ATTACHMENT A

NIAGARA MOHAWK POWER CORPORATION

LICENSE NO. NPF-69

DOCKET NO. 50-410

Proposed Changes to Technical Specifications

Replace existing pages 3/4 8-32 and 3/4 8-33 with the attached revised pages. The pages have been typed in their entirety with marginal markings to indicate changes.

ELECTRICAL POWER SYSTEMS

ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

REACTOR PROTECTION SYSTEM ELECTRIC POWER MONITORING (RPS LOGIC)

LIMITING CONDITIONS FOR OPERATION

3.8.4.4 Two RPS UPS electrical protection assemblies for each inservice UPS set or alternate source shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

a. With one RPS electrical protection assembly for an inservice RPS UPS inoperable, restore the inoperable electrical protection assembly to OPERABLE status within 72 hours or remove the associated RPS UPS from service.

b. With both RPS electrical protection assemblies for an inservice RPS UPS inoperable, restore at least one electrical protection assembly to OPERABLE status within 30 minutes or remove the associated RPS UPS from service.

SURVEILLANCE REQUIREMENTS

4.8.4.4 The above specified RPS electrical protection assemblies instrumentation shall be determined OPERABLE:

a. At least once every 6 months by performance of a CHANNEL FUNCTIONAL TEST.

b. At least once per 18 months by demonstrating the OPERABILITY of overvoltage, undervoltage and underfrequency protective instrumentation by performance of a CHANNEL CALIBRATION including simulated automatic actuation of the protective relays, tripping logic and output circuit breakers and verifying the following setpoints.

1.	Overvoltage	Bus A:	$\leq$ 132 volts AC
		Bus B:	$\leq$ 132 volts AC
2.	Undervoltage	Bus A:	$\geq$ 117.1 volts AC
		Bus B:	$\geq$ 115.75 volts AC
3.	Underfrequency		$\geq$ 57 Hz

ELECTRICAL POWER SYSTEMS

ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

REACTOR PROTECTION SYSTEM ELECTRIC POWER MONITORING (SCRAM SOLENOIDS)

LIMITING CONDITIONS FOR OPERATION

3.8.4.5 Two RPS electrical protection assemblies (EPAs) for each inservice RPS MG set or alternate source shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

a. With one RPS electrical protection assembly for an inservice RPS MG set or alternate power supply inoperable, restore the inoperable EPA to OPERABLE status within 72 hours or remove the associated RPS MG set or alternate power supply from service.

b. With both RPS electrical protection assemblies for an inservice RPS MG set or alternate power supply inoperable, restore at least one EPA to OPERABLE status within 30 minutes or remove the associated RPS MG set or alternate power supply from service.

SURVEILLANCE REQUIREMENTS

4.8.4.5 The above specified RPS electrical protection assemblies shall be determined OPERABLE:

a. At least once every 6 months by performance of a CHANNEL FUNCTIONAL TEST.

b. At least once per 18 months by demonstrating the OPERABILITY of overvoltage, undervoltage and underfrequency protective instrumentation by performance of a CHANNEL CALIBRATION including simulated automatic actuation of the protective relays, tripping logic and output circuit breakers and verifying the following setpoints.

1.	Overvoltage	Bus A:	$\leq$ 128.8 volts AC
		Bus B:	$\leq$ 130.0 volts AC
2.	Undervoltage	Bus A:	$\geq$ 114.5 volts AC
		Bus B:	$\geq$ 115.1 volts AC
3.	Underfrequency		$\geq$ 57 Hz

ATTACHMENT B

NIAGARA MOHAWK POWER CORPORATION

LICENSE NO. NPF-69

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Supporting Information and No Significant Hazards Consideration Analysis

