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SUBJECT: LER 94-001-00: on 931230, untested fuel transfer to EDG fuel oil storage tanks occurred. Caused by inadequate design change documentation & operating procedure. Procedures revised. W/940331 ltr.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352

March 31, 1994
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Docket No. 50-397

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

Subject: NUCLEAR PLANT WNP-2, OPERATING LICENSE NPF-21
LICENSEE EVENT REPORT NO. 94-001

Transmitted herewith is Licensee Event Report No. 94-001 for WNP-2. This report is submitted in response to the report requirements of 10CFR50.73 and discusses the items of reportability, corrective action taken, and action taken to preclude recurrence.

Should you have any questions or desire additional information, please call me or Herbert E. Kook at (509) 377-4278.

Sincerely,


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

JVP/CDM/jcs
Enclosure

cc: Mr. K. E. Perkins, Jr., NRC - Region V
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LICENSEE EVENT REPORT (LER)																														
FACILITY NAME (1) Washington Nuclear Plant - Unit 2															DOCKET NUMBER (2) 0 5 0 0 0 3 9 7										PAGE (3) 1 OF 6					
TITLE (4) UNTESTED FUEL TRANSFERRED TO THE EMERGENCY DIESEL GENERATOR FUEL OIL STORAGE TANKS																														
EVENT DATE (5)					LER NUMBER (6)					REPORT DATE (7)					OTHER FACILITIES INVOLVED (8)															
MONTH			DAY		YEAR		YEAR		SEQUENTIAL NUMBER			REVISION NUMBER		MONTH			DAY		YEAR		FACILITY NAMES					DOCKET NUMBERS(S)				
1	2	3	0	9	3	9	4	0	0	1	0	0	0	3	3	1	9	4						0 5 0 0 0						
OPERATING MODE (9) 1					THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)																									
POWER LEVEL (10) 1 0 0					20.402(b) 20.405(a)(1)(i) 20.405(a)(1)(ii) 20.405(a)(1)(iii) 20.405(a)(1)(iv) 20.405(a)(1)(v)					20.405(c) 50.36(c)(1) 50.36(c)(2) X 50.73(a)(2)(i) 50.73(a)(2)(ii) 50.73(a)(2)(iii)					50.73(a)(2)(iv) 50.73(a)(2)(v) 50.73(a)(2)(vii) 50.73(a)(2)(viii)(A) 50.73(a)(2)(viii)(B) 50.73(a)(2)(x)					77.71(b) 73.73(c) OTHER (Specify in Abstract below and in Text, NRC Form 366A)										
LICENSEE CONTACT FOR THIS LER (12)																														
NAME C. D. Mackaman, Licensing Engineer															TELEPHONE NUMBER AREA CODE 5 0 9 3 7 7 - 4 4 5 1															
COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)																														
CAUSE		SYSTEM		COMPONENT		MANUFACTURER		REPORTABLE TO NPRDS		CAUSE		SYSTEM		COMPONENT		MANUFACTURER		REPORTABLE TO NPRDS												
SUPPLEMENTAL REPORT EXPECTED (14)															EXPECTED SUBMISSION DATE (15)					MONTH DAY YEAR										
YES (If yes, complete EXPECTED SUBMISSION DATE) X NO																														
ABSTRACT (16)																														
<p>During the period from December 14 through December 21, 1993, diesel fuel that included untested fuel was transferred from the Auxiliary Boiler Fuel Oil Storage Tank (FO-TK-1) to each of the three Emergency Diesel Generator (EDG) Fuel Oil Storage Tanks (DO-TK-1A, DO-TK-1B, and DO-TK-2). This event occurred during post modification testing of the recently installed Fuel Oil Filter Polisher System. Plant personnel involved in the testing identified the problem and initiated a Problem Evaluation Request (PER 293-1438) on December 30, 1993. An operability assessment was performed on December 30, 1993 to determine the status of EDG operability. All three EDGs (DG-1, DG-2, and DG-3) were determined to be operable. This event was inconsistent with Technical Specification Surveillance (TSS) Requirement 4.8.1.1.2.c, which requires that diesel fuel be sampled prior to addition to the EDG storage tanks.</p> <p>As an immediate corrective action, personnel clearance tagged the Auxiliary Boiler suction valve for the Fuel Oil Filter Polisher System to assure the valve remains closed. This will prevent further transfer of fuel from the Auxiliary Boiler storage tank to the EDG storage tanks until a design review and Safety Evaluation are completed. In addition, fuel oil samples were taken from all four fuel oil storage tanks and sent to an independent chemical testing facility for analysis.</p> <p>The root causes for this event were: (1) that the nonsafety-related Fuel Oil Filter Polisher System design change documentation did not include a 10CFR50.59 Safety Evaluation or an adequate evaluation of the nonsafety-related to safety-related system interactions, and (2) Operating Procedure PPM 2.8.15, "Diesel Fuel Oil Filter/Polisher System," did not include procedural controls to assure that TSS 4.8.1.1.2.c fuel cleanliness and testing requirements were satisfied during system operation.</p>																														

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Further corrective actions include: (1) performing a design review and Safety Evaluation for the Fuel Oil Filter Polisher System modification request (PMR 83-107), (2) changing appropriate plant procedures based on the design review and Safety Evaluation, (3) counseling and training on the lessons learned from this event, and (4) performing design reviews for planned design changes that add or change inter-ties between safety-related and nonsafety-related systems.

