CCNPP3COLA PEmails

From: Arora, Surinder
Sent: Thursday, September 17, 2009 4:31 PM
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Cc: CCNPP3COL Resource; Mazaika, Michael; Lauron, Carolyn; Colaccino, Joseph; Biggins, James; Vrahoretis, Susan; Hair, Christopher
Subject: FINAL RAI No. 149 RSAC 3128
Attachments: FINAL RAI 149 RSAC 3128.doc

Rob,

Attached please find the subject request for additional information (RAI). A draft of this RAI was provided to you on September 1, 2009. No clarification phone call was requested on this RAI.

The schedule we have established for review of your application assumes technically correct and complete responses within 30 days of receipt of RAIs. For any RAIs that cannot be answered within 30 days, it is expected that a schedule date for submitting your technically correct and complete response will be provided to the staff within the 30 day period so that the staff can assess how this information will impact the review schedule.

Your response letter should also include a statement confirming that the response does or does not contain any sensitive or proprietary information.

Thanks

SURINDER ARORA, PE
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Hearing Identifier: CalvertCliffs_Unit3Cola_Public_EX
Email Number: 883

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From: Arora, Surinder

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Priority: Standard
Return Notification: No
Reply Requested: Yes
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Request for Additional Information No. 149 (eRAI 3128)

9/17/2009

Calvert Cliffs Unit 3
UniStar
Docket No. 52-016
SRP Section: 02.03.02 - Local Meteorology
Application Section: 2.3.2

QUESTIONS for Siting and Accident Conseq Branch (RSAC)

02.03.02-11

The Staff considered the response to RAI Question No. 02.03.02-1 for the COL FSAR, submitted on October 30, 2008 (ML083100776), regarding the addition of wind data for the nearby Patuxent River Naval Air Station (NAS) to COL FSAR Section 2.3.2.1.1 for comparison to onsite wind measurements. The Staff has a number of concerns with Section 2.3.2.1.1 as a whole (including related tables and figures, original and proposed) that include:

- a lack of context for the wind information presented,
- interpretation of the wind data, and
- discussion of the relationships and limitations between wind data measured onsite and at other nearby observing stations,

such that the representativeness of the onsite data over a region within a 50-mile radius of the site has not been adequately established.

Moreover, the Staff disagrees with the related statement in COL FSAR Section 2.3.5.2 (Para. 5) that the "onsite meteorological data used in the dispersion analysis has been shown to be representative of the region", and believes that the wind data from the four offsite locations and the revised discussion in COL FSAR Section 2.3.2.1.1 leads to the opposite conclusion.

Pursuant to Reg. Guide 1.206, Section C.I.2.3.2.1 (last paragraph), Section C.I.2.3.3 (Para. 1, Sent. 5 and 6), Section C.I.2.3.4.2 (Para. 1), and Section C.I.2.3.5.2, the Staff considers it necessary to establish the relationships (and/or to address the lack thereof) among the wind roses and other wind data summaries presented in COL FSAR Section 2.3.2.1.1 and, where applicable, other parts of FSAR Section 2.3 where these data are used. Therefore, in order to fully resolve these concerns, the Applicant should update COL FSAR Section 2.3.2.1.1 by addressing the following technical issues:

(a) Explain why the onsite wind data are considered to be representative of near-field plume transport conditions – that is, between hypothetical accident and routine release points and the Exclusion Area Boundary, the outer boundary of the Low Population Zone, and at other receptors of interest (e.g., nearest residence, vegetable garden, milk and meat animals).

(b) Explain the limitations of the onsite wind data in terms of how well they represent (or do not represent) far-field plume transport conditions (i.e., X/Q and D/Q values estimated

out to a distance of 50 miles from the potential routine release points at the CCNPP3 site) considering the variation in topography and several land-water interfaces over the 50-mile radius area, and the use of a straight-line dispersion model.

