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U S Nuclear Regulatory Commission
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PRAIRIE ISLAND NUCLEAR GENERATING PLANT
Docket Nos. 50-282 License Nos. DPR-42
50-306 DPR-60

Request for NRR Temporary Waiver of Compliance to
Technical Specification Surveillance Requirements

The purpose of this letter is to confirm the results of discussions between Northern States Power Company and the NRC Staff on July 27, 1992, in which Northern States Power requested a NRR Waiver of Compliance from the 4160V safeguards bus surveillance test requirements of Prairie Island Technical Specification Section 4.6.A.3.b.1. An NRR Waiver of Compliance was verbally issued by the NRC Staff at 2025 on July 27, 1992.

As a result of not completing all of the individual surveillance test requirements specified in Section 4.6.A.3.b.1, and the associated bases for Section 4.6, Unit 1 4160V safeguards bus 16 was declared inoperable at 1600 on July 27, 1992. Unit 2 4160V bus 26 will exceed its 18 month surveillance interval plus 25% on August 5, 1992. Northern States Power requests a delay in the completion of the surveillance test requirements and operability verification for 4160V safeguards buses as specified in Specification 4.6.A.3.b.1 and the basis for Section 4.6 until an Emergency License Amendment can be submitted and approved. That License Amendment will request authorization to delay the performance of the incomplete portion of the surveillance testing on buses 16 and 26 until completion of the electrical system upgrade modifications of the station blackout project during the two unit outage scheduled to begin in October 1992.

Requirements for Which Relief is Requested

Section 4.6.A.3.b.1 of the Prairie Island Technical Specifications requires verification that the simulation of a loss of offsite power in conjunction with a safety injection signal will result in the de-energization of the emergency buses and load shedding from the emergency buses. The bases for Section 4.6 state that this test will demonstrate that the emergency power system and the control systems for the engineered safeguards equipment will function automatically in the event of loss of all other sources of a-c power, and that the diesel generators will start automatically in the event of a loss-of-coolant accident. The bases further state that this test will demonstrate proper tripping of motor feeder breakers, main supply and tie breakers on the affected bus, and sequential starting of essential equipment, as well as the operability of the diesel generators.

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Circumstances Leading to Request and Need for Prompt Action

As a result of a detailed examination of the Emergency Power System Technical Specifications conducted during the Operating Experience Assessments of Kewaunee Licensee Event Report 92-011 and NRC Information Notice 92-40, "Inadequate Testing of Emergency Bus Undervoltage Logic Circuitry", it was identified on July 27, 1992 that a portion of the surveillance testing described in the bases for Section 4.6.A.3.b.1 had not been completed within the required time frame. Since a portion of the required surveillance testing for Unit 1 4160V bus 16 was not completed within the required surveillance interval plus 25%, Unit 1 4160V safeguards bus 16 was declared inoperable at 1600 on July 27, 1992. Unit 2 4160V bus 26 will exceed its 18 month surveillance interval plus 25% on August 5, 1992.

During each refueling outage, the integrated safety injection test has been used to fulfill the requirements of Technical Specification 4.6.A.3.b.1. The integrated SI test simulates a loss of off-site power by directing an operator to manually open the supply breaker to the safeguards bus. This method of tripping the source breakers from the safeguards buses was used in the pre-operational test of the diesel generators and during each subsequent integrated SI test.

However, the integrated SI test does not demonstrate the full capability of the undervoltage trip feature to automatically de-energize the safeguards buses upon a loss of power. The testing performed during the integrated SI test does not demonstrate proper tripping of the main supply and tie breakers on the affected 4160V safeguards bus. All other requirements of 4.6.A.3.b.1 are fulfilled by the integrated SI test.

