TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS INVESTIGATION REPORT NO. I-85-449-WBN

EMPLOYEE CONCERN IN-85-693-003

MILESTONE 6

SUBJECT: LABORERS DOING CEMENT MASON WORK

DATES OF INVESTIGATION: January 6-21, 1986

INVESTIGATOR: _____ 1-28-86
J. L. Croes — Date

REVIEWED BY: _____ 1/28/86
for J. D. Smith — Date

APPROVED BY: _____ 1/28/86
M. A. Harrison — Date

I. BACKGROUND

The Nuclear Safety Review Staff (NSRS) investigated Employee Concern IN-85-693-003 which Quality Technology Company (QTC) had identified during the Watts Bar Employee Concern Program. The concern was worded as follows:

> Laborers in the Modification and Field Services do Cement Mason work including patching redheads, pouring concrete, grouting baseplates, and laying blocks. CI maintains that cement masons go through a 2 1/2 year apprenticeship and must have 6 years experience before hiring in at WBNP while the laborers get only 20 minutes of classroom training. CI feels this practice is unfair and to date the cement mason union has failed to correct the situation. Names of principals known. CI has no additional information.

II. SCOPE

The concern was investigated by interviews and a review of the applicable union contract and procedures covering concrete work at WBN to determine if laborers were doing masonry work and, if so, were they violating contractural agreements with the unions that represent TVA workers.

III. SUMMARY OF FINDINGS

A. Applicable Documents

1. MAI-17, Revision 2 (9/13/85), "Grouting and Drypacking of Baseplates and Joints"

2. MAI-19, Revision 0 (8/20/85), Repair of Concrete"

3. MAI-20, Revision 0 (8/5/85), "Concrete Placement"

4. General Construction Specification G-2, Revision 5 (11/1/85), "Plain and Reinforced Concrete"

5. General Construction Specification G-21, Revision 1 (6/28/84), "Masonry"

6. General Construction Specification G-22, Revision 1 (4/23/79), "Finishing Concrete Floor Surfaces"

7. General Construction Specification G-32, Revision 10 (4/1/85), "Bolt Anchors Set in Hardened Concrete"

8. General Construction Specification G-34, Revision 3 (8/2/85), "Repair of Concrete"

B. Findings

The employee concern stated that laborers in Modifications and Field Services are doing masonry work. An interview with the Modifications Mechanical Section Supervisor revealed that this practice is common and is covered in The General Agreement Between TVA and the Trades and Labor Council. Article VI of this agreement states: "After staffing an installation or job, TVA shall assign the work to those employees who in its judgement are qualified to safely and efficiently perform the work."

The employee concern stated that the practice of not using masons for concrete work was not fair and the union had failed to correct the situation. This investigation revealed that the Tennessee Valley Trades and Labor Council (the representative organization of the employees) and TVA have agreed to contract language which allows any craft to perform masonry work in the Modifications area of Nuclear Power.

The Modifications and Field Services work crews are made up of a mix of craft personnel who react to a workload subject to change on a frequent basis. The practice of cement masons doing only masonry work is practical for the construction phase because there is a sufficient masonry workload to keep a masonry crew busy.

Several procedures for plant masonry work were reviewed, and there were no requirements found for worker qualifications or certifications. There were requirements for test sampling, but these requirements were for materials testing. There were also many QC holdpoints stated which assure proper application of the concrete regardless of what craft performed the work.

On December 16, 1985, a cement mason was added to the Modifications crew due to an increased masonry workload. This person was assigned to all masonry work in Category 1 buildings as the need arose and on nonsafety-related concrete work when there was no safety-related work.

Interviews with the QC concrete inspectors revealed that no concrete work by the laborers was unacceptable; however, the quality of the finished concrete work has improved since the addition of the cement mason.

IV. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The employee concern as stated was substantiated; however, it was not a violation of union contract agreements or WBN procedures. Through interviews and document reviews, no instances of unacceptable concrete work were discovered.

Recommendations

None.

TVA 64 (OS-9-65) (OP-WP-5-85)

NRC

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO: W. T. Cottle, Site Director, Watts Bar Nuclear Plant

FROM: K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE: FEB 03 1986

SUBJECT: CORRECTIVE ACTION RESPONSE EVALUATION

REPORT NO. : IN-85-130-001

SUBJECT : UNSKILLED PERSONNEL

CONCERN NO.: IN-85-130-001

(X) ACCEPT ( ) REJECT

for K. W. Whitt

RCC:JTH
cc (Attachment):
R. P. Denise, LP6N40A-C
D. R. Nichols, E10A14C-K
QTC/ERT, CONST-WBN
E. K. Sliger, LP6N48A

Principally prepared by R. C. Cutshaw.

