



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, D. C. 20555

ACRS - R# 1183

54-440

March 17, 1986

Honorable Nunzio J. Palladino  
Chairman  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Dr. Palladino:

SUBJECT: ACRS REPORT ON THE PERRY NUCLEAR POWER PLANT, UNIT 1

During its 311th meeting, March 13-15, 1986, the Advisory Committee on Reactor Safeguards discussed the Ohio earthquake which occurred on January 31, 1986 and reviewed its implications with respect to the Perry Nuclear Power Plant, Unit 1. A meeting of the Subcommittee on Extreme External Phenomena was held on March 12, 1986 to consider this matter. The Reactor Operations Subcommittee discussed this matter during a meeting on February 12, 1986 and the full Committee was briefed during the 310th ACRS meeting, February 13-15, 1986. During our review, we had the benefit of discussions with representatives of The Cleveland Electric Illuminating Company (Applicant), the NRC Staff, and the U. S. Geological Survey (USGS) Staff. We also had the benefit of the documents referenced and comments from several ACRS consultants. We commented on the application for a license to operate this plant on July 13, 1982.

This earthquake occurred near Leroy, Ohio, and was characterized by relatively low energy, low velocities, small displacements, a short duration, and a response spectrum rich in high frequencies. Except at the relatively less significant high frequencies, the excitation of the plant structures and equipment was much less than that considered in the seismic design basis.

No significant damage was observed at the Perry plant in the inspections which were performed by the Applicant and the NRC Staff. The Cleveland Electric Illuminating Company, by using analysis and comparisons with prior qualification testing, has found that all the structures and equipment analyzed thus far have substantial margins of safety relative to the loads and stresses induced by the earthquake. The NRC Staff and our consultants concur in that conclusion.

The NRC Staff has several confirmatory actions that it will require of the Applicant prior to operation above 5 percent power. These confirmatory actions include the analyses of a large sample of equipment. We support the NRC Staff's proposed confirmatory actions.

There currently exists some possibility that the January 31, 1986 earthquake is related to deep well injection activities that took place between the Perry plant site and the town of Leroy or to solution mining

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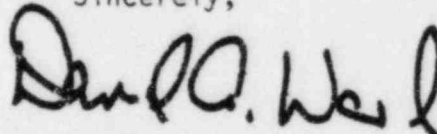
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that took place in this area. The NRC Staff has engaged the services of USGS to evaluate these hypotheses to see if there really may be a causal connection, and, if so, whether there is any likelihood of substantially larger earthquakes in the future. The NRC Staff will keep the ACRS informed as to the progress of the USGS work.

One of the ACRS consultants suggested that monitoring with sensitive seismological instruments over the next few years would be helpful in assessing the possible causal connection between the deep well injection and the January 31, 1986 earthquake. The USGS representatives attending our discussions agreed that such seismic monitoring would be valuable. Therefore, unless the USGS and the NRC are able to decide that there is no causal connection or that earthquakes of a magnitude sufficient to be of concern can be ruled out from this cause, we recommend that The Cleveland Electric Illuminating Company assure that appropriately sensitive monitoring be continued over the next few years.

We agree with the NRC Staff that the January 31, 1986 earthquake is unlikely to lead to any requirements that would significantly change the design of the Perry plant's structure or its equipment. Based on the information developed in these meetings and considering the above comments, we find no reason to alter the conclusions stated in the Committee's report dated July 13, 1982 regarding operation of this nuclear plant.

Sincerely,



David A. Ward  
Chairman

References:

1. The Cleveland Electric Illuminating Company, "Seismic Event Evaluation Report, Perry Nuclear Power Plant," dated February 1986
2. Letter dated March 5, 1986 from Robert M. Bernero, Director, Division of BWR Licensing, NRC, to David Ward, Chairman, ACRS, Subject: Perry Seismic Safety Evaluation, with attached Safety Evaluation Report dated March 1986