



Nuclear Management Company, LLC
Point Beach Nuclear Plant
6610 Nuclear Road
Two Rivers, WI 54241

NPM 2000-0534

December 11, 2000

Document Control Desk
U.S. NUCLEAR REGULATORY COMMISSION
Mail Station P1-137
Washington, D.C. 20555

10 CFR 50.73

Ladies/Gentlemen:

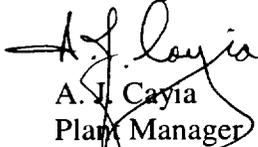
DOCKET NO. 50-301
LICENSEE EVENT REPORT 301/2000-005-00
UNPLANNED ENGINEERED SAFETY FEATURE ACTUATION
DURING PROTECTIVE RELAY TESTING
POINT BEACH NUCLEAR PLANT UNIT 2

Enclosed is Licensee Event Report 301/2000-005-00 for the Point Beach Nuclear Plant Unit 2. This report is provided in accordance with 10 CFR 50.73(a)(2)(iv) as, "any event or condition that resulted in a manual or automatic actuation of any Engineered Safety Feature (ESF)". This report documents the inadvertent automatic start of standby emergency diesel generators while performing calibration and testing of safety related protective relays on the 2A06 safeguards bus. The plant equipment and systems required to operate following this actuation worked as designed. The emergency diesel generators were secured in accordance with plant procedures. Point Beach Unit 2 was in a refueling outage and defueled at the time of this event.

New corrective action commitments are identified with italics in this report.

Please contact us if you require additional information concerning this event.

Sincerely,



A. J. Cayia
Plant Manager

Enclosure

CWK/rlp

cc: NRC Resident Inspector
NRC Regional Administrator
NRC Project Manager
PSCW
INPO Support Services

IE 22

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT

FACILITY NAME (1)

Point Beach Nuclear Plant, Unit 2

DOCKET NUMBER (2)

05000301

PAGE (3)

1 of 4

TITLE (4)

Unplanned Emergency Safety Features Actuation During Calibration and Testing of Safeguards Bus Relays

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 NAME	DOCKET NUMBER	
11	10	2000	2000	005	00	12	11	2000		05000	
									FACILITY NAME	DOCKET NUMBER	
										05000	
OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)									
N		20.2201(b)			20.2203(a)(2)(v)			50.73(a)(2)(i)		50.73(a)(2)(viii)	
POWER LEVEL (10)		20.2203(a)(1)			20.2203(a)(3)(i)			50.73(a)(2)(ii)		50.73(a)(2)(x)	
000		20.2203(a)(2)(i)			20.2203(a)(3)(ii)			50.73(a)(2)(iii)		73.71	
		20.2203(a)(2)(ii)			20.2203(a)(4)			<input checked="" type="checkbox"/> 50.73(a)(2)(iv)		OTHER	
		20.2203(a)(2)(iii)			50.36(c)(1)			50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A	
		20.2203(a)(2)(iv)			50.36(c)(2)			50.73(a)(2)(vii)			

LICENSEE CONTACT FOR THIS LER (12)

NAME
Charles Wm. Krause, Senior Regulatory Compliance Engineer

TELEPHONE NUMBER (Include Area Code)
(920) 755-6809

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)

YES
(If yes, complete EXPECTED SUBMISSION DATE).

NO

EXPECTED SUBMISSION DATE (15)

MONTH DAY YEAR

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

On November 10, 2000, an inadvertent Engineered Safety Features (ESF) actuation resulted in the start of the G03 and G04 Emergency Diesel Generators (EDGs). This actuation occurred during the calibration and testing of the protective relays associated with the PBNP Unit 2 Train "B" 4160 V safeguards bus. The process was being conducted in accordance with approved plant procedures. During this calibration and testing an under voltage signal was created at a procedural step which checks the continuity across two test points. This signal energized an auxiliary relay which caused the normal bus 2A06 supply breaker to open and resulted in the fast start of the G03 and G04 EDGs. The loss of voltage sensing circuitry then sequenced the G04 EDG onto, and re-energized, the 2A06 bus. At the time of this event Point Beach Nuclear Plant Unit 2 was shutdown and defueled for a scheduled refueling and maintenance outage. After appropriate response to these conditions, the EDGs were secured. The immediate cause of this event was an incorrectly written step in the calibration and testing procedure. A thorough evaluation has been initiated to establish the contributing factors and root cause for this event. Based on the plant conditions at the time of this actuation and the proper functioning of equipment, we have determined that the safety significance of this event was minimal.

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TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
Point Beach Nuclear Plant, Unit 2	05000301	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
		2000	- 005	- 00	

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

Event Description:

On November 10, 2000, at approximately 1029 CST, an inadvertent start of the G03 and G04 Emergency Diesel Generators (EDGs) occurred during the calibration and testing of protective relays associated with the Point Beach Nuclear Plant (PBNP) Unit 2 Train "B" 4160 V safeguards bus. The EDGs are considered to be Engineered Safety Features (ESF) at PBNP. At the time of this event PBNP Unit 2 was shutdown and defueled for a scheduled refueling and maintenance outage. PBNP Unit 1, which was not directly involved in this event, was operating at full power.

