



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 81 TO FACILITY OPERATING LICENSE NO. DPR-22  
NORTHERN STATES POWER COMPANY  
MONTICELLO NUCLEAR GENERATING PLANT  
DOCKET NO. 50-263

1.0 INTRODUCTION

By letter dated October 22, 1991, the Northern States Power Company (the licensee) requested amendment to the Technical Specifications (TS) appended to Facility Operating License No. DPR-22 for the Monticello Nuclear Generating Plant. The proposed amendment would revise surveillance test intervals (SITS) and allowable out-of-service time (AOT) limits for common instrumentation serving the reactor protection system (RPS) and containment isolation system (CIS).

2.0 EVALUATION

2.1.0 Reactor Protection System (RPS)

2.1.1 Applicability of Topical Report

The proposed RPS changes are based on analyses presented in General Electric topical report NEDC-30851P, "Technical Specification Improvement Analysis for BWR RPS," which has been reviewed and approved by the staff. The staff's Safety Evaluation (SE) of NEDC-30851P is presented in a letter from Mr. A. Thadani to Mr. T. Pickens dated July 15, 1987. The SE, identified three conditions necessary to confirm applicability of the generic conclusions to individual facilities: (1) confirm the applicability of the NEDC-30851P generic analyses, (2) demonstrate that the drift characteristics of the facility instrumentation are bounded by the NEDC-30851P assumptions when the functional test interval is extended from monthly to quarterly, and (3) confirm that the differences between the parts of the RPS that perform trip functions in the facility and those of the generic base case were considered using the procedures of Appendix K of NEDC-30851P (and the results presented in Enclosure 1 to letter OG5-491-17 from L. Pash (GE) to T. Collins (NRC) dated November 25, 1985), or present plant-specific analyses to demonstrate no appreciable change in RPS availability or public risk.

Applicability of NEDC-30851P: Monticello is a BWR-3 "relay type" facility. The licensee, in his sworn application, has confirmed the applicability of the generic analyses of NEDC-30851P to Monticello.

Instrument drift analysis: The licensee states in the application that drift analyses enveloping all instruments except the condenser low vacuum scram were performed in accordance with the staff guidance of NRC's April 27, 1988, letter to the BWR Owner's Group. The results indicate that drift will remain within the assumed allowance. The licensee has not included the condenser vacuum scram in the scope of instrumentation for which the STI would be changed from monthly to quarterly.

Plant-specific analysis: The licensee performed a plant-specific review and confirmed the applicability of the generic analyses of NEDC-30851P to Monticello. The generic analysis included a reactor high level scram function which Monticello does not have. Also, Monticello has a condenser low vacuum scram function lacking in the generic model. Both of these differences were considered in the generic analysis. The generic analysis concluded that these differences have no overall effect.

Based on the above, the findings of NEDC-30851P and the conclusions of the staff's July 15, 1987, SE are applicable to Monticello.

#### 2.1.2 AOTs

Discussion: Functions which initiate RPS trips include (a) mode switch in shutdown, (b) manual, (c) IRM neutron flux, (d) APRM flow-referenced neutron flux, (e) high reactor pressure, (f) high drywell pressure, (g) reactor low water level, (h) scram discharge volume high level, (i) condenser low vacuum, (j) main steam line (MSL) high radiation, (k) main steam line isolation valve (MSIV) closure, (l) turbine control valve fast closure, and (m) turbine stop valve closure. Set points, minimum number of trip systems, and minimum number of instrument channels required for various modes of operation are identified in TS 3.1.A and associated Table 3.1.1. These TS require that if less than the minimum required number of instrument channels serving a trip function is found or made inoperable that instrument channel or the trip system it serves is to be placed in the tripped condition or the facility is to be placed in a condition for which the trip function is not required. The proposed amendment would change the TS to allow a 12-hour delay before placing the channel or system in trip when there is only one inoperable channel for the trip function. Also, an instrument channel would be permitted to be made inoperable for up to six hours for purposes of performing surveillance testing provided there is at least one other operable channel in the same trip system.

