



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555
September 8, 1987

Docket No. 50-346
Serial No. DB-87-008

Mr. Donald C. Shelton
Vice President, Nuclear
Toledo Edison Company
Edison Plaza - Stop 712
300 Madison Avenue
Toledo, Ohio 43652

Dear Mr. Shelton:

SUBJECT: AMENDMENT NO. 104 TO FACILITY OPERATING LICENSE NO. NPF-3;
REPORTING REQUIREMENTS ON PRIMARY COOLANT IODINE SPIKES
(TAC NO. 64970)

The Commission has issued the enclosed Amendment No. 104 to Facility Operating License No. NPF-3 for the Davis-Besse Nuclear Power Station, Unit No. 1. This amendment consists of changes to the Appendix A Technical Specifications (TSs) in response to your application dated March 17, 1987 (No. 1345).

This amendment revises TS Sections 3/4.4.8 and 6.9.1.5 to: 1) change the reporting requirements for primary coolant iodine spikes from a short-term report to an item to be included in the Annual Operating Report, and 2) delete the requirement to shut down the reactor if coolant iodine activity limits are exceeded more than 10 percent of the unit operating time annually. This amendment also makes appropriate changes to Basis Section 3/4.4.8.

Generic Letter No. 85-19 issued September 27, 1985, provided the NRC staff's position for reporting requirements on primary coolant iodine spikes. In this generic letter, the NRC staff determined that the reporting requirements for iodine spiking can be reduced from a short-term report (Special Report or Licensee Event Report) to an item which is to be included in the Annual Report. The information to be included in the Annual Report is similar to that previously required in the Licensee Event Report but has been changed to more clearly designate the results to be included from the specific activity analysis and to delete the information regarding fuel burnup by core region.

The quality of nuclear fuel has been greatly improved over the past decade with the result that normal coolant iodine activity (i.e., in the absence of iodine spiking) is well below the limit. Appropriate actions would be initiated long before accumulating the TS limit of 10 percent of the annual operating time above the iodine activity limit. In addition, 10 CFR 50.72(b) (1)(ii) requires the NRC to be immediately notified of fuel cladding failures that exceed expected values or that are caused by unexpected factors. Therefore, this TS limit is no longer considered necessary on the basis that proper fuel management by licensees and existing reporting requirements should preclude ever approaching the limit.

Licensees are expected to continue to monitor iodine activity in the primary coolant and take responsible actions to maintain it at a reasonably low level.

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PDR ADDCK 05000346
P PDR

Mr. Donald C. Shelton
Toledo Edison Company

Davis-Besse Nuclear Power Station
Unit No. 1

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We have reviewed your March 17, 1987, response to Generic Letter 85-19. Your proposed changes are consistent with the sample TSs provided in this generic letter. These changes are acceptable because proper fuel management and existing reporting requirements should preclude the plant from operating anywhere near 10 percent of the unit annual operating time with the coolant iodine activity limit exceeded. Therefore, this change deletes an unnecessary TS requirement and changes a reporting requirement from a Licensee Event Report to including more detailed data in the Annual Operating Report.

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and a change in reporting requirements. We have 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) and (10). 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.

We have 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.

Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by
Albert W. De Agazio, Project Manager
Project Directorate III-1
Division of Reactor Projects - III, IV, V
& Special Projects

Enclosure:
Amendment No. 104 to
License No. NPF-3

cc w/enclosures:
See next page

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

TOLEDO EDISON COMPANY

AND

THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

DOCKET NO. 50-346

DAVIS-BESSE NUCLEAR POWER STATION, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 104
License No. NPF-3

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by the Toledo Edison Company and The Cleveland Electric Illuminating Company (the licensees) dated March 17, 1987, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-3 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 104, are hereby incorporated in the license. The Toledo Edison Company shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented not later than October 8, 1987 .

FOR THE NUCLEAR REGULATORY COMMISSION



Martin J. Virgilio, Director
Project Directorate III-1
Division of Reactor Projects - III, IV, V
& Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance:

ATTACHMENT TO LICENSE AMENDMENT NO. 104

FACILITY OPERATING LICENSE NO. NPF-3

DOCKET NO. 50-346

Replace the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change. The corresponding overleaf page(s) are also provided to maintain document completeness.

<u>Remove</u>	<u>Insert</u>
3/4 4-20	3/4 4-20
3/4 4-21	3/4 4-21
B 3/4 4-6	B 3/4 4-6
6-15	6-15
6-16	6-16

TABLE 4.4-3

REACTOR COOLANT SYSTEM
CHEMISTRY LIMITS SURVEILLANCE REQUIREMENTS

<u>PARAMETER</u>	<u>SAMPLE AND ANALYSIS FREQUENCY</u>
DISSOLVED OXYGEN*	At least once each 72 hours
CHLORIDE	At least once each 72 hours
FLUORIDE	At least once each 72 hours

* Not required with $T_{avg} \leq 250^{\circ}\text{F}$.

