WOLF CREEK
NUCLEAR OPERATING CORPORATION

Terry J. Garrett
Vice President Engineering

August 23, 2005

ET 05-0008

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Subject: Docket 50-482: 10 CFR 50.55a Requests for the Third Ten-Year Interval Inservice Testing (IST) Program

Gentlemen:

Pursuant to 10 CFR 50.55a(a)(3)(i), Wolf Creek Nuclear Operating Corporation (WCNOC) hereby requests NRC approval of the following four (4) 10 CFR 50.55a Requests for the Third Ten-Year Interval Inservice Testing (IST) Program, which will begin on September 4, 2005. These requests were previously approved for use for the Second Ten-Year Interval Inservice Testing (IST) Program.

Attachment I provides 10 CFR 50.55a Request No. 3PR-01, which was previously approved for the Second Ten-Year Interval Inservice Testing (IST) Program as Request 2PR-02 by NRC letter dated January 10, 1996. It requests an alternative to the requirements of ASME OM Code ISTB-3510(b)(1) as they pertain to the Residual Heat Removal Pump Discharge Pressure Gauge Range requirements.

Attachment II provides 10 CFR 50.55a Request No. 3PR-02, which was previously approved for the Second Ten-Year Interval Inservice Testing (IST) Program as Request 2PR-03 by NRC letter dated January 10, 1996. It requests an alternative to the requirements of ASME OM Code ISTB-3510(b)(1) as they pertain to the Centrifugal Charging Pump Suction Pressure Gauge Range requirements.

Attachment III provides 10 CFR 50.55a Request No. 3PR-03, which was previously approved for the Second Ten-Year Interval Inservice Testing (IST) Program as Request 2PR-04 by NRC letter dated January 10, 1996. It requests an alternative to the requirements of ASME OM Code ISTB-3510(b)(1) as they pertain to the Auxiliary Feedwater Pump Suction Pressure Gauge Range Requirements.

Attachment V provides 10 CFR 50.55a Request No. 3VR-01, which was previously for the Second Ten-Year Interval Inservice Testing (IST) Program approved as Request 2VR-03 by NRC letter dated January 10, 1996. It requests an alternative to the requirements of ASME OM Code Appendix I, I-1410(b) pertaining to the Set Pressure Measurement Accuracy for two (2) relief valves.

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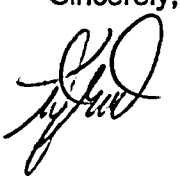
Pursuant to 10 CFR 50.55a(a)(3)(ii), Wolf Creek Nuclear Operating Corporation (WCNOC) hereby requests NRC approval of the following new 10 CFR 50.55a Request for the Third Ten-Year Interval Inservice Testing (IST) Program. Attachment IV provides 10 CFR 50.55a Request No. 3PR-04. It requests an alternative to the requirement of ASME OM Code ISTB-3300(e)(1) as it pertains to the Containment Spray Pump Comprehensive Test, on the basis that compliance with the specified requirement of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

WCNOC requests approval of the proposed 10 CFR 50.55a Requests by February 28, 2006.

There are no commitments contained within this letter. If you have any questions, please contact me at (620) 364-4084 or Mr. Kevin Moles at (620) 364-4126.

Sincerely,



Terry J. Garrett

TJG/rlg

Attachments

cc: J. N. Donohew (NRC), w/a
W. B. Jones (NRC), w/a
B. S. Mallett (NRC), w/a
Senior Resident Inspector (NRC), w/a

Attachment I – 10 CFR 50.55a Request No. 3PR-01

10 CFR 50.55a Request 3PR-01

Residual Heat Removal Pump Discharge Pressure Gauge Range Requirements

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. **ASME Code Component(s) Affected**

   PEJ01A Residual Heat Removal Pump A
   PEJ01B Residual Heat Removal Pump B

2. **Applicable Code Edition and Addenda**
   ASME OM Code 1998 Edition through 2000 Addenda

3. **Applicable Code Requirement**

   ISTB-3510(b)(1) – The full-scale range of each analog instrument shall be not greater than three times the reference value.

4. **Reason for Request**

   Pursuant to 10 CFR 50.55a, "Codes and Standards", paragraph (a)(3)(i), relief is requested from the requirement of ASME OM Code ISTB-3510(b)(1). The basis of the request is that the proposed alternative would provide an acceptable level of quality and safety.

