ATTACHMENT A

NIAGARA MOHAWK POWER CORPORATION

LICENSE NPF-69

DOCKET NO. 50-410

Proposed Changes to Technical Specifications

Replace existing page 3/4 3-17 with the attached revised page. This page has been retyped in its entirety with marginal marking to indicate changes to the text.

TABLE 3.3.2-2

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

TRIP FUNCTION	TRIP SETPOINT	ALLOWABLE VALUE
1. Primary Containment Isolation Signals (Continued)		
a. Reactor Vessel Water Level*		
1) Low, Low, Low, Level 1	≥17.8 in.	≥10.8 in.
2) Low, Low, Level 2	≥108.8 in.	≥101.8 in.
3) Low, Level 3	≥159.3 in.	≥157.8 in.
b. Drywell Pressure - High	≤1.68 psig	≤1.88 psig
c. Main Steam Line		
1) Radiation - High	≤3x Full Power Background	≤3.6x Full Power Background
2) Pressure - Low	≥766 psig	≥746 psig
3) Flow - High	≤103 psid	≤109.5 psid
d. Main Steam Line Tunnel		
1) Temperature - High	≤165.7°F	≤169.9°F
2) ΔTemperature - High	≤ 66.7°F	≤ 71.3°F
3) Temperature - High MSL Lead Enclosure	≤146.7°F	≤150.9°F
e. Condenser Vacuum Low	≥8.5 in Hg vacuum	≥7.6 in. Hg vacuum
f. RHR Equipment Area Temperature - High (HXs/A&B Pump Rooms)	≤135°F	≤144.5°F
g. Reactor Vessel Pressure - High (RHR Cut-in Permissive)	≤128 psig	≤148 psig
h. SGTS Exhaust - High Radiation	$\leq 5.7 \times 10^{-3}$ μCi/cc	$\leq 1.0 \times 10^{-2}$ μCi/cc

ATTACHMENT B

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Supporting Information and No Significant Hazards Consideration Analysis

Background and Scope

Section 3/4.3.2 of the Nine Mile Point Unit 2 Technical Specifications lists the isolation actuation instrumentation systems associated with the main steam line tunnel. The Main Steam Line Lead Enclosure Temperature - High isolation system has the lowest trip setpoint. Table 3.3.2-2, Isolation Actuation Instrumentation Setpoints, specifies a Setpoint for this instrumentation system of $\leq$ 140°F and an Allowable Value of $\leq$ 150.5°F. Operating data, together with recently completed analyses, indicate that actual temperatures can exceed 135°F in the main steam tunnel. Taking into account drift and the effects of the operating environment on the instrumentation, the operating margin between the actual setpoint and main steam tunnel temperature can be as low as 0.8°F. A minor disturbance in the turbine building ventilation system, while not otherwise compromising safe operation, could result in an isolation actuation with resulting Main Steam Isolation Valve closure and reactor scram.

Discussion

The main steam tunnel high temperature isolation actuation instrumentation is part of the nuclear boiler Leak Detection System (LDS). A schematic diagram of the system is shown on Figure 7.6-1, sheet 2, in the Updated Safety Analysis Report. The Leakage Detection System complies with General Design Criterion (GDC) 54, and is discussed in Section 5.2.5 of the Updated Safety Analysis Report. The portion of the Leakage Detection System in the main steam tunnel is used to detect leakage from the main steam line and initiate signals used for automatic closure of the Main Steam Isolation Valves. The monitors located in the main steam tunnel and lead enclosure area have sensitivities suitable for detection of increases in ambient air temperature which are equivalent to reactor coolant leakage into the area of 25 gpm. The instrumentation system for Main Steam Line Tunnel Temperature - High consists of two trip systems, each with two dual element thermocouples, located on the 261 ft. elevation. The Main Steam Line Tunnel Differential Temperature system consists of two trip systems, each with two pair of dual element thermocouples, with one thermocouple from each pair located at the ventilation inlet and one located at the ventilation outlet. The instrumentation system for the main steam line lead enclosure consists of two trip systems, each with 6 dual element thermocouples, located on the 290 ft. elevation in the main steam tunnel.

