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MAY 15 2002

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, DC 20555

SUSQUEHANNA STEAM ELECTRIC STATION
LICENSEE EVENT REPORT 50-388/2002-002-00
PLA - 5478 FILE R41-2

Docket No. 50-388
License No. NPF-22

Attached is Licensee Event Report 50-388/2002-002-00. This event was determined to be reportable per 10CFR50.73(a)(2)(v)(D), a condition that alone could prevent fulfillment of a safety function, and 10CFR50.73(a)(2)(i)(B), a condition prohibited by the Technical Specifications. Two 4.16 kV Emergency Switchgear Bus breakers were found in a position that is not seismically qualified. This condition resulted in two 4.16 kV Emergency Switchgear Buses and both Control Structure Chillers being inoperable for approximately eight days. The condition was subsequently recognized and corrected. There was no actual loss of power and no actual adverse consequences to the health and safety of the public.

A handwritten signature in black ink, appearing to read "Bryce L. Shriver", is written over a horizontal line.

Bryce L. Shriver
Vice President – Nuclear Site Operations

Attachment

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

cc: Mr. S. L. Hansell
Sr. Resident Inspector
U.S. Nuclear Regulatory Commission
P. O. Box 35
Berwick, PA 18603-0035

IE22

LICENSEE EVENT REPORT (LER)

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

Estimated burden per response to comply with this mandatory information 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 Management Branch (T-6 E6), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to bis1@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 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.

| | | |
|---|------------------------------|-------------------|
| 1. FACILITY NAME Susquehanna Steam Electric Station - Unit 2 | 2. DOCKET NUMBER 05000388 | 3. PAGE 1 OF 4 |
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4. TITLE
Loss Of Control Structure Chiller Safety Function When 4.16 kV Breakers Found "Racked-Out"

| 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 |
| 03 | 16 | 2002 | 2002 | 002 | 00 | 05 | 15 | 2002 | FACILITY NAME | DOCKET NUMBER |
| | | | | | | | | | | 05000 |
| | | | | | | | | | | 05000 |

| | | | | | |
|------------------------|---|---------------------|----------------------|---|--|
| 9. OPERATING MODE 1 | 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) | |
| 10. POWER LEVEL 100 | 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) | 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 | |
| | 20.2203(a)(2)(iii) | 50.46(a)(3)(ii) | 50.73(a)(2)(v)(C) | Specify in Abstract below or in NRC Form 366A | |
| | 20.2203(a)(2)(iv) | 50.73(a)(2)(i)(A) | X 50.73(a)(2)(v)(D) | | |
| | 20.2203(a)(2)(v) | X 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 Joseph J. Meter - Nuclear Regulatory Affairs | TELEPHONE NUMBER (Include Area Code) 570 / 542-1873 |
|--|--|

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 |
|-------|--------|-----------|---------------|--------------------|-------|--------|-----------|---------------|--------------------|
| | | | | | | | | | |

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

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

At 02:40 on March 16, 2002 with Unit 2 in Mode 1 (Power Operation) at 100% power, an in-plant operator restoring equipment line-ups for personnel protection discovered that two Unit 1 4.16 kV breakers were in the "racked-out" position instead of "removed" from their corresponding 4.16 kV emergency switchgear bus cubicles. As a result, the buses were not seismically qualified and should have been declared inoperable from the time the breakers were "racked out" on March 8. With the two busses inoperable, both Control Structure Chillers were also inoperable. After being notified, control room operators initiated an inspection of the remaining 4.16 kV emergency switchgear bus breakers in Unit 1. None were found mispositioned. At 03:10, the breakers were "racked in" and the corresponding buses were returned to operable status. The mispositioned breakers were attributed to inadequate preparation and review of an equipment release form and clearance order by Work Management and Operations personnel. Personnel that prepared and reviewed those documents did not utilize a procedure that describes bus operability requirements for "racked out" breakers. Those involved had a larger number of tasks than usual to complete and relied on memory rather than reviewing the procedure. Operations personnel that processed the clearance order and placed breakers in the "racked out" position did not recognize that the action made the buses inoperable. All other similar equipment release forms were checked for problems. None were found. Placards were installed on all 4.16 kV emergency switchgear bus breakers stating acceptable positions. An informational bulletin on the event was issued to Operations personnel. Work management personnel will receive a tailboard on the event and use of a software flag for incorrect equipment position designations will be evaluated. This event is reportable as an Event or Condition That Alone Could Prevent Fulfillment of a Safety Function per 10CFR50.73(a)(2)(v)(D) and a Condition Prohibited by the Technical Specifications per 10CFR50.73(a)(2)(i)(B) for Unit 2. Unit 1 was not affected by the event. A risk analysis of the event showed there was a negligible increase in risk to Unit 2 while the breakers were "racked out". A seismic event did not occur while the breakers were in the "racked out" position, no actual loss of power, and no actual adverse consequences to the health and safety of the public as a result of this event.