(c) In evaluating wind data representativeness in the context of far-field plume transport conditions, identify or address the following basic information:

- distancesand directions of Patuxent River NAS, and Baltimore-Washington (BWI), Richmond, and Norfolk International Airports from the Calvert Cliffs site;
- verify distances from the Chesapeake Bay to each National Weather Service station (the Staff found different distances from those listed in Section 2.3.2.1.1 (i.e., BWI – 7.5 miles, not 4 miles; Richmond – 58 miles, not 50 miles; and Norfolk – 2.5 miles, versus 2 miles);
- orientation of the Chesapeake Bay coastline at BWI and Norfolk relative to the orientation of the coastline at the Calvert Cliffs site and the potential influence of these orientations on the wind roses presented for those locations; and
- the predominant topographic influence(s) on the Richmond and BWI annual wind roses, which are inland monitoring locations, as compared to those at the Calvert Cliffs site.

(d) In characterizing the onsite wind measurements:

- demonstrate, using the onsite wind data and/or joint frequency distributions (JFDs) of wind speed, wind direction, and atmospheric stability at both wind measurement levels, the presence or absence of land breezeand bay breeze circulations on a seasonal and diurnal basis (may require day and night wind roses or JFDs);
- discuss how well the period of record of onsite data used for these wind summaries and as input to the dispersion analyses represent long-term conditions in the site area; and
- cross-reference related aspects of the dispersion modeling discussions in COL FSAR Sections 2.3.4 and 2.3.5 (e.g., meteorological input data, representativeness of terrain recirculation factors, interpretation of dispersion modeling results).

02.03.02-12

The Staff has evaluated the original discussion, in COL FSAR Section 2.3.2.1.1, of offsite wind speed conditions at the Baltimore-Washington (BWI), Norfolk, and Richmond International Airports and has several concerns regarding what appear to be incomplete and/or inaccurate descriptions of the relationships between this offsite information and the wind conditions described for the Calvert Cliffs site.

In order to resolve these concerns, the Applicant should address the following technical issues:

(a) The average wind speeds for BWI, Norfolk, and Richmond are indicated to be 8.8 miles per hour (mph), 11.0 mph, and 8.3 mph, respectively, and appear to be based on the periods of record (PORs) associated with the wind roses in COL FSAR Figures 2.3-40, 2.3-41, and 2.3-42, which range in duration between only 6 and 9 years.

From a climatological standpoint, the Staff believes that the average wind speeds presented for these three National Weather Service (NWS) stations are high and are less representative of long-term conditions over the site area. The long-term average wind speeds listed in the National Climatic Data Center's (NCDC's) 2007 Local Climatological Data (LCD) summaries for these stations cover a 24-year POR and are 7.7 mph at BWI, 9.9 mph at Norfolk, and 7.9 mph at Richmond.

Provide either: (1) the rationale for describing these long-term average wind speed characteristics in the site area based on relatively short PORs, or (2) confirm the longer-term wind conditions for these offsite locations and update COL FSAR Section 2.3.2.1.1 and the corresponding Section 2.3.2 reference list accordingly.

(b) It appears that the generalized upper limits of observed wind speeds at these three NWS stations are based on the corresponding referenced wind roses. From a climatological standpoint, the Staff believes that these upper limits may have been significantly understated and may not be representative of long-term wind conditions in the site area.

- Clarify whether the statements "there have been observations of wind speeds greater than 25 MPH" and "there have been observations of wind speeds up to 25 MPH" are referring to hourly wind speeds from the database referenced in COL FSAR Section 2.3.2.1.1, Paragraph 3 (i.e., EPA, 2007a).

- Maximum sustained (2-minute average) wind speeds based on the NCDC's 2007 LCD summaries for the three nearby NWS stations at BWI, Norfolk and Richmond International Airports are 45, 47, and 47 mph, respectively, based on an 11-year POR for BWI, and 12-year PORs for Norfolk and Richmond. These periods of record are not significantly longer than the PORs on which the wind roses for these stations are based. Nevertheless, this clearly demonstrates the importance of qualifying the data sets used to describe, in this case, regional wind characteristics around the Calvert Cliffs site. Provide either: (1) the rationale for describing the general characteristics of maximum wind speed in the site area without considering other data summaries for those same stations; or (2) confirm the longer-term wind conditions for these offsite locations and update COL FSAR Section 2.3.2.1.1 and the corresponding Section 2.3.2 reference list accordingly.

