The NRC staff has received a 10 CFR Part 21 notification from the Washington Power Supply System (WPPS). The notification addresses the discovery of an unmonitored radiological release path at the Washington Nuclear Plant, Unit 2, that was caused by a design error by the architect/engineer, Burns & Roe Inc.

The staff has concluded that although the deficiency at WPPS may be an isolated design oversight, the Nebraska Public Power Districts should be made aware of the deficiency since, Burns & Roe also served as the architect/engineer for Cooper Nuclear Station. Therefore, the staff is forwarding the enclosed Licensee Event Report from WPPS for your information.

Sincerely,

15/

Paul W. O'Connor, Project Manager Project Directorate - IV, Division of Reactor Projects - III, IV, V and Special Projects Office of Nuclear Reactor Regulation

Enclosure: As stated

cc w/enclosure: See next page

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UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON, D. C. 20555 March 8, 1989

Mr. George A. Trevors, Division Manager - Nuclear Support Nebraska Public Power District Post Office Box 499 Columbus, Nebraska 68601

Dear Mr. Trevors:

SUBJECT: 10 CFR PART 21 NOTIFICATION

The NRC staff has received a 10 CFR Part 21 notification from the Washington Power Supply System (WPPS). The notification addresses the discovery of an unmonitored radiological release path at the Washington Nuclear Plant, Unit 2, that was caused by a design error by the architect/engineer, Burns & Roe Inc.

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Sincerely,

Paul W. O'Connor, Project Manager Project Directorate - IV.

Division of Reactor Projects - III,

IV, V and Special Projects Office of Nuclear Peactor Regulation

Enclosure: As stated

cc w/enclosure: See next page cc: Mr. G. D. Watson, General Counsel Nebraska Public Power District P. O. Box 499 Columbus, Nebraska 68601

Cooper Nuclear Station
ATTN: Mr. Guy R. Horn, Division
Manager of Nuclear Operations
P. O. Box 98
Brownville, Nebraska 68321

Dennis Grams, Director
Nebraska Department of Environmental
Control
P. O. Box 98922
Lincoln, Nebraska 68509-8922

Mr. Larry Bohlken, Chairman Nemaha County Board of Commissioners Nemaha County Courthouse 1824 N Street Auburn, Nebraska 68305

Senior Resident Inspector U.S. Nuclear Regulatory Commission P. O. Box 218 Brownville, Nebraska 68321

Regional Administrator, Region IV U.S. Nuclear Regulatory Commission 611 Ryan Plaza Drive, Suite 1000 Arlington, Texas 76011

Mr. Harold Borchart, Director Division of Radiological Health Department of Health 301 Centennial Mall, South P. O. Box 95007 Lincoln, Nebraska 68509-5007 US NUCLIAN MIGULATON - CUMMISSIUM APPROVED OME NO 1150 0104

LICENSEE EVENT REPORT (LER)

PACILITY NAME (1) OFO 0 15 10 10 10 10 19 17 Washington Nuclear Plant - Unit 2 Potential Unmonitored Effluent Release Path Due To Design Error By Architect/Engineer Cause Unknown OTHER FACILITIES INVOLVED IS EVENT DATE IS ALPOR' DATE : 71 LER NUMBER IS 34415 51 JUIN' 41 MUN' DA . 0 15 10 10 10 1 0 15 10 10 10 1 012 6 00 6 8 8 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF TO LES ; *) *110 210 406 15 13 11101 60 36 ret 11 90 13.4 7 ... 000 20 406 ia 11 1 ... 80 134 11211 10CFR Part 21 60 13w1(211-1 80 13w (2) PO ACE .: LICENSEE CONTACT FOR THIS LER ITZ 1 . 1 - 'NI S WAT 4441 5019137171-81080 Steven L. Washington, Compliance Engineer COMPLETE ONE LINE FOR EACH COMPONENT FAILURY DESCRIBED IN THIS REPORT 13 CALSE 5.5" 6" COMPONEN' SUPPLEMENTAL REPORT EXPECTED TA

