

TVA EMPLOYEE CONCERNS  
SPECIAL PROGRAM

REPORT NUMBER: WP-07

REPORT TYPE: Welding Project

REVISION NUMBER: 1

TITLE: Welder Training Program for Construction and  
Nuclear Operations

REASON FOR REVISION: N/A

SWEC SUMMARY STATEMENT: N/A

PREPARATION

PREPARED BY:

Original Signed By R. D. Briggs  
SIGNATURE

08-12-86  
DATE

REVIEWS

PEER:

Original Signed By J. F. Lewis  
SIGNATURE

08-12-86  
DATE

TAS: TECHNICAL REVIEW ONLY

*DL Stewart*

SIGNATURE

11/19/86  
DATE

CONCURRENCES

Original Signed By  
CEG-H: L. E. Martin

03-18-86

SIGNATURE

DATE

SRP: *James R Russell*  
SIGNATURE\*

11-20-86  
DATE

APPROVED BY:

*MURphy*

ECSP MANAGER

11-19-86

DATE

N/A

MANAGER OF NUCLEAR POWER

DATE

CONCURRENCE (FINAL REPORT ONLY)

\*SRP Secretary's signature denotes SRP concurrences are in files.

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WELDING PROJECT  
GENERIC EMPLOYEE CONCERN  
EVALUATION REPORT

REPORT NUMBER: WP-07-SQN, R1

DATE 08/12/86

SUBJECT: WELDER TRAINING PROGRAM FOR CONSTRUCTION AND NUCLEAR OPERATIONS

CONCERNS CONSIDERED: IN-85-706-001  
XX-85-045-001  
EX-85-008-001

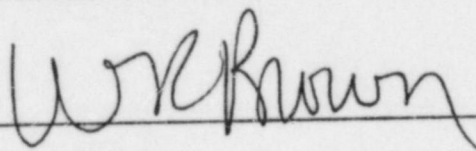
|R1

PREPARED BY Original Signed by Robert D. Briggs 8/12/86, OC, WP

REVIEWED BY Original Signed by James F. Lewis 8/12/86, OC, WP

REVIEWED BY Original Signed by R. P. Lynskey 8/13/86, QA, WP

REVIEWED BY Original Signed by L. E. Martin 8/18/86, CEG-H, WELDING

APPROVED BY  9/3/86 PROGRAM MANAGER

Revision 1 to this report is being issued to add an employee concern which has been evaluated and determined to involve issues previously evaluated, dispositioned, and closed by the WP.

GENERIC EMPLOYEE CONCERN

SUMMARY SHEET

Report Number: WP-07-SQN, R1

SUBJECT: WELDER TRAINING PROGRAM FOR CONSTRUCTION AND NUCLEAR OPERATIONS

I. CONCERNS CONSIDERED: JN-85-706-001  
XX-85-045-001  
EX-85-008-001

| R1

II. ISSUES INVOLVED

1. The TVA Welder Training Program is inadequate for nuclear construction.
2. Welder performance qualification tests do not test a welder's overall ability.

III. STATEMENT OF CONCERN/ISSUE VALIDITY

Validity: Y\_\_\_\_, N X, Substantiated: Y\_\_\_\_, N X.

IV. EFFECT ON HARDWARE AND/OR PROGRAM

None

V. JUSTIFICATION

None

VI. RECOMMENDATION AND/OR CORRECTIVE ACTION NEEDED

None

VII. REINSPECTION NEEDED: Y\_\_\_\_, N X.

VIII. ISSUE CLOSURE

Based on this report.

IX. ATTACHMENTS

1. Text of Employee Concerns
2. Excerpts From Bechtel Audit - Key Element 3.0, 4.0, and 5.0

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| R1



## GENERIC EMPLOYEE CONCERN

Report Number: WP-07-SQN, R1

Report Title: WELDER TRAINING PROGRAM FOR CONSTRUCTION AND OPERATION

### I. SCOPE OF EVALUATION

This engineering analysis covers the following WBN and BLN concerns deemed to have possible generic implications to SQN:

IN-85-706-001  
XX-85-045-001  
EX-85-008-001

|R1

### II. ISSUES ADDRESSED BY CONCERNS

Each concern was analyzed to determine the issues voiced by the concerned individuals. These issues are as follows:

1. The TVA Welder Training Program is inadequate for nuclear construction.
2. Welder performance qualification tests do not test a welder's overall ability.

### III. CONCERN VALIDITY OR SUBSTANTIATION

SQN and other TVA construction sites have historically had extensive welder training programs. SQN had a welder training facility in operation from the beginning of construction at SQN until approximately 1981. This training program put heavy emphasis on individual instruction and training to perform specific tasks such as open butt GMAW pipe welding. Instructors were craftsmen with considerable skill and experience in all aspects of welding.

There is no regulatory requirement which mandates a welder training program. These programs were developed for the purpose of development of a qualified labor pool of welders from which expert craftsmen could be drawn who would be capable of performing quality work in an efficient manner. This is a prudent business practice. These programs also increased the probability that welders would pass the welder performance qualification test prior to making production welds.