The design calculation's for Nine Mile Point Unit 2 estimated an average ambient temperature for the main steam tunnel of 85°F during the winter and 110°F during the summer. The maximum normal design temperature for Equipment Qualification purposes was 120°F. To provide the necessary sensitivity year round, the transient analysis for a line break in the main steam tunnel utilized the winter temperature as an initial condition. Utilizing 85°F, a 25 gpm leak resulted in a calculated peak temperature in the Main Steam Line lead enclosure of 156.0°F. This temperature is used as the process safety limit for determination of the associated Allowable Value (150.5°F) and Trip Setpoint (140.0°F). The resulting operating margin for the calculated average summer condition is 30°F.

Operating experience has shown the actual ambient summer temperature in the main steam line lead enclosure exceeds the design temperature of 120°F. Inspections of the main steam tunnel area show no signs of steam leakage. A review of plant as-built data and unit cooler performance data resulted in a revised maximum normal design temperature of 130°F. Steam Line Tunnel temperatures may exceed 130°F temporarily, and have reached as high as 139°F. Taking into account the allowance for drift and effects of the operating environment, the operating margin between the maximum expected temperature and the current isolation system setpoint can be negligible.

To evaluate an increase in the main steam tunnel high temperature setpoints, the computer model THREED, a subcompartment transient response code, was revised to account for as-built data, actual operating conditions, and measured unit cooler performance. The new computer model calculated peak temperatures assuming a 25 gpm steam leak and a revised winter ambient temperature of 80°F. As shown on Table 1, the process safety limits for the tunnel general area and lead enclosure did not change. The process safety limit for the tunnel differential temperature increased from 67.0°F to 75.0°F.

The instrument error margins used in the setpoint methodology of the original analyses were reviewed for conservatisms. The peak temperatures associated with a 25 gpm leak occur approximately one hour into the transient. Consequently, the time response for the isolation actuation instrumentation does not affect the ability of the instrumentation to actuate prior to temperature exceeding the Process Safety Limit. The allowances between the Allowable Values and the Process Safety Limits have been revised accordingly. After eliminating unnecessary allowances between the Allowable Values and Setpoints in the setpoint methodology, new Allowable Values and Setpoints were calculated. Table 1 is a comparison of Process Safety Limits, Allowable Values, and Setpoints.

Analysis

The effects of increased main steam tunnel temperatures were evaluated. The results concluded that all equipment and components in the main steam tunnel would remain operable at temperatures up to 146°F and would perform their intended safety function. The structural design was also evaluated and found to be acceptable for the increased temperature.

The increase in the main steam tunnel and lead enclosure maximum normal design temperature from 120°F to 130°F has been reviewed against Equipment Qualification documentation. The increase has minimal or no impact. The Equipment Qualification program at Nine Mile Point Unit 2 has procedures in place to monitor ambient temperatures in different environmental zones, including the zones in the main steam tunnel. Qualified lives of EQ equipment are calculated and adjusted by the NMPC Equipment Qualification group, based on these actual ambient temperature readings. The effects of temporary excursions of the ambient temperatures, which may include temperatures exceeding 130°F, are included and addressed in the methodology used in Equipment Qualification program for calculating and adjusting qualified life.

The temperature profiles used for qualification of safety related equipment in the main steam tunnel contain adequate margin to account for changes in the accident environment. The peak temperatures as a result of a main steam line break will not change, since the dominant effect is the energy released by the break. However, the post-accident long term steady state temperature will increase from 120°F to 130°F.

The increased process safety limit for main steam line isolation is a result of using as-built and as-tested data in lieu of as-designed and as-calculated values. The modeling technique was not changed. Consequently, the revised process safety limit represents a more accurate calculation of the peak temperatures resulting from a 25 gpm leak.

The methodology utilized to determine the Allowable Value and Setpoint is in accordance with Reg. Guide 1.105, "Instrument Setpoints for Safety-Related Systems", Revision 2, February 1986, and Standard ISA-S67.04, "Setpoints for Nuclear Safety Related Instrumentation used in Nuclear Power Plants," 1982. The instrumentation in the Main Steam Tunnel has been evaluated for the effect of increased temperatures on drift, accuracies, and allowances for environmental effects. The Allowable Values contain sufficient margin to account for instrument accuracy and calibration capability in the new environment. The differences between the Trip Setpoints and Allowable Values are adequate to account for expected drift between calibrations.