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02.03.02-13

The Staff has identified what appears to be erroneous cumulative percent of occurrence values in COL FSAR Tables 2.3-48 and 2.3-55 which summarize average wind direction persistence periods for individual years and the composite 6-year period of record from 2000-2005 for the 33-ft (10-m) and 197-ft (60-m) onsite wind measurement levels, respectively. Address the following technical issues:

(a) The cumulative percent values are seen to decrease after reaching the maximum 100 (or for some direction sectors 99) percent for subsequent persistence durations. The same errors do not appear in the summary tables for individual years (i.e., COL

FSAR Tables 2.3-42 through 2.3-47 for the 33-ft measurement level, and COL FSAR Tables 2.3-49 through 2.3-54 for the 197-ft measurement level).

- Correct Tables 2.3-48 and 2.3-55.
- Confirm that the cumulative percent values in Tables 2.3-42 through 2.3-47 and Tables 2.3-49 through 2.3-54 have been determined correctly and revise, if necessary.

(b) Revise COL FSAR Section 2.3.2.1.1 by explaining the criteria that define persistence periods (e.g., direction sorting, conditions resulting in the end of a persistence period, whether each persistence period is viewed as a discrete event or running sequences of hours). If applicable, clarify COL FSAR Tables 2.3-42 through 2.3-55 by indicating that the percent values for each sector represent cumulative percentages.

02.03.02-14

The Staff has a general concern over the inclusion of what appears to be information and data associated with COL FSAR Sections 2.3.2.1.1 and/or 2.3.2.1.4, and related tables, without a discussion that establishes its context or use. The introduction to Reg. Guide 1.206, Section C.I.2 (Para. 1) indicates that the purpose of this information, in this case with respect to the meteorological characteristics of the site and vicinity, is to demonstrate that the applicant has accurately described the site characteristics and appropriately used them in the plant design and operating criteria. Further, Reg. Guide 1.206, Section C.I.2.3.2.1, Item (7) only calls for annual joint frequency distributions (JFDs) of wind speed and wind direction by atmospheric stability class for all measurement levels.

In order to resolve the Staff's concern, the Applicant should address the following technical issues.

(a) Explain the relevance of the monthly JFDs presented in COL FSAR Tables 2.3-18 through 2.3-29 for the 33-ft (10-m) wind measurement level. If retained, update COL FSAR Section 2.3.2.1.1 accordingly (e.g., to discuss if the specific data are used to illustrate some dispersion-related characteristic such as the presence or absence of land breeze / bay breeze circulations, or input directly to a dispersion model). Otherwise, delete COL FSAR Tables 2.3-18 through 2.3-29.

(b) Explain the relevance of the monthly JFDs presented in COL FSAR Tables 2.3-30 through 2.3-41 for the 197-ft (60-m) wind measurement level. If retained:

- update COL FSAR Section 2.3.2.1.1 accordingly (e.g., to discuss if the data are used to illustrate some relationship between the upper and lower onsite wind measurement levels or a dispersion-related characteristic such as the presence or absence of land breeze / bay breeze circulations, or input directly to a dispersion model); and
- correct the wind measurement level in the title of Table 2.3-30.

Otherwise, delete COL FSAR Tables 2.3-30 through 2.3-41.

02.03.02-15

The Staff acknowledges the response to RAI Question No. 02.03.02-3 for the COL FSAR, submitted on October 30, 2008 (ML083100776), regarding:

- clarification of the definitions for "monthly mean extreme" maximum and minimum temperatures presented in COL FSAR Tables 2.3-57 and 2.3-58 and its corresponding revised discussion in COL FSAR Section 2.3.2.1.2; and
- the addition of a new Table 2.3-131 that provides monthly mean temperatures based on longer-term data measured at the Calvert Cliffs site and its corresponding new discussion in COL FSAR Section 2.3.2.1.2.