0365U

TVA 44 (08-9-85)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

FROM : E. R. Ennis, Plant Manager, Watts Bar Nuclear Plant P&E (Nuclear)

DATE : DEC 23 1985

SUBJECT: WATTS BAR NUCLEAR PLANT - RESPONSE TO EMPLOYEE CONCERN INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is Construction's and P&E Nuclear's responses to Nuclear Safety Review Staff (NSRS) recommendation numbers IN-85-130-001-01, IN-85-130-001-02 and IN-85-130-001-03 contained in NSRS employee concern investigation report IN-85-130-001.

If you have any questions, please contact W. L. Byrd at 3774, Watts Bar Nuclear Plant P&E (Nuclear).

W L Byrd for
E. R. Ennis

WLB:RRG:NC
Attachment

This memorandum was principally prepared by R. R. Gibbs.

1/27/86--JTH
cc (Attachment):
W. D. Stevens--NSRS-WBN--For evaluation, coordinating with Ray Chappell, QTC.

ERT INVESTIGATION REPORT, REV. 2

CONCERN NO.: EX-85-010-002, PH-85-005-001, EX-85-008-001
EX-85-009-001, IN-85-556-001, IN-85-589-002
IN-85-705-001, EX-85-012-001, IN-85-130-001

A substantial number of concerns have been received regarding subjourneymen performing the job functions normally performed by qualified journeymen. Concerned individuals identified subjourneymen in several crafts, including NucPwr maintenance, performing work activities such as, welding, grinding, terminations, valve repairs, threading, bending, pipe fitting, and the use of power tools in general.

RESPONSE:

The following response will address each of the four A-D concerns outlined by QTC.

A. Type of work performed by Subjourneymen

Upon further inquiry to QTC the concern IN-85-130-001 was found to refer only to work done in mechanical maintenance and not under construction supervision. However, QTC's investigation indicated some confusion among construction employees and supervisors as to what range of job responsibilities the subjourneymen could perform.

On February 11, 1982, The Tennessee Valley Authority and the Tennessee Valley Trades and Labor Council agreed to the establishment of Craft-Subjourneymen. On March 26, 1982, Horace H. Mull, Manager of Construction issued a memo titled T&L Craft - Unskilled Worker Classification (Enclosure 1). This memorandum described the intent and purpose of the use of subjourneymen.

The concern centers around the duties a subjourneyman is allowed (by definition) to perform. Subjourneymen may act independently in the accomplishment of unskilled tasks. In this respect unskilled is defined as any task not requiring technical expertise ie. going for tools and material, handling work plans/work packages, paperwork, providing temporary air and water hoses, providing electric cords and changing light bulbs. Subjourneymen may engage in joint operations with journeymen craftmen and assist in the performance of semi-skilled and/or skilled work as a helper by following detailed instructions in the accomplishment of the task. Subjourneymen may use hand tools in the performance of their duties, however they are precluded from the use of power tools.

The only known example reported in construction of a specific incident involved an electrician subjourneyman who was reported as doing cable termination. This report was investigated, substanuated, and the practice was stopped immediately. It was found that the subjourneyman was doing the work under constant surveillance by the journeyman who signed off as responsible for the terminations. The work was inspected, found to be correctly done, and both employees were admolished for their actions. They

were reinstructed on QA requirements and the job responsibilities of a subjourneyman. No one works unsupervised on the job site. Journeymen and subjourneymen all work under the supervision of a foreman and general foreman. Subjourneymen are further instructed to perform work under the guidance of a craftsman.

B. Violations of The Labor Agreement

It is true that the type of appointment for subjourneymen was changed. Mr. Horace H. Mull's memo dated March 26, 1982, states "appointments to these positions were limited to 11 months and 29 days" this was established because a time limitation was required for temporary personnel and they could not be retained past one (1) year. Until May 30, 1985, subjourneymen were being layed off, and then rehired within a few days to enable them to work another year. On May 30, 1985, Ray L. Carpenter, Assistant to the Chief Employment Branch, issued a memo (Enclosure 2), which states "Based on the recent Merit Systems Protection Board (MSPB) decision in the case of Roden V. Tennessee Valley Authority , for purposes of appeals to MSPB, an employee's current continuous service is not interrupted by short breaks in service." This precludes the use of temporary appointment without at least a 30 day break in service. At this point TVA was unable to use the temporary appointment and changed the subjourneymen's appointment to indefinite appointments.