On May 6, 1988 a Plant Design Engineer determined that under certain emergency conditions an unmonitored radiological effluent release path from the Turbine Building through Diesel Generator Corridor (D104) to the atmosphere could exist. The cause of this event is design error. Fan DEA-FN-51, which exhausts directly to the atmosphere during both normal and emergency operation, was part of the original Plant design done by Burns & Roe Inc. The effluent path through DEA-FN-51 should have been evaluated for effluent monitoring instrumentation in accordance with Regulatory Guide 1.97. WNP-2 committed to monitor noble gas effluents in Appendices B and C of the Final Safety Analysis Report (FSAR). The root cause of this event is unknown. During normal and most emergency operations there is no effect since DEA-FN-51 is supplied clean outside air by the Turbine Building HVAC System, or during some emergencies by the DG Area Cable Cooling System. However, during some postulated post-accident conditions it is possible that DEA-FN-51 could pull air from the Turbine Building and exhaust it directly to the atmosphere. The most severe accident (radiologically) in the turbine building is a main steamline break which could generate a source term concentration of $3.312 \times 10^{-4} \text{uCi/cc}$. The above concentration is within the range specified in Regulatory Guide 1.97 for which effluent monitoring is required. The effects of a main steamline break in the Turbine Building, with a total release to the environment, have been analyzed and the consequences of this potential event reviewed and accepted. The immediate corrective actions taken included: an engineering assessment which determined that DEA-FN-51 was not required for cable cooling during normal or emergency conditions, disabling the fan by pulling its power fuses, and closing the back draft damper. Corrective actions to be taken include: removal of fan DEA-FN-51 and its accessories, sealing the opening created by the removal of the fan, and a design review to ensure that no other potential IF22 Regulatory Guide 1.97 unmonitored leakage paths exist.

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Plant Conditions

a) Power Level - 0%

b) Plant Mode - 5 (Refueling)

Event Description

On May 6, 1988 a Plant Design Engineer determined that under certain emergency conditions an unmonitored radiological effluent release path from the diesel generator corridor to the atmosphere could exist. The Plant Design Basis includes an FSAR Appendix B II.F.1.1 commitment to monitor noble gas effluent and an Appendix C FSAR commitment to meet the intent of Regulatory Guide 1.97. This potential release path was being investigated due to a concern raised by a Plant System Engineer.

The Diesel Generator Area Cable Cooling System is designed to cool critical electrical cabling during normal and emergency conditions. The system cools cabling which runs between the emergency diesel generators and the main control room and critical switchgear room. The System is comprised of two independent and separate systems which cool areas containing both Division 1 and Division 2 cable. The failure of one system will not affect the operational functions of the other cooling system. The cable cooling system, which is shown in Figure 1, is comprised of two exhaust fans (DEA-FN-51 and DEA-FN-52) powered from the Division 1 emergency power bus and one supply air handling unit (DMA-AH-51) powered from the Division 2 emergency power bus. During normal Plant operation DEA-FN-51 runs continuously and exhausts directly to the atmosphere. DEA-FN-52 also runs continuously and discharges to the Radwaste Building. DMA-AH-51 is normally in standby. When DMA-AH-51 is running it draws air from the outside when the outside temperature is above 40°F or recirculates room air if the temperature is below 40°F. If not already in service, both DEA-FN-51 and DEA-FN-52 auto start when the Division 1 diesel generator is started and DMA-AH-51 auto starts when the Division 2 diesel generator is started.