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

EVENT DESCRIPTION

Background:

At 22:52 on March 8, Unit 1 4.16 kV breakers 1A20107 and 1A20407 were opened and moved to the "racked out" position as part of equipment line-ups (clearance order) for personnel protection. Those breakers supply power to the Unit 1 Control Rod Drive (CRD, EIIS Code: AA) pumps 'A' and 'B' respectively. The Unit 1 CRD pumps were removed from service for work during the Unit 1 refueling and inspection outage.

Breaker 1A20107 is located in 4.16 kV switchgear bus 1A201 ("A" channel) and breaker 1A20407 is located in bus 1A204 ("D" channel). Unit 1 4.16 kV bus 1A201 and bus 1A204 are considered to be inoperable when breakers 1A20107 and 1A20407 are in the "racked out" position because they are not restrained from moving during a seismic event. When those breakers are in the "racked out" position, the buses are not seismically qualified due to inadequate restraint of the breaker during a Design Basis Earthquake (DBE).

When bus 1A201 is inoperable, the 'A' Control Structure (CS) Chiller (EIIS Code: VI) is also inoperable. Bus 1A201 provides power to a normally closed isolation valve for Emergency Service Water (ESW, EIIS Code: BI) that provides emergency cooling to the 'A' CS Chiller. When bus 1A204 is inoperable, the 'B' CS Chiller is inoperable since 1A204 provides power to the 'B' CS Chiller condenser motor. The CS Chillers are common equipment (i.e., equipment that supports operations of both units). When both CS Chillers are inoperable, Unit 2 Technical Specification (TS) Required Action 3.7.4.D.1 requires entry into TS 3.0.3 immediately. The chillers were not required to be operable for Unit 1 while it was in Mode 5 with no fuel movements.

Event:

At 02:40 on March 16, 2002 with Unit 1 in Mode 5 (Refueling) at 0% power and Unit 2 in Mode 1 (Power Operation) at 100% power, an in-plant operator (Non-licensed, utility) restoring equipment line-ups for personnel protection discovered that two Unit 1 4.16 kV breakers (EIIS Code: EB) were in the "racked-out" and open position instead of being "removed" from their corresponding 4.16 kV switchgear cubicles (EIIS Code: EB).

After being notified of the condition, control room operators (Licensed, utility) initiated an inspection of the remaining 4.16 kV breakers in Unit 1. None were found in the "racked out" position. At 03:10 on March 16, 2002, breakers 1A20107 and 1A20407 were "racked in" and buses 1A201 and 1A204 were returned to operable status. The 4.16 kV buses remained energized during the event. There was no actual loss of power, but a loss of seismic qualification.

CAUSE OF EVENT

The mispositioned 4.16 kV breakers were attributed to inadequate preparation of an equipment release

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

form and clearance order required for Unit 1 CRD pump work. Work Management and Operations personnel (Licensed and Non-licensed, utility) responsible for preparing and reviewing the equipment release form and clearance order did not recognize the need to declare buses 1A201 and 1A204 inoperable while breakers 1A20107 and 1A20407 were in the "racked out" position. A procedure for 4.16 kV breakers documents that 4.16 kV buses need to be declared inoperable when these breakers are in the "racked out" or "test" position. Personnel that prepared and reviewed the equipment release form and clearance order did not utilize the guidance contained in that procedure. Additionally, a historical equipment release form for past Unit 1 CRD pump work showed the correct position for the breakers as "removed". Again, that information contained in that document was not utilized.

