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Docket No. 50-220

Niagara Mohawk Power Corporation
ATTN: Mr. Gerald K. Rhode
Vice President - Engineering
300 Erie Boulevard West
Syracuse, New York 13202

Gentlemen:

We have completed a preliminary review of your December 7, 1976 request for Technical Specification changes for Nine Mile Point Unit No. 1 which would modify reactor operating limits after reload for cycle 5 operation. We have concluded that we need additional information to complete our review.

Please provide responses to the items of information identified in the enclosure as soon as possible so that we may complete our review in a timely manner. If you have any questions, please contact us.

Sincerely,

Original signed by

George Lear, Chief
Operating Reactors Branch #3
Division of Operating Reactors

Enclosure:
Request for Additional
Information

cc: See next page

OFFICE➤	ORB #3	ORB #3				
SURNAME➤	SNowicki:mjf	GLear				
DATE➤	3/4/77	3/4/77				

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cc: Arvin E. Upton, Esquire
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Washington, D. C. 20005

Mr. Eugene G. Saloga, Applicant Coordinator
Nine Mile Point Energy Information Center
P. O. Box 81
Lycoming, New York 13093

REQUEST FOR ADDITIONAL INFORMATION

NINE MILE POINT UNIT NO. 1, RELOAD NO. 6

DOCKET NO. 50-220

1) The Doppler coefficient used in previous NMP-1 transient analyses contained a conservative multiplier of 0.90 (See October 3, 1975 letter to G. Lear, NRC, from G. K. Rhode, NMPC, Question #2). Your present (Reload 6) topical report references NEDO-20965 ("Generation of Void and Doppler Reactivity Feedback for Application to BWR Design") for a discussion of conservatism factors. Table 2.3-2 in NEDO-20965 shows "Doppler used in PTA of a typical BWR at EOC". That table shows a 0.90 factor; we note that Table 4.1-2 in that report shows a factor of 0.95, but this factor has not been accepted.

In view of the above, our position is that the 0.95 conservatism factor used on the nominal Doppler coefficient in your analyses for Reload 6 is not acceptable.

Show quantitatively how much the lower (0.9 x nominal) coefficient would affect all significant safety related values which are calculated such as ΔMCPR, LHGR, maximum cal/g, etc. The transients and accidents considered must include rod drop, rod withdrawal error, turbine trip without bypass, and any other events significantly affected.

2) You performed turbine-trip-w/o-bypass "maximum pressure analysis" at EOC, EOC minus 1000 Mwd/t, and EOC minus 2000 Mwd/t. When you reach EOC minus 2000 Mwd/t, are you proposing (in Section 6.3.3.2.2, "Power Level Profile") an immediate orderly decrease to the power level (94%) shown to be acceptable at EOC minus 1000 Mwd/t, or are you proposing a slow power decrease reaching 94% at approximately EOC minus 1000 Mwd/t, etc? Please clarify Section 6.3.3.2.2 and justify the conservatism of your proposed operation with respect to the analyses performed.

3) Provide the ΔMCPR resulting from loss of the maximum amount of feedwater preheat that can result from a single failure or operator error.

4) Were all points on the scram-delta-K curves shown in Figure 6-8 multiplied by 0.8 for use in the transient anlayses, or was the 0.8 factor used only to limit the maximum fully inserted value as shown on Table 6-1? All transient and accident analyses must be performed with an appropriate conservatism factor applied to all points on the scram-delta-K curve, not just to the maximum fully inserted value.

5) Please specify the exact fuel loading error (fuel type, position moved from and to, etc) that results in a 16.5 Kw/ft peak LHGR and a MCPR of 1.11 as described in Section 6.3.2.5.2. Discuss other potential loading errors that were analysed, and justify that the one reported represents the worst case.

6) Please provide corrected versions of Figures 6-12 and 6-13. The sequence numbers of the plotted curves are not identified, and the Rod Block Line (identified as being at 105%) is plotted at 102.5%.

7) Operational Assurance and Tests

A description of the actual reload fuel and irradiated fuel placement (location and orientation), if different from that planned according to Section 2.1.2, should be presented. It should identify loading sequence, verification techniques for placement, and any pertinent shutdown margin or verification tests performed during actual reloading. Startup physics tests selected from Reg. Guide 1.68, "Preoperational and Initial Startup Test Programs for Water-Cooled Power Reactors," should be performed. A test abstract summarizing the test objective, test method, and acceptance criteria should be presented. To validate the analytical models utilized for predicting plant responses to anticipated transients and postulated accidents, these tests should establish that measured responses are in accordance with predicted responses. The predicted responses should be developed using real or expected values of items such as beginning-of-cycle core reactivity coefficients, flow rates, pressures, temperatures, and the actual status of the plant and not those values or plant conditions assumed for conservative evaluations of postulated accidents. Acceptance criteria that are proposed should assure that the response of the plant to accidents and transients is in accordance with the design. Procedures to be followed if the acceptance criteria are exceeded should be discussed.

Recommended parameters to be tested should include, but not necessarily be limited to, the following:

a. Control Rod Drive Tests and Scram Time (Cold and Hot).

b. Verification of Shutdown Margin (Highest Worth Control Rod Withdrawn).

c. Comparison of Cold Critical Eigenvalue Calculation for a Fixed Control Rod Pattern (deviation of a percent or more in reactivity should be immediately reported and explained).

d. Power Distribution Comparison at a Given Control Rod Pattern and Power Level (>50% rated power with equilibrium xenon - anomalies should be reported and explained).

e. TIP Reproducibility Test (> 75% rated power).

f. Core Power Symmetry Test (> 75% rated power).

g. Instrumentation Calibration (LPRMs and APRMs).

8. We request that you submit a summary report of the physics startup tests to NRC within 90 days following completion of the startup test program. This report should include both measured and predicted values. If the difference between the measured and predicted value exceeded the acceptance criterion, the report should discuss the actions that were taken and justify the adequacy of these actions. Appendix A presents an outline which may be used for the physics startup tests summary report.

9. All tests that result in recalibration, new baseline settings, or other set point identifications should be reported according to Reg. Guide 1.16 "Reporting of Operating Information - Appendix A Technical Specifications."

10. Tests and inspections performed to verify and characterize design aspects and parameters of the reload fuel system components should be described. Planned operational surveillance and subsequent post irradiation testing of fuel rods, burnable poison rods, and control rods should also be described. Planned comparisons between characterization tests and inspections, surveillance, and post irradiation tests for the reload fuel and the irradiated fuel remaining in the core should be presented.

APPENDIX A
SUMMARY REPORT OF PHYSICS STARTUP TESTS

I. A description of the test method and objectives for each test.

II. A comparison of test data with the predicted values and with the acceptance criteria, including tables of predicted values, measured values, and percent difference between predicted and measured values. Discuss the significance of the differences observed between appropriate predicted and measured values relative to the parameters used in accident analysis, development of operating philosophy, and technical specification requirements.

III. Deficiencies relating to design and fabrication found during conduct of the tests.

IV. System modifications and corrective actions required and the schedule for their implementation.

V. Justification for acceptance of systems or components not in conformance with design predictions or performance requirements.

VI. Conclusions regarding system or component adequacy.

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