TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

February 5, 1982

YCRD-50-566/82-04
YCRD-50-567/82-04

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

YELLOW CREEK NUCLEAR PLANT UNITS 1 AND 2 - UNEVALUATED MISSILE SOURCE - YCRD-50-566/82-04, YCRD-50-567/82-04 - FIRST INTERIM REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. V. Crlenjak on January 8, 1982 in accordance with 10 CFR 50.55(e) as NCR YCN NEB 8103. Enclosed is our first interim report. We expect to submit our next report by August 18, 1982.

If you have any questions concerning this matter, please get in touch with R. H. Shell at FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure
cc: Mr. Richard C. DeYoung, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, DC 20555

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ENCLOSURE

YELLOW CREEK NUCLEAR PLANT UNITS 1 AND 2
UNEVALUATED MISSILE SOURCE
YCRD-50-566/82-04, YCRD-50-567/82-04
10 CFR 50.55(e)
FIRST INTERIM REPORT

Description of Deficiency

During an evaluation of the Yellow Creek Nuclear Plant's Control Building missile protection requirements, it was determined that four 845-pound flywheels, if they should fail, could possibly generate missiles whose energy would exceed the design parameters of the present protection barriers. These flywheels are coupled to two control rod drive motor-generator sets (two flywheels per each m-g set) which are located at the 490' level. Directly above and below this area, separated by type A barriers, are the Auxiliary Control Room, elevation 508, and the Vital Battery Area, elevation 465, which house safety-related equipment.

In determining reportability, the probability of the flywheels failing was considered the key item. While it is believed to be so small as to be considered incredible, sufficient data is currently unavailable to support belief. On the one hand, the flywheel is a simple structure driven by a motor which cannot exceed 1800 rpm, its synchronous speed. On the other hand, the control rod drive motor-generator sets are not considered safety related, so the extent of the QA program used during the manufacture of the flywheels is not known at this time.

The cause of this deficiency is a failure to recognize that such an energetic missile source existed within the Control Building. Separation barrier requirements for the Control Building, being structural in nature, were developed early in the plant design. They were considered to be conservatively specified (100 pounds at 150 ft/s) to accommodate all internally generated missiles except those originating from high energy pipe breaks (high energy piping is excluded from this portion of the Control Building). No other missile sources of this magnitude have been discovered in the Control Building; and because of the nature of the equipment located in the electrical complex, it is not considered credible that another such device exists. However, this deficiency is being reviewed for possible generic implications at other TVA plants.

Interim Progress

TVA is investigating the probability of failure of these flywheels and will report on our intent to provide assurance that failure is incredible or to develop an acceptable method of mitigating the failure.

As the problem may be generic in nature, TVA is in the process of notifying all its project managers of this deficiency.