

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

1630 Chestnut Street Tower II

85 OCT 3 A 9: 55 September 30, 1985

WBRD-50-390/85-32
WBRD-50-391/85-31

U.S. Nuclear Regulatory Commission
Region II

Attn: Dr. J. Nelson Grace, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Dr. Grace:

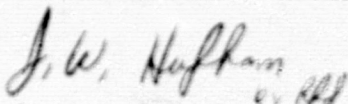
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - POTENTIAL DEFICIENCIES IN WELDER
CERTIFICATION PROGRAM - WBRD-50-390/85-32, WBRD-50-391/85-31 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector
Dave Verrelli on August 30, 1985 in accordance with 10 CFR 50.55(e) as
NCR WBN 6277. Enclosed is our final report.

If you have any questions concerning this matter, please get in touch with
R. H. Shell at FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY



J. W. Hufham, Manager
Licensing and Risk Protection

Enclosure

cc: Mr. James Taylor, Director (Enclosure)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center (Enclosure)
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
POTENTIAL DEFICIENCIES IN CONSTRUCTION WELDER CERTIFICATION PROGRAM
WBRD-390/85-32, WBRD-391/85-31
NCR WBN 6277
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

Discrepancies in the Office of Construction (OC) welder certification program at Watts Bar Nuclear Plant (WBN) have been identified with respect to the adequacy and/or accuracy of welder recertification records. This was also documented in a confirmation of action letter from J. Nelson Grace to H. G. Parris dated August 23, 1985.

Safety Implications

The questionable validity of welder recertification records could result in concerns about the adequacy of welds performed by the affected welders. Inadequate welds in a safety-related system could result in a failure of the system to perform its intended safety function. This could adversely affect the safety of operations of the plant. However, as indicated below, welds performed by an improperly certified welder at WBN would have been inspected by a qualified welding inspector. Inadequate welds would have been rejected, reworked, and reinspected regardless of the welder's certification. Thus, it is believed that the impact of this deficiency on plant safety is minimal.

Resolution of Deficiency

The information in the following report, which describes our resolution of this deficiency, was previously submitted in our response to the above-mentioned confirmation of action letter on September 11, 1985.

By the confirmation of action letter from J. Nelson Grace to H. G. Parris dated August 23, 1985, we were requested to:

1. conduct a thorough review of the program for recertification of welders conducting American Society of Mechanical Engineer (ASME) Code or American Welding Standard (AWS) welding activities,
2. determine if ASME and AWS welding activities have been conducted by properly certified welders and,
3. determine the safety significance of any welding activities conducted by uncertified welders, including appropriate technical justification.

TVA Response

Stop Work Authority 25 was issued on August 23, 1985, to cease OC welding activities at Watts Bar Nuclear Plant (WBN).

TVA has reviewed the construction welder recertification program with regard to the requested actions and provides the following responses:

Item 1--An in-depth review of the welder initial certification as well as the recertification program has been performed under the direction of the OC Quality Assurance Branch, Welding Engineering Unit, to assure compliance to ASME and AWS requirements (reference enclosure 1). The conclusion of this review is that our initial certification and recertification program as delineated in construction procedures meets or exceeds ASME and AWS requirements. However, we acknowledge that a breakdown in the implementation of this program in the area of recertification of welders has occurred.

Item 2--The breakdown in the implementation of welder recertification has been reviewed to determine if welding activities could have been performed by improperly recertified welders. TVA has determined through informal employee interviews, Employee Response Team concerns, and NRC interview feedback that some personnel at WBN have been allowed to maintain certifications without meeting all program requirements. This includes welders now classified as foremen and others not actively engaged in welding. We have not determined to date that any welding has been performed by any individuals whose recertification was improperly updated. However, we cannot positively establish that all ASME and AWS welding activities have been conducted by properly certified welders. We have established a plan to verify all welder qualifications and will identify and reevaluate any existing welds which were performed by welders who do not pass this recertification (reference enclosure 2).

Item 3- Based on our evaluation, we believe that the structural integrity of existing safety-related welds has not been compromised by the subject program implementation problems (reference enclosure 3).

