NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO 3150-0104
EXPIRES 8/31/85

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Kewaunee Nuclar Power Plant	0 5 0 0 0 3 0 5	1 OF 0 3

TITLE (4)

Inadvertent Start of Reactor Coolant Pump

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)
0 2	1 0	8 5	8 5	—	0 0 4	—	0 0	0 3	1 3	8 5		0 5 0 0 0
												0 5 0 0 0

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	X OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
	AREA CODE
Charlie A. Schrock, Nuclear Licensing & Systems Superintendent	4 1 4 — 4 3 3 - 1 3 5 2

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)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

At 1230 CST on February 10, 1985 a control room operator noticed the 1B Reactor Coolant Pump running. Subsequent investigations revealed that the pump had inadvertently started due to a grounded condition in the actuation circuitry associated with the 4160V switchgear. The ground was caused by water accumulation in a pressure switch as a result of an inadvertent containment spray (reference LER 50-305/85-01). The ground provided enough current to gate the solid state starting circuitry.

An evaluation of the event showed that due to the location of the safety related switchgear at the plant and the routing of associated cables no credible single event would result in actuation of redundant trains of switchgear in a manner which could violate the assumption of the safety analysis. Consequently, the event posed no nuclear safety concerns.

This event is being reported under OTHER as an item of general interest to the industry.

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FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

At approximately 12:30 CST on February 10, 1985, a control room operator noticed the 1B Reactor Coolant Pump (P) running while the control switch indicated a green flag or off conditions. Subsequent investigations revealed that the pump had inadvertently started due to a grounded condition in the actuation circuitry associated with the 4160 V switchgear (6).

The 4160 V switchgear is manufactured by McGraw Edison. It utilizes a solid state device (SCR) called a 52XY to energize the closing coil (CL) for the breaker. The closing coil becomes energized upon application of current, approximately 5 milliamps, sufficient to gate this device. The 52XY also provides an anti-pump feature which prevents the breaker from rapidly cycling open and closed. This control circuitry is powered from the Kewaunee plant's 125 volt DC system. The Kewaunee Plant's 125 V D.C. system is a "floating" system, designed such that the positive bus (BU) is at a potential of 60 to 65 volts above ground and the negative bus is 60 to 65 volts below ground under normal conditions.

The circuitry associated with the starting circuit for this device includes contacts for a pressure switch (PIS) located inside the KNPP containment building. Following the inadvertent start of the pump, this switch was found to be partially filled with water, probably as a result of an inadvertent containment spray which occurred on January 22, 1985. (Reference LER 50-305/85-01). It was postulated, and confirmed by testing, that grounding this switch would activate the breaker. Based on the testing, it is further postulated that upon grounding of the gate lead of the SCR, the gate current is provided by discharging the effective capacitance created by the insulation (ISL) of the wiring in the station's DC system. The testing also confirmed that this phenomena is not isolated to the RCP switchgear or any particular bus.

The safety significance of this event is two-fold. First, inadvertent actuation of 4160 V switchgear creates a personnel safety hazard. This concern can be dealt with through administrative controls.

Secondly, the inadvertent actuation of 4160 V switchgear could affect the assumptions of the safety analysis with potentially adverse effects on nuclear safety. There are 48 4160 V switchgear cubicles at KNPP, of which 22 are considered to be safety related. Of these, 12 are associated with motors (MO) and the remaining 10 are bus feeder or bus tie breakers (BKR). The effect of inadvertently starting a safeguard motor, at worst, is the disruption of the sequence loading associated with the Diesel Generator (DG) upon loss of offsite power. This is not expected to result in a failure or affect the conclusions of the safety analysis.

The inadvertent closure of the safety related bus tie or bus feeder breaker could result in damage to a diesel generator. However, a review of the location of the switchgear and associated cabling showed that they are located in areas where adverse environmental conditions are considered incredible. Consequently, there is no postulated event which would result in inadvertent actuation of this switchgear in a manner which would affect the results of the safety analysis.

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

Two other sets of switchgear were evaluated for potential adverse effects due to inadvertent start: the main feedwater pumps (P) and the reactor coolant pumps. Since the main feedwater pumps would be tripped and feedwater isolated by a safety injection signal, inadvertent actuation of a main feedwater pump would have no effect on the accident analysis.

The reactor coolant pumps have virtually no effect on a large break LOCA and are assumed to run during a steam line break event. The remaining event of interest would be a postulated small break LOCA. The KNPP procedures require that the RCP's be tripped at about 1500 psig. Inadvertent actuation of an RCP following trip would not be a problem, however, since analyses have shown that using "Most probable, best estimate analyses . . . the RCP's may be tripped at any time during a small break LOCA event without reaching clad temperatures of 2200°F."(1) The corrective action following inadvertent start of an RCP during a SBLOCA would simply be to turn off the pump and place it in pull out.

Based on these evaluations, it is concluded that there are no adverse nuclear safety consequences associated with this event.

Although no corrective actions are required, a hardware modification which would eliminate the potential for this event is being evaluated. In addition, the emergency operating procedures will be revised to instruct the operators to place the RCP's in pull out when they are required to be tripped due to low RCS pressure.

This event is being reported under OTHER as an item of general interest to the industry.

NRC-85-50

WISCONSIN PUBLIC SERVICE CORPORATION
P.O. Box 1200, Green Bay, WI 54305

March 15, 1985

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

Gentlemen:

Docket 50-305
Operating License DPR-43
Kewaunee Nuclear Power Plant
Reportable Occurrence 85-004-00

In accordance with the requirements of 10 CFR 50.73 "Licensee Event Report System", the attached Licensee Event Report for reportable occurrence 85-004-00 is being submitted.

Very truly yours,

Charles A. Schrock for

D. C. Hintz
Manager - Nuclear Power

GWH/js

Attach.

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