December 8, 2005

Mr. Scott Bump
Vallecitos Nuclear Center
General Electric Company
6705 Vallecitos Road
Sunol, CA 94586

SUBJECT: NRC INSPECTION REPORT NO. 50-73/2005-201

Dear Mr. Bump:

This letter refers to the inspection conducted on November 8 - 10, 2005, at your Nuclear Test Reactor facility. The inspection included a review of activities authorized for your facility. The enclosed report presents the results of that inspection.

Areas examined during the inspection are identified in the report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observation of activities in progress. Based on the results of this inspection, no safety concerns or noncompliances of NRC requirements were identified. No response to this letter is required.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at (the Public Electronic Reading Room) http://www.nrc.gov/reading-rm/adams.html.

Should you have any questions concerning this inspection, please contact Mr. Kevin M. Witt at (301) 415-4075.

Sincerely,

/RA/

Brian E. Thomas, Branch Chief
Research and Test Reactors Branch
Division of Policy and Rulemaking
Office of Nuclear Reactor Regulation

Docket No. 50-73
License No. R-33

Enclosure: NRC Inspection Report No. 50-73/2005-201
cc w/encl: Please see next page

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cc w/encl:

Mr. Steve Hsu
Radiologic Health Branch
State Department of Health Service
P.O. Box 942732
Sacramento, CA 94234-7320

California Department of Health
ATTN: Chief, Environmental Radiation
Control Unit
Radiological Health Section
714 P Street, Room 498
Sacramento, CA 95814

Mr. Chuck Bassett, Manager
Regulatory Compliance
Vallecitos and Morris Operations
Vallecitos Nuclear Center
General Electric Company
6705 Vallecitos Road
Sunol, CA 94586

Test, Research, and Training
Reactor Newsletter
University of Florida
202 Nuclear Sciences Center
Gainesville, FL 32611

Mr. Chris Hamilton
Senior Licensing Engineer
Certified Six Sigma Green Belt
Vallecitos Nuclear Center
Sunol, CA 94586

Mr. Harold Neems
General Electric Company
Nuclear Energy Business Operations
175 Cutner Avenue
Mail Code 123
San Jose, CA 95125

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION

Docket No:	50-73
License No:	R-33
Report No:	50-73/2005-201
Licensee:	General Electric Company
Facility:	Nuclear Test Reactor (NTR)
Location:	Sunol, CA
Dates:	November 8 - 10, 2005
Inspector:	Kevin M. Witt
Approved by:	Brian E. Thomas, Branch Chief Research and Test Reactors Branch Division of Policy and Rulemaking Office of Nuclear Reactor Regulation

EXECUTIVE SUMMARY

General Electric Company
Nuclear Test Reactor (NTR)
Inspection Report No.: 50-73/2005-201

The primary focus of this routine, announced inspection was the on-site review of selected aspects and activities since the last NRC inspection of the licensee's Class II non-power reactor safety programs including: organization and staffing, operations logs and records, procedures, operator requalification, surveillance, experiments, radiation protection program, design changes, committees, audits and reviews, emergency preparedness, and maintenance logs and records.

Organization and Staffing

- The organizational structure and staffing were consistent with Technical Specification requirements for current operations.

Operation Logs and Records

- Operational activities were consistent with applicable Technical Specification and procedural requirements.

Procedures

- Procedural control and implementation programs satisfied Technical Specification requirements.

Operator Requalification

- The Requalification Program was implemented satisfactorily, the program was up-to-date, and plan requirements were met.

Surveillance

- The licensee's program for completing surveillance inspections and Limiting Conditions for Operation confirmations satisfied Technical Specification and licensee administrative controls.

Experiments

- The approval and control of experiments met Technical Specification and applicable regulatory requirements.

Radiation Protection Program

- Surveys were being completed and documented acceptably to permit evaluation of the radiation hazards present.

- Postings met the regulatory requirements specified in 10 CFR Parts 19 and 20.

- Personnel dosimetry was being worn as required and doses were well within the licensee's procedural action levels and NRC's regulatory limits.

- Radiation monitoring equipment was being maintained and calibrated as required.

- The Radiation Protection Program being implemented by the licensee satisfied regulatory requirements.

- Effluent monitoring satisfied license and regulatory requirements and releases were within the specified regulatory and Technical Specification limits.

Design Changes

- Based on the records reviewed, the inspector determined that the licensee's design change program was being implemented as required.

Committees, Audits and Reviews

- Review and oversight functions required by the Technical Specification were acceptably completed by the Vallecitos Technological Safety Council and the office of regulatory compliance.

Emergency Preparedness

- The emergency preparedness program was conducted in accordance with the requirements stipulated in the Emergency Plan.

Maintenance Logs and Records

- Maintenance logs, records, and performance satisfied Technical Specification and procedure requirements.

REPORT DETAILS

Summary of Plant Status

The licensee's TRIGA Mark I research reactor, licensed to operate at a maximum steady-state thermal power of one hundred kilowatts (100 kW), continues to be operated in support of operator training, surveillance, and utilization involving neutron radiography. During the inspection the reactor was operated on Tuesday, Wednesday and Thursday at full power to conduct neutron radiography. The licensee indicated that transportation of radioactive materials and fuel handling has not been conducted since the previous inspection.