   The installed discharge pressure gauge range of the residual heat removal (RHR) pumps is 0 – 700 psig. The reference values for discharge pressure during inservice testing, is between 200 psig and 300 psig. As a result, the instrument range exceeds the requirement of ISTB-3510(b)(1).

5. **Proposed Alternative and Basis for Use**

   Pump discharge pressure is used along with pump suction pressure to determine pump differential pressure. Reference values for the RHR pumps during Inservice Testing, is between 200 psig and 300 psig. Based on ISTB-3510(b)(1), this would require as a maximum, a gauge with a range of 0 to 600 psig (3 X 200 psig) to bound the lowest reference value for pressure. Applying the accuracy requirement of ± 2 % for the quarterly Group A pump test, the resulting inaccuracies due to pressure effects would be ± 12.0 psig (0.02 X 600 psig).

10 CFR 50.55a Request 3PR-01

Residual Heat Removal Pump Discharge Pressure Gauge Range Requirements (Continued)

As an alternative, for the Group A quarterly test, Wolf Creek Nuclear Operating Corporation (WCNOC) will use the installed discharge pressure gauge (0 to 700 psig) calibrated to less than ± 2 % such that the inaccuracies due to pressure will be less than that required by the Code (± 12.0 psig). Use of the installed pressure gauge calibrated to less than ± 2 % is equivalent in terms of measuring differential pressure.

Although the permanently installed discharge pressure gauges are above the maximum range limits of ASME OM Code ISTB-3510(b)(1), they are within the accuracy requirements and are therefore suitable for the test. Reference NUREG-1482, Revision 1, Section 5.5.1.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-3510(b)(1) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) WCNOC requests relief from the specific ISTB requirements identified in this request.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the entire 3rd 120 month interval.

7. Precedents

This request was previously approved by NRC letter dated January 10, 1996 for the 2nd 120 Month Interval at Wolf Creek Generating Station (WCGS) as relief request 2PR-02.

Attachment II - 10 CFR 50.55a Request No. 3PR-02

10 CFR 50.55a Request 3PR-02

Centrifugal Charging Pump Suction Pressure Gauge Range Requirements

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

PBG05A	Centrifugal Charging Pump A
PBG05B	Centrifugal Charging Pump B

2. Applicable Code Edition and Addenda

ASME OM Code 1998 Edition through 2000 Addenda

3. Applicable Code Requirement

ISTB-3510(b)(1) – The full-scale range of each analog instrument shall be not greater than three times the reference value.

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and Standards", paragraph (a)(3)(i), relief is requested from the requirement of ASME OM Code ISTB-3510(b)(1). The basis of the request is that the proposed alternative would provide an acceptable level of quality and safety.

The installed suction pressure gauge range of the centrifugal charging pumps is 0 – 150 psig. The reference values for suction pressure during Inservice Testing are between 30 and 40 psig. As a result, the instrument range exceeds the requirement of ISTB-3510(b)(1).

5. Proposed Alternative and Basis for Use

Pump suction pressure is used along with pump discharge pressure to determine pump differential pressure. Reference values for the centrifugal charging pumps during Inservice Testing are between 30 psig and 40 psig. Based on ISTB-3510(b)(1), this would require as a maximum, a gauge with a range of 0 to 90 psig (3 X 30 psig) to bound the lowest reference value for pressure. Applying the accuracy requirement of ± 2 % for the quarterly Group B pump test, the resulting inaccuracies due to pressure effects would be ± 1.8 psig (0.02 X 90 psig).

10 CFR 50.55a Request 3PR-02

Centrifugal Charging Pump Suction Pressure Gauge Range Requirements (Continued)

As an alternative, for the Group B quarterly test, Wolf Creek Nuclear Operating Corporation (WCNOC) will use the installed suction pressure gauge (0 to 150 psig) calibrated to less than ± 2 % such that the inaccuracies due to pressure will be less than that required by the Code (± 1.8 psig). Use of the installed pressure gauge calibrated to less than ± 2 % is equivalent in terms of measuring differential pressure.

Although the permanently installed discharge pressure gauges are above the maximum range limits of ASME OM Code ISTB-3510(b)(1), they are within the accuracy requirements and are therefore suitable for the test. Reference NUREG-1482, Revision 1, Section 5.5.1.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-3510(b)(1) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) WCNOC requests relief from the specific ISTB requirements identified in this request.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the entire 3rd 120 month interval.

