

ACCESSION #: 9805260297

NON-PUBLIC?: N

LICENSEE EVENT REPORT (LER)

FACILITY NAME: Point Beach Nuclear Plant, Unit 1 PAGE: 1 OF 4

DOCKET NUMBER: 05000266

TITLE: Containment Spray System Discharge Pressure Indicators

Not Isolated

EVENT DATE: 04/16/1998 LER #: 1998-013-00 REPORT DATE: 05/16/1998

OTHER FACILITIES INVOLVED: Unit 2 DOCKET NO: 05000301

OPERATING MODE: N POWER LEVEL: 000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:

50.73(a)(2)(ii)

LICENSEE CONTACT FOR THIS LER:

NAME: Charles Wm. Krause, Senior TELEPHONE: (920) 755-6809

Regulatory Compliance Engineer

COMPONENT FAILURE DESCRIPTION:

CAUSE: SYSTEM: COMPONENT: MANUFACTURER:

REPORTABLE NPRDS:

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On April 16, 1998, with Point Beach Nuclear Plant (PBNP) Unit 1 in refueling shutdown and defueled and unit 2 operating at 100 percent power, it was discovered that the discharge pressure indicator root valves (1/2SI-848G and 1/2SI-848H) for the containment spray pumps (P14A and P14B) were not shut as required to provide a closed system boundary for the spray system outside containment. Although the spray system is

tested periodically as a closed system outside containment with these root valves open, the 3/8 inch tubing and the discharge pressure indicators down stream of these root valves are not seismically qualified to perform a containment isolation function. The Unit 1 and Unit 2 containment spray systems were declared inoperable and Technical Specification LCO TS 15.3.0.B was entered at 0906 on April 16, 1998, for Unit 2. At 0939 hours the root valves for Unit 2 were shut and both trains of containment spray for Unit 2 were returned to service. The apparent cause of this event was a failure to maintain adequate configuration control for closed system boundary valves.

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EVENT DESCRIPTION

On April 16, 1998, a condition report (CR 98-1603) was submitted concerning the failure to maintain the containment spray pump discharge pressure indicator root valves, SI-848G and SI-848H, normally shut.

These valves are required to be normally shut to provide a seismically qualified closed system boundary outside containment for the containment spray system. With the root valves open, the 3/8 inch tubing and pressure indicators (PI-933A and PT-933B) downstream of the root valves become the closed system boundary. This tubing and the pressure indicators are not qualified (non-QA and non-seismic) to perform the closed system boundary function. This condition was discovered when the containment spray system engineer was investigating a question concerning whether the root valves should be left in a shut position or the as-found position following calibration of the containment spray pump discharge pressure indicators, PI-933A and PT-933B. In the investigation, it was determined that the 1994 annual update of the FSAR revised the description of the containment isolation provisions for the containment

spray system penetrations (FSAR Figures 5.2-54 and 5.2-55). The spray system is now credited as a closed system outside containment and, therefore, valves PI-938A and PI-933B function as one of the two isolation barriers for these penetrations.

The function of the containment spray system as a closed system outside containment is tested and verified periodically using procedure IT-540C for Unit 1 and IT-545C for Unit 2, "Leakage Reduction and Preventive Maintenance Program Test of Containment Spray System." This test has been conducted with the SI-848G and 848H valves open and has demonstrated the leak tightness of the pressure indicators and associated tubing.

However, examination of plant records revealed these indicators are not included in the plant QA program and are not seismically qualified for a containment isolation application. Accordingly, the SI-848G and 848H root valves for these indicators, which are qualified, are in the closed system boundary and should be maintained in the shut position.

Subsequent to the 1994 FSAR revision, which credited the containment spray system as a closed system outside containment, the required position of these root valves had not been updated on plant drawings as normally shut, and the valves were still listed as normally open in CL-7A (Unit 1) and CL-7B (Unit 2), "Safety Injection System Checklist."

