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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 92-003-01: on 910201, review of surveillance procedure for testing SGT/HEPA filters not in compliance w/TS due to inadequate air-aerosol mixing. Caused by inadequate work practices. Filters tested w/TS requirements. W/920521 ltr.

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 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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WASHINGTON PUBLIC POWER SUPPLY SYSTEM

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

May 21, 1992
G02-92-127

Docket No. 50-397

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Washington, D. C. 20555

**SUBJECT: NUCLEAR PLANT WNP-2, OPERATING LICENSE NPF-21
LICENSEE EVENT REPORT NO. 91-003-01**

Transmitted herewith is Licensee Event Report No. 91-003-01 for the WNP-2 Plant. This supplemental report is being submitted in response to 10CFR50.73 requirements and the Supply Systems commitment in our reply to Inspection Report 91-04.

Sincerely,



J. W. Baker
WNP-2 Plant Manager (Mail Drop 927M)

Enclosure

cc: Mr. John B. Martin, NRC - Region V
Mr. C. Sorensen, NRC Resident Inspector (Mail Drop 901A, 2 Copies)
INPO Records Center - Atlanta, GA
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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 7

TITLE (4)

Inadequate Technical Specification Surveillance Testing of Standby Gas Treatment

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)		
0	2	0	1	9	1	9	1	0	0	3	9	7
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									0 5 0 0 0			

OPERATING MODE (9) 1 THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)

POWER LEVEL (10)	1	0	0	20.402(b)	20.405(C)	50.73(a)(2)(iv)	77.71(b)
				20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.73(c)
				20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
				20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
				20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
			20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
C. L. Fies, Compliance Engineer	
	AREA CODE
	5 0 9 3 7 7 - 2 0 3 9

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

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	MONTH DAY YEAR

ABSTRACT (16)

On February 1, 1991, at 2100 hours a review of surveillance procedure for periodic testing of the downstream Standby Gas Treatment (SGT) High Efficiency Particulate Air (HEPA) filters indicated that methods used were not in compliance with the Technical Specifications due to inadequate air-aerosol mixing. The specific method used was not adequate to meet the requirement in Technical Specification Paragraph 4.6.5.3.b. This paragraph requires that at least once per 18 months each SGT subsystem is to be demonstrated to be operable by test. A review of plant records by Plant Engineers showed that the periodic testing to meet the requirements of this surveillance were completed. However, the testing method used did not assure sufficient air-aerosol mixing for the surveillance test of the downstream HEPA filters. A similar problem had previously been identified for charcoal absorber bed testing during the time period from January 24 to January 29, 1991. This problem was not identified as reportable. Hence, it was not reported in accordance with the requirements of 10CFR50.73.

The root causes of these events were inadequate work practices, inadequate procedures, and less than adequate management programs. A Plant Engineer failed to incorporate the detailed methods required to satisfactorily conduct the surveillance test. The surveillance test procedure did not adequately meet the Technical Specification surveillance requirements. Management programs were in place to detect this omission but were not effectively implemented.

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TITLE (4)		Inadequate Technical Specification Surveillance Testing of Standby Gas Treatment													

Abstract (Cont'd)

Corrective action was taken to test the filters in accordance with Technical Specification requirements. The tests performed on January 29 and February 2, 1991, showed the SGT Charcoal and HEPA filters were fully capable of performing their design function. Further, a review of plant records showed the downstream HEPA filters have not been changed out since plant startup, which indicates they would have been fully functional if required. Corrective action is also being taken to access the reportability evaluation process. This event posed no threat to the health and safety of either the public or plant personnel.

Plant Conditions

Power Level - 100%
Plant Mode - 1

Event Description

On January 24, 1991, a surveillance test of the upstream charcoal adsorber bed on the "A" train of SGT, was performed in accordance with Plant Procedures Manual (PPM) 7.4.6.5.3.6, SGT System Adsorber Bypass Leakage Test. This test was conducted by injecting Freon at a point upstream of the charcoal bed and measuring the Freon concentrations both upstream and downstream of the charcoal bed. The results are acceptable if the downstream concentration is less than 0.05% of the upstream concentration, indicating no significant bypass leakage. Each train of SGT at WNP-2 contains two separate charcoal beds in series, and they had normally been tested separately. Unsatisfactory results were obtained for the upstream bed and methods used for testing were not in compliance with the Technical Specification requirements. This event should have been reported in an LER in accordance with the requirements of 10CFR50.73.