1. Organization and Staffing

a. Inspection Scope (Inspection Procedure [IP] 69001)

The inspector reviewed the following regarding the licensee's organization and staffing to ensure that the requirements of Sections 6.1 of Technical Specifications (TS), Amendment No. 22, dated August 1997, were being met:

- General Electric (GE) Nuclear Test Reactor (NTR) organizational structure and staffing
- management responsibilities and staff qualifications
- staffing requirements for the safe operation of the facility
- Standard Operating Procedure 6.1 "Staffing Requirements" Revision 941, dated September 8, 2004

b. Observations and Findings

The NTR organizational structure and the responsibilities of the reactor management and staff had not changed since the last inspection (see NRC Inspection Report No. 50-73/2004-202). Current licensed staff consisted of the Facility Manager and three other facility staff members two of whom are qualified Senior Reactor Operators (SROs) and the other a qualified Reactor Operator (RO). There was also a Control and Instrumentation Technician on staff at the Vallecitos Nuclear Center (VNC). The licensee employed contract workers to assist with neutron radiography operations.

The reactor operations staff's qualifications satisfied the training and experience requirements stipulated in the TS. The operations log and associated records confirmed that shift staffing met the minimum requirements for duty personnel. Review of records verified that management responsibilities were administered as required by TS and applicable procedures.

c. Conclusions

The organizational structure and staffing were consistent with TS requirements for current operations.

2. Operations Logs and Records

a. Inspection Scope (IP 69001)

To verify that the licensee was operating the reactor and conducting operations in accordance with TS Sections 3 and 6.7 and procedural requirements, the inspector reviewed selected portions of the following:

- NTR Console Log Books, dated from December 1, 2004 - present
- General Electric Nuclear Test Reactor Annual Report No. 44 for the Year 2003, dated March 2004
- General Electric Nuclear Test Reactor Annual Report No. 45 for the Year 2004, dated March 2005
- Scram Reports for 2004
- Unusual Event Report of December 6, 2004, dated December 10, 2004
- Unusual Event Report of December 22, 2004, dated December 30, 2004
- Administrative Procedure 9.16 "Record Collection and Retention" Revision 857, effective February 13, 1995
- Standard Operating Procedure 6.1 "Staffing Requirements" Revision 941, dated September 8, 2004
- Standard Operating Procedure 6.3 "Reactor Log Books" Revision 746, dated February 14, 1992
- Standard Operating Procedure 6.4 "Daily Surveillance Check Sheet" Revision 939, dated May 7, 2004
- Standard Operating Procedure 6.6 "Startup - Shutdown Report" Revision 801, dated September 3, 1993
- Standard Operating Procedure 6.7 "Startup Summary" Revision 652, dated January 26, 1988
- Standard Operating Procedure 6.8 "Control Room Data Sheet" Revision 803, dated August 20, 1993
- Engineering Release 04-26 “Control Rod Operation During Startup” dated December 22, 2004
- Completed SOP 6.4 forms, dated October 1-31, 2004 and September 1-30, 2005
- Completed SOP 6.6 forms, dated October 1-31, 2004 and September 1-30, 2005
- Completed SOP 6.7 forms, dated October 1-31, 2004 and September 1-30, 2005
- Completed SOP 6.8 forms, dated October 1-31, 2004 and September 1-30, 2005

b. Observations and Findings

Reactor operations were carried out following written procedures and TS requirements. The inspector verified that reactor operating characteristics, and other TS and procedure required entries, were logged in the operating log and cross-referenced with other logs and checklists as required. A review of the logs and records indicated that TS operational limits had not been exceeded. Operations records confirmed that shift staffing met the minimum requirements for duty personnel. The inspector determined that reactor operations were carried out following written procedures as required by TS Section 6.4.

Scrams that occurred during reactor operations were recorded on Form SOP 6.6 as well as in the reactor operations log. Scrams that occurred during the inspection period did indicate some problems with the reactor safety systems, but were typically spurious signals and operator error. All scrams were resolved before the resumption of operations under the authorization of the NTR manager. Further investigation of scram trends resulted in the replacement of faulty equipment that was thoroughly reviewed under the licensee's change authorization procedure.

The inspector reviewed two scrams that were manually initiated when the reactor operator could not insert one of the control rods. When the reactor operator scrammed the control rods, the fine control rod would not insert into the core. The TSs and Safety Analysis Report for the NTR specify that only the safety rods automatically scram, which ensures that the reactor will shut down. The licensee determined that the cause of the problem was grease on the limit switch, thus preventing the control system from working properly. The licensee cleaned the limit switch on the control rod, which allowed the control rod to be driven in as expected. The licensee first encountered this problem on December 6, 2004 and again on December 22, 2004. After the second occurrence of this problem, the licensee decided that the limit switch needed to be replaced. The licensee expected to run the reactor two more times before the annual maintenance period, and did so after reviewing the situation with the Regulatory Compliance (RC) office and the Vallecitos Technological Safety Council (VTSC). The licensee created a new procedure to ensure that this situation would not occur while operating with the potentially defective parts. The inspector reviewed this procedure and determined that the reactor was operated safely in accordance with the TSs and the safety basis described in the Safety Analysis Report. The licensee changed out the parts that they believed were contributing to the problem during the annual maintenance period and has not experienced any similar problems since the change.

