

ENCLOSURE

BELLEFONTE NUCLEAR PLANT UNITS 1 AND 2
LACK OF INTERNAL PURGE ON TWO WELDS
IN CHEMICAL ADDITION AND BORON RECOVERY SYSTEM
NCR 1171
10 CFR 50.55(e)
SECOND INTERIM REPORT

Description of Deficiency

During routine rework operations of Chemical Addition and Boron Recovery (ONB) System pipe welds, it was discovered that two welds (ONB-00367 and ONB-00368) had evidence of lack of sufficient internal purge (i.e., sugaring of weld). Upon investigation, it was found that two welders (FANM and FAOI) had made these weld joints with welder FANM making the root pass and FAOI making the filler or cap passes. Welder FAOI was assigned to make these weld joints and he is the only welder reflected on applicable fitup records. Both welders were certified to ASME Section IX at the time the weld joints were made.

The pipefitter foreman recognized that FANM was a relatively inexperienced stainless steel pipe welder and assigned this welder to make root passes in production welds in order for him to gain greater proficiency with the welding process. Welder FAOI then made cap or filler passes over FANM root passes. This arrangement was unknown to QC welding inspector, who, at fitup inspection, was led to believe that welder FAOI was the only welder assigned to weld the subject weld joints.

To establish the extent of the problem, Bellefonte CONST identified all welds in the ONB System welded by FANM as the root welder and FAOI as the cap welder. All of these welds were radiographically examined for one sector and evaluated for the sugared condition. Of the welds identified as being worked on by FANM and radiographed, four welds (in addition to the two identified above) were sugared. During the investigation two additional welds were found to be sugared which had been welded by two other welders, FANG and FAMN.

The investigations of the four welders were as follows:

*FANM

In addition to the ONB System welds, a list of all ASME Class 3 pipe welds was assembled and sampled according to a plan established in accordance with Mil-Std 105D to achieve a 99 percent confidence factor. His employment at TVA was divided into quarterly annual periods and each quarter investigated as a separate period. He was employed for approximately one year.

Of the 71 welds documented as welded by FANM, 16 have been radiographed for one sector with no sugaring present. One more weld remains to be radiographed to complete the sampling plan.

*FAOI

In addition to the ONB System welds, a list of all ASME Class 3 pipe welds made by FAOI during the four quarters FANM was employed at TVA plus those welds made one quarter before and one quarter after this period were investigated.

Of the approximately 175 Class 3 welds documented as welded by FAOI during this period, 45 were radiographed for one sector. One weld remains to be examined to complete the sampling plan. Again, the sample was established in accordance with Mil-Std 105D. Of the 45 welds radiographed, two sugared welds were identified, both welds being made during the first quarter FANM was assigned to work with him. All welds made by FAOI during this quarter were also radiographed and no further sugaring found.

*FAMN

In addition to the ONB System welds, a list of all ASME Class 3 pipe welds made by FAMN were radiographed and found acceptable (with the exception of the one described above).

*FANG

In addition to the one ONB System weld identified, all other ONB System welds documented as welded by FANG were sampled in accordance with Mil-Std 105D by radiography on one sector of the weld. In total, eight welds were radiographed and found acceptable.

Corrective Action

All welds found unacceptable by radiography will be reworked. Any unacceptable welds found during a quarterly period according the sampling plan will cause all welds of that welder during that quarter to be examined.

In January 1980, Bellefonte CONST instituted a spot radiography program (BNP-SOP-711) of ASME Class 3 and ANSI B31.1 welds to help preclude this type of violation of the QA program.

Also, a site QA training program has been implemented to indoctrinate all craft foremen involved with welding operations of their responsibility in complying with QA requirements.

* Each welder is assigned a unique four-letter stamp to identify his welds.