CCNPP3COLA PEmails

From: John Rycyna
Sent: Friday, September 05, 2008 10:27 AM
To: Wrobel, George
Cc: CCNPP3COL Resource; Joseph Colaccino; Seshagiri Tammara; Charles Cox
Subject: RAI No 9 RSAC 946.doc
Attachments: RAI No 9 RSAC 946.doc

Attached please find the subject request for additional information (RAI). A draft of the RAI was provided to you on August 20, 2008. You indicated no conference call was needed to discuss 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 date for receipt of this information will be provided to the staff within the 30 day period so that the staff can assess how this information will impact the published schedule.

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301-415-4122

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Subject: RAI No 9 RSAC 946.doc
Sent Date: 9/5/2008 10:26:54 AM
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From: John Rycyna

Created By: John.Rycyna@nrc.gov

Recipients:
"CCNPP3COL Resource" <CCNPP3COL.Resource@nrc.gov>
Tracking Status: None
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Tracking Status: None
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Tracking Status: None

Post Office: HQCLSTR02.nrc.gov

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MESSAGE	766	9/5/2008 10:26:56 AM
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Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

Request for Additional Information No. 9 Revision 0
9/5/08

Calvert Cliffs Unit 3
UniStar
Docket No. 52-016
SRP Section: 02.02.03 - Evaluation of Potential Accidents
Application Section: SRP 2.2.3

QUESTIONS

02.02.03-1

RG 1.206 provides guidance regarding the information that is needed to ensure potential hazards in the site vicinity are identified and evaluated to meet the siting criteria in 10 CFR 100.20 and 10 CFR 100.21. FSAR Section 2.2.3 does not provide the information needed by the NRC staff to perform an independent review of that section. The applicant's quantitative assessment of overpressure hazards at the CCNPP3 site, due to operations at the DCPLNG facility is limited to estimates of fatalities probabilities (2.3×10^{-9} and 6.6×10^{-9} per year, for existing and expanded operations respectively (FSAR Section 2.2.3.1, p.2-15)) rather than overpressure events. The probability of occurrence of physical damage to CCNPP3 is stated to be lower, without any quantification or supporting analysis.

According to the blast effect area data with respect to people and structures presented on p.16 Tables 4.2 and 4.3 of the applicant's reference (June 28, 2006 Cove Point LNG Terminal Expansion Project Risk Study, prepared by the Maryland Department of Natural Resources as part of the Power Plant Research Program, PPRP), structural damage generally occurs at significantly lower overpressures. Hence it is expected that the probability of potential LNG events leading to damaging overpressures will be greater than that which is estimated for individual fatalities. Please provide a quantitative estimate and supporting analyses regarding the overpressure hazards to the CCNPP Unit 3 due to the DCPLNG facility.

02.02.03-2

RG 1.206 provides guidance regarding the information that is needed to ensure potential hazards in the site vicinity are identified and evaluated to meet the siting criteria in 10 CFR 100.20 and 10 CFR 100.21. The FSAR Section 2.2.3 referenced study conflicts with an earlier report. That section's referenced study on LNG hazards due to the DCPLNG, describes the capacity of the facility as one 850,000 barrel and four 230,000 barrel LNG storage tanks, with future expansion to consist of two additional LNG tanks of 1,000,000 barrels each. A June 7, 1993, Arthur D. Little study of hazards associated with the DCPLNG facility, for the licensee of CCNPP Units 1 and 2 described the DCPLNG in terms of four 375,000 barrel LNG tanks. At that time, two proposed additional LNG storage tanks of 600,000 barrels each were considered in the analysis. Please resolve the discrepancy regarding the DCPLNG capacity.

02.02.03-3

RG 1.206 provides guidance regarding the information that is needed to ensure potential hazards in the site vicinity are identified and evaluated to meet the siting criteria in 10 CFR 100.20 and 10 CFR 100.21. FSAR Section 2.2.3.1.2 does not seem to follow the referenced regulatory guide methodology. The section references Regulatory Guide 1.91, Revision 1 methodology as being used in determining the minimum safe distances. However, for the liquid chemicals stored (i.e., gasoline, toluene, etc), the applicant considered only the in-vessel confined vapor amount for potential for explosion, and the amount of vapor in the air is determined based on the equivalent of the upper flammability limit. The applicant stated that this is consistent with the NUREG-1805 methodology. NRC staff's determination of safe distance conservatively based on RG 1.91, Rev. 1 gave different results. Please provide details of the approach and methodology with a sample analyses for independent review and comparison of results.

02.02.03-4

RG 1.206 provides guidance regarding the information that is needed to ensure potential hazards in the site vicinity are identified and evaluated to meet the siting criteria in 10 CFR 100.20 and 10 CFR 100.21. FSAR Section 2.2.3.1.2 does not provide enough information for the NRC staff to perform an independent review of that section. Please provide a sensitivity analysis demonstrating that the assumed meteorological conditions for ALOHA model maximize evaporation while minimizing dispersion resulting in a conservative minimum separation distance due to explosion. The applicant stated that "the maximum allowable surface area of the spill that ALOHA would allow (31400 m^2) was used". How was the total chemical inventory (i.e., 5,200,000lbs) accounted for in the calculation?

02.02.03-5

RG 1.206 provides guidance regarding the information that is needed to ensure potential hazards in the site vicinity are identified and evaluated to meet the siting criteria in 10 CFR 100.20 and 10 CFR 100.21. FSAR Section 2.2.3.1.2 does not provide enough information for the NRC staff to perform an independent review of that section. The probability of an accident involving a gasoline refueling tanker is determined as 2.03×10^{-7} per year (2.2.3.1.2 p.2-23). However, no details were given in determining this probability. Provide the details such as accident frequency, release rate and other assumed parameters used in estimating the probability along with the reference cited (MSHA, 2004).

02.02.03-6

RG 1.206 provides guidance regarding the information that is needed to ensure potential hazards in the site vicinity are identified and evaluated to meet the siting criteria in 10 CFR 100.20 and 10 CFR 100.21. FSAR Section 2.2.3.1.3 does not provide enough information for the NRC staff to perform an independent review of that section. Please explain the reason why there are different amounts of gasoline, benzene, toluene and ammonia for flammable vapor cloud and toxic vapor concentration analysis for waterway (Chesapeake Bay) transport. How was the total inventory of each chemical accounted for in the ALOHA model which has a 31400 m^2 spill surface area limitation? RG 1.78 references the HABIT EXTRAN model for calculating control room intake concentration. How does ALOHA compare in results with the surface area limitation noted above?

02.02.03-7

RG 1.206 provides guidance regarding the information that is needed to ensure potential hazards in the site vicinity are identified and evaluated to meet the siting criteria in 10 CFR 100.20 and 10 CFR 100.21. FSAR Section 2.2.3.1.3 does not provide enough information for the NRC staff to perform an independent review of that section. The probability of an accident occurring involving a gasoline refueling tanker is estimated as 2.66×10^{-7} per year, and the probability of the ammonia hydroxide tank spill is estimated to be 5×10^{-7} per year based on empirical data (2.2.3.1.3 p. 2-28). However, no details were given in determining these probabilities. Please provide the details of assumptions used in determining these probabilities along with the copies of references cited (MSHA, 2004; Beerens, 2006).