

**LGS HPCI Room Delta Temperature Steam Leak Detection Isolation Setpoint LAR
Pre-Submittal Meeting Jan 21, 2010**

Agenda

Brief Overview of proposed License Amendment Request (LAR)

A license amendment request to amend Operating Licenses NPF-39 and NPF-85 for Limerick Generating Station (LGS), Units 1 and 2 is planned to be submitted in Feb 2010. The proposed changes revise the High Pressure Coolant Injection (HPCI) Equipment Room Delta Temperature High Technical Specification (TS) Trip Setpoint and Allowable Value (AV) listed in Table 3.3.2-2, Isolation Actuation Instrumentation Setpoints, Item 4e, for the Limerick Generating Station (LGS), Units 1 and 2 TSs. The HPCI Equipment Room Delta Temperature High Trip Setpoint will be lowered from ≤ 126 deg F to ≤ 104 deg F and the AV will be lowered from ≤ 130.5 deg F to ≤ 108.5 deg F.

The design basis of the HPCI steam leak detection isolation systems is to prevent the excessive loss of the reactor coolant and the release of significant amounts of radioactive materials from the reactor coolant pressure boundary by isolating the appropriate steam line. The steam line of the HPCI system is constantly monitored for leaks and breaks by equipment area and pipe chase area ambient and differential temperature elements. Pairs of temperature elements monitor for HPCI room ventilation air high differential temperature. Both sensors of each delta temperature pair and the temperature indicating switch (TIS) they feed form one logic division. A redundant pair of sensors and another TIS form a separate logic division. This license amendment request only affects the setpoints of the HPCI equipment area TIS-025-101B/D (Unit 1) and TIS-025-201B/D (Unit 2). See attached M-25 P&ID.

Previously, a 1995 License Amendment (Reference 1) for the HPCI and Reactor Core Isolation Cooling (RCIC) pump rooms substantially increased both the room high temperature and room ventilation high differential temperature isolation setpoints. The HPCI room ventilation high differential temperature isolation setpoint was increased from ≤ 80 deg F to ≤ 126 deg F and the AV was increased from ≤ 88 deg F to ≤ 130.5 deg F. The associated modification increased the environmental qualification temperature limit for the HPCI and RCIC pump rooms to a temperature where operability of the HPCI and RCIC room coolers was not required to assure operability of safety-related equipment in the HPCI and RCIC pump rooms. A major objective of the setpoint change was to ensure that the steam leak detection system does not prematurely isolate the HPCI or RCIC systems during required operations post-Loss of Coolant Accident (LOCA).

A subsequent quantitative analysis was performed in September 2009 (Revision 4a), during the revision of Calculation -1001, "Compartment Temperature Transients for Steam and Water Leaks." The new analysis, using improved modeling tools, supported the existing high temperature setpoints for the HPCI and RCIC pump rooms as well as the Pump Room Ventilation High Differential Temperature Isolation setpoint for the RCIC pump room. However, from this analysis, it was concluded that the HPCI Pump Room Ventilation High

Differential Temperature setpoint would not have resulted in a steam line isolation following a 25 gallon per minute (gpm) leak in all conditions.

Immediate compensatory actions were taken to temporarily lower the temperature indicating switch setpoints until a license amendment is received. LGS Licensee Event Report (Reference 2) was issued. Subsequently, a design change was prepared to install the permanent setpoints included in this submittal.

Discuss need to include calculations with the LAR

A final revision to Calculation -1001 was completed in October 2009 (Revision 4b). The results of Calculation -1001 specify 113.0 deg F as the Analytical Limit (AL). This AL of 113 deg F was the design bases input into the Loop Uncertainty (LU) Calculation TE-055-1N028B that was performed in accordance with the Improved Instrument Setpoint Control Program (IISCP). This calculation determined the AV and Actual Trip Setpoint for the instrument loop consisting of differential temperature elements TE-055-1N028B and TE-055-1N029B and temperature indicating switch TIS-025-101B. This LU calculation is directly applicable to the redundant instrument loop consisting of sensor pairs TE-055-1N028D and TE-055-1N029D and temperature indicating switch TIS-025-101D as well as the corresponding Unit 2 instrument loops.

The results of the IISCP LU calculation for TE-055-1N028B established an AV of ≤ 108.5 deg F and an Actual Trip Setpoint of ≤ 104 deg F.

