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United States Nuclear Regulatory Commission
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Perry Nuclear Power Plant
Docket No. 50-440

Ladies and Gentlemen:

Enclosed is Licensee Event Report 2000-004, "Technical Specification 3.0.3 Entered due to Inoperability of Both Trains of Annulus Exhaust Gas Treatment System."

No regulatory commitments were identified in this report. If you have questions or require additional information, please contact Mr. Gregory A. Dunn, Manager - Regulatory Affairs, at (440) 280-5305.

Very truly yours,

for John K. Wood

Enclosure

cc: NRC Project Manager
NRC Resident Inspector
NRC Region III

IE22

RGN-001

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION
(6-1998)

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

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TITLE (4)

Technical Specification 3.0.3 Entered Due to Inoperability of Both Trains of Annulus Exhaust Gas Treatment System

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
5	15	2000	2000	-- 004 --	000	6	13	2000	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)	100		20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)
			20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
			20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER
			20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below
			20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		or in NRC Form 366A

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Bruce A. Luthanen, Compliance Engineer	(440) 280-5389

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURE	REPORTABLE TO EPIX

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

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

On May 15, 2000, the Perry Nuclear Power Plant performed routine sampling of activated carbon from the B train of the Annulus Exhaust Gas Treatment System. The B train had been declared inoperable on May 15, 2000, to facilitate this work activity. A surveillance instruction had been commenced on the A train of the system on May 14, 2000. This included a non-invasive test to verify airflow, which was deferred until May 15, 2000, when Engineering support personnel were available.

During the surveillance, it was discovered that the airflow for the A train was high outside of the specified band. As a result, the A train was declared inoperable at 1155 hours on May 15, 2000. This resulted in both subsystems inoperable, and entry into Technical Specification 3.0.3 was required by the governing Technical Specification Condition.

The airflow on the A train was adjusted to within the required operating band, and was returned to operability at 1607 hours on May 15, 2000. With one train restored to operability, the plant exited Technical Specification 3.0.3 without performing power changes. The B train was restored to operability shortly thereafter at 1702 hours on May 15, 2000.

The apparent cause of this event was a flow anomaly resulting from a combination of factors, including design or operating characteristics affecting system pressure control. A contributing cause was the release of a surveillance activity on the redundant system train. Corrective actions will include increased monitoring and additional guidance for statusing of Divisional systems.

Entry into Technical Specification 3.0.3 is reportable under 10 CFR 50.73(a)(2)(i) as a condition prohibited by Technical Specifications.

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TEXT *(If more, use space is required additional copies of NRC Form 366A)* **(17)**

I. INTRODUCTION

The Perry Nuclear Power Plant (PNPP) has two redundant trains of Annulus Exhaust Gas Treatment System (AEGTS) [BH] to reduce radioactivity released from the primary containment into the secondary containment in a postulated Loss Of Coolant Accident (LOCA), or fuel handling accident (FHA), by filtration and adsorption. These functions are accomplished via High Efficiency Particulate Absolute (HEPA) filters and activated carbon beds, respectively. Flow is maintained within a specified band (2000 scfm +/- 10 percent), to ensure that the charcoal and filters function as designed. Perry Plant Technical Specifications (TS) require that one train of AEGTS be in operation to ensure that secondary containment is maintained at a negative pressure with respect to the environment following a Design Basis Accident (DBA). TS also requires that one train of AEGTS be OPERABLE when the plant is in Modes 1, 2 or 3. The AEGTS TS direct entry into TS 3.0.3 if two AEGTS subsystems are determined to be inoperable.

At the time of the event, PNPP was in Mode 1 at approximately 100 percent rated thermal power. The reactor vessel was at approximately 1024 pounds per square inch gauge, with the reactor coolant at saturated conditions. There were no other inoperable systems, structures or components that contributed to this condition.

II. EVENT DESCRIPTION

At 0002 hours on May 14, 2000, a routine, non-invasive surveillance instruction performed on operating equipment, was commenced for the A train of AEGTS. The performance of this surveillance test was placed on hold due to a request for engineering personnel support. The A train was subsequently maintained in service until engineering support personnel were available. Part of the instruction involves verifying system flow at 2000 scfm +/- 10 percent.

On May 15, 2000, the B train of the AEGTS was scheduled for maintenance in accordance with normal work planning in order to take a sample from the activated carbon beds. This was a planned, required, routine test. The B train was removed from service and declared inoperable at 0500 hours on May 15, 2000 to prepare for this work.