During normal Plant operations DEA-FN-51 draws clean air down the diesel generator corridor (D104) which is supplied by the Turbine Building HVAC System. During some emergency conditions DEA-FN-51 and DEA-FN-52 are supplied outside air by the supply air handling unit (DMA-AH-51) when the outside air temperature is greater than 40°F or recirculated room air when the temperature is less than 40°F. However, if during these emergency conditions DMA-AH-51 is not operable, air from the Turbine Building could be drawn in by DEA-FN-51 and exhausted to the atmosphere. A main steamline break in the Turbine Building would result in a source whose maximum concentration is 3.312×10^{-4} uCi/cc. (The source concentration was calculated by dividing the total main steamline break source by 10% of the volume of the Turbine Building.) The above concentration level is within the range specified in Regulatory Guide 1.97 Table 2 (between 10^{-6} uCi/cc and 10^{2} uCi/cc) and, therefore, this release path should have been monitored.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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Immediate Corrective Actions

An Engineering Assessment determined that DEA-FN-51 was not required for cable cooling during normal or emergency conditions. The fan was disabled by removing its power fuses and by closing the back draft damper.

Further Evaluation

There were no Plant structures, components, or systems inoperable at the start of this event that contributed to this event.

The cause of this event is a design error. This fan was part of the original Plant design done by Burns & Roe Inc., the Architect/Engineer for WNP-2, and should have been evaluated in accordance with Regulatory Guide 1.97. The root cause of this event can not be determined.

This event is reportable per 10CFR50.73(a)(2)(ii)(B) and 10CFR Part 21. The Plant was in a condition outside its design basis.

Further Corrective Actions to be Taken

A Plant Modification Request is being processed to remove DEA-FN-51 and its associated accessories and to seal the opening created by the removal of the fan.

A Plant Design Review will be performed to verify that no other potential unmonitored release paths requiring monitoring by Regulatory Guide 1.97 exist. Burns & Roe, Inc. will be notified of the 10CFR Part 21 determination.

Safety Significance

The maximum potential release through this path would be the entire source generated by a main steamline break. This release has been analyzed (FSAR, Chapter 15, Section 15.6.4) and found acceptable even if all the activity is released directly to the environment. Therefore, the consequences of this potential event have been previously reviewed and accepted. Since an actual emergency condition did not occur during the event period, this event posed not threat to the health and safety of the public or Plant personnel.

Similar Events

None

EIIS Information

Text Reference

EIIS Reference

System Component

Diesel Generator Corridor

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EIIS Information

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Text Reference	EIIS Reference	
	System	Component
Diesel Generator Area Cable Cooling System exhaust fan (DEA-FN-51)	٧J	FAN
Turbine Building HYAC	VK	
Diesel Generator Area Cable Cooling System Supply air Handling		
Unit (DMA-AH-51)	VJ	AHU
Turbine Building	MM	
Main Steamline	SB	PSP
Diesel Generator Area Cable Cooling System	VJ	
Division 1 Diesel Generator	EL	DG
Division 2 Diesel Generator	EL	DG
Main Control Room	NE	
Critical Switchgear Room	NE	
Diesel Generator Area Cable Cooling System exhaust fan (DEA-FN-52)	٧J	FAN
Division 1 emergency power bus	EL	BU
Divison 2 emergency power bus	EL	BU
Radwaste Building	NE	
Reactor Building	NG	

19.431 Ferm 284.4 LICENSEE EVENT REPORT (LER) TEXT CONTINUATION APPROVED ONE NO 3150-0104 Exmats a 11 m DOCKET NUMBER (2) ---PAGE 130 FACILITY MARE (1) 51 0 U1 % 1 . A. m1 1 8 10 4 -140 0 | 5 | 0 | 0 | 0 | 3 | 9 | 7 8 | 8 01112 010 015 05 0 15 Washington Nuclear Plant - Unit 2 TOCT IN mean species & responsel, was additional holic forms 2004 to (17) ATHOSPHERE SERVICE BUILDING - 10 DEA-FN-51 D-104 DIECEL REACTOR GENERATOR CURRIDOR BUILDING BUILDING DEA-EN-SZETIO RADVASTE TURBINE BUILDING -G-DAMPER TURBINE BLDG HVAC SUPPLY RADWASTE BUIL DING FIGURE 1 ##C *ORW 3864 . U 5 GPO 1988 0 874 538-455

US MUCLEAR REQUESTORY COMMISSION