INTRODUCTION

The previous Nine Mile Point Unit 2 (NMP2) Reactor Protection System (RPS) Motor Generator Set (M/G) and RPS Uninterruptible Power Supply (UPS) Electrical Protection Assemblies (EPAs) design was such that channel functional testing performed on logic cards within the EPA system tripped the associated contactor and interrupted power to the associated essential circuit. NMP2 Technical Specifications (TS) Amendment No. 11 (approved by the NRC on November 29, 1989) was implemented because of challenges presented to the plant and operators while performing the required EPA surveillance testing with the plant in operation. The one-out-of-two-taken-once design of the EPA systems required placing the plant in a half-scram condition for about ten hours per test for each channel in order to perform the testing of the RPS M/G EPAs. In addition, numerous other restrictions and limitations on the RPS/Nuclear Steam Supply Shutoff System made channel functional testing of the RPS UPS EPAs not possible while the plant was in operation. This EPA testing configuration caused system isolations including Main Steam Isolation Valve (MSIV) closure, and high potential for scrams, which had potentially severe impacts on plant operations.

For that reason the NMP2 TS were amended to allow testing during plant shutdown. This TS change was essentially an exception to testing with the plant at power. NUREG-1434, Rev. 1, BWR/6 Standard Technical Specifications (STS) recognized the difficulty involved in functional testing of a design such as NMP2's and provided for testing during shutdown.

Existing NMP2 TS require that channel functional tests be performed on the RPS M/G EPAs and RPS UPS EPAs each time the plant is in cold shutdown for a period of more than 24 hours, unless performed within the previous six months. This frequency had been established for the EPAs by NMP2 TS Amendment No. 11. During Refueling Outage 6, NMPC modified the NMP2 EPA design for the RPS M/G and RPS UPS EPA systems to provide relay actuated protection systems. The modification allows testing to be conducted on line. Therefore, the proposed changes to the NMP2 TS revise the current surveillance frequencies of NMP2 TS Sections 4.8.4.4a and 4.8.4.5a to require testing of the EPAs at least once every 6 months. This proposed change essentially eliminates the exception provided by Amendment No. 11 and reinstates the previous TS frequency.

The relays of the new design may be individually isolated from the essential power circuit for testing and actuated without tripping the associated breaker. The relay actuated system will allow the EPA units to be functionally tested with the plant on line. No EPA relay actuation setpoints were affected by the modification or the proposed changes. The

modification to the EPA systems and the revisions to the surveillance testing frequencies will facilitate the scheduling of testing.

ANALYSIS

Under the previous design, each of the two NMP2 RPS M/Gs supplying power to the scram pilot solenoids, and each of the two RPS UPSs supplying power to the RPS/Nuclear Steam Supply Shutoff System logic had one-out-of-two-taken-once circuit protection consisting of two EPAs connected in series. The configuration provided redundant protection for the affected essential circuits against overvoltage, undervoltage, and underfrequency conditions. The EPAs were designed and fully qualified as Class 1E electrical components. While neither the RPS M/G nor the RPS UPS units are qualified as Class 1E, they are located in protected environments and normally operate in static conditions, without frequent cycling and with little mechanical, electrical, or thermal stress.

The previous design utilized logic cards to monitor system conditions. The logic card could not be isolated from the circuit for testing. Therefore, the Channel Functional test required the EPA circuit breaker to be tripped during testing. This caused a loss of the EPA loads. For this reason, NMP2 TS Amendment No. 11 changed the surveillance frequencies for the EPA systems to eliminate testing during power operation.

The modification replaced the old system with new EPAs that have three separate independent relays - an undervoltage, an overvoltage, and an underfrequency relay, for each EPA unit. Each relay has a normally closed contact that will change to the open state when the EPA sensed voltage or frequency falls outside of the required parameters. The three normally closed contacts are arranged in series such that any contact opening will result in a loss of voltage to the breaker undervoltage release coil causing the breaker to trip. Channel Functional testing can be performed by isolating the individual relay and its associated contacts by using test devices. This can be done without tripping the EPA breaker or losing the EPA loads.

