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W3F1-94-0113  
A4.05  
PR

June 22, 1994

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555

Subject: Waterford 3 SES  
Docket No. 50-362  
License No. NPF-38  
Technical Specification Change Request NPF-38-154

Gentlemen:

The attached description and safety analysis supports a change to the Waterford 3 Technical Specifications. The proposed change replaces the generic Control Room Outside Air Intake radiation monitor alarm/trip setpoint with a site specific setpoint. This proposed change is an effort to reduce the number of unplanned actuations of the Engineered Safety Feature portion of the Control Room Ventilation System.

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Should you have any questions or comments concerning this request, please contact Paul Caropino at (504)739-6692.

Very truly yours,



R.P. Barkhurst  
Vice President, Operations  
Waterford 3

RPB/PLC/ssf

Attachment: Affidavit  
NPF-38-154  
Reference List

cc: L.J. Callan, NRC Region IV  
D.L. Wigginton, NRC-NRR  
R.B. McGehee  
N.S. Reynolds  
NRC Resident Inspectors Office  
Administrator Radiation Protection Division  
(State of Louisiana)  
American Nuclear Insurers



DESCRIPTION AND SAFETY ANALYSIS  
OF PROPOSED CHANGE NPF-38-154

The proposed change revises the alarm/trip setpoint for the Control Room Intake Monitors in Technical Specification (TS) Table 3.3-6 item 2b.

Existing Specification

See Attachment A

Proposed Specification

See Attachment B

Description

TS Table 3.3-6 currently specifies the alarm/trip setpoint for the Control Room Outside Air Intake (CROAI) radiation monitors as  $\leq 2x$  background. The proposed change replaces the current CROAI setpoint with a set value of  $\leq 4.09 \times 10^{-5}$  micro curies per cubic centimeter, which is not dependent on background radiation.

The CROAI radiation Monitors play a vital role in Control Room Habitability and therefore are subject to requirements appearing in General Design Criteria (GDC) 19 of Appendix A 10CFR50, NUREG 0800 (Standard Review Plan) Section 6.4, NUREG 0737 III.D.3.4, and 10CFR20.

As part of the Control Room Ventilation System, the CROAI radiation monitors help to insure that during normal operation and design bases accident conditions, the maximum airborne radioactive concentrations in air breathed by control room personnel is as low as is reasonably achievable and within the limits specified in Appendix B Table 1 of 10CFR20.

The CROAI radiation monitors measure airborne activity levels in the CROAI ducts. In the event high airborne activity is detected, a signal is generated to isolate the normal CROAI ducts, place the Control Room Ventilation System in recirculation mode, and start the Control Room Emergency Ventilation System.

The current setpoint of  $\leq 2x$  background is the generic setpoint recommended in the Combustion Engineering Standard Technical Specifications, NUREG-0212 (Reference 1). The intent of this setpoint is to establish a trip setpoint that is high enough to avoid spurious actuations yet low enough to protect plant operators from excessive occupational radiation exposure.

The proposed setpoint of  $\leq 4.09 \times 10^{-5}$   $\mu\text{Ci}/\text{cc}$  is a plant specific setpoint derived from an engineering calculation (Reference 2). Expected annual quantities and concentrations of released radioactive materials were obtained from FSAR Tables 11.3-5, 11.3-6 and 11.3-8 (Reference 3). This data was used to calculate the activity rate at the CROAI monitor locations and inside the control room.

The new alarm/trip setpoint is based on radioactive material concentrations in the control room not exceeding the Derived Air Concentration (DAC) occupational values listed in 10CFR20, Appendix B, Table 1, Column 3. The proposed setpoint has been conservatively adjusted to account for instrument uncertainty and drift.

This proposed TS change is part of an effort to reduce unplanned actuations of the Engineered Safety Feature (ESF) portion of the Control Room Ventilation System. Since 1984, Waterford 3 has experienced numerous Control Room Emergency Filtration System actuations due to the high alarm trip on the CROAI monitors (Reference 4 lists 22 Licensee Event Reports). While the root cause for most of these events has been determined and corrective action taken, 2 events remain indeterminate. It is hoped that by changing the CROAI monitor alarm setpoint to a fixed value, independent of background radiation, spurious Control Room Ventilation System actuations can be reduced and thus improve plant safety.

The word "Water" was inadvertently omitted from Table 3.3-6 item 2.e, when replacement page 3/4 3-29 was issued pursuant to Amendment 91 (Reference 5). This minor editorial fix has been flagged on Attachment B.

#### Safety Analysis

The proposed change described above shall be deemed to involve a significant hazards consideration if there is a positive finding in any of the following areas:

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No

The proposed change replaces the current CROAI radiation monitor alarm/trip setpoint of  $\leq 2x$  background with a fixed value independent of background radiation. The new setpoint will continue to provide protection to plant personnel such that occupational radiation exposure is maintained within the limits of 10CFR20 during normal plant operations, anticipated operational occurrences or design basis accidents.

Therefore, the proposed change will not involve a significant increase in the probability or consequences of any accident previously evaluated.

2.

Will operation of the facility in accordance with this proposed change create the possibility of a new or different type of accident from any accident previously evaluated?

Response: No.

The proposed change will replace the generic CROAI radiation monitor alarm/trip setpoint with a setpoint derived from a site specific calculation. The proposed change will not alter the operation of the plant or the manner in which it is operated.

Therefore, the proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Will operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

Response: No

The proposed change will replace the current CROAI radiation monitor setpoint with a new setpoint that will ensure occupational radiation exposure will not exceed the DAC limits of 10CFR20. The proposed change has no adverse impact on protective boundaries, safety limits, or margin of safety.

Therefore, the proposed change will not involve a significant reduction in a margin of safety.

#### Safety and Significant Hazards Determination

Based on the above safety analysis, it is concluded that: (1) the proposed change does not constitute a significant hazards consideration as defined by 10CFR50.92; and (2) there is a reasonable assurance that the health and safety of the public will not be endangered by the proposed change; and (3) this action will not result in a condition which significantly alters the impact of the station on the environment as described in the NRC final environmental statement.

## References

1. Standard Technical Specifications for Combustion Engineering Pressurized Water Reactors, NUREG-0212.
  
2. Control Room Outside Air Intake Radiation Monitor Setpoint Calculation HP-CALC-93-004 dated 8/20/93.
  
3. Waterford 3 Final Safety Analysis Report  
  
Table 11.3-5 Source Term (No Continuous Gas Stripping of Volume Control Tank) Noble Gases and Iodines  
  
Table 11.3-6 Source Terms (No Continuous Gas Stripping of Volume Control Tank)  
  
Table 11.3-8 Average Annual Airborne Radionuclide Concentrations ( $\mu\text{Ci/cc}$ )
  
4. Licensee Event Reports 84-001, 85-002, 85-005 85-030, 85-036, 85-039, 85-043, 85-045, 85-048, 86-003, 86-020, 86-022, 86-029, 87-015, 87-022, 88-003, 90-011, 90-014, 90-015, 91-002, 92-003, 92-005.
  
5. NRC Letter dated November 22 1993, Subject: ISSUANCE OF AMENDMENT NO. 91 TO FACILITY OPERATING LICENSE NPF-38 - WATERFORD STEAM ELECTRIC STATION, UNIT 3 (TAC NO. M84791).

NPF-38-154

ATTACHMENT A