The inspector conducted observations of the reactor staff operating the reactor on November 10, 2005, and reviewed the NTR Preliminary Checklist, Control Room Data Sheet and Operation Record forms. The inspector noted that the licensed operators on duty were knowledgeable and competent. Observation of operational activities also confirmed that reactor operations were carried out in accordance with written procedures and TS requirements.

c. Conclusions

Operational activities were consistent with applicable TS and procedural requirements.

3. Procedures

a. Inspection Scope (IP 69001)

To verify compliance with TS Section 6.4, the inspector reviewed selected portions of the following:

- administrative controls

- records of changes to procedures
- procedural implementation
- procedure change log
- Administrative Procedure 9.2 "Standard Operating Procedures" Revision 604, dated June 18, 1986
- Administrative Procedure 9.3 "Engineering Release" Revision 728, dated May 15, 1991
- Completed NEO 887 "Engineering Release" forms, dated from January 2004 to present

b. Observations and Findings

Administrative policies and controls had been developed for changing and reviewing procedures. Written changes were reviewed and approved by the NTR Manager and the RC manager as required. Oversight and review of procedure implementation was provided by licensee management. NTR staff members conducted TS activities in accordance with applicable procedures. Records showed that procedures for potential malfunctions (e.g., radioactive releases and contaminations, and reactor equipment problems) were available as required. Temporary changes were implemented by an engineering release form and remained in effect for up to six months or until cancelled by licensee management. The inspector confirmed that procedure changes are reviewed by licensed operators immediately after the procedure change is authorized. The inspector reviewed several of the procedure changes that were initiated during the inspection period and determined that the licensee followed procedural requirements and the changes resulted in safer and more efficient operations.

c. Conclusions

Procedural control and implementation programs satisfied TS requirements.

4. Operator Requalification

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of the following to ensure that the requirements of the Requalification Program were being met:

- status of operator licenses
- operator active duty confirmation
- operator training and examination records
- operator physical examination records
- NTR Console Log Books, dated from December 1, 2004 - present
- Memorandum to NTR staff from E. Ehrlich, "NTR Operator Re-qualification Admin & Program Schedule for Year 2004," dated January 23, 2004
- Memorandum to NTR staff from E. Ehrlich, "NTR Operator Re-qualification Admin & Program Schedule for Year 2005," dated February 9, 2005
- Requalification Program for The General Electric Nuclear Test Reactor, dated June 1987

- Administrative Procedure 9.14 "Reactor Operator Requalification Program" Revision 645, dated July 20, 1987

b. Observations and Findings

The licensees requalification program is described in the program submitted to the NRC and the procedure for the requalification program implements the requirements in the program. The licensee distributes a memorandum to all licensed operators summarizing the requirements for the requalification program for the current year. There are currently four SROs employed at the facility. One SRO is retired and continues to operate the reactor on an infrequent basis. The inspector verified that all of the operators' licenses were current.

Records showed that operators were given written examinations biennially and annual operations tests as required. The inspector noted that operator hours are not logged to ensure compliance with regulatory requirements and the licensee agreed to start logging the hours to ensure that each licensed operator conducts four hours of licensed activities per quarter. The inspector verified that physical examinations of the operators were conducted biennially as required. The inspector also verified that the operators were reviewing the contents of all abnormal and emergency procedures on an annual basis. The inspector confirmed that the requalification program was being administered in a manner that sufficiently maintains the effectiveness of all licensed operators.

During the 2004 requalification cycle, one of the licensed operators was administratively restricted from certain licensed activities (operating the reactor) due to an incident in which the operator was responsible for unintentionally scramming the reactor because of operator inattention. The licensee created a corrective action plan to ensure that the operator understood the responsibilities associated with the console operator position. The inspector reviewed the corrective action plan and verified that the materials contained were sufficient for correcting the deficiency in operator performance.

c. Conclusions

The Requalification Program was implemented satisfactorily, the program was up-to-date, and plan requirements were met.

5. Surveillance

a. Inspection Scope (IP 69001)

To verify that the licensee was meeting the requirements of TS Section 4, the inspector reviewed selected aspects of:

- surveillance, calibration, and test data sheets and records
- Standard Operating Procedure 6.4 "Daily Surveillance Check Sheet" Revision 939, dated May 7, 2004

