



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 18 TO FACILITY OPERATING LICENSE NO. NPF-69
NIAGARA MOHAWK POWER CORPORATION
NINE MILE POINT NUCLEAR POWER STATION, UNIT NO. 2
DOCKET NO. 50-410

INTRODUCTION

By application dated April 27, 1990, the Niagara Mohawk Power Corporation (the licensee) submitted a proposal for extension of certain surveillance intervals for the Nine Mile Point Nuclear Station, Unit 2 (NMP-2). The stated purpose for the extension is to permit an extension of operation in the first fuel cycle from August 18 until September 8, 1990, due to the licensee's need to meet expected peak load conditions in its service area during August 1990.

BACKGROUND

Technical Specification (TS) 3/4.0 provides that each surveillance requirement shall be performed within the specified time interval with a maximum allowable extension not to exceed 25% of the surveillance interval. The licensee's application proposes a one-time exception to this requirement for twelve specified surveillance requirements to extend their surveillance interval until September 8, 1990. The application also proposes to extend eleven surveillance requirements which cannot be performed during the early phases of the shutdown until September 30, 1990.

The surveillances affected include instrument calibrations, logic system function tests (LSFT), response time tests, leak rate tests, valve position indications tests, vacuum breaker functional tests and battery tests. The following discussions summarize the licensee's bases for these surveillance interval extensions.

Calibrations

A review of previous calibration test results was performed to determine the actual instrument drift for comparison to the assumed drift so as to determine the available margin. The instrumentation involved includes the reactor protection system (RPS) reactor water level-low (Level 3), HPCS initiation and isolation on reactor vessel Level 2 and Level 8, respectively. The observed average and maximum percentages of the total allocated drift for Levels 3, 2 and 8 instruments was 14, 5 and 7 percent and 30, 11 and 11 percent, respectively. Therefore, on an average basis 86, 95 and 93 percent of the drift assigned for this multi-channel instrumentation was found by previous observation to be available and to provide margin to the TS allowable value.

9007130353 900710
PDR ADOCK 05000410
P PDC



The B and C low pressure coolant injection pumps have auto start time delays on normal power available and for emergency power available. The calibrations involve four separate relays and have been observed to have an average drift of 4 and 5 percent of the allocated drift for the normal and emergency power relays, respectively, and a maximum observed of 9 and 11 percent of allocated drift, respectively. On an average basis, 96 and 95 percent of the interval between the setpoint and the allowable value was found by previous observation to be available.

The loss-of-voltage and degraded voltage relays on the Division 2 emergency switch gear involves 15 relays divided into three channels, including voltage sensing and time delay relays. The previously observed average drift as a percentage of total allocated drift for the loss of voltage relays was 41 percent and it was 28 percent for the degraded voltage relays. Therefore, on an average basis 60 and 72 percent of the drift allocated was found to be available. For the time delay relays the previously observed average drift as a percentage of total allocated drift was 47 percent; leaving an average of 53 percent available to provide margin to the TS allowable value.

The accident monitoring-reactor vessel pressure instrument has been observed to drift an average of 33 and a maximum of 67 percent of the allocated drift.

The ADS accumulator backup compressed gas low pressure alarm has been observed to drift an average of 34 percent and a maximum of 38 percent of the allocated drift. Therefore, on an average basis, 66 percent of the total allocated drift has been found to be available.

The suppression pool vacuum breaker valve position indication does not have trip setpoints and allowable values since it is a pass/fail indicator. There have been no identified calibration problems with these indicators and they have not required further adjustments.

The due dates for the calibrations discussed above range from August 22 through September 19, 1990. The licensee's proposed extensions range from one to five percent of the interval specified by TS 3/4.0.

The licensee cites historical performance and the demonstrated margin as providing assurance that any additional drift occurring within the surveillance interval extension would not result in an unacceptable drift. The licensee also cites certain additional complementary tests which provide further assurance that an extension of the surveillance intervals would not be detrimental to safety.

Logic System Functional Tests

Performance of a logic system functional test (LSFT) demonstrates the operability of the required logic for a specific instrument channel. The LSFT tests all logic components from sensor through and including the actual device. LSFTs are performed by a series of sequential, overlapping or total system steps so that the entire logic system is tested.



The LSFTs on reactor vessel (RV) level-low; (Level 3 - for RPS scram and Group 4 and 5 valve isolation), RV level-low, low; Level 2 and High; Level 8 (HPCS initiation and isolation) and the Division II 4.16 KV emergency bus undervoltage- loss of voltage and degraded voltage are proposed to be extended. The portion of the LSFT for the RV level parameters addressed by this proposed amendment involves only the portion of the LSFT for the entire channel that is accomplished by the level transmitter calibration procedure. The transmitter calibration procedure tests the logic system up to and including the contacts in the RPS scram trip logic circuit and up to and including the contacts in the Group 4 and 5 isolation actuation circuit for Level 3 and tests the reactor water level logic only to to the HPCS initiation signal for the Level 2/8 test. This portion of the LSFT accomplished by the level transmitter calibration procedure does not represent a physically separate test from the calibration activity. Testing for that portion of the logic downstream of the contacts in the RPS scram trip logic, the contacts in the Group 4 and 5 isolation actuation logic and the logic associated with HPCS initiation is accomplished through other procedures which will remain current.

