

## PMVictoriaESPPEm Resource

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**From:** Eudy, Michael  
**Sent:** Friday, January 20, 2012 11:13 AM  
**To:** david.distel@exeloncorp.com  
**Cc:** Tammara, Seshagiri; Schaaf, Robert; VictoriaESP Resource  
**Subject:** Draft RAI Section 2.2.3  
**Attachments:** RAI 6231(draft).doc

David,

Please find attached a draft RAI related to the NRC staff's review of the VCS ESP application section 2.2.3. Please review and let me know if you need a clarification call with our staff within 5 business days. Thanks.

Michael A. Eudy - Project Manager  
U.S. Nuclear Regulatory Commission  
NRO/DNRL/LB3  
301-415-3104

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Request for Additional Information No. 6231 Revision 0

~~4/20/2012~~

Victoria County Station ESP  
Exelon Texas  
Docket No. 52-042  
SRP Section: 02.02.03 - Evaluation of Potential Accidents  
Application Section: 2.2.3

QUESTIONS for Siting and Accident Conseq Branch (RSAC)

02.02.03-2

RS-002 and RG 1.206 provide guidance regarding the information that is needed to ensure potential hazards in the site vicinity are identified and evaluated in order to meet the siting criteria in 10 CFR 100.20 and 10 CFR 100.21. Flammable Vapor Clouds (Delayed Ignition) due to pipeline transmission is addressed in SSAR Section 2.2.3.1.2.1. However, the section does not provide sufficient information to enable the NRC staff to independently evaluate the total hazard frequency determined by the applicant as follows:

- 1). It is not clear whether the pipelines for the transport of ethylene/cyclohexane and gasoline are also considered in the probability evaluation.
- 2). It is not clear what model has been used in performing the deterministic analysis to calculate the frequency of the acceptable/unacceptable impacts.
- 3). It is not clear how the onsite and offsite failure rates are used in the determination of the total event probability of  $3.67 \times 10^{-7}$  events/yr.

In regards to the three items above, the NRC staff requests for the applicant to clarify the methodology and models used to determine the total hazard frequency for flammable vapor clouds, including clarification of the assumptions, specific pipelines and materials considered, and pertinent data used in the analysis.

02.02.03-3

RS-002 and RG 1.206 provide guidance regarding the information that is needed to ensure potential hazards in the site vicinity are identified and evaluated in order to meet the siting criteria in 10 CFR 100.20 and 10 CFR 100.21. Flammable Vapor Clouds (Delayed Ignition) due to waterway traffic is addressed in SSAR Section 2.2.3.1.2.2. The applicant used the ALOHA model to determine the distance to the LFL (Lower Flammable Limit) and 1 psi overpressure threshold for each of the chemicals evaluated. The total inventory of each chemical is assumed by the applicant to be 10,000,000 pounds (5000 tons). However, the applicant stated in the SSAR that the modeling was performed with the ALOHA model constraints of a puddle area of 337,986 square feet (31,400 square meters), and spill amount limited to 242 tons. Therefore, the complete inventory of 10,000,000 pounds is not properly accounted for in the analysis in determining the LFL and 1 psi overpressure distances. The applicant stated that the model constraints were considered to be acceptable due to the narrow constraints of the Victoria Barge Canal. The NRC staff requests the applicant apply a reasonable

adjustment to the modeling approach in order to reflect the complete inventory of each chemical considered.

02.02.03-4

RS-002 and RG 1.206 provide guidance regarding the information that is needed to ensure potential hazards in the site vicinity are identified and evaluated in order to meet the siting criteria in 10CFR 100.20 and 10 CFR 100.21. In SSAR Section 2.2.2.3.4, the applicant stated that the potential hazards from the gas/oil wells are bounded by the analysis of the natural gas transmission lines (pipelines). In SSAR Section 2.2.3.1.1.1, the applicant stated that a natural gas pipeline explosion at the release point is unconfined and concluded based on ALOHA model results the overpressure near the release point would not exceed 1 psi overpressure. In SSAR Section 2.2.3.1.2.1, the applicant performed deterministic analyses for the flammable vapor clouds (delayed ignition) and concluded that large rupture of any of the pipelines could lead to unacceptable flammable vapor concentrations. Therefore, a probabilistic analysis was performed to demonstrate the acceptability of the natural gas pipelines. The NRC staff finds that it is not clear how the gas/oil wells hazard is bounded by the pipelines analyses for the flammable vapor clouds. Therefore, the NRC staff requests the applicant clarify and address this issue accordingly.