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Vice President - Nuclear Operations

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**DEC 21 2005**

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Mail Station OP1-17  
Washington, DC 20555

**SUSQUEHANNA STEAM ELECTRIC STATION  
LICENSEE EVENT REPORT 50-387/2005-002-00  
PLA-5997**

**Docket 50-387**

Attached is Licensee Event Report 50-387/2005-002-00. This event was determined to be reportable per 10 CFR 50.73(a)(2)(i)(A) because the plant was shutdown as required by Technical Specification action statements.

On October 28, 2005 at 1600 hours, Susquehanna operators began the process of shutting down Unit 1 for a planned maintenance outage to address known control cell friction issues. Four control rods had previously been declared inoperable because of excessive rod to fuel channel friction. Other rods, previously known to exhibit slow settling characteristics, would be inserted during the controlled shutdown. Rather than delay the shutdown to perform operability testing if these rods again experienced long settling times, it was conservatively determined that any slow settling rods would be declared inoperable and that Technical Specification 3.1.3, Control Rod Operability, would be entered when nine rods had been classified as such.

As anticipated, Technical Specification 3.1.3.f was entered at 2332 hours when the ninth control rod was declared inoperable. Entry into this specification requires that the unit be taken to Mode 3, Hot Shutdown, within 12 hours. The controlled shutdown continued until 0805 hours on October 29, 2005, when insertion of all rods was completed and Mode 3 had been entered by placing the mode switch to the Shutdown position.

There were no actual consequences to the health and safety of the public as a result of this event.

*IES2*

No new regulatory commitments have been created through issuance of this report.

  
*for*

Robert A. Saccone  
Vice President - Nuclear Operations

Attachment

cc: Mr. S. J. Collins  
Regional Administrator  
U. S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19408

Mr. B. A. Bickett  
Sr. Resident Inspector  
U. S. Nuclear Regulatory Commission  
P.O. Box 35  
Berwick, PA 18603-0035

Mr. R. Osborne  
Allegheny Electric Cooperative  
P. O. Box 1266  
Harrisburg, PA 17108-1266

Mr. R. R. Janati  
Bureau of Radiation Protection  
Rachel Carson State Office Building  
P. O. Box 8469  
Harrisburg, PA 17105-8469

**U.S. NUCLEAR REGULATORY  
COMMISSION**

**LICENSEE EVENT REPORT (LER)**

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

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 06/30/2007  
Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to [infocollects@nrc.gov](mailto:infocollects@nrc.gov), and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

<b>1. FACILITY NAME</b> Susquehanna Steam Electric Station – Unit 1	<b>2. DOCKET NUMBER</b> 05000387	<b>3. PAGE</b> 1 OF 3
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**4. TITLE** TS Required Shutdown Due to Excessive Control Cell Friction

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
10	28	2005	2005	002	00	12	21	2005	FACILITY NAME	DOCKET NUMBER
										05000
										05000

<b>9. OPERATING MODE</b> 1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:</b> <i>(Check all that apply)</i> <input type="checkbox"/> 20.2201(b) <input type="checkbox"/> 20.2203(a)(3)(i) <input type="checkbox"/> 50.73(a)(2)(i)(C) <input type="checkbox"/> 50.73(a)(2)(vii) <input type="checkbox"/> 20.2201(d) <input type="checkbox"/> 20.2203(a)(3)(ii) <input type="checkbox"/> 50.73(a)(2)(ii)(A) <input type="checkbox"/> 50.73(a)(2)(viii)(A) <input type="checkbox"/> 20.2203(a)(1) <input type="checkbox"/> 20.2203(a)(4) <input type="checkbox"/> 50.73(a)(2)(ii)(B) <input type="checkbox"/> 50.73(a)(2)(viii)(B) <input type="checkbox"/> 20.2203(a)(2)(i) <input type="checkbox"/> 50.36(c)(1)(i)(A) <input type="checkbox"/> 50.73(a)(2)(iii) <input type="checkbox"/> 50.73(a)(2)(ix)(A) <input type="checkbox"/> 20.2203(a)(2)(ii) <input type="checkbox"/> 50.36(c)(1)(ii)(A) <input type="checkbox"/> 50.73(a)(2)(iv)(A) <input type="checkbox"/> 50.73(a)(2)(x) <input type="checkbox"/> 20.2203(a)(2)(iii) <input type="checkbox"/> 50.36(c)(2) <input type="checkbox"/> 50.73(a)(2)(v)(A) <input type="checkbox"/> 73.71(a)(4) <input type="checkbox"/> 20.2203(a)(2)(iv) <input type="checkbox"/> 50.46(a)(3)(ii) <input type="checkbox"/> 50.73(a)(2)(v)(B) <input type="checkbox"/> 73.71(a)(5) <input type="checkbox"/> 20.2203(a)(2)(v) <input checked="" type="checkbox"/> 50.73(a)(2)(i)(A) <input type="checkbox"/> 50.73(a)(2)(v)(C) <input type="checkbox"/> 20.2203(a)(2)(vi) <input type="checkbox"/> 50.73(a)(2)(i)(B) <input type="checkbox"/> 50.73(a)(2)(v)(D)
<b>10. POWER LEVEL</b> 18%	

Specify in Abstract below or in NRC Form 366A

**12. LICENSEE CONTACT FOR THIS LER**

FACILITY NAME Eric J. Miller – Nuclear Regulatory Affairs	TELEPHONE NUMBER <i>(Include Area Code)</i> 570-542-3321
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**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

