

Washington Public Power Supply System

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

Docket No. 50-397

Mr. R. H. Engelken, Director
Office of Inspection and Enforcement
Nuclear Regulatory Commission
Region V
Suite 202, Walnut Creek Plaza
1990 North California Blvd.
Walnut Creek, California 94596

July 1, 1981
G02-81-165



Dear Mr. Engelken:

Subject: SUPPLY SYST 1 NUCLEAR PROJECT NO. 2
DOCKET NO. 50-397, CPPR-93
POTENTIALLY REPORTABLE 10CFR50.55(e) CONDITION, WNP-2 142
DIESEL-GENERATOR BUILDING HVAC SYSTEM

Reference: G02-81-72, dated April 17, 1981, R. G. Matlock (Supply System)
to R. H. Engelken (NRC), same subject

The reference letter provided notification and an interim report of the subject potential deficiency. From evaluations, which have been completed, it has been determined a reportable 10CFR50.55(e) deficiency exists in respect to the HVAC intake ductwork to the emergency diesel generator bays.

Attached is our report on this deficiency. A final report will be provided when suitable corrective actions have been identified.

Please contact us if you have additional questions.

Very truly yours,

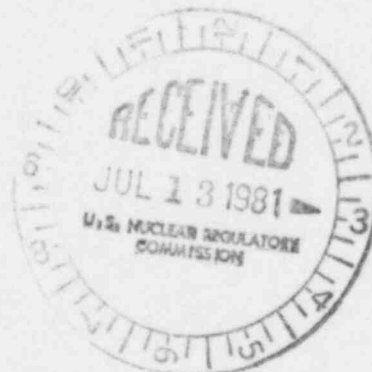
R. G. Matlock
R. G. Matlock

Program Director, WNP-2

HLB:kjf

Attachment

cc: WS Chin - BPA
ND Lewis - EFSEC, Olympia
TA Mangelsdorf - Bechtel 954K
AI Cygelman - B&R Site
RE Snaith - B&R NY
AD Toth - NRC Resident Inspector
JJ Verderber - B&R NY
JC Plunkett, Jr. - NUS Corp.
A. Schwencer - NRC
WNP-2 Files



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81-135

REPORTABLE DEFICIENCY AND CORRECTIVE ACTION
SUPPLY SYSTEM NUCLEAR PROJECT NO. 2
DIESEL GENERATOR BUILDING HVAC SYSTEMS

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
DOCKET NO. 50-397
LICENSE NO. CPPR-93

Description of Deficiency

As currently designed, the HVAC intake ductwork to the emergency diesel generator bay can collapse as a result of negative pressures induced by a tornado. This condition is in violation of the requirements of General Design Criterion 2 of Appendix A to 10CFR50 and Regulatory Guide 1.76.

Safety Implications

In the event a tornado also resulted in loss of off-site power, operation of the diesel generators would be required to bring the plant to a cold shutdown condition. Since the intake ductwork to diesel generator bays supplies air to both the HVAC systems and diesel engines, the collapse of the ductwork could result in the inability of the diesel generators to perform their required function, unless the deficiency is corrected.

Corrective Action

Studies are in progress to determine a suitable method of preventing collapse of the HVAC ductwork. Both reinforcement of ductwork and addition of pressure relief dampers are being investigated.

Other safety related HVAC systems are being analyzed to determine whether or not they will also be subject to collapse during a tornado event and whether or not their safety related functions would be affected. Design modifications to correct any deficient conditions will be developed.

A final report describing specific plant modifications will be forwarded by November 15, 1981.

NRC COMMITMENT

Responsible Engineer: H. L. Bennett

Due Date: November 15, 1981

Summary: Final report describing plant modifications required to correct deficient conditions in HVAC ductwork to the diesel generator bays and other safety related HVAC systems.