The concern on a subjourneyman's qualification centers around the section of the Labor Agreement which states that "They should be sufficiently experienced and qualified to enable them to perform assigned work in a competent and safe manner." The original intent of 90 days prior experience (Enclosure 3) was to provide only general guidelines to employment of subjourneymen. Some subjourneymen resposibilities require no previous experience, only the ability to perform manual labor as in lifting and carrying material. Personnel evaluates each selection and may use the qualifications when choosing between candidates for a subjourneymen's position. This is comparable to the hiring of laborers who are hired in as unskilled or as a construction laborer with greater work abilities.

C. Potential Safety Hazards to Subjourneymen

It is true that the potential exists for a person with little or no background experience to receive an injury on a job site. However, most safety precautions consist of using common sense when preceeding through a work area. A new employee, subjourneyman or an experienced craftsman, is given an indoctrination by their general foreman who goes over safety rules and is followed up by the weekly safety meeting. Our Safety Engineers have indicated that a new employee, particularly a person who is not familiar with their surroundings is normally found to be more careful in the performance of his duties.

However, I agree with QTC's observations that we do lack a formal safety training program for new employees, subjourneymen and others who are not familiar with the construction work site. We will begin to evaluate this deficiency and take appropriate action. Presently, we have no subjourneymen working for construction at Watts Bar and have no immediate plans to employ any in the near future.

D. Potential quality impact of subjourneymen performing journeymen's work.

Presently we have a quality assurance indoctrination program in effect which is required for all employees. This training is updated periodically according to craft and requirements of work being performed. Past experience has shown that material and equipment may be damaged by actions committed by both experienced craftsmen and subjourneymen with no reported significant differences. There is no evidence that the use of subjourneymen has adversly affected the quality of this project.

SUMMARY:

As stated previously, no subjourneyman presently works for construction at Watts Bar Nuclear Plant. However, the use of subjourneymen is found to be cost effective and an efficient means to provide a helper to each craft, who can perform the aspects of their work requiring little or no special skills. As a precautionary action, future employment of subjourneyman will be proceeded by instructions from the project manager to all involved managers and supervisors on the proper job requirements and responsibilities of a subjourneyman. Additionally, at the point of hiring, each subjourneyman will sign a document, stating that they have been properly instructed by project management on their job requirements, safety, and QA responsibilities and that they agree to work under those instructions or otherwise forfeit their employment.

The Project Manager's office will evaluate what type of safety and QA indoctrination is needed for all new employees who are unfamiliar with a construction work site and begin developement of that program.

The use of subjourneymen in the future will be done in a safe, quality assured, and efficient manner. Their work will be monitored by management more closely to ensure proper work assignments. Anyone with knowledge or the belief that a subjourneyman is performing work outside his classification is encouraged to make his supervisor aware of it. Supervisors and line management are committed to investigate and provide a response to the employee expressing the concern. Any waver from this committment should be reported to the Project Managers Office at once.

Principally prepared by: Harrell Simpson, extension 3507.

RESP01.SB

ATTACHMENT II

P&E Nuclear's response to NSRS Report IN-85-130-001

REFERENCE: EMPLOYEE CONCERN INVESTIGATION REPORT IN-85-130-001

Response to Recommendations IN-85-130-001-01, IN-85-130-001-02 and IN-85-130-001-03

A review of the accident log for Mechanical Maintenance from 3/31/84 through 08/31/85 shows that 10 of the 176 injuries recorded were to subjourneyman. All 10 injuries required first aide treatment only.

All injuries are investigated by the respective General Foreman. No injury or accident has been evaluated as being the result of inappropriate action or lack of action by a subjourneyman.

All new hires into the Mechanical Section are given the same basic safety orientation. Any new employee, (apprentice, subjourneyman or journeyman) may never have worked for TVA, or on equipment which may be energized or pressurized or have familiarity with equipment and tools used by the section. These employees are not given responsibilities which could endanger themselves, others, or equipment.

