NUCLEAR ENERGY INSTITUTE

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Mr. James E. Lyons
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Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: Generic Topic ESP-12 (NEPA Consideration of Severe Accident Issues)

PROJECT 689

In a public meeting on March 26, we continued discussion of generic early site permit topic ESP-12, which concerns the extent to which NEPA consideration of severe accident impacts and severe accident mitigation alternatives (SAMAs) is to be addressed in ESP applications. NRC guidance for review of severe accident impacts and SAMAs is provided in NUREG-1555, Environmental Standard Review Plan (ESRP), Sections 7.2 and 7.3, respectively.

In your February 12 response to our letter on this topic of December 20, 2002, the NRC staff agreed in part with the industry proposal, stating, "if sufficient design information is not available at the ESP stage, then the NRC review and findings [related to SAMAs] will be deferred to the COL stage." Due to the relationship of severe accident impacts to the review of SAMAs, we also proposed that NRC review of severe accident impacts could be deferred to the COL stage. The NRC staff disagreed with the industry on this point and stated, "the staff expects the applicant to include a discussion of severe accident impacts in its environmental report at the ESP stage."

While we continue to believe that review of severe accident impacts could be deferred to the COL stage, the March 26 discussion focused on addressing severe accident impacts at ESP via reference to existing generic analyses and quantitative analysis using pertinent site-specific information. Based on our March 26 discussion, pilot ESP applicants are implementing the approach outlined below that

we believe to be workable and consistent with the approach indicated by the staff in its February 12 letter and SECY-91-041. As described in SECY-91-041,

> "The staff's analysis [of severe accident impacts] will evaluate population data and other information for the candidate site in light of that used in level 3 PRAs performed for reference nuclear power plants. Studies such as those documented in NUREG-1150, 'Severe Accident Risks: An assessment of Five U.S. Nuclear Power Plants' (June 1989), could be used for such comparisons, thus providing assurance that the environmental impact of the severe accident would be sufficiently characterized (nature and magnitude of environmental effects) for use in an EIS at the ESP stage....the staff would perform a confirmatory analysis at the COL stage."

No reply to this letter is necessary. However, if the staff believes that information beyond that outlined below should be provided in ESP applications to support this approach, we request that the staff identify the additional information believed to be needed along with the technical and regulatory basis.

<u>ESP-12 – Pilot ESP Applicant Approach for Addressing Severe Accidents</u>

1. If sufficient design information related to consideration of SAMAs is not available at the ESP stage, then the associated NRC review and findings will be conducted at the COL stage. This is the case for the three pilot ESP applicants, whose applications are premised on the plant parameters envelope (PPE) approach, meaning that the applications will not reflect a single selected design.

2. Consistent with the NRC staff expectation to address severe accident impacts at the ESP stage, each of the pilot ESP applications will include a discussion of severe accident impacts in its environmental report.

3. As referenced in draft ESP Review Standard RS-002, ESRP Section 7.2 provides a methodology for reviewing an applicant's probabilistic assessment of the dose consequences of severe accidents associated with a specific design. As discussed on March 26, ESRP Section 7.2 is suited to review of ESP applications that are based on specific design information, including necessary probabilistic assessment of the dose consequences of severe accidents and supporting design-related data. For ESP applications that are based on a PPE, the staff acknowledges that severe accident impacts can still be acceptably addressed via an

approach other than that indicated by ESRP Section 7.2.

4. For ESP applications that are based on a PPE, i.e., specific design information is not available, severe accident impacts may be addressed via comparative discussion of the candidate site with the evaluations and conclusions contained in generic NRC severe accident studies of existing plants, such as those reported in NUREG-1150 and NUREG-1437. This discussion will include the basis for concluding that those generic evaluations are appropriate for use in the ESP context and are applicable for the particular candidate site. In particular, discussion will be provided that demonstrates that site-specific population and meteorological characteristics for the ESP candidate site are consistent with sites considered in the generic studies.

   In the absence of specific requirements or regulatory guidance for addressing severe accident impacts in PPE-based ESP applications, we believe this approach is consistent with SECY-91-041, satisfies the staff's expectation that severe accident impacts be discussed in ESP applications and can yield a meaningful NRC finding.

5. In addition to the discussion and analyses outlined in Item 4, it is expected that the NRC will base its finding related to severe accident environmental impacts on the expectation that severe accident impacts of future nuclear plants will be bounded by those of existing plants, which have been determined to be "small." This expectation is based on the Commission's 1985 Severe Accident Policy Statement which identifies "the Commission fully expects that vendors engaged in designing new standard (or custom) plants will achieve a higher standard of severe accident safety performance than their prior designs." Implementation of this policy to date has resulted in achieving this important objective for each of the three designs certified by the NRC, and this Commission policy represents a significant design criterion for all future plants, both LWR and non-LWR.

6. The approach outlined in Items 4 & 5, above, is expected to support an NRC finding that severe accident impacts associated with a new nuclear plant are "small," that is; the probability weighted consequences of atmospheric releases, fallout onto open bodies of water, releases to ground water, and societal and economic impacts from severe accidents are "small."

> Consistent with the staff's expectation that this issue be addressed by the ESP application, severe accident environmental impacts is expected to be considered a matter resolved at ESP within the meaning of Section 52.39. This issue would not be subject to further review at COL absent significant new information that invalidates the evaluations and findings at ESP.

We have evaluated the NRC staff's suggestion on March 26 that additional unspecified design-related metrics related to severe accident release characteristics and frequencies may need to be established in the ESP for comparison with design specific information at COL. We have concluded that no additional metrics are necessary or warranted.

If you have any questions or can identify additional information that the staff believes is needed to support the approach outlined above for addressing severe accident environmental impacts, please contact Russ Bell (rjb@nei.org or 202-739-8087).

Sincerely,

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