To: R. Johnson
WPPSS-QA

From: A. LAGERAEN
WOODBURY

RECEIVED

JUN 26 1981

EVALUATION REPORT FORMAT

Project WPPSS; WNP-2 Evaluation Report # 81-2
Work Order W.O. 2808 Date June 26, 1981
Specific Area of Concern Tornado induced failure in HVAC Ductwork
Outside Contractor Involved (if any) None

1. Description of Deviation

General Design Criterion 2 of Appendix A to 10CFR50 requires that Structures, Systems and Components important to safety shall be designed against the effects of natural phenomena such as tornadoes. The design of WNP-2 had included the evaluation of tornado effects and appropriate design measures thought necessary were implemented. However the systems and equipment which the NRC required to be evaluated had not been identified at the time of issuance of Regulatory Guide 1.76, "Design Basis Tornado for Nuclear Power Plants". The design basis for WNP-2 is Regulatory Guide 1.76. Thus although the plant design is in compliance with Regulatory Guide 1.76, the HVAC ducting was inadvertently omitted from the tornado evaluation.

It has since been determined that the negative pressure induced by the tornado could induce collapse of the HVAC intake ductwork to the diesel generator bays. In the event the tornado also resulted in a loss of off-site power, operation of the diesel generators would be required in order to bring the plant to a cold shutdown. Failure of the ductwork would impede diesel generator operation.

2. Date and method of discovery

By letter dated February 27, 1981, WPPSS-81-39, WPPSS requested that Burns and Roe investigate safety related ductwork to determine whether failures could occur during a tornado event. This resulted due to identification of a similar potential 10CFR50.55(e) condition on WPPSS units 1 and 4.

3. Analysis of Safety Implication (Indicate whether it is also a 10CFR50.55(e) Deficiency).

a. 10CFR21.

Since Criterion 2 of Appendix A to 10CFR50 was violated and the deficiency related to a substantial safety hazard in terms of inability to bring the plant to a cold shutdown, the committee concluded that the incident was reportable by 10CFR21 criteria.

b. 10CFR50.55e.

The committee concluded that:

- c. If the deficiency were to have remained uncorrected, it could have adversely affected the safety of plant operations, and
- cc. The deficiency is a significant deficiency in final design as approved and released for construction, such that the design does not conform to the criteria and basis stated in the safety analysis report or construction permit.

Accordingly, the committee concluded that the incident was reportable by the criteria of 10CFR50.55(e).

4. Other Facilities which may be Effected

Per the requirements of Regulatory Guide 1.76, all safety related HVAC systems are being evaluated to determine adequate safety function in the event of a tornado.

5. Corrective Action (taken/proposed)

The deficiency identified as well as any subsequent failure points will be corrected.

6. Required Project Evaluation and individual determination

	<u>Signature</u>	<u>Reportable</u>	<u>Not Reportable</u>
Project Manager	<u>John Meade</u>	<u>X</u>	<u> </u>
Project QA Group Supv.	<u>Jim Blair</u>	<u>X</u>	<u> </u>
Cog. Group Supervisor	<u>W. J. Rockford</u>	<u>X</u>	<u> </u>
Licensing Supervisor	<u>H. J. Devenney</u>	<u>X</u>	<u> </u>

(Decisions by the above must be unanimous to preclude further evaluation. In the event unanimity cannot be achieved, the below listed Directors shall evaluate).

7. Required Directors and individual decisions

	<u>Signature</u>	<u>Reportable</u>	<u>Not Reportable</u>
Director of Project Operations	<u> </u>	<u> </u>	<u> </u>
Director of Quality Assurance	<u> </u>	<u> </u>	<u> </u>
Director of Engineering and Design	<u> </u>	<u> </u>	<u> </u>
Office of the President	<u> </u>	<u> </u>	<u> </u>

Action taken Client Advised Licensing Supervisor H. J. Devenney
 (date) 6/26/81

HL Bennett

WG Conn

OK Earle

LT Harrold-410

BA Holmberg-901A

RT Johnson

WG Keltner

AN Kugler

RG Matlock

JD Martin

IA Rodriguez

RP Sabol

ME Witherspoon

GD Bouchey

WC Bibb

sf 2

pf 1

HLB/1b

ANK/1b

WGC/1b

tickle file

Docket No. 50-397

April 7, 1981

G02-81-72

Nuclear Regulatory Commission

Region V

Suite 202, Walnut Creek Plaza

1990 N. California Blvd.

Walnut Creek, California 94596

Attention: Mr. R. H. Engelken

Director

Subject: WPPSS Nuclear Project No. 2

Docket No. 50-397, CPPR-93

Potentially Reportable 10CFR50.55(e)