Discussion Point 1:

The LAR will provide references to the two calculations and provide a copy of the Calculation -1001 HPCI room temperature profiles for summer and winter conditions for 5 and 25 gpm steam leaks. Exelon believes this is adequate. Can NRC provide feedback on how much information from the Calculations -1001 and LU TE -055-1N028B needs to be presented in the proposed submittal?

Limiting Safety System Setpoint (LSSS) Discussion

Since the HPCI Equipment Room Delta Temperature High Temperature Indicating Switches (TISs) do not provide any automatic trip function for protection against a violation of a Reactor Core Safety Limit (SL), or a Reactor Coolant System Pressure Safety Limit, during an anticipated operational occurrence (AOO), a normal operational transient, or steady state operation, the Actual Trip Setpoint and AV values for their operation are not considered to be LSSSs. The instrument setpoint is not part of the Reactor Protection System actuation trip logic and is not included in the LGS Technical Specification (TS) Section 2.2 and Table 2.2.1-1 (Reactor Protection System Instrumentation Setpoints). The instrument setpoint is not part of the Emergency Core Cooling System Actuation Instrumentation and is not included TS Section 3.3 and Table 3.3.3-1 (Emergency Core Cooling System Actuation Instrumentation).

Discussion Point 2:

Exelon believes that the HPCI Equipment Room Delta Temperature High Temperature Indicating Switches (TISs) proposed Setpoint and AV changes are not LSSS changes. Can NRC provide feedback on Exelon's determination?

TSTF-493

TSTF-493, Rev 4, "Clarify Application of Setpoint Methodology for LSSS Functions," Attachment A, "Identification of Functions to be Annotated with TSTF-493 Footnotes," Section: NUREG-1433, Boiling Water Reactor/4 Plants, Specification 3.3.5.1, "Emergency Core Cooling System Instrumentation," Functions "a" through "g" do not include the HPCI steam leak detection/isolation function.

Discussion Point 3:

Exelon believes this setpoint change does not consider, nor need to discuss, TSTF-493 requirements. Can NRC provide feedback on Exelon's determination in regards to TSTF-493 applicability?

GE BWR Setpoint Calculation Methodology.

The results of Calculation -1001 specify 113.0 deg F as the Analytical Limit (AL). This AL of 113 deg F was the design bases input into the Loop Uncertainty (LU) Calculation TE-055-1N028B that was performed in accordance with the Improved Instrument Setpoint Control Program (IISCP). This calculation determined the AV and Actual Trip Setpoint for the instrument loop consisting of differential temperature elements TE-055-1N028B and TE-055-1N029B and temperature indicating switch TIS-025-101B.

The instrument setpoint methodology used at Limerick is controlled by Exelon Procedure CC-MA-103-2001, Revision 0, "Setpoint Methodology for Peach Bottom Atomic Power Station and Limerick Generating Station." It uses the proprietary General Electric Company Instrument Setpoint Methodology as documented in NEDC 31336 (October, 1986). The calculation was performed in accordance with the procedure with no issues or exceptions.

Discussion Point 4:

The NRC has had issues with several instrument setpoint calculation methodologies. NRC currently has an issue with the ESBWR Setpoint Methodology that is, in part, based on NEDC-31336 (1995 version). Exelon is not aware of any outstanding issues with the current GE Setpoint Methodology used for LGS. Can NRC provide feedback on the use of NEDC-31336 General Electric Company Instrument Setpoint Methodology (October 1986)?

RIS 2006-17 Applicability

Exelon maintains that the proposed submittal does not contain a change to an LSSS, and does not affect a HPCI instrument function specified in TSTF 493, Rev 4; therefore Exelon will use RIS 2006-17 as general guidance and is not required to address all the general criteria specified in RIS 2006-17.

Discussion Point 5:

Exelon considers the proposed submittal to be a straightforward setpoint change using General Electric Setpoint Methodology. Can the NRC provide feedback on the applicability of specific criteria in RIS 2006-17 that should be discussed in the proposed submittal (e.g., setting tolerance calculations)?

