

UNITED STATES NUCLEAR REGULATORY COMMISSIONNEBRASKA PUBLIC POWER DISTRICTDOCKET NO. 50-298COOPER NUCLEAR STATIONENVIRONMENTAL ASSESSMENT AND FINDING OFNO SIGNIFICANT IMPACT

The U.S. Nuclear Regulatory Commission (the Commission) is considering the issuance of an exemption from certain requirements of its regulations to Facility Operating License Number DPR-46. This license was issued to the Nebraska Public Power District (the licensee) for operation of the Cooper Nuclear Station (CNS) located in Nemaha County, Nebraska.

ENVIRONMENTAL ASSESSMENTIdentification of the Proposed Action:

The licensee requested, in its application dated May 13, 1994, an exemption from the pressure test requirements of Section III.D.2(b)(ii) of Appendix J, "Primary Reactor Containment Leakage Testing For Water-Cooled Power Reactors," to 10 CFR Part 50 (Appendix J to 10 CFR Part 50). The staff discussed the details of the proposed exemption with the licensee in a telephone conference call on September 28, 1995. The proposed exemption would allow the licensee to leak test the personnel air lock at CNS at a test pressure less than P_a , (the calculated peak containment internal pressure resulting from the containment design basis accident), under certain conditions. The reduced pressure test of the air lock would be conducted as the first of two tests during a restart from refueling or cold shutdown, prior to entry into an operational mode requiring containment leaktight integrity by the CNS

Technical Specifications (TSs). As stated in CNS TS 4.7.A.2.f.5, for periodic leakage testing of the personnel air lock, P_a is 58 psig and the reduced test pressure is 3 psig.

This leakage test is part of the Type B tests required by Appendix J to 10 CFR Part 50 to verify containment integrity. Because an air lock allows entry into the containment and is part of the containment pressure boundary, excessive leakage through the air lock could compromise containment integrity. The air lock consists of an inner and outer door and the leakage test is performed by pressurizing the space between the doors.

The Need for the Proposed Action:

Section III.D.2 of Appendix J to 10 CFR Part 50 specifies the required periodic retest schedule for Type B tests, including testing of air locks. Pursuant to Section III.D.2(b)(ii), licensees are required to leakage test air locks, opened during periods when containment integrity is not required by the TSs, at the end of such periods. This section applies to testing of air locks during restart from refueling or cold shutdown because the CNS TSs do not require containment integrity for either of these operational modes. This section states that the air lock test shall be performed at a pressure that is not less than P_a .

The proposed exemption is concerned with Section III.D.2(b)(ii); however, there are two other sections in Appendix J which have requirements on testing air locks. Section III.D.2(b)(i) requires an air lock test every 6 months at a test pressure of P_a and, as relevant here, Section III.D.2(b)(iii) requires a test every 3 days when the air lock is used during a period when containment integrity is required by the TSs. The latter section requires the test

pressure to be P_a , or the test pressure specified in the TSs, which for CNS is stipulated as 3 psig in TS 4.7.A.2.f.5.

The licensee stated in its application that it currently tests the personnel air lock twice during the restart of the plant for power operation from refueling or cold shutdown: (1) prior to the reactor being taken critical, or the reactor water temperature being above 100°C (212°F), and (2) after the last entry into containment for leak inspection during restart. The time between the two tests is about 24 to 48 hours, and the second test is at low reactor power prior to entry into the run mode, the full power mode of operation.

The first test is in accordance with Section III.D.2(b)(ii) and is performed at the conclusion of the period when containment integrity is not required by the TSs. This test is conducted prior to entry into an operational mode requiring containment integrity. The second test is in accordance with Section III.D.2(b)(iii) and is performed at 3-day intervals while the air lock is being used when containment integrity is required. As stated above, in accordance with this section, the second test could be conducted at a test pressure of 3 psig at CNS because this pressure is stated in TS 4.7.A.2.f.5. However, because the licensee also performs the second test to meet the 6-month interval requirement in Section III.D.2(b)(i), the second test is conducted at P_a . If this second test is not necessary to satisfy the 6-month interval test requirement, there is no requirement that the licensee conduct it at P_a .

When no maintenance or repairs have been performed on the air lock that could affect its sealing capability and the periodic 6-month test at P_a has

been performed successfully, opening of the air lock during a plant shutdown or refueling outage is not a reason to expect it to leak in excess of the requirements. When the air lock is tested at a pressure less than P_a in preparation for restart from refueling or cold shutdown, under such conditions, and the air lock has been successfully tested at P_a within the previous six months, containment integrity is assured. If, however, maintenance or repairs have been performed on the air lock affecting its sealing capability since the last 6-month test, the first test prior to entering a condition which requires containment integrity must meet the test pressure requirements of Section III.D.2(b)(ii) and be conducted at a test pressure not less than P_a .