A summary of our actions, including corrective actions, actions to prevent recurrence, and safety significance of past work is presented below:

Corrective Actions

All welders whose certifications are more than 90 days old will receive renewal qualification tests. (Approximately 30 welders have been initially certified in the last 90 days and their certification maintenance is not in question.) Renewal qualification testing is currently in process to assure all welders holding active certifications can meet existing ASME and AWS requirements. Any welding performed by welders who fail this renewal qualification test will be evaluated to verify it meets applicable standards (reference enclosure 2 for details).

We are pursuing a program to determine the extent of improper recertification activities and identify those individuals who may have participated in the resulting falsification of records. A meeting has been held with all employees responsible for the recertification program to explain the severity of the offense, potential penalties, and our intent to investigate and pursue maximum penalties.

Actions to Prevent Recurrence

WBN site procedures controlling welder certification maintenance were revised effective August 26, 1985, to strengthen the requirements for control and documentation of this activity. Most significant is an enhanced requirement for documentation of welder recertification which will be maintained as a duration of construction record. This program is now essentially the same as the program in place at our Bellefonte Nuclear Plant (BLN) and is specifically directed at preventing welder recertification without meeting all program requirements. The enhanced program places prime responsibility for recertification maintenance with the foreman and his/her supervisor.

All welding engineering and inspection personnel have been retrained in the requirements of WBN QCI-4.02, "Welder and Welding Operator Performance Qualification." This is to ensure that all personnel involved with welding activities in any capacity are thoroughly familiar with the requirements for welder certification maintenance and understand the importance of accurately documenting this activity. This training emphasized strict compliance to procedure requirements in general.

Safety Significance

We have reviewed the computerized WBN welder certification program, welding material requisition forms, ASME Code operation sheets and welding surveillance records to determine the potential scope of this problem. The review shows that of the approximately 550 welders

currently certified, only about 250-300 consistently requisition welding filler material and perform welding activities. Any safety-related weld that could possibly have been made by an improperly recertified welder would be or would have been inspected by a qualified welding inspector and the quality assurance record of inspection made a part of the permanent plant records. Rejected welds would have been reworked and reinspected regardless of the welder's certification (reference enclosure 3).

Summary

As a result of actions taken in response to the August 23, 1985, confirmation of action letter, we can at this time provide assurance that all individuals assigned to perform welding activities at WBN are properly certified to ASME or AWS requirements. This assurance, together with our quality assurance program and surveillance, third party inspection on ASME welding and a comprehensive NDE and weld inspection program, will ensure a quality product.

The past breakdown in certification maintenance has been assessed and weighed against our strong program for initial training and certification, quality control verification activities, quality assurance audit and surveillance activities, third party inspections, ASME program reviews, and our ASME N5 program. All of these programs verify the quality of the end product.

ENCLOSURE 1

REVIEW OF CURRENT OC CERTIFICATION PROGRAM
(In Place Through August 25, 1985)

The welder and welder operator performance qualification test program at Watts Bar Nuclear Plant (WBN) was reviewed in-depth. The review consisted of a comparison of the program's content with the requirements of the governing codes (ASME and AWS) and any additional TVA-imposed requirements (TVA General Construction Specification G29).

The codes and G29 require the following:

1. All welders must demonstrate proficiency.
2. All tests must be administered in accordance with written instructions and satisfactory completion documented.
3. All tests must be evaluated against written acceptance criteria.
4. Provisions describing recertification requirements and methods of accomplishing recertifications must be included.
5. Provisions describing reasons and methods for revocation or rescission of certifications must be provided.
6. Provisions for retesting and renewal of qualifications must be included.
7. Provisions for determining the status of welder's certifications at any given time must be included.
8. Provisions for unique identification of each welder must be included.

Watts Bar Nuclear Plant's program was found to contain each of these elements and the specified processes meet or exceed all requirements.

As further evidence to substantiate the adequacy of the current WBN OC program, essentially the same program has been subjected to numerous reviews and audits by NRC, INPO, two authorized nuclear inspection agencies, ASME survey teams, and various internal quality assurance organizations and found to be adequate from a programmatic standpoint.

