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NLS2019039
August 19, 2019

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Subject: Request for Exception from Certain Leak Testing Interval Requirements of the Cooper Nuclear Station Primary Containment Leakage Rate Testing Program
Cooper Nuclear Station, Docket No. 50-298, License No. DPR-46

Pursuant to 10 CFR 50.90, Nebraska Public Power District (NPPD) is submitting a request for an amendment to the Cooper Nuclear Station (CNS) Technical Specifications (TS). The proposed license amendment request (LAR) would revise CNS TS, Section 5.5.12, "Primary Containment Leakage Rate Testing Program" to allow for an exception to certain leak testing interval requirements of the program. Specifically, NPPD requests that the 10 CFR Part 50 Appendix J, Option B leak testing of Type C Residual Heat Removal (RHR) system heat exchanger relief valves, RHR-RV-20RV/21RV, and their associated Type B testable discharge flange tests be performed at the same frequency as the visual examination, seat leakage testing, and set pressure testing performed for these valves under the requirements of the Inservice Testing Program per 10 CFR 50.55a(f).

NPPD requests approval of the proposed LAR by August 19, 2020, to support Refuel Outage RE31. Once approved, the amendment will be implemented within 60 days.

Attachment 1 provides NPPD's evaluation of the proposed TS change. Attachment 2 provides the proposed changes to the current CNS TS on marked up pages. Attachment 3 provides the revised TS pages in final typed format. There are no associated TS Bases changes.

This proposed TS change has been reviewed by the necessary safety review committees (Station Operations Review Committee and Safety Review and Audit Board). NPPD has concluded that the proposed TS change does not involve a significant hazards consideration and satisfies the environmental consideration categorical exclusion criteria of 10 CFR 51.22(c)(9). This request is submitted under oath or affirmation pursuant to 10 CFR 50.30(b).

By copy of this letter and its attachments, the appropriate State of Nebraska official is notified in accordance with 10 CFR 50.91(b)(1). Copies are also being provided to the Nuclear Regulatory

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NRR

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Commission (NRC) Region IV office and the CNS Resident Inspector in accordance with 10 CFR 50.4(b)(1).

Should you have any questions or require additional information, please contact David Van Der Kamp, Licensing Manager, at (402) 825-2904.

I declare under penalty of perjury that the foregoing is true and correct.

Executed On: 8/19/2019
Date

Sincerely,

John Dent, Jr.
Vice President-Nuclear and
Chief Nuclear Officer

/dv

Attachments: 1. Request for Exception from Certain Leak Testing Interval Requirements
2. Proposed Technical Specifications Change (Mark-Up)
3. Revised Technical Specifications Page

cc: Regional Administrator w/attachments
USNRC - Region IV

Cooper Project Manager w/attachments
USNRC - NRR Plant Licensing Branch IV

Senior Resident Inspector w/attachments
USNRC - CNS

Nebraska Health and Human Services w/attachments
Department of Regulation and Licensure

NPG Distribution w/o attachments

CNS Records w/attachments

Attachment 1

Request for Exception from Certain Leak Testing Interval Requirements

Cooper Nuclear Station, Docket 50-298, License No. DPR-46

1.0 SUMMARY DESCRIPTION

The proposed license amendment would revise Cooper Nuclear Station (CNS) Technical Specifications (TS) Section 5.5.12, "Primary Containment Leakage Rate Testing Program," to allow an exception to certain leak testing intervals. This revision is a permanent exception from the requirements of NEI 94-01, Revision 0, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J." Specifically, Nebraska Public Power District (NPPD) requests that leak testing of Type C Residual Heat Removal (RHR) heat exchanger relief valves and their associated Type B testable discharge flange tests be performed at the same frequency as the visual examination, seat leakage testing, and set pressure testing performed for these valves under the requirements of the Inservice Testing (IST) Program per 10 CFR 50.55a(f). The visual examination, seat leakage testing, and set pressure testing requirements under 10 CFR 50.55a(f) for these valves are in accordance with Mandatory Appendix I of the applicable Edition and Addenda of the American Society of Mechanical Engineers (ASME) Code for Operation and Maintenance of Nuclear Power Plants (OM Code).

2.0 PROPOSED CHANGE

CNS' TS Section 5.5.12, "Primary Containment Leakage Rate Testing Program," currently states:

> "A program shall establish the leakage rate testing of the containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995, as modified by the following exceptions:
>
> 1. Exemption from Appendix J to 10CFR Part 50 to allow reverse direction local leak rate testing of four containment isolation valves at Cooper Nuclear Station (TAC NO. M89769) (July 22, 1994).
>
> 2. Exemption from Appendix J to 10CFR Part 50 to allow MSIV testing at 29 psig and expansion bellows testing at 5 psig between the plies (Sept. 16, 1977).
>
> 3. Exception to NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," Section 9.2.3: The first Type A test performed after the December 7, 1998 Type A test shall be performed no later than December 7, 2013.
>
> 4. Exemption from Section III.A of 10CFR Part 50, Appendix J, Option B, to allow the leakage contribution from Main Steam Pathway (Main Steam lines and Main Steam inboard drain line) leakage to be excluded from the overall integrated leakage rate from Type A tests (September 14, 2009).

5. Exemption from Section III.B of 10CFR Part 50, Appendix J, Option B, to allow the contribution from Main Steam Pathway (Main Steam lines and Main Steam inboard drain line) leakage to be excluded from the sum of the leakage rates from Type B and Type C tests (September 14, 2009)."

The proposed change would add a sixth exemption/exception to TS 5.5.12. Specifically, the added exception would state:

6. Exception to NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR 50, Appendix J," to allow testing of Type C Residual Heat Removal heat exchanger relief valves and their associated Type B testable discharge flange tests at the same frequency as the visual examination, seat leakage testing, and set pressure testing performed for these valves under the requirements of the Inservice Testing Program per 10 CFR 50.55a(f).

There are no associated TS Bases changes.

3.0 BACKGROUND

CNS has two 1" x 1" RHR heat exchanger relief valves (RV), RHR-RV-20RV, and RHR-RV-21RV, that are located near the 1A and 1B RHR Heat Exchangers, respectively (reference Enclosure 1). These relief valves have an active safety function in the open position to prevent over-pressurization of the shell side of the RHR heat exchangers. These valves also have a safety function closed to maintain containment integrity for penetration X-214. The relief valves both discharge to piping that connects to the 20" High Pressure Coolant Injection (HPCI) exhaust line, which is directed to the Torus and penetrates the Torus at X-214 (reference Enclosure 1 and 2). There are no isolation valves between the RHR relief valves and Torus penetration X-214. The HPCI vacuum breaker check valves tie into the line above the water level in the Torus within the Torus air space. The penetration is not a water sealed line per the CNS Licensing basis.