The requirements for welder performance qualification testing outlined in AWS, ANSI, and ASME B&PV Codes address the issue of skill level. These codes state that the purpose and intent of individual welder performance qualification tests are to determine the welder's ability to produce sound welds. This qualification test is the requirement mandated by codes and standards to determine the minimum skill level of welders, not the content or existence of a welder training program.

The requirements for welder performance qualification tests are incorporated into both the OC and NO Quality Assurance Programs, and their details are well documented. They have been audited through the ASME Implementation Survey for Certificates of Authorization and by organizations such as INPO and NRC.

The Bechtel SQN Implementation Audit performed in January 1986, directly addressed this issue in Key Element 3.0, "Initial Welder or Welding Operator Qualifications," Key Element 4.0, "Maintenance of Welder or Welding Operator Qualifications," and Key Element 5.0, "Renewal of Welder and Welding Operator Qualifications." For both OC and NO, the audit indicates that the programs met upper-tier commitments and were effectively implemented.

The SQN Reinspection Program also provides objective evidence of welder skill. No substantial welding problems were discovered which were attributable to welder skill.

In summary, the issues considered in these concerns are not substantiated due to the following factors:

1. There is no requirement relative to welder training programs.
2. The base requirement for welder skill is the Welder Performance Qualification Test Program.
3. The Welder Performance Qualification Test Program is outlined in both the OC and NO QA programs.
4. The Bechtel SQN Implementation Audit has established that these programs have been and are being effectively implemented by OC and NO.
5. No indications of a generic welder skill problem was discovered by the SQN Reinspection Program.

Based on the foregoing analysis, the issues considered in these concerns are closed.

07/25/86

(EMPLOYEE CONCERNS)

03:44:38

CAT	ISSUE	PLANT	PRIORITY	ORG	QTC	EGG	INSP	SD	RD	GD	IO	-----CONCERN-----
WE	SFB	W	1	EGG	A5	512	Y	SR	B			IN-85-706-001

KEYWORDS: QUALIFICATION CRAFTSMAN SPECIFIC

PROB: WCPTT

WELDERS WHO WENT THROUGH TVA'S WELDER TRAINING PROGRAM HAVE INSUFFICIENT TRAINING AND EXPERIENCE TO HANDLE ALL VARIABLES INVOLVED TO PERFORM ADEQUATE WELDS FOR A NUCLEAR INSTALLATION. THIS INADEQUACY HAS CREATED A LOG OF REWORK. CI HAS NO MORE DETAILS.

IR: STAT: RC: WP-07-SQN

TECHNICAL COMMENTARY:

CAT	ISSUE	PLANT	PRIORITY	ORG	QTC	EGG	INSP	SD	RD	GD	IO	-----CONCERN-----
MP		B	1	EGG	A5	512	N	NS		A		XX-85-045-001

KEYWORDS: QUALIFICATION CRAFTSMAN SPECIFIC

PROB: WCPQW

BELLEFONTIE-TVA POLICY ALLOWS FOR PERSONEL TO BE SENT TO THE TEST SHOP AND IN A SHORT-TIME BE CERTIFIED AS AN ELECTRICAL WELDER. THESE WELDERS DO PASS A STRICT TEST DOES NOT TEST THEIR ABILITY WHEN DEALING WITH ALL THE VARIABLES AN EXPERIENCED WELDER CAN HANDLE. INSUFFICIENT WELDER TRAINING (INSP RPT# I-85-352-BLN)

IR: I-85-352-BLN STAT: RC: WP-07-SQN

TECHNICAL COMMENTARY:

CAT	ISSUE	PLANT	PRIORITY	ORG	QTC	EGG	INSP	SD	RD	GD	IO	-----CONCERN-----
WE		W	1	EGG		511	Y	SR				EX-85-008-001

KEYWORDS: QUALIFICATION CRAFTSMAN SUBJOURNEYMEN

PROB: WCPTT

SUBJOURNEYMEN USED TO DO WORK THAT THEY'RE NOT QUALIFIED TO DO: THEY NEEDN'T HAVE ANY SPECIFIC TRAINING, BUT DO WORK (EG PIPE FIT-UPS AND WELD ON 1/4" LINES) NORMALLY DONE BY A CLOSER TECHNICAL SUPERVISION THAN TVA PROVIDES. WHEN CRAFT COMPLAIN, THEY ARE "CHEWED OUT" BEYOND ALL REASONABLE LIMITS. NO MORE DETAILS KNOWN.

IR: IN-85-130-001 V STAT: RC: WP-07-SQN

TECHNICAL COMMENTARY:

IN PROCESS UNION POLITICS



KEY ELEMENT NO. 1.0

OFFICE OF CONSTRUCTION  
PREPARATION FOR AUDIT OF WELDING ACTIVITIES

Prior to the start of the audit, the audit team developed an audit plan and identified applicable documents, specific manuals, specifications and procedures which described and implemented the TVA welding activities.

The audit team developed an audit checklist to address all elements identified in the TVA work plan in addition to analysis of employee concerns for significance and integration into the checklist.

The audit team identified and selected a cross section of welded systems from applicable TVA specifications. Welds were randomly selected from drawings applicable to each individual system for programmatic audit.