7. Precedents

This request was previously approved by NRC letter dated January 10, 1996 for the 2nd 120 Month Interval at Wolf Creek Generating Station (WCGS) as relief request 2PR-03.

Attachment III - 10 CFR 50.55a Request No. 3PR-03

10 CFR 50.55a Request 3PR-03

Auxiliary Feedwater Pump Suction Pressure Gauge Range Requirements

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

PAL01A Motor Driven Auxiliary Feedwater Pump A
PAL01B Motor Driven Auxiliary Feedwater Pump B
PAL02 Turbine Driven Auxiliary Feedwater Pump

2. Applicable Code Edition and Addenda

ASME OM Code 1998 Edition through 2000 Addenda

3. Applicable Code Requirement

ISTB-3510(b)(1) – The full-scale range of each analog instrument shall be not greater than three times the reference value.

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and Standards", paragraph (a)(3)(i), relief is requested from the requirement of ASME OM Code ISTB-3510(b)(1). The basis of the request is that the proposed alternative would provide an acceptable level of quality and safety.

The installed suction pressure gauge range of the auxiliary feedwater pumps is 0 – 60 psig. The reference values for suction pressure during Inservice Testing are approximately 15 psig. As a result, the instrument range exceeds the requirement of ISTB-3510(b)(1).

5. Proposed Alternative and Basis for Use

Pump suction pressure is used along with pump discharge pressure to determine pump differential pressure. Reference values for the auxiliary feedwater pumps suction pressure during Inservice Testing is approximately 15 psig. Based on ISTB-3510(b)(1), this would require as a maximum, a gauge with a range of 0 to 45 psig (3 X 15 psig) to bound the lowest reference value for pressure. Applying the accuracy requirement of ± 1/2 % for the biennial comprehensive pump test, the resulting inaccuracies due to pressure effects would be ± 0.225 psig (0.005 X 45 psig).

10 CFR 50.55a Request 3PR-03

Auxiliary Feedwater Pump Suction Pressure Gauge Range Requirements (Continued)

As an alternative, for the biennial comprehensive pump test, Wolf Creek Nuclear Operating Corporation (WCNOC) will use the installed suction pressure gauge (0 to 60 psig) calibrated to less than ± 0.5 % such that the inaccuracies due to pressure will be less than that required by the Code (± 0.225 psig). Use of the installed pressure gauge calibrated to less than ± 0.5 % is equivalent in terms of measuring differential pressure.

Although the permanently installed discharge pressure gauges are above the maximum range limits of ASME OM Code ISTB-3510(b)(1), they are within the accuracy requirements and are therefore suitable for the test. Reference NUREG-1482, Revision 1, Section 5.5.1.

Using the provisions of this relief request as an alternative to the specific requirements of ISTB-3510(b)(1) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) WCNOC requests relief from the specific ISTB requirements identified in this request.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the entire 3rd 120 month interval.

7. Precedents

This request was previously approved by NRC letter dated January 10, 1996 for the 2nd 120 Month Interval at Wolf Creek Generating Station (WCGS) as relief request 2PR-04.

Attachment IV - 10 CFR 50.55a Request No. 3PR-04

10 CFR 50.55a Request 3PR-04

Containment Spray Pump Comprehensive Test

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(ii)

Hardship or Unusual Difficulty Without
Compensating Increase in Level of Quality or Safety

1. ASME Code Component(s) Affected

PEN01A	Containment Spray Pump A
PEN01B	Containment Spray Pump B

2. Applicable Code Edition and Addenda

ASME OM Code 1998 Edition through 2000 Addenda

3. Applicable Code Requirement

ISTB-3300(e)(1) – Reference values shall be established within ± 20 % of pump design flow rate for the comprehensive test.

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and Standards", paragraph (a)(3)(ii), relief is requested from the requirement of ASME OM Code ISTB-3300(e)(1). The basis of the request is that compliance with the specified requirement of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

The specified ± 20 % of pump design flow rate cannot be achieved for the subject pump during Comprehensive testing. The design flow rate of the containment spray pump is 3,615 gallons per minute (gpm). Specifically, relief is requested from ISTB-3300(e)(1) in meeting the specified ± 20 % of design flow (minimum 2,532 gpm) during the comprehensive test.

