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 TOLEDO
EDISON

Docket No. 50-346
License No. NPF-3
Serial No. 629
July 15, 1980

RICHARD P. CROUSE
Vice President
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(419) 259-5221

Mr. Victor Stello, Jr.
Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Stello:

This is in response to your letter of June 20, 1980 (Log No. 568) concerning the personnel radiation overexposure which occurred at the Davis-Besse Nuclear Power Station, Unit 1 (DB-1) on April 30, 1980.

The Toledo Edison Company recognizes the seriousness of the individual overexposure and has taken steps to address each item we have determined to be contributory to the incident. These changes are addressed in the attachment to this letter and were fully implemented by July 2, 1980.

With the exception of this incident, Toledo Edison's radiation exposure control has been exemplary throughout its operational history. During the last two years of operation the occupational exposure at Davis-Besse, given by total annual man-rem, has been the lowest of any operating commercial nuclear power producing facility. This directly illustrates the effectiveness of the overall radiation management controls at the Davis-Besse facility. The changes identified in the attachment have strengthened the areas of our radiological control program specifically related to the April 30, 1980 overexposure.

Enclosed is a check (No. 71398) for thirteen thousand dollars imposed by the Nuclear Regulatory Commission for the identified noncompliances.

Very truly yours,



RPC:TJM:cts

Attachment

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Response to the Items of Noncompliance Stated in the NRC Letter Dated June 20, 1980

ITEM 1

"10 CFR20.101 (b) requires that during any calendar quarter, the dose to the whole body of any individual working in a restricted area not exceed 3 rems.

Contrary to this requirement, during the second calendar quarter of 1980 a senior chem and rad tester received a dose exceeding 3 rems when on April 30, 1980, he entered the normal sump tunnel leading to the cavity beneath the reactor vessel while the incores were in the withdrawn position beneath the vessel. His TLD indicated a dose of 4.70 rems. A TLD worn earlier in the calendar quarter indicated a dose of 0.055 rems".

RESPONSE

- (1) Toledo Edison acknowledges that a Chemical and Radiation Tester received a whole body dose that exceeded 3 rems during the second calendar quarter of 1980.
- (2) This overexposure was caused by personal error compounded by an apparent equipment problem. As of April 30, 1980 a procedural step required the inspection of the cavity area surrounding the reactor vessel to identify any water leakage around the refueling canal seal plate. This area surrounding the reactor vessel and extending into the normal sump tunnel was recognized and posted as a high radiation area. A temporary door had been installed in the normal sump tunnel to be a controlled entry point for the high radiation area. The location of the door was incorrect. After a health physics evaluation, the entry point to the high radiation area was established at the ladder entrance to the normal sump tunnel. This was recognized and posted as a high radiation area, and the grating over the ladder was locked to insure only controlled access.

The Assistant Shift Supervisor and the Chemical and Radiation Tester were to make the planned inspection. Prior to the personnel entry into the normal sump tunnel, discussions were held between the Health Physics Foreman and the Chemical and Radiation Tester on the planned entry. During these discussions the Tester was informed that the incore detectors were withdrawn and large dose rates would be present. The Tester was cautioned that entry into the tunnel could only proceed until radiation levels as indicated on the survey instrument would not permit further travel. Because of the anticipated large dose rates an additional high range dosimeter was issued to the Tester for the entry.

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No specific review of the most recent survey was made immediately prior to entry. The fact that the temporary door, still located in the tunnel, was located incorrectly was not recalled prior to entry into the high radiation area. During the travel down the ladder and through the tunnel, observation of the radiation survey instrument apparently indicated no excessive radiation condition. Upon opening of the temporary door and observation of the incore detector housings they recognized that the indicated instrument readings were in error and the personnel left the area immediately.

Normal health physics practices including log and survey reviews were not followed to the extent needed to ensure familiarity with the conditions in the high radiation area. This lack of familiarity with the situation and an erroneous or improper reading of the survey instrument delayed the recognition of the serious radiation condition until the temporary door was opened and the incore detector housings were observed.