Therefore, RHR-RV-20RV and RHR-RV-21RV both meet the scope for the 10 CFR 50.55a(f) IST Program and the 10 CFR 50 Appendix J Program. The IST Program is concerned with periodically performing a visual examination, seat leakage testing, and set pressure testing of these relief valves. The seat leakage and set pressure testing is performed with water as the media to ensure that the over-pressurization function of the valve and seat tightness is reliable. The current set pressure and tolerance of these relief valves is 450 ± 13.5 pounds per square inch-gauge (psig). The Appendix J Program is concerned with periodically performing a Type C leakage test in the reverse direction on these relief valves utilizing air at the Appendix J accident test pressure. The Appendix J test pressure range is 58-63.8 psig for this test. This range is based on the accident pressure of 58 psig plus 10% as is allowed per ANSI/ANS-56.8-1994, section 3.3.2. The problem that arises is that the IST Program frequency requirements conflict with the Appendix J frequency requirements. This often results in the Appendix J testing being performed more frequently than is required to ensure reliable performance of the relief valves.

Additionally, in order to perform the IST or Appendix J testing on the relief valves, they must be removed from the system. This is typically done by removing the relief valve assembly from the flange on the inlet side to the testable flange on the discharge side (reference Enclosure 1). In general, prior to the removal of each RV assembly and after re-installation of each RV assembly, a Type B Appendix J leak test is performed at the respective testable discharge flange for each valve. Each testable discharge flange utilizes a two O-ring design in which the air space between these two O-rings is pressurized through a 1/4" test fitting (reference Enclosure 3). The completion of this Type B test will ensure that external leakage from this Type B flange joint is within the acceptance criteria of the Appendix J Program. It has also been a challenge to establish Option B extended frequencies on the discharge flange tests due to the required IST relief valve testing, often resulting in Appendix J Type B testing being performed more frequently than is required to ensure reliable performance of the testable discharge flanges.

4.0 TECHNICAL EVALUATION

Due to the typical methodology at CNS of replacing IST relief valve assemblies with adjusted, rebuilt or new relief valves, Sections 10.2.1.3 and 10.2.3.3 of NEI 94-01, Revision 0, requires the Appendix J test frequencies to be reset to the initial test frequencies of once each outage. The following describes the current testing process.

Current Test Methodology:

When RHR-RV-20RV and/or RHR-RV-21RV are scheduled to be tested in order to meet the Appendix J or IST Programs, the approach typically taken is the following:

a) Perform the as-found Type B test on the testable discharge flange (air space between the O-rings) while the relief valve assembly is installed in the system using air at a pressure of 58-63.8 psig.

b) Remove the relief valve assembly. At this time, a previously tested relief valve spare assembly may be installed in its place. Next, the removed relief valve assembly is taken back to the maintenance shop for as-found testing.

c) Bolt a local leak rate test (LLRT) test flange with a gasket to the discharge flange of the relief valve assembly that was just removed from the system. The test flange has a hole through the center with a fitting that allows the discharge side of the relief valve and associated assembly to be pressurized through a test line from the Appendix J leak rate monitor.

d) Perform the as-found Type C Appendix J LLRT from the discharge side of the relief valve, pressurizing the relief valve seating area and associated test boundary within the control volume of the valve assembly with air at a pressure of 58-63.8 psig.

e) Remove the LLRT test flange.

f) Perform the IST as-found relief valve testing in accordance with Mandatory Appendix I of the applicable ASME OM Code. CNS uses water as the test medium and performs the as-found seat leakage test at 90% of the set pressure, or 405 psig. An acceptable set pressure test is at 450 ± 13.5 psig.

g) Rebuild or adjust the relief valve, as necessary. Then, complete the IST as-left relief valve testing in accordance with Mandatory Appendix I of the applicable ASME OM Code.

h) Upon completion of the as-left IST relief valve testing, re-install the LLRT test flange and gasket onto the discharge flange of the relief valve assembly.

i) Perform the as-left Type C Appendix J LLRT from the discharge side of the relief valve, pressurizing the relief valve seating area and associated test boundary within the control volume of the valve assembly.

j) Remove the LLRT test flange.

k) Re-install the as-left tested relief valve assembly into the system from the inlet flange to the outlet flange. If a pretested spare assembly was utilized in step b, steps g through j would have been completed previously.

l) Perform the as-left Type B test on the testable discharge flange (air space between the O-rings) while installed in the system using air at a pressure of 58-63.8 psig. The inlet flange is outside the Appendix J test boundary, but is checked for leaks at RHR system pressure.

It is a significant evolution each time these components are tested in order to meet the IST and/or Appendix J Programs.

CNS Applicable Appendix J Requirements:

The CNS TS, Section 5.5.12, "Primary Containment Leakage Rate Testing Program," states that this program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995, as modified by exceptions. This Regulatory Guide endorses NEI 94-01, Revision 0, "Industry Guideline for Implementing Performance-Based Option of 10 CFR 50 Appendix J," as providing methods acceptable to the Nuclear Regulatory Commission (NRC) staff for complying with the provisions of Option B in Appendix J to 10 CFR Part 50, subject to four provisions identified in the Regulatory Guide. Portions of NEI 94-01, revision 0, found to be applicable to the Type B Appendix J testing of the RHR testable discharge flanges are the following:

- Section 10.2.1.1 Initial Test Intervals (Except Containment Airlocks): ...Type B tests shall be performed at a frequency of at least once per 30 months, until acceptable performance is established per Section 10.2.1.2.

- Section 10.2.1.2 Extended Test Intervals (Except Containment Airlocks): The test intervals for Type B penetrations may be increased based upon completion of two consecutive periodic As-found Type B tests where results of each test are within a licensee's allowable administrative limits. Elapsed time between the first and last tests in a series of consecutive satisfactory tests used to determine performance shall be 24 months or the nominal test interval (e.g., refueling cycle) for the component prior to implementing Option B to Appendix J. An extended test interval for Type B tests may be increased to a specific value in a range of frequencies from greater than once per 30 months up to a maximum of once per 120 months...

- Section 10.2.1.3 Repairs or Adjustments (Except Containment Airlocks): ...Frequency for a Type B testing shall be in accordance with Section 10.2.1.1 if the penetration is replaced or engineering judgement determines that modification of the penetration has invalidated the performance history. Testing shall continue at this frequency until adequate performance is established in accordance with Section 10.2.1.2.

- Section 10.2.1.4 Corrective Action: If Type B test results are not acceptable, then the testing frequency should be set at the initial test interval per Section 10.2.1.1...

Similarly, portions of NEI 94-01, Revision 0, found to be applicable to the Type C Appendix J testing of the RHR relief valves, themselves, are the following:

- Section 10.2.3.1 Initial Test Interval: ...Type C tests shall be performed at a frequency of at least once per 30 months, until adequate performance has been established consistent with Section 10.2.3.2.

- Section 10.2.3.2 Extended Test Interval: Test intervals for Type C valves may be increased based upon completion of two consecutive periodic As-found Type C tests where the result of each test is within a licensee's allowable administrative limits. Elapsed time between the first and last tests in a series of consecutive passing tests used to determine performance shall be 24 months or the nominal test interval (e.g., refueling cycle) for the valve prior to implementing Option B to Appendix J. Intervals for Type C testing may be increased to a specific value in a range of frequencies from 30 months up to a maximum of 120 months...