- Standard Operating Procedure 6.5 "Monthly Surveillance Check Sheet" Revision 452, dated February 1, 1985
- Preventive Maintenance Procedure 12.1 "Fine Control Rod Drive" Revision 913, dated June 15, 1998
- Preventive Maintenance Procedure 12.2 "Coarse Control Rod Drives" Revision 914, dated June 15, 1998
- Preventive Maintenance Procedure 12.3 "Safety Rod Drives" Revision 511, dated March 6, 1985
- Completed SOP 6.4 forms, dated from January 2004 to present
- Completed SOP 6.5 forms, dated from January 2004 to present
- Completed PM #1 (PMP 12.1) forms, dated April 6, 2004 and January 4, 2005
- Completed PM #2 (PMP 12.2) forms, dated January 6, 2004 and January 4, 2005
- Completed PM #3 (PMP 12.3) forms, dated January 3, 2005
- Experiment Approval Forms dated from January 2004 to present

b. Observations and Findings

The inspector noted that selected daily, monthly, quarterly, semiannual, and annual checks, tests, and/or calibrations for TS-required surveillance and Limiting Conditions for Operation (LCO) verifications were completed as required. Several of the TS required surveillances were conducted more frequently then required by the TSs. The verifications were completed on schedule and in accordance with licensee procedures. All the recorded results were within the TS and procedurally prescribed parameters. The records and logs were noted to be complete and were being maintained as required. The licensee used various checklists to track the daily, monthly, and other periodic checks, audits, drills, training, and inspections, as well as verifications for TS required LCOs. These checklists provided clear and concise documentation and control of reactor operational tests and surveillances.

The inspector observed the licensee complete part of the daily surveillance checklist for TS required items on November 10, 2005. All of the items on the checklist were carried out appropriately and the personnel conducting the tests did so in a safe and knowledgeable manner. The inspector verified that all of the checks conducted were in compliance with TS required values and parameters.

c. Conclusions

The licensee's program for completing surveillance inspections and LCO confirmations satisfied TS and licensee administrative controls.

6. Experiments

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of the following to verify compliance with TS Sections 3.7 and 6.8:

- experimental program requirements

- experimental administrative controls and precautions
- Experiment Operations Procedure 10.1 "Experiment Type Approval" Revision 456, dated January 15, 1985
- Experiment Operations Procedure 10.2 "Individual Experiment Review and Approval" Revision 568, dated January 31, 1986
- Experiment Operations Procedure 10.6 "Cable-Held Retractable Irradiation System" Revision 676, dated October 11, 1988
- Experiment Operations Procedure 10.7 "Neutrography of Nonradioactive Material" Revision 669, dated May 17, 1989
- Experiment Operations Procedure 10.9 "Neutrography of Radioactive Material - North Room" Revision 673, dated April 27, 1989
- Completed EOP 10.6 forms, dated from January 2004 to present
- Completed EOP 10.9 forms, dated from January 2004 to present

b. Observations and Findings

There was one experiment frequently conducted at the NTR, which is the routine irradiation of various materials. The two experimental facilities that can be used for sample irradiations are the north and south beam ports and the cable-held retractable irradiation system (CHRIS). Samples can be loaded and unloaded from the beam ports and the CHRIS while the reactor is at power and interlocks are in place to ensure that personnel are not exposed to open neutron beam ports. Samples that have been irradiated at the NTR include explosives, spent fuel and classified materials. The irradiation of power reactor spent fuel at the facility is watched closely and numerous controls are placed on the handling of the spent fuel rods as well as general personnel safety. The experiment authorization forms for each experiment that had been completed for irradiating samples during the inspection period contained the appropriate information, hazards analyses as applicable, and had been reviewed and approved as required by TS and procedure.

No new experiments had been initiated, reviewed, or approved since the previous inspection at the facility. If any experiments were to be initiated, they would be reviewed and approved by the NTR manager, or an SRO, and the RC manager. All new experiments would be completed under the supervision of the NTR manager or SRO and in accordance with TS requirements (e.g., reactivity limitations, corrosion resistance, etc.).

c. Conclusions

The approval and control of experiments met TS and applicable regulatory requirements.

7. Radiation Protection Program

a. Inspection Scope (IP 69001)

The inspector reviewed the following to verify compliance with 10 CFR Part 20 and TS Section 6.3, as well as procedural requirements:

- Personnel quarterly dosimetry results for 2004 to present
- Environmental dosimetry results for 2003 to present
- Memorandum to NTR staff from E. Ehrlich, "NTR ALARA Goals for 2005," dated 2005
- Inventory report "Building 105 Radiation Instruments" dated November 8, 2005
- Nuclear Safety Procedure 3550 "Building 105/NTR Work Routines" Revision 8, dated September 1998
- Nuclear Safety Procedure 5100 "Inventory, Inspection, and Calibration of Instruments Used for Radiation Protection of Personnel," Revision 8, dated June 1994
- Nuclear Safety Procedure 8110 "Radiological Training for VNC Employees," Revision 5, dated August 1988
- Completed NSP 3550 forms, dated from January 2005 to present
- Completed NSP 5100 forms, dated from January 2005 to present
- Completed NEO 289 "Nuclear Safety Survey Record" forms, dated January 2005 to present
- General Electric Nuclear Test Reactor Annual Report No. 44 for the Year 2003, dated March 2004
- General Electric Nuclear Test Reactor Annual Report No. 45 for the Year 2004, dated March 2005
- Summary of 2004 Safety Performance and Activities for General Electric Vallecitos Nuclear Center (VNC), dated March 22, 2005
- Annual Report 2004 for Effluent Monitoring and Environmental Surveillance Programs, dated February 28, 2005

b. Observations and Findings

(1) Surveys

The inspector reviewed daily, weekly, and monthly radiation and contamination surveys of the licensee's controlled areas as well as radiation wipe surveys completed by personnel with the RC / Environmental Health and Safety (EHS) office. The surveys had been completed in accordance with the applicable procedure. The results were documented on the appropriate forms, evaluated as required, and corrective actions taken when readings or results exceeded set action levels. No abnormal elevated readings were discovered during the inspection period. The survey also included a checklist of items to be verified such as the adequacy of warning signs and postings in the area. The number and location of survey points was adequate to characterize the radiological conditions.

