

March 7, 2006

MEMORANDUM TO: File

FROM: Christian J. Araguas, Project Manager */RA/*  
New Reactor Licensing Branch  
Division of New Reactor Licensing  
Office of Nuclear Reactor Regulation

SUBJECT: SUMMARY OF FEBRUARY 24, 2006, TELEPHONE CONFERENCE  
CALL WITH SYSTEM ENERGY RESOURCES INC. (SERI)  
REGARDING AN EARLY SITE PERMIT AT THE GRAND GULF SITE

This memorandum documents the results of a telephone conference between the NRC staff and SERI on February 24, 2006.

A summary of the call is attached.

Attachment: As stated

Docket No. 52-009

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ADAMS ACCESSION NO. ML060650396

OFFICE	PM:NRBA
NAME	CAraguas
DATE	03/07/2006

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## Telephone Call Summary

Subject: Potential Hazards Along the Mississippi River  
Date of Call: February 24, 2006

### Participants

#### NRC

Christian Araguas  
Kazimieras Kampe  
Mark Blumberg  
Margie Kotzalas  
Bret Tegeler

#### Applicant

George Zinke  
Guy Cesare  
Al Schneider  
Eric Crabtree  
Marvin Morris  
Mike Bourgeois

### Actions

#### Topic

#### NRC

#### Applicant

Section 2.2 of SSAR      No Actions

Revise Response to previous staff questions  
in Light of the Staff's Review

### Other Discussion

The staff discussed the results of its review of the supplement submitted by SERI addressing potential hazards to the site along the Mississippi river. The staff had several comments and clarifications that it shared with SERI (comments are attached below). In particular the staff was not confused by some of the assumptions made for the local vapor cloud explosion analysis with respect to multiple barges leaking. The staff was also unsure why the applicant did not consider spill events for the entire US in calculating the spill frequency used for the risk calculations. The applicant agreed to revise its response, although did not provide a date for which the supplement would be submitted.

## CLARIFICATION QUESTIONS FOR 2-24-2006 CONFERENCE CALL

- **Page 8, item b:** While it is reasonable to rule out simultaneous explosions for multiple damaged barges, there is no apparent basis for ruling out the effects of multiple spills cumulatively developing a single vapor cloud. The key factor with respect to vapor cloud formation is that it typically can take a substantial amount of time to develop in comparison to the timing between specific hull damage and spill of multiple barges. Hence, in the vapor cloud explosion risk assessment multiple barge damage/spill effects need to be accounted for, either mechanistically or on a probabilistic basis.
- **Page 14, Summary of Confined Space and Local VCE Analyses :** What is the basis for the view that the referenced “short stretch of river” is considered to be a “safe” section? How is the attribute “safe” used in the risk assessment?
- **Page 16:** The observation of zero events corresponds to what time interval?
- **Page 22, 2.1 Spill Frequency Assessment:** What is the basis for excluding spills involving commodities such as chlorine, coconut oil, diesel, lubricating oil ,etc? It is reasonable to expect a spill being the result of some sort of loss of tankage integrity (e.g., puncture, rupture). Hence, there is no apparent functional relationship between the type of commodity and the initiation of a spill in the event of a barge mishap. Exclusion of spills on the basis of commodity type can lead to a significant underestimating of the spill frequency.

The consideration of type of navigational waters can have a bearing on the barge mishap (e.g., collision, grounding) initiation frequency. However, exclusion of spills not occurring on the Mississippi is not appropriate, since the type of navigational waters has no apparent connection to the likelihood of spill initiation.

- **Page 25:** It is appropriate to exclude spills from fixed storage facilities, since the mechanisms for spill initiation can be significantly different from those associated with barge mishaps. However, with respect to shipping accidents, as noted previously, spill frequency does not have any apparent dependency on the type of navigable water, so the entire database of 47 spills should be considered.
- **Page 31: a)** Limiting spill data to the Mississippi and Ohio rivers is inappropriate. The geographic location of the spill does not have any effect on the likelihood of it leading to a vapor cloud explosion. By restricting the estimate to just the one BLEVE event may seriously underestimate the probability of explosion per spill.  
**b)** The factor of ten reduction appears to be arbitrary. One could just as easily select a factor of two or a factor of a hundred.

- **Page 16:** “The potential for deflagrations in a plume resulting from a barge accident was evaluated using the ALOHA (Areal Locations of Hazardous Atmospheres) computer program...” The staff would like further clarification as to the use of the ALOHA code specifically relating to:
  - a)** The ALOHA code models pure chemicals that are not mixed such as chlorine, anhydrous ammonia and propylene. Common mixtures or solutions such as most petroleum products including gasoline and aqueous ammonia are not contained in ALOHA.
  - b)** The ALOHA code does not model hilly terrain such as that of the bluff located at the ESP site.
  - c)** Page 16 states: “For each commodity of interest, the vapor dispersion was determined based on a wind speed of 1.55 m/sec, a stability class of D, and a 90 degree Fahrenheit ambient air temperature. Were there any sensitivity studies performed to make the determination that these values are limiting for determining a conservative dispersion.
- Pg 13, table F-1, Note 3 states that LNG, when unconfined is highly unlikely to experience a VCE. [This is a true statement, but should not be used as a basis to not analyze the case. There is a reference an 2002 VCE event that appears to involve an unconfined VCE]