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FACIL:50-397 WPPSS Nuclear Project, Unit 2, Washington Public Powe 05000397
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MATLOCK,R.G. Washington Public Power Supply System
RECIP.NAME RECIPIENT AFFILIATION
ENGELKEN,R.H. Region 5, San Francisco, Office of the Director

MA/1

SUBJECT: Interim deficiency rept re inadequacy of sway brace brackets mfg by Power Piping Co, initially reported on 800820. Caused by undersized welds & poor weld quality. In-plant insp of brackets performed. Next rept is scheduled for 810202.

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TITLE: Construction Deficiency Report (10CFR50.55E)

NOTES:PM: 2 copies of all material. 05000397

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LJ.

Washington Public Power Supply System
A JOINT OPERATING AGENCY

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Docket No. 50-397

November 26, 1980
G02-80-271

Mr. R. H. Engelken, Director
Nuclear Regulatory Commission
Region V
Suite 202, Walnut Creek Plaza
1900 N. California Blvd.
Walnut Creek, CA. 94596

Subject: WPPSS NUCLEAR PROJECT NO. 2
DOCKET NO. 50-397, CPPR-93
REPORTABLE DEFICIENCY - 10CFR50.55(e)

Reference: (a) Telecon, QA2-80-309 dated 8/20/80,
Subject: Notification of Reportable 10CFR50.55(e)
(b) G02-80-208 dated 9/19/80,
Subject: Reportable Deficiency

Dear Mr. Engelken:

In accordance with the provisions of 10CFR50.55(e), your staff was informed by references (a) and (b) of a reportable deficiency relative to sway brace brackets.

Attached is our follow-up report which provides the status of the program initiated to resolve this deficiency.

A final report will be submitted when the program is completed and evaluated.

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Please contact us if you have additional questions.

Very truly yours,

RG Matlock

R. G. MATLOCK
WNP-2 Program Director

RGM/RPS/im

Attachment
cc: Mr. JR Lewis, BPA w/1
Mr. ND Lewis, EFSEC, Olympia w/1
Mr. RE Snaith, B&R w/1
Mr. V. Stello, NRC w/1
Mr. AD Toth, NRC w/1
Mr. JJ Verderber, B&R w/1
Mr. B. Wood, NUS Corp. w/1
WNP-2 Files

REPORTABLE DEFICIENCY AND CORRECTIVE ACTION
WPPSS NUCLEAR PROJECT NO. 2
SWAY BRACE BRACKETS, HS-142, MANUFACTURED BY POWER PIPING CO.
WITH POOR WELDMENT
(UNDERSIZED WELDS, LACK OF FUSION)

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

Description of Deficiency

It has been determined that standard weld fabricated beam attachments that are used in rigid sway brace assemblies were supplied with welds smaller than the sizes required by ASME Section III, DIV. 1, Mandatory Appendix XIII, Table XIII-1740.1 (Winter 1973 Addenda). These weldments were observed to have undersized fillet welds and exhibited poor weld quality.

Using ASME Code Allowables, an analysis has determined that a design deficiency exists for these brackets when loads are applied at an angle greater than 15^{0} off the perpendicular.

Safety Significance

Failure of these beam attachments would render the rigid sway brace ineffective and could result in piping system failure. This would adversely affect the safe operation of the plant and personnel safety.

Corrective Action

A preliminary test of the size 15 bracket was performed on October 24, 1980. The primary purpose of this test was to verify the test apparatus and procedure that will be used in an overall test program to demonstrate by proof load tests that the brackets are adequate for the intended service. During this preliminary test of twenty (20) size 15 brackets, 19 of 20 satisfactorily passed the proof load requirements of NF-3233. Metallographic examination has been performed on the welds of randomly selected brackets of varying sizes. This evaluation confirmed the existance of undersized welds and also identified various weld defects (e.g., lack of fusion, poor penetration).

An in-plant inspection by qualified welding engineers of all brackets was initiated on November 4, 1980 and is complete as of this date. The intent of this inspection was to establish weld sizes, visual defect distribution, angular load position, and to establish the basis for selection of test samples. Preliminary results indicate that undersize weldments of generally poor weld quality exist.

A test program will be initiated approximately December 12, 1980 to proof test representative samples in accordance with NF-3233. The process to select samples for the test program will be determined by consideration of the following:

a) Selection by minimum size welds determined by field inspection. This selection for a statistical evaluation would be considered conservatively biased.

b) Selection by visual inspection to identify poor quality of weldments. This selection for a statistical evaluation would be considered conservatively biased.

The random variable in this selection process will be the fusion of the weldments and its quality, which is not visible during inspection. The sample size will be sufficient to insure that the brackets tested will be representative of brackets of minimum quality. The design of the test fixture, due to a predetermined angular load, will induce a maximum stress condition in the bracket weldment. If any brackets fail to meet the proof load, the results will be reported in a statistical format with the possibility of the following actions:

a) If the results of the test program indicate an insignificant failure rate, the brackets, even with the undersize weld and generally poor weld quality, will be considered adequate for their intended service.

b) If the results of the test program indicate a significant failure rate a new derated load capacity will be used. Derating may be applied to the load rating or by limiting the angle at which the load is applied.

c) When a support is defined to be deficient in accordance with the test derated capacity, the bracket will be repaired or replaced.

A final report or an interim report will be provided by February 2, 1981.