Surveys by the RC/EHS staff were conducted in accordance with Nuclear Safety Procedure 3550 and logged on the appropriate forms. These surveys were generally completed weekly and reviewed on a monthly basis by the RC/EHS personnel. Any readings that were unexpected required further evaluation from RC/EHS.

Primary coolant water samples are evaluated annually while secondary coolant water samples are evaluated before release to the environment. Monitoring of the reactor water did not indicate abnormal readings. The samples that were taken indicate that the reactor integrity has not been compromised and shows no trend of breakdown, release, or degradation.

(2) Postings and Notices

The inspector reviewed the postings at the entrances to various controlled areas including the Reactor Bay, and radioactive material storage areas. The postings were acceptable and indicated the radiation and contamination hazards present. The facility's radioactive material storage areas were noted to be properly posted. No unmarked radioactive material was found in the facility. A copy of current notices to workers required by 10 CFR Part 19 was posted at the entrance to the Reactor Cell as well.

(3) Dosimetry

The licensee used a National Voluntary Laboratory Accreditation Program-accredited vendor, Landauer, to process personnel dosimetry. Through direct observation, the inspector determined that dosimetry was acceptably used by facility personnel. For visitors to the facility, an Optically Stimulated Luminescence Dosimeter (OSLD) is issued to each person entering a posted radiation area. Except for escorted tours, whole body counts are conducted for all visitors before and after the visit to the NTR to document any contamination that the individual may have received. Records indicate that no abnormal readings were obtained.

An examination of the records for the inspection period showed that all exposures were well within NRC limits and within licensee action levels. There are currently six people at the NTR facility that are being monitored, in addition to the RC/EHS personnel that perform duties less than full-time at the facility. Extremity monitoring, accomplished through the use of finger rings, also showed relatively low doses to the hands of staff members. All of the personnel associated with the facility received an annual deep dose exposure less than 700 millirem (mrem) for 2004. Current exposure records for 2005 indicate no increased levels in exposures. The licensee intensively monitors radioactive material users if they receive unexpected exposures. The licensee strives to ensure all personnel receive less then 3500 mrem annually.

(4) Radiation Monitoring Equipment

The calibration of portable survey meters and friskers was typically completed by RC/EHS personnel at the calibration lab while fixed radiation detectors and air monitoring instruments were calibrated at the facility using a portable source. The calibration records of portable survey meters, friskers, fixed radiation detectors, and air monitoring equipment in use at the facility were reviewed.

Calibration frequency met the requirements established in the applicable procedures while records were being maintained as required.

During the inspection, the inspector visited the calibration range located in the GE Facilities Maintenance building. An electronics technician who conducts calibrations for portable radiation detectors described the equipment in the facility for the inspector. The calibration records reviewed were thorough and were completed using the appropriate techniques and according to procedure. The inspector observed that proper precautions are always used to maintain doses as low as reasonably achievable (ALARA).

(5) Radiation Protection Program

The inspector verified that the GE radiation protection program was being reviewed annually as required. Part of the annual safety performance and activities summary report ensured that the radiation protection at the NTR facility and the VNC was being conducted as required by the applicable procedures. No issues related to the radiation protection program at the VNC were identified in the audit of the program. The NTR manager set goals for keeping exposures ALARA, which included modifying the method used to conduct neutron radiography. The licensee has not formally evaluated the results of the change yet, since it was recently implemented.

The licensee's radiation protection program is established in the Vallecitos Safety Standards (VSS), which is a group of procedures that lay out effective methods of ensuring safe radiation practices. Procedure VSS 8.1 requires that all personnel who have unescorted access to the NTR (a radiation area) should receive training in radiation protection, policies, procedures, requirements, and facilities prior to entry. The NTR manager is responsible for conducting the training and the inspector noted that the licensee considers radiation safety to be of the highest importance. The training covered the topics required to be taught in 10 CFR Part 19 and the results of an examination indicated that the staff understood what was presented.

(6) Facility Tours

The inspector toured the Reactor Cell and the accompanying utilization facilities. Control of radioactive material and control of access to radiation and high radiation areas were acceptable. The postings and signs for these areas were appropriate. The inspector also determined that there were no measurable releases of gaseous or liquid radioactive material from the research reactor facility.

(7) Environmental Monitoring

The licensee maintains an environmental monitoring program in order to comply with the NRC regulations and other state and locally enforced regulations. Several OSLDs are placed in strategic locations around the VNC site, which is

approximately 1600 acres. Records show that annual doses were generally minimal and always showed exposures to be less than 100 mrem.

