UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

DEC 20 1990

DOCKET NO: 70-754

LICENSE NO: SNM-960

LICENSEE: General Electric Company (GE)
Vallecitos Nuclear Center
Pleasanton, California

SUBJECT: SAFETY EVALUATION REPORT (SER) - REMOVAL OF RADIOLOGICAL CONTINGENCY PLAN

Background

In a request for license renewal dated April 21, 1989, GE requested removal of its Radiological Contingency Plan for the Vallecitos Nuclear Center (VNC) under 10 CFR 70.22(i)(1)(i). In this request, GE provided an analysis of potential accidents under its current licensed operating conditions and has concluded that a Radiological Contingency Plan for its Special Nuclear Material License No. SNM-960 is no longer necessary.

The GE VNC, located in Pleasanton, California, is authorized by NRC License No. SNM-960 to possess 50 kilograms of U-235 enriched to less than 10 percent, 4 kilograms of U-235 enriched to more than 10 percent, 500 grams of Plutonium, and 200 grams of U-233, all in unsealed form. The actual holdings of special nuclear material (SNM) have decreased to a level below one effective kilogram as recognized by Safeguards License Amendment No. MPP-2. VNC is a research and development facility primarily in support of GE and customer nuclear energy programs. Byproduct sealed sources are also manufactured at the facility for commercial distribution. The license is currently active pursuant to the timely renewal provisions of 10 CFR 70.33(b) pending completion of the environmental and safety reviews of the license renewal application.

VNC is currently required under its reactor license (R-33) and by GE corporate policy to have an active site emergency plan. This amendment does not alter the requirements of any emergency plans other than the plan incorporated under License No. SNM-960.

Discussion

Pursuant to 10 CFR 70.22(i)(1), each application to possess enriched uranium or plutonium for which a criticality accident alarm system is required, uranium hexafluoride in excess of 50 kilograms in a single container or 1000 kilograms total, or in excess of 2 curies of plutonium in unsealed form or on foils or plated sources, must contain either: (1) an evaluation showing that the maximum dose to a member of the public offsite due to a release of radioactive materials would not exceed 1 rem effective dose equivalent or an intake of 2 milligrams of soluble uranium, or (2) an emergency plan for responding to the radiological hazards of an accidental release of SNM and to any associated chemical hazards directly incident thereto. GE has opted to provide an evaluation under the first condition.

The only type of accidents identified in "Regulatory Analysis of Emergency Preparedness for Fuel Cycle and Other Radioactive Material Licensees," NUREG-1140, for which protective action guide doses, or the 2-milligram soluble uranium intake, could theoretically be exceeded are a UF_6 cylinder rupture, a fire, or a criticality accident. Each accident is considered below:

UF_6 Cylinder Rupture: No UF_6 is used at VNC.

Fire: The release of radioactive material by fire was last addressed in the "General Electric Vallecitos Nuclear Center Safety Evaluation Report, May 1984," pp. 53-55, through reference of the NRC Final Draft, "Accident Analysis for the General Electric Company Vallecitos Nuclear Center at Pleasanton, California, Related to License Renewal of Special Nuclear Material License No. SNM-960," October 1978. The 1978 draft presents bounding scenarios of releases by fire with potential site boundary doses between 9.8×10^{-5} to 50 rem. The May 1984 renewal of License No. SNM-960 severely reduced the authorized activities at the site. None of the operations resulting in the bounding scenarios for the 1978 draft are currently licensed activities and no new activities have been licensed since 1984. Of the areas identified in the draft as having a potential for serious accidents due to fire, only the Radioactive Materials Laboratory (RML) activities in Building 102 and Building 103 still utilize SNM. The 1978 draft notes that because of the ventilation and filtration systems and the small quantities of SNM used in the RML cells, the release of SNM from a fire in the RML is limited to quite small quantities.

In view of the above, fire is not a credible scenario for requiring an emergency plan.

Accidental Criticality: GE uses criticality controls based on an evaluation of normal environmental conditions and on all credible abnormal conditions that could affect criticality safety in an area. After evaluating the subcriticality of individual accumulations, process configurations, or arrays of fissile material, GE creates administrative and physical controls such that two or more unlikely, independent, and concurrent accidents or changes in process conditions must occur before a criticality event is credible. Therefore, a criticality event is extremely unlikely.

However, in order to provide a boundary dose evaluation in case of criticality, an evaluation of a criticality in the fuel vault in Building 103 was made. The fuel vault was determined to be the bounding condition because it has a fissile limit larger than most other criticality limit areas on site, and it is nearest the site boundary. It was assumed that some major event occurs which allows double the normally allowed amount of fissile material to be present in the vault in an optimally moderated and reflected condition resulting in a criticality event where a single burst occurs which displaces the U-235 so that no additional criticality events occur. Using Regulatory Guide 3.34, radiation doses at the nearest site boundary were calculated to be 0.35 rem effective dose equivalent and 0.30 rem to the thyroid. These values are significantly below the guidelines of 1.0 rem effective dose equivalent and 5.0 rem to the thyroid which require an emergency plan.

Region V Comments

The proposed removal of the emergency plan requirement was discussed with Charles Hooker of Region V. He stated no objection to its removal.

Conclusion

Based on the discussion above, I believe the amendment can be issued without undue risk to the workers, the public, or the environment. Therefore, I recommend the issuance of this license amendment be granted.

Original Signed by

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[GE RCP REMOVAL SAFETY EVAL.]

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