However, the Staff still has several remaining concerns, including: the need for further interpretation of the definitions provided; the inclusion of temperature and atmospheric moisture information related to cooling tower and heating, ventilation, and air conditioning (HVAC) system design (which is covered under COL FSAR Section 2.3.1; and data that are not referenced to support the Staff's review. In order to fully resolve these concerns, the Applicant should address the following technical issues:

(a) Confirm the Staff's understanding of the definitions provided for the "monthly mean extreme" maximum and minimum temperatures presented in COL FSAR Tables 2.3-57 and 2.3-58 – that is, the values simply represent either the highest or lowest of the <u>average</u> daily maximum or the <u>average</u> daily minimum temperatures determined for each month from among each of the years in the six-year period of record (POR) of onsite measurements from 2000 to 2005. Referring to these highest or lowest <u>mean</u> values as "extreme" conditions is misleading. Further, these tables do not represent typical climatological summaries for temperature.

- If the Staff's understanding is correct, then revise the titles of Tables 2.3-57 and 2.3-58 to more accurately indicate what the summaries actually represent – for example, for Table 2.3-57 "CCNPP Extreme Monthly Mean Maximum…" <u>or</u> "CCNPP Highest Monthly Mean Maximum…". Update the corresponding text in COL FSAR Section 2.3.2.1.2 as appropriate.
- If not, then additional clarification of the definitions and table titles is necessary, or as an alternative the tables could be deleted.

(b) Given the proposed deletion of COL FSAR Tables 2.3-10, 2.3-11, 2.3-13, 2.3-14, and 2.3-15 and the proposed revisions to COL FSAR Section 2.3.1.2.2.16 based on the October 30, 2008 response to RAI Question No. 02.03.01-12, explain the relevance of the monthly design wet-bulb and mean coincident dry bulb temperatures presented in COL FSAR Tables 2.3-74, 2.3-75, and 2.3-76 to characterizing atmospheric moisture conditions at the site and surrounding area. The information in those tables may be related to the design of cooling towers and/or HVAC systems, which is addressed more appropriately (and has been using different data summaries) under COL FSAR Section 2.3.1. The Staff believes that COL FSAR Tables 2.3-67, 2.3-68, and 2.3-73 sufficiently characterize general atmospheric moisture conditions in the site area. If not relevant, then delete COL FSAR Tables 2.3-74 through 2.3-76 and the corresponding discussion in COL FSAR Section 2.3.2.1.2.

02.03.02-16

The Staff has accepted the response to RAI Question No. 02.03.02-4 for the COL FSAR, submitted on July 28, 2008 (ML082130381 and ML082130385), regarding the references associated with COL FSAR Tables 2.3-49 through 2.3-51, and acknowledges the Applicant's note that the table numbers were subsequently renumbered in a later revision of the COL Application (i.e., Tables 2.3-64 through 2.3-66). However, while that response identifies the corresponding references, it does not indicate that the reference list for COL FSAR Section 2.3.2 will be revised.

Consistent with Reg. Guide 1.206, Section C.I.2.3.2.1 (last paragraph), address the following issues:

(a) Annotate COL FSAR Tables 2.3-64 through 2.3-66, as appropriate, and update the reference list for COL FSAR Section 2.3.2 to include the references identified in the response to RAI Question No. 02.03.02-4 as the sources of these data.

(b) Identify the references corresponding to the temperature and atmospheric moisture data presented in COL FSAR Tables 2.3-67 through 2.3-73 for (presumably the National Weather Services stations at) Baltimore-Washington,MD; Norfolk, VA; and Richmond, VA International Airports. Annotate Tables 2.3-67 through 2.3-73, as appropriate, and update the reference list for COL FSAR Section 2.3.2 accordingly.

02.03.02-17

The Staff acknowledges the response to RAI Question No. 02.03.02-3 for the COL FSAR, submitted on October 30, 2008 (ML083100776), regarding corrected and revised temperature data in COL FSAR Section 2.3.2.1.2. The response also proposes the addition of a new COL FSAR Table 2.3-132 which presents monthly and annual mean precipitation totals for the Calvert Cliffs site based on a 15-year period of record (POR) from 1992 to 2006. These data supplement monthly and annual mean precipitation totals already presented in COL FSAR Table 2.3-77 for the 6-year POR from 2000 to 2005.

