

# CATEGORY 1

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9812210164 DOC.DATE: 98/12/14 NOTARIZED: NO DOCKET #  
FACIL:50-305 Kewaunee Nuclear Power Plant, Wisconsin Public Servic 05000305  
AUTH.NAME AUTHOR AFFILIATION  
SCHOMMER,K. Wisconsin Public Service Corp.  
MARCHI,M.L. Wisconsin Public Service Corp.  
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 98-017-00:on 981113,discovered that SI isolation valve leakage could have caused plant analytical limits to be exceeded.Caused by seat leakage.Completed post-maint testing on 981120 with acceptable measured leakage.With 981214 ltr.

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Public Service

NRC-98-125

**Public Service Corporation**

(a subsidiary of WPS resources corporation)

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December 14, 1998

10 CFR 50.73

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

Ladies/Gentlemen:

Docket 50-305  
Operating License DPR-43  
Kewaunee Nuclear Power Plant  
Reportable Occurrence 1998-017-00

In accordance with the requirements of 10 CFR 50.73, "Licensee Event Report System," the attached Licensee Event Report (LER) for reportable occurrence 1998-017-00 is being submitted.

Sincerely,

*Wm Reinhardt*

for Mark L. Marchi  
Vice President-Nuclear

KJS

Attach.

cc - INPO Records Center  
US NRC Senior Resident Inspector  
US NRC, Region III

*IEE*

9812210164 981214  
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0045

**FACILITY NAME (1)**  
Kewaunee Nuclear Power Plant

**DOCKET NUMBER (2)**  
05000305

**PAGE (3)**  
1 OF 4

**TITLE (4)**  
Safety Injection Isolation Valve Leakage Could Have Caused Plant Analytical Limits to be Exceeded

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	13	1998	1998	017	00	12	14	1998	N/A	05000
									FACILITY NAME	DOCKET NUMBER
										05000

**OPERATING MODE (9)** N

**POWER LEVEL (10)** 000

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

20.2201(b)	20.2203(a)(2)(v)	50.73(a)(2)(i)	50.73(a)(2)(viii)
20.2203(a)(1)	20.2203(a)(3)(i)	X 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)(iii)	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**  
Keith Schommer - Engineering & Technical Support Engineer

**TELEPHONE NUMBER (Include Area Code)**  
(920) 388-8619

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
X	BQ	ISV	A392	Y					

**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)**

On November 13, 1998, while the plant was in refueling shutdown, it was identified that a condition existed that could have exceeded analytical limits. During leakage testing of the containment sump recirculation piping, leakage past one of the isolation valves (SI-5B, "Refueling Water Storage Tank to Safety Injection Pump B") could not be quantified. The leakage past the valve exceeded the capacity of the hydro pumps used to perform the test. As a result, the test volume could not be pressurized. The combined capacity of the pumps is approximately one gallon per minute (gpm). The cumulative allowable leakage through the recirculation isolation valves per the test procedure is three gpm. The three gpm limit is based on ensuring post design basis accident control room doses are within General Design Criteria 19 limits. Since the leakage could not be quantified by on-site equipment, the leakage is conservatively assumed to exceed the three gpm procedural limit.

Subsequent to identifying the leakage, corrective maintenance was performed on the valve seat. Post maintenance testing was completed on November 20, 1998 with an acceptable measured leakage of 0.04 gpm.

LICENSEE EVENT REPORT (LER)  
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Kewaunee Nuclear Power Plant	05000305	1998	017	-- 00	2 OF 4

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

Description of Event

On November 13, 1998, while the plant was in refueling shutdown, it was identified that a condition existed that could have exceeded analytical limits. During leakage testing of the containment sump recirculation piping, leakage past one of the isolation valves [ISV] (SI-5B, "Refueling Water Storage Tank to Safety Injection Pump B") could not be quantified. The leakage past the valve exceeded the capacity of the hydro pumps [P] used to perform the test. As a result, the test volume could not be pressurized. The combined capacity of the pumps is approximately one gallon per minute (gpm). The cumulative allowable leakage through the recirculation isolation valves per surveillance procedure SP 23-080, "ICS and SI Valve Leakage Test," is three gpm. The three gpm limit is based on ensuring post design basis accident control room doses stay within General Design Criteria 19 limits. Since the leakage could not be quantified by on-site equipment, the leakage is conservatively assumed to exceed the 3 gpm procedural limit.

The valve, SI-5B, is a six-inch gate valve with a motor operator. SI-5B provides a flow path from the Refueling Water Storage Tank (RWST) to the suction of the Safety Injection (SI) [BQ] pump B. SI-5B is in the open position during normal plant operation. During containment sump high head recirculation, SI-5B is closed to provide isolation between containment sump water and the RWST.

During SP 23-080 testing, SI-5B is closed and the test volume is pressurized to 200 psig (nominal) to simulate high head containment sump recirculation operation.

Cause of Event

Although the cause of the event could not be conclusively determined, it is attributed to seat leakage. A review of maintenance activities performed on the valve did not reveal significant valve or seat degradation. The seat and disk were lapped and reassembled. The initial and final motor operator valve diagnostics testing results did indicate enhanced performance following the repair. However, during initial testing and trouble-shooting efforts, the valve was manually seated with no improvement in leakage noted. The manual valve manipulation was performed to eliminate the possible cause of an improperly performing motor operator by ensuring full disk/seat engagement.

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

Analysis of Event

This condition is conservatively being reported under 10 CFR 50.73(a)(2)(ii)(A) as an, "unanalyzed condition that significantly compromised plant safety." This condition was also reported in accordance with 10 CFR 50.72(b)(2)(i) at 1554 EST on November 13, 1998 as a degraded condition identified while shutdown.

In the event that containment sump recirculation using train B safety injection had been needed, a potential existed that Kewaunee would have exceeded current dose limits for control room personnel. As stated earlier, the leakage could not be quantified with on-site equipment resulting in the inability to specifically determine the event's safety significance. However, the safety significance of exceeding three gpm leakage is minimized since the allowable leakage limit determination included numerous conservatisms. Some of the conservatisms are stated below:

The three gpm criteria was based on the use of ICRP 2 Dose Conversion Factors (DCFs). In recent submittals the NRC has accepted the use of ICRP 30 DCFs. This alone would decrease the dose reported by greater than 30 percent.

The dose acceptance criteria used to determine the leakage criteria was based on the GDC 19 value of five rem whole body or its equivalent. For the thyroid, this has historically been considered 30 rem; however, recent studies have demonstrated that the radiological equivalent to the thyroid of 5 rem whole body is much larger (i.e., 50 to 60 percent larger or up to 50 rem).

The three gpm criteria was also based on the high head Safety Injection operating for the full 30 days. It is most likely that the high head SI will be stopped prior to 30 days. In this case, the total leakage will be less than the three gpm assumed in determining the acceptance criteria.

Since projected offsite doses for a design basis accident are a very small fraction of part 100 limits, S1-5Bs degraded performance is not expected to significantly impact offsite dose projections.

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

Previous testing of SI-5B on May 27, 1997 found an acceptable leakage of 0.01 gpm.

Corrective Actions

After identifying the condition, the valve was disassembled and repaired. Subsequent testing obtained an acceptable leakage of 0.04 gpm.

Additional Information

SI-5B is a 6-inch Anchor Valve Co. Model number 1055-3 gate valve with a motor operator.

Similar Events

None