The required surveillance test on the A AEGTS was re-commenced at 0730 hours on May 15, 2000, when engineering support was obtained. At 1155 hours, the airflow was discovered to be high (2246 scfm) outside the acceptance criteria for the surveillance. The Control Room was notified, and the A train of AEGTS was declared inoperable.

With both trains of AEGTS inoperable, immediate entry into Technical Specification 3.0.3 was required by TS. Subsequently, expedited efforts were taken to adjust the airflow back within the required operating band. The AEGTS A train was returned to operability at 1607 hours on May 15, 2000 and TS 3.0.3 was exited at that time. Both of the AEGTS trains were inoperable for approximately 4 hours prior to the restoration of one of the subsystems.

III. CAUSE OF EVENT

The A subsystem was examined for equipment failure, equipment degradation, improper system line-up and abnormal system pressures. Investigations examined for abnormal filter conditions, potential damage or wear on the vortex blading or linkage, damage to ducting, and failure or misoperation of the subsystem check damper and control dampers. No single cause of the high flow could be attributed to these factors.

The apparent cause of the high-flow condition on the A AEGTS train is potentially a design/operating anomaly related to the culmination of several factors. Vent stack pressure and system resistance changes provided by the operating point of the control dampers will create oscillations in flow due to the change in the duct pressure and discharge path of the fan. AEGTS does not utilize an automatic flow control. Listed corrective actions will ensure that investigations will continue in an effort to identify the cause of the high flow event.

A contributing cause was the release of a surveillance activity on a redundant train.

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TEXT *(If more space is required, use additional copies of NRC Form 366A)* **(17)**

IV. SAFETY ANALYSIS

The AEGT System is designed for accident mitigation, after a postulated loss of coolant accident, or in a fuel handling accident involving recently irradiated fuel bundles. Following a DBA, a minimum of one train of AEGTS is required by TS to maintain the secondary containment at a negative pressure relative to the environment. The AEGTS also serves to process gaseous radiological activity which could be released from the primary containment by scavenging iodines and particulates with high efficiency filters and activated carbon beds. By processing this activity, potential radiological consequences for environmental release to atmosphere are reduced.

A review of risk analysis factors determined that the AEGTS is not included in the at-power statistical models, since the subsystems have no core damage mitigation function in a postulated accident. Further, the AEGTS do not warrant inclusion in the Large Early Release Frequency (LERF) model for Probabilistic Safety Analysis considerations, since their function does not meet the "early" criteria. The AEGTS is a post-release treatment system.

The activated carbon beds are only credited as accident mitigation function in a postulated FHA. Perry Plant TS have been amended for the use of the Revised Accident Source Term (RAST) via TS Amendment 102. This amendment addressed the radiological consequences of a DBA LOCA using revised assumptions for accident analysis. Within this submittal, no credit is taken for iodine removal by the activated carbon adsorbers in the AEGTS subsystems for a LOCA. Even with this assumption, the dose consequences to the public from a postulated DBA LOCA were calculated to be well below the limits specified in 10 CFR 20 Appendix B and 10 CFR 100. Since there were no fuel handling activities during the period in which AEGTS was inoperable, there was no potential for increased dose consequences from a FHA.

The HEPA filters are credited with accident mitigation for both a postulated FHA and a DBA LOCA There was no adverse impact to the HEPA filtration created by the higher AEGTS airflow observed, since flow was within design limits for the filters. As a result, the dose consequences from either accident would not have been increased.

Therefore, there was no safety significance associated with this event.

V. CORRECTIVE ACTIONS

A Condition Report was initiated to investigate this incident, ensuring an elevated level of management review of the event. Until the mechanism for the potential flow anomaly is identified, increased monitoring of the AEGTS flow will be conducted. Additional guidance will be developed for monitoring the status of Divisional systems.

VI. PREVIOUS SIMILAR EVENTS

A search of events from previous Perry Licensee Event Reports concerning the AEGTS did not show any similar or related occurrences. However, a Condition Report citing flow variability within the airflow acceptance bands was submitted in 1999.

A search of industry events over the past 4 years discovered 3 related events from Quad Cities, South Texas and Waterford, in which high ventilation train airflow was noted, and was subsequently reported as LERs.

No regulatory commitments were identified in this report.

Energy Industry Identification System (EIIS) Codes are identified in the text by square brackets [XX].