

50.55(e) Report

Washington Public Power Supply System

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March 16, 1983
G01-83-0100

Nuclear Regulatory Commission
Region V
1450 Maria Land, Suite 210
Walnut Creek, California 94596

Attention: Mr. D. M. Sternberg
Chief, Reactor Construction
Projects Branch No. 1

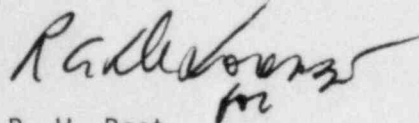
Subject: NUCLEAR PROJECTS 1 AND 4
DOCKET NOS. 50-460 AND 50-513
POTENTIALLY REPORTABLE CONDITION 10CFR50.55(e)
MINIMUM FILLET WELD SIZE

Reference: Telecon CR Edwards, Supply System to R. T. Dodds, dated
February 14, 1983.

In the above reference, the Supply System informed your office of a potentially reportable deficiency in accordance with the requirements of 10CFR50.55(e).

Attachment A includes a brief description of the identified potential deficiency and the Project's action to date. Due to the extended construction delay of the WNP-1/4 Projects, implementation of any corrective action will not occur until restart of construction. Upon restart of construction we will provide an update report on the status of our corrective action.

If you have any questions or desire further information, please advise.



R. W. Root,
Program Director

RWR:CRE:cmo
Attachment

cc: JP Laspa, Bechtel 861
V Mani, UE&C 897
V Stello, Director of Inspection, NRC
A Toth, NRC 917Q
ORM 847

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ATTACHMENT A

WNP-1/4

DOCKET NOS. 50-460 AND 50-513

POTENTIAL REPORTABLE CONDITION 10CFR50.55(e)

MINIMUM FILLET WELD SIZE

BACKGROUND

The AWS D1.1 and AISC Codes have requirements for a minimum fillet weld size for prequalified joints as determined by the base metal thickness of the thicker part joined, except the weld size need not exceed the thickness of the thinner part joined. This minimum fillet size for a prequalified joint applies even if it is greater than the fillet size required to carry design stresses. This provision is intended to ensure sufficient heat input in welding high carbon equivalent materials in order to reduce the possibility of cracking in either the heat-affected zone or weld metal, especially in a restrained joint.

During inspection and statusing activities during the extended construction delay it was found that certain HVAC, Conduit & Cable Tray supports which are attached to building steel which has a thickness greater than 3/4 inch did not have the required minimum size fillet of 5/16 inch.

DESCRIPTION OF POTENTIAL DEFICIENCY

Fillet welds attaching HVAC duct hangers, cable tray and conduit supports to Quality Class 1 building steel over 3/4 inch have been identified that do not meet the minimum size requirement of AWS D1.1, AISC and contract specifications.

During routine inspection of installed HVAC duct hangers to building steel with a web or flange thickness greater than 3/4 inch, the 216 contractor found that approximately 45 percent of the fillet welds were undersized by 1/32 to 1/16 inch. In most cases, the fillet weld size is 1/4 inch instead of 5/16 inch as required by AWS D1.1 and contract requirements. These conditions are documented on contractor nonconformance reports.

The 218 contractor has written a CNCR to document that fillet welds made to building steel greater than 3/4 of an inch in thickness and requiring increased weld size were not completed and inspected with the increased weld size requirement.

This issue of undersize fillet welds is not anticipated to be a problem from a design or weld adequacy standpoint, but is considered a potential deficiency because of the extensive analysis and engineering manhours that will be required to verify condition acceptability.

SAFETY IMPLICATIONS

For Contracts 216 and 218 it is anticipated that a design condition does not exist which could cause a failure of a safety related item. This will be verified by analysis during as-built design verification review.

Other contracts (207A, 211, 217, 245, 246, 253, 254, 257) whose scope could have involved welded attachments to Quality Class 1 structures have been reviewed and found to have the proper requirements for minimum fillet weld size detailed in their procedures and/or drawings. Also, generic conditions of undersize welds have not been identified with these contracts.

CORRECTIVE ACTION

The 216 contractor has completed an inspection walkdown for undersize fillet welds on all duct hangers to building steel greater than 3/4 inch thickness and documented any undersize fillets. The undersized weld problems will be submitted by contractor nonconformance report to engineering for disposition.

Out of 42 randomly selected supports, an analysis was performed by UE&C on three (3) of the worst case conditions. This analysis verified the as-installed supports acceptable from a design standpoint; no rework of the installed welds is required. The Engineer has concluded the as-installed hanger design is acceptable.

Since the undersize welds do not meet the AWS D1.1 provisions for prequalified joints, the 216 contractor will perform welding procedure qualification to verify weld adequacy. Prior to construction restart, the 216 contractor shall perform indoctrination and training of welders and quality control personnel.

The 218 contractor has not completed a detailed inspection walkdown to determine which field fillet welds to building steel do not comply with the Code provisions. Since their inspection procedures and drawings did not include the contract provisions for minimum fillet weld size, it is assumed the field weld fillet size installed was based on design stresses. It is expected the as-installed support fillet weld sizes will be found acceptable from a design standpoint and no rework of installed welds will be required.

The 218 contractor's procedures and drawings as applicable will be revised to reflect the contract requirements for minimum fillet weld size. The adequacy of the welds will be verified by welding procedure qualification. Indoctrination and training of personnel will be performed prior to construction restart.

The as-built requirements in contracts 216 and 218 will be revised to require the as-building of attachment welds to building steel with thickness greater than 3/4 of an inch. In addition, UE&C's as-building procedure, PP-44, will be revised to require an analysis of these welds for acceptability.

At the present time, the applicability of this condition to WNP-4 has not been determined; however, the corrective actions taken for WNP-1 would also apply to WNP-4 upon restart of construction at WNP-4.