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April 30, 2007

SVP-07-024

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Quad Cities Nuclear Power Station, Unit 2
Renewed Facility Operating License No. DPR-30
NRC Docket No. 50-265

Subject: Licensee Event Report 265/07-001, "Manual Reactor Scram on Increasing Condenser Backpressure Due to a Decrease in 2A Offgas Train Efficiency"

Enclosed is Licensee Event Report (LER) 265/07-001, "Manual Reactor Scram on Increasing Condenser Backpressure Due to a Decrease in 2A Offgas Train Efficiency," for Quad Cities Nuclear Power Station, Unit 2.

This report is submitted in accordance with the requirements of the Code of Federal Regulations, Title 10, Part 50.73(a)(2)(iv)(A), which requires the reporting of any event or condition that resulted in manual or automatic actuation of the reactor protection system (RPS) including reactor scram or reactor trip.

There are no regulatory commitments contained in this letter.

Should you have any questions concerning this report, please contact Mr. W. J. Beck at (309) 227-2800.

Respectfully,

Timothy J. Tulon
Site Vice President
Quad Cities Nuclear Power Station

cc: Regional Administrator – NRC Region III
NRC Senior Resident Inspector – Quad Cities Nuclear Power Station

IE22

NRC FORM 366 (7-2001) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED BY OMB NO. 3150-0104 EXPIRES 7-31-2004

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Quad Cities Nuclear Power Station Unit 2	05000265	1 of 4

4. TITLE Manual Reactor Scram on Increasing Condenser Backpressure Due to a Decrease in 2A Offgas Train Efficiency

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
									N/A	N/A
02	28	2007	2007	- 001 -	00	04	27	2007	FACILITY NAME N/A	DOCKET NUMBER N/A

9. OPERATING MODE	1
10. POWER LEVEL	30%

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)
20.2203(a)(1)	50.36(c)(1)(i)(A)	X 50.73(a)(2)(iv)(A)	73.71(a)(4)
20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)
20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)	
20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)	
20.2203(a)(2)(v)	50.73(a)(2)(i)(B)	50.73(a)(2)(vii)	
20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)	
20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (Include Area Code)
Wally Beck, Regulatory Assurance Manager	(309) 227-2800

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
E	SH	PCV	F130	Y					

14. SUPPLEMENTAL REPORT EXPECTED		15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

16. ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On February 27, 2007 at 2300 hours, control room operators commenced a power reduction on Unit 2 to 725 MWe to effect repairs on the 2C Reactor Feed Pump (RFP) due to a seal leak. At approximately 2352 hours, a pressure controller malfunction in the auxiliary steam supply to the 2A offgas train caused a reduction in its noncondensible gas removal efficiency. This malfunction impacted the 2A Offgas Preheater, Unit 2 steam dilution, and the 2A steam jet air ejector (SJAE) operation, and caused increased condenser backpressure.

On February 28, 2007, at 0120 hours, Quad Cities Station Unit 2 Reactor was manually scrammed due to increasing condenser backpressure.

This event was caused by a blockage of the pressure sensing line to pressure controller (PC) 2-3041-3A with fine sized corrosion products. The increase in demand of PC 2-3041-3A caused relief valve (RV) 2-3099-129 to open, which ultimately caused a reduction in 2A SJAE efficiency and an increase in condenser backpressure.

The safety significance of this event was minimal. While this event required action to diagnose and initiate a manual scram, the reactor, turbine, condenser, and supporting systems performed as expected and within Technical Specifications and UFSAR limits. All safety systems remained fully functional during this event.

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor, 2957 Megawatts Thermal Rated Core Power

Energy Industry Identification System (EIIS) codes are identified in the text as [XX].

EVENT IDENTIFICATION

Manual Reactor Scram on Increasing Condenser Backpressure Due to a Decrease in 2A Offgas Train Efficiency

A. CONDITION PRIOR TO EVENT

Unit: 2 Event Date: February 28, 2007 Event Time: 0120 hours
Reactor Mode: 1 Mode Name: Power Operation Power Level: 30%

B. DESCRIPTION OF EVENT

On February 27, 2007, at 2300 hours, control room operators commenced a power reduction on Unit 2 to 725 MWe to effect repairs on the 2C Reactor Feed [SJ] Pump [P] (RFP) due to a seal [SEAL] leak. At approximately 2352 hours, condenser [SG] [COND] parameter trends began to change. The 2A Offgas [WF] Radiation Monitor [MON] indication began to decrease, condenser backpressure began to increase, and turbine [TA] exhaust hood temperatures began to increase. While the trend was visible in plant computerized trend data, the indications of this event were too small to be observed by control room operators monitoring their indications, annunciators, and alarms until February 28, 2007, at 0006 hours when the Unit 2 Operator identified condenser backpressure at 2.2 inches Hg and increasing.

Procedure QOA 3300-02, Loss of Condenser Vacuum, was entered. During the event briefing in the control room, operators dispatched personnel to check the offgas suction valve [ISV] position, refill the condenser loop seals, secure Offgas Air injection through the 2-2799-48 Air Flow Control Station Downstream Isolation valve, and started an emergency load drop on Unit 2. Condenser backpressure continued to increase. At 0120 hours, when condenser backpressure reached approximately 5 inches Hg, Unit 2 was manually scrammed in accordance with procedures.