New employees may be assigned to work with experienced personnel, given jobs to do on their own where the potential for injury or mistakes are minimal or provided with close supervision by the foreman. Responsibilities are added to new employees as their knowledge of plant procedures and requirements increases and as determinations are made regarding their capabilities and limitations.

Qualifications of subjourneyman vary from little related experience, to partial completion of an apprenticeship program, to having worked as a journeyman in maintenance at a nuclear power plant. Therfore, the responsibility given some subjourneymen, may vary depending on supervisory confidence in each individual's ability. This is the same philosophy used in making assignments to journeymen.

The work that subjourneymen do is work that used to be performed by journeymen simply because subjourneymen were not available to support journeymen in the past. There are a multitude of tasks required for the support of a maintenance activity which do not require the skills or knowledge of a journeyman craftsman. Subjourneymen are not hired to replace or to be used as substitutes to perform work requiring the skills of a journeyman craftsman. The journeyman craftsman is responsible for insuring the work activity he is performing is conducted safely and for insuring the quality of the work performed.

The following is in place to help to insure that substandard work does not go undetected.

1. Written instructions are provided for all safety related maintenance activity.

2. Craft are required to follow these written instructions or to know how to have them changed if not adequate.

3. For critical steps which could effect the ability of a safety-related component to perform its intended function, QC hold points are used to verify that acceptance criteria has been met.

REFERENCE: EMPLOYEE CONCERN INVESTIGATION REPORT IN-85-130-001

Response to Recommendations IN-85-130-001-01, IN-85-130-001-02 and IN-85-130-001-03

4. Engineering hold points are added on less critical steps to verify tasks are correctly performed.

5. Craftsmen signoffs and when required double signoffs are used to document that tasks have been completed per instructions given.

6. After completion of work, post maintenance tests are conducted to insure that the equipment will perform its intended function. The test may include but not be limited to: operability checks, leak checks, pressure or hydro test, vibration analysis, surveillance test that insure acceptability of performance criteria.

7. The foremen spot checks work and when necessary, directly supervises the activity in progress.

8. Completed work packages are reviewed by the foreman and General foreman.

9. Selected work packages are reviewed by section engineers.

Any rework that has been required has not been the result of a subjourneyman performing tasks in support of journeyman craftsman.

The use of subjourneymen is controlled and has not or will not effect the quality of work performed nor increases the possibility of substandard work going undetected.

The use of subjourneymen has not been a personnel safety or equipment safety hazard in the past and will not in the future.

Principally prepared by J. L. Collins.

TVA 64 (OS-9-81)
UNITED STATES GOVERNMENT
Memorandum

TENNESSEE VALLEY AUTHORITY

DOC '820329 003

TO : Those listed

FROM : Horace H. Mull, Manager of Construction, E7B24 C-K

DATE : March 26, 1982

SUBJECT: T&L CRAFT - UNSKILLED WORKER CLASSIFICATION

This supersedes my March 19 memo on subjourneymen (DOC 820319 003). Effective March 15, 1982, a new classification was established which allows the Division of Construction to use unskilled workers in certain crafts. Following is a list of crafts and classification titles in which these new employees may be utilized.

Asbestos Worker Subjourneyman
Boilermaker Helper
Bricklayer Improver
Carpenter Pre-Apprentice
Millwright Pre-Apprentice
Electrician Apprentice-Limited (Restricted)
Structural Ironworker Subjourneyman
Reinforcing Ironworker Subjourneyman
Machinist Utilityman
Outside Machinist Utilityman
Painter Utilityman
Cement Mason Improver
Roofer Subjourneyman
Roofer--Slate and Tile Subjourneyman
Sheet Metal Worker Pre-Apprentice
Production Worker Steamfitter Subjourneyman

All trades and labor management employees must be familiar with and understand the duties and provisions of this classification. Basically, they are as follows:

1. Employees in this classification will perform the unskilled duties of the craft in order to free the journeyman craftsmen to fully utilize their technical expertise on the more complicated work. They shall be sufficiently experienced and qualified to enable them to perform assigned work in a competent and safe manner. Employees in this classification shall receive detailed instructions with each new assignment. They may work independently or engage in joint operations with journeyman craftsmen and/or apprentices as instructed.

2. This classification is <u>not</u> intended to serve as a training position for eventual employment as a journeyman craftsman. Accordingly, there is no upgrade program for training toward journeyman status.

3. Employees in this classification will receive a rate of pay equivalent to 60 percent of the journeyman hourly base rate for the craft. Additionally, fringe benefits will be paid at the applicable rate.

