

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:8007210421 DOC.DATE: 80/07/11 NOTARIZED: NO  
 FACIL:50-269 Oconee Nuclear Station, Unit 1, Duke Power Co.  
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 RECIP.NAME REGION 2, Atlanta, Office of the Director

DOCKET #  
05000269

SUBJECT: LER 80-021/03L-0: on 800612, B High pressure infection makeup  
 liner found excessively hot. Apparently caused by 1HP-153  
 check value not seating properly, allowing water to flow into  
 1B1 cold leg.

DISTRIBUTION CODE: A002S COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4+1  
 TITLE: Incident Reports

NOTES: M Cunningham: all amends to FSAR & changes to Tech Specs. 05000269

ACTION:	RECIPIENT		COPIES		RECIPIENT	COPIES		
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	REID,R.	05	1	1	FAIRTILE,M.	06	2	2
INTERNAL:	A/D COMP&STRUCT		1	1	A/D ENV TECH		1	1
	A/D MATL & QUAL		1	1	A/D OP REACTORS		1	1
	A/D PLANT SYS		1	1	A/D RAD PROT		1	1
	A/D SFTY ASSESS		1	1	A/D TECHNOLOGY		1	1
	ACC EVAL BR		1	1	AEOD		10	10
	AUX SYS BR		1	1	CHEM ENG BR		1	1
	CONT SYS BR		1	1	CORE PERF BR		1	1
	D/DIR,HUM FAC S		1	1	DIR,ENGINEERING		1	1
	DIR,HUM FAC SFY		1	1	DIR,SYS INTEG		1	1
	EFF TR SYS BR		1	1	EMERG PREP		1	1
	EQUIP QUAL BR		1	1	GEOSCIENCES		1	1
	HUM FACT ENG BR		1	1	HYD/GEO BR		1	1
	I&C SYS BR		1	1	I&E	09	2	2
	JORDAN,E./IE		1	1	LIC GUID BR		1	1
	LIC QUAL BR		1	1	MATL ENG BR		1	1
	MECH ENG BR		1	1	MPA	11	3	3
	NRC PDR	02	1	1	OP EX EVAL BR		3	3
	OR ASSESS BR		1	1	POWER SYS BR		1	1
	PROC/TST REV BR		1	1	QA BR		1	1
	RAD ASSESS BR		1	1	REACT SYS BR		1	1
	<del>REG FILE</del>	01	1	1	REL & RISK A BR		1	1
	SFTY PROG EVAL		1	1	SIT ANAL BR		1	1
	STRUCT ENG BR		1	1	SYS INTERAC BR		1	1
EXTERNAL:	ACRS		16	16	LPDR	03	1	1
	NSIC	04	1	1	TERA:DOUG MAY		1	1

JUL 22 1980

TOTAL NUMBER OF COPIES REQUIRED: LTR 82 ENCL 82

DUKE POWER COMPANY  
OCONEE UNIT 1

Report Number: RO-269/80-21

Report Date: July 11, 1980

Occurrence Date: June 12, 1980

Facility: Oconee Unit 1, Seneca, South Carolina

Identification of Occurrence: Overheating in the "B" Loop High Pressure Injection Lines

Conditions Prior to Occurrence: 73% Full Power

Description of Occurrence:

On June 12, 1980, the "B" high pressure injection (HPI) emergency makeup lines were found to be excessively hot upstream of check valves IHP-152 and IHP-153 through check valve IHP-188 (see attached figure). Due to concerns about piping and hanger integrity, the "B" HPI line was isolated from the HPI System. Just prior to this, reactor power was reduced to below 60% full power as required by Technical Specification 3.3.1. This incident constitutes operation in a degraded mode and is reportable pursuant to Technical Specification 6.6.2.1.b(2).

Apparent Cause of Occurrence:

Valves IHP-152 and IHP-153 are located in the HPI lines feeding into the cold legs of the "B" steam generator. Reactor coolant pump 1B1 was out of service and this caused a 20 to 50 psi differential pressure across valves IHP-152 and IHP-153. Apparently the excessive heating of the piping was due to leakage past IHP-152. This valve, as well as IHP-153, is a stop check valve designed to prevent any upstream flow.

Evidently the IHP-152 check valve disk was not seating properly, and the pressure drop across it allowed reactor coolant water to flow past it and through IHP-153 into the 1B1 cold leg. Intermittent temperature measurements were taken upstream of valve IHP-188 in the penetration room and were found to stabilize at about 225°F. This heating was apparently due to convective and conductive heat transfer from the 556°F Reactor Coolant Water (RCW) within the injection loop between valves IHP-153, IHP-152 and IHP-188. There was no reason to suspect leakage past IHP-188.

