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

ComEd

September 11, 1996

LTR: BYRON 96-0240
FILE: 3.03.0800 (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)(i)(B).

This report is number 96-013; Docket No. 50-454.

Sincerely,

K. L. Kofron
Station Manager
Byron Nuclear Power Station

KLK/WD/js

Enclosure: Licensee Event Report No. 96-013

cc: H. J. Miller, NRC Region III Administrator
NRC Senior Resident Inspector
INPO Record Center
ComEd Distribution List

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NRC FORM 366 (4-95) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 04/30/98

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY 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 (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
BYRON NUCLEAR POWER STATION	05000454	1 OF 4

TITLE (4)

Containment Atmospheric Radiation Monitor Alarm Setpoints Do Not Meet Design Criteria

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
08	15	96	96	013	00	9	11	96	Braidwood Unit 1	05000456
									FACILITY NAME	DOCKET NUMBER 05000

OPERATING MODE (9)	1
POWER LEVEL (10)	95

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
	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)		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	TELEPHONE NUMBER (Include Area Code)
Marri Marchionda, Lead HP	815-234-5441 X2237

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 15 single-spaced typewritten lines) (16)

On August 16, 1996, Byron Station discovered that the alarm setpoints for the radiation monitor (1/2PR011J) for containment atmosphere would not detect the design basis leak rate of 1 gallon per minute (gpm) in less than 1 hour. The existing setpoints appear to be based on personnel protection in an airborne environment which was supported by the setpoint criteria listed in UFSAR Chapter 11. However, Chapter 5 of the UFSAR referenced the leak rate detection criteria.

The root cause of the event is unknown since the original setpoint justification could not be found, but it is likely that the reference in Chapter 11 was solely used for setpoint development.

Corrective actions include revising the existing setpoints to comply with the design requirements for leak detection. In addition, a review of all safety related radiation monitor's setpoints will be performed to ensure compliance with design requirements.

FACILITY NAME (1)	DOCKET	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
BYRON NUCLEAR POWER STATION	05000454	96	-- 013 --	00	2 OF 4

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

A. PLANT CONDITIONS PRIOR TO EVENT:

Event Date/Time 08-15-96 / 1640

Unit 1 Mode 1 - Power Operation Rx Power 95% RCS [AB] Temperature/Pressure NOP/NOT

Unit 2 Mode 5 - Cold Shutdown Rx Power N/A RCS [AB] Temperature/Pressure N/A

B. DESCRIPTION OF EVENT:

During an investigation at Braidwood Station it was determined that 2PR011J, containment atmosphere radiation monitor, was reading low due to air inleakage (LER 96-008). To determine if the monitor could perform its design function during the period of inleakage, a search of the UFSAR was performed. A design criterion documented in section 5.2.5.2 states that the characteristics of the monitor, "allow it to be used for personnel protection and as a leak detection system as required by Regulatory Guide 1.45. The objective is to detect a leakage rate, or its equivalent, of 1 gpm in less than 1 hour." This design requirement appeared to be in conflict with the monitor design requirements discussed in section 11.5.2.2.10 which only describes the monitor's function as determining atmospheric airborne and does not mention the detection capability for leak rate. Additionally, Table 11.5-1 lists the setpoint as less than or equal to two times background and allows it to be adjusted appropriately as operating experience is gained. Braidwood Radiation Protection began an evaluation to determine if the monitor could meet the leak rate requirement. At 1300, on 7/31/96, Braidwood Station documented the concern on Problem Identification Report (PIR) 456-201-96-1698 and initiated an Operability Assessment.

On 8/1/96, at approximately 1300, Braidwood Station, aware of the similarities in the station's process radiation monitor setpoint justification documents, notified Byron Station Radiation Protection of the discrepancy in the Byron/Braidwood (B/B) UFSAR document. Byron initiated a PIF to determine if Byron's monitor met the design requirement. The current alarm setpoints appeared to be based on personnel protection in an airborne environment to ensure compliance with 10CFR20 dose limits and ALARA principles. This appeared to be consistent with the direction given in Chapter 11.

On 8/5/96, Braidwood completed a concern screening form that determined their containment process radiation monitors were operable and transmitted their data to Byron. Since Braidwood's setpoints were different from Byron's, a thorough and independent review of the regulating documents and calculation assumptions was performed.