During the performance of procedure 2RMP 9056-2, "Calibration and Testing of Safety Related Protective Relays A06," a loss of voltage condition was created on bus 2A06. The purpose of this procedure is to provide instructions for performing calibration and testing of safety related protective relays on Unit 2 bus 2A06. The calibrations and testing satisfy Technical Specification requirements. The equipment to which this procedure is applicable includes loss of voltage relays, degraded voltage relays, degraded voltage time delay relays, and EDG output breaker time delay relays. The inadvertent under voltage signal occurred when a relay technician applied a multi-meter across two test points to check for continuity as specified by the procedure. This action caused an auxiliary relay in the under voltage circuitry to energize. This relay opened the normal bus 2A06 supply breaker which caused the G03 and G04 EDGs to start. The loss of voltage sensing circuitry sequenced the G04 EDG onto the 2A06 bus. These actuation's are as designed for this under voltage condition. There were no abnormal conditions or indications observed during this event

The plant staff entered abnormal operating procedure AOP-18B for loss of the 2A06 voltage. The calibration procedure was aborted. At 1153 CST the attachment to AOP-18B to restore loads lost on 2A06 was completed and EDG G03, which had been running unloaded was secured. After determining the reason for the under voltage actuation and verifying the condition of bus 2A06 was acceptable, the normal power supply was restored to the bus at 1223 CST and EDG G04 was secured. A licensee condition report was initiated (CR 00-3726) and the NRC was notified via ENS pursuant to 10 CFR 50.72 at 1233 CST (Event no. 37514.)

Cause:

An incident investigation following this event established that the technician had performed the meter connection in accordance with the procedure. The procedure was reviewed by several technically qualified individuals who confirmed that the procedural step, as written, results in energizing the loss of voltage relays. The recent complete rewrite of the procedure, which had been approved on October 2, 2000, established a step that attached multi-meter leads across two points with a potential difference, thus resulting in current flow through the multi-meter when it was switched to the resistance mode for the continuity check. This procedural error was not identified during the procedure review and approval process.

Corrective Actions:

This procedure, and a similar procedure which received the same revision, were placed on administrative hold.

Procedure 2RMP 9056-2 has been revised and approved to correct the error which resulted in this event.

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A thorough evaluation to determine the root cause for this event has been initiated. Additional corrective actions identified as a result of this evaluation will be assigned and tracked to completion under the licensee's corrective action program

Component and System Description:

The majority of electrical loads, used for both safety and non-safety related applications, at PBNP are powered by the 480V AC system. The 4.16KV system provides the primary mean to interconnect onsite and offsite power sources and distribute the power to the 480V AC system.

The 4.16KV system is comprised of six buses per unit (A01 through A06), the unit auxiliary transformer (X02), and the low voltage auxiliary transformer (X04). FSAR Figure 8.4-1 shows the 4.16KV distribution system. Two buses per unit, A03 and A04, are connected to the 13.8KV system via bus supply breakers to the independent windings of the low voltage station auxiliary transformer (X04). Buses A03 and A04 serve the safeguards buses A05 and A06 respectively as well as buses A01 and A02 during startup, shutdown, and after reactor trip. Buses A05 and A06 are connected to buses A03 and A04 using manually closed tie breakers. A05 and A06 supply all of the safety-related loads (4.16KV and 480V transformers).

The normal source of power to safety related 4.16 KV and 480V buses is from offsite through the station low voltage auxiliary transformers. If this normal source should fail, the standby source of emergency power is the diesel generating (DG) system. The DG system is composed of four emergency diesel generators (EDGs) that can directly supply the safety related 4.16 KV electrical distribution system. Each diesel engine is supported by its own dedicated auxiliary systems for maintaining the start readiness, starting, and continued operation. The independent design of the EDGs and auxiliary systems precludes any single failure from preventing the DG system from performing its intended safety related function.

Each EDG is capable of sequentially starting and supplying the power requirement of one complete set of safeguards equipment for one reactor unit and providing sufficient power to allow the second reactor unit to be placed in a safe shutdown condition. Each EDG will be started upon the receipt of an under voltage condition signal on either its primary or opposite unit same train 4160 volt bus, and re-energize its 4160 volt bus on under voltage. All four EDGs will start when a safety injection (SI) signal is received from either unit.

Additional information concerning the 4.16KV and diesel generator systems may be found in FSAR Sections 8.4 and 8.8 respectively.

Safety Assessment:

The plant response during and following this inadvertent ESF actuation was as expected. The plant systems and components involved in this event performed as designed. As noted previously, Unit 2 was shutdown and defueled during this event. The G03 EDG, which started but was not required to be sequenced on to the 2A06 bus, remained available as the emergency standby power supply for the Unit 1 Train "B" safeguards bus at all times. The G04 EDG started and sequenced onto the 2A06 bus as designed. No abnormal equipment performance was noted. The safety and welfare of the public and the plant staff was not affected by this event. Other than an inadvertent challenge of an installed safety feature, the safety significance of this event was negligible. During this event and subsequent bus recovery, there was at no time a loss of equipment or

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

system related safety function; therefore, this event did not involve a safety system functional failure.

System and Component Identifiers:

The Energy Industry Identification System component function identifier for each component/system referred to in this report are as follows:

<u>Component/System</u>	<u>Identifier</u>
Medium Voltage Power System - Class 1E	EB
Emergency Onsite Power Supply System	EK
ESF Actuation System	JE
Relay, Under Voltage	27
Breaker	BKR
Bus	BU

Similar Occurrences:

A review of recent LERs (past three years) identified the following similar event involving inadvertent ESF or RPS actuation:

<u>LER Number</u>	<u>Title</u>
301/2000-004-00	Unplanned Emergency Safety Features Actuation During Safeguards Bus Restoration
266/98-024-00	Inadvertent Emergency Diesel Generator Start
266/98-014-00	Emergency Safety Feature Actuation Automatic Start Of A Service Water Pump
266/98-006-00	Unanticipated Partial Service Water System Isolation During A Special Test
266/98-002-00	Failure Of The High Voltage Station Auxiliary Transformer