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U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Attention: Document Control Desk

Reference: License R-33, Docket 50-73

Gentlemen:

Enclosed are three signed copies of Annual Report No. 36 for the General Electric Nuclear Test Reactor.

Sincerely,

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Senior Licensing Engineer  
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**GE Nuclear Energy**

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Vallecitos Nuclear Center  
Pleasanton, California

GENERAL ELECTRIC  
NUCLEAR TEST REACTOR

ANNUAL REPORT NO. 36

LICENSE R-33  
DOCKET 50-73

GENERAL ELECTRIC  
NUCLEAR TEST REACTOR

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**I. INTRODUCTION**

This report summarizes the operation, changes, tests, experiments, and major maintenance at the Nuclear Test Reactor (NTR) which were authorized pursuant to License R-33 and 10CFR50, Section 50.59, for the period January 1, 1995, through December 31, 1995.

**II. GENERAL**

The reactor was operated at or above critical for 512.67 hours; 226 startups were made. Total plant operation equaled 2.005 MWd in 1995.

- B. The average radiation exposure to facility personnel was 1.16 Rem.
- C. There were three reactor scrams and no unscheduled manual shutdowns.
- D. There were no occurrences during 1995 that required notification of the NRC.

**III. ORGANIZATION**

There were no changes to the organization or personnel in the organization during this report period.

#### IV. FACILITY CHANGES, TESTS, EXPERIMENTS AND PROCEDURE CHANGES APPROVED BY THE FACILITY MANAGER

##### A. Facility Changes

Pursuant to 10CFR50.59(a), the Facility Manager authorized the following facility changes in 1995.

##### 1. Emergency Generator

*Description:* An emergency generator is used as a source of power for security-related equipment in the event of a power outage. The equipment requiring the emergency power was transferred from a 3-kW generator to a 12-kW generator in order to reduce maintenance costs and increase dependability.

*Safety Analysis:* The new generator supplies emergency power to other equipment and has excess capacity for all connected loads. After transferring the equipment to the new generator, it was tested and found to be satisfactory. Regular periodic maintenance and testing procedures were written.

##### 2. Data Acquisition System

*Description:* A data acquisition system (DAS) was authorized to replace the obsolete recorders.

*Safety Analysis:* The DAS will only replace the visual display of the recorders. No alarm or control functions of the reactor will be affected. Record retention will remain the same. The DAS also will be calibrated in a similar manner as the recorders.

##### B. Tests

Pursuant to 10CFR50.59(a), there were no special tests performed during 1995 requiring Facility Manager approval.

##### C. Experiments

Pursuant to 10CFR50.59(a), there were no new experiments in 1995 requiring Facility Manager approval.

**D. Procedures**

Pursuant to 10CFR50.59(a), there were no procedure changes during 1995 requiring Facility Manager approval.

**V. MAJOR PREVENTIVE OR CORRECTIVE MAINTENANCE**

Major preventive or corrective maintenance activities performed in 1995 are described in Section IV.A., Facility Changes, above.

**VI. UNSCHEDULED SHUTDOWNS**

During 1995 there were three reactor scrams as follows:

1. On April 3 a scram was caused by spurious noise during picoammeter range switching during reactor startup.
2. On September 19 a scram was caused by spurious noise during picoammeter range switching during reactor startup.
3. On December 13 a scram was caused by a momentary utility power dip.

## VII. RADIATION LEVELS AND SAMPLE RESULTS AT ON- AND OFF-SITE MONITORING STATIONS

The data below are from sample and dosimeter results accumulated during 1995. Except for the NTR stack data, these data are for the entire VNC site and include the effects of operations other than the NTR.

### A. NTR Stack

Total airborne releases (stack emissions) for 1995 are as follows.

Alpha Particulate, <0.02  $\mu\text{Ci}$  (predominantly radon-thoron daughter products)  
 Beta-Gamma Particulate, <0.42  $\mu\text{Ci}$   
 Iodine-131, 8.8  $\mu\text{Ci}$   
 Noble Gases,  $1.15 \times 10^2 \text{ Ci}$

Noble gas activities recorded from the NTR stack integrate both background readings and the actual releases. The background readings may account for 40 to 50% of the indicated release.

### B. Air Monitors (Yearly average of all meteorological stations.)

Four environmental air monitoring stations are positioned approximately 90 degrees apart around the operating facilities of the site. Each station is equipped with a membrane filter which is changed weekly and analyzed for gross alpha and gross beta-gamma.

Alpha Concentration:

Maximum	$2.7 \times 10^{-15} \mu\text{Ci/cc}$	(predominantly radon-thoron daughter products)
Average	$0.9 \times 10^{-15} \mu\text{Ci/cc}$	

Beta Concentration:

Maximum	$2.3 \times 10^{-13} \mu\text{Ci/cc}$
Average	$2.3 \times 10^{-14} \mu\text{Ci/cc}$

### C. Gamma Radiation

The yearly dose results for the year 1995 as determined from evaluation of site perimeter TLD environmental monitoring dosimeters showed acceptable levels.

**D. Vegetation**

No alpha, beta or gamma activity attributable to activities at the NTR facility was found on or in vegetation in the vicinity of the site.

**E. Water**

There was no release of radioactivity in water or to the ground water greater than those limits specified in 10CFR20, Appendix B, Table 2, Column 2.

**F. Off-Site**

Samples taken off the site indicate normal background for the area.

**VIII. RADIATION EXPOSURE**

The highest annual dose to NTR Operations personnel was 1.68 Rem, and the lowest was 0.86 Rem. The average dose was 1.16 Rem per person.

**IX. CONCLUSIONS**

The overall operating experience of the Nuclear Test Reactor reflects another year of safe and efficient operations. There were no reportable events.

GENERAL ELECTRIC COMPANY  
Vallecitos and Morris Operations



D. R. Smith, Manager  
Nuclear Test Reactor