	99.9	99.0	99.3	99.8	98.9	99.2	98.6
6-Year Average	99.5	99.3	99.5	96.6	99.1	99.5	96.5	99.1	96.3
7-Year Average	99.5	99.3	99.5	97.0	99.1	99.5	96.9	99.1	96.6

Table 2: SSES Meteorological Data Recovery in Hours

Year	10 m wind speed	60 m wind speed	10 m wind direction	60 m wind direction	delta T	10 m wind speed and direction	60 m wind speed and direction	10 m wind and delta T	60 m wind and delta T
2001	8760	8707	8760	8701	8696	8760	8700	8696	8689
2002	8712	8714	8710	8712	8675	8708	8709	8675	8675
2003	8728	8695	8733	8733	8678	8727	8694	8676	8640
2004	8701	8704	8701	8705	8694	8699	8704	8692	8694
2005	8681	8683	8682	7244	8674	8681	7240	8672	7232
2006	8725	8719	8728	8723	8702	8725	8718	8702	8701
2007	8745	8699	8747	8676	8696	8745	8668	8692	8636
6-Year Average	8717.8	8703.7	8719.0	8469.7	8686.5	8716.7	8460.8	8685.5	8438.5
7-Year Average	8721.7	8703.0	8723.0	8499.1	8687.9	8720.7	8490.4	8686.4	8466.7
6-Year Sum	52307	52222	52314	50818	52119	52300	50765	52113	50631
7-Year Sum	61052	60921	61061	59494	60815	61045	59433	60805	59267

Table 3

Bell Bend Data Substitution to Supplement Data Recovery 2001 - 2007

Parameter	2001	2002	2003	2004	2005	2006	2007	
	Hours Where Data Substitution Was Used For The Final Data Base							Total
10_SPD	53	0	30	1	2	0	1	87
60_SPD	4	1	0	2	1	0	3	11
10_WD	54	0	0	0	2	0	1	57
60_WD	3	0	1	2	120	0	3	129
TEMP10M	56	77	4	2	4	15	2	160
DP10M	4	5	142	2	2	4	1	160
DT60-10	27	49	9	3	5	4	25	122
PRECIP	0	10	4	4	178	104	10	310
Overall Average*:	18.5							
	Percent of Substituted Hours							2001-2007
10_SPD	0.61%	0.00%	0.34%	0.01%	0.02%	0.00%	0.01%	0.14%
60_SPD	0.05%	0.01%	0.00%	0.02%	0.01%	0.00%	0.03%	0.02%
10_WD	0.62%	0.00%	0.00%	0.00%	0.02%	0.00%	0.01%	0.09%
60_WD	0.03%	0.00%	0.01%	0.02%	1.37%	0.00%	0.03%	0.21%
TEMP10M	0.64%	0.88%	0.05%	0.02%	0.05%	0.17%	0.02%	0.26%
DP10M	0.05%	0.06%	1.62%	0.02%	0.02%	0.05%	0.01%	0.26%
DT60-10	0.31%	0.56%	0.10%	0.03%	0.06%	0.05%	0.29%	0.20%
PRECIP	0.00%	0.11%	0.05%	0.05%	2.03%	1.19%	0.11%	0.51%

* Average of number of substituted hours for all channels and years combined

Enclosure 2

Meteorological Data Files in Response to BBNPP RAI 3
Question 02.03.03-1