Liquid releases from the facility are generally limited to the effluent from the secondary side of the reactor cooling system, which is a once through system. All water that passes through the heat exchanger is collected in a basin on the VNC site and is monitored before release through spray nozzles onto an open field. Review of measurements indicate that there was no measurable amount of radiation in the water released to the environment.

All gaseous releases from the facility are measured with a gaseous effluent monitor. As seen in the annual reports issued by the licensee, the release of gaseous effluents from the facility for the previous two years is less then the limit specified in 10 CFR Part 20. The licensee uses the Environmental Protection Agency computational code "COMPLY," which shows that the licensee is in compliance with 10 CFR 20.1301(a)(1).

c. Conclusions

The inspector determined that : (1) surveys were being completed and documented acceptably to permit evaluation of the radiation hazards present, (2) postings met the regulatory requirements specified in 10 CFR Parts 19 and 20, (3) personnel dosimetry was being worn as required and doses were well within the licensee's procedural action levels and NRC's regulatory limits, (4) radiation monitoring equipment was being maintained and calibrated as required, (5) the Radiation Protection Program being implemented by the licensee satisfied regulatory requirements, and (6) effluent monitoring satisfied license and regulatory requirements and releases were within the specified regulatory and TS limits

8. Design Changes

a. Inspection Scope (IP 69001)

In order to verify that any modifications to the facility were consistent with 10 CFR 50.59 and were reviewed as stipulated in TS Sections 6.2 & 6.3, the inspector reviewed selected aspects of:

- facility design changes and records for the past two years
- facility configuration and associated records
- minor and substantive procedural changes and the associated approval
- General Electric Nuclear Test Reactor Annual Report No. 44 for the Year 2003, dated March 2004
- General Electric Nuclear Test Reactor Annual Report No. 45 for the Year 2004, dated March 2005
- Memorandum to All VNC Area Managers from H. Stuart, "Change Authorization Writing and Review Checklist," dated September 9, 1998
- Administrative Procedure 9.3 "Engineering Release" Revision 728, dated May 15, 1991

- Administrative Procedure 9.4 "Change Authorization" Revision 561, dated February 7, 1986
- Completed NEO 887 "Engineering Release" forms, dated from January 2004 to present
- Completed VNC 3080 "Change Authorization" forms, dated from January 2004 to present

b. Observations and Findings

Through review of applicable records and interviews with licensee personnel, the inspector determined that no significant changes had been initiated and/or completed at the facility since the last inspection. The procedure for change authorizations at the NTR was required to be completed for all changes at the facility. The inspector verified that administrative controls were in place that required the appropriate review and approval of all changes prior to implementation. The RC manager determines whether change authorizations need to be reviewed by the VTSC based on the complexity of the project and the relation to the safety of the reactor and the staff supporting operations. Engineering release forms are also completed to inform operations personnel of operating information and to document NTR activities which are not recorded in the operating log book. The engineering releases are normally approved by an SRO or the NTR manager and the RC manager.

Section 7.b.5 of this report discussed the licensee’s change of neutron radiography support structures to keep personnel exposures ALARA. The inspector reviewed the change authorization for this project and determined that the change was thoroughly reviewed and contained effective methodology for conducting neutron radiography while keeping exposure rates to a minimal level. The change authorization included drawings showing the work flow around the north cell of the reactor as well as a diagram of the proposed change and how it would be implemented. This change authorization was approved by the NTR manager and the RC manager.

The inspector also reviewed other evaluations and corresponding design change packages for various changes. From these reviews, the inspector determined that the facility design change evaluations had adequate supporting documentation and information. Additionally, the inspector found that the 10 CFR 50.59 reviews and approvals conducted by the VTSC for those that were required were focused on safety and met TS and procedural requirements. Post installation verification testing of the systems was thorough and adequately documented when completed. Procedure and drawing changes were included in the change packages and were consistent with TS and procedural requirements for facility changes.

c. Conclusions

Based on the records reviewed, the inspector determined that the licensee's design change program was being implemented as required.

9. Committees, Audits and Reviews

a. Inspection Scope (IP 69001)

In order to verify that the licensee had established and conducted reviews and audits as required in TS Section 6.2 the inspector reviewed selected aspects of:

- VTSC meeting minutes for January 19, March 16, March 30, May 5, and October 28, 2004; and March 25, July 28 and August 8, 2005
- Audit Report "Regulatory Compliance Review of Reactor Control and Safety Systems" dated March 6, 2004
- Audit Report "Regulatory Compliance Review of License Conditions" dated May 21, 2004
- Audit Report "Regulatory Compliance Review of Technical Specifications 6.1, 6.5, and 6.6" dated September 16, 2004
- Audit Report "Regulatory Compliance Review of Technical Specifications 6.4, and 6.7" dated December 15, 2004
- Audit Report "Regulatory Compliance Review of Technical Specifications 3.1, 3.4, 4.1, 4.4, and 5.3" dated April 15, 2005
- Audit Report "Regulatory Compliance Review of Technical Specifications 3.3, 4.3, and 5.2" dated June 23, 2005
- Audit Report "Regulatory Compliance Review of Technical Specifications 5.1 and 6.2" dated October 6, 2005
- VSS 1.1, "Charter - Vallecitos Technological Safety Council," Revision 7, dated August 1994, PCN dated January 26, 2004
- VSS 1.1.1, "VTSC Membership Listing," Revision 16, dated August 31, 2004

b. Observations and Findings

TSs do not require a safety committee be established for the NTR, however, the licensee has established the VTSC for all activities at the VNC. A charter is established for the VTSC and the inspector verified that the council is following all aspects of the charter. The VTSC membership satisfied the council's procedural rules. The VTSC had quarterly meetings and a quorum was always present as required. Review of the minutes indicated the VTSC provided guidance, direction and oversight, and ensured suitable use of the reactor. The minutes provided an acceptable record of VTSC review functions and of VTSC safety oversight of reactor operations.