    - Per Regulatory Guide 1.163 (September 1995), the revision referenced by the CNS Technical Specifications, the extension of Type C components to intervals greater than 60 months is not presently endorsed by the NRC. Therefore, at this time, the allowed range of frequencies for Type C testing at CNS is from 30 months up to a maximum of 60 months.

- Section 10.2.3.3 Repairs or Adjustments: ...The frequency for Type C testing shall be in accordance with Section 10.2.3.1 if a valve is replaced or engineering judgement determines that modification of a valve has invalidated the valve's performance history. Testing shall continue at this frequency until an adequate performance history is established in accordance with Section 10.2.3.2.

- Section 10.2.3.4 Corrective Action: If Type C test results are not acceptable, then the testing frequency should be set at the initial test interval per Section 10.2.3.1.

When the IST Program test comes due, the general approach at CNS over the past several outages has been to remove the installed relief valve assembly and replace the relief valve assembly with a pretested spare assembly (new or rebuilt). Alternatively, the removed relief valve may be Appendix J and IST as-found tested and then adjusted, disassembled, examined, rebuilt, etc., as necessary, and then as-left tested for the IST Program and Appendix J program, and then re-installed.

Based on the Appendix J Option B requirements identified above (Sections 10.2.1.3 and 10.2.3.3), if the relief valve assembly is replaced with a spare assembly (new and/or rebuilt), then the Appendix J test frequencies would have to reset to the initial test frequency of at least once per 30 months per section 10.2.1.1 (Type B testable discharge flange test) and Section 10.2.3.1 (Type C relief valve test). Alternatively, following as-found testing, if the removed valve assembly is fully disassembled, inspected, rebuilt, and then re-installed within the same outage, CNS would consider the valve's performance history to also be invalidated and Section 10.2.3.3 would require the test frequency of the valve to be reset to at least once per 30 months. Furthermore, an additional two consecutive periodic as-found tests within administrative limits would be required in order to establish an Option B extended frequency as described in Sections 10.2.1.2 (Type B testable discharge flange test) for the relief valve assembly replacement, and 10.2.3.2 (Type C relief valve test) for the relief valve assembly replacement or valve rebuild. Typically, prior to the establishment of an Option B extended frequency on the testable discharge flange and/or relief valve, the IST Program would perform relief valve testing per Mandatory Appendix I of the ASME OM Code. Therefore, due to the requirements of NEI 94-01, Sections 10.2.1.2 and 10.2.3.3, it is unnecessarily challenging to establish extended frequencies for the Appendix J tests even though the Appendix J leak tests have historically been well within the allowable administrative limits as noted in the tables below.

Historical Appendix J Leak Test Results:

Table 1 represents the Appendix J as-found test results for RHR-RV-20RV and its associated discharge test flange for the past seven outages and Table 2 represents the Appendix J as-found test results for RHR-RV-21RV and its associated discharge test flange for the past seven outages. The current CNS NEI 94-01, Revision 0, administrative limit (current CNS operability limit) for each discharge flange is 1.0 standard cubic feet per hour (scfh) and for each relief valve is 5.0 scfh. To put these values in perspective, the total minimum path leakage (La) allowed at CNS is 317.40 scfh during power operations.

Table 1: As-Found (AF) Appendix J Test History for RHR-RV-20RV and Associated Discharge Flange			
Date of Test	Outage	AF test of RHR-RV-20RV Discharge Flange (scfh)	AF test of RHR-RV-20RV Valve (scfh)
4/25/2008	RE24	0.005	
4/27/2008	RE24		0.0267
9/30/2009	RE25	0.0042	
10/4/2009	RE25		0.08
4/3/2011	RE26	0.2405	
4/6/2011	RE26		0.1725
10/15/2012	RE27	0.0042	
10/20/2012	RE27		0.0355
10/17/2014	RE28	0.0042	
10/18/2014	RE28		0.0055
10/1/2016	RE29	0.42	
10/3/2016	RE29		0.005
10/25/2018	RE30	0.0042	
11/2/2018	RE30		0.0042

Note: The administrative limit (current CNS operability limit) for the discharge flange is 1.0 scfh and for the relief valve is 5.0 scfh. The allowed CNS La value is 317.40 scfh.

Table 2: As-Found (AF) Appendix J Test History for RHR-RV-21RV and Associated Discharge Flange			
Date of Test	Outage	AF test of RHR-RV-21RV Discharge Flange (scfh)	AF test of RHR-RV-21RV Valve (scfh)
4/12/2008	RE24	0.0042	
4/18/2008	RE24		0.005
10/16/2009	RE25	0.0042	
10/18/2009	RE25		0.51
3/15/2011	RE26	0.0042	
3/30/2011	RE26		0.55
11/7/2012	RE27	0.0042	
11/17/2012	RE27		0.07
9/28/2014	RE28	0.0042	
10/5/2014	RE28		0.2092
10/21/2016	RE29	0.0042	
10/22/2016	RE29		0.0386
10/5/2018	RE30	0.01	
10/12/2018	RE30		0.013

Note: The administrative limit (current CNS operability limit) for the discharge flange is 1.0 scfh and for the relief valve is 5.0 scfh. The allowed CNS La value is 317.40 scfh.

It may be concluded from Table 1 and Table 2 that the Appendix J as-found test results for the relief valves and their associated discharge flanges have historically been well within the allowable administrative limits.

Design Aspects of RHR-RV-20RV and RHR-RV-21RV Testing:

In accordance with the CNS plant design, relief valves RHR-RV-20RV and RHR-RV-21RV are classified as ASME class 2 valves and they have a set pressure of 450 psig. The IST testing requirements for these relief valves are in accordance with Mandatory Appendix I of the ASME OM Code. The CNS code of record for the current ten-year interval is the 2004 Edition through the 2006 Addenda. Per section I-3350 of Mandatory Appendix I, IST test requirements include an as-found visual examination, an as-found seat tightness test, an as-found set pressure test, and an as-left seat tightness test. At CNS, the seat tightness testing is typically performed at 90% of the set pressure. For these valves, that would be 405 psig. The seat leakage acceptance criterion is zero leakage for water tested valves per CNS Procedure 7.2.35. The current tolerance allowed for the set pressure testing is 450 +/- 3% or 450+/- 13.5 psig.

Once the maintenance is completed on the relief valve and/or it has been as-left set pressure tested per Mandatory Appendix I of the ASME OM Code, the as-left seat leakage test is performed. The IST as-left seat leakage test will verify that there is no identified seat leakage at 405 psig of water when tested from the inlet side. Then, the Appendix J test flange and gasket is bolted to the discharge flange of the relief valve. As was previously mentioned, the Appendix J as-left leak test of the valve in the reverse (accident) direction is performed with air at 58 to 63.8 psig. This test pressurizes the Type C valve seat area in addition to the remaining test boundary (i.e., valve body area and piping). If the IST seat leakage test results identify no leakage at 405 psig of water from the inlet side, then it is reasonable to conclude the seat area would also perform well at 58 to 63.8 psig of air in the reverse direction. The Appendix J test also pressurizes the remainder of the passive test boundary to verify that the entire test boundary is within the acceptance criteria provided by the Appendix J Program.