Evaluation: The proposed changes are consistent with paragraph 5.8 of the SE issued July 18, 1987, which found that for applicable facilities, the single-sensor AOTs for repair and test times can be extended to 12 hours and 6 hours, respectively. Also, the proposed terminology precludes the possibility of misinterpretation of actions required in the event that more than one required channels are inoperable in the same trip system [Ref: C. Rossi (NRC)]

letter to G. Beck (BWROG) dated July 26, 1991]. Accordingly, the proposed changes are acceptable.

### 2.1.3 STIs

Discussion: STIs for functional tests of RPS instrumentation are specified in TS Table 4.1.1. Table 4.1.1 presently specifies an STI of "Once each month" for the following instrumentation channels: (a) high reactor pressure, (b) high drywell pressure, (c) low reactor level, (d) scram discharge volume high level, (e) low condenser vacuum, (f) MSIV closure, (g) turbine stop valve closure, (h) turbine control valve fast closure, (i) manual scram, and (j) MSL high radiation. The proposed amendment would change the Table 4.1.1 STI from monthly to quarterly for all of these functions except (e) which would not be changed and (i) which would be changed to weekly. Also, a requirement to perform IRM functional tests prior to each normal shutdown would be eliminated.

Evaluation: The revision of STIs as described above is consistent with the July 15, 1987, SE and is, therefore, acceptable. The condenser low vacuum scram STI has not been included, consistent with 2.0 above. The elimination of the pre-shutdown IRM functional test requirement was not addressed in NEDC-30851P. It is the staff position that IRM functional tests using simulated signal injection are not necessary as part of a normal shutdown, but that half-decade APRM overlap should be verified. The licensee's operating procedures require that IRMs be placed in service and IRM heat balance procedure be performed as part of each normal shutdown.

### 2.1.4 Group Designations - Table of Functional Test Frequencies

Discussion: TS Table 4.1.1 presently contains a column for group identification of each listed instrument as to whether it is an "A" on-off sensor, "B" analog sensor combined with a bistable, or "C" device needed only during some restricted mode of operation or which can only be tested during shutdown (e.g., mode switch). The licensee proposes to delete this descriptive information from the table.

Evaluation: The information which the licensee proposes to delete is descriptive in nature and relates to information presented in the Bases section which is to be deleted due to inconsistency with the new NEDC-30851P information. Elimination of this information from the table would not affect the requirements for minimum number of operable channels, AOTs, or STIs. Such information is not typically included, and serves no useful purpose, in TS tables defining STI requirements. Based on the foregoing, this change is acceptable.

### 2.1.5 Group Designations - Table of Calibration Frequencies

Discussion: TS Table 4.1.2 presently contains a column for group identification of each listed instrument as either; "D" a passive type device or "E" a vacuum tube or semiconductor device or detector subject to drift or loss of sensitivity. The licensee proposes to replace the "D" and "E" designations with "A" and "B" designations while redefining "A" and "B" to correspond to the previous "D" and "E" designations.

Evaluation: "D" and "E" being replaced by "A" and "B" because there are no current "A," "B," or "C" designations in the table. These changes are editorial and clarifying. They do not affect surveillance requirements and are, therefore, acceptable.

#### 2.1.6 RPS - Bases and Editorial Corrections

Discussion: The proposed amendment also includes editorial corrections and changes to the Bases.

Evaluation: The Bases changes reflect consistency with the above described changes and are, therefore, acceptable. The editorial changes reflect renumbering of paragraphs and correction of typographical error and are also acceptable.

#### 2.2.0 Isolation Instrumentation

##### 2.2.1 Applicability of Topical Reports

The proposed changes are based on NEDC-30851P, Supplement 2 "Technical Specification Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation," and NEDC-31677P, "Technical Specification Improvement Analysis for BWR Isolation Actuation Instrumentation." SEs for these topical reports were issued on January 6, 1989 and June 18, 1990, respectively. These SEs state that individual plants must:

1. Confirm applicability of the generic analyses to the plant, and
2. Confirm that any increase in instrument drift due to the extended STIs is properly accounted for in the set point methodology.