5. Proposed Alternative and Basis for Use

The safety function of the containment spray pump is to pump water from the refueling water storage tank into the containment atmosphere under conditions requiring system actuation and pump water from the containment sump to the containment atmosphere after injection when flow from the refueling water storage tank has been terminated. This function maintains containment pressure below the containment design pressure during pressure transients following a Loss of Coolant Accident (LOCA) or Main Steam Line Break (MSLB) inside containment. The containment spray system is actuated by the coincidence of two-out-of-four HI-3 containment pressure signals or manually on the Main Control Board.

10 CFR 50.55a Request 3PR-04

Containment Spray Pump Comprehensive Test (Continued)

The containment spray pumps are vertically mounted centrifugal pumps driven by an electric motor driver. The pumps were manufactured by the Ingersoll-Rand Company. During normal power operations the pumps are in the standby mode. The pump takes suction from the refueling water storage tank and delivers spray flow to the containment atmosphere when the system is actuated during accident conditions. After the refueling water storage tank water level reaches a pre-determined low level, the containment spray pumps are manually aligned to the containment sump during the recirculation phase.

The containment spray pump was originally designed to deliver 3,165 gpm into the containment atmosphere during the injection phase, and 3,750 gpm during recirculation mode. However, the design parameters for the Wolf Creek containment analysis have been revised and now require the containment spray pump to deliver 3,086 gpm and 3,615 gpm during injection and recirculation modes, respectively.

The piping design of the containment spray system is such that the test loop for the pump consists of a 10" discharge line which separates into a 4" test recirculation line returning to the refueling water storage tank, as shown by Figure 2, Containment Spray Pump Test Flow Diagram. The test recirculation line is sized to accommodate 10 % of the pump design flow. The 10" discharge line terminates inside containment at the spray nozzle headers in the top of containment. Testing of the pump near the design recirculation flow of 3,615 gpm would require discharging through the spray nozzles and subsequent wetting of containment.

The safety significance of the containment spray function is an important consideration for this request. Wolf Creek's containment is of the large, dry design. The internal free volume is approximately 2.5 million cubic feet. The containment internal design pressure is 60 psig. A containment ultimate strength analysis, performed by Bechtel Corporation in support of the Wolf Creek Individual Plant Examination (IPE), determined that the containment is significantly more robust than indicated by the design pressure. For example, the minimum median or a typical value of the overall containment ultimate pressure capacity is 122 psig (2.03 times the design basis pressure). The lower bound of the overall containment ultimate pressure capacity is 99 psig (1.65 times the design basis pressure). A consequence of the robust containment design is that the Wolf Creek large early release frequency (LERF) is dominated by containment bypass events. Steam generator tube rupture and interfacing system LOCA core damage events account for over 95 percent of the baseline Wolf Creek LERF. As a result, the containment spray system has a low safety significance in the Wolf Creek Probabilistic Risk Assessment (PRA).

10 CFR 50.55a Request 3PR-04

Containment Spray Pump Comprehensive Test (Continued)

The WCNOC 10 CFR 50.65 Maintenance Rule Program defines four separate functions associated with the Containment Spray System. Of these four functions, two are designated as Low Safety Significant and two are designated High Safety Significant. The only functions applicable to the containment spray function are the two designated as Low Safety Significant. The remaining High Safety Significant functions pertain to containment isolation and RHR recirculation capability.

In support of Wolf Creek's pilot effort to demonstrate 10 CFR 50.69, a review of the Containment Spray function was reviewed by an Integrated Decision-making Panel. This review concluded that the active function of the Containment Spray System to provide a spray of borated water to the upper regions of the containment to reduce the containment pressure and temperature meet the criteria for a low safety significant classification.

The proposed alternative to testing within ± 20 % of design flow for the biennial comprehensive test is to test the containment spray pumps at a reference flow rate of approximately 300 gpm each quarter using the applicable ASME OM Code rules for a Group A test with the comprehensive test's acceptability limitations and instrumentation requirements. At the flow reference point of approximately 300 gpm, pump degradation as noted by measuring differential pressure can be detected for a given flow rate reference value. This aspect of performance testing will reveal hydraulic degradation. Any deviations will be compared to the Code ranges and corrective actions taken in accordance with ISTB-6200.

In addition to the measures described in the previous paragraph, the Predictive Maintenance Program will perform full frequency spectrum vibration analysis each quarter. This analysis goes beyond the required vibration analysis by the Code and is superior in detecting precursors to pump failures when compared to the simple vibration amplitude measurement technique. The subject pumps and motors are included in the station Preventive Maintenance Program. This program requires periodic oil analysis of the containment spray pump motors. This aspect of performance testing will reveal mechanical degradation. Based on the preventive maintenance results, quarterly full frequency spectrum vibration analysis, and quarterly hydraulic testing at approximately 300 gpm, an accurate assessment of pump health and operational readiness is determined.

