



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 39 TO FACILITY OPERATING LICENSE NO. DPR-54
SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO NUCLEAR GENERATING STATION
DOCKET NO. 50-312

Introduction

By a letter dated May 21, 1975, and subsequently revised in letters dated November 28, 1975, February 9, 1977 and June 21, 1979, Sacramento Municipal Utility District (SMUD or the licensee) proposed to amend Facility Operating License No. DPR-54 for the Rancho Seco Nuclear Generating Station, by submitting a revision to the Technical Specifications. The proposed changes were submitted in response to our February 28, 1975, request and consist of the addition of Limiting Condition for Operation (LCO) 3.13 and Surveillance Requirement (SR) 4.19 and revisions to SR 4.10, 4.11 and 4.12.

Discussion

Our letter to SMUD of February 28, 1975, indicated the need for the Rancho Seco Technical Specifications to include an LCO and additional requirements within the SRs in order to assure confidence that engineered safety feature (ESF) air filter systems would function reliably when required, and at a degree of efficiency equal to or greater than that assumed in previously performed accident analyses. SMUD initially responded to our request on May 21, 1975, and following discussions with the NRC staff, modified their response in letters dated November 28, 1975, February 9, 1977 and June 21, 1979.

SMUD's proposed changes to the Technical Specifications included:

- (1) Addition of a new LCO (3.13) which addresses the emergency control room filtering system, the auxiliary and spent fuel building filter system, and the reactor building emergency filter system.
- (2) Revision to SR 4.10 and 4.12 which increases the number and the frequency of the tests to be performed in order to verify the operability of the emergency control room filtering system and the reactor building emergency filtering system.
- (3) Deletion of the present SR 4.11, which addresses the reactor building purge filtering system, and its replacement by an SR which addresses the auxiliary and spent fuel building filter systems.
- (4) Addition of a new SR 4.19, which adds SRs for the auxiliary building grade and mezzanine level filter system.

The proposed changes would expand the present Technical Specifications and were proposed by SMUD so that the specified filter test program would conform to the objectives of the model Technical Specifications included in our letter of February 28, 1975.

Evaluation

Our evaluation was based upon Positions C.5 (in-place testing criteria) and C.6 (laboratory testing criteria for activated charcoal) of Regulatory

Guide 1.52, Revision 2, "Design, Testing, and Maintenance Criteria for Atmospheric Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants", and on the Standard Technical Specifications for ESF air filtration systems for Babcock and Wilcox (B&W) nuclear reactors (NUREG-0103).

The Technical Specifications proposed by SMUD would provide an LCO which specifies the required operator action if the particular ESF filter system is found inoperable. The SR revisions increase the frequency and the number of tests to be performed to demonstrate that the system is operable, and the additional SRs increase the number of systems for which tests will be performed.

The following sections discuss the proposed Technical Specifications for each ESF filter system.

Emergency Control Room Filtering System

The LCO (3.13) proposed by SMUD addresses the operability of the various ESF filter systems. The operability of the emergency control room filtering system is addressed in 3.13.1 and 3.13.3. They require the system to be operable at all times and specify the period of time for which the system may be inoperable and what steps the reactor operator must take if the system continues to be inoperable. SMUD proposed a period of 7 days for which this system may be inoperable. At the end of this period, hot shutdown procedures would be initiated if the system were still inoperable. Since the emergency control room filtering system is not a redundant system, it is our position that the

period of time for which this system may be inoperable should be less than 7 days. By limiting the period of inoperability to half of that for redundant filter systems, the probability of the control room filtering system being inoperable in the event of an accident is reduced, thus providing a greater margin of safety. We discussed our position with SMUD and the licensee has agreed to the 3.5-day time period for the system to be inoperable. With this change, those portions of the proposed LCO 3.13 addressing the emergency control room filtering system are determined to be acceptable.

The present SR 4.10 requires in-place leak detection tests on the HEPA filter and on the charcoal adsorber during each refueling interval and following any maintenance which may affect the structural integrity of the filtration units or the housings.

SMUD has proposed modifications to SR 4.10. These modifications include:

- (1) quarterly demonstration of operability of the system through the generation of flow through the HEPA filters and charcoal adsorbers;
- (2) performance of in-place leak detection tests in accordance with ANSI N510 once per refueling interval or once every 18 months, following painting, fire or chemical release in the operating air makeup system;
- (3) the addition of laboratory analysis of charcoal adsorber material at the frequency specified in (2) above and after 720 hours of system operation;
- (4) verification that the system will actuate on a high radiation signal;
- (5) verification of system operation at a given flow rate; and
- (6) verification that the control room will be maintained at a positive pressure relative to the outside atmosphere.

