

SSER

Task: Allegation A-23c

Reference No.: 4-83-A-81-A4c

Characterization: It is alleged that Tompkins-Beckwith (T-B) welding procedures and techniques used in ASME Code Classes 1, 2, and 3 piping systems installed by T-B were inadequate in six specific areas.

Assessment of Allegation: The NRC staff assessed this allegation based on the ASME Code requirement that before certain welds are used in a nuclear plant, a typical sample must be produced and tested. The sample must be of identical material and must simulate the same welding conditions as those expected in the field.

The first area of the allegor's concern is that T-B welding procedure (WP) 1.8 did not include qualifications for weld impact tests (Charpy impact tests) and for post weld heat treatment (PWHT). This procedure was used on penetrations and, if the allegation is true, the quality of penetrations could be questioned.

A test or welding operation is considered qualified in a procedure when that test or operation is shown to be capable of producing the desired results. If, for example, a weld procedure includes qualifications for Charpy Impact Tests, then Charpy impact tests must be performed in accordance with certain criteria specified in the procedure. The Charpy Test is a measurement of the toughness of the weld and associated base metal.

Contrary to the statement in the first allegation, T-B WP 1.8 is qualified for impact testing by association with WP 1.15. The first portion of WP 1.15 is identical to WP 1.8. The ASME Code allows a successful qualification to be equally applicable to all identical welds. The successful qualification of WP 1.15 therefore also qualified WP 1.8.

WP 1.8 was also used in conjunction with T-B WP 1.14. A post-weld heat treatment (PWHT) was performed to meet WP 1.14 weld requirements. As a result, WP 1.8 was qualified for impact tests and PWHT so that this area has neither safety significance nor generic implications.

The second and third areas of the allegor's concerns were closely related and can be discussed together. The second concern is that T-B procedure TBP-6 requires welding procedure specifications to be qualified to subsections NB, NC, and ND of the ASME Section III Code. It is alleged that the welding procedures are qualified only to subsection NE of the Code and that the procedure may not even meet this requirement. The T-B welding procedure numbers involved are: 1.1 through 1.7. It is also alleged that "procedures" for impact testing are not qualified per Code Requirements.

The third concern is that some T-B welding procedures do not meet the impact testing requirements of the ASME Section III Code.

Weld procedures can be separated into those requiring Charpy impact testing and those that do not. Code requirements prohibit using procedures without Charpy impact tests on certain welds. The alleged based his concern on whether certain weld procedures (WP 1.1 - WP 1.7), which did not include impact testing, were used on welds requiring impact testing. The allegation was based on paragraph 6.3.2 of the T-B Procedure TBP-6, which stated that the procedure required qualification of all welds to the NB, NC, and ND sections of the ASME Code. Not mentioned in the allegation, but contained in the procedure, were the words "as applicable."

Welding procedures WP 1.1 to WP 1.7 were used on non-Code welds or on welds joining materials of less than 5/8" thickness, which do not require qualification for Charpy impact testing. As a result, there was no need to do any impact testing since that qualification was not required. Accordingly, this area has neither safety significance nor generic implications.

The final three areas of the alleged's concerns involve filler material used on welds. They are that:

- o Carbon steel filler material was used on stainless steel welds or that stainless steel filler material was used on carbon steel welds.
- o Welds were incorrectly made using carbon steel filler material and later repaired with 309 stainless steel filler material.
- o Bi-metal welds were made with carbon steel filler material and not 309-stainless steel, as required.

These welding errors were found and corrected from 1979 to 1983. In each case an NCR was written, the necessary changes were made, and the NCR was closed.

NCRs W3-1409 and W3-3438 covered the removal of improperly used carbon steel weld material and the rewelding of the seam with stainless steel and were closed respectively on November 14, 1979, and May 27, 1982.

NCR W3-4565 was used to document the rewelding of a bimetallic weld after it was learned that carbon steel weld rod had been used. This NCR was closed January 24, 1983.

This allegation has neither safety significance nor generic implications.

[Potential Violations: None.] 4

Actions Required: None.

References:

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