

Commonwealth Edison Company
Byron Generating Station
4450 North German Church Road
Byron, IL 61010-9794
Tel 815-234-5441

ComEd

May 28, 1997

LTR: BYRON 97-0126
FILE: 1.10.0101

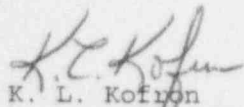
U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Dear Sir:

The enclosed Licensee Event Report from Byron Generating Station is being transmitted to you in accordance with the requirements of 10CFR50.73(a)(2)(ii).

This report is number 97-008; Docket No. 50-454.

Sincerely,



K. L. Kofron
Station Manager
Byron Nuclear Power Station

KLK/RC/rp

Enclosure: Licensee Event Report No. 97-008

cc: A. B. Beach, NRC Region III Administrator
NRC Senior Resident Inspector
INPO Record Center
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NRC FORM 366 (4-95)		U.S. NUCLEAR REGULATORY COMMISSION		APPROVED BY OMB NO. 3150-0104 EXPIRES 04/30/98	
LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)					
FACILITY NAME (1) BYRON NUCLEAR POWER STATION, UNIT 1				DOCKET NUMBER (2) 05000454	PAGE (3) 1 OF 5
TITLE (4) INADEQUATE MANUFACTURER BREAKER REPAIR PROGRAM ALLOWED WRONG PARTS TO BE INSTALLED					
EVENT DATE (5)		LER NUMBER (6)		REPORT DATE (7)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER
04	03	97	97	-- 008 --	00
				MONTH	DAY
				05	29
				YEAR	
				97	
OTHER FACILITIES INVOLVED (8)					
FACILITY NAME				DOCKET NUMBER	
BYRON, UNIT 2				05000455	
FACILITY NAME				DOCKET NUMBER	
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more) (11)			
1		20.2201(b) <input type="checkbox"/> 20.2203(a)(2)(v) <input checked="" type="checkbox"/> 50.73(a)(2)(i) <input type="checkbox"/> 50.73(a)(2)(viii) <input type="checkbox"/> 20.2203(a)(1) <input type="checkbox"/> 20.2203(a)(3)(i) <input type="checkbox"/> 50.73(a)(2)(ii) <input type="checkbox"/> 50.73(a)(2)(x) <input type="checkbox"/> 20.2203(a)(2)(ii) <input type="checkbox"/> 20.2203(a)(3)(iii) <input type="checkbox"/> 50.73(a)(2)(iii) <input type="checkbox"/> 73.71 <input type="checkbox"/> 20.2203(a)(2)(iii) <input type="checkbox"/> 20.2203(a)(4) <input type="checkbox"/> 50.73(a)(2)(iv) <input type="checkbox"/> OTHER <input type="checkbox"/> 20.2203(a)(2)(iii) <input type="checkbox"/> 50.36(c)(1) <input type="checkbox"/> 50.73(a)(2)(v) <input type="checkbox"/> Specify in Abstract below or in NRC Form 366A <input type="checkbox"/> 20.2203(a)(2)(iv) <input type="checkbox"/> 50.36(c)(2) <input type="checkbox"/> 50.73(a)(2)(vii) <input type="checkbox"/>			
POWER LEVEL (10)					
100					
LICENSEE CONTACT FOR THIS LER (12)					
NAME				TELEPHONE NUMBER (Include Area Code)	
Ronald Mancini, Station Support Engineering				815-234-5441 X2478	
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)					
CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	
E					
SUPPLEMENTAL REPORT EXPECTED (14)					
YES (If yes, complete EXPECTED SUBMISSION DATE).				X NO	
				EXPECTED SUBMISSION DATE (15)	
				MONTH DAY YEAR	

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

During offsite refurbishment of Safety Related Westinghouse [W120] DS-206 breakers [BKR], the manufacturer inadvertently replaced the breaker closing springs with heavier duty closing springs. Byron Station was notified by the manufacturer, that five (5) DS-206 breakers had been refurbished with the wrong closing springs. Two (2) of the defective breakers had been installed in the Ultimate Heat Sink (UHS) Essential Service Water (SX) [BI] High Speed Fan Breaker Cubicles after being returned to the Station. Upon discovery, the defective breakers were taken out of service, replaced with fully qualified breakers and the defective breakers were placed on hold for return to the manufacturer.

