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SUBJECT: Forwards revised response to certain FSAR questions resulting from 850913 meeting re startup & test program, FSAR Chapter 14. Info will be provided in FSAR Amend 22.

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November 8, 1985
(NMP2L 0528)

Dr. Walter Butler, Chief
Licensing Branch No. 2
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Dr. Butler:

Re: Nine Mile Point Unit 2
Docket No. 50-410

Attached are revised responses which resulted from a September 13, 1985 meeting between the Nuclear Regulatory Commission staff and Niagara Mohawk personnel. These revised responses to certain FSAR questions are provided in addition to the material submitted in our letter dated October 30, 1985 which concerns the Startup & Test Program, FSAR Chapter 14, for Nine Mile Point Unit 2.

This information will be provided in the next Final Safety Analysis Report amendment 22.

Very truly yours,

C. V. Mangan
Senior Vice President

CVM/rla
Attachment
1062G

xc: R. A. Gramm, NRC Resident Inspector
Project File (2)

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QUESTION F640.08 (14.2.7)

To meet the regulatory position stated in Regulatory Guide 1.108 (Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Plants):

1. Delete your current exception to Regulatory Guide 1.108 in FSAR Subsection 14.2.7 and commit to conducting all diesel generator preoperational tests with the diesel generators installed in-plant, or provide expanded technical justification to provide assurance that vendor testing will accomplish the same test objectives as in-situ testing.

2. Delete your current exception to Regulatory Guide 1.108 (position c.2.a(3)) in FSAR Section 1.8 and commit to testing the diesel generator for two hours at a load equivalent to the 2 hour rating, not the 2000-hour rating as listed in FSAR Section 1.8.

3. Modify Preoperational Test Abstract Number 14.2-47 (Diesel Generator Mechanical System) to include testing to ensure the satisfactory operability of all check valves in the flow path of cooling water for the diesel generators from the intake to the discharge (see I&E Bulletin No. 83-03: Check Valve Failures in Raw Water Cooling Systems of Diesel Generators).

4. Modify Preoperational Test Abstract Number 14.2-97 (Emergency A-C Distribution Load Carrying Capability System) and/or Number 14.2-98 (Loss of Power/ECCS Functional Test) to demonstrate proper diesel generator operation during load shedding, including a test of the loss of the largest single load and complete loss of load, and verify that the voltage requirements are met and that the overspeed limits are not exceeded. Your testing should, in addition, provide assurance that any time delays in the diesel generator's restart circuitry will not cause the supply of compressed air used to initially rotate the engine to be consumed in the presence of a safety injection signal (see I&E Information Notice Number 83-17, March 31, 1983).

RESPONSE

1. NMP2 complies with the intent of this Regulatory Guide. See revised Section 14.2.7 and Tables 14.2-125, 126, and 129.

2. See Section 1.8.

3. Verification of check valves supplying cooling water to the diesel generators will accomplished in the Preservice and Inservice Inspection Programs.

4a. See revised test abstract 14.2-129.

4b. The design of the NMP2 Diesel Generator start logic precludes the complete consumption of the starting air on an initial failure to start as described in the subject I&E Information Notice.

QUESTION F640.11 (14.2.12)

In accordance with the regulatory positions C.2 and C.3 of Regulatory Guide 1.41 (Preoperational Testing of Redundant On-Site Electric Power Systems to Verify Proper Load Group Assignments),

1. Modify Preoperational Test Abstract Number 14.2-16 (125 V D-C Distribution) to incorporate testing to verify that at the minimum and maximum design battery voltages, required Class 1E loads can be started and operated. The battery chargers should not be in use until after the 1E loads have started (IEEE 308-1978). For more information on problems with maximum battery voltage conditions, see I&E Information Notice 83-08, March 9, 1983.

2. Modify Preoperational Test Abstract Number 14.2-18 (115-kV Switchyard and Station Electric Feed System) and/or Number 14.2-19 (Normal A-C Distribution High Voltage System) to demonstrate the proper operation of transformer cooling under rated load or describe how data from testing under available load will be extrapolated to verify cooling capability under design loading.

3. Modify preoperational test abstracts involving sources of power to vital a-c buses to ensure that full-load testing, or extrapolation to full-load testing conditions, is accomplished.

4. Modify any preoperational test abstract associated with d-c and on-site a-c buses to ensure that during such testing the d-c, on-site a-c, and related loads not under test will be monitored to verify absence of voltage at these buses and loads.

5. Modify any preoperational test abstract associated with d-c and on-site a-c buses where testing on Unit-2 may be dependent on Unit-1 components to ensure that independence is maintained and verified during testing.