An investigation of the event showed the personnel that prepared and reviewed the equipment release form and clearance order had a larger number of tasks than usual to complete prior to the Unit 1 refueling outage and relied on memory rather than reviewing the procedure for breakers and the historical equipment release form. A new process for clearance orders was implemented in January 2002. A large number of normally pre-staged outage related clearance orders were not prepared in advance in anticipation of the new clearance order process. That created a backlog of clearance orders that had to be completed in a shorter period of time than normal.

Additionally, Operations personnel (Licensed and Non-licensed, utility) that processed the clearance order and placed the 4.16 kV breakers in the "racked out" position did not recognize that the action made the associated 4.16 kV buses inoperable.

ANALYSIS / SAFETY SIGNIFICANCE

This event is reportable as an Event or Condition That Alone Could Prevent Fulfillment of a Safety Function per 10CFR50.73(a)(2)(v)(D) and a Condition Prohibited by the Technical Specifications per 10CFR50.73(a)(2)(i)(B) for Unit 2. Following a seismic event, Unit 1 4.16 kV switchgear buses 1A201 and 1A204 would have prevented both CS Chillers from performing their safety function to ensure that the control room temperature will not exceed safe shutdown equipment operability limits following a habitability envelope isolation. When both CS Chillers are inoperable, Unit 2 Technical Specification (TS) Required Action 3.7.4.D.1 requires entry into TS 3.0.3 immediately. Both CS Chillers were inoperable for approximately eight days. This event did not affect Unit 1 since it was in Mode 5 with no fuel movements or core alterations. The 4.16 kV buses and CS Chillers are not required for Unit 1 in that condition.

A risk analysis of the event showed there was a negligible increase in risk to Unit 2 while the breakers were "racked out". A seismic event did not occur while the breakers were in the "racked out" position and the 4.16 kV buses remained energized. There was no actual loss of power, but a loss of seismic qualification. Therefore there were no actual adverse consequences to the health and safety of the public as a result of this event.

In accordance with guidance in NUREG-1022, Revision 2, the due date for this report is May 15, 2002.

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CORRECTIVE ACTIONS

Corrective actions that have been completed:

- The remaining 4.16 kV breakers in Unit 1 were inspected. None were found in the "racked out" positions.
- Placards were installed on all Unit 1 and Unit 2 4.16 kV breakers stating that "racked in" or "removed" are the only acceptable positions. Placing the breakers in other positions requires shift supervisor approval.
- All other Unit 1 clearance orders were reviewed for errors in the 4.16 kV breaker position. None were found.
- An informational bulletin was issued to Operations personnel reminding them of 4.16 kV bus operability requirements associated with placing breakers in positions other than "racked-in".

Corrective actions to be completed:

- Tailboard work management personnel on the event. The tailboard will review the requirements associated with preparation and review of clearance orders.
- Ensure the incorrect information that is on the Unit 1 CRD pump clearance order is not used on future release forms and clearance orders.
- Evaluate the feasibility of a software flag for incorrect equipment position designations in the clearance order process to alert clearance order preparers of potential mistakes. Implement if feasible.
- Document standards and expectations for clearance order preparers and reviewers to ensure consistency of these activities.
- Develop an in-field checklist for operators to use when manipulating 4.16 kV breakers to ensure procedure standards for breaker operation are implemented.

ADDITIONAL INFORMATION

Past Similar Events: LER 96-015-00, Docket No. 387 / License No. NPF-14, "4.16 kV Breakers Not In Dynamically Qualified Position"

LER 00-001-00, Docket No. 388 / License No. NPF-22, "Entry Into Technical Specification 3.0.3 For LOCA / LOOP Testing"

Failed Component: None