

# ACCELERATED DOCUMENT DISTRIBUTION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9406060198 DOC. DATE: 94/05/26 NOTARIZED: NO DOCKET #  
 FACIL: 50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397  
 AUTH. NAME AUTHOR AFFILIATION  
 HUGO, B. Washington Public Power Supply System  
 RECIP. NAME RECIPIENT AFFILIATION  
 NRC - No Detailed Affiliation Given

SUBJECT: Part 21 rept re Automatic Switch Co replacement solenoid  
 pilot valve diaphragms supplied by GE Nuclear Energy. Unusual  
 combination of scram solenoid pilot valve pressure & exhaust  
 diaphragm degradation caused failure of rod to scram.

DISTRIBUTION CODE: IE19D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 4  
 TITLE: Part 21 Rept (50 DKT)

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IAI

Docket No. 50-397

May 26, 1994

U.S. Nuclear Regulatory Commission

Subject: WNP-2, OPERATING LICENSE NPF-21  
10 CFR PART 21 REPORT  
AUTOMATIC SWITCH COMPANY (ASCO) REPLACEMENT SOLENOID  
PILOT VALVE DIAPHRAGMS SUPPLIED BY  
GENERAL ELECTRIC NUCLEAR ENERGY

This is an initial 10 CFR Part 21 notification to the NRC Operations Center. A written report will be submitted as a revision to an existing WNP-2 Licensee Event Report (LER 94-005).

Supplier: General Electric (GE) Nuclear Energy  
175 Curtner Avenue  
San Jose, CA 95125

Scram solenoid pilot valve (SSPV) diaphragms supplied to WNP-2 by GE Nuclear Energy have shown a decreased service life compared with previous experience. Diaphragms removed from service following the March 26, 1994, failure of a control rod to scram had significant degradation consisting of hardening, set, and cracking. This degradation has resulted in increased scram time for some control rods. An unusual combination of SSPV pressure and exhaust diaphragm degradation caused the failure of one control rod to scram.

Diaphragms with significant degradation had been in service between 3.6 and 4 years. The supplier recommends a maximum 4 year service life. Analysis of the diaphragms indicates a difference in the composition of the Buna-N material (e.g., variability in filler, acrylonitrile, and plasticizer content) compared with diaphragms removed in 1990. This composition difference may have changed the aging characteristics of the Buna-N material; diaphragms removed in 1990 had less degradation after up to 6.6 years in service than those removed in 1994 with up to 4 years in service. The Washington Public Power Supply System does not believe that diaphragm shelf life was a factor in this degradation.

The SSPV diaphragms have been replaced for all control rods. WNP-2 is reevaluating the allowable service life of the diaphragms.

Should you have any questions or desire additional information, please call Bruce R. Hugo at (509) 377-8593.

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PDR ADDCK 05000397  
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1619  
TOTAL P.02

Part 21

Charlotte

POWER REACTOR

EVENT NUMBER: 27305

FACILITY: WASHINGTON NUCLEAR  
UNIT: [2] [ ] [ ]  
RX TYPE: [2] GE-5

REGION: 4  
STATE: WA

NOTIFICATION DATE: 05/26/94  
NOTIFICATION TIME: 16:00 [ET]  
EVENT DATE: 05/26/94  
EVENT TIME: 00:00 [PDT]  
LAST UPDATE DATE: 05/26/94

NRC NOTIFIED BY: BRUCE R. HUGO  
HQ OPS OFFICER: STEVE SANDIN

NOTIFICATIONS

EMERGENCY CLASS: NOT APPLICABLE  
10 CFR SECTION:  
CCCC 21.21 UNSPECIFIED PARAGRAPH

UNIT	SCRAM CODE	RX CRIT	INIT PWR	INIT RX MODE	CURR PWR	CURR RX MODE
2	N	N	0	REFUELING	0	REFUELING

EVENT TEXT

LICENSEE IS MAKING A PART 21 NOTIFICATION.