The relief valve force applied to the seat would have to degrade significantly from the time it was as-left seat leakage tested at ~405 psig of water and as-left Appendix J tested at 58 to 63.8 psig to impact future performance of the as-found Appendix J leak test. Historically, this has not been observed based on the excellent as-found Appendix J test history for the valve and associated test boundary in the reverse (accident) direction. In addition, CNS will continue to perform periodic maintenance and/or replacement of the relief valves in addition to the IST and Appendix J testing, which will help to maintain the reliability of the relief valves and prevent significant degradation from occurring.

Finally, once the valve assembly has been as-left tested and installed back into the system, the Appendix J Program requires the testable discharge flange be tested to ensure that the flange joint will not leak externally. Regardless of the relief valve assembly utilized, historical performance results have remained well within acceptable administrative limits.

CNS Applicable IST Frequency Requirements:

This exception is requesting that the CNS Appendix J testing for RHR-RV-20RV/21RV and their associated discharge flanges to be tested at a frequency that is in accordance with the CNS IST program per Mandatory Appendix I of the applicable ASME OM Code of record. This would coordinate the Appendix J testing with the IST required testing. Section I-1350 of Mandatory Appendix I states the following:

I-1350 Test Frequency, Classes 2 and 3 Pressure Relief Valves

(a) 10-year Test Interval. Classes 2 and 3 pressure relief valves, with the exception of PWR main steam safety valves, shall be tested every 10 years, starting with initial electric power generation. No maximum limit is specified for the number of valves to be tested during any single plant operating cycle; however, a minimum of 20% of the valves from each valve group shall be tested within any 48-month interval. This 20% shall consist of valves that have not been tested during the current 10-year test interval, if they exist.

This exception request only requires that the Appendix J testing on the relief valves and associated flanges is performed at the same frequency as the relief valve testing is required by the IST Program per the applicable ASME OM Code of record. This frequency requirement may be satisfied by placing each relief valve in a group by itself. This would require each valve to be tested at least once every 48 months. The frequency requirement can also be met by placing RHR-RV-20RV and RHR-RV-21RV in the same test group. Then, as a minimum, at least one of the two valves would be tested every 48 months and each valve would be tested at least once every 8 years. Per I-1350(c), for a group of two valves, if the as-found set pressure (first test actuation) of the one being tested exceeds the greater of either the +/- tolerance limit of the owner-established set-pressure acceptance criteria of I-1310(e) or +/-3% of valve nameplate set-pressure, then the other valve in the group shall be tested.

Conclusion

Nebraska Public Power District is requesting an exception from the requirements of NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J." Specifically, NPPD requests that the 10 CFR Part 50 Appendix J, Option B leak testing of Type C RHR heat exchanger relief valves, RHR-RV-20RV/21RV, and their associated Type B testable discharge flange tests be performed at the same frequency as the visual examination, seat leakage and set pressure testing performed for these valves under the requirements of the Inservice Testing Program per 10 CFR 50.55a(f). The visual examination, seat leakage and set pressure testing requirements under 10 CFR 50.55a(f) for these valves are in accordance with Mandatory Appendix I of the applicable Edition and Addenda of the ASME OM Code.

This request is being provided as an acceptable alternative to the Appendix J leak test frequencies specified in NEI 94-01, Revision 0. Due to the typical methodology at CNS of replacing IST relief valve assemblies with adjusted, rebuilt or new relief valves, sections 10.2.1.3

and 10.2.3.3 of NEI 94-01, Revision 0, the Appendix J test frequencies are reset to the initial test frequencies of once each outage. Following replacement, two additional periodic tests are required to establish an extended frequency. Performing periodic relief valve maintenance results in the relief valves remaining more reliable, making it less likely that they will degrade to the point that the Appendix J leak tests would fail. Following implementation of this exception, Appendix J test results are not expected to degrade.

The underlying purpose of 10 CFR 50, Appendix J is to ensure the actual radiological consequences of design basis accidents remain below those previously evaluated and accepted. This is maintained by keeping the summation of Type B and Type C accident pressure leakage rates less than the performance criterion (La) with margin, as specified in the Technical Specifications. Based on the historical test history, implementing this exception should not impact the Type B and Type C total leakage rate.

5.0 REGULATORY EVALUATION

License Amendment 180 (Reference 1) authorized NPPD to use 10 CFR 50, Appendix J, Option B provisions for Type A, and for Type B, and C tests and provided TS 5.5.12 which requires a program to establish the leakage rate testing of the Primary Containment as required by 10 CFR 50.54(o) and 10 CFR 50, Appendix J, Option B, as modified by approved exemptions. This program must be in accordance with the guidelines in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995, as modified by exceptions. Four previously approved exemptions and one exception for CNS are identified as sub-paragraphs 1 through 5 of TS 5.5.12.a.

Under Appendix J, Option B, "Performance-Based Requirements," Section V.B.3, the regulatory guide or other implementation document used by a licensee to develop a performance-based leakage-testing program must be included, by general reference, in the plant technical specifications. The CNS Technical Specifications, Section 5.5.12, "Primary Containment Leakage Rate Testing Program," states that this program shall be in accordance with the guidelines contained in Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program," dated September, 1995. The Regulatory Guide references NEI 94-01, Revision 0, as providing methods acceptable to the Nuclear Regulatory Commission (NRC) staff for complying with the provisions of Option B in Appendix J to 10 CFR Part 50, subject to four provisions listed in the Regulatory Guide.

5.1 No Significant Hazards Consideration Analysis

Nebraska Public Power District (NPPD) has requested the Nuclear Regulatory Commission to amend Renewed Facility Operating License DPR-46 for Cooper Nuclear Station (CNS) to revise Technical Specifications 5.5.12, Primary Containment Leak Rate Testing Program. The proposed change adds a sub-paragraph to note exception to NEI 94-01, Revision 0, that allows the Type C testing of Residual Heat Removal heat exchanger relief valves and their associated Type B testable discharge flange tests be

performed at the same frequency as the visual examination, seat leakage and set pressure testing is performed under the requirements of the Inservice Testing Program per 10 CFR 50.55a(f).

NPPD has evaluated whether a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The proposed change allows certain leak testing intervals required by the CNS primary containment leakage rate testing program to be aligned with certain testing intervals required by the Inservice Testing Program under 10 CFR 50.55a(f). The containment function is solely to mitigate the consequences of an accident. No design basis accident is initiated by a failure of the containment leakage mitigation function. Aligning the testing interval requirements of the two programs does not create any adverse interactions with other systems that could result in initiation of a design basis accident. Continued containment integrity is assured by the established programs for local leakage rate testing and inservice testing which are unaffected by the proposed change.