At approximately 0700 hours, walkdowns of steam-affected areas identified a steam leak from the Unit 2A Offgas Preheater Drain [DRN] Trap [TRP]. The Unit 2A Steam Jet Air Ejector (SJAE) [SH] supply pressure indication on PI 2-3041-4A was noted to be approximately 120 psig. The 2A offgas pressure control valve [PCV] normally controls auxiliary steam flow to the 2A SJAE at 127 psig.

At approximately 1140 hours, the Offgas Trains were swapped from the 2A Train to the 2B Train. Dilution Steam pressure returned to 127 psig. This change occurred on the procedure step where auxiliary steam [SA] is isolated from the 2A Offgas Train. Condenser backpressure and turbine hood temperatures recovered to within expected ranges. The Offgas Flow Recorder [FR] 2-5441-7 indicated an increase in flow rate for about two hours, then the flow values returned to within expected parameters for condenser inleakage.

The steam leak from the 2A Offgas preheater drain trap was repaired. On April 9, 2007, the station reestablished the auxiliary steam to pressurize the 2A Offgas Train. When auxiliary steam was valved into the 2A Offgas Train, pressure controller [PC] PC 2-3041-3A did not sense auxiliary steam pressure, which then caused an increased steam flow to the 2A SJAE and increased pressurization of the auxiliary steam line. This caused the 2A SJAE relief valve [RV] RV 2-3099-129 to open. Troubleshooting identified the need to blow out foreign material in the sensing line for pressure controller PC 2-3041-3A. The accumulated debris was collected and identified as fine granular corrosion products, most likely from within the system.

On April 11, 2007, following repairs and calibration of the pressure control valve, the 2A Offgas Train was re-pressurized to verify corrective action effectiveness. When the pressure control valve PCV 2-3099-29 was closed, the relief valve was observed again to be at 160 pounds pressure, which confirmed there was degradation of the pressure control valve. The pressure control valve was repaired on April 26, 2007.

C. CAUSE OF EVENT

Over time, internal corrosion products from the auxiliary steam piping system accumulated in the pressure sensing line for pressure controller PC 2-3041-3A. These corrosion products caused a blockage of the pressure sensing line to the controller, giving it a false increasing demand (Open) signal to the pressure control valve PCV 2-3099-29. This demand increased the pressure above the relief valve pressure setpoint, which caused relief valve RV 2-3099-129 to lift. The loss of auxiliary steam pressure from this sequence of events resulted in a reduction in 2A SJAE efficiency and ultimately an increase in the Unit 2 condenser backpressure.

There was apparent seat degradation of PCV 2-3099-29 when the valve was tested on April 11, 2007. Based upon review of the events on February 28, 2007, this was considered collateral damage due to the effect of the blocked pressure sensing line and was not a direct contributor to the cause of the SJAE efficiency loss.

The steam leak downstream of the 2A offgas preheater, which was repaired on March 10, 2007, was a contributor to the reduction in dilution steam pressure margin, however, the leak was not large enough to be considered the root cause. A failure analysis on the piping and steam trap, along with fluid flow sensitivity studies and field testing, confirmed that the functionality of the 2A SJAE would not be lost by a leak of this size from the 2A SJAE. This leak was considered a contributing cause only because it marginally reduced the capacity of the Auxiliary Steam System to supply the 2A SJAE.

D. SAFETY ANALYSIS

The safety significance of this event was minimal. During this event, the highest condenser backpressure reached before the manual scram was 5.0 inches Hg. At this value, backpressure is below the setpoints for Reactor Scram (7.5 - 8.1 inches Hg), Turbine Trip (10 inches Hg), and Turbine Bypass Closure (23 inches Hg). While this event required action to diagnose and initiate a manual scram, the reactor, turbine, condenser, and supporting systems performed as expected and within Technical Specifications and UFSAR limits. During this event, all safety systems remained

fully functional, the scram was not complicated, and the normal heat sink was never lost.

This LER is being submitted in accordance with 10 CFR 50.73(a)(2)(iv)(A), which requires the reporting of any event or condition that resulted in manual or automatic actuation of the reactor protection system (RPS), including reactor scram or reactor trip.

E. CORRECTIVE ACTIONS

The steam leak on the 2A Offgas preheater drain trap was repaired.

Unit 2A SJAE sensing lines for auxiliary steam were blown down to remove any accumulated debris.

Units 1 and 2 SJAE sensing lines for auxiliary steam will be blown down periodically to remove any accumulated debris.

Unit 2A SJAE relief valve will be inspected or replaced.

Reviews of other Performance Centered Maintenance critical instruments on Main Steam, Feedwater Heaters, Gland Seal, Offgas, and Extraction Steam will be performed to determine if the loop calibration methodology for the preventive maintenance task requires a blowdown of the pressure sensing lines. Extent of Cause is limited to the methodology for calibrating pressure control valves in the auxiliary steam system that are subject to system internal corrosion product intrusion into the pressure sensing line.

F. PREVIOUS OCCURRENCES

No prior incidents involving a controller failure due to plugged sensing lines or a control valve failure due to plugged sensing lines were identified at Quad Cities over the past five years.

There were several instances of SJAE related issues over the past five years, however, they were not applicable to this event since they were focused on administrative issues, changes in dose rates, modification testing, or offgas noncondensible gas flow. None of these issues caused a loss of condenser vacuum due to SJAE efficiency losses from pressure control valve failures.

G. COMPONENT FAILURE DATA

The 2A SJAE pressure control valve (PCV 2-3099-29) is manufactured by Fisher Controls as Model Number 4160-657-DBQ. This is a 2.0 inch carbon steel M-Form valve with a 1500 psig rating, and a service rating for steam at 300-950 psig.