On 8/15/96, at 1640, Byron determined that the current setpoints for the particulate and gas channels could not support the UFSAR leak rate detection criteria. Both channels were declared inoperable and Limiting Condition Action Requirements (LCOAR) 0BOS 3.3.1-1a, "Radiation Monitoring For Plant Operation," and 1BOS 4.6.1-1a, "Reactor Coolant System Leakage - Leakage Detection Systems," were entered. The LCOARs were not applicable to Unit 2 which was in Mode 5 at the point of discovery. On 8/16/96, new setpoints were installed in accordance with BAP 400-3, "Control of Setpoint/Scaling Changes." The LCOARs were exited at 1335.

This event is reportable per 10CFR50.73(a)(2)(i)(B) due to operation outside of Technical Specification bases 3/4.4.6.1 which states that the leak detection systems are consistent with the recommendations of Regulatory Guide 1.45 "Reactor Coolant Pressure Boundary Leakage Detection Systems, May 1973."

C. CAUSE OF EVENT:

The root cause of the event is unknown. The original setpoint calculation document could not be found for this monitor. It is likely that the difference in the UFSAR chapters' design criteria contributed to the event. Chapter 5 states the monitor serves as both personnel protection and leak detection. However, Chapter 11 appears to neglect the leak rate detection criteria since the setpoints listed in the table reference only background and operating experience as criteria.

In August 1993, Radiation Protection collated a process radiation monitor setpoint justification document. To establish a complete document, calculations were performed to establish a basis for those monitors that did not have historical documentation. The purpose of this setpoint evaluation was to document the justification for existing setpoints. The scope of this project did not identify the Regulatory Guide leak rate criteria. The evaluation found the existing particulate alert setpoint for this radiation monitor corresponded to 1 Maximum Permissible Concentration (MPC) of a common mix of particulate nuclides. The particulate high alarm setpoint was calculated to correspond to two times the alert setpoint. The evaluation found the existing gas channel alert alarm setpoint corresponded to 50 mrem/hr submersion dose in airborne noble gas and the high alarm setpoint was calculated to correspond to 75 mrem/hr submersion dose.

In December 1993, the setpoint justification document was referenced to adjust the existing setpoints to comply with a pending revision to 10CFR20 which revised the MPC values to new Derived Air Concentration (DAC) values. The setpoints were scaled to the new 10CFR20 DAC values which were more conservative (i.e., the radiation monitor would have alarmed sooner) so the design basis was not questioned.

D. SAFETY ANALYSIS:

Although the radiation monitor for containment atmosphere was not available to perform its leak detection function, several other means of leak detection were available.

1. The flow monitoring system (RF008) for the containment floor drain was in operation per Technical Specification 3.4.6.1.b. Flow from this sump is monitored on a strip chart recorder with an audible alarm available in the control room.

2. The flow monitoring system (RF010) for the reactor cavity was in operation per Technical Specification 3.4.6.1.b. Flow from this sump is monitored on a strip chart recorder with an audible alarm available in the control room.

3. Both sump run times for the floor drain are checked on a shiftly basis per Technical Specification 4.4.6.2.1.b. This surveillance would alert control room operators of an increase in leak rate.

4. A water inventory balance for the reactor coolant system is performed at least once per 72 hours per Technical Specification 4.4.6.2.1.d which would also alert control room operators of an increase in leak rate.

E. CORRECTIVE ACTIONS:

1. As immediate corrective action, setpoint changes were completed on 8/16/96 for both Byron Unit 1 and Unit 2.

2. To correct the apparent conflict between UFSAR Sections 5.2.5.2 and 11.5, a UFSAR revision will be completed. This item will be tracked by DRP # 6-094.

3. A review of safety related radiation monitor setpoints will be completed to ensure all required design criterion were reviewed when the alarm setpoints were initially established. This action will be tracked by NTS item 454-180-96-0013-01.

F. RECURRING EVENTS SEARCH AND ANALYSIS:

A search of the company's document data base, ALRA, was completed . No similar events were found using the keywords, "containment radiation monitor and leak detection," and "radiation monitor setpoint."

G. COMPONENT FAILURE DATA:

Not applicable.