Westinghouse

ELECTRIC CORPORATION

TESTING REACTOR

P.O. BOX 1075
PITTSBURGH 30, PA.

May 20, 1960

Director
Division of Licensing and Regulation
U. S. Atomic Energy Commission
Washington 25, D. C.

Licensing Facilities Branch 11-4-60. [illegible] Safety [illegible]

Dear Sir:

During the week of April 25, 1960, two employes of the Westinghouse Testing Reactor received radiation exposures in excess of the limits specified in 10 CFR 20, Paragraph 20.101 (a) (2). These overexposures occurred during cleanup operations resulting from a fuel element failure previously reported to the Atomic Energy Commission. The present report is submitted in compliance with the requirements of 10 CFR 20, Paragraph 2.403 (c).

Case Number I

Nature of Incident - [redacted] received an overexposure while working on the reactor top. The exact time and circumstances concerning this overexposure are not definitely known. Time limits were set for this operation to allow a maximum exposure of 300 mr for the week.

Ex6

Extent of Exposure - The employe's film badge for the week of April 25, 1960 showed a total exposure of 230 mr gamma and 1600 mrad beta, giving a total skin dose of 1830 mrad, 30 mrad more than three times the value listed for skin exposure in 10 CFR 20, Appendix A.

Levels of Radiation - During the week in question, the employe performed several operations and the particular operations which contributed to the high beta dose are not definitely identified. The exposure probably occurred during attempts to remove the defected fuel element from the WTR core. Radiation levels during this operation were as high as 5,000 mrad/hr beta, emanating from

the surfaces of the water above the WTR core, from the handling tools which were contaminated during this operation, and from the upper surface of the reactor vessel.

Cause of Incident - This overexposure was due to difficulty experienced in determining exposures received while personnel were working in extremely variable high-level beta fields. The only dosimeters available other than film badges were relatively insensitive to beta radiation.

Corrective Action - In future work of this nature, personnel time limits will be reduced when the cululative beta exposure cannot be determined on a daily basis. WTR film badges are read on a weekly basis, except that when high exposures are expected, film badges are pulled and the film sent to our processor immediately.

Case Number II

Nature of Incident - [redacted] received an overexposure while performing a job in the sub-pile room of the WTR. Ex6

Extent of Exposure - The employe's film badge for the period April 25 to April 27, 1960 showed an exposure of 950 mr gamma, 50 mr in excess of three times the values listed in 10 CFR 20, Appendix A for Whole Body Exposure.

Levels of Radiation - The radiation field at the gonad level was approximately 1 r/hr gamma, but this dose rate increased in the overhead vicinity of the vessel piping to approximately 18 r/hr gamma. Exposure levels were extremely variable.

Cause of Incident - Time limit for this job was based on whole body exposure of 300 mr gamma. The employe's film badge and pocket dosimeters were attached to his surgeon's cap in an effort to determine exposure to the lens of the eyes with greater accuracy. During attempts to complete a hose connection to an overhead drain valve at the bottom of the reactor vessel, the

employe's head apparently came into close proximity with the bottom of the vessel. At completion of the job, prior to expiration of the time limit, the employe's pocket dosimeters were found to be off-scale (greater than 200 mr gamma).

Corrective Action - The employe's film badge was pulled and the film sent in for immediate processing. The employe was promptly restricted from further radiation work pending results of the processing. The extent of his exposure was determined on the following day, and his restriction extended as required in Paragraph 20.105. Time limits are now based upon maximum exposure found in the areas where work is to be done rather than at the average level, particularly in cases where it is possible for the eyes to come in close proximity with the source of radiation.

Both the above employes have been restricted from all work involving radiation. This restriction will continue in effect until such time as the average weekly exposure is below the limits specified in 10 CFR 20, Appendix A. Further restrictions will be made if necessary to insure that the permissible 13-week exposures are not exceeded.

Very truly yours,

E. T. Morris

E. T. Morris
General Manager

cc: Manager
New York Operations Office
U. S. Atomic Energy Commission