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

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No.

   The proposed change allows certain leak testing intervals required by the CNS primary containment leakage rate testing program to be aligned with certain testing intervals required by the Inservice Testing Program under 10 CFR 50.55a(f). This proposed change does not modify existing structures, systems, or components (SSC) of the plant, and it does not introduce new SSC's. The plant will continue to be operated in the same manner. Thus, it does not affect the design function or operation of SSC's involved, and it does not introduce a new accident initiator.

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

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Response: No.

The proposed change allows certain leak testing intervals required by the CNS primary containment leakage rate testing program to be aligned with certain testing intervals required by the Inservice Testing Program under 10 CFR 50.55a(f). The proposed alignment of testing intervals will not result in a change to the design or operation of any plant SSC used to shutdown the plant, initiate Emergency Core Cooling systems, or isolate the ability of CNS to mitigate any accident or transient. There is no impact on safety limits or limiting safety system settings. The change does not affect any plant safety parameters or setpoints.

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

Based on the above, NPPD concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Conclusion

In conclusion, based on the considerations discussed above, (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 the amendment will not be inimical to the common defense and security or to the health and safety of the public.

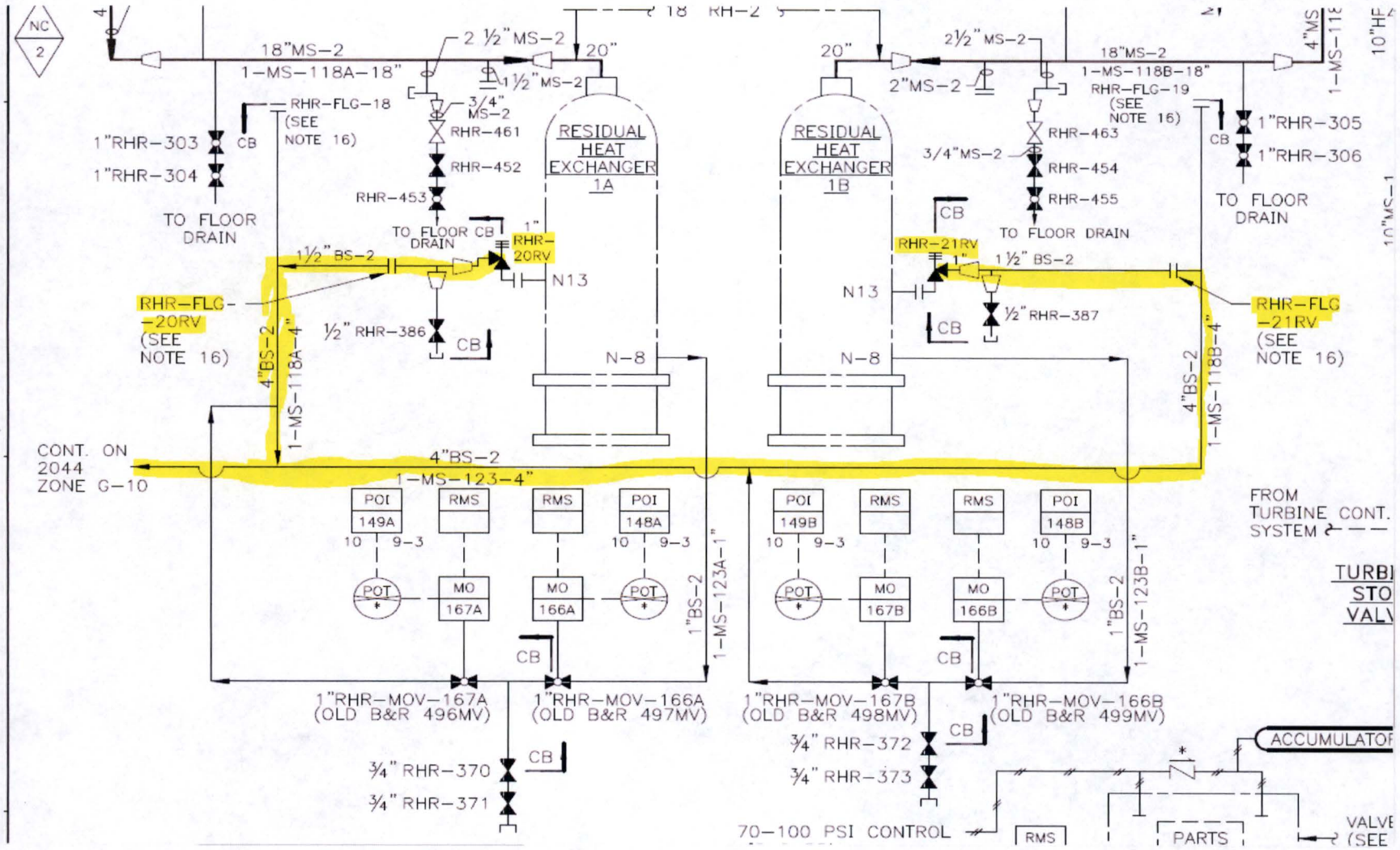
6.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

