



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 114 TO FACILITY OPERATING LICENSE NO. DPR-63
NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT NUCLEAR STATION, UNIT NO. 1
DOCKET NO. 50-220

INTRODUCTION

By letter dated June 1, 1989, as amended August 8, 1989 and February 20, 1990, Niagara Mohawk Power Corporation (the licensee) requested an amendment to Facility Operating License No. DRP-63 for the Nine Mile Point Nuclear Station, Unit No. 1 (NMP-1). The change will revise the calibration frequencies for certain Source Range Monitor (SRM) and the Intermediate Range Monitor (IRM) instrument channels. NMP-1 Technical Specification Table 4.6.2g currently requires the SRM and IRM Detector Not-in-Startup-Position, upscale, downscale and inoperative control rod-withdrawal-block instrument channels to be calibrated prior to startup and normal shutdown. The instrumentation listed in Table 4.6.2g provides a control rod block to assure that no control rod is withdrawn unless the appropriate monitors are in position and available to provide neutron flux information. However, the control rod-withdrawal-blocks are not required during normal shutdown.

The licensee, by letters dated August 8, 1989 and February 20, 1990, provided supplemental information. These supplemental submittals did not affect the proposed TS changes noticed in the Federal Register (54 FR 35105) on August 23, 1989 and did not affect the staff's proposed determination that no significant hazards would result from these changes.

DISCUSSION

The SRM system monitors thermal neutron flux in the core over a range sufficient to observe the core shutdown-source level, the approach to criticality and to provide sufficient overlap into the IRM system. The SRM system provides a control rod-withdrawal-block under conditions of high neutron flux or of certain channel malfunctions. These channel malfunctions are only operable when the reactor is in either the Startup or Refuel mode and are bypassed when the reactor is operating in the Run mode. Specifically, the SRM system provides upscale, detector Not-in-Startup-Position, and inoperative signals to the control rod-withdrawal-block circuitry.

9004130026 900405
FDR ADOCK 05000220
P PIC



11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

The IRM system monitors the thermal neutron flux in the core and provides continuity of this flux information by overlapping both the SRM and the APRM systems at the lower end and the upper end of its measuring range. This intermediate range of coverage enables the IRM system to provide flux level information to the operator during plant heatups and low power operations.

In addition to providing neutron flux level information, the IRM system will initiate a rod-withdrawal-block demand signal under conditions of high neutron flux or channel malfunctions. These malfunctions are only operable when the reactor is in either the Startup or Refuel mode and are bypassed when the reactor is operating in the Run mode. Specifically, the IRM system provides upscale, downscale, detector Not-in-Startup Position, and certain inoperative signals to the control rod-withdrawal-block circuitry.

Any instrument channel having a detector Not-in-Startup-Position condition in either the SRM or IRM system initiates a control rod block to assure that no control rod is withdrawn unless the appropriate detectors are properly inserted to provide the operator with neutron flux information. A position switch on the detector retraction mechanism provides the control rod-withdrawal-block signal. The SRM and IRM inoperative instrument channels will initiate a rod block on any of the following: a) low detector voltage, b) electronics drawer internal module unplugged, and c) channel mode switch not in operate position.

The licensee proposes to change Technical Specification Table 4.6.2g "Instrumentation that initiates Control Rod-Withdrawal-Block - Surveillance Requirement" and Table 4.6.2g, Note (g). The proposed changes will 1) delete the calibration requirement for the SRM and IRM Detector Not-in-Startup-Position and inoperative instrument channels, 2) delete the sensor check requirement on all SRM and IRM instrumentation channels and 3) revise Table 4.6.2g, Note (g), to reflect the changes made to Table 4.6.2g.

Table 4.6.2g currently requires the SRM and IRM Detector Not-in-Startup-Position, upscale, downscale and inoperative control rod-withdrawal block instrument channels (the SRM system does not have a downscale channel) to be calibrated prior to startup and normal shutdown. The instrumentation listed in Table 4.6.2g provides a control rod block to assure that no control rod is withdrawn unless the appropriate monitors are in position and available to provide neutron flux information. However, the control rod-withdrawal-blocks are not required during normal shutdown for the SRMs or IRMs in the detector not-in-Startup-Position mode or in the Inoperative mode. Therefore, the requirement to calibrate the SRMs or IRMs in the detector Not-in-Startup-Position mode or in the Inoperative mode prior to shutdown is unnecessary.