The increase in frequency of testing proposed by the changes is considered more conservative than the current frequency in that the new EPAs can be tested at least as often and may also be tested at power. The one-out-of-two-taken-once logic configuration ensures that sufficient circuit protection is provided by the redundant relay during the performance of testing on any one EPA relay. The associated Limiting Condition for Operation (LCO) will be entered during testing.

According to the manufacturer, the analog solid state relays are inherently precise and not subject to drift. NMP2 utilizes these types of relays in its emergency switchgear protective circuits, and the relays have proven to be extremely reliable. The proposed 6 month frequency for the functional testing is more conservative than the manufacturer recommendation that the normally deenergized relays be tested on a yearly basis. NMPC proposes the 6 month frequency for all relays encompassed by NMP2 TS 4.8.4.4a and 4.8.4.5a in order to maintain consistency in the testing intervals. This was the frequency of testing that existed prior to implementation of NMP2 TS Amendment No. 11. The proposed changes reinstate this frequency.

The actual system conditions required for EPA actuation remain the same. The relay setpoints for EPA relay actuation are not affected by the modification.

NUREG-0800, Standard Review Plan, Section 8.3.1 "A-C Power Systems (Onsite)," acceptance criteria state that the onsite AC power system is acceptable when it can be concluded that the system has the required redundancy, meets the single failure criterion, is protected from the effects of postulated accidents, is testable, and has the capacity, and capability to supply power to all safety loads. The EPA units meet each of these requirements. The new units are functional replacements for the previous units. The only difference is the use of solid state relays as opposed to logic cards for sensing power abnormalities. The new units have been specified to meet the design criteria of the existing EPAs. Therefore, the new EPAs meet redundancy requirements, single failure criterion, and testing and capacity requirements. The new units were installed to meet seismic qualifications in close proximity to the existing units which are in an area that is missile protected and outside of a High Energy Line Break (HELB) area.

NUREG-0800, Standard Review Plan, Section 7.2, "Reactor Trip System," specifies that the system must meet redundancy requirements, single failure criterion, and be capable of being tested periodically when the reactor is in operation. The new EPAs meet the same design criteria and function in the same manner as the previous EPAs. Redundancy requirements and single failure criterion are satisfied. The new EPAs are a direct replacement for the previous units in the circuitry. Integrity of the trip systems and trip channels is maintained. The new EPAs can be functionally tested while the reactor is in operation without initiating a half scram condition. The previous EPAs could not be tested on line without initiating a half scram. The new EPAs allow for easier testing without the concern of causing an inadvertent plant scram. This will permit testing to be performed on a more frequent basis.

10CFR50 Appendix A, General Design Criteria for Nuclear Power Plants, Criteria 2, 21, and 23 are met for the new EPAs:

> Criterion 2 requires that structures, systems, and components important to safety shall be designed to withstand the effects of natural phenomena without loss of capability to perform their safety functions. The replacement EPAs, like the previous units, are designed, tested, and installed to be Class 1E, Seismic Category 1 units. They were installed in the same area as the existing units. This area provides missile protection and protection from outside elements.
>
> Criterion 21 requires the system to be designed for high functional reliability and periodic testing of its function when the reactor is in operation, including a capability to test channels independently to determine failures and losses of redundancy that may have occurred. The new EPAs were designed and tested to Class 1E specifications to ensure high functional reliability. The new EPA unit can be individually functionally tested on line to determine if any failures or loss of redundancy have occurred.
>
> Criterion 23 requires the system to be designed to fail into a safe state if conditions such as loss of energy or postulated adverse environments are experienced. The RPS power supply is designed as a fail safe system. The RPS safety systems will perform their required functions to place the plant in a safe shutdown condition and mitigate the consequences of an accident should power be lost. The replacement of the EPAs did not change the fail safe criteria. The malfunction of the new EPA

units has the same impact on plant operations as the previous units; it will result in the RPS system going to its safe condition.

