



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

FACILITY OPERATING LICENSE NOS. DPR-42 AND DPR-60

NORTHERN STATES POWER COMPANY

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNIT NOS. 1 AND 2

DOCKET NOS. 50-282 AND 50-306

TEMPORARY WAIVER OF COMPLIANCE

SURVEILLANCE REQUIREMENT 4.6.A.3.b.1

DISCUSSION:

An integrated safety injection (SI) test is required by the TS Surveillance Requirement 4.6.A.3.b.1 to be performed at 18 month intervals on each safeguards bus. The test is intended to demonstrate the capability of the diesel generator to properly energize safeguards equipment in the event of a design basis accident (i.e., loss-of-coolant accident with loss of offsite power). Licensees have typically performed the integrated SI test by manually opening the normal offsite power source circuit breaker to the bus with the alternate source breaker racked-out. Coincident with this, an SI signal is manually simulated. These actions result in deenergization of the bus and starting and loading of the associated diesel generator. The bus must be fully disconnected from offsite sources of power to preclude damage or tripping of the diesel generator set when it connects to the bus.

To automatically ensure that the bus is deenergized prior to the diesel generator being connected, the undervoltage instrumentation which starts the voltage restoration sequence includes a relay (Clark Control Co. Series 4U) to open the power source breakers. Due to the fact that the source breakers are manually opened or racked-out during testing, the source breaker automatic trip feature is not properly tested.

Although the source breaker has not been tested in the past as part of the integrated SI test, due to use of the test method described above, it has been tested in conjunction with other testing. Each refueling outage, the licensee performs preventative maintenance on the circuit breakers of one of the two safeguards buses. As part of the operability restoration procedure following this maintenance, the source breaker trip function is tested to verify the proper operation of the breakers and associated trip logic instrumentation. This test provides sufficient overlap with the integrated SI test to completely accomplish the required surveillance, although not within the required interval since the breaker maintenance test is only performed on each bus every other outage.

To justify a one-time extension of the surveillance interval, the licensee has provided information which provides a very high degree of confidence that the source breakers would properly trip in the event of a challenge. The above

mentioned post maintenance restoration testing has demonstrated that the source breaker trip circuitry has a history of high reliability. Also, an analysis of Nuclear Plant Reliability Data System records indicates that the Clark 4U relay has a better than average failure rate history. Furthermore, it is noted that the redundant safeguards trains (buses 15 and 25) have been properly tested within the required interval. The staff has, therefore, concluded that it is highly probable, in the event of a design basis accident, that proper voltage restoration would occur.

To provide additional assurance that the Clark 4U relays are operable, the licensee has committed to visually inspect them monthly during the period an emergency amendment is in effect. Should either Unit 1 or Unit 2 be taken to cold shutdown for other reasons, the incomplete testing will be completed on the shutdown unit prior to resumption of operation.

#### EVALUATION:

The licensee has provided evidence that the undervoltage trip feature of the source breakers is highly reliable. In addition, the licensee committed to compensatory action commitments as described below:

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.

These actions will provide additional assurance that safeguards buses will perform as designed in the event of a design basis accident.

Based on the above, the staff determined that a waiver should be granted.

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