SUBJECT: WNP-2, OPERATING LICENSE NPF-21  
10 CFR PART 21 REPORT  
AUTOMATIC SWITCH COMPANY (ASCO) REPLACEMENT SOLENOID PILOT VALVE  
DIAPHRAGMS SUPPLIED BY GENERAL ELECTRIC NUCLEAR ENERGY

SUPPLIER: GENERAL ELECTRIC (GE) NUCLEAR ENERGY  
175 CURTNER AVENUE  
SAN JOSE, CA 95125

"SCRAM SOLENOID PILOT VALVE (SSPV) DIAPHRAGMS SUPPLIED TO WNP-2 BY GE NUCLEAR ENERGY HAVE SHOWN A DECREASED SERVICE LIFE COMPARED WITH PREVIOUS EXPERIENCE. DIAPHRAGMS REMOVED FROM SERVICE FOLLOWING THE MARCH 26, 1994, FAILURE OF A CONTROL ROD TO SCRAM HAD SIGNIFICANT DEGRADATION CONSISTING OF HARDENING, SET, AND CRACKING. THIS DEGRADATION HAS RESULTED IN INCREASED SCRAM TIME FROM SOME CONTROL RODS. AN UNUSUAL COMBINATION OF SSPV PRESSURE AND EXHAUST DIAPHRAGM DEGRADATION CAUSED THE FAILURE OF ONE CONTROL ROD TO SCRAM."

"DIAPHRAGMS WITH SIGNIFICANT DEGRADATION HAD BEEN IN SERVICE BETWEEN 3.6 AND 4 YEARS. THE SUPPLIER RECOMMENDS A MAXIMUM 4 YEAR SERVICE LIFE. ANALYSIS OF THE DIAPHRAGMS INDICATES A DIFFERENCE IN THE COMPOSITION OF THE BUNA-N MATERIAL (e.g., VARIABILITY IN FILLER, ACRYLONITRILE, AND PLASTICIZER CONTENT) COMPARED WITH DIAPHRAGMS REMOVED IN 1990. THIS COMPOSITION DIFFERENCE MAY HAVE CHANGED THE AGING CHARACTERISTICS OF THE BUNA-N MATERIAL; DIAPHRAGMS REMOVED IN 1990 HAD LESS DEGRADATION AFTER UP TO 6.6 YEARS IN SERVICE THAN THOSE REMOVED IN 1994 WITH UP TO 4 YEARS IN

(Continued on next page)

SERVICE. THE WASHINGTON PUBLIC POWER SUPPLY SYSTEM DOES NOT BELIEVE THAT DIAPHRAGM SHELF LIFE WAS A FACTOR IN THE DEGRADATION."

"THE SSPV DIAPHRAGMS HAVE BEEN REPLACED FOR ALL CONTROL RODS. WNP-2 IS REEVALUATING THE ALLOWABLE SERVICE LIFE OF THE DIAPHRAGMS."

THE LICENSEE WILL PROVIDE A WRITTEN REPORT AS A REVISION TO AN EXISTING WNP-2 LICENSEE EVENT REPORT (LER 94-005).

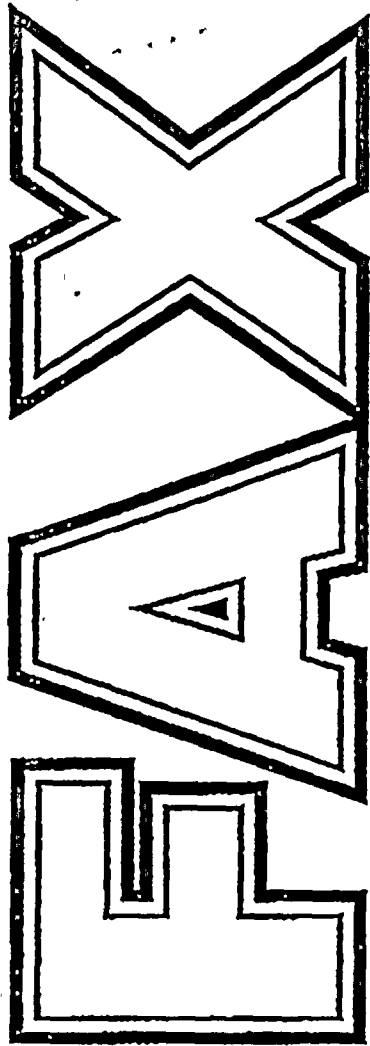
T R A N S M I T T A L



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**WASHINGTON PUBLIC POWER  
SUPPLY SYSTEM**

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WE ARE  
TRANSMITTING FROM  
WNP-2  
PLANT  
ENGINEERING  
CENTER

To: NRC Operations Center

Telephone: (301) 951-0550

Fax: (301) 492-8187

From: Bruce Hugo (509) 377-8593

Date: May 26, 1994

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Re: Initial 10CFR21 report on ASCO replacement  
solenoid valves diaphragms supplied by  
General Electric Nuclear Energy



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