10 CFR 50.55a Request 3PR-04

Containment Spray Pump Comprehensive Test (Continued)

The alternative approach is justified by the circumstances of pump use and historical test data. Insignificant degradation has been experienced with the containment spray pumps, which is expected since they are standby pumps and are only operated for testing purposes. The reference flow rate of 300 gpm corresponds to 8.3 % of pump design flow. To establish the flow rate within ± 20 % of design would require a flow rate of at least 2,982 gpm. Establishing flows at 2,982 gpm does not increase the ability to detect degradation or assess pump conditions since the slope of the pump curve is relatively flat from shutoff head to the minimum Code required flow point as shown in Figure 1. This type of flow curve was not used as the basis for the existing ASME Comprehensive Pump Test requirements. For Wolf Creek, testing at higher flows does not substantially increase the ability to detect hydraulic degradation.

Vibration data collected during the in-service tests have consistently been below 0.325 in/sec in all cases. Regular full frequency spectrum vibration analyses demonstrate consistent performance. Based on mechanical performance and hydraulic test data, there is reasonable assurance that the pumps would perform their intended design function. Projecting the hydraulic pump performance at substantial flow rates would be expected to be above the performance curve at the design point, with adequate margin. Mechanical vibration projected at substantial flows would tend to be less than that at the reduced flow test point.

During preoperational testing conducted in 1984, both containment spray pumps were full flow tested. Refer to Figure 2 for the system test flow diagram. A temporary test loop was constructed by installing temporary piping from the discharge piping to the recirculation sump suction piping inside containment. In this configuration the pumps were operated to demonstrate that the maximum design flow requirement of 3,750 gpm could be met. As previously stated, a re-analysis of required flows determined that a lower flow rate of 3,615 gpm is actually needed, so the preoperational testing demonstrated a flow margin of over 135 gpm when this change is taken into consideration.

Hardship and unusual difficulty would be incurred by testing at or near design flow rates. Substantial flow can only be achieved through the 10" discharge line, which ultimately requires flow through the spray nozzles. Temporary modifications to install a test return line capable of passing pump design flow would be highly labor intensive and could only be performed during refueling outages. A number of personnel safety issues, seismic concerns, fire barrier considerations and configuration control concerns are raised by the use of temporary modifications to accomplish the necessary flow rate. This temporary modification will interfere with refueling activities and has a high potential to extend outage durations. Since Wolf Creek is on an 18-month fuel cycle, comprehensive pump testing would be required every 18 months instead of every 24

10 CFR 50.55a Request 3PR-04

Containment Spray Pump Comprehensive Test (Continued)

months as allowed by the ASME requirement. Biennial testing as described by the ASME OM Code would require a permanent modification to the containment spray piping system. The cost of performing a modification to enable full flow testing is estimated at $1,254,000. The cost of this modification was determined using the project implementation costs at a site that has implemented a modification equivalent to that which would be used at Wolf Creek.

In summary, the active function of the Containment Spray pumps meets the criteria for a low safety significant component in the Wolf Creek Maintenance Rule Program and confirmed in a 10 CFR 50.69 pilot categorization. The proposed alternative testing method is an enhancement when compared to the testing approach that has been performed for the licensed operating life of the site. Compliance with the requirements of OM Code ISTB 3300(e)(1) would result in hardship and unusual difficulty without a compensating increase in the level of quality and safety. Testing at conditions described by the proposed alternative provide adequate assurance of pump operational capability. The proposed alternative of testing on a quarterly basis as a Group A pump with 300 gpm using the Comprehensive Test instrumentation requirements and acceptability limitations will provide the necessary assurance of pump operational readiness.

Using the provisions of this 10 CFR 50.55a Request as an alternative to the specific requirements of ISTB-3300(e)(1) identified above will provide adequate indication of pump performance and continue to provide an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii) relief is requested from the requirements of ASME OM Code ISTB 3300(e)(1).