This event posed no threat to the health and safety of the public or plant personnel.

Plant Conditions

Power Level - 100%

Plant Mode - 1 (Power Operation)

Event Description

In August 1993, approximately 17,000 gallons of untested diesel fuel oil was added to the Auxiliary Boiler storage tank. During the period from December 14 through December 21, 1993, diesel fuel that included the untested fuel was transferred from the Auxiliary Boiler Fuel Oil Storage Tank (FO-TK-1) to each of the three Emergency Diesel Generator (EDG) Fuel Oil Storage Tanks (DO-TK-1A, DO-TK-1B, and DO-TK-2). This event occurred during post modification testing of the recently installed Fuel Oil Filter Polisher System. The testing included demonstrating the capability to transfer fuel from the Auxiliary Boiler storage tank to an EDG storage tank, and to recirculate the fuel through the filter polisher and back to the Auxiliary Boiler tank. A Maintenance Work Request (MWR AR6637) was used to perform the testing and included steps that recirculated approximately 5,000 gallons of the untested fuel from the Auxiliary Boiler storage tank through each EDG storage tank. Plant personnel involved in the testing identified the problem and initiated a Problem Evaluation Request (PER 293-1438) on December 30, 1993.

The System Engineer performed an operability assessment on December 30, 1993 to determine the status of EDG operability. All three EDGs (DG-1, DG-2, and DG-3) were determined to be operable during the period from December 14 through December 30, 1993 (the period in question). This determination was based on confidence that the untested fuel transferred from the Auxiliary Boiler tank met the American Society for Testing and Materials (ASTM) requirements specified in Technical Specifications 4.8.1.1.2.c and d. Analyses of fuel oil samples taken from all four fuel oil storage tanks supported this operability assessment.

Immediate Corrective Actions

1. Operations personnel clearance tagged the Auxiliary Boiler suction valve for the Fuel Oil Filter Polisher System to assure the valve remains closed. This will prevent further transfer of fuel from the Auxiliary Boiler storage tank to the EDG storage tanks until a design review and Safety Evaluation are completed.

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- Fuel oil samples were taken from all four fuel oil storage tanks and sent to Herguth Laboratories, Inc., an independent chemical testing facility, for analysis to assure compliance with the fuel quality requirements of TSS Requirement 4.8.1.1.2.c.

Further Evaluation and Corrective Action

Further Evaluation

- The Supply System initially determined that this event was not reportable to the NRC based on a determination of no impact on EDG operability or fuel quality. However, after further evaluation, the original reportability determination was amended to recognize the noncompliance with TSS Requirement 4.8.1.1.2.c. Specifically, this event is being reported pursuant to 10CFR50.73(a)(2)(i)(B) as "Any operation or condition prohibited by the plant's Technical Specifications. . . ."
- A feature of the Fuel Oil Filter Polisher System design change was the capability of transferring fuel from the Auxiliary Boiler storage tank to the three EDG storage tanks. This was a significant change to the method of adding fuel to the EDG storage tanks and is controlled by TSS 4.8.1.1.2.c. However, the design change post modification testing instructions, the system operating procedure, and related surveillance procedures did not require the fuel in the Auxiliary Boiler storage tank to be sampled prior to transferring the fuel to the EDG storage tanks.
- A design safety analysis for the Fuel Oil Filter Polisher System design change was completed on May 2, 1992. The preparer and reviewer did not recognize that the unit's operation could impact a safety-related system. Consequently, no Safety Evaluation was performed that would have evaluated the nonsafety-related to safety-related system interactions and identified the need for system controls.
- The Plant Operating Committee (POC) reviewed the Fuel Oil Filter Polisher System design change on August 19, 1992 at POC Meeting 92-34 and again on August 26, 1992 at POC Meeting 92-35. POC members missed an opportunity to address the design change deficiencies because they were provided with inaccurate information based on an inadequate review of the design change documentation.
- The Fuel Oil Filter Polisher System design change documentation included statements that identified Technical Specification fuel cleanliness requirements for system installation and that the Auxiliary Boiler storage tank will be connected to the EDG storage tanks. However, Operations Procedures personnel did not adequately review the design change documentation. As a result, PPM 2.8.15, "Diesel Fuel Oil Filter/Polisher System," did not include procedural controls to assure that TSS 4.8.1.1.2.c fuel cleanliness and testing requirements were satisfied during system operation.

