



Northern States Power Company

Prairie Island Nuclear Generating Plant

1717 Wakarusa Dr. East
Welch, Minnesota 55089

June 30, 1997

10 CFR Part 50
Section 50.73

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

PRAIRIE ISLAND NUCLEAR GENERATING PLANT

Docket Nos. 50-282 License Nos. DPR-42
50-306 DPR-60

LER 1-97-07, Rev 1

**Both Trains of Spent Fuel Pool Special Ventilation
Inoperable While Handling Load over Spent Fuel**

A revised Licensee Event Report for this occurrence is attached. The revised areas are indicated by sidebars. In the report, we are revising one NRC commitment which is contained in the italicized statements in the Corrective Actions section.

Please contact us if you require additional information related to this event.

Joel P Sorensen
Plant Manager
Prairie Island Nuclear Generating Plant

c: Regional Administrator - Region III, NRC
NRR Project Manager, NRC
Senior Resident Inspector, NRC
Kris Sanda, State of Minnesota

Attachment

9707090036 970630
PDR ADDCK 05000282
S PDR



1-1-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 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.

FACILITY NAME (1) Prairie Island Nuclear Generating Plant Unit 1	DOCKET NUMBER (2) 05000 282	PAGE (3) 1 OF 5
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TITLE (4)
Both Trains of Spent Fuel Pool Special Ventilation Inoperable While Handling Load over Spent Fuel

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
04	29	97	97	-- 07	-- 01	6	30	97	Prairie Island Unit 2	05000 306
									FACILITY NAME	DOCKET NUMBER
										05000

OPERATING MODE (9) **THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §:** (Check one or more) (11)

<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(2)(v)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)	<input type="checkbox"/> 50.73(a)(2)(viii)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)	<input type="checkbox"/> 50.73(a)(2)(x)
<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 73.71
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> OTHER
<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(1)	<input type="checkbox"/> 50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A
<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	

POWER LEVEL (10) 100

LICENSEE CONTACT FOR THIS LER (12)

NAME Jack Leveille	TELEPHONE NUMBER (Include Area Code) 612-388-1121
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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	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO			

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

On April 29, 1997 Prairie Island plant management, while reviewing the implications of a Quality Services Report, determined that when fuel handling operations have been in progress in the Spent Fuel Pool, both trains of the Spent Fuel Special Ventilation System have been momentarily out-of-service whenever plant personnel opened one of the personnel doors to gain entry into the spent fuel pool enclosure. Both trains of Spent Fuel Pool Special Ventilation are out-of-service when a door is opened. This condition is in violation of Technical Specification 3.8.D.3 which states: ". . . suspend all fuel handling operations and crane operations with loads over spent fuel (inside the spent fuel pool enclosure)" when both trains are out-of-service. The last occurrence of this condition took place at approximately 1630 on February 6, 1997 while Unit 2 was in refueling mode and refueling operations was nearing completion. The ventilation system returned to service almost immediately when the door automatically shut behind the personnel. No other equipment was out-of-service or faulted during the event and no operator action was taken as personnel were not aware the action constituted a violation. Procedure changes will be put in place that will require that all (except personnel) doors be closed when handling fuel or crane operations with loads over spent fuel prior to the next movement of loads or fuel in the enclosure.

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

EVENT DESCRIPTION

On April 29, 1997, Prairie Island plant management, while reviewing the implications of Quality Services Report AG 1997-O-1, Observation Report OR 1997-057, and Finding FG 97-033 determined that when fuel handling operations have been in progress in the Spent Fuel Pool¹, both trains of the Spent Fuel Special Ventilation System² have been momentarily out-of-service whenever plant personnel opened one of the personnel doors to gain entry into the spent fuel pool enclosure. Both trains of Spent Fuel Pool Special Ventilation are out-of-service when a door is opened. This condition is in violation of Technical Specification 3.8.D.3 which states: "... suspend all fuel handling operations and crane operations with loads over spent fuel (inside the spent fuel pool enclosure)" when both trains are out-of-service. The last occurrence of this condition took place at approximately 1630 on February 6, 1997 while Unit 2 was in refueling mode and refueling operations was nearing completion. The ventilation system returned to service almost immediately when the door automatically shut behind the personnel. No other equipment was out-of-service or faulted during the event and no operator action was taken as personnel were not aware the action constituted a violation.

CAUSE OF THE EVENT

Reassessment of the Technical Specifications Interpretations concluded that the interpretation associated with TS 3.8.D.3 did not meet the literal requirements of the specification.