RESPONSE

1. See revised Preop Test Abstract, Table 14.2-101.

2. Proper cooling of the transformers is verified in the LOOP/ECCS test (Table 14.2-129). Additional checks are made during the Start-up Test Phase, such as the 100% warranty run. However, we do not intend to perform these tests at the full rated load of the transformers (except for the main transformer), because it would be impractical for the following reasons:

   A.) It would require the installation (and removal, if not permanent) of buses and circuit breakers capable of handling the added loads.

   B.) It would require acquisition of high voltage loads which could dissipate this energy.

   The present plan is to use the maximum available loads in the plant and verify that the transformer temperatures are within specifications.

3. All in-plant power generating equipment which supply power to vital ac buses will be full load tested. See revised test abstracts 14.2-95, 123, 125, and 126.

4. See revised test abstract 14.2-129.

5. There is no dependence between Unit 1 and Unit 2 dc or onsite ac busses. Therefore, no testing is necessary.

QUESTION F640.13 (14.2.12)

For compliance with Regulatory Guide 1.68, Appendix A.1.h, provide or reference preoperational test abstract descriptions in FSAR Subsection 14.2.12 that ensure that the emergency ventilation systems are capable of maintaining all Engineered Safety Features (ESF) equipment within their design temperature range with the equipment operating in a manner that will produce the maximum heat load in the compartment. If it is not practical to produce maximum heat loads in a compartment, describe the methods that will be used to develop acceptance criteria that verify design heat removal capability of emergency ventilation systems.

(Note that it is not apparent that post-accident design heat loads will be produced in ESF equipment rooms during the scheduled test phase; therefore, simply assuring that area temperatures remain within design limits during this period will not demonstrate the design heat removal capability of these systems. It will be necessary to include measurement of air and cooling water temperatures and flows, and the extrapolations used to verify that the ventilation systems can remove the postulated post-accident heat loads.)

RESPONSE

Verification of emergency heat removal rates cannot be performed during the Preoperational Test Phase due to the lack of heat producing sources. Measurements of the applicable parameters (temperatures and flows) will be performed during the Startup Test Phase during the various tests in which sufficient heat is being produced in the ESF equipment areas. These values will be reviewed and evaluated by NMPC Engineering to insure the heat removal rates are adequate and correspond to the design calculations

QUESTION F640.19 (14.2.12)

For compliance with Regulatory Guide 1.68, Appendix A.1.1, expand Preoperational Test Abstract Number 14.2-81 (Liquid Radwaste Handling System) and Number 14.2-104 (Solid Radwaste Handling System) to ensure that any radiation detectors and monitors which are part of those systems are tested with spiked samples of typical media, or with sources.

RESPONSE

All radiation detection and monitoring devices for the Liquid and Solid Radwaste Systems are included in the Digital Radiation Monitoring equipment (Table 14.2-105). Calibration of these devices is performed using "spiked" samples and/or sources as a prerequisite to the preoperational test. The operation of a percentage of these devices is reverified during the preoperational test. The operational interfaces of the remaining devices are also verified in the preoperational test using simulated or test signals.

QUESTION F640.22 (14.2.12)

The acceptance criteria listed in Preoperational Test Abstract Number 14.2-90 (Shutdown from Outside the Control Room) states that the system will meet its design functions as described in FSAR Subsection 7.4. FSAR Subsection 7.4.2.4.4 states that regulatory guides that apply to the remote shutdown system are specified in Table 7.1-3. Modify Table 7.1-3 to include Regulatory Guide 1.68.2 (Initial Startup Test Program to Demonstrate Remote Shutdown Capability for Water-Cooled Nuclear Power Plants).

RESPONSE

See revised Table 7.1-3 (Incorrect table is referenced; should be 14.2-104 not 14.2-90).

QUESTION F640.34 (14.2.12)

Our review of your test program description disclosed that the operability of several of the systems and components listed in Regulatory Guide 1.68 (Revision 2) Appendix A may not be adequately demonstrated by your initial test program. Expand FSAR Subsection 14.2.12 to address the following items or explain why such preoperational or startup testing is not applicable to your facility:

NOTE: Inclusion of a test description in FSAR Chapter 14 does not necessarily imply that the test becomes subject to FSAR Chapter 17 Quality Assurance Program controls. Certain tests, performed prior to fuel loading to verify system operability, may be referred to as "acceptance tests" to distinguish them from "preoperational tests" subject to FSAR Chapter 17 test control.

