May 7, 1986

Docket No. 50-298

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Mr. J. M. Pilant, Technical
Staff Manager
Nuclear Power Group
Nebraska Public Power District
Post Office Box 499
Columbus, Nebraska 68601

Dear Mr. Pilant:

SUBJECT: CONTAINMENT VENT AND PURGE ISSUES

Re: Cooper Nuclear Station

Your letter dated March 3, 1986 discussed several issues that remain open regarding containment vent and purge. Following are the staff's comments on those issues.

1. Debris Screens In accordance with your commitments of July 19, 1984 and March 3, 1986, you should proceed with plans to install Category I debris strainers during the forthcoming outage.

2. Modification of Purge Valve Operators Valve modifications described in your December 15, 1983 letter (valve reorientations, valve blocks and torque switch readjustments) are acceptable. Modifications not yet performed should be performed during the forthcoming outage.

3. Leak Rate Testing The information provided in your September 3, 1985 does not justify an exception to the staff position on quarterly leak rate testing of isolation valves. Your October 8, 1985 telecopy (copy enclosed) proposed alternative Technical Specifications. We have attached for your consideration, an enclosure suggesting further changes.

In addition to the issues discussed in your March 3, 1986 letter, certain Technical Specifications issues remain to be resolved. Following the test proposed in your September 3, 1985 letter, you should submit a Technical Specifications (TS) amendment request for the following items.

1. To implement TS (pages 166, 167, 165a, and 183) as proposed in your July 19, 1984 letter, or as proposed in your October 8, 1985 telecopy, depending on results of testing of the capability to purge via the 2-inch alternate flow path.

2. To require surveillance of the 60-degree valve blocks once per cycle if the blocks are of a design which would permit drift or detachment.

3. In addition to the above we also recommend that TS 3.7.D.2 be changed to specify that when a single isolation valve is used for an extended period of time to provide containment integrity, the valve must be deactivated in the closed position.

Sincerely,

William O. Long, Project Manager
BWR Project Directorate #2
Division of BWR Licensing

Enclosure:
As stated

cc w/enclosure:
See next page

DBL:PD#2	DBL:PD#2	DBL:PD#2
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4/26/86	4/28/86	4/30/86

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F87-0004

10/08
8:15

Nebraska Public Power District
Columbus General Office

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LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.A (Cont'd)	4.7.A.2.f (cont'd)

4. Main steam line and feedwater line expansion bellows as specified in Table 3.7.3 shall be tested by pressurizing between the laminations of the bellows at a pressure of 5 psig. This is an exemption to Appendix J of 10CFR50.

5. The personnel airlock shall be tested at 58 psig at intervals no longer than six months. This testing may be extended to the next refueling outage (not to exceed 24 months) provided that there have been no airlock openings since the last successful test at 58 psig. In the event the personnel airlock is not opened between refueling outages, it shall be leak checked at 3 psig at intervals no longer than six months. Within three days of opening (or every three days during periods of frequent opening) when containment integrity is required, test the personnel airlock at 3 psig. This is an exemption to Appendix J of 10CFR50.

g. Additional Leakage Tests

Additional testing shall be performed to detect excessive leakage due to wear of the purge and vent isolation valve resilient seats. The valves will be tested by pairs (PC-231MV and PC-246AV, PC-230MV and PC-245AV, PC-232MV and PC-238AV, PC-233MV and PC-237AV) in accordance with the following schedule:

i) Every pair once every 3 months until 30 successive tests have passed, then

ii) Every pair once every 6 months until 20 additional successive tests have passed, then thereafter

iii) In accordance with Specification 4.7.A.2.F.1.

LIMITING CONDITIONS FOR OPERATION

3.7.A (Cont'd)

SURVEILLANCE REQUIREMENTS

4.7.A.2.f (cont'd)

g. Additional Leakage Tests (cont'd)

A test is considered a failure only if the leakage from the two valves exceeds 200 scf/hr and has been determined to be caused solely by the failure of the resilient seats due to wear and not due to some other cause such as valve operator malfunction, etc.

h. Drywell Surfaces

The interior surfaces of the drywell and torus shall be visually inspected each operating cycle for evidence of torus corrosion or leakage.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.B (cont'd)	4.7.B (cont'd)
4. If these conditions cannot be met, procedures shall be initiated immediately to establish reactor conditions for which the standby gas treatment system is not required.	4.a. At least once per operating cycle automatic initiation of each branch of the standby gas treatment system shall be demonstrated.
	b. At least once per operating cycle manual operability of the bypass valve for filter cooling shall be demonstrated.
5. Use of the Standby Gas Treatment System for purging/venting the primary containment with both the inboard and outboard exhaust isolation valves open in series from the drywell (231MV and 246AV) and/or the Torus (230MV and 245AV) is limited to 120 hours per calendar year when coolant temperature is greater than 200°F.	c. When one circuit of the standby gas treatment system becomes inoperable the other circuit shall be demonstrated to be operable immediately and daily thereafter.
C. <u>Secondary Containment</u>	C. <u>Secondary Containment</u>
1. Secondary containment integrity shall be maintained during all modes of plant operation except when all of the following conditions are met.	1. Secondary containment surveillance shall be performed as indicated below:

3.7.A & 4.7.A BASES (cont'd)

check of the temperature and volume is adequate to assure that adequate heat removal capability is present.

The intent of Specification 4.7.A.2.g is to test for gross leakage of the resilient seats in purge and vent isolation valves due to wear. These tests are in addition to 10CFR50, Appendix J requirements and can exceed the leakage criteria of Appendix J. The NRC has determined that based upon CNS historical seat failure data, 200 scf/hr is an acceptable criteria to make a determination of gross leakage. Additionally, causes of leakage, other than wear of the resilient seats, can be determined and corrected with the test being performed again without being considered a failure.

