



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 70 TO PROVISIONAL OPERATING LICENSE NO. DPR-13
SOUTHERN CALIFORNIA EDISON COMPANY
SAN ONOFRE NUCLEAR GENERATING STATION, UNIT NO. 1
DOCKET NO. 50-206

1.0 INTRODUCTION

By letter dated August 11, 1982, as modified by letter dated September 13, 1982, Southern California Edison Company (the licensee) proposed changes to the Technical Specifications for San Onofre Nuclear Generating Station, Unit No. 1. These changes would (1) exclude tritium from the definition of \bar{E} used in calculating the specific activity limit of the reactor coolant in accordance with Technical Specification 3.1.1.A.2, (2) modify the frequency for performing reactor coolant and secondary coolant gross activity determinations from three times per week at intervals no less than 30 hours, to once every 72 hours, (3) add the operational modes during which the sampling frequencies for reactor coolant and secondary coolant apply, and (4) make administrative changes that would add a footnote referencing the definition of \bar{E} , correct the numbering of two existing footnotes, and add the specific activity limit, $100/\bar{E}$, $\mu\text{Ci/gm}$, for completeness.

A Notice of Consideration of Issuance of Amendment and Proposed No Significant Hazards Consideration Determination and Opportunity for Hearing related to the requested action was published in the Federal Register on August 23, 1983 (48 FR 38423). A request for hearing and public comments were not received.

2.0 DISCUSSION AND EVALUATION

2.1 Proposed Exclusion of Tritium from the Definition of \bar{E}

Technical Specification 3.1.1.A.2 specifies a limit of $<100/\bar{E}$ $\mu\text{Ci/gm}$ for the maximum specific activity of the reactor coolant. \bar{E} is defined in the same technical specification as "the average (weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling) of the sum of the average beta and gamma energies per disintegration (in MEV) for isotopes, other than iodines, with half lives greater than 15 minutes, making up at least 95% of the total non-iodine activity in the coolant." The specific activity in the reactor coolant is limited to ensure that the two-hour radiological dose at the site boundary will not exceed the limits of 10 CFR Part 100 in the event of an accidental release.

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Southern California Edison has proposed deleting tritium from the definition of \bar{E} . The licensee has indicated that tritium is the predominant long-lived radionuclide in the reactor coolant system of San Onofre Unit No. 1. In contrast to other radionuclides such as noble gases, tritium emits only low energy betas (0.0186 MeV) and no gammas and does not contribute significantly to the two-hour radiological dose. Therefore, by including tritium in the calculation of \bar{E} , the result is weighted by a relatively large fraction of low energy betas thereby depressing the value of \bar{E} . This in turn, means that the specific activity limit ($100/\bar{E}$) is higher than if tritium is not considered in the calculation of \bar{E} . The tritium activity will continue to be measured as apart of the gross activity determination.

Based on the review of the licensee's submittals, the NRC staff finds that deleting tritium from the definition of \bar{E} will result in a lower, more conservative limit for the maximum specific activity of the reactor coolant as calculated from $100/\bar{E}$. Therefore, the staff concludes that the proposed change is acceptable.

2.2 Modify Frequency for Performing Reactor Coolant and Secondary Coolant Gross Activity Determinations

Items 1a.1 and 1b.1 of Table 4.1.2 of the Technical Specifications specify the frequency for performing gross activity determinations for the reactor coolant and secondary coolant, respectively. Currently, the sampling frequency for both is "3 times/week at time intervals no less than 30 hours." The licensee's application would change both sampling frequencies to once every 72 hours.

This proposed change is a slight relaxation in the sampling frequency (e.g., once every three days versus, on the average, once every 2 1/3 days); however, the proposed sampling frequency is consistent with the provisions of the Standard Technical Specifications for Westinghouse Pressurized Water Reactors, NUREG-0452, Revision 4. Further, under the current specification, an individual sample could be taken more than 72 hours after the previous sample. Based on its review, the staff finds that the slight reduction in average sampling frequency will not have a significant effect on the detection of changes in gross activity in either the reactor or secondary coolant. The staff concludes that the proposed change is acceptable.

2.3 Addition of Applicable Operational Modes for Sampling

Table 4.1.2 of the current Technical Specifications does not indicate the applicable operational modes during which reactor coolant and secondary coolant should be sampled and analyzed. As indicated in the Standard Technical Specifications for Westinghouse Pressurized Water Reactors, Revision 4, most analyses/determinations of the type shown on Table 4.1.2 are not required to be performed in all six operational modes. Southern California Edison has proposed adding operational modes to Table 4.1.2.

2.3.1 Reactor Coolant

The licensee has proposed that the gross activity determination for the reactor coolant (Item 1a.1) be performed during modes 1 through 6. This means that sampling and analyses will be performed during all operational modes. The staff concludes that the proposed operational modes are acceptable.

The licensee has proposed that the isotopic analysis for dose equivalent I-131 concentration (Item 1a.2) and the spectroscopic determination for \bar{E} (Item 1a.3), both from reactor coolant samples, be required only during Mode 1. This is consistent with the Westinghouse Standard Technical Specifications, Revision 4. For the case of the isotopic analysis for dose equivalent I-131 concentration, the licensee stated that during operational modes other than Mode 1, a significant increase in iodine concentration will show up in the gross activity determination and can be monitored as part of that determination. For the case of the spectroscopic determination for \bar{E} , the licensee has stated that during operational modes other than Mode 1, the rate of production of fission products is insignificant; hence, this analysis is not required in the other modes.

The dose equivalent I-131 concentration and the value of \bar{E} are used to determine whether the specific activity of the reactor coolant is within acceptable limits. Based on its review, the staff has found that the licensee's proposed sampling program, which would include isotopic analysis for dose equivalent I-131 concentration and the spectroscopic determination for \bar{E} during Mode 1 operation only, will provide adequate determination of the reactor coolant specific activity. The staff concludes that the proposed change is acceptable.

2.3.2 Secondary Coolant

Southern California Edison has proposed that the gross activity determination and the isotopic analysis for dose equivalent I-131 concentration for the secondary coolant be required during Modes 1, 2, 3, and 4. This is consistent with the Standard Technical Specifications for Westinghouse Pressurized Water Reactors, Revision 4.

In Modes 5 and 6 (cold shutdown and refueling), the reactor coolant and secondary coolant are both unpressurized. The potential for radioactive release from the reactor coolant to the secondary coolant is insignificant during these modes. Accordingly, the gross activity determination and the isotopic analysis for dose equivalent I-131 concentration is not required during Modes 5 and 6 for the secondary coolant. The staff concludes that the licensee's proposed operational modes for these analysis are acceptable.

2.4 Administrative Changes

There are three administrative changes to Table 4.1.2 of the Technical Specifications proposed by the licensee. The first change adds a footnote to the table to reference specification 3.1.1.A.2 for the definition of \bar{E} . The second change corrects the numbering of two footnotes that apply to Items 1a.3 and 1a.4 of Table 4.1.2. The third change adds the limit of $100/\bar{E}$ $\mu\text{Ci/gm}$ to Item 1a.4 of Table 4.1.2 for completeness. This limit is already part of the limiting conditions for operation of Section 3.1.1 of the Technical Specifications. None of these changes have any safety significance; rather, they provide corrections or clarification of existing technical specifications. Based on its review the staff concludes that these changes are acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

The staff has determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, the staff has further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4); that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner; and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ACKNOWLEDGEMENT

W. Paulson prepared this evaluation.

Dated: December 6, 1983