ANALYSIS OF THE EVENT

The Prairie Island spent fuel pools are located within the auxiliary building between the Unit 1 and Unit 2 containment buildings and serve both units. The pools are situated inside a seismically qualified structure, the spent fuel pool enclosure, which is integral with the pool structure and serves to protect the pools from missiles generated by tornadoes and as a ventilation zone boundary for the Spent Fuel Pool Special Ventilation system.

The enclosure completely encloses both spent fuel pools, the new fuel storage pit, and spent fuel pool handling crane³. The auxiliary building crane, a large overhead crane, passes over the top of the enclosure. The structure contains seven door openings and a roof slot (see Figure 1). At the four corners of the structure are personnel access doors which are of normal size. At approximately the center of the enclosure, on either side, are 2 full enclosure height openings with double doors which

¹ (EIS System Identifier: FD)

² (EIS System Identifier: VG)

³ (EIS System Identifier: DB; CFN)

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serve as access for large equipment such as casks. On one side is a third large single-door opening that is used to transfer new fuel into the enclosure for storage in the new fuel pit. Finally in between the double-doored openings is a roof slot with moveable panels. This opening, along with the large double-doored openings, provide for passage for large equipment through the structure, suspended by the auxiliary building crane.

The Spent Fuel Pool Special Ventilation system contains 2 independent 100% ventilation trains. The system removes air from the spent fuel pool enclosure, passes it through PAC and charcoal filters and exhaust it to the atmosphere. The trains of the system are automatically started on a high radiation signal from detectors in the ducting of the normal ventilation exhaust. In order for the Spent Fuel Pool Special Ventilation System to be able to create a negative pressure in the enclosure structure all the openings must be closed. Prairie Island's Technical Specifications state in paragraph 3.8.D that when both trains of Spent Fuel Pool Ventilation System are out-of-service: "suspend all fuel handling operations and crane operations with loads over spent fuel (inside the spent fuel pool enclosure)." Thus by simply opening a personnel door both ventilation trains are out-of-service for the time that the door is open and TS 3.8.D applies.

During the Quality Assurance Audit AG 1997-0-1, "Operations' Technical Specifications and Surveillance Program", the audit team found technical specification interpretation (TSI) 3.8-3 in conflict with the verbatim requirement of the actual technical specification. This finding led to the conclusion that if fuel handling or handling of loads over spent fuel had occurred at anytime in the past when any door was opened, PI would have been in violation of the technical specification and thus the occurrence would be reportable under 10 CFR 50.73(a)(2)(i)(B). Based upon this conclusion, the last time activities took place inside the spent fuel pool enclosure, which was fuel handling on February 6, 1997, the violation would have occurred. This has occurred historically throughout plant operation.

As was stated above the previous interpretation of the spent fuel pool special ventilation operability requirements were that momentarily opening the personnel door, or even temporarily propping a personnel door open, was acceptable because the door is automatically closed, or manually closed within a short period of time, if a problem were to occur, with the exception of large loads moved through the enclosure with the auxiliary building crane. These actions quickly render the ventilation system operable. Moreover the abnormal operating procedure associated with a dropped fuel assembly, D5.1 AOP1 and D5.2 AOP2, specifies, as one of its first actions, that the enclosure must be verified completely closed. Finally, the design of the enclosure necessitates this very problem because in order for the personnel inside the enclosure to evacuate they will be required to open the door to exit. The fact that the enclosure can easily and quickly be closed up, that the action is proceduralized, that training is performed on the use of these procedures, and that diffusion of radioactive gases is not instantaneous ensure that the occurrences have not jeopardized health and safety of the public.

Note: The Fuel Handling Accident in the Spent Fuel Pool has been re-analyzed to allow personnel ingress and egress through the personnel doors and evacuation after a fuel handling

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accident. This analysis was documented in Safety Evaluation 50-475 and reviewed by the Operations Committee on 6-27-97. The analysis recalculated the radiological doses with unfiltered discharge during the time a door is open; the resulting higher doses are not significantly higher and are less than half of the acceptance criteria of Regulatory Guide 1.25. This only applies to the personnel doors and does not allow these doors to be blocked open.

The one exception is handling of large loads which are transferred through the enclosure with the auxiliary building crane because the openings cannot be easily and quickly closed. However, in these cases the load is handled as a heavy load under the requirements of NUREG-0612 which makes the likelihood of a drop extremely small and, therefore, health and safety of the public are not jeopardized by these heavy load moves either.

CORRECTIVE ACTION

Technical Specification Interpretation 3.8-3 has been deleted.

