

DUKE POWER COMPANY

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February 20, 1985

Dr. J. Nelson Grace, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

RE: Catawba Nuclear Station, Unit 2
Docket No. 50-414
Significant Deficiency No. 414/85-01

Dear Mr. O'Reilly:

Pursuant to 10CFR 50.55(e), please find attached Significant Deficiency Report No. 414/85-01 concerning Control Rod Drive Mechanism guide screws.

Very truly yours,

H. B. Tucker

Hal B. Tucker

LTP/mjf

Attachment

cc: Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

NRC Resident Inspector
Catawba Nuclear Station

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CATAWBA NUCLEAR STATION

REPORT NUMBER: SD 414/85-01

REPORT DATE: February 20, 1985

FACILITY: Catawba Nuclear Station Unit 2

IDENTIFICATION OF DEFICIENCY:

Westinghouse, by letter dated December 11, 1984, notified Duke Power of an event at the Korean Unit 5 site concerning the Control Rod Drive Mechanism (CRDM) design similar to the ones at Catawba Unit 2. It was determined that the potential existed for a breech guide screw in the CRDM heavy drive rod to work loose and drop out of it's normal position. An inspection/test was performed applying 30 in. lbs. reverse torque to the breech guide screws of the Unit 2 drive rods and 25 of 57 were found to be unacceptable. This was reported as Nonconforming Item (NCI) CN-206.

INITIAL REPORT:

On January 21, 1985, C. Burger, NRC Region II, Atlanta, Ga. was notified of this deficiency by L. M. Coggins, D. M. Collings and T. L. Utterback of Duke Power Company, P. O. Box 33189, Charlotte, N. C. 28242.

COMPONENT AND/OR SUPPLIER:

CRDM Heavy Drive Rod
Westinghouse EMD
Cheswick Avenue
Cheswick, PA 15024

DESCRIPTION OF DEFICIENCY

The following describes cause of the deficiency for the following drive rod assemblies in which the breech guide screw unthreaded (counter clockwise) during the initial inspection at the noted torque valves: serial number 4185 (10 inch pounds), S/N 4294 (no torque), S/N 4300 (25 in. lbs.) S. N 4903 (no torque) and, S/N 5014 (20 in. lbs.). The following 20 drive rods had breech guide screws that moved or rotated a little, but did not become unthreaded with 40 in. lbs. torque: serial numbers 4103, 4104, 4115, 4122, 4126, 4147, 4166, 4167, 4202, 4235, 4261, 4262, 4280, 4290, 4295, 4296, 4298, 4301, 4309, 4901.

The breech guide screw's function is to provide alignment and guidance of the breech components during coupling and uncoupling of the drive rod from the rod cluster control assembly. The absence of the guide screw does not effect coupling and uncoupling, since the travel limits are incorporated into the coupling/uncoupling tool. However, if the 0.433 inch diameter by 0.52 inch long guide screw completely unthreads from the drive rod assembly, it would fall down the annulus between the drive rod assembly and the rod travel housing during control rod stepping. It can then lodge on the latch assembly causing binding, misstepping or a stuck drive rod. The guide screw is locked into position by a pin that is intended to intersect the mating threads and which

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is welded to the guide screw, to hold it in place. The deficiency occurs when the pin fails to intersect the mating threads, allowing the breech guide screw to unthread.

ANALYSIS OF SAFETY IMPLICATIONS:

If not corrected, one or more breech guide screws may have unthreaded, fallen out and lodged in the latch assembly such that potential rod misstepping, binding or a stuck driveline may have resulted.

CORRECTIVE ACTION AND STATUS:

An inspection/test applying a reverse torque of 30 in. lbs. to the breech guide screw of all the Unit 2 CRDM heavy drive rods has been completed. The results were that five screws unthreaded completely; twenty other screws were loose but did not unthread, even when checked to 40 inch pounds.

Westinghouse issued a Field Change Notice (FCN) DDPM10577 which contained inspection procedures and two types of repair procedures, one for rods with loose screws (but still in place) and one for rods without guide screws (removed during inspection). Westinghouse personnel performed the inspection/test and repair of the CRDM heavy drive rods beginning on January 23, 1985. Small screw movements of less than 15 degrees rotation were accepted. Movements greater than 15 degrees indicated a possible problem with the lock pin and therefore were unacceptable along with rods in which the guide screws unthreaded during the inspection/test. The inspection/test resulted in eleven rods requiring repair, six in which the breech guide screw unthreaded completely and five which had unacceptable rotational movement. The following drive rods were repaired by installing a new breech guide screw and lock pin: S/N's 4185, 4280, 4294, 4300, 4903, and 5014. For drive rods S/N's 4166, 4202, 4290, 4298 and 4901 which had unacceptable screw movement, an additional lock pin was installed a minimum of 90 degrees from the original lock pin. All the repaired rods were reinspected/tested and are now acceptable.

An inspection of the Unit 1 CRDM heavy drive rods has also been conducted and reported in LER 413/84-29. Also, by letter dated December 12, 1984, from H. B. Tucker to J. P. Reilly, NRC Region II was notified of this potential deficiency on McGuire Unit 2. Westinghouse has reported this deficiency under 10CFR21.