Condition - WNP-2 No. 142

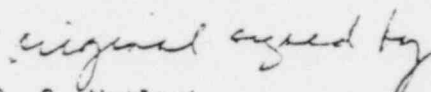
"Diesel Generator Building HVAC Systems"

Gentlemen:

In accordance with provisions of 10CFR50.55(e), your staff was informed by telephone on March 5, 1981, of a "Potentially Reportable" condition in respect to a possible design deficiency in the Diesel Generator Building HVAC systems. The deficiency may result in failure of HVAC ductwork during a tornado event which could degrade the capability of the systems to perform their intended function.

Attached is an interim report on the subject condition. Please contact us if you have additional questions.

Very truly yours,



R. G. Matlock

Program Director, WNP-2

RGM:HLB:cph
attachment

cc w/att:

V. Stello - NRC

AD Toth - NRC Resident Inspector

RE Snaith - Burns & Roe

JJ Verderber - Burns & Roe

RC Root - Burns & Roe, site

TA Mangelsdorf - Bechtel, site

W. Wood - NUS Corporation

WS Chin - Bonneville Power Admin.

WNP-2 Files

AUTHOR:	HL Bennett	<i>H. L. Bennett</i>	4/2/81	FOR SIGNATURE OF:	RG Matlock	<i>RG Matlock</i>	4-7-81
SECTION							
FOR APPROVAL OF	WG Conn	AN Kugler		BA Holmberg	RT Johnson	WC Bibb	
APPROVED	<i>WG Conn</i>	<i>AN Kugler</i>		<i>BA Holmberg</i>	<i>RT Johnson</i>	<i>WC Bibb</i>	
DATE	4/2/81	4/3/81		4/5/81	4/6/81	4/6/81	

Interim Report

POTENTIALLY REPORTABLE CONDITION WPPSS NUCLEAR PROJECT NO. 2 DIESEL GENERATOR BUILDING HVAC SYSTEMS

WASHINGTON PUBLIC POWER SUPPLY SYSTEM
DOCKET NO. 50-397
LICENSE NO. CPPR-93

Potential Problem

The potential problem involves the adequacy of the Emergency Diesel-Generator Building HVAC ductwork to withstand damage and loss of function during a tornado event. This concern resulted from a similar potentially deficient condition reported to the NRC by our WNP-1/4 Projects.

Designs of the systems for WNP-2 and WNP-1/4 are similar in that common intakes are utilized for both diesel engine air and HVAC air. The WNP-2 systems, however, do not include tornado dampers as utilized by WNP-1/4 projects and as incorrectly reported in the telephone notification of the potential condition on March 5, 1981.

Approach to Resolution of the Problem

1. Determine the differential pressure conditions and rates of change in pressure the HVAC ductwork will be subjected to during a tornado event considering the relative venting rates of the ductwork and surrounding building volumes.
2. Evaluate the capability of the present ductwork to withstand, without damage, the pressure conditions determined to exist from Item 1 above.
3. Determine design modifications to the ductwork or system arrangement required to correct any deficient conditions which are identified.

In addition to the Emergency Diesel Generator Building HVAC systems, reviews will be made of other WNP-2 safety related HVAC systems to determine if similar potential deficiencies may exist. Parameters specified for Region III in Table I of Regulatory Guide 1.76, Revision 0, dated April 1974 will apply for all system reviews.

Status of Proposed Resolution

The WNP-2 Architect/Engineer was directed by letter, WPBR-81-39 dated February 27, 1981, to perform the required analyses and evaluations of the safety related HVAC systems and to determine design or system modifications required.

The required work is currently in progress.

Reason Why a Final Report Will Be Delayed

Additional time required to accomplish the system evaluations and to determine modifications required.

Projected Completion of Corrective Action and Report

It is expected a final report identifying deficient conditions and corrective action can be provided to the NRC by July 1, 1981.