The cause of the event was the manufacturer did not have an adequate quality process in place to control the repair of Safety Related breakers. The manufacturer issued a stop work order prior to the discovery of this event to stop the repair of breakers at their Lansing, IL. Facility. Westinghouse has redirected their focus and attention in establishing a high quality breaker refurbishment program, at the Lansing facility.

Historically, due to the temporary declaration of inoperability for the two SX fans, it was determined that on three (3) occasions, Byron Station had more than the Technical Specification (TS) allowed number of SX fans inoperable at a given time. It was determined by Byron Station that this event is reportable per 10CFR50.73(a)(2)(i)(B)-any operation or condition prohibited by the plants Technical Specification.

There were no adverse consequences to the health and safety of the general public or plant personnel as a result of this event.

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

A. PLANT CONDITIONS PRIOR TO EVENT:

Event Date/Time 04-03-97 / 1059

Unit 1 Mode 1 - PWR OP; Rx Power 100%; RCS [AB] Temperature/Pressure NOT/NOP

Unit 1 Mode 2 - PWR OP; Rx Power 100%; RCS [AB] Temperature/Pressure NOT/NOP

B. DESCRIPTION OF EVENT:

During the refurbishment of Safety Related Westinghouse [W120] DS-206 switch gear breakers [BKR] between 03/17/97 and 03/24/97, the manufacturer inadvertently replaced the breaker closing springs with heavier duty closing springs designed for use on DS-416 breakers. On 04/22/97, Byron Station requested that Westinghouse stop refurbishing Byron and Braidwood Stations breakers at their Lansing, IL. facility until the manufacturer could resolve breaker concerns that had been previously identified with DS-206 breakers. On 04/23/97, Westinghouse issued a stop work order on the refurbishment of breakers at their Lansing, IL. facility until all identified concerns could be resolved. While Westinghouse was reviewing the breaker refurbishment activities in response to the stop work order, they discovered five breakers had been refurbished and returned to Byron Station with the wrong closing springs installed.

The manufacturer issued internal nonconformance report number LFSO-97-010 on 04/30/97, notifying Byron Station that 5 breakers had been refurbished with the wrong closing springs. The correct closing spring part number is 349A521G01. The closing springs that were installed were part number 791A671G01. The installed closing springs exert excessive force when closing due to increased spring strength. Byron Station received the nonconformance report on 05/01/97 and initiated Problem Identification Form B1997-01604 for the five breakers, shop order numbers, 02YN023B1-17, 02YN023BX1-2, 02YN023BX1-10, 01YN027B1X2-2 and 02YN023B6X2-1.

On 05/01/97, upon receipt of nonconformance report LFSO-97-010, Byron Engineering contacted Westinghouse and determined that if the breakers were currently in the open position and required to close, the breakers should be considered inoperable. The engineering determination of inoperability was conservatively based on Westinghouse tests that demonstrated some cracking of the breaker pole base after 10 to 15 cycles. A review of the maintenance records was performed and the installed locations of the 5 breakers with the incorrect springs were identified. Two of the defective breakers were installed in the Essential Service Water (SX) [BI] High Speed Fan Breaker Cubicles OSX03CA and OSX03CB as temporary replacements. The third defective breaker was installed in the SX [BI] Low Speed Fan Breaker Cubicle OSX03CA as a temporary replacement. The fourth defective breaker was installed in the breaker cubicle for the Auxiliary Building HVAC charcoal booster fan OVA03CA [VF]. The fifth defective breaker was installed in an unused spare breaker cubicle identified as 1AP12E-B and did not effect the operability of any plant equipment.

For the purpose of this Licensee Event Report (LER) the event date was determined to be 04/03/97. This date was when the first defective breaker was placed into service, rather than the first time that the three (3) SX High Speed Fan Technical Specification Breakers were considered inoperable on 04/10/97. Additionally, the date of discovery was determined to be 05/01/97, which was when Byron Station was notified that five Safety Related breakers had been refurbished with the incorrect closing springs.

