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Public Service
Company of Colorado

2420 W. 26th Avenue, Suite 100D, Denver, Colorado 80211

May 9, 1986
Fort St. Vrain
Unit No. 1
P-86358

Director of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

ATTN: Mr. H. N. Berkow, Director
Standardization and Special
Projects Directorate

Docket No. 50-267

SUBJECT: Chernobyl Nuclear Reactor
Accident and Its Implications
Upon Fort St. Vrain

Dear Mr. Berkow:

The Public Service Company of Colorado (PSC) hereby submits for your information our analysis entitled, "Chernobyl Nuclear Reactor Accident and Its Implications Upon Fort St. Vrain", dated May 9, 1986. This analysis was prepared in response to a verbal request from the NRC staff that PSC assess the possibility of a graphite fire occurring at Fort St. Vrain similar to the fire which occurred during the Chernobyl nuclear reactor accident.

The possibility of an accident involving graphite oxidation was assessed by PSC and the NRC during the original construction permit and operating license proceedings for Fort St. Vrain. Both parties concluded that an accident involving significant amounts of graphite oxidation was not credible due to the number of redundant pressure boundary failures which had to be postulated before significant graphite oxidation could occur. The Chernobyl nuclear reactor accident presents no evidence which would alter this basic conclusion.

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No credible mechanism could be identified that would cause the number of postulated redundant pressure boundary failures necessary to result in significant graphite oxidation at Fort St. Vrain. Total catastrophic destruction of the Fort St. Vrain prestressed concrete reactor vessel (PCRV) would be required to permit open unrestricted burning of graphite such as occurred to Chernobyl. The consequences of a catastrophic external event of sufficient magnitude to destroy the PCRV would in all likelihood extend well beyond the radiological consequences of a graphite fire.

In order to obtain a significant amount of graphite oxidation in the attached analysis, the highly incredible, non-mechanistic, simultaneous failure of both the primary and secondary closures of the largest PCRV top head and bottom head penetrations had to be postulated.

Due to the limited time available for the preparation of the attached analysis, many of the basic parameters discussed in the analysis are worst case estimates of the postulated accident conditions and consequences. However, PSC has attempted in all cases to assure that these worst case estimates are conservative and bounding for the postulated accident scenarios involving graphite oxidation. If further analysis or checking shows any parameters or estimates to be sufficiently unconservative as to alter or effect the basic conclusions of the analysis, an amended analysis will be issued.

Should you have any questions concerning the attached analysis, please contact Mr. M. H. Holmes at (303) 480-6960.

Very truly yours,

Lawrence Brey

H. L. Brey, Manager
Nuclear Licensing and Fuels

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Attachment