UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 227 TO FACILITY OPERATING LICENSE NO. NPF-3

TOLEDO EDISON COMPANY

CENTERIOR SERVICE COMPANY

AND

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1

DOCKET NO. 50-346

1.0 INTRODUCTION

By letter dated April 18, 1997, as supplemented by letters dated October 10, 1997, and February 27 and September 8, 1998, Toledo Edison Company, Centerior Service Company, and The Cleveland Electric Illuminating Company (the licensees), submitted a request for changes to the Davis-Besse Nuclear Power Station, Unit No. 1, Technical Specifications (TSs).

The proposed amendment would revise TS Section 3/4.7.6, "Plant Systems - Control Room Emergency Ventilation System," and the associated bases. Action statements would be added related to the availability of the station vent normal range radiation monitoring instrumentation. In addition, the bases would be modified consistent with these changes.

2.0 BACKGROUND

Control room ventilation is discussed in the Davis-Besse Updated Safety Analysis Report (USAR), Section 9.4, "Air Conditioning, Heating, Cooling, and Ventilation." The station vent radiation monitoring system is discussed in USAR Section 11.4, "Process and Effluent Radiological Monitoring Systems." Additional information on control room ventilation is provided in USAR Appendix 3D.1.15, "Criterion 19 - Control Room."

As stated in USAR Section 9.4, the control room normal ventilation system consists of redundant air-handling units with heating and cooling coils. Normally, one unit operates while the other unit is available for manual actuation if the operating unit fails.

Control room normal ventilation system isolation and shutdown on high station vent radiation provide an enclosed environment from which the unit can be operated following an uncontrolled release of radioactivity. The high radiation isolation function provides assurance that under the required conditions, an isolation signal will be given. This signal is derived from one of the two redundant radiation monitors in the station vent (the operability of these monitors is verified through surveillance testing specified in plant procedures). Two redundant dampers in series are provided in each primary ventilation system duct. Each redundant damper is controlled by a signal derived from one of the redundant radiation monitors so that a single failure will not prevent the system from isolating.

Each of the two independent control room emergency ventilation systems (CREVS) consists of a 100% capacity redundant fan-filter assembly together with a cooling coil and water-cooled condensing unit. A 100% capacity redundant air-cooled condensing unit is provided as a backup to the water-cooled condensing unit for each CREVS. The CREVS is an emergency system. After normal ventilation system isolation, the CREVS can be manually started, as appropriate, to provide a protected environment from which operators can control the unit.

3.0 EVALUATION

Currently, if one channel of station vent normal radiation monitoring instrumentation becomes inoperable during plant operation, one of the two CREVS systems is considered to be inoperable, and the CREVS limiting condition for operation (LCO, TS 3.7.6.1) provides a 7-day period to restore operability or initiate a plant shutdown.

If both channels of station vent normal radiation monitoring instrumentation become inoperable during plant operation, then both CREVS systems are considered to be inoperable, and TS 3.0.3 requires that a plant shutdown be initiated within one hour.

The licensees are proposing to modify the CREVS TSs (Section 3/4.7.6) by revising the required actions in the event that one or both channels of station vent normal radiation monitoring instrumentation become inoperable. With these new actions in place, a plant shutdown due solely to a loss of the subject instrumentation can be avoided.

3.1 TS 3.7.6.1 Action Statement

The TS 3.7.6.1 Action Statement currently reads:

> With one control room emergency ventilation system inoperable, restore the inoperable system to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

The licensees propose to number this action statement "a." Since this is an administrative change only, it is acceptable.

3.2 TS 3.7.6.1.b Action Statement

The licensees propose to add the following action statement:

> b. With one channel of Station Vent Normal Range Radiation Monitoring instrumentation inoperable, restore the inoperable channel to OPERABLE status, or isolate the control room normal ventilation system and place at least one control room emergency ventilation system train in operation within 7 days.

As stated in Section 3.0, the current Davis-Besse TSs require a plant shutdown to be initiated in 7 days if one channel of station vent monitoring instrumentation is inoperable and cannot be restored. The proposed TS would not require a plant shutdown. Instead, it would require the licensees to restore the inoperable instrumentation, or isolate the control room normal ventilation system and place at least one CREVS train in operation within 7 days.

The 7-day requirement to isolate the normal ventilation system and place at least one CREVS train in operation places the plant in the mode required if there was a radioactive release through the station vent. This is consistent with the TS action if an actual high radiation signal was received (providing for CREVS operation even though a release has not been identified). Since this addition adds conservative requirements which are consistent with the current operating practice at Davis-Besse, and since the potential for an unnecessary plant transient is reduced, the proposed change is acceptable.