On February 1, 1991, at 2100 hours a review of techniques for testing the Standby Gas Treatment (SGT) High Efficiency Particulate Air (HEPA) downstream filters indicated that methods used were not in compliance with the Technical Specifications due to inadequate air-aerosol mixing under test conditions. This condition was discovered by Plant Engineers during a detailed review of techniques used for testing the Charcoal Adsorber Filters during plant startup. The review was accelerated due to concerns raised by the NRC Resident Inspector.

At WNP-2 the SGT, in conjunction with other systems, provides a means of controlling and minimizing leakage from the Primary Containment to the outside atmosphere during Primary Containment accidents such as a Loss of Coolant Accident (LOCA). There are two SGT trains consisting of Moisture Separators, Electric Heaters, Pre-filters, HEPA filters, Carbon Adsorber filters, and downstream HEPA filters followed by redundant fans to draw air through the trains. The purpose of the downstream HEPA filters is to capture any carbon fines that might be carried through by the air flow. The carbon fines, under conditions of an actual demand, could be radioactive. The downstream HEPA filters also serve as a final barrier in the event of failure of the upstream HEPA filters.

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The specific methods used in Surveillance Procedures PPM 7.4.6.5.3.6, SGT System Adsorber Bypass Leakage Test and PPM 7.4.6.5.3.5, SGT System HEPA Dioctyl Phthalate (DOP) Test and Visual Inspection, were not adequate to meet the requirement in Technical Specification Paragraph 4.6.5.3.b. This paragraph requires that at least once per 18 months each SGT subsystem is to be demonstrated to be operable by "....verifying that the subsystem satisfies the in-place penetration and bypass leakage testing acceptance criteria of less than 0.05% and uses the test procedure guidance in Regulatory Positions C.5.a, C.5.c, and C.5.d of Regulatory Guide 1.52, Revision 2, March 1978.....". A key provision of this requirement is to provide for adequate air-aerosol mixing under test conditions. A review of plant records showed that the periodic testing to meet the requirements of this surveillance were completed. However, the testing method used did not assure sufficient air-aerosol mixing for the test of the downstream Charcoal and HEPA filters. Specifically, the injection manifold established during startup testing for the downstream filters was not used for the surveillance testing.

Immediate Corrective Action

PPM 7.4.6.5.3.6 was revised to test both charcoal adsorber beds concurrently, in series. The sample points both upstream and downstream of the charcoal beds were moved, and the injection point was moved also. The charcoal beds in both trains were then retested concurrently and their operability (when treated as one integral adsorber unit in each train) was demonstrated on January 29, 1991.

The Surveillance Test Procedure, PPM 7.4.6.5.3.5, was modified to allow the downstream HEPA to be tested in accordance with Technical Specification requirements. The modification assured adequate mixing in the air-aerosol stream by removing the upstream HEPA filter during testing of the downstream HEPA filter and using the same injection point used for the upstream HEPA. This testing was completed at 1138 hours on February 2, 1991.

Further Evaluation and Corrective Action

A. Further Evaluation

1. This event is being reported per the requirements of 10CFR50.73(a)(2)(i)(B) as ".....Any operation or condition prohibited by the plant's Technical Specifications.....".
2. Further evaluation of the testing conducted during startup in 1983 disclosed that because of the proximity of the downstream HEPA and charcoal filters to the injection port, special test rigging was required for a successful test. A special injection manifold was manufactured to allow for proper mixing. Conduct of the In-Place Test without the manifold (or similar device) would result in invalid test results.

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3. Initial Start-up Testing and Acceptance Testing conducted in October of 1983, prior to plant start-up, demonstrated satisfactory compliance to the stated criteria utilizing the distribution manifold. The Startup Engineer who performed the Startup Test was a contract employee who left the site shortly after the test was completed. The Technical Staff Engineer who received the system after the completion of acceptance testing left the Supply System within a few months without a turnover to the follow-on engineer.
4. After the start-up testing was completed the test was converted to a simplified procedure for periodic Surveillance Testing. The first Surveillance Test (ST) was performed in September 1984. This test was limited to testing one of the upstream HEPA filters which had been replaced. No testing of a downstream HEPA filter was accomplished which precluded the need for the DOP distribution manifold.
5. The Engineer who participated in the first ST was transferred to a different job that placed him outside the review cycle for any changes to the procedure. In the mean time the decision was made to perform the test without the help of the contractor when it came due the next time. However, the procedure was not modified to reflect this decision.
6. The ST was again run in May 1986 with the intent of testing all four HEPA filter banks. Without the guidance of the contractor and without a detailed procedure the test was run without installing the DOP injection manifold. The DOP was injected through a port between the upstream and downstream HEPA filters. This application did not meet the requirements of the ANSI standard.
7. In the absence of any other guidance the procedure was permanently modified to reflect the experience of the last ST and was written without reference to using a contractor. Subsequent testing of the SGT trains was conducted without the injection manifold.
8. The excessive bypass leakage experienced on the upstream charcoal bed was written up on Problem Evaluation Request (PER) 291-067. The PER process is used to identify those problems that are reportable events. The PER noted that the test results of the downstream charcoal bed were satisfactory and was marked non-reportable. Technical Specification Action Statement 3.6.5.3.a was entered and an Engineering evaluation was performed. Those responsible for the determination of reportability (Shift Manager, the Management Review Committee [MRC], and the Compliance Organization) were not aware of the fact that incorrect test methods were being used for charcoal testing and a LER was not written.

