J. Lee

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Docket No. 50-261

FEB 26 1982

MEMORANDUM FOR: Thomas M. Novak, Assistant Director
for Operating Reactors, DL

FROM: R. Wayne Houston, Assistant Director
for Radiation Protection, DSI

SUBJECT: TAC-47889 - SAFETY EVALUATION FOR THE CHANGE IN THE APPENDIX A OF LICENSE NO. DPR-23, H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

Attached are an environmental impact appraisal and a safety evaluation which address Carolina Power and Light Company's request for a change to LCO 3.9.1.4 of H. B. Robinson's, Unit No. 2, Appendix A to license DPR-23. In accordance with a discussion with the licensee on Feburary 18, 1982, we have made two minor editorial corrections on Carolina Power and Light Company's submittal on page 3.9-3. We find the proposed change acceptable.

This review was conducted by J. Lee (x27637), coginzant engineer for this facility, of the Effluent Treatment Systems Branch, DSI.

Original Signed by
R. Wayne Houston

R. Wayne Houston, Assistant Director
for Radiation Protection
Division of Systems Integration

Attachments:
As stated

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SAFETY EVALUATION FOR AMENDING OF APPENDIX A TO
OPERATING LICENSE NO. DPR-23
H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261

INTRODUCTION

Carolina Power and Light Company (the licensee) requested in their letter dated January 28, 1982, that Limiting Condition for Operation (LCO) 3.9.1.4 and its basis in Appendix A to Operating License No. DPR-23, be amended to allow the use of the H. B. Robinson, Unit No. 1, (a fossil plant) circulating water pump discharge flow as a back-up source for dilution in calculating the release rate of radioactive liquid effluent from Unit No. 2 during periods when the Unit No. 2 circulating water pumps are out of service. The main condenser circulating water intakes for Unit Nos. 1 and 2 are located on Lake Robinson, just east of the plant, and discharged via the discharge canal at a point about four miles north of the plant. Discharge flow rates are 482,000 gpm with three Unit No. 2 circulating water pumps operating and 87,000 gpm with two Unit No. 1 circulating water pumps operating. Both units share the same discharge canal. The radioactive liquid effluent from Unit No. 2 enters the Unit No. 2 circulating water discharge pipe before it reaches the discharge canal. Circulating water from both Unit Nos. 1 and 2 is dicharged into the canal through separate circulating water pipe at a close proximity to one another. The canal is approximately four miles long. The amendment requested will allow the licensee to discharge the radioactive liquid effluent from Unit No. 2 with Unit No. 1 circulating water flow for the required dilution while Unit No. 2 circulating pumps are out of service. In any given situation regarding a liquid waste release, the ratio of release rate to dilution flow will remain the same.

EVALUATION

The staff has conducted an independent review of the potential radiological impact associated with the proposed amendment to Appendix A to the license and found that the amending of LCO 3.9.1.4 and its basis, as proposed, will not result in (1) any increase of radioactivity concentration in the discharge canal or in the lake, and (2) any additional releases of radiaoctive liquid effluent. The change only allows a reduced radioactive liquid effluent discharge rate by maintaining the same ratio of discharge rate to dilution water flow rate available. The use of Unit No. 1 circulating water pump discharge (providing less dilution flow) will proportionally reduce the allowable radioactive liquid discharge rate from Unit No. 2. The annual average release rate limits of unidentified radionuclides (26 mCi/day), exclusive of tritium, and the annual average release rate of tritium (10.5 Ci/day) specified in LCO 3.9.1.1 remain the same. The licensee will revise the plant operating procedures governing radioactive liquid releases and the liquid waste release permit forms when this amendment is approved and issued.

CONCLUSION

Based upon the above evaluation, the staff concludes that the health and safety of the public will not be endangered by amending LCO 3.9.1.4 and its basis. In addition, the amending of this LCO will not increase the probability or consequences of accidents and does not involve a decrease in safety margin nor involve a significant hazards consideration.

ENVIRONMENTAL IMPACT APPRAISAL FOR
AMENDING APPENDIX A OF OPERATING LICENSE NO. DPR-23
H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261

Carolina Power and Light Company is presently licensed to operate H. B. Robinson Steam Electric Plant, Unit No. 2, in Darlington County, South Carolina. There is one pressurized water reactor at the site capable of generating 2200 MWt of power. The proposed amending of Limit Condition for Operation (LCO) 3.9.1.4 and its basis of the unit's Appendix A technical specifications will not affect the reactor power level nor the fuel burnup and, therefore, not affect the benefits of the electrical power production considered in the Commission's Final Environmental Statement, Docket No. 50-261.

A. Radiological Impact

As evaluated in the associated Safety Evaluation, the proposed requests, do not affect the conclusions of the SER which were that the radioactivity release rates specified in LCO 3.9.1 would result in concentrations in the circulating water and in the lake that are well below the concntration limits of 10 CFR 20, Appendix B, Table II, Column 2.