As an immediate response to the identified condition, the Unit 1 and Unit 2 containment spray systems were declared inoperable at 0906 on April 16, 1998. Since there is no Technical Specification (TS) allowed outage time

for the condition found, the TS, TS 15.3.0.B, was entered for Unit 2 at that time. At 0939 hours on April 16, 1998, the root valves for operating Unit 2 were shut and both trains of containment spray for Unit 2 were returned to service. The root valves in the Unit 1 containment spray system were also shut 0939 hours CST. At 0955, this event was determined to be reportable in accordance with 10 CFR 50.72(b)(1)(ii)(B) as a plant operating condition that is outside the design basis of the plant. A one-hour, non-emergency ENS notification was made pursuant to 10 CFR 50.72(b)(1)(ii)(B) at 1044 hours CST.

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COMPONENT AND SYSTEM DESCRIPTION

The containment spray system is described in Section 6.4 of the Point Beach Nuclear Plant FSAR. The primary purpose of the containment spray system is to spray cool water into the containment atmosphere, when appropriate, in the event of a loss-of-coolant accident and thereby ensure that containment pressure does not exceed its design value of 60 psig at 286 Degrees F. This protection is afforded for all pipe break sizes up to and including the hypothetical instantaneous circumferential rupture of a reactor coolant pipe. Pressure and temperature transients for loss-of-coolant accidents are presented in FSAR Section 14. Although the water in the core after a loss-of-coolant accident is quickly subcooled by the safety injection system, the containment spray system design is based on the conservative assumption that the core residual

heat is released to the containment as steam. As discussed above, portions of the containment spray system also function as a closed system outside containment for containment integrity purposes.

The function of the PI-933A and P933B pressure indicators are to provide indication of the discharge pressure of the containment spray pumps (P-14A and P-14B respectively) during periodic testing of these pumps.

The instruments provided containment spray pump discharge pressure indication. This indication is needed for testing purposes only and is not required for operation during the containment spray system primary function described above. The root isolation valves, SI-848G and H, are 3/4 inch globe valves. Their function is to isolate the discharge pressure indicator and thereby provide a portion of the closed system boundary for the containment spray system. These isolation valves are both seismically qualified and included in the PBNP QA program.

CAUSE

The apparent cause of this event was the failure to identify the discharge pressure indicators and associated tubing as components not qualified for a containment closed system isolation boundary function.

This resulted in the failure to adequately manage the configuration control for the isolation root valves as normally shut.

CORRECTIVE ACTIONS

1. Valves 1(2)SI-848G and 1(2)SI-848H have been shut and temporary changes to checklists CL-7A and CL-7B, "Safety Injection System

Check List," to identify these valves as normally shut have been made.

2. The remaining closed system boundaries for the containment spray system were reviewed and found to be qualified.

3. Drawing change notices have been submitted to revise the plant drawings and QA qualification boundary drawings, to show the root valves as normally shut (DCNs 98-0860 and 98-0861).

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4. The containment spray system test procedures, IT 05 and IT 06, were reviewed and have been revised as appropriate to ensure proper valve control for these root valves is maintained.

5. A root cause evaluation of this event will be conducted. Any additional corrective actions identified in the evaluation will be tracked via the corrective action program.

SAFETY ASSESSMENT

As discussed in the event description, the non-qualified piping and pressure indicators discussed in this event have been pressure tested as a closed system boundary and it is unlikely that they would have failed in accident conditions. A failure of the pressure indicators and or piping to maintain spray system integrity could have resulted in a small diversion of spray flow (an estimated 40 gpm at full spray flow of 1200 gpm) during the injection phase of a LOCA. This small diversion would not have prevented the spray system from performing its design function.

A failure of the tubing or pressure indicator pressure boundary could also have prevented containment integrity from being maintained following the injection phase of a LOCA (when spray pumps are secured). However, the tubing and pressure indicators are part of the second containment isolation boundary, and an additional failure of a check valve (SI-862A), which is also periodically leak rate tested, would have to occur before containment integrity would be compromised. Therefore, the failure to maintain the discharge pressure indicator root valves normally shut did not compromise the health and safety of the public or plant personnel.

SYSTEM AND COMPONENT IDENTIFIERS

The Energy Industry Identification System component function identifier for each component or system referred to in this report are identified as follows:

Component/System Identifier

Containment Spray System BE

Valve, Isolation ISV

Indicator, Pressure PI

Pump P

SIMILAR OCCURRENCES

A search of similar PBNP Licensee Event Reports submitted within the past two years was conducted. LER 266/96-006-00 dated October 14, 1996, discussed an event describing the component cooling water system being outside the design basis for a closed system outside containment.

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