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

B. DESCRIPTION OF EVENT (cont.)

The four defective breakers were installed in equipment feed cubicles and placed into service after receipt from the manufacturer. This was done before it was identified that incorrect closing springs had been installed in the breakers. The breakers were subsequently replaced with four fully qualified breakers. After determining the installed locations of the five (5) defective breakers, the breakers were immediately taken out of service to preclude their use and inadvertent cycling. LCOAR OBOS 7.5-1a was also immediately entered due to the Technical Specification requirements for the SX High Speed Fans. The immediate actions of removing the five breakers from service and entering LCOAR OBOS 7.5-1a for the two (2) SX High Speed Fan breakers, conservatively ensured the SX system was within the allowances of the Byron Station Technical Specifications. Additionally, by leaving the three (3) Non Technical Specification Breakers OVA03CA, OSX03CA Low Speed Fan and spare breaker 1AP12E-B out of service, plant and equipment safety were conservatively ensured until the breakers could be replaced with fully qualified breakers. The breaker installations and subsequent replacements are as follows; Breaker 02YN023B1-17 was placed into service feeding the OSX03CA High Speed Fan on 04/03/97, the breaker was replaced on 05/02/97. Breaker 02YN023BX1-2 was placed into service feeding the OSX03CB High Speed Fan on 04/04/97, the breaker was replaced on 05/03/97. Breaker 02YN023BX1-10 was placed into service feeding the OSX03CA low speed fan on 04/18/97, the breaker was replaced on 05/16/97. Breaker 01YN027B1X2-2 was placed into service feeding fan OVA03CA on 04/14/97, the breaker was replaced on 05/14/97. Breaker 02YN023B6X2-1 that was placed into the unused spare cubicle was also removed on 05/16/97 for return to the manufacturer along with the other four breakers.

A review of the stations out of service logs determined other Essential Service Cooling Tower High Speed Fans had been taken out of service between 04/03/97 and 05/01/97. The review was performed to determine if the station should have entered Limiting Condition For Operation (LCOAR) OBOS 7.5-1A since high speed fans OSX03CA and OSX03CB were considered inoperable. The review of the out of service log identified three occasions where a third SX High Speed Fan had been taken out of service (OOS) and LCOAR OBOS 7.5-1A would have been applicable. On 04/10/97, fan OSX03CC was out of service for preventive maintenance and surveillance activities. On 04/21/97, fan OSX03CH was taken out of service for preventive maintenance activities. On 04/22/97 and 04/23/97, fan OSX03CE was out of service for preventive maintenance and surveillance activities. The Technical Specification 3/4.7.5.b, Limiting Condition For Operation For Ultimate Heat Sink Cooling, requires 6 of the 8 High Speed Fans to be operable or the following compensatory action be taken. Action statement 3/4.7.5.b states, with only 5 fans operable, within 1 hour verify the 5 operable fans are capable of being powered by their respective emergency diesel generators. The compensatory action was not verified because the station was unaware that the breakers in the OSX03CA and OSX03CB High Speed Fans were defective. No other compensatory action was applicable because the unavailability of the third SX High Speed Fan for the three occasions was less than the 72 hour limiting condition. Immediately upon discovery of the condition, Byron Station conservatively declared the two (2) affected SX fans inoperable. Repair activities were initiated and all defective SX breakers and their associated fans were tested and verified to operate prior to the breakers being declared operable as part of post maintenance testing.

The following are the dates when 3 breakers were out of service or inoperable causing the SX High Speed Fans to be inoperable. On 4/10/97, the OA, OB and OC SX High Speed Fans were inoperable. On 04/21/97, the OA, OB and CH SX High Speed Fans were inoperable. From 4/22/97 to 4/23/97, the OA, OB and OE SX High Speed Fans were inoperable.

Since Byron Technical Specifications do not allow more than two (2) SX fans inoperable at a given time, this event is reportable per 10CFR50.73(a)(2)(i)(B)-any operation or condition prohibited by the plants Technical Specification.

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C. CAUSE OF EVENT:

The cause of the event was the manufacturer did not have an adequate quality process in place to adequately control the refurbishment of the Safety Related breakers at the Lansing, IL. facility.

