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

November 12, 1980

Honorable John F. Ahearne
Chairman
U.S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: REPORT ON THE RESTART OF THE GENERAL ELECTRIC TEST REACTOR

Dear Dr. Ahearne:

During its 247th meeting, November 6-8, 1980, the ACRS reviewed a request by the General Electric Company to restart and operate the General Electric Test Reactor (GETR) at power levels up to its rated power of 50 MWt. A tour of the facility was made by members and consultants in connection with November 14, 1979 and June 16 and 17, 1980 meetings of the Subcommittee and the matter was further considered at a Subcommittee meeting on November 4, 1980. During its review, the Committee had the benefit of discussions with representatives and consultants of the Licensee and the Nuclear Regulatory Commission (NRC) Staff. The Committee also had the benefit of the documents listed.

The GETR, which was granted an operating license in January, 1959, was shut down on October 24, 1977 in accordance with a Commission order. This order followed discovery of a fault near the location of GETR and brought into question the plant's capability to withstand the effects of an earthquake that might occur on or near the newly discovered fault.

After extensive study of the geology and seismology of the site, and of the region nearby, the NRC Staff concluded that in order to operate the plant it must be shown that it can sustain a ground level acceleration, unaccompanied by surface offset under the foundation, of 0.75g and that it must also be shown to be capable of withstanding a ground level acceleration of 0.6g simultaneous with a surface displacement of one meter of reverse-oblique net slip along a fault plane having a dip between 10 and 45 degrees. The ACRS agrees that these criteria are sufficiently conservative.

In order to achieve compliance with these criteria, the General Electric Company has proposed some plant modifications and has performed an extensive analytical investigation to demonstrate that the modified plant can survive an earthquake having the characteristics of the Staff's criteria. The NRC Staff has reviewed and approved the analyses and the modifications.

The ACRS agrees that the plant as modified should be able to withstand the postulated seismic events with no significant release of radioactive material.

The NRC Staff has yet to resolve one issue of seismic loading which is dependent on the characteristics of the soil beneath the GETR foundation. The Staff and the Licensee are both confident, however, that this issue can be resolved after further calculation by the Licensee and review by the Staff. The ACRS recommends that this issue be resolved to the satisfaction of the Staff.

Subject to resolution of the above issue, the ACRS believes that the GETR, as modified, can be restarted and operated at its rated power level of 50 MWt, without undue risk to public health and safety.

Sincerely,

Milton S. Plesset

Milton S. Plesset
Chairman

References:

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2. Letter, E. G. Case, NRC, to R. Darmitzel, General Electric Company (GE), regarding the Order to Show Cause, dated October 12, 1977.
3. General Electric Company, "Updated Response to NRC Order to Show Cause Dated October 24, 1977," June 1978.
4. Engineering Decision Analysis Company, Inc., "Seismic Analysis of Reactor Building, General Electric Test Reactor, Phase 2," prepared for General Electric Company, EDAC 117-217.03, June 1978.
5. Engineering Decision Analysis Company, Inc., "Seismic Analysis of Primary Coolng System and Reactor Pressure Vessel, General Electric Test Reactor," Prepared for General Electric Company, EDAC 117-217.05, June 1978.
6. Engineering Decision Analysis Company, Inc., "Seismic Analysis of Primary Heat Exchange, General Electric Test Reactor," prepared for General Electric Company, EDAC 117-217.06, June 1978.
7. Engineering Decision Analysis Company, Inc., "Seismic Analysis of Reactor Pressure Vessel and Pool Drain Lines and Poison Injection Line, General Electric Test Reactor," prepared for General Electric Company, EDAC 117-217.07, June 1978.
8. Engineering Decision Analysis Company, Inc., "Seismic Analysis of Fuel Flooding System, General Electric Test Reactor," prepared for General Electric Company, EDAC 117-217.08, June 1978.
9. Engineering Decision Analysis Company, Inc., "Qualification of Safety-Related Valves, General Electric Test Reactor," prepared for General Electric Company, EDAC 117-217.09, June 1978.
10. Structural Mechanics Associates, "Structural Analysis of New Fuel Storage Tanks and Support System, General Electric Test Reactor," prepared for General Electric Company, June 1978.

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11. Structural Mechanics Associates, "Structural Analysis of Third Floor Missile Impact System, General Electric Test Reactor," prepared for General Electric Company, June 1978.
12. Letter, R. W. Reid, NRC, to R. Darmitzel, GE, on the review of Geological Investigation, Phase II, by Earth Sciences Associates, dated June 8, 1979.
13. Engineering Decision Analysis Company, Inc., "Probability Analysis of Surface Rupture Offset Beneath Reactor Building, General Electric Test Reactor," prepared for General Electric Company, EDAC 117-217.13, April 12, 1979.
14. Letter, R. Darmitzel, GE, to R. W. Reid, NRC, "Structural Modifications for the General Electric Test Reactor," July 9, 1979.
15 Letter, H. Denton, NRC, to R. Darmitzel, GE, regarding Show Cause Proceeding, Geosciences Branch Safety Evaluation Report Input, GE Test Reactor Site, Vallecitos Nuclear Center, dated September 27, 1979.
16. Letter, R. Darmitzel, GE, to D. Eisenhut, NRC, regarding Response to Questions Raised by the GETR Subcommittee of the ACRS consultants," dated April 14, 1980.
17. Letter, R. E. Jackson, NRC, to J. F. Devine, USGS, transmitting report entitled, "Seismicity of the Livermore Valley in Relation to the General Electric Vallecitos Plant, by B. Bolt and R. Hanson," dated April 17, 1980.
18. Letter, D. L. Gilliland, GE, to D. G. Eisenhut, NRC, "Part I Response to NRC Questions, Structural Issues," April 23, 1980.
19. Letter, R. W. Darmitzel, GE, to D. G. Eisenhut, NRC, regarding Analysis of Slip Rate of Shear Surfaces at the General Electric Test Reactor (GETR) Site," dated April 29, 1980.
20. Letter, R. W. Darmitzel, GE, to D. G. Eisenhut, NRC, regarding General Electric Test Reactor Foundation Excavation Photographs, dated April 29, 1980.
21. Letter, R. W. Darmitzel, GE, to D. G. Eisenhut, NRC, regarding Responses to NRC Questions on Additional Probability Analysis of Surface Rupture Offset Beneath Reactor Building - General Electric Test Reactor, dated April 30, 1980.
22. Letter, R. W. Darmitzel, GE, to D. G. Eisenhut, NRC, regarding Responses to NRC Questions - Structural Issues - Part II, Recent Investigation, dated May 8, 1980.
23. Letter, D. G. Eisenhut, NRC, to R. W. Darmitzel, GE, regarding Safety Evaluation by the Office of Nuclear Reactor Regulation, for the General Electric Reactor, General Electric Company, Docket No. 50-70, dated May 23, 1980.
24. Letter, D. L. Gilliland, GE, to D. G. Eisenhut, NRC, regarding Landslide Stability Investigation of the General Electric Test Reactor (GETR) Site, dated July 25, 1980.
25. Letter, R. W. Darmitzel, GE, to D. G. Eisenhut, NRC, regarding General Electric Test Reactor (GETR) Landslide Stability Analysis, dated August 29, 1980.
26. Letter, R. W. Darmitzle, GE, to D. G. Eisenhut, NRC, regarding Responses to Additional Information Request Regarding Seismic Scram System for the General Electric Test Reactor, dated October 13, 1980
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