Electrical preventive maintenance is performed on one of the two 4160 V safeguards buses during each refueling outage, while the refueling cavity is flooded. Prior to restoring the bus, a separate surveillance procedure is performed to functionally check the voltage restoration scheme. During this test, the tripping of the source breakers (main supply and tie breakers) is verified during a bus undervoltage. This surveillance test was performed as part of post maintenance testing prior to bus restoration and was not intended to meet Technical Specification requirements (as interpreted at the time). However, it provides sufficient overlap with the integrated safety injection test to meet the Technical Specification requirements in Section 4.6.A.3.b.1 and its bases. This test is performed every other refueling outage, rather than the each refueling outage (or 18 month) frequency in TS 4.6.A.3.b.1. Testing on Unit 1 4160 V bus 16 was last performed on February 20, 1990. Testing on Unit 2 4160 V bus 26 was last performed on September 20, 1990.

The requested Temporary Waiver of Compliance is necessary to avoid the initiation of a shutdown of Unit 1 at 2400 on July 27, 1992 and a shutdown of Unit 2 on August 5, 1992.

Due to the nature of this event, it was not possible to foresee its occurrence and take measures to avoid it. Therefore, it was not possible to avoid the submittal of this request for a Temporary Waiver of Compliance.

Evaluation of Safety Significance and Potential Consequences

Portions of the load reject/voltage restoration scheme are tested frequently. The undervoltage and degraded voltage relay setpoint calibration is verified on a monthly basis. Also on a monthly basis, under a separate surveillance, the emergency diesel generators are started, synchronized to the safeguards bus and the load sequencing portion of the scheme is tested. This normal monthly surveillance testing verifies operability of the majority of the load reject/voltage restoration scheme components.

Further, no problems affecting operability have been identified with the voltage restoration logic during the performance of the preventative maintenance described above. This preventative maintenance program has been in place since 1977.

This testing and maintenance demonstrates the reliability of the voltage restoration logic and provides a high degree of assurance that it will remain operable until the two unit outage scheduled to begin in October 1992.

Even though Unit 1 4160V bus 16 was declared inoperable at 1600 on July 27, 1992, the bus is energized and its related controls remain available and capable of responding to any plant transient. Based on the results of past testing a high degree of confidence exists that all electrical functions are fully operable.

It is overly conservative to assume that systems or components are inoperable when a surveillance requirement has not been performed at its required frequency. The opposite is in fact the case; the vast majority of surveillances demonstrate that systems or components in fact are operable. When a surveillance has not been completed, it is primarily a question of operability that has not been verified by the performance of the required surveillance.

Assuming that the incomplete surveillance testing results in inoperable voltage restoration logic, only 4160V buses 16 and 26 would be affected. 4160V buses 15 and 25 are still within the required surveillance test interval and remain operable. Therefore, consistent with the plant accident analysis, at least one train of safeguards components would remain operable on each unit.

Therefore, safety significance and potential consequences of this event are minimal.

Discussion of Compensatory Actions

Even though Unit 1 4160V bus 16 was declared inoperable at 1600 on July 27, 1992, the bus is energized and its related controls remain available and capable of responding to any plant transient. Based on the results of past testing a high degree of confidence exists that all electrical functions are fully operable.

Even though there is a high degree of confidence that the voltage restoration logic for buses 16 and 26 will function as designed, the following compensatory actions are being put in place:

1. The monthly safeguards bus undervoltage testing and emergency diesel generator surveillance will continue.

2. The relays associated with the 4160V safeguards bus undervoltage restoration scheme will be visually inspected monthly.

3. Should unforeseen degradation, not the result of pre-planned testing or maintenance, occur on the onsite electrical supply system (including the switchyard), discussion will be initiated with the NRC Staff for the verbal re-confirmation of the acceptability of the Temporary Waiver of Compliance.

4. All control room operators will review the emergency operating and abnormal operating procedures related to safeguards bus voltage restoration.

5. A procedure to complete the delinquent portions of the Specification 4.6.A.3.b.1 testing requirements, at a mode other than cold shutdown, will be evaluated.

6. Following a unit trip or the placing of either unit in hot shutdown, discussion will be initiated with the NRC Staff for the verbal re-confirmation of the acceptability of the Temporary Waiver of Compliance.