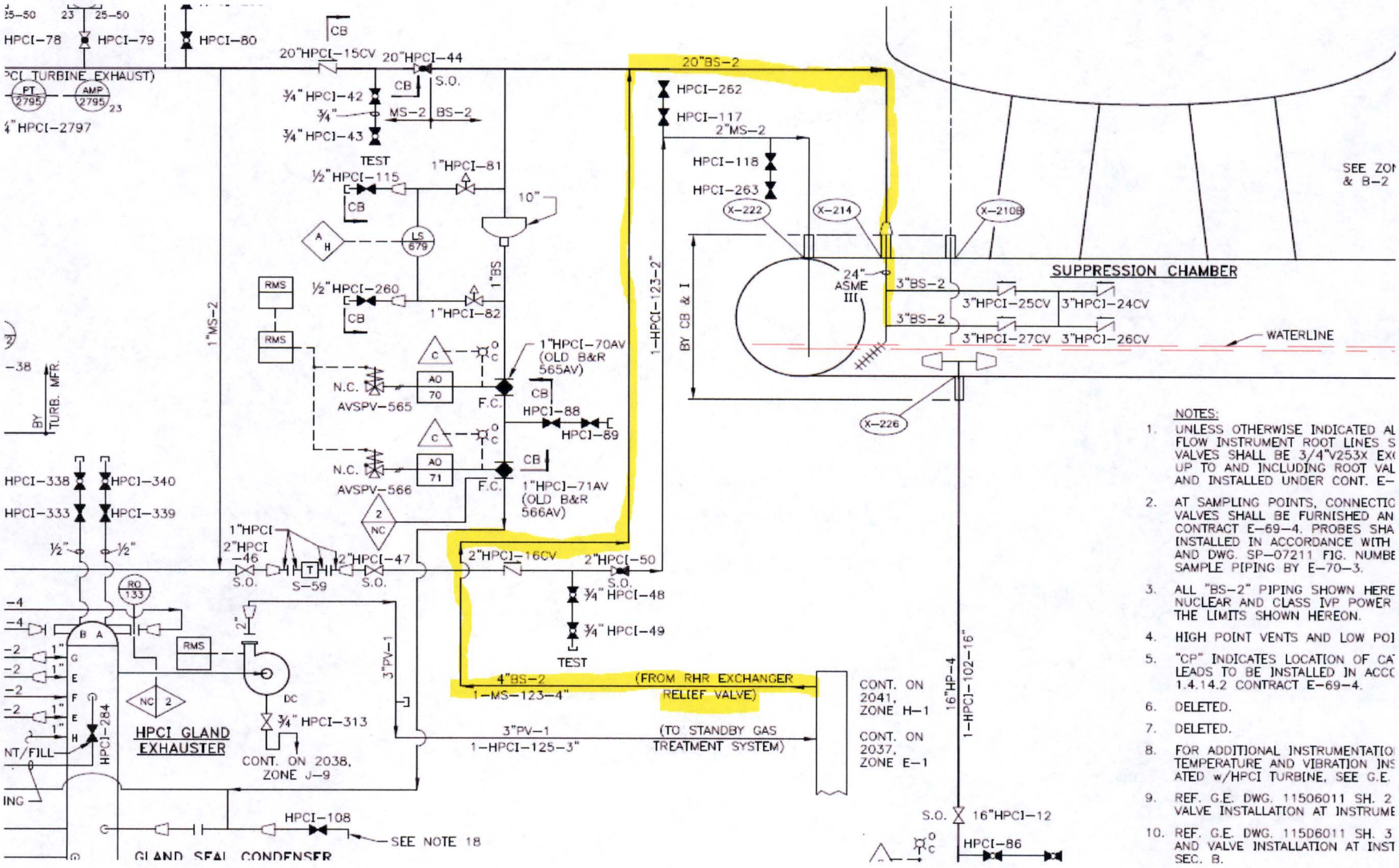
7.0 REFERENCE

1. Letter from Lawrence J. Burkhart, USNRC Project Directorate IV, to J. H. Swailes, NPPD, dated March 3, 2000, "Cooper Nuclear Station – Issuance of Amendment RE: Changes to the Technical Specifications (TS) to Implement 10 CFR Part 50, Appendix J, Option B, and Changes to the TS Associated with the Containment Air Lock Interlock Mechanism, Isolation Valve Time Testing, and Credit for Administrative Means for Securing Isolation Devices (TAC NO. MA6877)" (ML003690276)

Enclosure 1: Excerpt from Burns & Roe Drawing 2041



Enclosure 2: Excerpt from Burns & Roe Drawing 2044

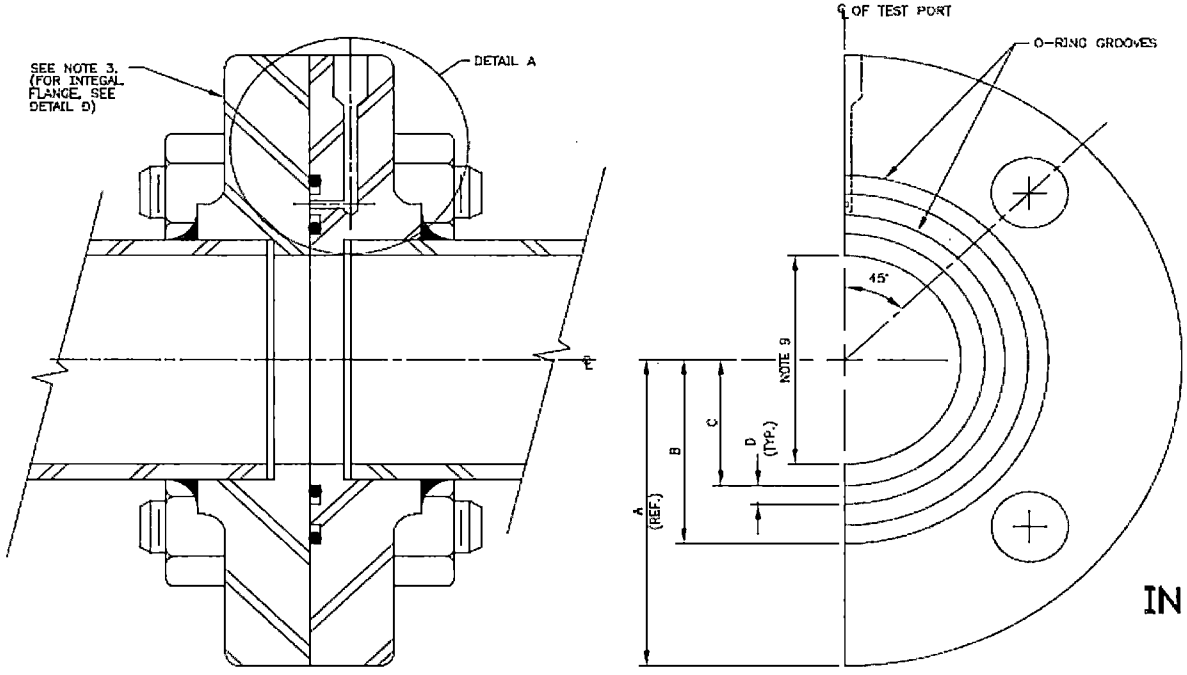


Enclosure 3: CNS Drawing of Testable Flange (Sheet 1 of 2)

TABLE 1		
DIA	MIN. FLG. THICKNESS	REMARKS
1"	0.938"	
1 1/2"	0.938"	
2"	0.878"	NOTE 7
4"	0.878"	
8"	1.058"	

O-RING DATA					
DIA	INNER	OUTER	MATERIAL	DURO#	REMARKS
1"	2-220	2-229	SILICONE/VITON	60-90	
1 1/2"	2-226	2-235	SILICONE/VITON	60-90	
2"	2-230	2-238	SILICONE/VITON	60-90	600# FLANGE
2"	2-230	2-237	SILICONE/VITON	60-90	
4"	2-249	2-258	SILICONE/VITON	60-90	
8"	2-372	2-377	SILICONE/VITON	60-90	

DIMENSIONS									
DIA	WT	A	B	C	D	E	F	G	R
1"	900	2.940	$1.314^{+0.003}_{-0.003}$	$0.585^{+0.003}_{-0.003}$	0.180 ±0.005		2.050	0.105 ±0.002	0.020 ±0.005
1 1/2"	900	3.500	$1.689^{+0.003}_{-0.003}$	$0.987^{+0.003}_{-0.003}$	0.180 ±0.005		2.260	0.105 ±0.002	0.020 ±0.005
2"	600	3.250	$1.878^{+0.003}_{-0.003}$	$1.247^{+0.003}_{-0.003}$	0.180 ±0.005		1.800	0.105 ±0.002	0.020 ±0.005
2"	150	3.000	$1.814^{+0.003}_{-0.003}$	$1.247^{+0.003}_{-0.003}$	0.150 ±0.005		1.560	0.105 ±0.002	0.020 ±0.005
4"	150	4.500	$3.126^{+0.003}_{-0.003}$	$2.435^{+0.005}_{-0.005}$	0.180 ±0.005		1.830	0.105 ±0.002	0.020 ±0.005
8"	150	6.750	$5.188^{+0.003}_{-0.016}$	$4.373^{+0.005}_{-0.030}$	0.280 ±0.005		2.080	0.160 ±0.004	0.030 ±0.005



