50-261

Docket File

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NOV 13 1979

MEMORANDUM FOR: A. Schwencer, Chief, Operating Reactors Branch No. 1, DOR

FROM: G. Knighton, Chief, Environmental Evaluation Branch, DOR

SUBJECT: H. B. ROBINSON, UNIT-2, FILTER TECHNICAL SPECIFICATION AMENDMENT

Plant Name: H. B. Robinson Steam Electric Plant Unit 2
Docket Number: 50-261
Responsible Branch: ORB #1
Project Manager: D. Neighbor
Review Status: EEB - Complete

The Environmental Evaluation Branch has reviewed the March 15, 1979 letter from Carolina Power and Light Company (the licensee) requesting changes to the Technical Specifications for its H. B. Robinson Steam Electric Plant, Unit No. 2. These changes were in response to our Safety Evaluation (SE) approving a request for increase of power from 2200 MWT to 2300 MWT. In the SE we have stated that current technical specifications do not include operability and surveillance requirements on the control room ventilation system necessary to support our assumptions for our control room habitability analysis. By the letters transmitting the technical specification change requests, the licensee has submitted proposed changes to satisfy the staff's concern. After review of the proposed technical specifications, together with the changes agreed by the licensee by telephone discussion with the project manager and the EEB staff, we find the proposed amendment to be acceptable for the support of the staff's control room dose analysis.

The licensee has also submitted, by letter of March 6, 1979, a request to change the wording in the technical specifications on the test methods of carbon samples from the Spent Fuel Building Filter System and the Containment Purge Filter System. The proposed change would require the tests be performed in accordance with ANSI/ASME N509-1976 criteria. We find this change to be acceptable.

Contact:
R. Lo, DOR/EEB
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7912050529

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OFFICE						
SURNAME						
DATE						

Enclosure 1 (which includes the Negative Declaration) is suitable for inclusion in the safety evaluation for this amendment. Enclosure 2 is the revised Technical Specification.

Original signed by
George W. Knighton
George W. Knighton, Chief
Environmental Evaluation Branch
Division of Operating Reactors

Enclosures:
As Stated

cc: D. Eisenhut
J. Miller
W. Gammill
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DATE	11/5/79	11/6/79	11/7/79	11/13/79	

Safety Evaluation by the Office of Nuclear
Reactor Regulation Supporting Amendment
No. __ to License No. DPR-23
Carolina Power & Light Company
H. B. Robinson Steam Electric Plant, Unit No. 2
Docket No. 50-261

Introduction

By letters of March 6, 1979 and March 15, 1979 Carolina Power and Light Company (the licensee) submitted proposed Technical Specifications to amend the license (DPR-23) for H. B. Robinson Steam Electric Plant, Unit No. 2. This Safety Evaluation reviews the proposed Technical Specifications 3.8.2, 3.15, 4.12 and 4.15 which would change the limiting conditions for operating and the surveillance requirements for the Spent Fuel Building filter system, the Containment Purge filter system and the Control Room filter system.

Discussion and Evaluation

In the Safety Evaluation Report, Supplement No. 2 in support of an amendment to the licensee's Facility Operating License No. DPR-23 for the H. B. Robinson Steam Electric Plant No. 2 allowing a power increase from 2200 MWt to 2300 MWt, the Nuclear Regulatory Staff concluded, in part, the following:

> "The current Technical Specifications in the Robinson 2 license do not include operability and surveillance requirements necessary to support our assumptions about automatic control room isolation on a safety injection signal or about the iodine removal efficiency of the charcoal filter used in the recirculation mode of the control room ventilation system. By letter dated April 14, 1978, the licensee has committed to propose Technical Specifications on these two existing

systems to assure the assumptions for our control room dose analysis are appropriate. From our analysis, we find the radiation protection provisions of the Robinson control room acceptable."

The Technical Specifications submitted by the licensee would satisfy the above concern and assure the assumptions for the control room dose analysis are appropriate.