Analysis of Occurrence:

The "B" injection train can take suction from the borated water storage tank. The water within this tank is about 90°F. There was concern about the effects of possible thermal shock to the system from the 90°F borated water encountering the 556°F RCW. Specific concerns were focused on the following problems:

Analysis of Occurrence (Continued):

- 1) Piping and valves exceeding pressure limits.
- 2) Effects of possible water hammer, thermal shock and heat transfer of HPI System.
- 3) Hanger and piping integrity during transient and steady state thermal stresses.

Duke Power Company evaluated the HPI system relative to the above concerns. It was concluded from this analysis that the piping system in question was capable of continuous operation at approximately 550°F with respect to pipe stress and pipe support considerations. Consequently, the "B" HPI train was restored to operability on June 13, 1980, approximately 22 hours after it was isolated and within the 24 hour limit specified by Technical Specification 3.3.1.

During the period in which the "B" HPI train was isolated, either of the two remaining HPI pumps would have been able to provide sufficient flow through the remaining injection line, had a need arisen for HPI actuation. Thus, this incident was not significant with respect to safe operation, and the health and safety of the public were not affected.

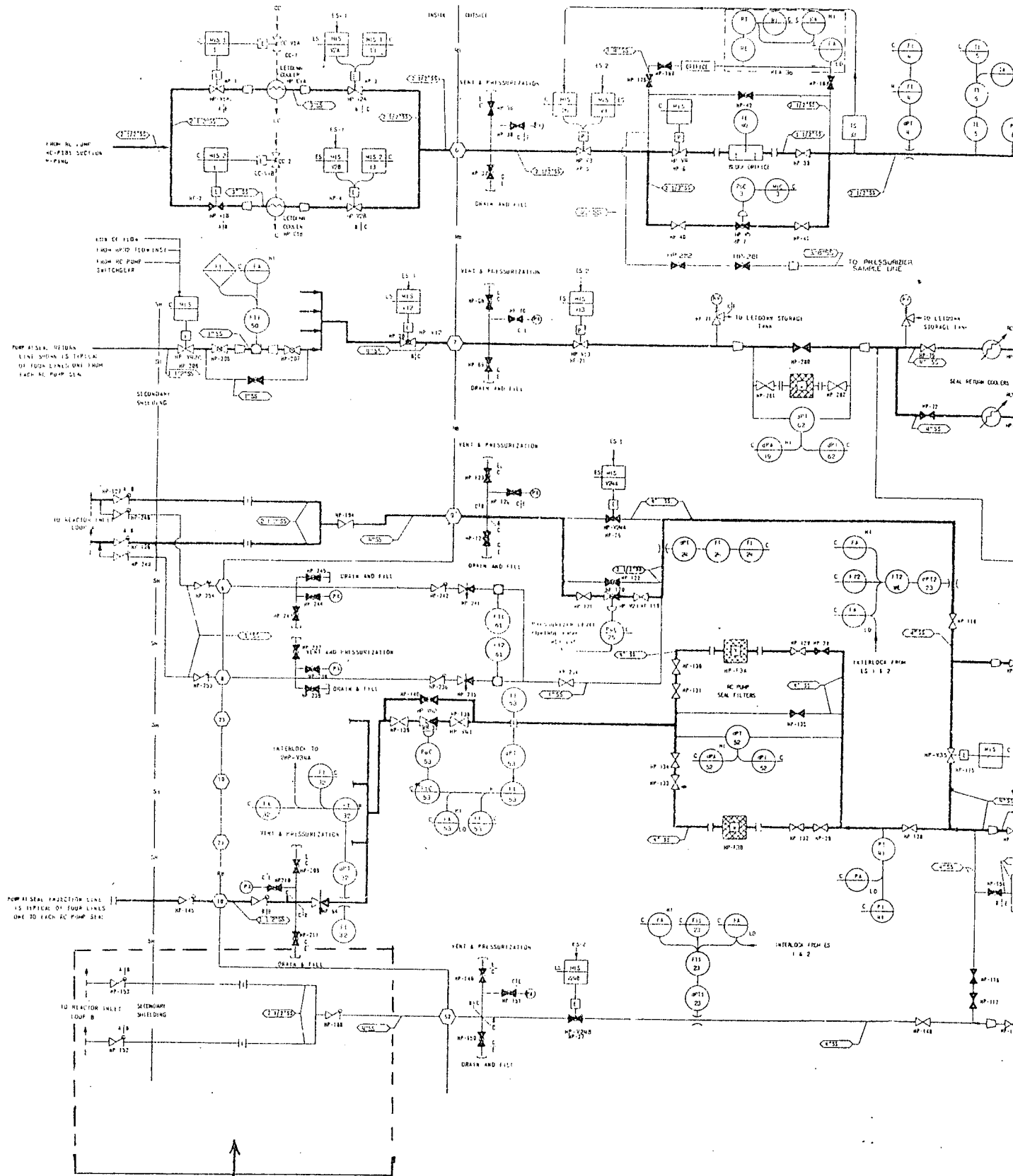
Corrective Action:

Upon discovery of the abnormally hot piping in the "B" HPI line, this piping was isolated from the HPI System. An evaluation by Duke Power Company was performed and concluded that safe operation of the system could continue despite the temperature increase. Thus, the "B" HPI line was restored to operability.