Acceptance and Preoperational Tests

R.G. 1.68 Appendix A	FSAR Section	Description
1.b(1)		Rod Block Monitors
1.d(3)	5.2.2	Relief Valves
1.d(4)	5.2.2	Safety Valves
1.e(3)	5.4.5	Main Steam Isolation Valves
1.e(6)	10.4.4	Turbine Bypass Valves
1.h	5.4.4	Main Steam Line Flow Restrictors
1.h(8)	6.3.2.2.5	ECCS Discharge Line Fill System
1.h(10)	9.2.5	Ultimate Heat Sink
1.i(10)	6.2.1.1.2	Containment and Suppression Pool Vacuum-breaker Tests
1.j(7)	7.6.1.3	ECCS Leak Detection System
1.j(12)		Failed Fuel Detection System
1.j(13)	7.2.1.2	Source Range Monitors

1.j(21)	7.7.1.1.2	Reactor Mode Switch and Associated Functions
1.j(23)	6.2.5.2.5	Hydrogen and Oxygen Analyzer System
1.1(5)	11.5.2.1.4	Condenser Offgas Isolation
1.1(7)	11.5.2.1.3	Liquid Radwaste Effluent Isolation
1.n(3)	9.4.10.2	Ventilation Chilled Water System
1.m(3)	9.1.4	Operability and leak tests of sectionalizing devices and drains and leak tests of gaskets or bellows in the refueling canal and fuel storage pool
1.m(4)	9.1.4.2	Dynamic (100%) and static (125%) load tests of cranes, hoists, and associated fuel storage and handling systems
1.m(5)	9.1.4.2	Fuel Transfer Devices
1.0(1)	9.1.4.2.2	Polar crane dynamic (100%) and static (125%) loading tests

Startup Tests

2.1		Partially Loaded Core Shutdown Margin Calculation
2.c		Final Test Reactor Protection System
2.d		Final Reactor Leakrate Tests
5.g		Rod Block Monitor
5.k		High Pressure Coolant Spray Tests
5.s	9.2.6	Hotwell Level Control System, Reactor Coolant Makeup and Letdown Systems

5.w		Containment Penetration Coolers. Provide a test description or, on those penetrations where coolers are not used, include a test description for a containment penetration concrete temperature survey to assure that penetrations will not subject concrete to temperatures over 200°F.
5.i.i	15.3	Demonstrate that the dynamic response of the plant is in accordance with design for limiting closure of reactor coolant system flow control valves. The method for initiating control valve closure should result in the fastest credible coastdown in flow.
5.g.g	15.8	ATWS Test

RESPONSE

The test program testing abstracts are being modified in response to Question 640.10. Tests will be described to distinguish which are subject to Chapter 17 test control. The following response outlines how abstracts comply with Regulatory Guide 1.68, Appendix A:

Regulatory Guide Section	
1.b(1)	The rod block monitor subsystem is tested in the rod block monitoring preoperational test (FSAR Table 14.2-118).
1.d(3) 1.d(4)	The relief valves and safety valves are tested as follows: Safety/relief mode has been factory tested offsite. See Section 5.2.2.10. Operational verification for open/closure will be verified for the SRVs in the relief mode during the Automatic Depressurization preoperational test (FSAR Table 14.2-52).

1.j(13) Source range monitors are tested as part of the neutron monitoring preoperational testing (FSAR Table 14.2-117).

1.j(21) Reactor mode switch and associated functions are tested as part of the reactor protection system preoperational testing (FSAR Table 14.2-123).

i.j(23) The hydrogen and oxygen analyzer system is tested as part of the containment monitoring system preoperational testing (FSAR Table 14.2-108).

1.L(5) Condenser off-gas isolation and logic associated with this feature is tested as part of the radiation monitoring (table 14.2-106) and Off-Gas (Table 14.2-60) systems preoperational tests.

1.L(7) Liquid Radwaste effluent isolation - instrumentation and logic associated with this feature is tested as part of the radiation monitoring systems. (Table 14.2-105)

1.n(3) Ventilation chilled water systems will be tested during the HVAC preoperational tests.

1.m(3) Leak tests of sectionalizing devices and drains, gasket or bellows leak tests in the refueling canal will be tested prior to the Fuel Pool Cooling System Preoperational Test. (Table 15.2-56).

1.m(4) Dynamic and static load testing of cranes, hoists, and associated fuel storage and handling systems except the polar crane will be performed in the fuel handling and vessel servicing equipment system preoperational testing (FSAR Table 14.2-57).

1.m(5) Appropriate tests for fuel transfer devices will be performed in the fuel handling and vessel servicing equipment system preoperational testing (FSAR Table 14.2-57).

1.o(1) Polar crane and hoist dynamic and static load tests are performed as a prerequisite to the polar crane preoperational test (Table 14.2-110).

