



GE Nuclear Energy

General Electric Company
Vallecitos Nuclear Center
P.O. Box 460, Vallecitos Road
Pleasanton, CA 94566

February 7, 1997

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. 37 for the General Electric Nuclear Test Reactor.

Sincerely,

C. W. Bassett, Manager
Regulatory Compliance
(510) 862-4469

/ca

Enclosures

9702200121 961231
PDR ADOCK 05000073
R PDR

190097

Te47



GE Nuclear Energy

Vallecitos Nuclear Center
Pleasanton, California

GENERAL ELECTRIC
NUCLEAR TEST REACTOR

ANNUAL REPORT NO. 37

LICENSE R-33
DOCKET 50-73

GENERAL ELECTRIC
NUCLEAR TEST REACTOR

ANNUAL REPORT NO. 37

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, 1996, through December 31, 1996.

II. GENERAL

- A. The reactor was operated at or above critical for 630.66 hours; 226 startups were made. Total plant operation equaled 2.478 MWd in 1996.
- B. The average radiation exposure to facility personnel was 1.57 Rem.
- C. There was one reactor scram and no unscheduled manual shutdowns.
- D. There were no occurrences during 1996 that required notification of the NRC.
- E. There was one NRC inspection. No notices of violation were issued.

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 1996.

1. Stack Gas and Particulate Monitor

Description: The stack monitoring instrumentation was relocated during a remodeling of the shop area. The instrumentation consoles were rotated 90 degrees and moved about 6 feet.

Safety Analysis: The new location is equivalent to the old location and the original installation specifications were used. There were no changes to the equipment or instruments.

2. Motion Detector Battery

Description: The factory-installed battery was removed from the motion sensor in the control room.

Safety Analysis: The factory-installed battery provided no useful function since the NTR system has an alternative backup power supply.

B. Tests

Pursuant to 10CFR50.59(a), there were no special tests performed during 1996 requiring Facility Manager approval.

C. Experiments

Pursuant to 10CFR50.59(a), there were no new experiments in 1996 requiring Facility Manager approval.

D. Procedures

Pursuant to 10CFR50.59(a), there were no procedure changes during 1996 requiring Facility Manager approval.

V. MAJOR PREVENTIVE OR CORRECTIVE MAINTENANCE

Major preventive or corrective maintenance activities performed in 1996 are described in Section IV.A., Facility Changes, above.

VI. UNSCHEDULED SHUTDOWNS

During 1996 there was one reactor scram as follows:

On February 28 a scram was caused by a failure of the Log N positive low-voltage power supply.

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

The data below are from sample and dosimeter results accumulated during 1996. 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 1996 are as follows.

Alpha Particulate, $< 0.06 \mu\text{Ci}$ (predominantly radon-thoron daughter products)

Beta-Gamma Particulate, $< 1.5 \mu\text{Ci}$

Iodine-131, $26.5 \mu\text{Ci}$

Noble Gases, 6.97 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, $5.4\text{E-}15$ (predominantly radon-thoron daughter products)

Average, $1.5\text{E-}15$ $\mu\text{Ci/cc}$

Beta Concentration:

Maximum, $8.5\text{E-}14$ $\mu\text{Ci/cc}$

Average, $2.9\text{E-}14$ $\mu\text{Ci/cc}$

C. Gamma Radiation

The yearly dose results for the year 1996 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.

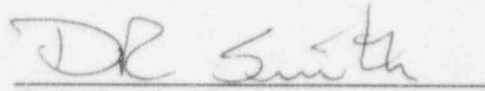
VIII. RADIATION EXPOSURE

The highest annual dose to NTR Operations personnel was 2.10 Rem, and the lowest was 1.35 Rem. The average dose was 1.57 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