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6. The Fuel Oil Filter Polisher System design change testing was performed by MWR rather than by a special test procedure. This practice bypasses an opportunity for an additional 10CFR50.59 review and the higher level of scrutiny associated with approval of a Temporary Procedure in accordance with PPM 1.2.4, "Plant Procedure Approval Revision and Distribution."

In this case, the design change post modification test used PPM 2.8.15 for system lineups and operation. However, a special test procedure should have been written and performed because the operating procedure was not adequate to support the post modification test. Consequently, the Technical Specification requirements were not adequately addressed when the MWR post modification testing instructions directed the performer to transfer fuel from the Auxiliary Boiler storage tank to the EDG storage tanks.

7. As discussed above, Supply System personnel missed several opportunities to prevent this event. All of these missed opportunities were found to have resulted from the mindset that "the fuel/polisher unit is not safety-related and [therefore] does not affect components or items that are safety-related." Action will be taken to correct this mindset.
8. The Supply System believes that the changes incorporated into the 10CFR50.59 review and evaluation procedures on September 30, 1992 adequately address the related programmatic implications of this event.
9. The Supply System has improved the design change implementation review process since the Fuel Oil Filter Polisher System design change was reviewed and approved for installation. Design changes are now reviewed by a Project Review Group (PRG) and Project Engineers have been given overall ownership of assigned design changes. They act as a single point of contact for coordinating activities and will follow issues associated with a design change through to resolution. These programmatic changes ensure that design changes receive a thorough pre-installation review and that implementation related issues are properly addressed.

Root Cause

The root causes for this event were: (1) that the nonsafety-related Fuel Oil Filter Polisher System design change documentation did not include a 10CFR50.59 Safety Evaluation or an adequate evaluation of the nonsafety-related to safety-related system interactions, and (2) Operating Procedure PPM 2.8.15 did not include procedural controls to assure that TSS 4.8.1.1.2.c fuel cleanliness and testing requirements were satisfied during system operation.

A contributing cause was that a special test procedure was not written to perform the Fuel Oil Filter Polisher System design change post modification test.

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Further Corrective Action

1. A design review and Safety Evaluation will be performed for the Fuel Oil Filter Polisher System design change Plant Modification Request (PMR 83-107) by August 1, 1994.
2. Surveillance Procedure PPMs 7.4.8.1.1.2, "Diesel Fuel Purification," 7.4.8.1.1.2.3A, "Diesel Generator New Fuel Test," and 7.4.8.1.1.2.3B, "Diesel Generator Storage Tank Fuel Test," will be reviewed and changed as necessary by September 1, 1994 based on the results of the Fuel Oil Filter Polisher System design review and Safety Evaluation.
3. Operating Procedure PPM 2.8.15 will be reviewed and changed as necessary by September 1, 1994 based on the results of the Fuel Oil Filter Polisher System design review and Safety Evaluation.
4. Training will be provided by April 30, 1994 for Design Engineers, Project Engineers, Technical Staff Engineers, and Operations procedure writers on the lessons learned from this event and the design issues relating to inter-ties and interactions between safety-related and nonsafety-related systems.
5. Design change packages that add or change inter-ties between safety-related and nonsafety-related systems, where the resulting interactions have not been previously evaluated, will be reviewed. Packages scheduled for implementation during the Spring 1994 Refueling Outage (R-9) will be reviewed by April 30, 1994. The scope of the remaining outstanding packages will be evaluated and a review schedule will be developed by July 31, 1994.
6. The individuals involved in this event, including POC members, will be counseled by April 30, 1994 on their role in causing the event and the lessons learned from the event.
7. A lessons learned memorandum will be sent to Licensing personnel by April 8, 1994 concerning the error in the initial reportability determination for this event and will be discussed with Licensing personnel by April 15, 1994.

Safety Significance

As previously discussed, an operability assessment established EDG operability during the period in question. Subsequent analyses of the fuel oil samples taken from all four fuel oil storage tanks supported this operability assessment. Based on this documentation, this event did not impact EDG operability or fuel quality. Accordingly, this event had no safety significance and posed no threat to the health and safety of the public or plant personnel.

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Similar Events

LERs 90-001, 90-007, 90-015, and 90-027 reported diesel fuel oil sampling and analysis problems that resulted in Technical Specification noncompliance conditions. These previous events are similar because the fuel oil testing requirements were not met. However, the causes of these previous events did not involve design review or design implementation deficiencies. Thus, the corrective actions did not address the conditions described in this LER.

EIIS Information

Text Reference

EIIS Reference

	<u>System</u>	<u>Component</u>
Auxiliary Boiler Fuel Oil Storage Tank (FO-TK-1)	SA	TK
Emergency Diesel Generator Fuel Oil Storage Tanks (DO-TK-1A, DO-TK-1B, and DO-TK-2)	DC	TK
Emergency Diesel Generators (DG-1, DG-2, and DG-3)	EK	DG
Fuel Oil Filter Polisher System	DE	FLT

