

# PRIORITY 1

ACCELERATED RIDS PROCESSING

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9409190360    DOC. DATE: 94/09/09    NOTARIZED: NO    DOCKET # 05000397  
 FACIL: 50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe  
 AUTH. NAME    AUTHOR AFFILIATION  
 PARRISH, J.V.    Washington Public Power Supply System  
 RECIP. NAME    RECIPIENT AFFILIATION  
                  Document Control Branch (Document Control Desk)

SUBJECT: Informs that Agastat relay robbin failures was not reportable event per requirements of 10CFR21 or 50.73.

DISTRIBUTION CODE: A001D    COPIES RECEIVED: LTR 1 ENCL 0 SIZE: 2  
 TITLE: OR Submittal: General Distribution

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR ENCL
	PD4-2 LA	1	PD4-2 PD	1
	CLIFFORD, J	2		
INTERNAL:	ACRS	6	<u>FILE CENTER</u> 01	1
	NRR/DE/EELB	1	NRR/DRCH/HICB	1
	NRR/DRPW	1	NRR/DSSA/SPLB	1
	NRR/DSSA/SRXB	1	NUDOCS-ABSTRACT	1
	OC/LFDCB	1	OGC/HDS3	1
EXTERNAL:	NOAC	1	NRC PDR	1

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 504-2083) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

TOTAL NUMBER OF COPIES REQUIRED: LTTR 21 ENCL 19

P  
R  
I  
O  
R  
I  
T  
Y  
  
1  
  
D  
O  
C  
U  
M  
E  
N  
T



WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352-0968 • (509) 372-5000

September 9, 1994  
GO2-94-213

Docket No. 50-397

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

Gentlemen:

Subject: **WNP-2, OPERATING LICENSE NPF-21  
AGASTAT RELAY BOBBIN FAILURES  
DUE TO THERMAL BREAKDOWN**

- References:
- 1) GE SIL 384, dated October 1982, "Connection Failures in Agastat Relay Type CR0095 Bases"
  - 2) SER 71-82 (OER 82092A), dated December 1982, "Connection Failures in Agastat Relay Type CR0095 Bases"
  - 3) SER 82068 (OER 82100B), dated January 1984, "Problems Encountered with Certain Agastat GP Series Relays"
  - 4) IEN 84-20 (OER 84029A), dated March 1984, "Service Life of Relays in Safety Related Systems"
  - 5) INP OE 4040, dated July 1990, "Failure of Normally Energized Relays During Safeguards Test"

As discussed below, WNP-2 recently experienced failures of Amerace Corporation Agastat type EGPI relays. This condition was determined to be not reportable per the requirements of either 10 CFR 21 or 10 CFR 50.73. The information provided below is for your use.

Recent failures of Agastat type EGPI relays that were normally energized during power operation prompted an evaluation of the associated failure mechanism. From this evaluation, engineering determined that the nylon bobbin of the EGPI relay deteriorates after prolonged exposure to high temperature. The rate of deterioration depends on relay coil temperature. The

9409190360 940909  
PDR ADOCK 05000397  
P PDR

Aool  
11/0



Page Two

**AGASTAT RELAY BOBBIN FAILURES  
DUE TO THERMAL BREAKDOWN**

coil temperature generated in a mild environment is high enough to cause deterioration. The failure mode is cracking and structural breakdown of the coil bobbin; in turn, this breakdown can impede the moving relay core's motion and thus preclude the relay contacts from changing state. Other Amerace Corporation relay models having the same bobbin materials and thus potentially being susceptible to this failure mechanism are GPB, GPD, GPI, EGPB, and EGPD. The "E" series relays are nuclear grade. The Supply System uses these nuclear-grade model relays in Nuclear Steam Supply Shutoff and Emergency Core Cooling System actuation instrumentation.

Should you have any questions or desire additional information regarding this matter, please call me or Mr. D. A. Swank at (509) 377-4563.

Sincerely,



J. V. Parrish (Mail Drop 1023)  
Assistant Managing Director, Operations

KEB/bk

cc: LJ Callan - NRC RIV  
KE Perkins, Jr. - NRC RIV, Walnut Creek Field Office  
NS Reynolds - Winston & Strawn  
JW Clifford - NRC  
DL Williams - BPA/399  
NRC Sr. Resident Inspector - 927N



Figure 1 shows a schematic diagram of a 2D hexagonal lattice. The lattice is composed of solid circles representing atoms. A central atom is labeled 'A'. To its right is an atom labeled 'B'. Above 'A' is an atom labeled 'C'. Below 'A' is an atom labeled 'D'. To the left of 'A' is an atom labeled 'E'. To the right of 'B' is an atom labeled 'F'. The lattice extends to the right and upwards. A dashed line connects atom 'A' to atom 'F'. A solid line connects atom 'A' to atom 'C'. A solid line connects atom 'A' to atom 'D'. A solid line connects atom 'A' to atom 'E'. A solid line connects atom 'A' to atom 'B'. A solid line connects atom 'B' to atom 'F'. A solid line connects atom 'C' to atom 'F'. A solid line connects atom 'D' to atom 'F'. A solid line connects atom 'E' to atom 'F'. A solid line connects atom 'F' to atom 'A'.

1. The first group of students (Group A) was assigned to the traditional lecture method. They received a 45-minute lecture on the topic of "The Role of the Teacher in the Classroom."

2. The second group of students (Group B) was assigned to the interactive method. They participated in a 45-minute interactive session where they discussed the role of the teacher in the classroom.

3. The third group of students (Group C) was assigned to the self-paced method. They completed a self-paced module on the role of the teacher in the classroom.

4. The fourth group of students (Group D) was assigned to the blended method. They completed a self-paced module on the role of the teacher in the classroom, followed by a 45-minute interactive session.

5. The fifth group of students (Group E) was assigned to the flipped method. They completed a self-paced module on the role of the teacher in the classroom, followed by a 45-minute lecture.

6. The sixth group of students (Group F) was assigned to the flipped method. They completed a self-paced module on the role of the teacher in the classroom, followed by a 45-minute interactive session.

7. The seventh group of students (Group G) was assigned to the flipped method. They completed a self-paced module on the role of the teacher in the classroom, followed by a 45-minute lecture.

8. The eighth group of students (Group H) was assigned to the flipped method. They completed a self-paced module on the role of the teacher in the classroom, followed by a 45-minute interactive session.

9. The ninth group of students (Group I) was assigned to the flipped method. They completed a self-paced module on the role of the teacher in the classroom, followed by a 45-minute lecture.

10. The tenth group of students (Group J) was assigned to the flipped method. They completed a self-paced module on the role of the teacher in the classroom, followed by a 45-minute interactive session.