Central files

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION V
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WALNUT CREEK, CALIFORNIA 94596

January 20, 1981

Docket No. 50-397

Washington Public Power Supply System
P. O. Box 968
3000 George Washington Way
Richland, Washington 99352

Attention: Mr. R. G. Matlock
Program Director

Reference: IE Inspection Report No. 50-397/79-18

Gentlemen:

The purpose of this letter is to transmit the IE position regarding the equivalency of manual and mechanized preservice examinations of the WNP-2 reactor pressure vessel.

The requirements for preservice examination are specified by the ASME B&PV Code Section XI, 1974 Edition including addenda through Summer 1975, Subarticle IWB-2200(b)(2) as follows:

> (b) Shop or field examinations may serve in lieu of the on-site preservice examinations provided:
>
> (1) ....
>
> (2) such examinations are conducted under conditions and with equipment and techniques equivalent to those that are expected to be employed for subsequent inservice examinations...."

The WNP-2 Preservice Inspection Program Plan, Section 6.3 states the following commitments regarding the mechanized preservice examinations:

> "a. All RPV welds, nozzles, and other areas for which baseline data required by ASME Section XI has not been established during the partial manual baseline examination will be examined using mechanized equipment or manually depending on the method to be used for the particular examination area inservice.
>
> b. All RPV and nozzle welds and examination areas which will be examined utilizing remote mechanized examination equipment inservice will be verified examinable by performing a fit-and-function of such remote examination equipment.

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c. Examination areas containing a) complex surface intersections or geometries, such as nozzle-to-vessel welds, or b) previously recorded indications, and c) the major vessel repair area in the beltline region, will be examined utilizing remote equipment. Where possible, data obtained during these mechanical examinations will be compared with the manually obtained data described above to correlate the two sets of data to 1) verify the amplitude, location, shape, size and orientation of the previously recorded indications, and 2) identify any additional indication that may be recorded utilizing the mechanized equipment, that are in addition to those found with the manual method for these areas."

Your staff provided the response to an inquiry to the ASME Code Subcommittee addressing the equivalency of preservice and inservice examinations. (ASME Agenda Item No. ISI-76-31) This response states that manual preservice ultrasonic examination can be considered equivalent to mechanized preservice ultrasonic examination provided that:

- examinations are performed from the same surfaces;
- the same ultrasonic transducer angles and frequencies are used; and
- the same ultrasonic calibration standards, or blocks, are used.

We interpret the ASME letter to require a broad correlation effort, with explicit documentation of a spectrum of reflectors identified by manual examination, together with corresponding data from automated examination, and the correlation developed from representative reflectors in each type of examination area - i.e., belt line plate repair welds, belt line girth welds, belt line longitudinal welds, RPV flange areas, nozzle bore and shoulder examination, etc.

This correlation effort of course works both ways. If a reflector is found by manual examination and not by automated examination, the automated examination techniques should be improved or explicit information should be developed to demonstrate that the automated technique satisfies Section XI requirements. If the automated equipment finds reflectors not identified by manual techniques, appropriate action must be taken to verify that the manual examination satisfies Section XI requirements.

This position has been discussed with Mr. D. Porter of your engineering staff. If your plans for mechanized examination of the WNP-2 reactor pressure vessel are not in accordance with this position, please notify this office.

Sincerely,

RJ Mattson

G. S. Spencer, Chief
Reactor Construction and Engineering
Support Branch

cc:
M. E. Witherspoon, Quality Assurance Director
W. C. Bibb, Project Manager