ENCLOSURE 2

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 AND 50-324/LICENSE NOS. DPR-71 AND DPR-62
LICENSE AMENDMENT NOS. 183 AND 214 — POWER UPRATE
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
(NRC TAC NOS. M90644/M90645)

MARK-UPS OF UNIT 1 AND UNIT 2 BASES PAGES

3/4.5.1 HIGH PRESSURE COOLANT INJECTION SYSTEM

BACKGROUND:

The High Pressure Coolant Injection (HPCI) system consists of a steam driven turbine-pump unit, piping and valves to provide steam to the turbine, and piping and valves to transfer water from the suction source to the core via the feedwater system line where the coolant is distributed within the reactor vessel through the feedwater sparger. Suction piping for the system is provided from the condensate storage tank (CST) and the suppression pool. Pump suction for the HPCI system is normally aligned to the CST source to minimize injection of suppression pool water into the reactor vessel. However, if the CST water supply is low or if the suppression pool level is high, an automatic transfer to the suppression pool water source assures a water supply for continuous operation of the HPCI system. The steam supply to the HPCI system turbine is piped from the main steam line upstream of the associated inboard main steam line isolation valve.

The HPCI system is designed to provide core cooling at reactor pressures between 1120 psig and 150 psig. Upon receipt of an initiation signal, the HPCI system turbine stop valves and turbine control valves open simultaneously and the turbine accelerates to a specified speed. As the HPCI system flow increases, the turbine governor valve is automatically adjusted to maintain design flow. Exhaust steam from the HPCI system turbine is discharged to the suppression pool. A full flow test line is provided to route water from and to the CST to allow testing of the HPCI system during normal operation without injecting water into the reactor vessel.

The High Pressure Coolant Injection (HPCI) system is provided to assure that the reactor core is adequately cooled to limit fuel cladding temperature in the event of a small break in the nuclear system and loss of coolant which does not result in rapid depressurization of the reactor vessel. The HPCI system permits the reactor to be shut down while maintaining sufficient reactor vessel water level inventory until the vessel is depressurized. The HPCI system continues to operate until reactor pressure is below the pressure at which Low Pressure Coolant Injection (LPCI) system operation or Core Spray system operation maintains core cooling.

APPLICABILITY:

The HPCI system is required to be OPERABLE during OPERATIONAL CONDITIONS 1, 2, and 3 when there is considerable energy in the reactor core and core cooling would be required to prevent fuel damage in the event of a break in the primary system piping. In OPERATIONAL CONDITIONS 1, 2, and 3 when reactor steam dome pressure is less than or equal to 150 psig, the HPCI system is not required to be OPERABLE because the low pressure ECCS systems can provide sufficient flow below this pressure.

3/4.5.1 HIGH PRESSURE COOLANT INJECTION SYSTEM

BACKGROUND:

The High Pressure Coolant Injection (HPCI) system consists of a steam driven turbine-pump unit, piping and valves to provide steam to the turbine, and piping and valves to transfer water from the suction source to the core via the feedwater system line where the coolant is distributed within the reactor vessel through the feedwater sparger. Suction piping for the system is provided from the condensate storage tank (CST) and the suppression pool. Pump suction for the HPCI system is normally aligned to the CST source to minimize injection of suppression pool water into the reactor vessel. However, if the CST water supply is low or if the suppression pool level is high, an automatic transfer to the suppression pool water source assures a water supply for continuous operation of the HPCI system. The steam supply to the HPCI system turbine is piped from the main steam line upstream of the associated inboard main steam line isolation valve.

The HPCI system is designed to provide core cooling at reactor pressures between ~~1120~~ 1164 psig and 150 psig. Upon receipt of an initiation signal, the HPCI system turbine stop valves and turbine control valves open simultaneously and the turbine accelerates to a specified speed. As the HPCI system flow increases, the turbine governor valve is automatically adjusted to maintain design flow. Exhaust steam from the HPCI system turbine is discharged to the suppression pool. A full flow test line is provided to route water from and to the CST to allow testing of the HPCI system during normal operation without injecting water into the reactor vessel.

The High Pressure Coolant Injection (HPCI) system is provided to assure that the reactor core is adequately cooled to limit fuel cladding temperature in the event of a small break in the nuclear system and loss of coolant which does not result in rapid depressurization of the reactor vessel. The HPCI system permits the reactor to be shut down while maintaining sufficient reactor vessel water level inventory until the vessel is depressurized. The HPCI system continues to operate until reactor pressure is below the pressure at which Low Pressure Coolant Injection (LPCI) system operation or Core Spray system operation maintains core cooling.

APPLICABILITY:

The HPCI system is required to be OPERABLE during OPERATIONAL CONDITIONS 1, 2, and 3 when there is considerable energy in the reactor core and core cooling would be required to prevent fuel damage in the event of a break in the primary system piping. In OPERATIONAL CONDITIONS 1, 2, and 3 when reactor steam dome pressure is less than or equal to 150 psig, the HPCI system is not required to be OPERABLE because the low pressure ECCS systems can provide sufficient flow below this pressure.

ENCLOSURE 3

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 AND 2
DOCKET NOS. 50-325 AND 50-324/LICENSE NOS. DPR-71 AND DPR-62
LICENSE AMENDMENT NOS. 183 AND 214 — POWER UPRATE
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(NRC TAC NOS. M90644/M90645)

LIST OF REGULATORY COMMITMENTS

The following table identifies those actions committed to by Carolina Power & Light Company in this document. Any other actions discussed in the submittal represent intended or planned actions by Carolina Power & Light Company. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Manager-Regulatory Affairs at the Brunswick Nuclear Plant of any questions regarding this document or any associated regulatory commitments.

Commitment	Committed date or outage
1. Maintain reactor power at or below 2436 MWt until the suppression pool temperature limit issue for the SBO and LOCA analyses has been resolved with the NRC staff.	#

- Commitment remains in effect until this issue is resolved with the NRC staff.