Those listed
March 25, 1982

TCL CRAFT - UNSKILLED WORKER CLASSIFICATION

4. The number in each craft will be determined by project management. At no time should the total number of unskilled workers, trainees, and apprentices in a particular craft exceed 33-1/3 percent of the number of employees classified as journeyman craftsmen.

5. These employees can be assigned to work as a crew supervised by a craft foreman or to a journeyman as conditions dictate. The foreman will issue assignments as the needs of the craft dictate.

6. Appointments to these positions will not exceed 11 months and 29 days.

7. Employees in these classifications are not intended to perform duties traditionally assigned to the Laborers' International Union of North America.

8. These employees will not use power tools.

I have long been an advocate of the need for establishing a general, "less than journeyman," classification for the Division of Construction. Much of the work traditionally performed by skilled craftsmen does not require the full skills of their trade. It is this type of unskilled task that these employees are to be used to perform.

Wage rates for these classifications are substantially below those for journeymen; consequently, use of these employees will mean a good cost saving potential on our construction projects if they are used efficiently.

We will not layoff journeymen and replace them with new employees. This would have too great a disruptive effect on our projects; however, I do expect you to begin placing some people in these classifications on most jobs in the near future. Special efforts should be made to make immediate placements in the major crafts.

My office will be monitoring the use of employees in these classifications at the projects to ensure that we are working toward the cost-saving potential inherent in this recent change.

Horace H. Mull

L. S. Cox, Yellow Creek CONST
W. R. Dahnke, Bellefonte CONST
R. T. Hatheote, Hartsville CONST
H. E. Smalling, Pickwick Lock CONST
G. G. Stack, Sequoyah CONST
Frank Van Meter, 500 SPT-K
Guenter Wadewitz, Phipps Bend CONST
J. E. Wilkins, Watts Bar N. CONST

ARW:SH
cc: See list on page 3
Attachments (2)

CONSTRUCTION PROJECTS

REQUEST BY CRAFT FOR T&L UNSKILLED WORKERS

3/24/82

	ASBESTOS WORKER	Asbestos Worker Subjourneyman	BOILERMAKER	Boilermaker Helper	BRICKLAYER	Bricklayer Improver	CARPENTER	Carpenter Pre-Apprentice	MILLWRIGHT	Millwright Pre-Apprentice	ELECTRICIAN	Electrician Apprentice-Limited (Restricted)	IRON WORKER	Structural Iron Worker Subjourneyman	Reinforcing Iron Worker Subjourneyman	MACHINIST	Machinist Utilityman	Outside Machinist Utilityman	PAINTER	Painter Utilityman	CEMENT MASON	Cement Mason Improver	ROOFER	Roofer Subjourneyman	Slate and Tile Subjourneyman	SHEET METAL WORKER	Sheet Metal Subjourneyman	STEAMFITTER	Production Worker Steamfitter Subjourneyman	TOTAL* J'man	TOTAL* SJ'man
Bellefonte			42				33		35		28	2	21	2		30			15		5					16	146	6	3314	
CSB:																														
Browns Ferry							19				9		12			1			3		4						15		120	
Bull Run			21				7		1		15		4						2								14		98	
Colbert			8	2			11		5		21	4	28						1		3					2	19	3	120	
Colbert							9				1		5			1											1		46	
Cumberland			33				30		2		37		33			2			6		1					2	30		564	
Gallatin							8				5		4						2		1						16		61	
Johnsonville			6				13		3		12		24			1			5		3						13		278	
Murphy Hill							8				2		5			2									4		3		134	
Paradise			6	2			18	2	19	2	20	2	10	2		8			3		7						22	2	873	
Shawnee			2				5		4		13		13						2		1						11		103	
Widows Creek							6				6		7						3								7	2	67	
Pickwick							3		2		16	2	29			13			2	1	6					1	18	2	376	
Sequoyah							54	2			37	2	40	2		6			4		5					2	38	2	374	
Watts Bar			17				26		25		40		69			32			31		21					65	121		2454	
				4				4		2		12		6						1								17		46

*Journeyman column reflects total trades and labor employees (all crafts) by project. Hartsville, Phipps Bend and Yellow Creek are not included.

cc: W. R. Brown, E7B23C-K
Ray Carpenter, 211 MIB-K
Gene Farmer, E7D27C-K
H. H. Mull, E7B24C-K
A. R. White, 200 LB-K
L. A. Wilson, 200 LB-K