Valves 1HP-152 and 1HP-153 were inspected during the last Unit 1 outage (late June to early July 1980) and were successfully tested by a local leak rate test on July 2, 1980.

OCONEE UNIT 1

High Pressure Injection System  
(Reference Figure 4-2, Oconee Nuclear Station FSAR)



Region of High Temperatures

LICENSEE EVENT REPORT

EXHIBIT A

CONTROL BLOCK: \_\_\_\_\_ (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

01 | S | C | N | E | E | 1 | 2 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 3 | 4 | 1 | 1 | 1 | 1 | 4 | 5  
7 8 9 14 15 25 28 30 37 38  
 LICENSEE CODE LICENSE NUMBER LICENSE TYPE CAT 58

CONT  
 01 | R | E | P | O | R | T | S | O | U | R | C | E | L | 6 | 0 | 5 | 0 | 0 | 0 | 2 | 6 | 9 | 7 | 0 | 6 | 1 | 2 | 8 | 0 | 8 | 0 | 7 | 1 | 1 | 1 | 8 | 0 | 9  
7 8 80 81 68 69 74 75 89  
 REPORT SOURCE DOCKET NUMBER EVENT DATE REPORT DATE

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES 10

02 | The "B" HPI lines were found to be excessively hot. Reactor power was reduced  
 03 | from 73% to below 60% FP, and the "B" HPI train was isolated due to concerns  
 04 | over the effects of the high temperature on piping stress and support. An  
 05 | analysis of the piping confirmed safe operation at the elevated temperature, and  
 06 | the HPI line was restored to operability. The remaining HPI train was always  
 07 | available. Thus, this incident was not significant with respect to safe opera-  
 08 | tion, and the health and safety of the public were not affected.

09 | SYSTEM CODE S F 11 | CAUSE CODE E 12 | CAUSE SUBCODE B 13 | COMPONENT CODE V A L V E X 14 | COMP. SUBCODE C 15 | VALVE SUBCODE A 16  
9 10 11 12 13 18 19 20  
 17 | LER/RO REPORT NUMBER 8 0 21 | SEQUENTIAL REPORT NO. 0 2 1 24 | OCCURRENCE CODE 0 3 28 | REPORT TYPE L 30 | REVISION NO. 0 32  
 ACTION TAKEN X 18 | FUTURE ACTION Z 19 | EFFECT ON PLANT B 20 | SHUTDOWN METHOD Z 21 | HOURS 0 0 2 2 37 | ATTACHMENT SUBMITTED Y 23 | NPRO-4 FORM SUB. Y 24 | PRIME COMP. SUPPLIER L 25 | COMPONENT MANUFACTURER X 9 9 9 9 26

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS 27

10 | A pressure difference across cold legs 1B1 and 1B2 resulting from inactive RCP  
 11 | 1B1, coupled with leakage past the "B" HPI line check valve, allowed a back-  
 12 | cycling of RCW through the "B" HPI lines. An analysis of this piping confirmed  
 13 | acceptable operation at the elevated temperature. The check valve was  
 14 | inspected and successfully leak rate tested during the last outage.

13 | FACILITY STATUS E 28 | % POWER 0 7 3 29 | OTHER STATUS NA 30 | METHOD OF DISCOVERY B 31 | DISCOVERY DESCRIPTION Routine inspection of reactor building 32  
7 8 9 10 12 13 44 45 46 48

16 | ACTIVITY CONTENT RELEASED OF RELEASE Z 33 | AMOUNT OF ACTIVITY NA 35 | LOCATION OF RELEASE NA 36  
7 8 9 10 11 44 45 48

17 | PERSONNEL EXPOSURES NUMBER 0 0 0 37 | TYPE Z 38 | DESCRIPTION NA 39  
7 8 9 11 12 13

18 | PERSONNEL INJURIES NUMBER 0 0 0 40 | DESCRIPTION NA 41  
7 8 9 11 12

19 | LOSS OF OR DAMAGE TO FACILITY TYPE Z 42 | DESCRIPTION NA 43  
7 8 9 10

20 | PUBLICITY ISSUED N 44 | DESCRIPTION NA 45  
7 8 9 10

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