

LICENSEE EVENT REPORT (LER)

Form. Rev. 2.0

Facility Name (1) Quad Cities Unit Two Docket Number (2) 0 | 5 | 0 | 0 | 0 | 2 | 6 | 5 Page (3) 1 | of | 0 | 6

Title (4) Motor Control Center 29-2 Main Feed Breaker Tripped Due To Inadequate Trip Setting.

Event Date (5)			LER Number (6)				Report Date (7)			Other Facilities Involved (8)																		
Month	Day	Year	Year	Sequential Number	Revision Number	Month	Day	Year	Facility Names	Docket Number(s)																		
1	0	0	4	9	5	9	5	--	0	0	6	--	0	0	1	1	0	2	9	5	0	5	0	0	0	2	5	4

OPERATING MODE (9) 4

POWER LEVEL (10) 0 | 8 | 7

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)

<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)
<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)
<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input type="checkbox"/> Other (Specify in Abstract below and in Text)
<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	
<input type="checkbox"/> 20.405(a)(1)(iv)	<input checked="" type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	
<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME Nick Chrissotimos, Regulatory Assurance, Ext. 3100

TELEPHONE NUMBER AREA CODE 3 | 0 | 9 6 | 5 | 4 | - | 2 | 2 | 4 | 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

Expected Submission Date (15) Month 1 | 2 Day 3 | 1 Year 9 | 5

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

ABSTRACT:

On 10/4/95, the feed breaker for Motor Control Center (MCC) 29-2 at switchgear 29 tripped from current overload. Equipment loads being supplied included the 2B Reactor protection system (RPS) [JC] motor generator (MG) set, Unit 2 125 volt and 250 volt battery chargers [EJ], Unit 2 Diesel Generator Cooling Water Pump(DG CWP) [LB] cooler fans A and B, 2C and 2D Residual Heat Removal [BO] Service Water (RHRSW) Room Coolers, 2B Reactor Feed Pump (RFP) [SJ] Vent Fan and 2A Recirculation [AD] MG Set Vent fan.

A 24 hour shutdown Limiting Condition for Operation (LCO) was entered for the Unit 2 Emergency Diesel Generator (EDG) [EK] and the B loop of containment cooling. The running loads at the time of the trip exceeded the long time delay setting of the breaker, thereby causing the trip. This has been identified as an Engineering Design issue.

The immediate corrective actions were to administratively limit the MCC loading to restore the MCC and exit the LCO. Long term corrective actions will include evaluating the need for modifications to pull larger cables to the Safety Related MCCs.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Form Rev. 2.0

FACILITY NAME (1) Quad Cities Unit Two	DOCKET NUMBER (2) 0 5 0 0 0 2 6 5	LER NUMBER (6)						PAGE (3) 2 OF 0 6
		Year		Sequential Number		Revision Number		
		9 5	-	0 0 6	-	0 0		

TEXT Energy Industry Identification System (EIS) codes are identified in the text as [XX]

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2511 Mwt rated core thermal power.

EVENT IDENTIFICATION: Motor Control Center 29-2 Main Feed Breaker tripped due to inadequate trip setting.

A. CONDITIONS PRIOR TO EVENT:

Unit: Two Event Date: October 4, 1995 Event Time: 0153
 Reactor Mode: 4 Mode Name: Run Power Level: 87

This report was initiated by Licensee Event Report 265\95-006.

B. DESCRIPTION OF EVENTS:

At 0153 hours on October 4, 1995, MCC 29-2 feed breaker at bus 29 tripped on overload. QCOS 2300-1, High Pressure Coolant Injection (HPCI) [BJ] Monthly surveillance was also in progress on Unit Two. At 01:52:44 hours, the HPCI low flow alarm cleared on control room panel 902-3, indicating that HPCI flow was above 600 gpm. At 01:53:18 hours, the first alarm occurred (Recirculation System MG Set Vent Fan Auto-Trip) which was the initial indication of the loss of MCC 29-2.

The trip of MCC 29-2 caused a loss of the following running equipment:

- 2B RPS MG Set
- Unit 2 DG Cooling Water Pump Room Cooler Fans
- 2C RHRSW Pump Room Cooler Fans
- 250 VDC #2 Battery Charger
- 125 VDC #2 Battery Charger
- 2A Recirc MG Set Vent Fan
- 2B Reactor Feed Pump Vent Fan
- Turbine Building Emergency Lighting Cabinets #51 and #52

The following equipment not running at the time of the trip also lost power:

- 2D RHRSW Pump Room Cooler Fans
- Unit 2 EDG starting Air compressors
- Alternate Feed to Unit 1 EDG CWP cooler fans A and B
- Atmosphere Containment Atmosphere Dilution (ACAD) Compressor

