

Exelon Generation Company, LLC      www.exeloncorp.com  
Byron Station  
4450 North German Church Road  
Byron, IL 61010-9794

July 25, 2005

LTR:      BYRON 2005-0086  
File:      2.01.0700

United States Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Subject:      Licensee Event Report (LER) 454-2005-004-00, "Technical Specification  
Required Action Not Satisfied Due to Ambiguous Implementing Procedure"

Byron Station, Units 1 and 2  
Facility Operating License Nos. NPF-37 and NPF-66  
NRC Docket Nos. STN 50-454 and STN 50-455

Enclosed is an LER involving the missed Technical Specification (TS) Action Requirement for TS 3.8.4, "DC Sources-Operating" during planned maintenance on the Unit 1 division 11 battery charger. This condition is reportable to the NRC in accordance with 10 CFR 50.73 (a) (2) (i) (b).

Should you have any questions concerning this matter, please contact Mr. William Grundmann, Regulatory Assurance Manager, at (815) 234-5441, extension 2800.

Respectfully,



Stephen E. Kuczynski  
Site Vice President  
Byron Nuclear Generating Station

Attachment    LER 454-2005-004-00

# LICENSEE EVENT REPORT (LER)

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

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, 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><br>Byron Station, Unit 1 | <b>2. DOCKET NUMBER</b><br>05000454 | <b>3. PAGE</b><br>1 of 4 |
|--|-------------------------------------|--------------------------|

**4. TITLE**  
Technical Specification Required Action Not Satisfied Due to Ambiguous Implementing Procedure.

| 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 |
| 05            | 24  | 2005 | 2005          | - 004 -           | 00      | 07             | 25  | 2005 | Byron Station, Unit 2        | 05000455      |
|               |     |      |               |                   |         |                |     |      | FACILITY NAME                | DOCKET NUMBER |
|               |     |      |               |                   |         |                |     |      | N/A                          | N/A           |

|  |   |   |   |  |  |  |  |  |  |  |
|--|---|---|---|--|--|--|--|--|--|--|
| <b>9. OPERATING MODE</b><br><br>1          | <b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§:</b> (Check all that apply) |   |   |  |  |  |  |  |  |  |
| <b>10. POWER LEVEL</b><br><br>100          | <input type="checkbox"/> 20.2201(b)   | <input type="checkbox"/> 20.2203(a)(3)(i)   | <input type="checkbox"/> 50.73(a)(2)(i)(C)    | <input checked="" 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 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 checked="" type="checkbox"/> 50.73(a)(2)(i)(B)   | <input type="checkbox"/> 50.73(a)(2)(v)(D)  | Specify in Abstract below or in NRC Form 366A |  |  |  |  |  |  |  |

**12. LICENSEE CONTACT FOR THIS LER**

|   |  |
|---|--|
| NAME<br>William Grundmann, Regulatory Assurance Manager | TELEPHONE NUMBER (Include Area Code)<br>(815) 406-2800 |
|---|--|

**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 |
|-------|--------|-----------|---------------|--------------------|-------|--------|-----------|---------------|--------------------|
| N/A   | N/A    | N/A       | N/A           | N/A                | N/A   | N/A    | N/A       | N/A           | N/A                |

|  |  |
|--|--|
| <b>14. SUPPLEMENTAL REPORT EXPECTED</b><br><input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO | <b>15. EXPECTED SUBMISSION DATE</b><br>MONTH:      DAY:      YEAR: |
|--|--|

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

On May 23, 2005, at approximately 2105 hours, the Unit 1 Control Room Supervisor (CRS) (licensed) entered Action Condition "A" of Technical Specifications (TS) 3.8.4, "DC Sources – Operating" due to planned work on Division 11 Battery Charger. One of the required TS Actions was to verify battery float current to be within limits once every 12 hours. The Unit 1 CRS incorrectly convinced himself that the procedure to conduct one of the TS Action Requirements was one other than those procedures listed in the operating procedure (i.e., 1BOL 8.4) as possible options to implement the TS Action Requirements. The Unit 1 CRS made an incorrect procedure revision to 1BOL 8.4 to what he believed was the correct procedure but did not obtain the required procedure revision reviews. The battery float current was verified using this procedure at 0452 hours on May 24, 2005. The next shift Unit 1 CRS questioned this change and evaluated it further. As a result it was determined that the procedure revision was in error and the procedure to be used was in fact correctly reflected in 1BOL 8.4. The Shift Manager concluded that with the Required Action and Associated Completion Time not met, then Action Requirement E, to enter Mode 3 within 6 hours, was not correctly satisfied within the allowed TS Completion Time and consequently was a violation of TS. The float current was immediately verified using the correct procedure. The root cause of this event was determined to be 1BOL 8.4 being ambiguous and less than adequate personal performance by the Unit CRSs. This event has minimal safety significance. Corrective actions include revising 1BOL 8.4 and training of Operating personnel. This event is reportable to the NRC in accordance with 10 CFR 50.73 (a)(2)(i)(b).