KEY ELEMENT 2.0

OFFICE OF CONSTRUCTION  
ADEQUACY OF DESIGN OUTPUT DOCUMENTS

For items selected for audit, drawings, welding procedures and supporting records were reviewed and showed compliance with the TVA program and procedures.

OBSERVATION

One observation was noted during the audit of the welding output documents.

The TVA detailed welding procedures (DWP) did not show the name of the key organizational group. By showing the name of the key unit that is responsible for the welding control documents, any questions concerning the welding documents could have been readily resolved.

KEY ELEMENT 3.0

OFFICE OF CONSTRUCTION  
INITIAL WELDER OR WELDING OPERATOR QUALIFICATIONS

Based on audit of welder qualification records and supporting documentation, TVA welders were qualified in accordance with TVA programs and procedures.

0031X

KEY ELEMENT 4.0

OFFICE OF CONSTRUCTION  
MAINTENANCE OF WELDER OR WELDING OPERATOR QUALIFICATIONS

Based on audit of welder maintenance records, TVA welders demonstrated welding within certification expiration dates as required by TVA programs and procedures.

KEY ELEMENT 5.0

OFFICE OF CONSTRUCTION  
RENEWAL OF WELDER OR WELDING OPERATOR QUALIFICATIONS

Based on audit of welder qualification records and maintenance records, TVA welders were requalified in accordance with TVA programs and procedures. In many cases TVA welders were given the original qualification test for renewal which exceeded ASME IX and AWS D1.1 requirements for renewal.

KEY ELEMENT 6.0

OFFICE OF CONSTRUCTION  
INITIAL WELDING INSPECTION PERSONNEL QUALIFICATION

Qualification/Certification records for nondestructive examination personnel (weld inspection) were reviewed for compliance with TVA NDE personnel qualification procedures covering a time span from January, 1971 through March, 1983.

TVA personnel qualification procedures used for the qualification/certification of NDE personnel complied with and referenced the applicable edition of SNT-TC-1A (American Society of Nondestructive-Testing).

Records evidencing qualifications and certifications contained sufficient detail to confirm compliance with applicable codes, standards and specifications in effect during construction activities.

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KEY ELEMENT NO. 1.0

NUCLEAR OPERATIONS  
PREPARATION FOR AUDIT OF WELDING ACTIVITIES

Prior to the start of the audit, the audit team developed an audit plan and identified applicable documents, specific manuals, specifications and procedure which described and implemented the TVA welding activities.

The audit team developed an audit checklist to address all elements identified in the TVA work plan in addition to analysis of employee concerns for significance and integration into the checklist.

The audit team identified and selected a cross section of welded systems based on availability, eg: only systems which had been modified, repaired or replaced fell under Nuclear Operations program for audit. Welds were randomly selected from drawings applicable to each individual system for programmatic audit.

KEY ELEMENT 2.0

NUCLEAR OPERATIONS  
ADEQUACY OF DESIGN OUTPUT DOCUMENTS

For items selected for audit, drawings, welding procedures and supporting records were reviewed and showed compliance with the TVA program and procedures.

OBSERVATION

One observation was noted during the audit of the welding output documents. The TVA detailed welding procedures (DWP) did not show the name of the key organizational group. By showing the name of the key unit that is responsible for the welding control documents, any questions concerning the welding documents could have been readily resolved.

KEY ELEMENT NO. 3.0

NUCLEAR OPERATIONS  
INITIAL WELDER OR WELDING OPERATOR QUALIFICATIONS

Based on audit of welder qualification records and supporting documentation, TVA welders are qualified in accordance with TVA programs and procedures.

0031X

KEY ELEMENT NO. 4.0

NUCLEAR OPERATIONS  
MAINTENANCE OF WELDER OR WELDING OPERATOR QUALIFICATIONS

Based on audit of welder maintenance records, TVA welders demonstrated welding within certification expiration dates as required by TVA programs and procedures.

KEY ELEMENT NO. 5.0

NUCLEAR OPERATIONS  
RENEWAL OF WELDER OR WELDING OPERATOR QUALIFICATIONS

Based on audit of welder qualification records and maintenance records, TVA welders are requalified in accordance with TVA programs and procedures.

KEY ELEMENT 6.0

NUCLEAR OPERATIONS  
INITIAL WELDING INSPECTION PERSONNEL QUALIFICATIONS

All inspector qualification records (NDE, to include visual examination) audited indicated compliance with TVA programs and procedures and the referenced codes and standards.

OBSERVATION

TVA Form 6780 (as referenced in procedure 0202.14) used to document NDE qualification and certification does not clearly identify the recertification status of the individual. Additionally, certification authority is referenced as being in compliance with TVA program requirements when individuals are actually certified in accordance with the specific requirements of Procedure 0202.14 (formerly N75C01), Qualification Certification Program for NDE Personnel.

Program clarity and definition could be improved by adding either the certification expiration date or recertification status as an entry on Form 6780. Specific reference to Procedure 0202.14 on certification forms (6780) would provide for direct reference and compliance with TVA NDE personnel qualification, certification requirements and practices for each NDE method employed.

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