REACTOR COOLANT SYSTEM

SPECIFIC ACTIVITY

LIMITING CONDITION FOR OPERATION

3.4.8 The specific activity of the primary coolant shall be limited to:

- a. $\leq 1.0 \mu\text{Ci/gram DOSE EQUIVALENT I-131}$, and
- b. $\leq 100/\bar{E} \mu\text{Ci/gram}$

APPLICABILITY: MODES 1, 2, 3, 4 and 5.

ACTION:

MODES 1, 2 and 3*.

- a. With the specific activity of the primary coolant $> 1.0 \mu\text{Ci/gram DOSE EQUIVALENT I-131}$ for more than 48 hours during one continuous time interval or exceeding the limit line shown on Figure 3.4-1, be in at least HOT STANDBY with $T_{\text{avg}} < 530^\circ\text{F}$ within 6 hours.
- b. With the specific activity of the primary coolant $> 100/\bar{E} \mu\text{Ci/gram}$, be in at least HOT STANDBY with $T_{\text{avg}} < 530^\circ\text{F}$ within 6 hours.

MODES 1, 2, 3, 4 and 5:

- a. With the specific activity of the primary coolant $> 1.0 \mu\text{Ci/gram DOSE EQUIVALENT I-131}$ or $> 100/\bar{E} \mu\text{Ci/gram}$, perform the sampling and analysis requirements of item 4 a) of Table 4.4-4 until the specific activity of the primary coolant is restored to within its limits. For reporting requirements refer to Section 6.9.1.5.c, Annual Operating Report.

SURVEILLANCE REQUIREMENTS

4.4.8 The specific activity of the primary coolant shall be determined to be within the limits by performance of the sampling and analysis program of Table 4.4-4.

*With $T_{\text{avg}} \geq 530^\circ\text{F}$.

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TABLE 4.4-4

PRIMARY COOLANT SPECIFIC ACTIVITY SAMPLE
AND ANALYSIS PROGRAM

<u>TYPE OF MEASUREMENT AND ANALYSIS</u>	<u>SAMPLE AND ANALYSIS FREQUENCY</u>	<u>MODES IN WHICH SAMPLE AND ANALYSIS REQUIRED</u>
1. Gross Activity Determination	At least once each 72 hours	1, 2, 3, 4
2. Isotopic Analysis for DOSE EQUIVALENT I-131 Concentration	1 per 14 days	1
3. Radiochemical for \bar{E} Determination	1 per 6 months*	1
4. Isotopic Analysis for Iodine Including I-131, I-133, and I-135	a) Once per 4 hours, whenever the specific activity exceeds 1.0 $\mu\text{Ci}/\text{gram}$ DOSE EQUIVALENT I-131 or $100/\bar{E}$ $\mu\text{Ci}/\text{gram}$, and	1 [#] , 2 [#] , 3 [#] , 4 [#] , 5 [#]
	b) One sample between 2 and 6 hours following a THERMAL POWER change exceeding 15 per- cent of the RATED THERMAL POWER within a one hour period.	1, 2, 3

[#]Until the specific activity of the primary coolant system is restored within its limits.

*Sample to be taken after a minimum of 2 EFPD and 20 days of POWER OPERATION have elapsed since the reactor was last subcritical for 48 hours or longer.

REACTOR COOLANT SYSTEM

BASES

3/4.4.7 CHEMISTRY

The limitations on Reactor Coolant System chemistry ensure that corrosion of the Reactor Coolant System is minimized and reduce the potential for Reactor Coolant System leakage or failure due to stress corrosion. Maintaining the chemistry within the Steady State Limits shown on Table 3.4-1 provides adequate corrosion protection to ensure the structural integrity of the Reactor Coolant System over the life of the plant. The associated effects of exceeding the oxygen, chloride and fluoride limits are time and temperature dependent. Corrosion studies show that operation may be continued with contaminant concentration levels in excess of the Steady State Limits, up to the Transient Limits, for the specified limited time intervals without having a significant effect on the structural integrity of the Reactor Coolant System. The time interval permitting continued operation within the restrictions of the Transient Limits provides time for taking corrective actions to restore the contaminant concentrations to within the Steady State Limits.

The surveillance requirements provide adequate assurance that concentrations in excess of the limits will be detected in sufficient time to take corrective action.

3/4.4.8 SPECIFIC ACTIVITY

The limitations on the specific activity of the primary coolant ensure that the resulting 2 hour doses at the site boundary will not exceed an appropriately small fraction of the Part 100 limit following a steam generator tube rupture accident in conjunction with an assumed steady state primary-to-secondary steam generator leakage rate of 1.0 GPM. The values for the limits on specific activity represent interim limits based upon a parametric evaluation by the NRC of typical site locations. These values are conservative in the specific site parameters of the site, such as site boundary location and meteorological conditions, were not considered in this evaluation. The NRC is finalizing site specific criteria which will be used as the basis for the reevaluation of the specific activity limits of this site. This reevaluation may result in higher limits.

