



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 49 TO FACILITY OPERATING LICENSE NO. NPF-30

UNION ELECTRIC COMPANY  
CALLAWAY PLANT, UNIT 1  
DOCKET NO. STN 50-483

1.0 INTRODUCTION

By letter dated August 2, 1989, Union Electric Company (the licensee) proposed revisions to Technical Specification 3/4.3.3, Radiation Monitoring for Plant Operations. The revisions would increase the permitted period of inoperability for one channel of the control room air intake monitors (GK RE-04 and 05) and the fuel building atmosphere monitors (GG RE-27 and 28) from 1 hour to 72 hours.

2.0 DISCUSSION

As described in the Callaway Final Safety Analysis Report (FSAR), the control room ventilation radioactivity monitors continuously monitor the supply air of the normal heating, ventilation, and air conditioning (HVAC) system for particulate, iodine, and gaseous radioactivity to provide protection for the control room operators in the event of high airborne radioactivity in the control room HVAC supply duct. Upon detection of high radiation levels in the system the monitors automatically place the control room ventilation system in the emergency mode of operation.

The fuel building ventilation exhaust radioactivity monitors continuously monitor for particulate, iodine, and gaseous radioactivity in the fuel building ventilation exhaust system for the protection of the workers in the fuel building. In the event of a fuel handling accident, the monitors initiate isolation of the fuel building and operation of the emergency exhaust system.

3.0 EVALUATION

Anytime either of the systems is placed in its emergency mode, a pressure gradient is created across the doors to these areas. This results in two areas of concern; a personnel hazard to people who have to open and pass through these doors, and added wear and tear on these doors which may cause premature failure. Additionally, unnecessary running of the ventilation systems may cause premature wear. Increasing the time that these radiation monitors can be out of service will allow radiation monitor repair or service to be completed and have the monitors placed back in service without unnecessarily starting emergency ventilation equipment.

Radiation monitors GK RE-04 and 05 provide an isolation signal to the Control Room Emergency Ventilation System, when incoming outside air increases to a specified radiation level. Either monitor will send an isolation signal to both safety trains of the Control Room Emergency Ventilation System. Technical Specifications presently require that, if either GK RE-04 or 05 becomes inoperable for more than 1 hour, the control room is isolated from the outside by placing the Control Room Emergency Ventilation System in service. If the ventilation system is left in its normal line-up after taking one radiation monitor out of service, the redundant radiation monitor remains operable and capable of supplying an isolation signal should radiation levels in the incoming air increase to the specified setpoint. The additional allowed outage time (from 1 to 72 hours) with one radiation monitor out of service or inoperable is insignificant when compared to the probability of an event which requires actuation, coincident with a failure of the remaining operable detector. Additionally, Technical Specification 3.7.6, which concerns the Control Room Emergency Ventilation System, allows one of its two safety trains to be out of service for 7 days.

In view of the above and the insignificant decrease in automatic emergency system actuation capability, the staff concludes that this change is acceptable. The staff notes that with two radiation monitors out of service or inoperable, both the present and proposed Technical Specifications require isolation of the Control Room Emergency Ventilation System and initiation of Control Room Emergency Ventilation System operation in the recirculation mode within 1 hour.

Radiation Monitors GG RE-27 and 28 present a similar situation. These monitors provide a Fuel Building Isolation Signal to the Fuel Building Ventilation System and start the Emergency Exhaust System. The Emergency Exhaust System creates a small negative pressure in the fuel building, by directing all exhausting air through two sets of redundant HEPA and charcoal filters. Technical Specifications presently require that the Emergency Exhaust System be started and the normal ventilation system secured if one of these two redundant radiation monitors becomes inoperable for more than 1 hour. If the Fuel Building Ventilation System is left in its normal line-up after either GG RE-27 or 28 becomes inoperable, the remaining operable redundant radiation monitor will be available to provide the required Fuel Building Isolation Signal when radiation levels in the fuel building increase to a specified setpoint. The additional allowed outage time (from 1 to 72 hours) with one radiation monitor out of service or inoperable is insignificant when compared to the probability of an event which requires actuation, coincident with a failure of the remaining operable detector. Additionally, Technical Specification 3.7.7, which concerns the Emergency Exhaust System, allows one of its two safety trains to be out of service for 7 days. Also, during fuel movement, health physics personnel are present with portable radiation monitors.

In view of the above and the insignificant decrease in automatic emergency system actuation capability, the staff concludes that this change is also acceptable. The staff notes that with two radiation monitors out of service or inoperable, both the present and proposed Technical Specifications require isolation of the Fuel Building Ventilation System and initiation of Emergency Exhaust System operation within 1 hour.

Based on the above discussions, the staff finds that lengthening the allowed outage time to 72 hours for radiation monitors GK RE-04 or 05 and for GG RE-27 or 28 is acceptable.

#### 4.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change to a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or a change to a surveillance requirement. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

#### 5.0 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.

#### 6.0 ACKNOWLEDGEMENT

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Dated: January 5, 1990