TOLEDO EDISON

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Mr. James G. Keppler
Regional Director, Region III
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Keppler:

This letter is submitted as a final report in accordance with 10 CFR Part 50.55(e) regarding the deficiency involving the Victoreen Field Calibrator used in the calibration of the area radiation monitors used at the Davis-Besse Nuclear Power Station Unit No. 1. This was discussed by Mr. E. C. Novak, General Superintendent, Power Engineering and Construction, with Mr. D. W. Hayes, NRC Region III Office of Inspection and Enforcement on July 23, 1976, and was reported as a deficiency.

Description of the Deficiency

During calibration of the Model 848-18, Field Calibration Kit, a human error was made in calculating the calibration correction factor to be applied to the calibrator. This error occurred during the intercomparison of the Davis-Besse calibrator with Victoreen's secondary standard field calibrator.

Corrective Action

Victoreen has identified the source calibration problem which did not conform to the original source values. Victoreen investigated the above problem in the field and eventually returned the sources back to the factory where they were recalibrated. Victoreen has instituted a procedure where following a calibration by the Calibration Technician, two random samples are tested by the Nuclear Calibration Engineer and by the Quality Assurance Engineer. The results of these two random samples are compared with the data taken by the Calibration Technician. A calibration correction factor is determined only if the results of the two random samples correlate with the Calibration Technician's data.

The ground motion effects of the maximum Anna earthquake (modeled after the 8 March 1937 event) have been postulated to be caused by a strong VII (7.5) earthquake. The associated free field ground surface acceleration obtained for this event based upon Trifunac and Brady (1975) yields a ground surface acceleration of 0.187g.

We believe it only logical to infer, without detailed calculations, that the same subsurface rupture that caused the Anna earthquake if transposed to the Davis-Besse site area would have caused lower ground surface motions. This would be due to the significant reduction in soil thickness between the Anna area and the Davis-Besse site (factor of approximately 10), and the lack of the focusing effect of the bowl geometry (conical valley vs. flat-lying rock).

To examine this inference, we have deconvoluted the Anna free-field ground surface acceleration (0.187g) down through the valley deposits to the bedrock interface to determine the rock "outcrop" acceleration that would have caused such a surface acceleration. This rock "outcrop" motion would be directly transposed to the Davis-Besse site as the input rock motion at foundation level. Analyses indicate this input motion at the Davis-Besse site would be less than 0.16g for representative time histories and soil conditions examined.

If the transposition of the Anna March 8, 1937 earthquake to the Davis-Besse site is considered to be necessary (a procedure we believe to be unwarranted), the above approach to determine rock motion at the Davis-Besse site is much more logical than ascribing the Anna area surface motion to the bedrock at the Davis-Besse site.

Yours very truly,

Lowell E. Roe

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Safety Implications

The correction of the deficiency as described above prior to the operation of the facility assures that the health and safety of the public are not jeopardized.

Yours very truly,

Lowell E. Roe

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