The Staff also acknowledges the addition of a new Paragraph 3 to COL FSAR Section 2.3.2.1.3 regarding a comparison between the monthly average precipitation totals in new Table 2.3-132 and longer-term data from the Patuxent River Naval Air Station in COL FSAR Table 2.3-81. The discussion indicates that the comparison "shows poor agreement between the two sites". The Staff agrees with this assessment, but does not agree with one of the possible explanations - attributing the differences to the localized nature of convective storms and rapid changes in the intensity of such events. These effects should tend not to be reflected in long-term averages. The Staff believes that the annual total precipitation (rainfall) for the site and surrounding area, based on the 15-year POR of onsite measurements, is understated by about 10 or more inches and so considers this part of the response to be incomplete.

Precipitation (rainfall and snowfall) events are point observations and determining whether mean precipitation totals (or extreme events) may be reasonably expected to occur at the Calvert Cliffs site depends on station coverage. The Staff notes the annual totals for the stations listed in COL FSAR Table 2.3-81 and has independently identified several cooperative observing stations within 25 miles of the Calvert Cliffs site (i.e., Solomons, Prince Frederick 1N, Blackwater Refuge, Owings Ferry Landing, and Royal

Oak 2SSW) available on-line from the Southeast Regional Climate Center (SERCC) for the State of Maryland at http://www.sercc.com/climateinfo/historical/historical.html. Annual rainfall totals for these stations range from about 40 to 46 inches per year.

In order to resolve the Staff's concerns, the Applicant should address the following technical issues and update COL FSAR Section 2.3.2.1.3 accordingly:

(a) Discuss the general uniformity of annual average rainfall totals over the site area (which also cover longer PORs) as opposed (or in addition) to the 15-year annual average total reported for the Calvert Cliffs site.

(b) Confirm whether the annual data recoveries for precipitation over the 15-year POR of onsite data reported in new COL FSAR Table 2.3-132 is a possible cause for this marked discrepancy in total annual rainfall compared to all other stations in the site area.

(c) In accordance with Reg. Guide 1.206, Section C.I.2.3.2.1 (last paragraph), identify the references corresponding to the data presented in COL FSAR Tables 2.3-81 through 2.3-83 for monthly and annual average precipitation (rainfall) and snowfall totals. Annotate Tables 2.3-81 through 2.3-83, as appropriate, and update the reference list for COL FSAR Section 2.3.2 accordingly.

02.03.02-18

The Staff has a general concern over the inclusion of what appears to be information and data associated with COL FSAR Section 2.3.2.1.3, and related figures, without a discussion that establishes its context or use. The introduction to Reg. Guide 1.206, Section C.I.2 (Para. 1) indicates that the purpose of this information, in this case with respect to the meteorological characteristics of the site and vicinity, is to demonstrate that the applicant has accurately described the site characteristics and appropriately used them in the plant design and operating criteria.

In order to resolve the Staff's concern, the Applicant should address the following technical issues:

(a) Explain the relevance of the monthly precipitation wind roses for various rainfall rate classes as presented in COL FSAR Figures 2.3-45 through 2.3-128 for the 33-ft (10-m) wind measurement level and COL FSAR Figures 2.3-129 through 2.3-212 for the 197-ft (60-m) wind measurement level.

(b) If retained, update COL FSAR Section 2.3.2.1.3 by addressing, for example:

- any design- or operational-related applications (with appropriate cross-references provided);
- if the data are used in the dispersion modeling analyses in COL FSAR Sections 2.3.4 and/or 2.3.5 to account for wet removal of radioactive particulate material in the plume from accidental and/or routine releases from CCNPP3;
- the basis for the selected rainfall rate classes; and
- the relationships between the 33-ft and 197-ft precipitation wind roses.

Otherwise, delete COL FSAR Figures 2.3-45 through 2.3-212.

02.03.02-19

The Staff has identified what appear to be erroneous cumulative percent of occurrence values in COL FSAR Tables 2.3-91 and 2.3-98 which summarize annual stability persistence periods for individual years and the composite 6-year period of record from 2000-2005 for 33-ft (10-m) and 197-ft (60-m) onsite wind measurement levels, respectively. Address the following technical issues:

(a) The cumulative percent values are seen to decrease after reaching the maximum 100 (or for some stability classes 99 or 98) percent for subsequent persistence durations. The same errors do not appear in the summary tables for individual years (i.e., COL FSAR Tables 2.3-85 through 2.3-90 for the 33-ft wind measurement level, and COL FSAR Tables 2.3-92 through 2.3-97 for the 197-ft wind measurement level).