SMUD has proposed to lower the present in-place testing efficiencies for DOP tests and for halogenated hydrocarbon tests from 99.9% and 99.5%, respectively, to $\geq 99\%$. The efficiencies presented in the present Technical Specifications more closely reflect the requirements of Regulatory Position C.5 of Regulatory Guide 1.52 than the efficiency proposed by the licensee. In addition, no evidence has been presented by the licensee which indicates that meeting this requirement has been a problem. We discussed with SMUD our position that the in-place leak detection efficiencies for the HEPA filters and charcoal adsorbers should remain at their present values. SMUD has agreed to keep the present in-place testing efficiencies. SMUD has proposed that this filter system be demonstrated as operable on a quarterly basis by initiation of flow through the ventilation/cooling system and demonstrating that the outside air makeup system flow is $40 \text{ cfm} \pm 20\%$. It is our position that the system should be demonstrated operable on a monthly basis (once per 31 days) by initiation of flow through the HEPA filters and charcoal adsorbers. We have discussed our position with SMUD and the licensee has agreed to this position.

The licensee has proposed a removal efficiency of $\geq 90\%$ for the charcoal adsorber's laboratory analysis for methyl radioiodine. Based upon the filter efficiency of 90% claimed by SMUD in the accident evaluation to show conformance with GDC 19, the laboratory analyses should show $\geq 95\%$ removal efficiency. This position was discussed with SMUD. SMUD has agreed to change the removal efficiency from 90% to 95%.

SMUD also proposed that certain tests be performed on a refueling cycle interval, after each partial or complete replacement of the HEPA filter bank or the charcoal adsorber bank, and following painting, fire or chemical release in the operating air makeup system. It is our position that such tests should also be performed after any structural maintenance on the HEPA filter or charcoal adsorber housings. We discussed this position with SMUD, and SMUD has agreed to include this requirement in SR 4.10.B. We also indicated to SMUD that item B of SR 4.10 should include a test to verify system flow rate, and that the test should be performed in accordance with ANSI N510. SMUD agreed, and this requirement was added as Item 7 of SR 4.10.B. We find all other modifications to SR 4.10 acceptable.

With the increased in-place testing frequency, the addition of laboratory analysis of the charcoal adsorber material for methyl radioiodine removal and other tests which have been added, we find the above changes to the Technical Specifications proposed by SMUD, together with the modifications we have recommended, will ensure increased confidence that the system will be operable when called upon and that the system will perform at the level assumed for in the operating license Safety Evaluation Report (SER) (June 8, 1975).

Auxiliary and Spent Fuel Building Filter

SMUD proposed in LCO 3.13 that only one of the auxiliary and spent fuel building filter units be operable and that if both filter units become inoperable, the reactor must be in hot shutdown within 12 hours. This filter system is used to filter the releases from the fuel handling building and to

filter the air from areas housing Emergency Core Cooling System (ECCS) equipment. We find this addition of the portion of the proposed LCO 3.13 addressing the auxiliary and spent fuel building filter unit to be acceptable for the ECCS equipment. However, it was our position, based upon the doses calculated for a fuel handling accident at the operating license stage SER, that the auxiliary and spent fuel building filter system must be operating whenever spent fuel movement occurs unless the spent fuel has decayed for a continuous 30-day period. After such a decay period, the doses would be less than those calculated for the fuel handling accident with the auxiliary and spent fuel building filter system operating. If neither filter system is operable, then all fuel handling operations involving the movement of fuel within the storage pool or crane operations with loads over the storage pool shall be suspended if fuel with less than 30 days continuous decay is stored in the spent fuel pool or involved in the operation. We discussed this position with SMUD, and they agreed to the addition of these conditions to Specification 3.13.2 of LCO 3.13. With this addition, Specification 3.13.2, which addresses the auxiliary and spent fuel building filter system, is acceptable.

SMUD proposed a revised SR 4.11 to address the auxiliary and spent fuel building filter system. The SRs for this system are nearly identical to those proposed for the emergency control room filtering system. Consequently, we recommended to SMUD that proposed SR 4.11 incorporate most of the changes we had recommended for SR 4.10. The recommendation that was not appropriate was the monthly demonstration of operability which SMUD has already proposed.