NOTES:

1. REMOVE RAISED FACE BY TURNING, WHEN APPLICABLE.
2. ALL MACHINE MARKS MUST LAY IN A CIRCULAR PATTERN AROUND FLANGE CENTER LINE.
3. FLANGE WITHOUT O-RING GROOVES MUST HAVE A NOMINAL SURFACE FINISH OF 32 MICROINCHES WITHIN THE BOLT HOLE CIRCLE. (SEE NOTE 8)
4. UNLESS OTHERWISE NOTED, TOLERANCE ON ALL DIMENSIONS IS ±1/16".
5. DIMENSION "F" PROVIDED FOR INFORMATION ONLY. FIELD TO DETERMINE ACTUAL DIMENSION. HOLE DEPTH SHALL NOT EXCEED 1/16" PASSAGE BY MORE THAN 1/8".
6. CHECK WITH COMPRESSED AIR FOR CLEAR PASSAGE AFTER DRILLING.
7. DIMENSION IS FOR 600lb. FLANGE. SEE TABLE 2 FOR 150lb. FLANGE.
8. SURFACE FINISHES GIVEN ARE NOMINAL VALUES. ACTUAL FINISHES MAY BE DETERMINED USING COMPARATOR CARDS. WHEN USING SUCH CARDS, AN ACCEPTABLE FINISH EXISTS IF IT SUBJECTIVELY APPEARS TO BE SMOOTHER THAN:
   - A 32 MICROINCH CARD FOR A 16 MICROINCH FINISH.
   - A 63 MICROINCH CARD FOR A 32 MICROINCH FINISH.
   - A 125 MICROINCH CARD FOR A 63 MICROINCH FINISH.
9. MATCH FLANGE BORE TO PIPE BORE.

INFORMATION ONLY

DC 90-036 (NOT TO SCALE)

451244246

REVISIONS

NO.	REVISIONS	DFT	CKD	APP	DATE
N01	INITIAL ISSUE	RBA	KG	NS	11-7-90
N02	DC 90-036 (DCN 11-0309)	RAC	DJF	KZ	2-3-11

FOR PREVIOUS REVISIONS, SEE SUPERSEDED CARDS.
REVISIONS BY N.P.P.D.

SIGNIFICANT NUMBER / GROUP: 1 2 3 4 5 6

COOPER NUCLEAR STATION
TESTABLE FLANGE
MACHINING DETAILS
SHEET 1

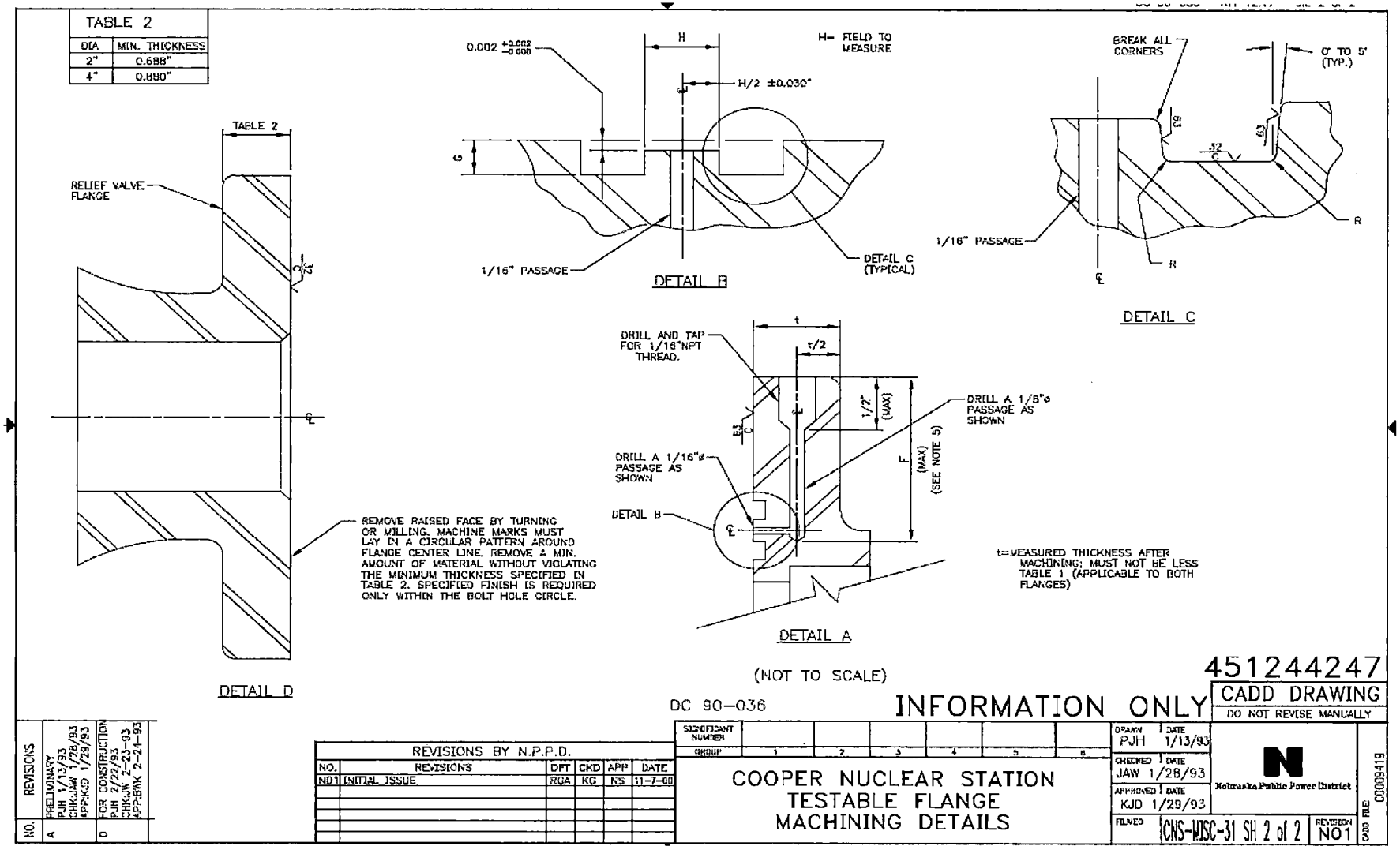
DRAWN	PJH	1/13/93
CHECKED	JAW	1/28/93
APPROVED	KLO	1/29/93
FILMED		

Nebraska Public Power District

CNS-MISC-31 | REVISION N02

CARD FILE: C0009418

Enclosure 3: CNS Drawing of Testable Flange (Sheet 2 of 2)



451244247

DC 90-036

INFORMATION ONLY

CADD DRAWING
DO NOT REVISE MANUALLY

NO.	REVISIONS
A	PRELIMINARY PJH 1/13/93 CHK:JAW 1/28/93 APP:KJD 1/29/93
D	FOR CONSTRUCTION PJH 2/22/93 CHK:JAW 2-23-93 APP:BAK 2-24-93

REVISIONS BY N.P.P.D.