If a pair of valves fails the gross leakage test and it is known that one of the valves has not been operated since the last successful test, then adequate containment isolation exists because that valve had passed the previous test and had not subsequently been operated, subjecting its seat to wear. If a pair of valves fails the gross leakage test and both the valves had been operated since their last successful test, then no assurance exists that the failure was due to only one valve. The seats will have to be inspected and replaced as needed.

The interiors of the drywell and suppression chamber are painted to prevent rusting. The inspection of the paint during each major refueling outage, approximately once per year, assures the paint is intact. Experience with this type of paint at fossil fueled generating stations indicates that the inspection interval is adequate.

3.7.A.3 & 4 and 4.7.A.3 & 4 VACUUM BREAKERS

The purpose of the vacuum relief valves is to equalize the pressure between the drywell and suppression chamber and reactor building so that the structural integrity of the containment is maintained. The vacuum relief system from the pressure suppression chamber to reactor building consists of two 100% vacuum relief breakers (2 parallel sets of 2 valves in series). Operation of either system will maintain a pressure differential of less than 2 psi, the external design pressure. One valve may be out of service for repairs for a period of 7 days. If repairs cannot be completed within 7 days the reactor coolant system is brought to a condition where vacuum relief is no longer required.

The capacity of the 12 drywell vacuum relief valves are sized to limit the pressure differential between the suppression chamber and drywell during post-accident drywell cooling operations to well under the design limit of 2 psi. They are sized on the basis of the Bodega Bay pressure suppression system tests. The ASME Boiler and Pressure Vessel Code, Section III, Subsection B, for this vessel allows a 2 psi differential; therefore, with three vacuum relief valves secured in the closed position and 9 operable valves, containment integrity is not impaired.

3.7.A.5 and 4.7.A.5 OXYGEN CONCENTRATION

Safety Guide 7 assumptions for Metal-Water reaction result in hydrogen concentration in excess of the Safety Guide 7 flammability limit. By keeping the oxygen concentration less than 4% by volume the requirements of Safety Guide 7 are satisfied.

The occurrence of primary system leakage following a major refueling outage or other scheduled shutdown is much more probable than the

3.7.A & 4.7.A BASES (cont'd)

occurrence of the loss-of-coolant accident upon which the specified oxygen concentration limit is based. Permitting access to the drywell for leak inspections during a startup is judged prudent in terms of the added plant safety offered without significantly reducing the margin of safety. Thus, to preclude the possibility of starting the reactor and operating for extended period of time with significant leaks in the primary system, leak inspections are scheduled during periods when the primary system is at or near rated operating temperature and pressure. The 24-hour period to provide inerting is judged to be sufficient to perform the leak inspection and establish the required oxygen concentration.

The primary containment is normally slightly pressurized during periods of reactor operation. Nitrogen used for inerting could leak out of the containment but air could not leak in to increase oxygen concentration. Once the containment is filled with nitrogen to the required concentration, no monitoring of oxygen concentration is necessary. However, at least twice a week the oxygen concentration will be determined as added assurance.

The 500 gallon conservative limit on the nitrogen storage tank assures that adequate time is available to get the tank refilled assuming normal plant operation. The estimated maximum makeup rate is 1500 SCFD which would require about 160 gallons for a 10 day makeup requirement. The normal leak rate should be about 200 SCFD.

3.7.B & 3.7.C STANDBY GAS TREATMENT SYSTEM AND SECONDARY CONTAINMENT

The secondary containment is designed to minimize any ground level release of radioactive materials which might result from a serious accident. The reactor building provides secondary containment during reactor operation when the drywell is sealed and in service. The reactor building provides primary containment when the reactor is shut down and the drywell is open, as during refueling. Because the secondary containment is an integral part of the complete containment system, secondary containment is required at all times that primary containment is required as well as during refueling. Secondary containment may be broken for short periods of time to allow access to the reactor building roof to perform necessary inspections and maintenance.

The standby gas treatment system is designed to filter and exhaust the reactor building atmosphere to the stack during secondary containment isolation conditions. Both standby gas treatment system fans are designed to automatically start upon containment isolation and to maintain the reactor building pressure to the design negative pressure so that all leakage should be in-leakage. Should one system fail to start, the redundant system is designed to start automatically. Each of the two fans has 100 percent capacity.

The intent of Specification 3.7.B.5 is to minimize the time the SBGT system is on line while coolant temperature is greater than 200°F and both inboard and outboard exhaust isolation valves from the drywell and/or torus are open in series. The concern is to decrease the probability of damage to the SBGT filters that would occur from excessive differential pressure caused by a LOCA with the main isolation exhaust valves open in series. This specification does allow purge/venting with the bypass around the inboard exhaust valve and the outboard exhaust valve both open in series and the time does not count against the yearly limit. The NRC has determined that due to the small size of the bypass valve, there is no chance of damage to the filters if a LOCA occurs while purging/venting the containment through the bypass with the SBGT system on line.

SUGGESTED TECH SPEC 4.7.A.2.g - ADDITIONAL LEAKAGE TESTS

Additional testing shall be performed to detect excessive leakage due to wear of the purge and vent isolation valve resilient seats. The valves will be tested by pairs (PC-231MV and PC-246AV, PC-230-MV amd PC-245AV, PC-232MV and PC-238AV, PC-233MV and PC-237AV) in accordance with the following schedule.

i) Every pair once every 3 months until 50 successive valve pair tests have passed, then

ii) Every pair once every 6 months until 20 additional successive valve pair tests have passed, then

iii) In accordance with Specification 4.7.A.2.F.1.

iv) If at any point in the testing schedule a valve pair test is not passed, the testing schedule will resume at i).