NMC
Committed to Nuclear Excellence

Kewaunee Nuclear Power Plant
Operated by Nuclear Management Company, LLC

May 16, 2005

NRC-05-063
10 CFR 50.73

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

Kewanee Nuclear Power Plant
Docket 50-305
License No. DPR-43

Reportable Occurrence 2005-004-00

In accordance with the requirements of 10 CFR 50.73, "Licensee Event Report System," a Licensee Event Report (LER) for reportable occurrence 2005-004-00 is being submitted.

This letter contains no new commitments and no revisions to existing commitments.

Craig W. Lambert
Site Vice President, Kewaunee Nuclear Power Plant
Nuclear Management Company LLC

Enclosure (1)

cc: Resident Inspector, Kewaunee, USNRC
Project Manager, Kewaunee, USNRC
Administrator, Region III, USNRC
INPO Records Center

IE22

N490 Highway 42 • Kewaunee, Wisconsin 54216-9511
Telephone: 920.388.2560

ENCLOSURE 1

LICENSEE EVENT REPORT (LER)
2005-004-00

3 pages follow

NRC FORM 366 (6-2004) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 6-30-2007

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0066), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

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

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
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TITLE (4)

Safe Shutdown Potentially Challenged By Unanalyzed Internal Flooding Events and Inadequate Design

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MO	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MO	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
03	15	2005	2005	-- 004 --	00	05	16	2005	FACILITY NAME	DOCKET NUMBER

OPERATING MODE (9)	N
POWER LEVEL (10)	000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR .: (Check all that apply) (11)

	20.2201(b)		20.2203(a)(3)(ii)	X	50.73(a)(2)(ii)(B)		50.73(a)(2)(ix)(A)
	20.2201(d)		20.2203(a)(4)		50.73(a)(2)(iii)		50.73(a)(2)(x)
	20.2203(a)(1)		50.36(c)(1)(i)(A)		50.73(a)(2)(iv)(A)		73.71(a)(4)
	20.2203(a)(2)(i)		50.36(c)(1)(ii)(A)	X	50.73(a)(2)(v)(A)		73.71(a)(5)
	20.2203(a)(2)(ii)		50.36(c)(2)		50.73(a)(2)(v)(B)		OTHER
	20.2203(a)(2)(iii)		50.46(a)(3)(ii)		50.73(a)(2)(v)(C)		Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iv)		50.73(a)(2)(i)(A)		50.73(a)(2)(v)(D)		
	20.2203(a)(2)(v)		50.73(a)(2)(i)(B)		50.73(a)(2)(vii)		
	20.2203(a)(2)(vi)		50.73(a)(2)(i)(C)		50.73(a)(2)(viii)(A)		
	20.2203(a)(3)(i)		50.73(a)(2)(ii)(A)		50.73(a)(2)(viii)(B)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Mary Jo Merholz	920-388-8277

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)				EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
X	YES (If yes, complete EXPECTED SUBMISSION DATE).		NO		07	30	2005

ABSTRACT

On March 15, 2005 with the plant in Refueling Shutdown Mode, NMC personnel determined that the Kewaunee plant design for protection against internal flooding would not ensure that required equipment would be protected from the postulated failure of non-safety related piping in the turbine building. High water level in the turbine building would result in water flowing into certain Engineered Safety Features equipment rooms. Documentation which considers specific flooding events from postulated failures of plant equipment exists, however, a complete internal plant flooding analysis was not developed during or subsequent to the plant's original design. In response to inadequate plant design, physical changes are being made to minimize challenges to plant equipment and personnel in combating potential flooding events. Analysis continues to determine the potential for and effects of flooding events occurring, and to enhance and document the plant's design for internal flooding. Although this LER is not associated with an event resulting in actual flooding of any portion of the plant, the potential for certain piping and tank failures resulting in unacceptable flooding exists. A past operability evaluation is underway to assess what equipment would have failed during postulated flooding events. The Significance Determination Process will be used to assess the safety consequences and implications for any equipment that would have failed. This information will be addressed in a supplement to this LER. This report does not involve a safety system functional failure.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
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TEXT *(If more space is required, use additional copies of NRC Form 366A)* (17)