Technical Specification 3.15 requires the Control Room filter system to be operable during all modes of reactor operation, except cold shutdown, to ensure that the control room will remain habitable during an accidental atmospheric radioactivity release. Technical Specification 4.15 specifies the surveillance requirements to verify that the control room filter system is operable and would provide the degree of protection assumed in the Safety Analysis on habitability of Control Room during postulated accidents. Technical Specification 4.15 also requires the verification of system response upon a containment isolation signal such that the system switches automatically into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks. The proposed amendment to the Control Room filter system technical specifications is determinated to be acceptable to satisfy the staff's concern on the operability and surveillance requirements necessary to support the staff's assumptions used to analyze Control Room habitability during postulated accidents.

The licensee has also proposed to modify Technical Specification 3.8.2.b to require the laboratory analysis of carbon samples of the Spent Fuel Building filter system and the containment purge filter system be performed in accordance with the test method of 5.b of Table 5-1 of ANSI/ASME N509-1976 with the exception

that the relative humidity of air be required to be $\geq$ 70. The requirement of the relative humidity is not changed from the existing technical specifications. To require the test to be in accordance with the ANSI/ASME standard is acceptable for the demonstration of methyl iodide removal efficiency to be equal or greater than 90 percent.

Environmental Considerations

We have determined that the amendment does not authorize a change in effluent types of a significant increase in the total amounts of effluents 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 51.5(d)(4), that an environmental impact statement or negative declaration and an environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the consideration 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.

3.15 CONTROL ROOM FILTER SYSTEM

Applicability

Applies to the Control Room filter system which is required for the safe operation of the plant. This system incorporates both HEPA filters and a charcoal adsorber bank.

Objective

To provide limiting conditions for operation which ensure the operability of the filter system during plant operation, such that normal operation or accidential plant conditions requiring operation of the system will not result in consequences more severe than those previously analyzed.

Specification

3.15.1 During all modes of operation, except cold shutdown, the Control Room filter system shall be capable of performing its intended function in the required manner, except as described below:

a. If the system is determined to be inoperable, it shall be returned to operable status within seven days, or in lieu of any other report, prepare a Special Report which shall be submitted to the Commission within the next 14 days. This report shall outline the cause of the inoperability, the corrective actions taken, and the plans and schedule for restoring the system to an operable status.

3.15.2 If the system is determined to be inoperable while the reactor is in cold shutdown, the system shall be made operable prior to reactor startup.

Basis

Operability of the Control Room filter system ensures that the Control Room will remain habitable during an accidential atmospheric radiation

release to the extent that none of the occupants would receive a personnel radiation exposure in excess of 10 percent of the suggested limits in 10CFR100[1]. Because the system's protection is required only during low probability events, the system may be out of service for 7 days for repairs. Following this period, a Special Report detailing the status of the system will be submitted to the Commission. Since reactor startup should not commence without this system in service, the specification prohibits startup with the system inoperable.

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(1) FSAR Section 7.7.1

4.15 CONTROL ROOM FILTER SYSTEM

Applicability

Applies to the fan, associated charcoal adsorber bank, and HEPA filters of the Control Room filter system.

Objective

To verify that the Control Room filter system will adequately remove radioactivity from the incoming ambient air should there be an accidental radiation release to the atmosphere.

Specification

4.15.1 At least once per operating cycle or after 720 hours of system operation, whichever comes first, and (1) after structural modifications on the HEPA filter or charcoal adsorber housing which would adversely affect the air flow distribution and (2) following significant painting, fire, or chemical release in any ventilation zone communicating with the system, the following tests shall be performed:

a. Verify that the system flow rate is equal to the design flow rate $\pm$ 10 percent.

b. Verify that the charcoal adsorbers remove $\geq$ 99 percent of a halogenated hydrocarbon refrigerant test gas when they are tested in-place while the ventilation system is operating at a flow equal to the design flow $\pm$ 10 percent.

c. Verify that the HEPA filter banks remove $\geq$ 99 percent of the DOP when they are tested in-place in accordance with ANSI N101.1 (1972) while operating the ventilation system at a flow equal to the design flow $\pm$ 10 percent.

d. Verify by way of a laboratory test that the system's carbon demonstrates a methyl iodine removal efficiency of $\geq$ 90 percent. The test shall be conducted in accordance with ANSI N509-1976, Table 5-1, Test 5b. The required carbon samples may be obtained by the following methods:

1. One sample obtained from a test canister designed to ANSI N509-1976. The sample must be at least two inches in diameter and with a length equal to or greater than the thickness of the cell's adsorber bed.