Operations audits were performed by an RC staff member and met the TS requirements. The audits appeared to be acceptable. The inspector noted that the safety reviews and audits, and the associated findings, were acceptably detailed and that the NTR staff were supportive of the audits. During review of the audits, the inspector noted that there were no minor nor significant issues discovered.

c. Conclusions

Review and oversight functions required by the TS were acceptably completed by the VTSC and the office of regulatory compliance.

10. Emergency Preparedness

a. Inspection Scope (IP 69001)

The inspector reviewed selected aspects of:

- Training Records for Emergency Support, SCBA Training and Fit Test, and General Emergency Response
- Emergency Drill Summary and Critique for drills held on December 9, 2003 and December 16, 2004
- Vallecitos Nuclear Center Reactor Facilities Radiological Emergency Plan (E-Plan), revised November 2003, dated October 1981
- Annual Review Program for Radiation Control Office Staff Members with Emergency Response Responsibilities, dated January 20-21, 2004 and February 1, 2005
- Letter of Agreement (LOA) between the licensee and the ValleyCare Medical Center
- documentation of the emergency drills held in 2003 and 2004 and the follow-up critiques
- Site Emergency Procedure A-5, "Emergency Control Procedure - General," Revision 2 dated June 1994
- Site Emergency Procedure E-5, "Radiation Emergency Procedure - General," Revision 1 dated July 1995
- Site Emergency Procedure F-5, "Confrontation Procedure," Revision 0 dated August 1984
- Site Emergency Procedure G-5, "Procedure for Control of Civil Disorder," Revision 1 dated July 1995
- Site Emergency Procedure Emergency Preparedness Instruction EPI-2, "Tests, Drills and Exercises," Revision 1 dated August 1995
- Completed NS-8400 "RM&D Emergency Locker Supplies" forms for Building 105, dated January 2 and July 3, 2004, and January 3 and July 3, 2005

b. Observations and Findings

The inspector reviewed the E-Plan in use at the VNC and verified that the E-Plan was audited biennially as required. The Site Emergency Procedures were reviewed and revised as needed to ensure effective implementation of the E-Plan. Emergency facilities, instrumentation, and equipment were being maintained and controlled, and supplies were being inventoried semi-annually as required in the E-Plan. The inspector verified that an LOA had been established with the ValleyCare Medical Center.

Through direct observation, records review, and interviews with emergency organization personnel (i.e., Emergency Operations Coordinator's (EOC's), the inspector determined that they were capable to respond, and knowledgeable of the proper actions to take in case of an emergency. The building emergency team is responsible for responding to an emergency during normal working hours and making initial assessment and corrective and protective actions. The responsibility and authority for directing and coordinating emergency response activities are assigned to the EOC. The on-site monitors are the first EOC's at the VNC until management is called, when they can relieve the on-site monitor from EOC duties. All EOC's and responders receive annual training specific to their duties during an emergency. All other workers on site go through general emergency response training. The inspector noted that all NTR licensed operators are specifically trained for any type of emergency at the NTR building.

Emergency drills had been conducted annually as required by the E-Plan. All drills held were practical exercises involving evacuations of the NTR building. Critiques were written and discussed following the drills to document the strengths and weaknesses identified during the exercises and to develop possible solutions to any problems noted. Drill scenarios were challenging and involved response by most of the support organizations. Critiques indicated that the E-Plan was properly implemented. Drills involving off-site agencies have not been planned due to difficulties in setting a schedule for the other agencies to participate. The drill for 2005 is currently being planned and will occur before the end of the year.

c. Conclusions

The emergency preparedness program was conducted in accordance with the requirements stipulated in the Emergency Plan.