REACTOR COOLANT SYSTEM

BASES

The ACTION statement permitting POWER OPERATION to continue for limited time periods with the primary coolant's specific activity $> 1.0 \mu\text{Ci}/\text{gram}$ DOSE EQUIVALENT I-131, but within the allowable limit shown on Figure 3.4-1, accommodates possible iodine spiking phenomenon which may occur following changes in THERMAL POWER. Operation during one continuous time interval with specific activity levels exceeding $1.0 \mu\text{Ci}/\text{gram}$ DOSE EQUIVALENT I-131 but within the limits shown on Figure 3.4-1 must be restricted to no more than 48 hours since the activity levels allowed by Figure 3.4-1 increase the 2 hour thyroid dose at the site boundary by a factor of up to 20 following a postulated steam generator tube rupture.

Reducing T_{avg} to $< 530^\circ\text{F}$ prevents the release of activity should a steam generator tube rupture since the saturation pressure of the primary coolant is below the lift pressure of the atmospheric steam relief valves.

The surveillance requirements provide adequate assurance that excessive specific activity levels in the primary coolant will be detected in sufficient time to take corrective action. Information obtained on iodine spiking will be used to assess the parameters associated with spiking phenomena. A reduction in frequency of isotopic analyses following power changes may be permissible if justified by the data obtained.

3/4.4.9 PRESSURE/TEMPERATURE LIMITS

The pressure-temperature limits of the reactor coolant pressure boundary are established in accordance with the requirements of Appendix G to 10 CFR 50 and with the thermal and loading cycles used for design purposes.

The limitations prevent non-ductile failure during normal operation, including anticipated operational occurrences and system hydrostatic tests. The limits also prevent exceeding stress limits during cyclic operation. The loading conditions of interest include:

1. Normal operations, including heatup and cooldown,
2. Inservice leak and hydrostatic tests, and
3. Reactor core operation.

The major components of the reactor coolant pressure boundary have been analyzed in accordance with Appendix G to 10 CFR 50. The closure head region, reactor vessel outlet nozzles and the beltline region have been identified to be the only regions of the reactor vessel, and consequently of the reactor coolant pressure boundary, that determine the pressure-temperature limitations concerning non-ductile failure.

ADMINISTRATIVE CONTROLS

power operation), supplementary reports shall be submitted at least every three months until all three events have been completed.

ANNUAL OPERATING REPORT^{1/}

6.9.1.4 Annual reports covering the activities of the unit during the previous calendar year shall be submitted prior to March 31 of each year. The initial report shall be submitted prior to March 1 of the year following initial criticality.

6.9.1.5 Reports required on an annual basis shall include:

- a. A tabulation on an annual basis of the number of station, utility and other personnel (including contractors) receiving exposures greater than 100 mrem/yr and their associated man rem exposure according to work and job functions, ^{2/} e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance (described maintenance), waste processing, and refueling. The dose assignment to various duty functions may be estimates based on pocket dosimeter, TLD, or film badge measurements. Small exposures totalling less than 20% of the individual total dose need not be accounted for. In the aggregate, at least 80% of the total whole body dose received from external sources shall be assigned to specific major work functions.
- b. The complete results of steam generator tube inservice inspections (Specification 4.4.5.5.b).
- c. The results of specific activity analysis in which the primary coolant exceeded the limits of Specification 3.4.8. The following information shall be included: (1) Reactor power history starting 48 hours prior to the first sample in which the limit was exceeded; (2) Results of the last isotopic analysis for radioiodine performed prior to exceeding the limit, results of analysis while limit was exceeded and results of one analysis after the radioiodine activity was reduced to less than limit. Each result should include date and time of sampling and the radioiodine concentrations; (3) Clean-up system flow history starting 48 hours prior to the first sample in which the limit was exceeded; (4) Graph of the I-131 concentration and one other radioiodine isotope concentration in

^{1/} A single submittal may be made for a multiple unit station. The submittal should combine those sections that are common to all units at the station.

^{2/} This tabulation supplements the requirements of §20.407 of 10 CFR Part 20.

ADMINISTRATIVE CONTROLS

microcuries per gram as a function of time for the duration of the specific activity above the steady-state level; and (5) The time duration when the specific activity of the primary coolant exceeded the radioiodine limit.

MONTHLY OPERATING REPORT

6.9.1.6 Routine reports of operating statistics, shutdown experience and challenges to the Pressurizer Power Operated Relief Valve (PORV) and the Pressurizer Code Safety Valves shall be submitted on a monthly basis to the Director, Office of Management and Program Analysis, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the Regional Office, to arrive no later than the 15th of each month following the calendar month covered by the report.