ANSI/IEEE Std. 379-1977, "Application of the Single Failure Criterion to Nuclear Power Generating Station Class 1E Systems," requires that the system be capable of performing the protective actions required to accomplish a protection function in the presence of any single failure, and no single failure of a component will interfere with the proper operation of an independent redundant counterpart or system. In addition, any failure should be detectable. The replacement EPAs were designed and installed to meet the same single failure criterion as the existing units. The two EPAs in each of the four power circuits are redundant and connected in series. Either EPA can independently disconnect the power source from the protected load circuits. A relay failure in an EPA unit trips open the associated EPA molded case breaker which disconnects the power source from the load. No failure of any single component can prevent the EPA units from performing their safety function to protect essential RPS circuits. The new EPA units allow on line functional testing to detect failures of any relay.

ANSI/IEEE Std. 279-1971, "Criteria for Protection Systems for Nuclear Power Generating Stations," requires the protection system to initiate automatically, meet single failure criterion, have quality components, channel integrity, channel independence, and have the capability to be tested and calibrated. The previous EPAs met the requirements of ANSI/IEEE-279-1979. The replacement EPAs have specifications that meet the same performance requirements as the previous EPAs. The new EPA units/components were tested and qualified to the same quality requirements as the original EPAs.

The BWR/6 STS (NUREG-1434, Rev. 1) recognizes the difficulty involved in functional testing of a design such as NMP2's and allows testing during plant shutdown.

CONCLUSIONS

The modification established one-out-of-two-taken-once redundant relay actuated protective circuits for the NMP2 RPS M/G and RPS UPS EPA systems. The EPA relay under test may be physically isolated and functionally tripped without interrupting the power supply to the protected essential circuit (i.e., RPS scram solenoids or RPS/Nuclear Steam Supply Shutoff logic). Therefore, channel functional testing of any EPA circuit may be safely performed with the plant at power.

The design, installation, and testing of the new units met the criteria of the same standards that were applied to the previous units.

The proposed 6 month frequency for the functional testing is more conservative than the manufacturer recommendation that the normally deenergized relays be tested on a yearly basis. Since no periodic functional test was recommended by the manufacturer for the normally energized relays, the NMPC proposed 6 month functional test frequency for each relay that is encompassed by NMP2 TS 4.8.4.4a and 4.8.4.5a is conservative.

The actual system conditions required for EPA actuation remain the same. The relay setpoints for EPA relay actuation were not affected by the modification or the proposed changes.

Therefore, the proposed changes to the NMP2 TS will result in reliable RPS M/G and RPS UPS EPA system monitoring due to the increased frequency for testing. The proposed changes will not result in an increased risk to the plant.

NO SIGNIFICANT HAZARDS CONSIDERATION ANALYSIS

10CFR50.91 requires that at the time a licensee requests an amendment, it must provide to the Commission its analysis using the standards in 10CFR50.92 concerning the issue of no significant hazards consideration. Therefore, in accordance with 10CFR50.91, the following analysis has been performed with respect to the requested changes.

The operation of Nine Mile Point Unit 2, in accordance with the proposed amendment, will not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed changes affect surveillance testing frequency only. The new relay actuated protection system design functions in the same fail safe manner as the old units. Also, the new design in conjunction with the testing capability has increased EPA reliability, while introducing little risk to testing the EPAs with the plant in operation. Therefore, the proposed changes to the NMP2 TS do not involve a significant increase in the probability or consequences of an accident previously evaluated.

The operation of Nine Mile Point Unit 2, in accordance with the proposed amendment, will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes affect surveillance testing frequency of relay actuated protection circuits only. The proposed changes do not introduce any new or different accident initiators from any that were previously evaluated. EPA relay actuation setpoints are not affected. The actual fail safe system conditions required for EPA actuation will remain the same. Therefore, the operation of NMP2, in accordance with the proposed amendment, will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The operation of Nine Mile Point Unit 2, in accordance with the proposed amendment, will not involve a significant reduction in a margin of safety.