- (3) Corrective Steps which have been taken include:
- (a) more stringent health physics management control and approval for entries into all high radiation areas.
 - (b) additional requirement that two high range survey instruments of different types be used when entering all high radiation areas.
 - (c) a permanent locked door was installed at a location to preclude a direct path between the detector housings and the personnel doorway.
 - (d) a procedural modification deleted the requirements to inspect the reactor vessel cavity area for seal plate leakage.
 - (e) training on the occurrence and procedural modifications has been provided to operations and health physics personnel.
- (4) In order to avoid further noncompliance, a new radiation area classification has been designated, called "extremely high radiation areas". These are specific high radiation areas where an individual could receive a high exposure within a short time frame and are designated by the DB-1 Chemist and Health Physicist. Entry is gained only when accompanied by a Chemistry and Health Physics management personnel.
- (5) Full compliance was achieved by July 2, 1980.

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ITEM 2

"10CFR20.201(b) requires that surveys be made as may be necessary to comply with 10CFR20 regulations. One of these regulations, 20.101(b), sets dose limits for individual in a restricted area.

Contrary to the above, exposure rate evaluations made by the senior chem and rad tester during the April 30, 1980, entry to the normal sump tunnel leading to the cavity beneath the reactor vessel were not adequate to ensure that dose limits of 10CFR20.101(b) would not be exceeded.

This violation resulted in an overexposure to radiation and had the potential for causing a substantial radiation overexposure."

RESPONSE

- (1) Toledo Edison acknowledges that as a result of improper or erroneous radiation survey instrument readings, the evaluation by the Chemical and Radiation Tester during the April 30, 1980 entry into the normal sump tunnel was not adequate to ensure that radiation exposures were within the limits of 10CFR20.
- (2) The reason for the noncompliance was the improper or erroneous survey instrument readings which made a proper evaluation of the real-time radiation condition impossible. As described in response to Item 1, Part (2) upon recognition of the seriousness of the condition all personnel left the area immediately.
- (3 & 4) The corrective action and full compliance discussions are provided in the respective responses to Item 1.

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ITEM 3

"Technical Specification 6.8.1.a requires implementation of procedures contained in Appendix A of Regulatory Guide 3.33, November 1972, which includes radiation protection procedures. Procedure HP 1601.05.1, Section 6.3.4, titled "Job Planning and Preparation" states, "A major portion of the occupational radiation dose is received during maintenance inspection, refueling, and non-routine operations. The following actions should be carried out if applicable: 7. Minimize personnel radiation exposures by planning for access to and exit from work areas. ."

Contrary to the above, regarding the entry to the reactor cavity on April 30, 1980, proper planning for access to and exit from the work area to minimize personal radiation exposures was not evident, in that neither the assistant shift supervisor nor the senior chem and rad tester reviewed the previously conducted limited survey of the area which was recorded and on file nor were either aware of the construction of a temporary door in the wrong location in the normal sump tunnel, although the construction error had been noted in the Health Physics Log."

RESPONSE

- (1) Toledo Edison acknowledges that neither the Assistant Shift Supervisor nor the Chemical and Radiation Tester reviewed the most recent limited survey or Health Physics Log immediately prior to entry into the high radiation area.
- (2) No s . . . reviews of subject documents were accomplished immediately prior to entry into the high radiation area. However, as described in response to Item 1, Part (2), pre-planning for this entry did exist in the form of posting, physical entry control, and included discussions with the Health Physics Foreman about the conditions and precautions.

Toledo Edison believes that this amount of pre-planning was appropriate for the entry undertaken and that the two items delineated in the non-compliance were not significant contributors to the actual overexposure. Once the ladder entrance was unlocked and the entry commenced, the continual assessment of the survey instrument was known to be required to ensure personnel exposures were not excessive. The improper or erroneous reading of this instrument delayed the proper assessment of the actual exposure condition.

- (3 & 4) The corrective action and full compliance discussions are provided in the respective responses to Item 1.