2. Two samples obtained by emptying an adsorber cell and mixing the carbon thoroughly. The samples must be at least two inches in diameter and with a length equal to or greater than the thickness of the cell's adsorber bed.

4.15.2 At least once per operating cycle, the following test shall be performed:

a. Verify that the pressure drop across the combined HEPA filters and charcoal adsorber bank is < 6 inches Water Gauge at system design flow rate $\pm$ 10 percent.

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4.15.3 After each complete or partial replacement of the carbon adsorber bank, perform the tests under Specification 4.15.1b.

4.15.4 After each complete or partial replacement of the HEPA filter bank, perform the tests under Specification 4.15.1c.

4.15.5 The associated fan unit in the Control Room filter system shall be verified operable monthly.

b. Verifying that on a containment [redacted] isolation test signal, the system automatically switches into a recirculation mode of operation with flow through the HEPA filters and charcoal adsorber banks.

Basis

Determination that the system is operating at design flow ± 10 percent indicates that the fan is operating at or near the design point on its operating curve. Operation of the fan at flows significantly different from the design flow will change the removal efficiency of the HEPA filters and carbon adsorbers.

The frequency of in-place testing and sample analysis are necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated under postulated accident conditions. Any HEPA filters found defective shall be replaced with the filters qualified pursuant to Regulatory Position C.3.d of NRC Regulatory Guide 1.52. If the carbon fails to pass the laboratory test, all adsorbent in the system shall be replaced with an adsorber qualified according to Table 5.1 of ANSI N509-1976.

If significant painting, fire, or chemical release occurs such that the HEPA filters or carbon adsorbers could become contaminated from the fumes, chemicals, or foreign material, the same in-place testing and sample analysis shall be performed as required for operational use. The determination of whether the incident is significant enough to warrant the testing shall be made by the Shift Foreman on duty. Knowledgeable staff members should be consulted prior to making this determination.

A pressure drop across the combined HEPA filters and charcoal adsorbers of less than 6 inches of water at the system design flow rate ± 10 percent will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter.

j. If any of the specified limiting conditions for refueling are not met, refueling of the reactor shall cease; work shall be initiated to correct the conditions so that the specified limits are met; and no operations which may increase the reactivity of the core shall be made.

k. The reactor shall be subcritical as required by 3.10.8.3 with $T_{avg} \leq 140°F$.

3.8.2 The Spent Fuel Building filter system and the Containment Purge filter system shall satisfy the following conditions:

a. The results of the in-place cold DOP and halogenated hydrocarbon tests at greater than 20 percent design flows on HEPA filters and charcoal adsorber banks shall show $\geq$99 percent DOP removal and $\geq$99 percent halogenated hydrocarbon removal.

b. ~~The results of~~ Verify by way of a laboratory carbon sample analysis from the Spent Fuel Building filter system carbon and the Containment Purge filter system carbon ~~shall~~ to show $\geq$90 percent radioactive methyl iodide removal in accordance with test 5.b of Table 5-1 of ANSI/ASME N509-1976 except that $\geq$ 70 percent relative humidity air is required.

c. All filter system fans shall be shown to operate within $\pm$10% of design flow.

d. During fuel handling operations, the relative humidity (R.H.) of the air processed by the refueling filter systems shall be $\leq$70 percent.

e. From and after the date that the Spent Fuel Building filter system is made or found to be inoperable for any reason, fuel handling operations in the Spent Fuel Building shall be terminated immediately.