TVA 2852 (FD-7-80)

Agenda No. _____
(do not fill in)

CLASSIFICATION REQUEST—JOINT CLASSIFICATION COMMITTEE

Date February 11, 19 82

I. Source of Request: TVA Negotiating Committee and the Tennessee Valley Trades and Labor Council

II. Nature of Request:

Present TVA Title and Wage Level (if any) _____

Proposed TVA Title and Wage Level (Craft)-Subjourneyman (e.g. Iron Worker-Subjourneyman) @ 60% of parent classification but not less than the Construction Laborer rate.

Wage Schedule to Which Request Applies Schedule A

Check one of the following:

Establishment of New Class X
Elimination of Existing Class ____
Other ____

Change in Existing Title ____
Change in Wage Level Due to Significant Changes in duties ____

III. Reason for Request and Supporting Factual Data: Requests involving changes in wage rates should not be made unless they are based on classification factors as opposed to prevailing wage considerations. Include here pertinent information as to duties and responsibilities; comparison with other positions or classes; and other supporting argument clarifying or interpreting the request. (Continue on additional sheet if necessary.)

TVA and the Council agreed in negotiations on February 11, 1982, that the individual craft may substitute a different title for their craft's subjourneyman classification.

For duties and other provisions agreed to by TVA and the Council on February 11, 1982, see attached.

These classifications are not intended to perform duties traditionally assigned to the Laborers' International Union of North America.

Council Request J. W. Merritt
J. W. Merritt, President
Tennessee Valley Trades and Labor Council

TVA Request L. A. Wilson
L. Allen Wilson, Director
Labor Relations

IV. Schedule Subcommittee Action

Secretary, Schedule Subcommittee

V. Joint Classification Committee Action

Cathy J. Kilpatrick
Secretary, Joint Classification Committee

Enclosure 3

Those listed

Roy L. Carpenter, Assistant to the Chief, Employment Branch, 211 MIB-K

May 30, 1985

BREAK IN SERVICE CREDITABLE FOR FEDERAL SERVICE

I have had several questions about how to handle a break in service of less than 30 days for the purpose of computing Federal service when two periods of employment combined give an employee more than one year of current continuous service. Based on the recent Merit Systems Protection Board (MSPB) decision in the case of Roden v. Tennessee Valley Authority, for purposes of appeals to MSPB, an employee's current continuous service is not interrupted by short breaks in service. TVA's Personnel Manual (PM 7, Reduction, Part F) provides that creditable service for reduction-in-force (RIF) purposes shall include service breaks of one, two, or three days. If the break is longer than three days, none of the break is included in calculating creditable service. This method of calculating creditable service should also be used for adverse actions.

Richard J. Adams, EPC3D C-K
Ronald C. Brock, 100 PT-C
Robert L. Bryan, Watts Bar
Dow D. Murphy, Nashville
Willie Smith, Jr., SB-M
Benjamin E. Webb, Bellefonte

RLC:BCS
cc: Thomas E. Cressler, 305 MIB-K
Joe M. Gross, 211 MIB-K
James D. Pullin, E6A2 C-K
PCF, 417 MIB-K

Concurred in by OGC (ERP).
0420H

Enclosure 3

Guidelines for Selection of Craft Subjourneymen

Effective March 15, 1932

Candidates for subjourneyman positions shall have at least three months experience in commercial, industrial, or construction type work or have equivalent vocational or technical training. Subjourneymen must be capable of performing safely and competently a wide variety of unskilled duties of the craft.

TVA 64 (OS-9-85) (OP-WP-S-85)

NRC

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO: H. L. Abercrombie, Site Director, Sequoyah Nuclear Plant
R. W. Cantrell, Manager of Engineering, W12A12 C-K

FROM: K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE: JAN 31 1986

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is NSRS Report No. XX-85-010-001

Subject NUTS WELDED TO BASE PLATES

Concern No. XX-85-010-001

and associated prioritized recommendations for your action/disposition.

It is requested that you respond to this report and the attached Priority 1 [P1] and Priority 2 [P2] recommendation by February 28, 1986. Should you have any questions, please contact R. C. Sauer at telephone 2277.