In testing the air lock at reduced pressure, a strongback (structural bracing) would not have to be installed on the inner air lock door. During the test, the space between the inner and outer doors is pressurized. The strongback is needed when the test pressure is P_a because the pressure exerted on the inner door during the test is in a direction opposite to the pressure on the inner door during an accident, and P_a is sufficiently high to damage the inner door during the test without the strongback. The reduced pressure test would be conducted at 3 psig, and the strongback would not be needed to protect the inner door during the test.

Installing a strongback, performing the test, and removing the strongback requires several hours during which access through the air lock is prohibited. The strongback is attached to the door inside containment where personnel would be exposed to radiation inside containment. The reduced pressure test could be conducted without the strongback and, thus, in a shorter time with

less occupational exposure to CNS personnel involved with the test. Because the second test is conducted at P_a , not performing the first test at P_a will reduce the number of such tests using strongbacks and, therefore, will reduce the time involved in performing the tests and the magnitude of occupational exposure at CNS.

The licensee is, therefore, proposing to conduct the first test during restart at a test pressure of 3 psig, which is less than P_a , which is not presently allowed by Section III.D.2(b)(ii). The air lock leakage measured for the reduced test pressure would be extrapolated to a value consistent with P_a , then that value would be compared to the acceptance criteria in Appendix J for Type B tests to confirm that containment integrity is verified. If containment integrity is verified, the measured air lock leakage is considered acceptable.

Environmental Impacts of the Proposed Action:

The Commission has completed its evaluation of the licensee's request. The proposed exemption does not change the number of air lock tests to verify containment integrity upon plant restart, the manner in which the second test is conducted, the time when the tests would be conducted, nor the acceptance criteria for the tests. Thus, the assurance of containment integrity would be maintained at a level consistent with current Appendix J requirements. The proposed exemption would also not change other requirements in Appendix J for periodic testing of the air lock at P_a , and would not change the existing CNS safety limits, safety settings, power operations, or effluent limits. The proposed exemption would effectively replace the test pressure requirement in Section III.D.2(b)(ii) with that in Section III.D.2(b)(iii), in that the

latter section allows for reduced pressure testing of air locks in accordance with plant TSs.

The change will not increase the probability or consequences of accidents, no changes are being made in the types of any effluents that may be released offsite, and there is no significant increase in the allowable individual or cumulative occupational radiation exposure. Accordingly, the Commission concludes that there are no significant radiological environmental impacts associated with the proposed action.

With regard to potential nonradiological impacts, the proposed action does involve features located entirely within the restricted area as defined in 10 CFR Part 20. It does not affect nonradiological plant effluents and has no other environmental impact. Accordingly, the Commission concludes that there are no significant nonradiological environmental impacts associated with the proposed action.

Alternatives to the Proposed Action:

Since the Commission has concluded that there is no measurable environmental impact associated with the proposed action, any alternatives with equal or greater environmental impact need not be evaluated. As an alternative to the proposed action, the staff considered denial of the requested exemption. Denial of the application would result in no change in current environmental impacts. The environmental impacts of the proposed action and the alternative action are similar, but the proposed action would reduce occupational exposure at CNS.

Alternative Use of Resources:

This action does not involve the use of any resources not previously

considered in the Final Environmental Statement for the Cooper Nuclear Station, dated February 1973.

Agencies and Persons Consulted:

In accordance with its stated policy, on October 19, 1995, the staff consulted with the Nebraska State official, Ms. Julia Schmidt, Division of Radiological Health, Nebraska Department of Health, regarding the environmental impact of the proposed action. The State official had no comments.

FINDING OF NO SIGNIFICANT IMPACT

Based upon the environmental assessment, the Commission concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the Commission has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to this action, see the licensee's request for an exemption dated May 13, 1994, which is available for public inspection at the Commission's Public Document Room, The Ge'nan Building, 2120 L Street, NW., Washington, DC, and at the local public document room located at the Auburn Public Library, 118 15th Street, Auburn, Nebraska 68305.

Dated at Rockville, Maryland, this 6th day of November 1995.

FOR THE NUCLEAR REGULATORY COMMISSION



James R. Hall, Senior Project Manager
Project Directorate IV-1
Division of Reactor Projects III/IV
Office of Nuclear Reactor Regulation