Event Description

On March 15, 2005 with the plant in Refueling Shutdown Mode, NMC personnel determined that the Kewaunee plant design for protection against internal flooding would not ensure that required safety-related equipment would be protected from the failure of non-safety related piping [PSP] in the turbine building [NM]. High water level in the turbine building would result in water flowing into certain Engineered Safety Features (ESF) equipment rooms. The ESF equipment rooms are separated from the remainder of the turbine building by non-water-tight doors and the plant floor drain system. The ESF equipment rooms contain the Auxiliary Feedwater (AFW) pumps, Emergency Diesel Generators (EDG) and both the 480 volt and 4160 volt electrical ESF switchgear. The water could reach levels that may result in failure of certain ESF and plant safe shutdown equipment.

Documentation that considers specific flooding events from postulated failures of plant equipment exists, however, a complete internal plant flooding analysis was not developed during or subsequent to the plant's original design. Information describing the plant's design for internal flooding events is limited.

Event Analysis and Safety Significance

This event is being reported under 10CFR50.73(a)(2)(ii)(B), any event or condition that resulted in the plant being in an unanalyzed condition, and 10CFR50.73(a)(2)(v)(A), any event or condition that could have prevented the fulfillment of the safety function of structures or system that are needed to shut down the reactor and maintain it in a safe shutdown condition. This event was initially reported on March 15, 2005 as a 10CFR50.72 non-emergency event under criterion (b)(3)(ii)(B), unanalyzed condition, and criterion (b)(3)(v)(A) safe shutdown capability (reference Event Notification EN# 41496).

Subsequent to the initial report on March 15, 2005, analysis continues of the assumed piping system failure with the potential loss of ESF equipment. The results of the analysis and the evaluation will be included in a supplement to this LER.

This LER is not associated with an event resulting in actual flooding of any portion of the plant. However, because of inadequate plant design and a lack of clear guidance on the full scope of assumptions needed to substantiate the plant's ability to meet the design basis, the potential for flooding events and their potential consequences are under evaluation. A past operability evaluation is underway to assess what equipment would have failed during postulated flooding events. The Significance Determination Process will be used to assess the safety consequences and implications for any equipment that would have failed. This information will be addressed in a supplement to this LER.

This report does not involve a safety system functional failure.

Cause

A Root Cause Evaluation (RCE) is in progress to determine the cause and full scope of corrective actions. Following completion of the root cause the causal information will be submitted in a supplement to this LER.

Corrective Actions

The corrective actions that have been implemented or are currently in progress are:

1. A design and licensing basis for internal flooding is being compiled to support current and future design.
2. The following actions have been initiated until the appropriate measures to ensure protection of Class I plant structures and components as defined in KNPP's Updated Safety Analysis Report (USAR) have been completed:
   a. Plant operating mode has been restricted to refueling or cold shutdown.
   b. The combined inventory of Condensate Storage Tanks and Reactor Makeup Storage Tanks has been limited.
   c. Restrictions have been put in place for operating the Circulating Water and Condensate Systems.
3. Seismic qualification of selected unqualified piping and components.
4. The design modifications in progress to protect Class I plant structures and components as defined in KNPP's USAR include:
   a. Installation of Check Valves in Floor Drains from Cardox Room, Safeguards Alley, Bus 1 and 2 Rooms.
   b. Revise Auxiliary Feedwater Pump Lubricating Oil Coolers and Drain Flow Path.
   c. Flood Barriers at Doors to Safeguards Alley.
   d. Circulating Water Pump Trip on High Turbine Building Basement Water Level.
   e. Turbine Building Auxiliary Feedwater Pump Steam Supply Piping Support.

Additional information regarding the corrective actions relative to this event will be provided as a supplement to this LER.

Previous Similar Events

Similar Events will be determined upon completion of the root cause evaluation.