11. Maintenance Logs and Records

a. Inspection Scope (IP 69001)

To verify that the licensee was meeting the requirements of their Preventive Maintenance Program and complying with TS Section 5, the inspector reviewed selected aspects of:

- General Electric Nuclear Test Reactor Annual Report No. 44 for the Year 2003, dated March 2004
- General Electric Nuclear Test Reactor Annual Report No. 45 for the Year 2004, dated March 2005
- Memorandum to All VNC Area Managers from H. Stuart, "Change Authorization Writing and Review Checklist," dated September 9, 1998
- NTR Preventive Maintenance Log
- Administrative Procedure 9.3 "Engineering Release" Revision 728, dated May 15, 1991
- Administrative Procedure 9.4 "Change Authorization" Revision 561, dated February 7, 1986

- Administrative Procedure 9.15 "Preventive and Corrective Maintenance Programs" Revision 461, dated January 18, 1985
- Completed SOP 9.15 Exhibit #3 forms, dated from January 2004 to present
- Completed NEO 887 "Engineering Release" forms, dated from January 2004 to present
- Completed VNC 3080 "Change Authorization" forms, dated from January 2004 to present

b. Observations and Findings

The inspector reviewed the maintenance records related to 2004 and 2005 scheduled and unscheduled preventive and corrective maintenance activities. Routine/preventive maintenance was controlled and documented in the NTR Preventive Maintenance Log. This review indicated that all maintenance activities were controlled and documented in the maintenance and/or operations log consistent with the requirements in 10 CFR 50.59.

All like for like replacements were reviewed by completing a corrective maintenance form, while all changes to systems as part of facility maintenance were reviewed by completing a change authorization. Implementation of changes to equipment, systems, tests or experiments are done by any of the SROs or the instrumentation technician at the facility. After all maintenance items are completed, system operational checks are performed to ensure the affected systems function before returning them to service. This included a statement signed by the NTR manager indicating that the system had been tested for operation and that the reactor was approved for operation.

During a facility tour the inspector noted that Control Room and Reactor Room equipment was operational. No missing or malfunctioning equipment was noted. Equipment, and the facility in generally, appeared to be well maintained.

c. Conclusions

Maintenance logs, records, and performance satisfied TS and procedure requirements.

12. Follow-up on Previous Open Items

a. Inspection Scope (IP 69001)

The inspector reviewed the actions taken by the licensee following identification of Inspector Follow-up Items during a previous inspection.

b. Observations and Findings

(1) IFI 50-73/2004-202-01 - Review and correct the reference to TS Section 3.4.3.5 by Section 4.4.3.2.

NRC Inspection Report No. 50-73/2004-202, dated April 28, 2004, outlined the situation. During that inspection, the inspector noted that TS Section 4.4.3.2 refers to surveillance on the reactor cell and ventilation system to demonstrate compliance with the limiting conditions for operation specified in TS Section 3.4.3.5. The current TS labeled "NEDC 327, Class 1, August 1997" did not contain a TS Section 3.4.3.5. The licensee management acknowledged this finding and indicated that a revision will be submitted to correct this error. The licensee's initial evaluation was that a typographical error was made.

During this inspection, the inspector confirmed that the licensee requested an amendment to the TSs and the NRC issued a change to the TSs that eliminated the incorrect reference. This issue is considered closed.

(2) IFI 50-73/2004-202-02 - Record the name of the "second person" required for reactor operations.

NRC Inspection Report No. 50-73/2004-202, dated April 28, 2004, outlined the situation. During that inspection, the inspector observed that the reactor operations log did not name the person fulfilling the position specified in TS Section 6.1.3.1(b). The reactor supervisor stated that the small staff and close location of office space to the reactor results in a clear but unwritten identification of the "second person" required during reactor operations. However, the reactor operations manager stated that the record keeping practices and procedure will be revised to require the operators to record the name of the second person.

During this inspection, the inspector confirmed that the licensee was recording the additional person in the facility on the daily surveillance forms (SOP 6.4). This issue is considered closed.

c. Conclusions

The issue regarding the incorrect reference in the TSs was closed. The issue regarding the recording of a second person in the facility for reactor operations was closed.

13. Exit Interview

The inspection scope and results were summarized on November 10, 2005, with members of licensee management. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee. Although proprietary information was reviewed during the inspection no such material is included in this report.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Ayala, Specialist, Radiation Monitoring
C. Bassett, Manager, Facilities and Quality Assurance
E. Ehrlich, Manager, Nuclear Test Reactor
T. Peterson, Senior Reactor Operator
D. Smith, Senior Reactor Operator
H. Stuart, Specialist, Radiological Engineering
D. Thomas, Senior Reactor Operator
D. Turner, Manager, Regulatory Compliance and EHS

INSPECTION PROCEDURE USED

IP 69001: Class II Non-Power Reactors

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

50-73/2004-202-01	IFI	Review and correct the reference to TS Section 3.4.3.5 by Section 4.4.3.2.
50-73/2004-202-02	IFI	Record the name of the "second person" required for reactor operations.

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
ALARA	As Low As Reasonably Achievable
CFR	Code of Federal Regulations
CHRIS	Cable-Held Retractable Irradiation System
E-Plan	Emergency Plan
EHS	Environmental Health and Safety
EOC	Emergency Operations Coordinator
GE	General Electric
kW	kilowatt
LOA	Letter of Agreement
LCO	Limiting Conditions for Operation
MREM	Millirem
NRC	Nuclear Regulatory Commission
NTR	Nuclear Test Reactor

OSLD	Optically Stimulated Luminescence Dosimeter
PARS	Publicly Available Records
RC	Regulatory Compliance
RO	Reactor Operator
SRO	Senior Reactor Operator
TS	Technical Specification
VNC	Vallecitos Nuclear Center
VSS	Vallecitos Safety Standards
VTSC	Vallecitos Technological Safety Council