ENCLOSURE 2

ACTION PLAN TO RENEW OC WELDER QUALIFICATION AND STRENGTHEN CERTIFICATION MAINTENANCE PROCESS

Stop Work Authority number 25 was issued August 23, 1985, and the certification maintenance of all welders certifications was considered questionable, with the exception of 30 welders who had received initial certification tests within the past 90- day period and had not reached a renewal date.

A renewal qualification test program was initiated on August 28, 1985 for all welders whose certification maintenance was questionable. The renewal qualification test program is in accordance with the requirements of the ASME Code, Section IX, paragraph QW.322, and the AWS Code D.1.1, paragraph 5.30. All renewal qualification tests are being administered in accordance with QCI 4.02 under strict supervision with additional weld test supervisors from Bellefonte and the OC Welding Staff. A continuing surveillance program is being administered by OC quality assurance personnel and the program has been observed by NRC Region II. All renewal qualification test coupons are being evaluated by radiography in accordance with the applicable code (ASME/AWS).

Approximately 500 welders require renewal qualification tests and have been requested to report to the Watts Bar weld test facilities. After qualification renewal testing is complete, any previous welding performed by the welders who fail the recertification test will be reevaluated. Certifications of all personnel not actively engaged in welding activities will be administratively withdrawn.

All personnel actively involved in the welder certification program at Watts Bar will be retrained to the requirements of site procedure QCI 4.02, "Welder and Welding Operator Performance Qualification Test." This training, conducted by the unit supervisors, was completed on September 4, 1985. This will ensure that all personnel involved with the welder recertification process in any capacity are thoroughly familiar with the requirements for welder certification maintenance and understand the importance of accurate documentation of all quality functions.

Site procedures controlling welder certification maintenance were revised effective August 26, 1985, to strengthen the requirements for control and documentation of this activity. Certification maintenance of welders will be initiated by completion of the verification statement printed on the weld material requisition slip. The craft foreman or his supervisor will witness the welding operation and complete the verification statement including the process used, date of use, feature/item welded, welder's name and unique identification. The requisition slip will be forwarded to the site Welding Engineering Unit (WEU) on a daily basis. WEU personnel will encode the usage date into a computer program for statusing current certification and maintain the completed requisition as a duration of construction document. This program is now essentially the same as the program in place at TVA's Bellefonte Nuclear Plant and is specifically directed at preventing welder recertification without meeting all program requirements. The enhanced program places prime responsibility for recertification maintenance with the foreman and his/her supervisor.

ENCLOSURE 3

EVALUATION OF SAFETY SIGNIFICANCE OF EXISTING WELDS

Adverse safety significance is dependent upon the failure to detect a condition which might impair the safe operation or safe shutdown of a nuclear unit.

OC's evaluation of the possible performance of welding by welders who had improperly maintained certification was predicated upon this premise and considered the following:

1. All ASME and AWS welds have a prescribed menu of inspection which must be and have been satisfied.
2. All welders did satisfactorily complete an uncontested performance qualification test prior to performance of any welding.
3. All ASME Section XI baseline inspections for unit 1 have been completed by NUC PR on both piping and supports and are largely complete on unit 2 piping.
4. All ASME welding and welding inspections at Watts Bar have been conducted under the surveillance of an authorized nuclear inspection agency.
5. INPO issued two "good practice" citations for Watts Bar's welding program based on their May 1985 evaluation. No substandard welding practices were identified during their review.
6. Watts Bar Nuclear Plant has conducted several reinspection programs on ASME and AWS welding and corrected all detected deficiencies.
7. All weld inspections have been performed by fully trained, qualified and certified inspectors. OC's inspection program aspects concerning inspector qualification was recently reviewed and found acceptable by NSRS.
8. Welding activities including weld quality have been monitored by NPC, ASME survey teams, INPO, and various internal audit groups on numerous occasions throughout Watts Bar's construction program and all identified deficiencies corrected.

Based on the above items, OC believes that the probability of an undetected deficient weld is extremely remote and no adverse safety significance exists.