6. Duration of Proposed Alternative

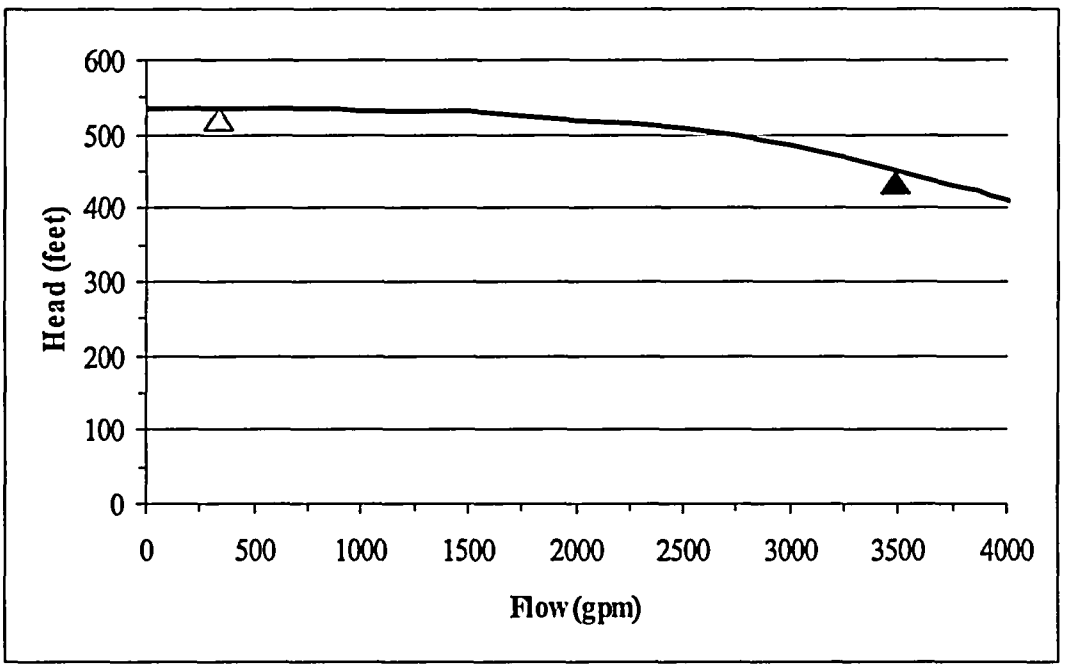
This proposed alternative will be utilized for the entire 3rd 120 month interval.

7. Precedents

- Similar relief request PR-6 was previously approved for North Anna Power Station on January 8, 2002. Docket Nos. 50-338 and 50-339 (TAC Nos. MB2221and MB2222).
- Similar relief request PR-1 was previously approved for Seabrook Station on May 30, 2003. Docket No. 50-443 (TAC No. MB6676).