Likewise, only a portion of the complete 4.16 KV emergency bus undervoltage relay LSFT, is proposed to be extended. That portion verifies the logic associated with the individual undervoltage and time delay relays. The licensee also notes that the channel functional tests conducted each 31 days, in actuality, partially meets the LSFT requirement.

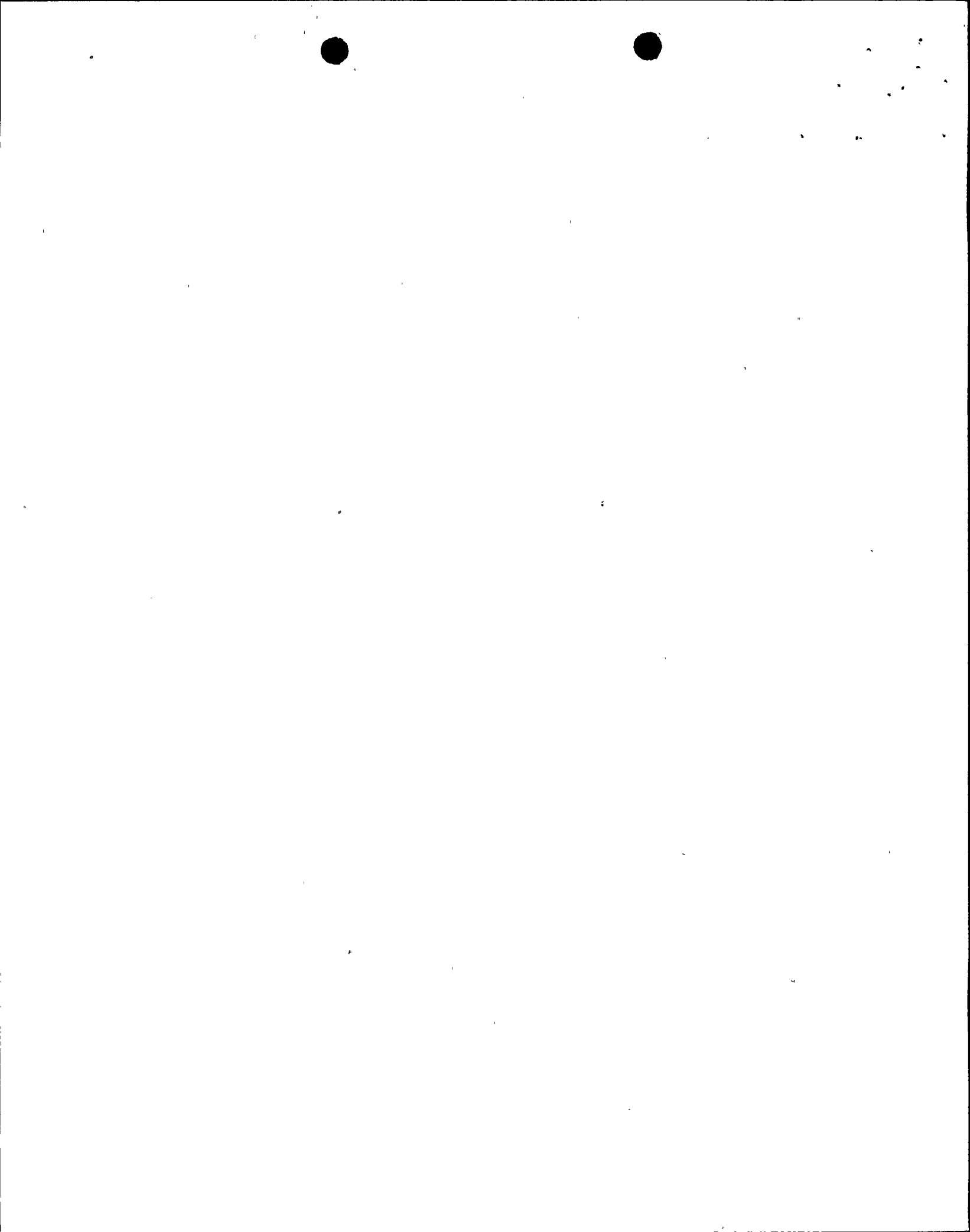
The licensee cites a successful LSFT history for these logic systems, a maximum increase of five percent in the surveillance interval and the partial LSFT achieved via other procedures as providing reasonable assurance of continued operability of the required logic circuits during the surveillance interval extension.

