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Vice President – Nuclear Operations

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**AUG 05 2005**

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

**SUSQUEHANNA STEAM ELECTRIC STATION  
LICENSEE EVENT REPORT 50-388/2005-005-00  
LICENSE NO. NPF-22  
PLA-5932**

**Docket No. 50-388**

Attached is Licensee Event Report (LER) 50-388/2005-005-00. This event was determined to be reportable under 10 CFR 50.73(a)(2)(iv)(A) for an unplanned actuation of systems used to mitigate the consequences of significant events. On June 6, 2005, Susquehanna Unit 2 automatically scrammed in response to a generator lockout which was caused by a loss of generator field. PPL is conducting a formal root cause investigation to determine what initiated the loss of generator field and will supplement this LER by September 16, 2005. The supplement will report the root cause and corrective actions to prevent recurrence.

The response of plant safety systems to the scram was as expected; there were no ECCS initiations or emergency diesel generator starts. Initially, two safety relief valves opened and then closed to control reactor pressure; turbine bypass valves subsequently controlled pressure. The automatic scram was an initiation of the Reactor Protection System, which was an unplanned actuation of a system designed to mitigate the consequences of a significant event. This event resulted in no actual adverse consequences to the health and safety of the public.

No commitments are associated with this LER.

Robert Saccone  
Vice President – Nuclear Operations

Attachment

IE22

cc: Mr. S. Collins  
Regional Administrator  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Mr. F. W. Jaxheimer  
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

**LICENSEE EVENT REPORT (LER)**

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

<b>1. FACILITY NAME</b> Susquehanna Steam Electric Station Unit 2	<b>2. DOCKET NUMBER</b> 05000388	<b>3. PAGE</b> 1 OF 3
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**4. TITLE** Reactor Automatic Scram due to a Main Generator Lockout

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
6	6	2005	2005	005	00	8	05	2005	FACILITY NAME	DOCKET NUMBER

<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 checked="" 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 type="checkbox"/> 50.73(a)(2)(i)(A) <input type="checkbox"/> 50.73(a)(2)(v)(C) <input type="checkbox"/> OTHER <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) <input type="checkbox"/> OTHER Specify in Abstract below or in NRC Form 366A
<b>10. POWER LEVEL</b> 100%	

**12. LICENSEE CONTACT FOR THIS LER**

FACILITY NAME Dayne R. Brophy, Senior Engineer – Nuclear Regulatory Affairs	TELEPHONE NUMBER <i>(Include Area Code)</i> (570) 542-3365
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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 checked="" type="checkbox"/> YES <i>(If yes, complete 15. EXPECTED SUBMISSION DATE)</i> <input type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b>	MONTH 9	DAY 16	YEAR 2005
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**ABSTRACT** *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

At 1233 hours on 6/6/2005 with Unit 2 operating in Mode 1 at 100% power, the reactor automatically scrammed as a result of a turbine trip from a generator lockout. The main generator excitation system had failed to positively respond to changes to the offsite grid which resulted in a loss of generator field, causing the lockout. Presently, PPL is conducting a formal root cause investigation into the loss of generator field and will supplement this LER upon completion of that effort. The supplement will report the root cause and corrective actions to prevent recurrence. Based on the unplanned actuation of RPS, this event was determined to be reportable under 10 CFR 50.72, reference ENS Notification EN #41746.

Following the automatic scram, two Main Steam Safety Relief Valves opened and then closed to initially control reactor pressure. The Main Steam Bypass Valves were subsequently able to control pressure. Several balance of plant systems were impacted by the generator voltage perturbation but there were no unusual electrical transients or challenges to the station's safety-related electrical systems. All plant safety systems responded per design. Reactor water level dropped to -6 inches and was restored to +35 inches by normal feedwater level control. There were no challenges to containment or evidence of fuel failure. The automatic scram was an unplanned actuation of a system designed to mitigate the consequences of a significant event and is reportable per 10 CFR 50.73(a)(2)(iv)(A).

This event resulted in no actual adverse consequences to the health and safety of the public.

**LICENSEE EVENT REPORT (LER)**

1. FACILITY NAME	2. DOCKET	6. LER NUMBER			3. PAGE
Susquehanna Steam Electric Station Unit 2	05000388	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 3
		2005 --	005 --	00	

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

**PLANT CONDITIONS AT TIME OF EVENT**

Unit 1, Mode 1, 100%  
Unit 2, Mode 1, 100%

**EVENT DESCRIPTION**

At 1233 hours on 6/6/2005 with Unit 2 in Mode 1 at 100% power, the reactor automatically scrammed as result of a turbine trip from a main generator (EIS Code: TB) lockout. The main generator exciter (EIS Code: TL) voltage regulator circuit had failed to positively respond to changes to the offsite grid which resulted in a loss of exciter field, causing the lockout. Presently, PPL is conducting a formal root cause investigation into the loss of generator field and will supplement this LER upon completion of that effort.

All control rods inserted and all safety systems responded as designed in response to the automatic scram. Immediately following the scram, two Safety Relief Valves (EIS Code: SB) opened and then properly reseated in response to the transient. The Main Steam Bypass Valves were subsequently able to control reactor pressure. Reactor water level dropped to -6 inches and was restored to +35 inches by normal feedwater level control. Several balance of plant systems were impacted by the generator voltage perturbation but there were no unusual electrical transients or challenges to the station's safety-related electrical systems. There also were no challenges to containment or evidence of fuel failure. The event was determined to be reportable under 10 CFR 50.72, reference ENS Notification EN #41746.

The automatic scram was an unplanned actuation of a system designed to mitigate the consequences of a significant event and is reportable per 10 CFR 50.73(a)(2)(iv)(A).

This event resulted in no actual adverse consequences to the health and safety of the public.

**CAUSE OF THE EVENT**

The cause of the event will be provided in a supplement to this LER based on PPL's root cause investigation.

**ANALYSIS / SAFETY SIGNIFICANCE**

Actual Consequences

The actuation of the generator lockout caused a turbine trip, resulting in a reactor scram. All control rods inserted and safety systems functioned as designed. The health and safety of the public was not affected.

Potential Consequences

Challenges to nuclear safety can result from equipment failure or human errors during recovery of the reactor to normal shutdown conditions. The potential consequence results in a negligible increase in the probabilistic risk to the health and safety of the public.

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		2005	-- 005	-- 00	

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

**CORRECTIVE ACTIONS**

Completed Actions

- 1) Inspected generator voltage regulator circuit for potential faults/failures.
- 2) Replaced possible degraded potentiometer in voltage regulator circuitry.

Planned Actions

Planned Corrective Actions will be provided in a supplement to this LER based on PPL's root cause investigation.

**ADDITIONAL INFORMATION**

Any additional information will be provided as part of the supplement to this LER based on PPL's root cause investigation.