**LICENSEE EVENT REPORT (LER)**

| FACILITY NAME (1)     | DOCKET (2) | LER NUMBER (6) |                   |                 | PAGE (3) |  |
|-----------------------|------------|----------------|-------------------|-----------------|----------|--|
| Byron Station, Unit 1 | 05000454   | YEAR           | SEQUENTIAL NUMBER | REVISION NUMBER | 2 OF 4   |  |
|                       |            | 2005           | - 004             | - 000           |          |  |

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

**A. Plant Condition Prior to Event:**

Event Date/Time: May 24, 2005/1505 hours CST

Unit 1 and Unit 2 - Mode 1 – Power Operations, Reactor Power 100%

Reactor Coolant System [AB]: Normal operating temperature and pressure.

No structures, systems or components were inoperable at the start of the event that contributed to the event.

**Background**

The 125 Volts Direct Current (VDC) electrical power system (DC) [EJ] for each unit consists of two independent and redundant safety related electrical power subsystems (i.e., Division 11 and 12 for Unit 1 and Division 21 and 22 for Unit 2.) Each subsystem consists of one 125 VDC battery, the associated battery charger and all the associated control equipment and interconnecting cabling. A capability exists to interconnect the Unit 1 and Unit 2 DC electrical power subsystems via a cross-tie breaker when a DC source must be taken out of service for maintenance/testing or in the event of a DC source failure. TS 3.8.4, "DC Sources – Operating" Limiting Condition for Operations (LCO) requires both divisions for each Unit to be OPERABLE and not cross-tied to the opposite unit.

Condition "A" of TS 3.8.4 require the following actions when one battery charger is inoperable:

1. Crosstie the opposite-unit bus with associated OPERABLE battery charger to the affected division within two hours, AND
2. Restore battery terminal voltage to greater than or equal to the minimum established voltage within two hours, AND
3. Verify battery float current is  $\leq 3$  amps once per 12 hours, AND
4. Restore the battery charger to OPERABLE status within 7 days.

Byron Station Unit 1 Operating Procedure 1BOL 8.4, "LCOAR DC Sources – Operating Tech Spec LCO # 3.8.4" is used to aid in implementing these action requirements. The operating expectation is that these types of procedures are intended to be used in conjunction with the TSS and not to be used as a stand-alone document.

**B. Description of Event:**

On May 23, 2005, at approximately 2105 hours, the Unit 1 Control Room Supervisor (CRS) (licensed) entered Action Condition A of TS 3.8.4 due to planned work on the Division 11 Battery Charger. In reviewing the necessary Action requirements of TS 3.8.4, just prior to this Action Condition entry, the Unit 1 CRS incorrectly determined that the procedure that needed to be performed to obtain battery float current for Required Action 3 should be the Unit 2 Byron Station Operating Surveillance Requirement procedure 2BOSR 8.6.1-1, "Unit 2 125V DC ESF Battery Bank and Charger 211 Operability Weekly Surveillance."

LICENSEE EVENT REPORT (LER)

| FACILITY NAME (1)     | DOCKET (2) | LER NUMBER (6) |                   |                 | PAGE (3) |  |
|-----------------------|------------|----------------|-------------------|-----------------|----------|--|
| Byron Station, Unit 1 | 05000454   | YEAR           | SEQUENTIAL NUMBER | REVISION NUMBER | 3 OF 4   |  |
|                       |            | 2005           | - 004             | - 000           |          |  |

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

The Unit 1 CRS arrived at this determination using the rationale that the battery charger for Division 11 was de-energized so the battery float current would not be able to be obtained from this Unit and since the battery charger for Division 21 was supplying both Division 11 and 21 batteries then Division 21 is where the reading would need to be taken. However, 1BOL 8.4 listed four procedures that should be used to satisfy this condition depending on the Mode Unit 1 was in, and 2BOSR 8.6.1-1 was not one of them. The correct Unit 1 equivalent procedure, 1BOSR 8.6.1-1, "125V DC ESF Battery Bank and Charger 111 Operability Weekly Surveillance," was in fact listed.

The Unit 1 CRS received a verbal independent peer check from the Unit 2 CRS (licensed) that the appropriate surveillance procedure to meet the current reading for 1BOL 8.4 Condition A.3 should be 2BOSR 8.6.1-1. No electrical prints were reviewed or other members of the operating crew consulted.

