Nebraska Public Power District

COOPER NUCLEAR STATION P.O. BOX 98, BROWNVILLE, NEBRASKA 66 21 TELEPHONE (402)825-3811 FAX (402)825-5811 ----

NL3950107

May 15, 1995

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

Dear Sir:

Cooper Nuclear Station Licensee Event Report 95-010 is forwarded as an attachment to this letter.

Powerfui Pride in Nebraska

Sincerely,

den J. T. Herron Plant Manager

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CC:

Attachment

L. J. Callan G. R. Horn J. H. Mueller R. G. Jones R. A. Sessoms K. C. Walden R. L. Koch INPO Records Center NRC Resident Inspector R. J. Singer CNS Training CNS Quality Assurance

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## Plant Status

The plant was at 100 percent power at the time of discovery of the event.

## Event Description

DC 94-332 was installed in December 1994 and changed the position of the RHR minimum flow valves (RHR-MOV-MO16A/B) from normally closed to normally open. During closeout of the DC an unanalyzed condition (based on the pre-DC 94-332 design) was discovered on April 13, 1995.

During an 80% RR discharge line break LOCA, without a LOOP and a single failure of one electrical distribution bus the minimum flow value in the non-LOCA affected RHR loop would have been prevented from opening. With the minimum flow value closed, pump failure due to dead-heading may have occurred before RCS pressure decreased sufficiently to allow cublant injection. Additionally, the postulated loss of one electrical distribution bus would result in the loss of one of the two CS pumps. The current CNS ECCS LOCA analysis for RR discharge line break requires injection from two independent ECCS pumps (e.g., both (S pumps or one CS and one RHR pump). Therefore, CNS did not meet the design basis requirements in that it is postulated that only one CS pump would be available for core cooling.

The RHR pump manufacturer (Sulzer Bingham) has stated that running the pumps dead-he ded for up to 20 seconds will not result in any immediate damage. However, the vendor will not qualify the pumps for greater than 20 seconds. Thus, if the minimum flow valve had filled to open, the RHR pumps would have needed to start injecting into the vessel within 20 seconds after the pumps were at rated speed to ensure they would not be damaged due to dead-heading.

Normally the worst case accident involves a LOCA with a concurrent LOOP. In the ecentric described above, the worst case accident is a LOCA without a LOOP. The reason for this is that the RHR pumps start earlier in the event, therefore, less time is available for the RCS pressure to decrease sufficiently to allow injection to commence before pump damage occurs.

The RHR pump is up to speed in approximately 13 seconds. With the addition of the 20 second pump manufacturer's criteria, the earliest an adverse dead-heading condition could have occurred is at about 33 seconds. This is less than the GE calculated time of 43 seconds for when the RHR pump would be able to inject into the vessel. The availability of the RiR pump, prior to DC 94-332, for an 80% RR discharge line break with the above scenario could not be guaranteed. (NOTE: Smaller breaks (i.e., less than 80%) are expected to take longer than 43 seconds for RCS depressurization. These smaller breaks have not been specifically analyzed for CNS).

## Cause

The design basis of the plant was not appropriately integrated into a design change. Originally, the position of the RHR minimum flow valves was not a concern because the Low Pressure Coolant Injection (LPCI) loop selection control logic ensured that at least two RHR pumps would be available for injection. DC 76-2, <u>LPCI Modification</u> removed the LICI .

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The RHR minimum flow valv criticality. A proper des still within its design b removed and the minimum f	e normal standby ign review was n asis requirement low valve normal	line-up had be ot performed or s with the LPCI ly closed.	en cl DC 7 L loop	osed since 6-2 to veri selection	initial fy that control	CNS v logi	as	
safety Significance								
Prior to DC 94-332, a sing minimum flow valve in the led to pump breakdown and would have been left for a 176, <u>Preliminary Safety F</u>	gle failure of o non-LOCA affect loss of that RH adequate core co valuation For RH	ne electrical o ed RHR loop fro R loop as well. oling following R Pump Bypass V	istri om open In the the l lalves	bution bus hing. This his scenari LOCA. GE do states in	could pr conditio o only c cument, part:	G-HPC	ch ha pu -6-	e ve mp
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Although CNS has not been evaluation, GE has analyze program and found that one has been concluded that th	specifically an ad similar vinta cS pump is suf ne safety signif	alyzed for the ge plants as CN ficient for thi icance of this	scenar IS usin Is type event	tio present ng the SAFR of accide is minimal	ed in th /GESTR c nt. Ther	nis comput efore	ar , i	t
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CNS implemented DC 94-332 normally open.	which changed th	he RHR minimum	flow	valves from	normall	y clo	iad	to
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LER	94-011	ł	Primary Containment Penetrat. During Design Basis Reconsti-	ion Design and tution Activiti	Testi. .es	ng Deficien	cies Dis	¢cive.	eđ	
LER	94-016		Noncompliance with 10 CFR 50 Generator Control Circuits	Appendix R, In	adequi	ate Isolati.	on o' Di	esel		
LER	94-018	ĩ	Reactor Core Isolation Cooling System Trip and Throttle Valve Design Deficiency due to the Reset Motor Being Powered by AC Instead of DC							
LER 1	94-021		Design Error That Allows Spun Selemic Event	rious DG Room H	VAC I	solation Du	ring a F	ire	) E	생
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## Correspondence No: NLS950107

The following table identifies those actions committed to by the District in this document. Any other actions discussed in the submittal represent intended or planned actions by the District. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Licensing Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITTED DATE OR OUTAGE
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