D. SAFETY ANALYSIS:

Byron Station has judged that having three (3) SX High Speed Fans out of service during the short periods of time mentioned above, did not have a significant impact on overall plant safety. At the listed times of SX fan inoperability, meteorological conditions did not exist at the Byron Station site which would have created a limiting design basis condition for the Byron Ultimate Heat Sink (UHS) due to peak SX basin temperature. A review of the Station outside air temperature data for 4/10, 4/21, 4/22, and 4/23/97 indicates that the maximum air temperature was 55.7 degrees F. This is well below the maximum wet bulb temperature (T_{wb}) assumed in the design of UHS basin temperature analysis ($T_{wb} = 70$ degrees F for tower operation with SXCT Bypass valves open and $T_{wb} = 82$ degrees F for the worst case 3 hour period). The design basis analysis assumes two SX fans initially out of service and no cooling is assumed for the first 10 minutes of an event when the initial basin temperature is below 80 degrees F. Based on Engineering Judgement, the improved tower cooling performance when operating at the lower wet bulb temperature would have offset the loss of cooling due to having an additional fan out of service. Therefore, having the additional fan OOS for the three periods of time did not have a significant impact on plant safety.

No equipment failure resulted from this event. This event did not adversely affect any other system nor the operator's ability to maintain safe reactor plant conditions. Therefore, there were no adverse consequences to the health and safety of the general public or plant personnel as a result of this event.

E. CORRECTIVE ACTIONS:

Westinghouse issued an internal nonconformance report number LFSO-97-010 on 04/30/97. Byron Station was subsequently notified that five (5) breakers had been refurbished with the wrong closing springs.

Upon receipt of the nonconformance report on 05/01/97, Byron Engineering contacted Westinghouse and determined the breakers should be considered inoperable. The engineering determination was based on Westinghouse tests that demonstrated some cracking of the breaker pole base after 10 to 15 cycles. Based on the engineering determination on 05/01/97, a review of the maintenance records was performed and the installed locations of the 5 breakers with the incorrect springs were identified. After determining the installed locations of the five (5) defective breakers, the breakers were taken out of service to preclude their use and inadvertent cycling. Additionally, LCOAR OBOS 7.5-1A was entered due to the Technical Specification requirements for the SX High Speed Fans OSX03CA and OSX03CB being declared inoperable. The five defective breakers have been replaced with fully qualified breakers and the defective breakers have been placed on hold for return to Westinghouse.

Westinghouse issued a stop work order prior to the discovery of this event to stop the refurbishment of breakers at their Lansing, IL. facility, until all identified concerns could be resolved. Westinghouse redirected their focus and attention to establish high quality in the breaker refurbishment process at the Lansing facility.

In addition, Westinghouse has notified the NRC under 10CFR21(c)(3)(i) on 05/14/97 of problems in their Safety Related circuit breaker program, specifically for ComEd's Byron and Braidwood Nuclear Sites.

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

F. RECURRING EVENTS SEARCH AND ANALYSIS:

Database searches were performed for industry events in the "ALRA" database. The key words "Breaker" and "Lansing" were used. One document was identified and directly applied to the refurbishment of Byron Stations Breakers at the Lansing, IL. facility. Problem Identification Form (PIF) B1997-01517 had been initiated by the Byron Station Component Engineer on 04/11/97, due to several concerns raised by a Westinghouse Engineer that was associated with the Byron and Braidwood Stations pilot breaker refurbishment program at the Lansing facility. The concerns indicated a lack of a quality program being in place for the pilot breaker refurbishment program at the Lansing, IL. facility. The document identified several weaknesses including procedural steps not being adequately followed during the refurbishment of some of Byron Stations breakers. The resultant action was the stop work order and review of the Lansing pilot breaker refurbishment program, which was issued by Westinghouse. The consequent program review did identify wrong closing springs had been installed in five breakers for Byron Station, which resulted in nonconformance report LFSO-97-010 being issued and this Licensee Event Report.

A search was performed in the "RABY" database. The key word used was "breaker". Eighty four documents were identified within the last 12 months associated with breakers at Byron Station. Six additional events were identified documenting problems with breakers that were refurbished at the Lansing facility. The PIF numbers are B1997-01364, B1997-01344, B1997-01178, B1997-00285, B1997-00084 and B1997-00083. The six events identified process and program deficiencies at the Lansing, IL. facility during breaker refurbishment for Byron Station. The documents identified problems where breakers had been returned to the station with loose and broken parts, improper settings and parts being replaced with non like for like parts. The six identified events were precursors to this event. Corrective actions implemented by Westinghouse for the six precursor events were inadequate and did not prevent the wrong closing springs from being installed on the five breakers. The inadequate quality process failures that contributed to the six precursor events were used to support the Byron Station's request that Westinghouse issue a stop work order.

G. COMPONENT FAILURE DATA:

None.