- Correct Tables 2.3-91 and 2.3-98.
- Confirm that the cumulative percent values in Tables 2.3-85 through 2.3-90 and Tables 2.3-92 through 2.3-97 have been determined correctly and revise, if necessary.

(b) Revise COL FSAR Section 2.3.2.1.4 by explaining the criteria that define a stability persistence period (e.g., conditions resulting in the end of a persistence period, whether each persistence period is viewed as a discrete event or running sequences of hours). If applicable, clarify COL FSAR Tables 2.3-85 through 2.3-98 by indicating that the percent values for each stability class represent cumulative percentages.

02.03.02-20

The Staff notes that the response to RAI Question No. 02.03.02-8 for the COL FSAR, submitted on July 28, 2008 (ML082130381 and ML082130385), regarding the reference(s) associated with the daily mixing height data discussed in COL FSAR Section 2.3.2.1.5, does not pertain to the question asked. Further, the Staff notes that the response to RAI Question No. 02.03.02-8 is virtually the same as the response to RAI Question No. 02.03.03-5, also submitted on July 28, 2008, and pertains to the onsite meteorological monitoring program and the temperature data discussed in COL FSAR Section 2.3.2.1.2.

In addition to providing the appropriate response to RAI Question No. 02.03.02-8, update COL FSAR Section 2.3.2.1.5 by addressing the following technical issues:

(a) Identify the reference(s) corresponding to the monthly and annual average mixing height values presented in COL FSAR Tables 2.3-99 and 2.3-100 and discussed in COL FSAR Section 2.3.2.1.5. Consistent with Reg. Guide 1.206, Section C.I.2.3.2.1 (last paragraph), annotate COL FSAR Tables 2.3-99 and 2.3-100, as appropriate, and update the reference list for COL FSAR Section 2.3.2 accordingly.

(b) Specify the distance and direction of the Wallops Island upper air station and the Patuxent River Naval Air Station surface observation station from the Calvert Cliffs Unit 3 site.

(c) Explain the relevance of these mixing height data to the AEOLUS3 dispersion modeling analyses in COL FSAR Sections 2.3.4 and/or 2.3.5.

02.03.02-21

The Staff has further evaluated the original discussion, in COL FSAR Section 2.3.2.1.5 (Paragraph 3) and related tables, of onsite measurements of temperature inversion frequency and persistence and has several concerns regarding the information presented.

In order to resolve these concerns, the Applicant should address the following issues and update COL FSAR Section 2.3.2.1.5 and related Tables 2.3-101 through 2.3-106 (as currently numbered) accordingly:

(a) Explain the criteria that define an inversion persistence period (e.g., conditions resulting in the end of a persistence period, whether each persistence period is viewed as a discrete event or running sequences of hours).

- Based on COL FSAR Tables 2.3-101 through 2.3-106, it appears that these probabilities represent discrete (i.e., non-overlapping) events such that the statement in COL FSAR Section 2.3.2.1.5 (Paragraph 3), that approximately two-thirds of the inversions lasted less than 9 hours, underreports this dispersion-related characteristic for each time interval. For example, a 4-hour persistence period is also made up of 3-hour, 2-hour, and 1-hour time intervals, and so on. If viewed as discrete persistence periods, as appears to be the case, then annotate Tables 2.3-101 through 2.3-106 and Section 2.3.2.1.5 to clarify this fact.

- Explain the rationale for not representing this characteristic as a cumulative frequency distribution.

(b) Correct the entry for the 19-hour persistence period identified in the second column and provide the missing entry under the third column of currently numbered Table 2.3-102.

(c) Resolve the discrepancy between the table numbers called out in COL FSAR Section 2.3.2.1.5 (Paragraph 3) (i.e., Table 2.3-100 through Table 2.3-105) and the tables as currently numbered (i.e., Table 2.3-101 through Table 2.3-106 on the tables themselves and in the Table of Contents). The Staff notes that these table numbers are among those which were to have been corrected in Revision 3 of the CCNPP Unit 3 COLA based on the response to RAI Question No. 02.03.03-4 submitted on July 28, 2008 (ML082130381 and ML082130385). These same discrepancies remain in Revision 4 of the CCNPP Unit 3 COLA submittal (ML090860076), as well as for other downstream table call-outs and actual table numbers.