The first verification of adequate battery float current was due by 0905 hours on May 24, 2005, however the Shift Manager (licensed) directed that the float current measurements be taken before shift turnover at 0700 hours.

At 0452 hours, 2BOSR 8.6.1-1 was completed to satisfy Action Condition A.3 and 1BOL 8.4 annotated completion of the first verification. No procedure revision was initiated to 1BOL 8.4 by Unit 1 CRS to correct what he believed was a typographical error.

At approximately 0515 hours, 1BOL 8.4 was given to the Unit 2 CRS to review for accuracy. The U2 CRS indicated that the U-2 surveillance procedure that was used would need to be listed; however no further discussion occurred regarding required procedure revisions, or the discrepancy that the BOL did not have the specific U2 surveillance procedure that was actually performed.

The U-1 CRS revised 1BOL 8.4 to indicate what was believed to be a typographical error to incorrectly change 1BOSR 8.6.1-1 to 2BOSR 8.6.1-1. However, the procedure revision review process for this type of procedure revision was not followed properly.

At 0615 hours, turnover between off-going Unit 1 CRS and the on-coming Unit 1 CRS occurred. LCO action requirements were discussed and the off-going CRS mentioned that the U-2 surveillance procedure was being performed to meet the 12 hour Required Action A.3 and that the Unit 1 surveillance procedure was identified as a typographical error in 1BOL8.4.

After turnover, the on-coming Unit 1 CRS questioned whether this was this indeed was the correct procedure to use and evaluated it further with other licensed on-shift personnel and engineering personnel. As a result, at 1548 hours it was confirmed that 1BOSR 8.6.1-1 was in fact the correct procedure to use and that 1BOL 8.4 was correct as originally written. The appropriate battery float current reading was taken immediately.

The Shift Manager concluded that Required Action A.3 was not completed within 12 hours. With Required Action A.3 not met within the required Completion time, this would have required entering Condition E of TS 3.8.4 at 0905 hours. Condition E requires Unit 1 to be in Mode 3 within 6 hours AND Mode 5 within 36 hours. Consequently, with Unit 1 not in Mode 3 by 1505 hrs on May 24, 2005, Unit 1 was in a condition prohibited by TS and therefore reportable to the NRC in accordance with 10 CFR 50.73 (a)(2)(i)(b).

LICENSEE EVENT REPORT (LER)

| FACILITY NAME (1)     | DOCKET (2) | LER NUMBER (6) |                   |                 | PAGE (3) |  |
|-----------------------|------------|----------------|-------------------|-----------------|----------|--|
| Byron Station, Unit 1 | 05000454   | YEAR           | SEQUENTIAL NUMBER | REVISION NUMBER | 4 OF 4   |  |
|                       |            | 2005           | - 004             | - 000           |          |  |

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

**C. Cause of Event:**

The root cause of this event was determined to be ambiguous instructions in 1BOL 8.4. The Unit 1 CRS was given a list of surveillance procedures in 1BOL 8.4 to choose from to verify battery float current. A direct procedural link did not exist which identified specifically which surveillance was appropriate in order to correctly perform verification of battery float current for battery 111. It is believed that this menu style selection of fulfilling TS Action Requirements has posed an unnecessary decision point on the operating crew. It could not be determined why the procedure was written in this manner.

A contributing cause include less than adequate individual performance exhibited by the Unit 1 and 2 CRSs in the area of technical human performance and procedural adherence.

**D. Safety Analysis:**

The intent of Required Action A.3 of TS 3.8.4 is to ensure that if the battery has been discharged as a result of an inoperable battery charger, that it has been fully recharged within 12 hours. The delay in conducting this verification was approximately 7 hours. This delay had minimal safety significance. The Division 11 battery was believed to be operable in this delay period. In addition, no equipment was made unavailable or inoperable by the performance of the incorrect surveillance procedure.

**E. Corrective Actions:**

The correct surveillance procedure (1BOSR 8.6.1-1) was performed satisfactorily in order to comply with TS Spec 3.8.4 Action Requirement A.3.

Unit 1 and Unit 2 BOL 8.4 have been revised to clearly identify which battery float current should be obtained based on which battery charger is inoperable.

Appropriate management actions were taken to address the less than adequate individual performance issues with the Unit 1 and Unit 2 CRSs.

Training will be provided to operators cornering the human performance issues involved in this event.

**F. Previous Occurrence:**

LER 454 2005-002-00, "One of Two Trains of Hydrogen Recombiners Inoperable Longer Than Allowed by Technical Specifications Due to Inadequate Procedure," dated April 15, 2005