

HARTSVILLE NUCLEAR PLANTS A AND B  
REINFORCING BAR CADWELD SPLICES  
SUPPLEMENT TO THE FINAL REPORT  
NRC HNP-B-8

This supplemental report to the final report filed on September 22, 1978, provides additional clarification and information as requested by OIE Inspector, Tom Burdette, on November 9, 1978.

Cause of the Deficiency

TVA Ironworkers were altering inadequate cadweld splices (containing voids and/or slag) to make cadweld splices appear acceptable upon inspection by Quality Control.

Documentation of Training TVA Personnel to Preclude Recurrence

TVA internal memoranda indicate that informing and/or retraining of personnel involved in cadwelding/inspection occurred as described below:

QC Inspectors - All currently qualified civil cadweld inspectors for Plant A were informed of the alteration of cadweld splices and "retrained" by their supervisor on or near June 25, 1978, and for Plant B on August 21, 1978. This retraining included examination of altered splices (cut out and kept for QC training) and oral instruction on what to look for in examination of splices. Also, before August 31, 1978, QC inspector Training Module QC-506 "Cadwelding," Addendum No. 1, "Inspection of Tampered Splices," was implemented for training of all new cadweld inspectors of both plants. The documentation of this module was brought up to date on November 14, 1978.

Ironworkers - The ironworker supervisor of the crews involved in producing the three splices found to be altered on Plant A was informed of the alternations within a short time of their discovery (QCIR's written June 23, 1978) and appropriate actions were taken with the crews involved as discussed in the final report. The Assistant Construction Superintendent, Plant B, informed all three shifts of ironworkers and their supervisors of the seriousness and consequences of alternations of this type on August 15, 1978 and August 16, 1978 (satisfying the request made by memorandum from the Plant B Construction Engineer to the Construction Superintendent on August 16, 1978).

Basis for Reporting of Constant QC Surveillance on Cadwelds Fabricated Before May 26, 1978

On May 26, 1978, SOP-4 "Cadweld Splice Installation," was revised, Section 5.6a, to say that, "Constant surveillance will not be made of the cadweld process, but each cadweld will be inspected near the end of the shift and/or once a day." The previous revision did not specifically require constant surveillance during the process, but was interpreted to say so by the Quality Control Units at

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both plants. TVA supervisors documented in memoranda to their respective plant construction engineer the fact that all cadweld splices made before May 26, 1978, were done under constant QC surveillance (due to the above mentioned interpretation of SOP-4) and that splices installed since May 26, 1978, have been reinspected for alterations with the exception of the final Unit A1 reactor basement cadwelds which had constant surveillance until their completion after May 26, 1978.

#### Constant Surveillance Definition

Before May 26, 1978, a QC inspector was assigned to each cadweld crew (2 men) to observe each entire cadweld installation including preparation, fitup, and ignition. After a sufficient cooling down period, the inspector then checked the cadweld for voids, slag, or any other unacceptable feature. The constant presence of the inspector during that time precluded alteration of the cadwelds.

#### Current Surveillance Practices of QC to Preclude Future Tampering

All cadwelds are inspected the same day they are made as required in (SOP-4 Rev. 1, Section 5.6.a). TVA does not require 100% QC surveillance during cadwelding at Hartsville Nuclear Plant and does not plan to since it is considered unnecessary. We do not believe that the failure to require constant surveillance diminishes the effectiveness of our QC program in finding alterations of this type and, thereby, preventing their inclusion into the structure of the buildings. Every QC inspector there has seen samples of altered cadwelds (cut out and kept for QC instruction) and have been given instruction similar to QC-506, Addendum 1, as previously indicated. Since 100% of the cadwelds are inspected the same day they are made, TVA does not anticipate that any similar attempts at alteration in the future could go undetected.

There have not been any cases of tampering/altering since the deficiency mentioned.