Figure 1

Containment Spray Pump Characteristic Curve

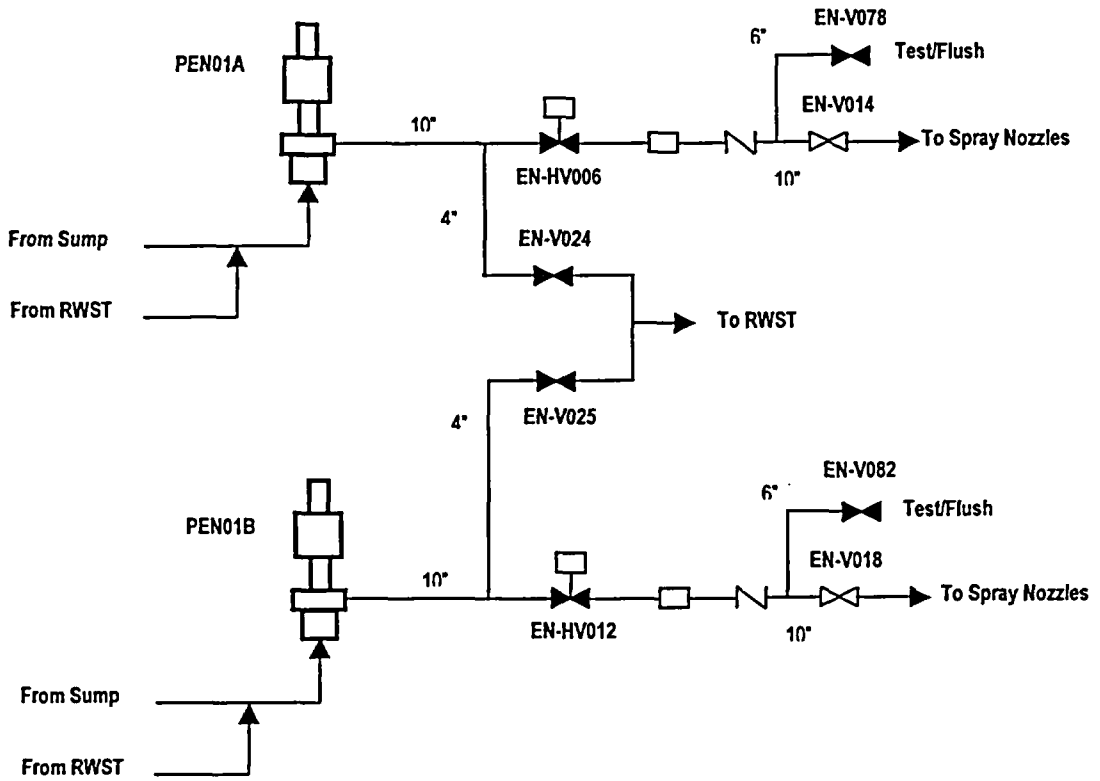


▲ - Pump Design Point (3615 gpm)

△ - Pump Test Point (set parameter is flow at 300 gpm)

Figure 2

Containment Spray Pump Test Flow Diagram



Attachment V - 10 CFR 50.55a Request No. 3VR-01

10 CFR 50.55a Request 3VR-01

Set Pressure Measurement Accuracy

Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)

Alternative Provides Acceptable Level of Quality and Safety

1. ASME Code Component(s) Affected

Valve No.	Class	Category
ENV0058	2	C
ENV0106	2	C

2. Applicable Code Edition and Addenda

ASME OM Code 1998 Edition through 2000 Addenda

3. Applicable Code Requirement

Appendix I, I-1410(b) – *Set-Pressure Measurement Accuracy.* Test equipment (e.g., gages, transducers, load cells, calibration standards) used to determine valve set-pressure, shall have an overall combined accuracy not to exceed +/- 1 % of the indicated (measured) set-pressure.

4. Reason for Request

Pursuant to 10 CFR 50.55a, "Codes and Standards", paragraph (a)(3)(i), relief is requested from the requirement of ASME OM Code Appendix I, I-1410(b). The basis of the relief request is that the proposed alternative would provide an acceptable level of quality and safety.

ENV0058 and ENV0106 - These vacuum relief valves must open to provide vacuum protection of the spray additive tank. This function prevents the tank from collapsing in the event of a failure of the discharge isolation valves to close while the tank is empty and the pumps are operating. This condition could cause a vacuum to be created within the tank. The valve is set to relieve vacuum at 0.98 psig vacuum.

Typically, vacuum breakers are designed to relieve at significantly low differential pressures. For the subject valves, the set pressures are as follows:

Spray Additive Vacuum Breaker 2" Hg (0.98)

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Set Pressure Measurement Accuracy (Continued)

Instrument accuracies to meet the Code requirements would therefore be 0.0098 psig. Pressure instrumentation that provides this level of accuracy for this application is not commercially available and not typically maintained by a power plant facility. As a result, the instrument accuracy range will exceed the requirement of Appendix I, I-1410(b).

5. Proposed Alternative and Basis for Use

The functional requirement of a vacuum breaker is only relevant in the opening direction. The closure function is generally irrelevant or passive – the valve remains closed to maintain the system boundary (e.g. loss of system inventory). For these subject valves, there is not a concern for premature opening since during normal operations the valves are closed with system pressure tending to maintain the valve closed.

Therefore, Wolf Creek Nuclear Operating Corporation (WCNOC) will establish a set point range such that the lower limits for opening of the valves will allow considerable margin without affecting the valve's performance with respect to the system requirements. The instrument accuracy and target setpoint for these valves will be established such that the overall combined accuracy specified in the test procedures will limit the actual set pressure to 1% above the stamped set pressure.

Using the provisions of this relief request as an alternative to the specific requirements of Appendix I, 1410(b) identified above will provide adequate assurance of valve set pressure performance with respect to system functional requirements. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i) WCNOC requests relief from the specific Appendix I requirements identified in this request.

6. Duration of Proposed Alternative

This proposed alternative will be utilized for the entire 3rd 120 month interval.

7. Precedents

This request was previously approved by NRC letter dated January 10, 1996 for the 2nd 120 Month Interval at Wolf Creek Generating Station (WCGS) as relief request 2VR-03.