Justification of Duration of the Request

This request for a Temporary Waiver of Compliance requests a delay in the completion of a portion of the surveillance test requirements and operability verification for 4160V safeguards buses as specified in Specification 4.6.A.3.b.1 and the basis for Section 4.6 until an Emergency License Amendment can be submitted and approved. That License Amendment will request authorization to delay performance of the incomplete portion of the surveillance testing on buses 16 and 26 until completion of the electrical system upgrade modifications of the station blackout project during the two unit outage scheduled to begin in October 1992.

As discussed above, even though Unit 1 4160V bus 16 was declared inoperable at 1600 on July 27, 1992, the bus is energized and its related controls remain available and capable of responding to any plant transient. Based on the results of past testing a high degree of confidence exists that all electrical functions are fully operable.

Significant Hazards Consideration Evaluation

This request for Temporary Waiver of Compliance has been evaluated to determine whether it constitutes a significant hazards consideration. This analysis is provided below:

1. The requested Temporary Waiver of Compliance will not involve a significant increase in the probability or consequences of an accident previously evaluated.

   Assuming that incomplete surveillance testing results in inoperable voltage restoration logic, only 4160V buses 16 and 26 would be affected. 4160V buses 15 and 25 are still within the required surveillance test interval and remain operable. Therefore, consistent with the plant accident analysis, at least one train of safeguards components would remain operable on each unit.

   Even though Unit 1 4160V bus 16 was declared inoperable at 1600 on July 27, 1992, the bus is energized and its related controls remain available and capable of responding to any plant transient. Based on the results of past testing a high degree of confidence exists that all electrical functions are fully operable.

   Therefore, the requested Temporary Waiver of Compliance will not significantly affect the probability or consequences of an accident previously evaluated.

2. The requested Temporary Waiver of Compliance will not create the possibility of a new or different kind of accident from any accident previously analyzed.

   There are no new failure modes or mechanisms associated with the requested Temporary Waiver of Compliance. The requested Temporary Waiver of Compliance does not involve any modification of plant equipment or changes in operational limits, it only requests the delay of a portion of the surveillance testing of the voltage restoration logic.

   Therefore, the requested Temporary Waiver of Compliance does not create the possibility of a new or different kind of accident from any previously evaluated, and the accident analyses presented in the Updated Safety Analysis Report will remain bounding.

3. The requested Temporary Waiver of Compliance will not involve a significant reduction in the margin of safety.

   Assuming that incomplete surveillance testing results in inoperable voltage restoration logic, only 4160V buses 16 and 26 would be affected. 4160V buses 15 and 25 are still within the required surveillance test interval and remain operable. Therefore, consistent with the plant accident analysis, at least one train of safeguards components would remain operable on each unit.

Even though Unit 1 4160V bus 16 was declared inoperable at 1600 on July 27, 1992, the bus is energized and its related controls remain available and capable of responding to any plant transient. Based on the results of past testing a high degree of confidence exists that all electrical functions are fully operable.

Therefore, the requested Temporary Waiver of Compliance will not result in any reduction in the plant's margin of safety.

Based on the evaluation described above, Northern States Power Company has determined that operation of the Prairie Island Nuclear Generating Plant in accordance with the requested Temporary Waiver of Compliance does not involve any significant hazards considerations as defined by NRC regulations.

Environmental Assessment

The requested Temporary Waiver of Compliance does not change effluent types or total effluent amounts nor does it involve an increase in power level. Therefore, this change will not result in any significant environmental impact.

Operations Committee Review and Approval

The Plant Operations Committee has reviewed and approved this request for a Temporary Waiver of Compliance.

Please contact us if you have any questions related to this request for a Temporary Waiver of Compliance.

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for Thomas M Parker
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Nuclear Support Services

c: Regional Administrator - Region III, NRC
Senior Resident Inspector, NRC
NRR Project Manager, NRC
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