Based on these evaluations, it is concluded that the increased main steam tunnel temperatures will not adversely affect any design/operational considerations. Nine Mile Point Unit 2 will continue to be in compliance with all General Design Criteria of 10 CFR Part 50, Appendix A.

10CFR50.91 requires that at the time a licensee requests an amendment, it must provide to the Commission its analysis using the standards in 10CFR 50.92 as to whether no significant hazards consideration associated with the amendment exists. Therefore, in accordance with 10CFR 50.91, the following analysis has been performed:

<u>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.</u>

The LDS instrumentation in the main steam line tunnel isolates the Main Steam Isolation Valves upon sensing a steam leak of 25 gpm. The proposed setpoint values provide the same level of protection against a main steam line break as the existing values. The proposed setpoints will increase operating margin, and reduce unnecessary challenges to the plant shutdown systems. Therefore, this change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

<u>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 previously evaluated.</u>

The qualification of safety-related equipment in the main steam tunnel has been evaluated against the increase in maximum normal design and post-accident temperatures. Component qualified life has been adjusted accordingly, thereby assuring that instrumentation response to previously evaluated accidents will not be adversely affected. Further, all safety-related systems and components remain within their applicable design limits. Thus, system and component performance is not adversely affected by this change, thereby assuring that design capabilities of those systems and components are not challenged in a manner not previously evaluated so as to create the possibility of a new or different kind of accident from any 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 proposed change increases the existing Setpoints and Allowable Values for Main Steam Line Tunnel Temperatures. The change in the process safety limit is a result of utilizing as-tested and as-built data, and does not reduce the safety margin assumed in the analysis. The allowances provided between the Process Safety Limits and the Allowable Values, as well as the drift and allowance for operating environment between the Allowable Values and the Setpoints, have been evaluated against the increased temperatures. The reduction in allowances will not affect the ability of the instrumentation system to actuate prior to the temperature in the main steam tunnel reaching a process safety limit. Therefore, the proposed change does not result in a significant reduction in a margin of safety.

TABLE 1

ISOLATION ACTUATION INSTRUMENTATION SETPOINTS

	ORIGINAL ANALYSIS	REVISED ANALYSIS
Main Steam Line Tunnel Temperature - High		
PROCESS SAFETY LIMIT	175.0°F	175.0°F
Allowance for Accuracy(1)	5.5°	5.1°
ALLOWABLE VALUE	169.5°	169.9°F
Additional Allowance(2)	6.3°	-
Allowance for Drift	2.0°	2.0°
Allowance for Effects of Operating Environ.	2.2°	2.2°
TECHNICAL SPECIFICATION SETPOINT	159.0°F	165.7°F
Main Steam Line Tunnel Differential Temperature - High		
PROCESS SAFETY LIMIT	67.0°F	75.0°F
Allowance for Accuracy(1)	4.2°	3.7°
ALLOWABLE VALUE	62.8°	71.3°F
Additional Allowance(2)	8.2°	-
Allowance for Drift	3.0°	3.0°
Allowance for effects of Operating Environ.	1.6°	1.6°
TECHNICAL SPECIFICATION SETPOINT	50.0°F	66.7°F
Main Steam Line Lead Enclosure Temperature - High		
PROCESS SAFETY LIMIT	156.0°F	156.0°F
Allowance for Accuracy(1)	5.5°	5.1°
ALLOWABLE VALUE	150.5°	150.9°F
Additional Allowance(2)	6.3°	-
Allowance for Drift	2.0°	2.0°
Allowance for effects of Operating Environ.	2.2°	2.2°
TECHNICAL SPECIFICATION SETPOINT	140.0°F	146.7°F

(1) Allowance for time response, environmental effects, accuracies of components and calibration equipment. Allowance for time response has been deleted from the values in the revised analysis.

(2) Additional allowance was included as conservatism in the original calculation. The allowance is not necessary to meet the requirements of Reg. Guide 1.105.