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Form Rev. 2.0

FACILITY NAME (1) Quad Cities Unit Two	DOCKET NUMBER (2) 0 5 0 0 0 2 6 5	LER NUMBER (6)			PAGE (3) 3 OF 0 6
		Year	Sequential Number	Revision Number	
		9 5 -	0 0 6 -	0 0	

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Additional indications of the loss of bus 29-2 included: (1) a half scram and a partial group II isolation; (2) a group III isolation which tripped the Reactor Water Cleanup (RWCU) system; (3) the Standby Gas Treatment System (SBGT) auto started, and (4) Control Room ventilation isolated. These were all caused by the loss of RPS B. A 24 hour LCO was entered for the loss of the Unit 2 DGCWP Room Cooler Fan (Technical Specification 3.9.E) and the 2B loop of Containment Cooling being Inoperable (Technical Specification 3.5.B.3). The loss of the 2B loop of Containment Cooling was due to the loss of the 2C and 2D RHRSW Pump Room Cooler Fans.

At 0156 hours the HPCI pump was manually tripped due to the loss of the 250 volt battery charger. At 0203 hours RPS B was supplied by its alternate supply. The 1/2 250 VDC and the 2A 125 VDC battery chargers were aligned to the Unit 2 250 and 125 volt batteries respectively at 0229 hours.

The HPCI surveillance and the operation of the 2B RFP Vent Fan contributed to this event. The 2C RHRSW room cooler fans and the Unit 2 EDG CWP fans were on due to the HPCI surveillance and the 250 volt battery charger current was approximately 60 amps higher than normal load due to the DC powered HPCI equipment operating. The 2B RFP vent fan was running to maintain availability due to a previous damper problem. Normal loading on the bus would be approximately 120 amps, but was increased to approximately 318 amps due the surveillance and the running of the 2B RFP vent fan.

Operations made an ENS phone call at 0409 due to the Engineered Safety Feature (ESF) actuation per 10CFR50.73.a.2.iv.

Power to MCC 29-2 was restored and the LCO was exited at 1730 hours. Loading at the bus was administratively limited by taking the #2 250 volt and the #2 125 volt battery chargers out of service. A 67 day safe shutdown LCO was then entered due to having the battery chargers out of service and therefore inoperable in accordance with 10CFR50 Appendix R requirements.

Operations made a subsequent ENS call at 2330 hours per 10CFR50.73.a.2.ii on 10/5/95 when it was discovered that design loading for MCCs 19-2, 28-2 and 29-2 had the possibility to trip the MCC feed breakers during a Loss of Coolant Accident (LOCA). Since it was determined that the accident loading on the bus would exceed the trip setting of the breaker, the plant was outside its design basis.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Form Rev. 2.0

FACILITY NAME (1) Quad Cities Unit Two	DOCKET NUMBER (2) 0 5 0 0 0 2 6 5	LER NUMBER (5)						PAGE (3) 4 OF 0 6
		Year		Sequential Number			Revision Number	
		9 5	-	0 0 6	-	0 0		

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The feed breaker is a General Electric model AK-25 retrofitted with the General Electric Micro Versa Trip RMS-9 Unit. The breaker and trip device operated as expected during the overload. The current during the time of the trip was calculated at 318 amps. The setting for the breaker was set to trip at 300 amps with a trip range of 270 to 330 amps. The trip device was checked in the field. The breaker was also tripped checked in the Electrical Maintenance shop. Both tests on the breaker were acceptable.

C. CAUSE OF THE EVENT:

This event is being reported in accordance with 10CFR50.73.a.2.iv., which requires the reporting of any event or condition that results in manual or automatic actuation of any Engineered Safety Feature. It is also reported in accordance with 10CFR50.73.a.2.ii, which requires the reporting of any event or condition that results in the condition of the nuclear power plant, including its principal safety barriers, being seriously degraded, or results in the nuclear power plant being in a condition that is outside the design basis of the plant.

The breaker tripped due to a trip setting that was too low for the given plant conditions. A level 2 investigation is in progress to determine the cause of the event. These results and any further corrective actions will be forwarded in a supplemental report.

