

CCNPP3COLA PEmails

From: John Rycyna
Sent: Tuesday, March 17, 2009 4:05 PM
To: Poche, Robert; McQueeney, Jennifer; katie.thurstin@unistarnuclear.com
Cc: CCNPP3COL Resource; Hanh Phan; Lynn Mrowca; Joseph Colaccino; James Biggins; Adam Gendelman
Subject: Draft RAI No 93 SPLA 1917.doc (PUBLIC)
Attachments: Draft RAI No 93 SPLA 1917.doc

Rob,

Attached is DRAFT RAI No. 93. You have until March 31, 2009 to review it and to decide whether you need a conference call to discuss it. After the call or after March 31, 2009 the RAI will be finalized and sent to you. You then have 30 days to respond.

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From: John Rycyna

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Request for Additional Information No. 93
DRAFT
3/17/2009

Calvert Cliffs Unit 3
UniStar
Docket No. 52-016
SRP Section: 19 - Probabilistic Risk Assessment and Severe Accident Evaluation
Application Section: 19

QUESTIONS for PRA Licensing, Operations Support and Maintenance Branch 1 (AP1000/EPR Projects) (SPLA)

19-12

COLA FSAR Section 19.1.2.4.1, page 19-6, Item 1, states that "If the cumulative effect of pending changes is judged to either increase [core damage frequency] CDF to 1.0E-06 per year or greater, or increase [large release frequency] LRF to 1.0E-07 per year or greater, then a [probabilistic risk assessment] PRA model revision will be made in a timely manner, regardless of the next routine update-cycle schedule."

As mentioned in the ASME PRA Standard, "The PRA shall be maintained and upgraded, such that its representation of the as-built, as-operated plant is sufficient to support the applications for which it is being used." The PRA should be updated as frequently as necessary to ensure that the PRA remains an accurate representation of the plant risk. Thus, it would not be a good practice to accumulate a backlog of pending changes such that the effect is estimated to increase the CDF to 1.0E-6/yr, which is nearly twice that of the estimated baseline EPR CDF, and/or to increase the LRF to 1.0E-7/yr, which is almost 4 times greater than the baseline EPR LRF.

Please justify setting the targeted cumulative effect to 1E-6/yr CDF and 1E-7/yr LRF, and make appropriate changes to the COLA.

19-13

The risks posed by external events should be assessed from a probabilistic risk assessment (PRA) perspective and should be screened against the SRP Chapter 19 screening criteria. The Draft Regulatory Guide DG-1200, dated June 2008, Pages 14 and 17 state that "It is recognized that for those new reactor designs with substantially lower risk profiles (e.g., internal events [core damage frequency] CDF below 1E-6/yr) that the quantitative screening value should be adjusted according to the relative baseline risk value."

With the baseline U.S. EPR internal events CDF and large release frequency (LRF) known to be 5E-7/yr and 3E-8/yr, it is not practical to screen out the external events using the quantitative screening criteria (e.g., LRF = 1E-7/yr) that are higher than the baseline risk values, thus, please reassess the external events using an appropriate PRA screening value, or justify an alternative.

19-14

COLA FSAR Section 19.1.5.2 states that “The internal flooding frequency in the Turbine Building in the U.S. EPR FSAR PRA is based on a generic conservative frequency; therefore, it is considered conservative for CCNPP Unit 3.” Please demonstrate that the U.S. EPR FSAR flooding frequency for turbine building remains bounding for CCNPP Unit 3 turbine building flooding.

19-15

As discussed in the COLA FSAR section 19.1.5.4.4 on Pages 19-15 and 19-16, the core damage frequency (CDF) and large release frequency (LRF) resulting from airplane crash events are estimated to be $1.5\text{E-}7/\text{yr}$ and $3\text{E-}8/\text{yr}$, respectively. These frequencies are higher than most of the risks resulting from other internal/external events analyzed in Chapter 19. Please justify why this external event is not in the CCNPP Unit 3 baseline risk profile. In addition, please address whether applicable insights from the airplane crash assessment should be evaluated for impact on other PRA-related programs (e.g., D-RAP).

19-16

COLA FSAR section 19.1.5.4.5, on page 19-16 states that an external event can be screened if its initiating event frequency is less than $1.0\text{E-}6/\text{yr}$ and it does not adversely affect the operation of the plant. The “Nearby Facilities Hazards” on Page 19-17 are screened out, since the initiating event frequencies are less than $1.0\text{E-}6/\text{yr}$. Please address how these hazards do not adversely affect the operation of the plant.

19-17

According to the external events assessment, both tornado core damage frequency (CDF) and large release frequency (LRF) are estimated to be $5.4\text{E-}8/\text{yr}$ and the aircraft crash CDF and LRF are estimated to be $1\text{E-}7/\text{yr}$ and $3\text{E-}8/\text{yr}$, respectively. Thus, the total CDF from internal and external events is calculated to be $5.3\text{E-}7/\text{yr} + 5.4\text{E-}8/\text{yr} + 1\text{E-}7/\text{yr} = 6.8\text{E-}7/\text{yr}$. Similarly, the total internal and external events LRF is calculated to be $2.6\text{E-}8/\text{yr} + 5.4\text{E-}8/\text{yr} + 3\text{E-}8/\text{yr} = 1.1\text{E-}7/\text{yr}$. These values yield a conditional core failure probability (CCFP) of $1.1\text{E-}7/\text{yr} / 6.8\text{E-}7/\text{yr} = 0.16$, which is higher than the Commission’s goal of less than 0.1 CCFP.

Please justify the acceptability of exceeding the Commission’s CCFP goal.

19-18

CCNPP Unit 3 FSAR, Section 19.1.5.4.1, “High Winds and Tornado Risk Evaluation” does not address the probabilistic risk assessment (PRA) impact and risk insights posed by high winds on the non-safety-related structures that contain systems and components modeled in the PRA. In accordance with guidance provided in NUREG-0800, Rev.2, Section 19.1.5.N (page 19.0-24) “Results and Insights from Other External Event PRA”

and Part C.III.1 Section C.I.19 to RG 1.206 "Combined License Applications for Nuclear Power Plants", please describe the PRA impact and insights mentioned above.