3.3 TS 3.7.6.1.c Action Statement

The licensees propose to add the following action statement:

> c. With both channels of Station Vent Normal Range Radiation Monitoring instrumentation inoperable, within 1 hour, isolate the control room normal ventilation system and place at least one control room emergency ventilation system train in operation.

This TS would require that, with both channels of normal range radiation monitoring instrumentation inoperable, at least one control room emergency ventilation system train be placed in operation, whereas most plant designs normally require that one train be placed in operation in the emergency recirculation mode. The licensees documented in the October 30, 1997, submittal that this difference is necessary to account for the operational scenario at Davis-Besse. USAR Section 9.4.1.3 describes the scenario:

> For the first four days following LOCA [loss of coolant accident], the control room will be isolated and the ... CREVS will be operated in the total recirculation mode (3300 cfm). On the fourth day, the CREVS mode will be switched to take 300 cfm fresh-air makeup while recirculating 3000 cfm. This enables the control room to be maintained at a one-eighth inch w.g. [water gauge] higher pressure that the other areas of the auxiliary building.

This operational difference is consistent with the accident analysis for Davis-Besse, and ensures that the control room will be habitable if an uncontrolled release of radioactivity occurs while the instrumentation is inoperable. The accident dose analysis is not affected by this change.

Since the proposed change is consistent with current Davis-Besse operations, since the accident dose analysis is not affected, and since the potential for an unnecessary plant transient is reduced, the proposed change is acceptable.

3.4 TS 4.7.6.1.e.2 Surveillance Requirement

The licensees propose to change the wording of the reference to the "...Station Vent Normal Radiation High test signal..." in the subject surveillance requirement. The new requirement would read:

> 2. Verifying that the control room normal ventilation system is isolated by a SFAS test signal and a Station Vent Normal Range Radiation Monitoring test signal; and

This is an administrative change only to make the terminology consistent with the new action statements discussed above in Sections 3.2 and 3.3. Therefore, it is acceptable.

3.5 TS Bases 3/4.7, "Plant Systems"

The licensees propose to add the following paragraphs to this bases section:

> The Station Vent Normal Range Radiation Monitoring isolation function provides that under the required conditions, an isolation signal will be given. The Station Vent Normal Range Radiation Monitors provide isolation and shutdown of the control room normal ventilation system.
>
> With one or both channels of Station Vent Normal Range Radiation Monitoring instrumentation inoperable, the provisions of Action statements b or c, respectively, are applicable. The provisions of Action statement a are not applicable.
>
> Under the Action statements for inoperable Station Vent Normal Range Radiation Monitoring instrumentation, should the control room normal ventilation system be isolated and at least one train of the control room emergency ventilation system be placed in operation, these systems would be in a state equivalent to that which they would be in following an actual high radiation condition. Plant operation can continue indefinitely in this state, provided that control room temperature can be maintained in an acceptable range, with the control room emergency ventilation system obtaining fresh-air makeup as described in the Updated Safety Analysis Report Section 9.4.1, "Control Room."

Surveillance Requirement 4.7.6.1.e.2 requires verification that the control room normal ventilation system can be isolated by a Station Vent Normal Range Radiation Monitoring test signal.

Additional testing requirements for the Station Vent Normal Range Radiation Monitoring instrumentation are provided in the ODCM for gaseous effluent releases.

These bases paragraphs provide additional information about the station vent radiation monitoring instrumentation and the control room ventilation systems. Since these paragraphs are consistent with the proposed TSs, they are acceptable. Note that the last sentence of the second paragraph states, "The provisions of Action statement a are not applicable." The inapplicability of "Action statement a" only applies to the effect of inoperable station vent normal range radiation monitoring instrumentation on "Action statement a." That is, if this instrumentation is inoperable, it does not affect the operability of the CREVS.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Ohio State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

This amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or changes 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 effluent 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 the amendment involves no significant hazards consideration, and there has been no public comment on such finding (62 FR 30646). The supplemental information submitted by letters dated October 10, 1997, and September 8, 1998, did not affect the proposed no significant hazards consideration. However, the supplemental letter dated February 27, 1998, included a new analysis of the issue of no significant hazards consideration. Based on this, the Commission issued a new proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (63 FR 25117). Accordingly, the 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 the amendment.

6.0 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; (2) such activities will be conducted in compliance with the Commission's regulations; and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Date: October 5, 1998