The licensee has confirmed the above in his application. The confirmations described in 2.1.1 above for NEDC-30851P also apply to the instrumentation covered by NEDC-30851P, Supplement 2 and NEDC-31677P.

##### 2.2.2 AOTs

Discussion: TS 3.2.A and associated Table 3.2.1 specify total and minimum channels per trip system requirements, required operating conditions, set points, and AOTs for isolation instruments serving the following:

- (a) Main Steam, Recirculation, and Sample lines (Group 1),
- (b) Residual Heat Removal (RHR), Vessel Head Cooling, Drywell, Sump, and TIP systems (Group 2)
- (c) Reactor Cleanup System (Group 3)
- (d) High Pressure Coolant Injection (HPCI) System
- (e) Reactor Core Isolation Cooling (RCIC) System, and
- (f) Shutdown Cooling Supply Isolation.

The proposed amendment applies to (a), (b), and (c) of the above systems. Instruments serving (a), (b), and (c) include the following:

- (1) Low-Low Reactor Water Level
- (2) MSL High Flow

- (3) MSL High Temperature
- (4) MSL Low Pressure
- (5) MSL High Radiation
- (6) Low Reactor Level, and
- (7) High Drywell Pressure.

The present TS requires that if the minimum requirements cannot be met instrument channels or systems shall be tripped such that the requirements are met or the facility shall be placed in a condition for which instrument operability is not required. The proposed amendment would allow continued operation, without placing an instrument system in trip, for up to 12 hours with up to one required instrument inoperable, and would allow for purposes of surveillance testing, continued operation for six hours without placing an instrument system in trip provided there is at least one other operable channel for that function in the same trip system.

Evaluation: The proposed changes for above functions (1), (3), (5), (6), and (7) are within the scope of NEDC-30851P and the staff's January 6, 1989, SE. For functions (2) and (4) above, the proposed changes are within the scope of NEDC-31677P and the staff's June 18, 1990, SE. The changes are acceptable on the basis of conclusions reported in those SEs.

#### 2.2.2 Surveillance Test Intervals (STIs)

Discussion: STIs for functional tests of isolation instrumentation are specified in TS 4.2 and associated Table 4.2.1. Table 4.2.1 presently specifies an STI of "Once/month" for the Group 1 high steam flow instruments and low steam pressure instruments, and once/week for the high steam line radiation instruments. The MSL low-low water level instruments are presently erroneously omitted. The proposed amendment would change the STI to quarterly and add a similar requirement for the low-low water level instruments. The changes are acceptable based on the findings reported in the staff's June 18, 1990 SE.

#### 2.2.3 Changes to Bases

Discussion: The proposed amendment includes changes to the Bases reflecting the proposed changes to STIs and AOTs. Text would be deleted that states that the single failure criterion is met during testing.

Evaluation: The topical report considered the effect on system reliability of having one channel inoperable for surveillance testing (leaving only one other channel operable in the affected trip system). The report determined that system reliability would not be affected if the condition was permitted to exist for only a limited period of time. The staff SE concludes that the condition may be permitted to exist for six hours. The change to the Bases is, therefore, acceptable.

### 3.0 STATE CONSULTATION

In accordance with the Commission's evaluations, the Michigan State official was notified of the proposed issuance of the amendments. The State official had no comments.

NUC  
4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or changes in surveillance requirements. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding (56 FR 64657). Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

5.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that (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 this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: W. Long

Date: April 16, 1992

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DATED: April 16, 1992

AMENDMENT NO. 81 TO FACILITY OPERATING LICENSE NO. DPR-22-MONTICELLO

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Docket File

NRC & Local PDRs

PDIII-1 Reading

Monticello Plant File

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