Other corrective actions associated with this event are two-fold, interim and long term. *As an interim action, procedure changes will be put in place that will require that all (except personnel) doors be closed when handling fuel or crane operations with loads over spent fuel -- this action completely eliminates the use of the auxiliary building crane with loads directly over spent fuel. In support of the procedure changes will be special training to those plant personnel who could be involved in work in the enclosure. The procedural changes and training will be completed prior to the next movement of loads or fuel in the enclosure.*

As a long term permanent action Technical Specification 3.8.D will be revised to recognize the fact that personnel can momentarily have the personnel door open and the ventilation system can be out-of-service if the requirements of NUREG-0612 are applied. A License Amendment Request (LAR) has been prepared and was submitted for this purpose on May 7, 1997.

FAILED COMPONENT IDENTIFICATION

None

PREVIOUS SIMILAR EVENTS

Other events involving decisions in conflict with Technical Specifications operability requirements were reported as: Unit 1 LER 95-06 and Unit 2 LERs 97-02 & 90-11.

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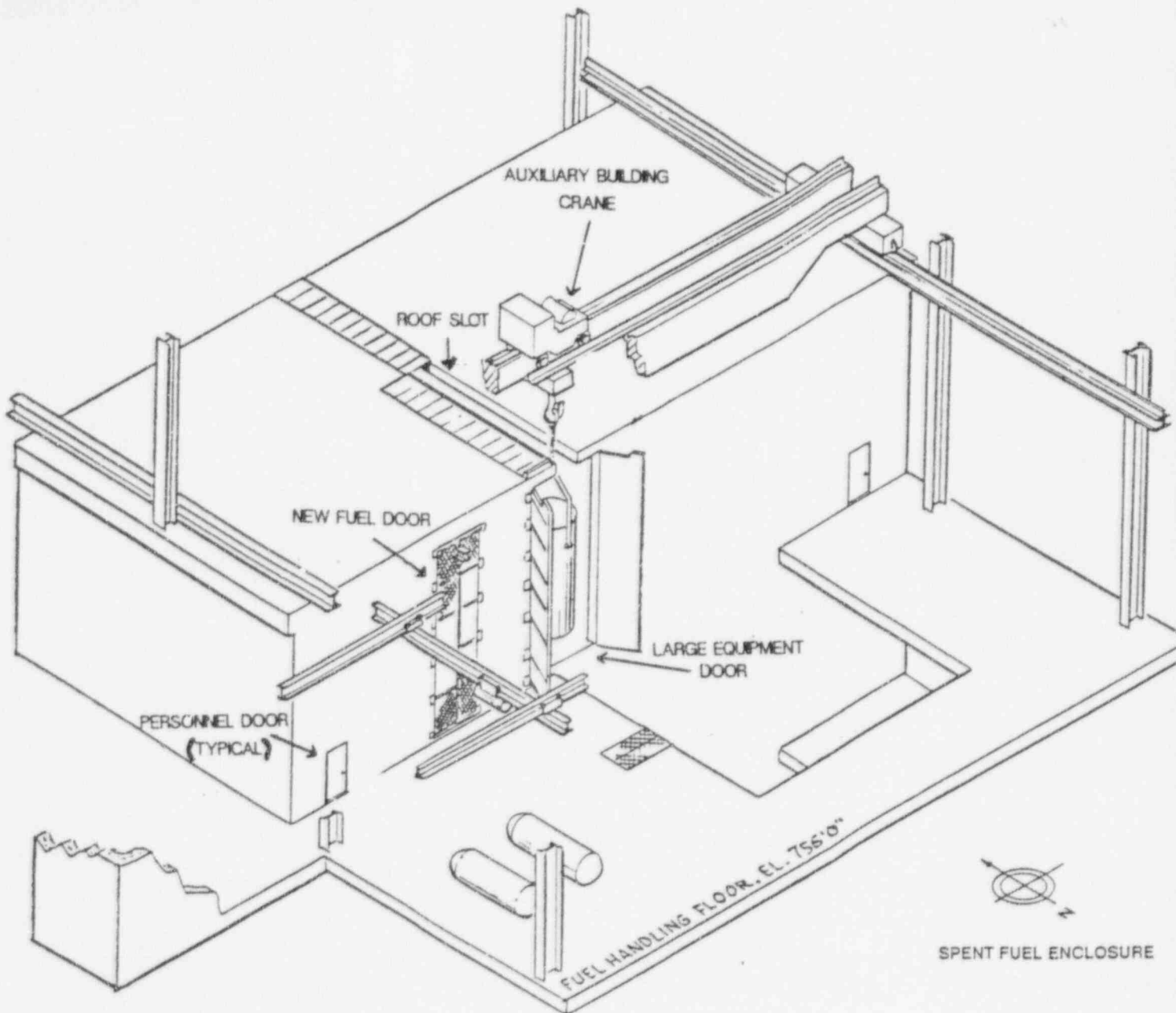


FIGURE 1