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9. A root cause analysis was performed for PER 291-088 which documented the inadequacy of HEPA filter testing. The Charcoal Filter testing was not pursued in the root cause analysis since a corrective action was established to perform the action. There were no formal guidelines governing this method of addressing generic issues. The analysis concentrated on resolution of the HEPA filter issue but did not exhaustively review the charcoal adsorber status. A corrective action was written to review carbon filter surveillance procedures for adequacy of technique. Subsequently, a review committee deleted this corrective action as it was thought to be a duplicate of work already completed. This deletion occurred on the same day the NRC issued IR 91-04:
10. On March 19, 1991, the NRC issued Inspection Report 91-04 which discussed the SGT Surveillance Testing problems. This inspection report identified the fact that the testing associated with the charcoal beds was not being performed per Technical Specification requirements. This report noted that the Supply System had failed to identify this item of noncompliance and issue an LER.
11. The root cause of these events was 1) less than adequate work practices, 2) less than adequate procedures, and 3) less than adequate management programs. During the preparation of the original surveillance procedures, the detailed methodology required to satisfactorily conduct the surveillance tests was not effectively documented or communicated to the procedure writer, and the writer also did not check to see if the procedures met the intended objectives. The surveillance test procedures did not contain the requirement or the direction to test the downstream HEPA filters and Charcoal Adsorbers in a manner required by the Technical Specifications. Furthermore, information pertaining to the correct methodology for conducting the tests was not retained when responsibilities for performing the tests were changed. Although management programs were in place during the 1983-1984 time-frame to detect these deficiencies, they were not effectively implemented at the time when the procedure revisions occurred. Subsequent management programs were also not effective in identifying these deficiencies. The same root cause is applicable to the event associated with not reporting the charcoal filter testing. Work practices and procedures in the Compliance group were not adequate to discover the reportability issue. In addition, the Root Cause program did not provide adequate guidelines for addressing generic issues.
12. There were no structures, components or systems that were inoperable prior to the start of this event which contributed to the event.

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B. Further Corrective Action

1. The Surveillance Test Procedures, PPM 7.4.6.5.3.5 and 7.4.6.5.3.6 were permanently revised to include the proper method of testing the SGT filters. This action was completed on December 16, 1991.
2. Other Technical Specification related Plant Surveillance procedures associated with HEPA and Charcoal Filter testing were reviewed to assure they meet all applicable requirements as established during startup testing. This action was completed on May 1, 1992.
3. Plant Procedure PPM 1.3.12, Plant Problems - Problem Evaluation Request was revised requiring a Compliance signoff on reportability. This was completed on December 19, 1991.
4. An independent assessment will be performed on the Reportability Evaluation process. This evaluation will look at resources versus tasks and determine how improvements can be made in the overall process taking into account information obtained from other utilities. This assessment will be completed by July 1, 1992.
5. Plant Procedure PPM 1.3.48, Root Cause Analysis, will be revised to define the methods to insure generic issues identified in root cause analysis are implemented. This will be completed by September 1, 1992.

Safety Significance

Initial Startup testing showed the HEPA and charcoal filters were functional. The HEPA filters have never been changed and the test conducted on February 2, 1991, showed the filters remained capable of performing to Technical Specification requirements.

Similar Events

There are no similar events. LER 88-009 reports an event where the HEPA and charcoal surveillance tests were not performed at the required time. That event is not similar since it did not involve a problem with the method of testing.

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EIIS Information

EIIS Information

Text Reference

EIIS Reference

<u>System</u>	<u>Component</u>
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Standby Gas Treatment (SGT)
 High Efficiency Particulate Air (HEPA)
 Charcoal Filters
 Primary Containment

BH	--
BH	FLT
BH	FLT
BT	FLT