The licensee states that the instrumentation to be calibrated is located inside containment and that entry of personnel into the drywell at these times is prohibited due to the high temperature, inerted atmosphere and high radiation levels which exist during these operational modes. Also, the licensee states that it is not necessary to calibrate this instrumentation prior to startup since, in accordance with the equipment vendor's recommendation, it is calibrated during the refueling outage as part of the preventive maintenance



11
12
13

realignment program to provide adequate assurance of correct instrumentation alignment. Instrument operability is assured through the preventive maintenance calibration during refueling and instrument channel functional testing during at-power testing. The SRM and IRM inoperative instrument channels do not require a calibration; therefore, the Technical Specification calibration requirement is not applicable. Also, it is further noted that such calibration is not required by the NRC Standard Technical Specification format for the BWR 4 design.

Currently the SRM and IRM instrumentation that initiates control rod-withdrawal-blocks requires a sensor check as part of its surveillance requirements. The rod block instrument position channels are digital/bistable channels, that is, a fixed signal is either present or absent depending on the state of the sensor. Therefore, a comparison of a sensor with other independent sensors measuring the same variable is not as meaningful as it would be for analog channels. Also, it is further noted that a sensor check is not required by the NRC Standard Technical Specification format for the BWR 4 design.

SUMMARY

This amendment (1) deletes the requirement for performing sensor checks in accordance with Note g for SRM items a, b and c and for IRM items a, b, c and d in Table 4.6.2g, (2) deletes the requirement for instrument channel calibration in accordance with Note g for SRM items a and b and IRM items a and b in Table 4.6.2g, and (3) revises Note g. There is no change to the instrument channel test requirement column of Table 4.6.2g.

The staff has reviewed the licensee's justification for the proposed changes and finds that the licensee has provided adequate assurance that the calibrations currently performed during each refueling outage as part of the preventive maintenance program are sufficient to establish the setpoints for the SRM and IRM Detector Not-in-Startup-Position limit switches. The proposed changes to Table 4.6.2g to remove the surveillance requirement to 1) calibrate the SRM and IRM Detector Not-in-Startup-Position instrument channels prior to startup and normal shutdown, 2) calibrate the SRM and IRM inoperative instrument channels, and 3) perform sensor checks on all SRM and IRM control rod-withdrawal-block instrumentation are acceptable for the reasons discussed above.

Note g of TS Table 4.6.2g provides the surveillance frequencies for applicable instrumentation in the table. The calibration requirement for SRM items a and b and IRM items a and b and the sensor check are not necessary as addressed in the above discussion. However, Note g remains applicable to other items in Table 4.6.2g. The licensee's initially proposed revision to Note g would have deleted the requirement to calibrate the other items prior to shutdown. This proposed change was noticed by the staff in the Federal Register.

Upon a further detailed review of the proposed Note g revision, the staff found the proposed deletion of the requirement to perform SRM and IRM sensor checks and to perform SRM upscale and IRM upscale and downscale calibration prior to shutdown to be unacceptable. In response the licensee revised the



11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

proposed Note g in its submittal of February 20, 1990, to reinstate the calibration prior to normal shutdown and also to reflect deletion of reference to channel checks. The staff finds this to be acceptable. Since this represents a change in a more conservative direction from that previously discussed in the staff's Federal Register notice, the staff concludes that the previous discussion of no significant hazards consideration determination bounds the changes approved herein and remains applicable.

Accordingly the staff finds the licensee's proposed changes to Table 4.6.2g and Note g as submitted on June 1, and August 8, 1989 and February 20, 1990 to be acceptable.

ENVIRONMENTAL CONSIDERATION

This amendment involves a change in a requirement with respect to the installation or use of the facility components located within the restricted areas as defined in 10 CFR 20. The staff has determined that this 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. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Sec 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.

CONCLUSION

We have 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, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: April 5, 1990

PRINCIPAL CONTRIBUTOR:

S. Rhow



2000