B. Conclusion

On the basis of the foregoing evaluation, it is concluded that there would be no significant environmental impact attributable to the amending of LCO 3.9.1.4 and its basis. As a result of this conclusion, the Commission has further concluded that no environmental impact statement for the proposed action need be prepared and that a negative declaration to this effect is appropriate.

3.9 RADIOACTIVE EFFLUENTS

Applicability

Applies to the gaseous and liquid radioactive effluents from the plant.

Objective

To assure that radioactive material is not released to the environment in an uncontrolled manner and to assure that any material released is kept as low as practicable and, in any event, is within the limits of 10 CFR Part 20.

Specification

It is expected that releases of radioactive material in effluents will be kept at small fractions of the limits specified in Section 20.106 of 10 CFR Part 20. At the same time the licensee is permitted the flexibility of operation, compatible with considerations of health and safety, to assure that the public is provided a dependable source of power even under unusual operating conditions which may temporarily result in releases higher than such small fractions, but still within the limits specified in Section 20.106 of 10 CFR Part 20. It is expected that in using this operational flexibility under unusual operating conditions the licensee will exert his best efforts to keep levels of radioactive material in effluents as low as practicable.

3.9.1 Liquid Wastes

3.9.1.1 The release rate of radioactive liquid effluents shall be such that the annual average concentration of radionuclides in the circulating water discharge does not exceed the limits specified in 10 CFR 20, Appendix B, for unrestricted areas. This condition will be met by ensuring that:

a. The annual average release rate of unidentified radionuclides will not exceed 26 mCi/day, exclusive of tritium, and the annual average release rate of tritium will not exceed 10.5 Ci/day or

b. Measuring the activities of specific radionuclides in the discharge and adding to the equilibrium activity in Lake Robinson.

3.9.1.2 The concentration of radioactive liquid effluents when averaged over a period of 8 hours shall not exceed 10 times the value permitted by 3.9.1.1 above.

3.9.1.3 Prior to release of liquid waste, a sample shall be taken, and analyzed for beta-gamma activity and tritium activity to demonstrate compliance with 3.9.1.1 and 3.9.1.2 above.

3.9.1.4 During release of liquid radioactive wastes, the following conditions shall be met:

a. A least one condenser circulating water pump shall be in operation. The Unit #2 circulating pumps shall be used when available. When the Unit #2 circulating water system is out-of-service, the Unit #1 circulating pumps shall be employed.

b. The gross activity monitor in the discharge in the discharge shall be operable.

3.9.2 Gaseous Wastes

3.9.2 The annual average release rates of gaseous wastes shall be limited as follows:

$$\Sigma \frac{Qi}{(MPC)_i} \leq 5.0 \times 10^4 \ (m^3/sec)$$

where Q_i is the annual release rate (Ci/sec) of any radioisotope, i, and $(MPC)_i$ in units of uCi/cc are defined in Column 1, Table II of Appendix B to 10 CFR 20, except that for isotopes of iodine and particulates with half lives greater than 8 days, the values of $(MPC)_i$ shall be reduced by a factor of 1/700.

3.9.2.2 The maximum averaged release rate over 15 minutes shall not exceed ten times the yearly average limit of 3.9.2.1.

3.9.2.3 Prior to release of gaseous wastes, the contents of the gas holdup tank shall be sampled and analyzed for radioactivity to determine compliance with 3.9.2.1 and 3.9.2.2 above.

3.9.2.4 During release of gaseous wastes to the plant vent, the following conditions shall be met:

a. At least one auxiliary building exhaust fan shall be in operation.

b. The plant vent activity monitor shall be operable during discharges, or the containment and plant vent monitor shall be sampling from the stack.

3.9.2.5 During power operation, whenever the air ejector discharge monitor is inoperable, gas discharge from the air ejector will be routed to the plant vent for monitoring.

Basis

Liquid wastes from the Radioactive Waste Disposal System are diluted in the Circulating Water System discharge, and then released to the lake via the discharge canal.(1) With the three Unit #2 circulating pumps operating, the rated capacity of the Circulating Water System is 482,000 gpm. ~~(~~With both Unit #1 circulating pumps operating, their flow to the discharge canal ~~would~~ will be 87,000 gpm.~~)~~ The actual circulating water flow under various operating conditions will be calculated ~~water flow under various operating conditions will be calculated~~ from the head differential across the pumps and the manufacturer's head-capacity curves. Because of the low radio-activity levels in the circulating water discharge, the concentration of liquid radioactive effluents at this point cannot be measured directly. The concentrations in the circulating water discharge will be calculated from the measured concentration in the Waste Condensate Tank, the flow rate of the Waste Condensate Tank, the flow rate of the Waste Condensate Pumps, and the flow in the Circulating Water System. To this released concentration it is necessary to add the concentration of radionuclides in the Circulating Water. This concentration is significant because the circulating water flow is usually greater than the flow through Lake Robinson. The method of calculating the equilibrium concentration of radinuclides in Lake Robinson will be as detailed in the FSAR.(2)