2.a A shutdown margin calculation will be performed as part of the startup test program for a partially loaded core (FSAR Table 14.2-203).

2.c Final test of reactor protection system is not planned as system design features are verified during the reactor protection system preoperational testing and cold functional testing (FSAR Table 14.2-123).

2.d Final reactor leakrate tests during pressurizations of the RPV leak rates within the containment are monitored to be within technical specification limits.

5.g Rod block monitor testing is performed during the rod block monitoring preoperational testing (FSAR Table 14.2-118).

5.k High pressure coolant spray tests are not scheduled to be performed during startup testing. HPCS to RPV injection tests will be conducted during the preoperational testing program (FSAR Table 14.2-51).

5.s Startup test abstracts for the feedwater system will be modified to verify performance of the control system at test conditions 2, 3, 4, 5, and 6. The hotwell level control system performance is tested during the preoperational testing program (FSAR Tables 14.2-28 and 14.2-222).

5.w A sample of containment penetration concrete temperatures will be verified by survey to assure that the penetrations will not be subject to temperatures over 200°F. The sample will be chosen from the worst-case temperature conditions to conservatively bound all installed containment penetrations.

5.i.i Startup testing of the recirculation system will demonstrate response of the plant in accordance with design limits specified by General Electric (FSAR Tables 14.2-123, 14.2-234, 14.2-235, 14.2-236, and 14.2-237).

5.g.g The operability of equipment provided for ATWS is tested during preoperational testing of systems within whch the equipment is provided (FSAR TAbles 14.2-47, 14.2-48, 14.2-54, 14.2-123, and 14.2-128).

ATTACHMENT 640.34-1 (Cont)

QUESTION 2

The Normal Switchgear Building Ventilation System test (FSAR Table 14.2-70) should provide acceptance criteria relating to the ventilation chilled water system (1.n.3).

RESPONSE

Abstract 14.2-70 has been deleted. This system is not considered to required a preoperational test as defined by Reg. Guide 1.68 and its testing is therefore not described in the FSAR.

QUESTION 3

The Fuel Handling & Reactor Service Equipment System test (FSAR Table 14.2-57) and the Reactor Building - polar crane (FSAR Table 14.2-110) to specify that dynamic and static load tests are accomplished at 125% and 100% of rated load, respectively (1.m.4, 1.0.1).

RESPONSE

See revised preoperational test abstracts 14.2-57 and 14.2-110.

QUESTION F640.35 (14.2.5)

To help facilitate approval of future changes to the Nine Mile Point Unit 2 Initial Test Program:

1. For portions of any preoperational tests (including review and approval of test results) which are intended to be conducted after fuel loading: a) list each test, b) state what portions of each test will be delayed until after fuel loading, c) provide technical justification for delaying these portions, and d) state when each test will be completed.

2. List and provide technical justification for any tests or portions of tests described in FSAR Chapter 14 which you believe should be exempted from the license condition requiring prior NRC notification of major test changes to tests intended to verify the proper design, construction, or performance of systems, structures, or components important to safety (fulfill General Design Criteria (GDC) functions and/or are subject to 10CFR50, Appendix B Quality Assurance requirements).

RESPONSE

1. These tests, justification for their delay and the time anticipated for their performance will be provided by first quarter 1986.

2. The methods for obtaining changes to approved preoperational and startup test procedures is described in FSAR Section 14.2.4.4. No requirement exists for prior NRC notifications for changes to preoperational test procedures.

QUESTION F480.25 (6.2.3)

The standby gas treatment (SGTS) is an ESF system whose effectiveness must be periodically verified as required by Appendix J to 10 CFR 50. In so doing the leakage limit of the secondary containment is measured and will be found acceptable if it agrees with the limit use in the analysis of the secondary containment depressurization time. These tests should be conducted at each refueling or at intervals not exceeding 18 months. The test limit should be consistent with the limit used for direct leakage in the analysis of the radiological consequences by the Accident Evaluation Branch (AEB). Indicate the proposed test that will be performed on the SGTS including the scheduled frequency of them, a description of the test itself, secondary containment drawdown time, the method used to measure it and the means by which the effect of open doors or hatches is included in the test program. State the design leakage rate and the SGTS fan capacity.

RESPONSE

A secondary containment leak rate test description has been provided in a test abstract, Table 14.2-132. The test will be conducted at intervals as described in the technical specifications. During the test, doors and hatches will be controlled in a closed position for measurement of secondary containment integrity. The SGTS fan capacity is 4,000 CFM, as listed in Table 6.5-1. The design leakage rate is 3,160 CFM, which is based on one reactor building net volume air change per 24 hr.