your energy partner
OPPD
Omaha Public Power District

444 South 16th Street Mall
Omaha NE 68102-2247

March 4, 2003
LIC-03-0024

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

References:
1. Docket No. 50-285
2. Letter from OPPD (D. J. Bannister) to NRC (Document Control Desk), Fort Calhoun Station Unit No. 1 License Amendment Request, "Low Pressure Safety Injection System Allowed Outage Time," dated October 8, 2002 (LIC-02-0097)
3. Letter from OPPD (R. T. Ridenoure) to NRC (Document Control Desk), Fort Calhoun Station Unit No. 1 License Amendment Request, "Low Pressure Safety Injection System Allowed Outage Time - Additional Information," dated December 3, 2002 (LIC-02-0137)

SUBJECT: Fort Calhoun Station Unit No. 1 License Amendment Request, "Low Pressure Safety Injection System Allowed Outage Time," – Further Additional Information

In Reference 2, Omaha Public Power District (OPPD) submitted an Application for Amendment of Facility Operating License to revise the Fort Calhoun Station (FCS) Unit No. 1 Technical Specifications (TS). Additional information was submitted in response to reviewer questions regarding the FCS Probabilistic Risk Analysis in Reference 3. In a telephone discussion with Mr. A. B. Wang (NRC Project Manager) on February 21, 2003, OPPD verbally communicated its intention to provide further additional discussion and justification for the proposed amendment. Attached please find the response to an additional NRC question supporting the low pressure safety injection system (LPSI) allowed outage time (AOT) extension amendment.

One commitment, to anchor or remove the flammable material storage cabinets in the Auxiliary Building by December 31, 2004, is being made in this letter. (OPPD Action Request No. 32183)

I declare under penalty of perjury that the foregoing is true and correct. (Executed on March 4, 2003)

A001

If you have any questions or require additional information, please contact Dr. R. L. Jaworski at (402) 533-6833.

Sincerely,

R. T. Ridenoure
Division Manager
Nuclear Operations

RTR/RLJ/rlj

Attachment: Response to an Additional NRC LPSI AOT Question

c: E. W. Merschoff, NRC Regional Administrator, Region IV
A. B. Wang, NRC Project Manager
J. G. Kramer, NRC Senior Resident Inspector
Division Administrator - Public Health Assurance, State of Nebraska
Winston & Strawn

Response to an Additional NRC LPSI AOT Question

Question 4

The safety evaluation report on the [Individual Plant Examination for External Events] IPEEE for Fort Calhoun indicates that a number of plant modifications/procedural improvements were credited for improving the fire, flooding, and seismic core damage frequencies (CDFs). Specifically, the fire risk is reduced from 9.2E-5/r-y to 2.7E-5/r-yr; the flooding risk is reduced to 6E-7/r-yr for dam-break and 3E-6/r-yr for periodic flooding; and the seismic margins indicates a [high confidence of low probability failure] HCLPF of at least 0.25g PGA [peak ground acceleration] is achieved (HCLPF for liquefaction). Have the plant modifications/procedural improvements that were credited in the IPEEE to achieve the above reductions been completed in a manner consistent with the assumptions of the IPEEE analyses? If not, please provide the risk contributions associated with the fire and flooding contributions and the seismic margins HCLPF actually associated with the current plant design.

In addition, the submittal indicates that the licensee explicitly and routinely quantifies the [Probabilistic Risk Assessment] PRA model for seismic accelerations less than 0.1g PGA since there is the possible impact on non-design basis equipment at these levels that could be risk-significant. Please describe how this seismic risk quantification is performed (e.g., are point estimates at selected intervals through 0.1g PGA used or is it a single point estimate at 0.1g PGA, does this calculation recognize that there are considerable uncertainties in the seismic hazard estimate and address the fact that the EPRI estimate is on the low end - approximately a factor of 6 lower than the [Lawrence Livermore National Laboratory] LLNL estimates, etc.). Also, please discuss if there were any impacts identified on low pressure safety injection (LPSI) or this application due to any of these non-design equipment seismic impacts and if there would be impacts if higher seismic accelerations were considered up to the established plant HCLPF of 0.25g PGA of if the LLNL seismic hazard estimates were used.

Response

The plant modifications/procedural improvements that were credited in the IPEEE have been completed with the exception of anchoring flammable material storage cabinets. A plant walkdown conducted during the IPEEE identified a number of flammable material storage cabinets in the Auxiliary Building. At the time of the inspection, it was decided that it would be a good practice to anchor these cabinets, to prevent them from falling over during a seismic event. This enhancement was not quantified in the IPEEE. The cabinets have not yet been anchored, but in the meantime a second option has been devised. As part of an upgrade of the chemical control program, the cabinets may be removed from the Auxiliary Building. The two options, either anchoring the cabinets or removing them, are being evaluated. The flammable material storage cabinets in the Auxiliary Building will either be anchored or removed by December 31, 2004.

In the FCS PRA model, LPSI is credited for three functions that mitigate a loss of reactor coolant system (RCS) inventory. These functions are: supplying low pressure safety injection water to the RCS during a large break loss of coolant accident (LOCA), providing a backup to HPSI in supplying safety injection to the hot leg injection for hot/cold leg injection during a large LOCA, and providing shutdown cooling.

The risk significance of the LPSI train unavailability is unaffected by the magnitude or frequency of seismic initiating events at Fort Calhoun Station. Seismic events with accelerations less than 0.25g do not induce a large break LOCA. Additionally, consistent with industry modeling practices, large break LOCA initiating events do not coincide with seismic initiating events. As a result, the LPSI system is included in the fault tree logic only for a single seismic core damage sequence: seismic initiating event, followed by transient-induced reactor coolant pump (RCP) seal LOCA and failure of long-term decay heat removal (sequence TQ2X). When RCS pressure can be reduced to shutdown cooling entry conditions, the LPSI system will provide backup for high-pressure recirculation (HPSI) and containment spray, thus fulfilling the long-term decay heat removal function. However, the PRA model does not take credit for shutdown cooling via the LPSI system during a PRA seismic event. This is a result of the failure of non-safety related components (e.g., instrument air) during seismic events. Therefore, LPSI is not credited for any sequences involving seismic events.