NO.	REVISIONS	DFT	CKD	APP	DATE
NO1	INITIAL ISSUE	RGA	KG	NS	11-7-00

SIGNIFICANT NUMBER GROUP 1 2 3 4 5 6

COOPER NUCLEAR STATION
TESTABLE FLANGE
MACHINING DETAILS

DRAWN PJH 1/13/93
CHECKED JAW 1/28/93
APPROVED KJD 1/29/93

Nebraska Public Power District

FILMED
CNS-MISC-31 SH 2 of 2
REVISION NO1
CADD FILE: C0009419

Attachment 2

Proposed Technical Specifications Change (Mark-Up)

Cooper Nuclear Station, Docket No. 50-298, License No. DPR-46

Revised Page

5.0-17

6. Exception to NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR 50, Appendix J," to allow testing of Type C Residual Heat Removal heat exchanger relief valves and their associated Type B testable discharge flange tests at the same frequency as the visual examination, seat leakage testing, and set pressure testing performed for these valves under the requirements of the Inservice Testing Program per 10 CFR 50.55a(f).

5.5 Programs and Manuals

5.5.12 Primary Containment Leakage Rate Testing Program (continued)

5. Exemption from Section III.B of 10CFR Part 50, Appendix J, Option B, to allow the contribution from Main Steam Pathway (Main Steam lines and Main Steam inboard drain line) leakage to be excluded from the sum of the leakage rates from Type B and Type C tests (September 14, 2009).

b. The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 58.0 psig. The containment design pressure is 56.0 psig.

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be 0.635% of containment air weight per day.

d. Leakage Rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is $\leq 1.0\ L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are, $<0.60\ L_a$ for the Type B and C tests and $\leq 0.75\ L_a$ for Type A tests.

2. Air lock testing acceptance criteria are:

a. Overall air lock leakage rate is $\leq$ 12 scfh when tested at $\geq P_a$.

b. Overall air lock leakage rate is $\leq$ 0.23 scfh when tested at $\geq$ 3.0 psig.

e. The provisions of SR 3.0.2 do not apply to the test frequencies specified in the Primary Containment Leakage Rate Testing Program.

f. The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

5.5.13 Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Filter (CREF) System, CRE occupants can control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without

(continued)

Attachment 3

Revised Technical Specifications Page

Cooper Nuclear Station, Docket No. 50-298, License No. DPR-46

Revised Page

5.0-17

Page 5.0.18 included due to shifting of text from page 5.0.17.

5.5 Programs and Manuals

5.5.12 Primary Containment Leakage Rate Testing Program (continued)

5. Exemption from Section III.B of 10CFR Part 50, Appendix J, Option B, to allow the contribution from Main Steam Pathway (Main Steam lines and Main Steam inboard drain line) leakage to be excluded from the sum of the leakage rates from Type B and Type C tests (September 14, 2009).

6. Exception to NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR 50, Appendix J," to allow testing of Type C Residual Heat Removal heat exchanger relief valves and their associated Type B testable discharge flange tests at the same frequency as the visual examination, seat leakage testing, and set pressure testing performed for these valves under the requirements of the Inservice Testing Program per 10 CFR 50.55a(f).

b. The peak calculated containment internal pressure for the design basis loss of coolant accident, P_a, is 58.0 psig. The containment design pressure is 56.0 psig.

c. The maximum allowable containment leakage rate, L_a, at P_a, shall be 0.635% of containment air weight per day.

d. Leakage Rate acceptance criteria are:

1. Containment leakage rate acceptance criterion is $\leq 1.0\ L_a$. During the first unit startup following testing in accordance with this program, the leakage rate acceptance criteria are, $<0.60\ L_a$ for the Type B and C tests and $\leq 0.75\ L_a$ for Type A tests.

2. Air lock testing acceptance criteria are:

a. Overall air lock leakage rate is ≤ 12 scfh when tested at $\geq P_a$.

b. Overall air lock leakage rate is ≤ 0.23 scfh when tested at ≥ 3.0 psig.

e. The provisions of SR 3.0.2 do not apply to the test frequencies specified in the Primary Containment Leakage Rate Testing Program.

f. The provisions of SR 3.0.3 are applicable to the Primary Containment Leakage Rate Testing Program.

5.5.13 Control Room Envelope Habitability Program

A Control Room Envelope (CRE) Habitability Program shall be established and implemented to ensure that CRE habitability is maintained such that, with an OPERABLE Control Room Emergency Filter (CREF) System, CRE occupants can

(continued)

5.5 Programs and Manuals

5.5.13 Control Room Envelope Habitability Program (continued)

control the reactor safely under normal conditions and maintain it in a safe condition following a radiological event, hazardous chemical release, or a smoke challenge. The program shall ensure that adequate radiation protection is provided to permit access and occupancy of the CRE under design basis accident (DBA) conditions without personnel receiving radiation exposures in excess of either (a) 5 rem whole body or its equivalent to any part of the body for the duration of the loss-of-coolant accident, or (b) 5 rem total effective dose equivalent (TEDE) for the duration of the fuel handling accident. The program shall include the following elements:

a. The definition of the CRE and CRE boundary.

b. Requirements for maintaining the CRE boundary in its design condition including configuration control and preventive maintenance.

c. Requirements for (i) determining the unfiltered air inleakage past the CRE boundary into the CRE in accordance with the testing methods and at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, "Demonstrating Control Room Envelope Integrity at Nuclear Power Reactors," Revision 0, May 2003, and (ii) assessing CRE habitability at the Frequencies specified in Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0. No exceptions to Sections C.1 and C.2 of Regulatory Guide 1.197, Revision 0, are proposed.

d. Measurement, at designated locations, of the CRE pressure relative to all external areas adjacent to the CRE boundary during the pressurization mode of operation by the CREF System, operating at the flow rate required by the Ventilation Filter Testing Program, at a Frequency of 24 months. The results shall be trended and used as part of the periodic assessment of the CRE boundary.

e. The quantitative limits on unfiltered air inleakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered air inleakage measured by the testing described in paragraph c. The unfiltered air inleakage limit for radiological challenges is the inleakage flow rate assumed in the licensing basis analyses of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions in the licensing basis.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability, determining CRE unfiltered air inleakage, and measuring CRE pressure and assessing the CRE boundary as required by paragraphs c and d, respectively.

(continued)