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From: <JohnPollack@aol.com>
To: <Ft_Calhoun_EIS@nrc.gov>
Date: Wed, Jul 10, 2002 12:17 PM
Subject: Fort Calhoun Environmental Review

Dear Sirs:

This is an addition to comments I made at the NRC Open House Associated with the Environmental Review for License Renewal at Fort Calhoun Station, Unit 1, held on June 18, 2002.

A major concern I have relates to a set of meteorological conditions specific to Fort Calhoun Station (FCS), which is not covered in the environmental review. This is a correlation between wind direction, wind speed, and poor dispersion conditions, and has the potential to move a poorly diluted airborne radiation release rapidly into the city of Omaha.

The correlation I refer to can be deduced by a look at the Airport Climatological Summary for Eppley Airfield. A summary report covers a 10-year period from 1965-74. I am not aware of any recent updates, but these might be available from the National Climatic Data Center. The data cover a long enough period to be fairly representative of the climate around Omaha. During that time, the average prevailing wind speed was 8.7 mph. However, during the time when instrument flight rule (IFR) conditions prevailed, and with a wind blowing from the north or north-northwest, the average wind speed was 12.4 mph, nearly 50 percent stronger than average. IFR refers to conditions of poor visibility or low clouds, generally associated with an inversion below 1000 feet above ground level, and conditions of strong atmospheric stability. The combination of IFR conditions and winds from the NNW or N occurred in 2.6% of the observations. This is a minimum estimate of the prevalence of strong stability conditions with winds blowing from FCS toward Omaha, because there are many cases with a strong inversion, but not enough clouds or fog to create IFR conditions.

In a more detailed look at data collected from 1948 to 1978, under conditions with clouds between 400 and 1400 feet above ground level, and/or visibility between 1 and 3 miles, the average wind speed was slightly over 15 mph. These conditions prevailed 3.4% of the time during daylight hours, and 4.0% at night, during that period. The NRC will also have access to data collected at FCS enabling a more direct correlation between wind direction, wind speed, and stability.

These data point to a set of weather conditions which occur at a significant frequency, combining strong stability and strong winds blowing from FCS toward Omaha. During such conditions, a low-level inversion would prevent the vertical dispersion of any radioactive release. Horizontal dispersion would be limited by the sides of the Missouri River Valley, which is bounded by hills approximately 100 meters above the valley bottom. These conditions have the potential to deliver a much larger amount of radiation to a much larger number of people than the average case.

Risk calculations must incorporate this correlation between poor mixing of any release, and the likelihood that such a release would be

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rapidly transported to Omaha. Total exposure estimates are likely to be highly sensitive to the inclusion of such cases. Getting a good estimate of dispersion and transport under these conditions might require a more detailed modeling of airflow in the Missouri River Valley, or experimental release of tracers under appropriate conditions.

As a result of discussions with the NRC staff, I realize that even when the potential for increased exposure to Omaha residents is taken into account, there may be little effect on mitigation strategies adopted at Fort Calhoun Station itself, although cost-benefit analysis might be affected.

Out of a general concern for public safety, I would also ask the Commissioners to consider mitigation that takes place outside the plant. Sirens and other simple measures might be cost effective for residents between the bluffs of the Missouri River Valley in the cities of Omaha and Council Bluffs, not necessarily related to the license renewal process. The environmental review assumes a 45-minute delay between a release and commencement of evacuation. Those 45 minutes might well be sufficient to bring the release to the North Omaha area, under the weather conditions mentioned above. Would a rapid alert and evacuation strategy mitigate this risk?

Sincerely,

John Pollack
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