TABLE 4.1-3 (Continued)

		Check	Frequency	Maximum Time Between Tests
13.	Turbine Inspection	Visual, Magnaflux and Die Penetrant	Every five years	6 years
14.	Fans and Associated Charcoal and Absolute Filters for Control Room and Residual Heat Removal Compartments (HVE-19, HVE-5a and 5b respectively)	Fans functioning. Laboratory tests on charcoal must show ≥ 99% iodine removal. In-place test must show ≥ 99% removal of polydispersed DOP particles by the HEPA filters and Freon by the charcoal filters.	Once per operating cycle.	NA
15.	Isolation Seal Water System	Functioning	Each refueling shutdown	NA

*NA - Not applicable

4.12 REFUELING FILTER SYSTEMS

Applicability

Applies to fans and associated charcoal adsorber banks and HEPA filters for Spent Fuel Building filter system and Containment Purge filter system.

Objective

To verify that the refueling filter systems will adequately remove radioactivity that may be released accidentally into the Spent Fuel Building and Containment Building.

Specification

4.12.1 At least once per operating cycle, the following conditions shall be demonstrated:

a. Pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6 inches of water at system design flow rate.

b. Fan capacity shall be within ± 10% of the design flow.

4.12.2 a. The tests of Specification 3.8.2.a for the refueling filter systems shall be performed initially, and at least once per operating cycle prior to each refueling outage operation or after every 720 hours of system operation whichever occurs first.

b. The tests and sample analysis of Specification 3.8.2.b for the refueling filter systems shall be performed initially, at least once per operating cycle prior to

each refueling outage operation or after every 720 hours of system operation, whichever occurs first, and following significant painting, fire, or chemical release in any ventilation zone communicating with the filter system.

c. Cold DOP testing shall be performed after each complete or partial replacement of a HEPA filter bank or after any structural maintenance of the filter system housing.

d. Halogenated hydrocarbon testing shall be performed after each complete or partial replacement of a charcoal adsorber bank or after any structural maintenance on the filter system housing.

e. A uniform air distribution within ± 20% across HEPA filters and charcoal adsorbers must be demonstrated initially and after each major repair or modification to the systems which would affect the air distribution.

4.12.3 The relative humidity of the air processed by the refueling filter system shall be monitored hourly during fuel handling operations.

Basis

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than 6 inches of water at the system design flow rate will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter. Pressure drop and fan capacity should be determined a least once per operating cycle to show system performance capability.

The frequency of tests and sample analysis are necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated under postulated accident conditions. The charcoal adsorber efficiency test procedures should allow for the removal of one adsorber tray, emptying of one bed from the tray, mixing the adsorbent thoroughly and obtaining at least two samples. Each sample should be at least two inches in diameter and a length equal to the thickness of the bed. If test results are unacceptable, all adsorbent in the system shall be replaced

with an absorbent qualified according to Table 5.1 of ANSI/ASME N509-1976. The replacement tray for the adsorber tray removed for the test should meet the same adsorbent quality. Tests of the HEPA filters with DOP aerosol shall be performed in accordance to ANSI N101.1. Any HEPA filters found defective shall be replaced with filters qualified pursuant to Regulatory Position C.3.d of Regulatory Guide 1.52.

The Containment Purge filter system is normally run continuously during the entire refueling outage to provide cooling and ventilation and periodically during plant operation to reduce airborne radioactivity leaks inside the containment. Operation time of the Containment Purge filter system after the fuel handling operation is completed should not be added to the operation time during fuel handling operations for determination of testing and surveillance requirements given in these specifications.

If significant painting, fire, or chemical release occurs such that the HEPA filter or charcoal adsorber could become contaminated from the fumes, chemicals, or foreign material, the same laboratory tests and sample analysis shall be performed as required for operational use. The determination of significant shall be made by the operator on duty at the time of the incident. Knowledgeable staff members should be consulted prior to making this determination.

The relative humidity of the Containment atmosphere and air downstream of the heaters in the Spent Fuel Building filter system shall be monitored at least hourly to assure that the R.H. is less than 70 percent during fuel handling and Containment Purge filter system operation.