We find the proposed changes by SMUD when modified by our recommendations will ensure increased confidence that the system will be operable when called upon and that the system will perform at the level assumed in the operating license SER.

Reactor Building Purge Exhaust Filtering System

SMUD proposed deleting the present SR 4.11 which addresses the reactor building purge exhaust filtering system. SMUD contended that this system does not perform any safety function and therefore ESF filter Technical Specifications are not required. Revision 2 to proposed Amendment 32 had included an SR addressing this system. We have reviewed SMUD's proposed deletion and have determined that credit for this filtering unit was assumed for a fuel handling accident inside containment. Therefore, it is our position that this system should be added to LCO 3.13 and conditions addressing operator actions be incorporated for when the system is inoperable. We discussed this position with the licensee, and the licensee has informally proposed such actions with which we concur, and these actions have been added to LCO 3.13.

With the inclusion of this system as an ESF grade system and as a part of LCO 3.13, SRs are required. After reaching agreement on the LCO, the licensee informally proposed SRs which address their filter system. We have reviewed this proposal and have concurred with the SRs with the exception that we proposed similar modifications to these SRs as were recommended for SR 4.10. In addition, the content of one of the SRs reflects an LCO rather than an SR

and therefore should be incorporated into LCO 3.13 as 3.13.4. These suggested changes were discussed with the licensee, and he has concurred with these changes.

The present SR 4.11 requires in-place leak testing of the charcoal adsorber and HEPA filters once per refueling interval and after any maintenance which could affect the structural integrity of the filtration units or the housings. The increased frequency of in-place testing and the addition of laboratory analysis of the charcoal adsorber for methyl radioiodine and other tests proposed by SMUD, when modified by our recommendations, will ensure increased confidence that the system will be operable when called upon and that the system will perform at the level assumed for in the operating license SER.

Reactor Building Emergency Filtering System

SMUD proposed that the reactor building emergency filtering system be added as a part of LCO 3.13 and that the present SR 4.12 be modified to increase the frequency of the tests and number of tests performed to demonstrate operability of the system. Our review of the accident evaluation presented in the June 8, 1973 operating license SER indicates that no credit was given for this system in the Loss of Coolant Accident (LOCA) analysis and that, in addition, the system does not qualify as an ESF grade system. Therefore, it is our position that this system should not be included in LCO 3.13 and that SR 4.12 should be deleted. The licensee has agreed to this position. With the deletion of the present SR 4.12, SR 4.11, which was proposed for the auxiliary and spent fuel building filter systems, will be numbered SR 4.12.

Auxiliary Building Grade and Mezzanine Levels Filter System

In their June 21, 1979 letter, SMUD indicated that they had determined that a previously unmonitored release point was available from the auxiliary building to the environment. This area was at grade level in the auxiliary building and contained the solid radwaste drumming station, hot machine shop, makeup tank, various radwaste filters and demineralizers, and access to the auxiliary building basement. SMUD did not identify a specific design basis accident for this area, however, they did indicate that the makeup tank was a likely candidate.

SMUD has decided to install the auxiliary building grade and mezzanine levels filter system to handle potential airborne contaminants from this area and proposed SRs which categorize the filter system as an ESF grade filter system. We have reviewed this filter system, and it is our position that steps should be taken to ensure that this is no longer an unmonitored release point. However, we have concluded that this system is not an ESF grade system and therefore, SR 4.19 is not required. The rationale for this conclusion is based upon:

- (1) there is no design basis accident which has been recognized for this area of the plant;

- (2) an analysis of a rupture of the Makeup Tank showed that the resultant dose would be a small fraction of 10 CFR Part 100 limits; and
- (3) the Makeup Tank is a Seismic Category I tank.

The licensee has agreed to this position.

Summary

We have concluded the proposed changes to SRs 4.10, 4.11, and 4.12, and the addition of LCO 3.13, when modified by our comments, are acceptable changes.

Environmental Considerations

We have determined that the amendment does not authorize a change in effluent types or an increase in total amounts of effluent nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR Section 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.

Conclusion

We have concluded, based the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated, does not create the possibility of an accident of a type different from any evaluated previously, and does not involve a significant reduction in a margin of safety, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will

not be endangered by operation in the proposed manner, and (3) 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.

Dated: September 13, 1982

The following NRC personnel have contributed to this Safety Evaluation:

J. Hayes and M. Padovan.