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES <i>(If yes, complete 15. EXPECTED SUBMISSION DATE)</i> <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b> MONTH    DAY    YEAR
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**ABSTRACT** *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On October 28, 2005 at 1600 hours, Susquehanna operators began the process of shutting down Unit 1 for a planned maintenance outage to address known control cell friction issues. The cell friction issues had manifested during Unit 1's 14<sup>th</sup> fuel cycle when multiple control rods failed to settle into their targeted latched position. At the time of the shutdown, four control rods had been declared inoperable because of excessive rod to fuel channel friction. Other rods, previously known to exhibit slow settling characteristics, would be inserted during the controlled shutdown. It was conservatively determined that any control rods experiencing long settling times would be declared inoperable so that the shutdown would not be slowed by additional testing necessary to prove operability. Technical Specification 3.1.3, Control Rod Operability, would be entered when nine rods had been declared inoperable. Entry into TS 3.1.3.f requires that the unit be taken to Mode 3, Hot Shutdown, within 12 hours. At the time the ninth control rod was declared inoperable at 2332 hours on October 28, Unit 1 had already been reduced to 18% power. The controlled shutdown continued until 0805 hours on October 29, 2005 when insertion of all rods was completed and Mode 3 had been entered by placing the mode switch to the Shutdown position. Entry into the shutdown TS occurred because of a decision strategy that emphasized timely shutdown progress. Additional operability testing, if performed, would have likely precluded any need to enter the TS. With no substantive benefit attainable from such testing, the strategy was sound.

Even though the plant shutdown was planned and in-progress, the shutdown became a Technical Specification mandate at 2332 hours on October 28 when the ninth control rod was declared inoperable. Accordingly, this event is being reported as a Tech Spec required shutdown per 10 CFR 50.73(a)(2)(i)(A). There were no safety consequences or compromises to public health and safety as a result of this event.

**LICENSEE EVENT REPORT (LER)**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Susquehanna Steam Electric Station – Unit 1	05000387	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3
		2005	002	00	

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

**EVENT DESCRIPTION**

On October 28, 2005 at 1600 hours, Susquehanna operators (Licensed, Utility) began the process of shutting down Unit 1 for a planned maintenance outage to address known control cell (EIS Code: AC) friction issues. The cell friction issues had manifested during Unit 1's 14<sup>th</sup> fuel cycle when multiple control rods (EIS Code: JD) failed to settle into their targeted latched position within 30 seconds. At the time of the shutdown, four control rods had been declared inoperable because of excessive rod to fuel channel friction. Other rods, previously known to exhibit slow settling characteristics, would be inserted during the controlled shutdown. Although previous test data obtained during the operating cycle suggested that a majority of those control rods expected to exhibit slow settling would have passed operability testing, it was conservatively determined that any such rod would be declared inoperable so that the shutdown would not be slowed by additional testing necessary to prove operability. Technical Specification (TS) 3.1.3, Control Rod Operability, would be entered when nine rods had been declared inoperable.

As anticipated, TS 3.1.3.f was entered at 2332 hours when the ninth control rod was declared inoperable. (Note: Entry into this specification was also satisfied shortly thereafter because four control rods residing within one Banked Position Withdrawal Sequence group were declared inoperable.) Entry into TS 3.1.3.f requires that the unit be taken to Mode 3, Hot Shutdown, within 12 hours. At the time the ninth control rod was declared inoperable, Unit 1 had already been reduced to 18% power. The controlled shutdown continued until 0805 hours on October 29, 2005 when insertion of all rods was completed and Mode 3 had been entered by placing the mode switch to the Shutdown position.

There were no Emergency Core Cooling System (EIS Code: B) initiations and no challenges to containment (EIS Code: NH) experienced during the shutdown.

Even though the plant shutdown was planned and in-progress, the shutdown became a Technical Specification mandate at 2332 hours on October 28 when the ninth control rod was declared inoperable. Accordingly, this event is being reported as a Tech Spec required shutdown per 10 CFR 50.73(a)(2)(i)(A).

**CAUSE OF EVENT**

Entry into the shutdown TS was the result of a station strategy that emphasized timely shutdown progress. This strategy recognized the need to enter TS 3.1.3.f. Entry into the Limiting Condition of Operation (LCO) did not impact the course of the shutdown in any way. Entry into TS 3.1.3.f was readily avoidable via manual RPS (EIS Code: JC) initiation before LCO control rod operability limits were threatened. Such action would have, however, defeated information gathering objectives of the controlled shutdown. It is believed that the subject control rods would have likely passed operability testing if initiated.

**ANALYSIS / SAFETY SIGNIFICANCE**

There was no significance to the administrative entry to TS 3.1.3.f. The control rod drive system (EIS Code: AA) remained fully capable of performing its function throughout the shutdown. Efforts to perform operability testing, testing that would have likely avoided TS entry, would have slowed progress on a controlled shutdown that was already taking place.

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Susquehanna Steam Electric Station – Unit 1	05000387	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	3 OF 3
		2005	- 002	- 00	

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

**CORRECTIVE ACTIONS**

None required. Entry into the shutdown Technical Specification was the result of a non-impacting shutdown decision strategy.

**ADDITIONAL INFORMATION**

An extensive fuel re-channeling effort was completed during the shutdown to address control cell friction issues. Cell friction, although not directly responsible for entry into the TS required shutdown LCO, was the primary initiator of the planned maintenance outage. The cell friction issue continues to be explored in Susquehanna's corrective action program.