Response Time Tests

The measurement of instrument response times provides assurance that the protective functions associated with each channel are completed within the time limit assumed in the safety analysis. The APRM flow biased simulated thermal power-upscale and fixed neutron flux-upscale RPS channels and the RV level low-low and high drywell pressure for HPCS actuation are involved. The observed average margins to the 0.090 second response time limit from prior tests was found to be 35 percent for the APRM flow biased tests and 61 percent for the APRM fixed neutron flux tests.

The observed average margin to the 1.0 second HPCS initiation logic response time from prior tests was found to be 60 percent for the high drywell pressure instrument and 55 percent for the RV level low-low instruments.

The requested extension for these response time tests range from two to five percent of the surveillance interval. The licensee cites the historical performance of these instruments and the prior margins found to exist as providing assurance that any variance in response times due to the increase in surveillance intervals would not result in unacceptable response times.



Leak Rate Tests

The licensee proposes to extend the surveillance interval end date for 17 containment isolation valves from August 23 until September 8, 1990. These include seven main steam isolation valves (MSIVs) and 10 other valves whose leakage is included in the Type B and C leakage summation.

The most recent observed leakage test results for the MSIV's showed leakages under four standard cubic feet per hour (SCFH), significantly under the individual limit of 6.0 SCFH.

Seven of the ten remaining valves have consistently tested at less than 80% of their individual limits as specified in the TS. The other three valves have shown test results below administratively assigned limits. Together these ten valves represent a small fraction of the measured combined Type B and C leakage to date. Further, the measured combined Type B and C leakage to date is well below its limit in the TS.

The proposed extension represents less than a three percent increase in the surveillance interval. The past test results for the MSIVs have shown them to leak at two-thirds of their limit and the test results for the other ten valves show them to contribute only a small fraction of the total combined Type B and C limits which is also well within its limit value. These results provide assurance that any incremental increase in leakage that would occur during the extension period would not result in unacceptable leakage.

The licensee proposes to extend the surveillance interval for two pressure isolation valves from September 2 until September 8, 1990. Prior test results show that no leakage was detectable for one valve and the maximum leakage measured on the other valve was 0.25 gallons per minute (gpm), well within the 5.0 gpm limit. This testing history and the short period of surveillance test extension provides assurance that the valve integrity will not be compromised by the extension.

Division I and II Battery Service Tests

Each station service direct current (D.C.) subsystem (Divisions I and II) is energized by one battery and two battery chargers. The battery capacity tests are due August 26, and September 21, 1990. The licensee proposes to extend the surveillance test interval until September 30, 1990, in part to meet D.C. operability requirements during the early part of the shutdown. This will represent a five percent extension in the surveillance interval. The 2250 amp-hour Division I and II batteries have an expected service life of twenty years with design margins of 20 percent for Division I and 30 percent for Division II. Degradation in battery performance is not expected until later in the service life of the battery. Other periodic surveillances of battery parameters are conducted on a weekly and quarterly basis. Degradation significant enough to affect the design loads would be expected to first be apparent from these other periodic surveillances. The proposed extension represents a five percent extension in the surveillance interval. These inspections and tests, the available design margin and the short period of extension provide assurance that sufficient power will be available.



Position Indication Tests

The position indication verification test interval for twelve containment isolation valves is proposed to be extended from August 22 until September 8, 1990. This will result in an interval of 23 months which is within the recommendation of the ASME code and will provide reasonable assurance that position indication will be maintained.

Vacuum Breaker Setpoint Functional Test

The surveillance interval for the drywell-to-suppression chamber vacuum breaker opening differential pressure setpoint is proposed to be extended from September 1 to September 8, 1990, an increase of about one percent in the interval. Previous tests have resulted in an average margin of 16 percent. The opening mechanism is a passive device not subject to drift or wear normally associated with setpoints. The testing history, the passive design and the short period of extension provide assurance that the setpoint will not be exceeded.

EVALUATION

The licensee, as discussed above, has conducted an evaluation of the previous testing performance for these instrument calibration, logic system function tests, response time tests, leak rate tests, position indication tests and vacuum breaker setpoint functional test. The licensee has found the previous test results to be within the acceptable limits. The extensions of the surveillance intervals are five percent or less of the surveillance interval otherwise allowed by the TS. Based on the licensee's presentation of acceptable past test results, the demonstrated margins in those results and largely on the small period of the requested extension the staff finds the licensee's proposed surveillance interval extensions in TS Table 4.0.2-1 until September 8, 1990, and in TS Table 4.0.2-2 until September 30, 1990, to be acceptable. This extension is approved on a one-time basis for the first refueling outage. Thereafter, the requirements of the TS 4.0.2 Parts a and b, again become operative for these surveillances. This is consistent with the content of the added TS 4.0.2 Part c.

ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the surveillance requirements. 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.



Handwritten marks and scribbles in the top right corner.

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: July 18, 1990

PRINCIPAL CONTRIBUTOR:

Robert E. Martin