Reference 1:

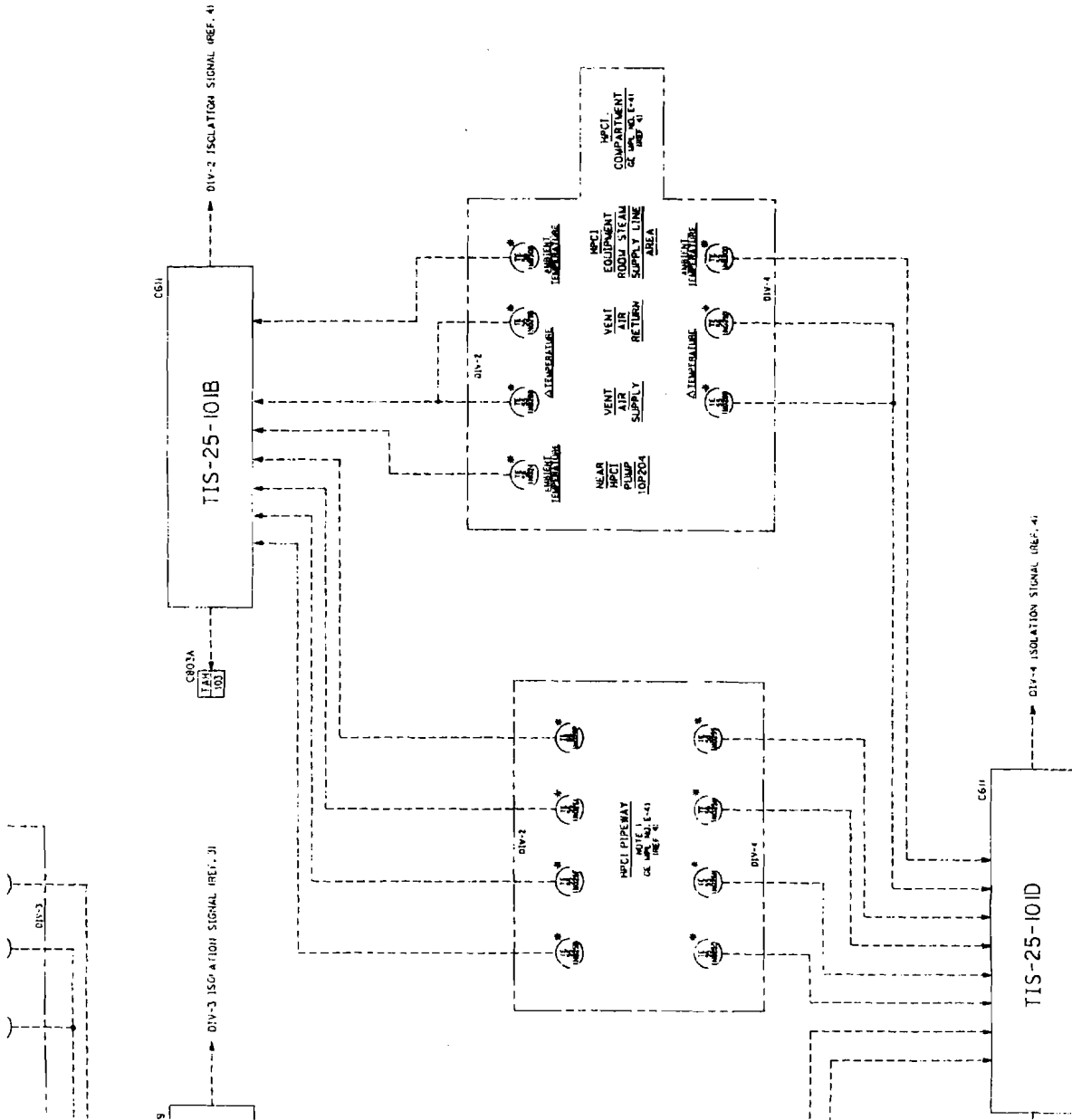
ML011560067 (Correction to Amendment Nos. 85 and 46 (TAC Nos. M89956 and M89957, dated 1/24/1995)

ML011560074 (Issuance of Amendment Nos.85 and 46 to Facility Operating Licenses NPF-39 and NPF-85 re steam leak detection systems, dated 1/20/1995)

Reference 2:

ML092990404 (LER 09-003-00 for Limerick Generating Station Units 1 and 2 re: Both Isolation Actuation Instrumentation Channels Inoperable, dated 10/26/2009)

TE-44-1N032AA	TE-44-1N23AA
TE-44-1N02200	TE-44-1N2300
TE-44-1N02200	TE-44-1N2300



TE-44-1N032AA	TE-44-1N23AA
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