02.03.02-22

The Staff considered the response to RAI Question No. 02.03.02-9 for the COL FSAR, submitted on July 28, 2008 (ML082130381 and ML082130385), regarding the non-attainment status designation of Calvert County, MD for the 8-hour ozone National Ambient Air Quality Standard. The response indicates (among other things) that:

- the trigger levels for establishing CCNPP Unit 3 as a minor source of ozone (i.e., nitrogen oxides (NOx) and volatile organic compound (VOC) emissions) are 25 tons per year, respectively;
- emissions from CCNPP Unit 3 will be below these trigger levels for both NOx and VOCs, and as a result CCNPP Unit 3 will be defined as a minor source for these attainment pollutants, and at the same time defined as a minor source of NOx and VOCs for the pollutant ozone;
- typical sources of NOx during construction and operation of CCNPP Unit 3 will include vehicle operation and periodic operation of diesel generators, that these sources are small, and their operation is intermittent; and
- non-attainment with the U.S. EPA 8-hour ozone standard will not have a potential impact on construction or operation of CCNPP Unit 3.

NUREG-0800, SRP Section 2.3.2, Section III (Review Procedures), Item (3e), indicates that air quality conditions used for design and operating basis considerations should have been addressed by the applicant. The Staff acknowledges that the attainment status designations for the various criteria air pollutants, including identification of the non-attainment designation of Calvert County for the 8-hour ambient standard for ozone, has been discussed in COL FSAR Section 2.3.2.1.6 (a parallel discussion also appears in COL FSAR Section 2.3.1.2.1). However, the relevance of these conditions to the design and operation of CCNPP Unit 3 has not been addressed.

SRP Section 2.3.2, Section II (Acceptance Criteria), SRP Acceptance Criterion (3) calls for a “discussion and evaluation of the influence of the plant and its facilities on the local meteorological and air quality conditions” to be provided. Therefore, in order to fully resolve this concern, the Applicant should update COL FSAR Section 2.3.2.1.6, and the parallel discussion in COL FSAR Section 2.3.1.2.1, by addressing the following technical issues:

(a) Discuss the applicability of the attainment and non-attainment status designations on the design and operation of CCNPP Unit 3 (similar to the July 28, 2008 response to RAI Question No. 02.03.02-9), making a distinction between the construction and operation phases as appropriate.

(b) Reconcile the difference between the statements in Paragraph 1 of COL FSAR Section 2.3.2.1.6 indicating that Calvert County "is in attainment....except for the 8 hour ozone standard (EPA, 2007b)" and the statement in Paragraph 2 of that section indicating that "and unclassifiable/attainment for carbon monoxide, PM2.5..., and for the 8 hour ozone standard (CFR 2007b)". The former statement is consistent with the reference cited in Paragraph 2.

(c) Tables 5.5-3 and 5.5-5 under Section 5 of the “Technical Report in Support of Application for…Certificate of Public Convenience and Necessity…for Authorization to Construct Unit 3 at Calvert Cliffs Nuclear Power Plant” (ML090680160) give an estimated maximum annual emission rate of 161.9 tons per year of NOx (as NO2) due to equipment fuel combustion during Construction Year 2. Given the above, confirm or

clarify that portion of the response to RAI Question No. 02.03.02-9 which indicates that ozone pre-cursor emissions (i.e., NOx and VOCs) will be less than the 25 tons per year minor source trigger level for both pollutants and the statement in the last paragraph of the response that “non-attainment with the EPA 8-hour ozone standard will not have a potential impact on construction…”. Update COL FSAR Section 2.3.2.1.6 accordingly.

(d) Cite the reference(s) that provide the basis for these (or revised) statements and incorporate in COL FSAR Sections 2.3.2.1.6 and 2.3.1.2.1, and the accompanying reference lists for COL FSAR Sections 2.3.2 and 2.3.1.