The function of the EPA systems is to isolate the loads from supply power. That function was not altered by the proposed change. Reliability of the EPA systems is improved. Therefore, the operation of NMP2, in accordance with the proposed amendment, will not involve a significant reduction in a margin of safety.

ATTACHMENT C

NIAGARA MOHAWK POWER CORPORATION

LICENSE NO. NPF-69

DOCKET NO. 50-410

The current versions of NMP2 Technical Specifications pages 3/4 8-32 and 3/4 8-33 have been hand marked-up to reflect the proposed changes.

ELECTRICAL POWER SYSTEMS

ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

REACTOR PROTECTION SYSTEM ELECTRIC POWER MONITORING (RPS LOGIC)

LIMITING CONDITIONS FOR OPERATION

3.8.4.4 Two RPS UPS electrical protection assemblies for each inservice UPS set or alternate source shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

a. With one RPS electrical protection assembly for an inservice RPS UPS inoperable, restore the inoperable electrical protection assembly to OPERABLE status within 72 hours or remove the associated RPS UPS from service.

b. With both RPS electrical protection assemblies for an inservice RPS UPS inoperable, restore at least one electrical protection assembly to OPERABLE status within 30 minutes or remove the associated RPS UPS from service.

SURVEILLANCE REQUIREMENTS

4.8.4.4 The above specified RPS electrical protection assemblies instrumentation shall be determined OPERABLE:

At least once every 6 months by

a. ~~By~~ performance of a CHANNEL FUNCTIONAL TEST ~~each time the plant is in COLD SHUTDOWN for a period of more than 24 hours, unless performed within the previous 6 months~~.

b. At least once per 18 months by demonstrating the OPERABILITY of overvoltage, undervoltage and underfrequency protective instrumentation by performance of a CHANNEL CALIBRATION including simulated automatic actuation of the protective relays, tripping logic and output circuit breakers and verifying the following setpoints.

1. Overvoltage Bus A: $\leq$ 132 volts AC
   Bus B: $\leq$ 132 volts AC

2. Undervoltage Bus A: $\geq$ 117.1 volts AC
   Bus B: $\geq$ 115.75 volts AC

3. Underfrequency $\geq$ 57 Hz

ELECTRICAL POWER SYSTEMS

ELECTRICAL EQUIPMENT PROTECTIVE DEVICES

REACTOR PROTECTION SYSTEM ELECTRIC POWER MONITORING (SCRAM SOLENOIDS)

LIMITING CONDITIONS FOR OPERATION

3.8.4.5 Two RPS electrical protection assemblies (EPAs) for each inservice RPS MG set or alternate source shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

a. With one RPS electrical protection assembly for an inservice RPS MG set or alternate power supply inoperable, restore the inoperable EPA to OPERABLE status within 72 hours or remove the associated RPS MG set or alternate power supply from service.

b. With both RPS electrical protection assemblies for an inservice RPS MG set or alternate power supply inoperable, restore at least one EPA to OPERABLE status within 30 minutes or remove the associated RPS MG set or alternate power supply from service.

SURVEILLANCE REQUIREMENTS

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a. At least once every 6 months by ~~By~~ performance of a CHANNEL FUNCTIONAL TEST ~~each time the plant is in COLD SHUTDOWN for a period of more than 24 hours, unless performed within the previous 6 months~~.

b. At least once per 18 months by demonstrating the OPERABILITY of overvoltage, undervoltage and underfrequency protective instrumentation by performance of a CHANNEL CALIBRATION including simulated automatic actuation of the protective relays, tripping logic and output circuit breakers and verifying the following setpoints.

1. Overvoltage Bus A: $\leq$ 128.8 volts AC
   Bus B: $\leq$ 130.0 volts AC

2. Undervoltage Bus A: $\geq$ 114.5 volts AC
   Bus B: $\geq$ 115.1 volts AC

3. Underfrequency $\geq$ 57 Hz