D. SAFETY ANALYSIS:

The safety significance of a trip of MCC 29-2 during an accident is minimal. The loss of the battery chargers is not significant from a safety standpoint. The batteries are sized to handle the accident load profile for 4 hours without credit for the battery charger. The DGCWP Room Cooler Vent Fans have an alternate power supply from MCC 19-2. The 2C RHR SW pump is in the same service water vault as the 2B RHR SW pump. The service water room coolers can handle approximately twice the heat load generated by one service water pump. Thus the 2B RHR SW room cooler will provide sufficient cooling for both the 2B and 2C RHR SW pumps long enough for operators to restore power to MCC 29-2. The only pump which would have the likelihood of overheating is the 2D RHR SW pump. Even without the 2D RHR SW pump there would be enough RHR SW pumps for both loops of containment cooling and one loop of shutdown cooling. The loss of the remaining loads during an accident will have no safety impact on their associated systems.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Form Rev. 2.0

FACILITY NAME (1) Quad Cities Unit Two	DOCKET NUMBER (2) 0 5 0 0 0 2 6 5	LER NUMBER (6)						PAGE (3) 5 OF 0 6
		Year		Sequential Number			Revision Number	
		9 5	-	0 0 6	-	0 0		

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E. CORRECTIVE ACTIONS:Corrective Actions Completed:

1. PIF 95-2534 was written to investigate the cause of the breaker trip. The breaker was tested to ensure proper operation. Each of the individual loads were checked for proper current draw to ensure that individual loads were drawing their expected current. The level 2 investigation for PIF 95-2534 will identify the root cause of the incorrect breaker setting.
2. The #2 125 volt and the #2 250 volt battery chargers on MCC 29-2 were taken OOS. Power was restored to the remaining loads on the MCC. This exited the 24 hour LCOs for the Unit 2 EDG and Unit 2 B loop of containment cooling. Both units entered a 67 day LCO for safe shutdown.
3. PIF 95-2545 and PIF 95-2546 were also written to address overloading on MCCs 19-2, 28-2 and 29-2 during a LOCA. Loading was administratively limited on MCCs 19-2 and 28-2. The loading on MCC 19-2 was reduced by removing the #1 125 VDC battery charger. Loading on MCC 28-2 was reduced by powering the 1/2 250 volt charger from MCC 18-2. The breaker for the 1/2 250 volt charger on MCC 28-2 was turned off and administratively controlled.
4. Engineering has evaluated the loading on each of the Safety Related MCCs. Based on loading limits provided by Engineering, Operations is administratively controlling the MCC loading.

Corrective actions to be completed include the following:

1. Raise the trip settings for the affected MCCs and evaluate maximum expected loading. Loading will be administratively controlled to prevent exceeding cable ampacities. Engineering is evaluating the need for modifications to replace the feed cables for overloaded MCCs with larger cables. If needed, modifications for Unit 1 will be performed during Q1R14 and Unit 2 during Q2R14. (NTS #2651809500601 Engineering for Unit 1), (NTS# 2651809500602 Engineering for Unit 2).
2. The level 2 investigation for PIFs 95-2534, 95-2545 and 95-2546 is being performed. Further corrective actions and root cause will be determined by the investigation and forwarded as a supplemental report. The level 2 investigation is expected to be complete by 11/17/95.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

Form Rev. 2.0

FACILITY NAME (1) Quad Cities Unit Two	DOCKET NUMBER (2) 0 5 0 0 0 2 6 5	LER NUMBER (6)			PAGE (3) 6 OF 0 6
		Year	Sequential Number	Revision Number	
		9 5 -	0 0 6 -	0 0	

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F. PREVIOUS OCCURRENCE:

In June of 1994 Dresden had a similar trip of MCC 39-2. This was identified by Dresden LER 94-018. Based on this LER, PIF 94-1475 was written at Quad Cities identifying a possible trip for MCC 18-2. The trip setting for MCC 18-2 was increased as a corrective action.

A review of the Nuclear Tracking System database (NTS) did not identify any other LERs involving safety related bus trips due to improperly set breakers.

A Nuclear Plant Reliability Data System (NPRDS) search was performed for MCC feed breakers tripping due to exceeding the trip setting of the breaker. There were no similar cases identified by this search.

G. COMPONENT FAILURE DATA:

There were no component failures associated with this LER.

Licensee Event Report Reviewer Assignment Form

Revised 12/01/94

LER # 2651809500600

Date: October 4, 1995

Subject: Motor Control Center 29-2 Main Feed Breaker Tripped Due To Inadequate

Trip Setting.

Signatures of reviewers indicating review and approval of item:

Systems Eng. Supv:	<u>D. V. B. J. for DC</u>	<u>10/26/95</u>	<u>/</u>	<u>Date</u>
Operating Eng.:	<u>Alex L. Miano</u>	<u>10/30/95</u>	<u>/</u>	<u>Date</u>
	<u>David Cassin</u>	<u>11/2/95</u>	<u>/</u>	<u>Date</u>
	<u>/</u>	<u>/</u>	<u>/</u>	<u>Date</u>

Approved: D. B. Cook 11-2-95
Station Manager/PORC Chairman Date