Recommend Reportability Determination: Yes X No ____

Director, NSRS/Designee

RCS:JTH
Attachment
cc (Attachment):
W. C. Bibb, BFN
C. Bonine, 12-108 SB-K
W. T. Cottle, WBN
James P. Darling, BLN
R. P. Denise, LP6N40A-C
R. J. Griffin, SQN E-18
G. B. Kirk, SQN
D. R. Nichols, E10A14 C-K
QTC/ERT, Watts Bar Nuclear Plant
Eric Sliger, LP6N48A-C
J. H. Sullivan, SQN

0385U

NSRS RECOMMENDATIONS

Employee Concern Number: XX-85-010-001

1. X-85-010-001-01 Lack of Objective Evidence in Identifying and Testing Concrete Anchor Lots

   Provide objective evidence or corrective action measures to be taken in assuring concrete anchors were identified by "lots" to the crew which installed them and tested by "lots" when installed by the same crew. (See observations 1 and 2) [P2]

2. X-85-010-001-02, Reevaluation of TVA Response Adequacy to NRC:OIE Bulletin 79-02

   Based on observation 3 TVA exceeded the spirit of the letter of NRC Bulletin 79-02 when 42% of the concrete anchors inspected failed the original workplan acceptance criteria. Though NRC accepted these inspection results, NSRS requests a reevaluation of the NRC Bulletin 79-02 test results. Provide your summary findings and include a statement on the quality of the sample population chosen and documented statistical sampling method used, acceptance criteria and engineering evaluation criteria utilized to remove or justify removing discrepancies from the failed population. (See observation 3) [P2]

3. X-85-010-001-03, Evaluation for Nonconformance Reporting and Corrective Action of Nuts Placed Under Wall Baseplates

   Nuts have been used under wall baseplates as "leveling" nuts. Because of this practice, the structural integrity of the support is questionable and a nonconformance report should be written to document the problem and its dispositioning. [P1]

Principally prepared by R. C. Sauer.

QUALITY TECHNOLOGY COMPANY
P.O. BOX 600 Sweetwater, TN 37874 (615)365-4414

ERT INVESTIGATION REPORT

CONCERN NO: XX-85-010-001

CONCERN: Sequoyah - When removing voided hangers, CI discovered several instances of nuts welded to back of base plates with the concrete chipped away to accept nut. Anchor bolts would accept torque but would not support base plates. Per CI, this situation could exist for the installed hangers. Example: CVC System Reactor Building, Accumulator Room 4. This was about 4 years ago at Sequoyah in Units 1 & 2.

INVESTIGATION
PERFORMED BY: M. P. Mills

DETAILS

PERSONNEL CONTACTED: CONFIDENTIAL

DOCUMENTS REVIEWED:

SMI-0-317-21 Rev. 0	Determination of Anchor Bolt Length to Verify Anchorage.
NRC Bulletin 79/02 (3/8/79)	
M&AI-11 Rev. 11 -	Fabrication, Installation and Documentation of Seismic Supports and Supports Attached to Seismic Category I Structures.
Various NRC Inspection	Reports
M&AI-10 Rev. 10 -	Testing of Expansion Anchors Set in Hardened Concrete.
G-32, Rev. 10	(Construction) Bolt Anchors Set in Hardened Concrete.

SUMMARY OF INVESTIGATION

This concern is not substantiated. The investigation included the Ultrasonic Testing (UT) of 479 bolts in 111 baseplates. 53 bolts/nuts were removed for visual inspection. No nuts were found welded to the back of baseplates.

DETAILS, continued

FINDINGS

The initial investigative activities consisted of reviewing procedures and instructions applicable to the installation of concrete anchor supported baseplates. These procedures and instructions appeared to be adequate for their designed functions, however discrepancies were noted. (See "Observations")

On March 8, 1979, NRC Bulletin 79/02 was issued to TVA. This bulletin addressed the design engineering use of rigid plate assumptions rather than flexible plate assumptions for installation of hanger baseplates. It also addressed the proper installation of concrete anchors. Due to the nature of Bulletin 79/02, it appeared that its resolution might address concern XX-85-010-001, therefore it was also reviewed. This review of Bulletin 79/02 was restricted to those areas which appeared to be applicable to this concern. A thorough review indicated that the resolution of 79/02 should have been applicable to this concern however this was not possible. Several questions arose relating to TVA compliance with Bulletin 79/02. (See "Observations")

A meeting was held with (Confidential) in an effort to determine if the NRC was aware of problems, similar to this concern at other sites, and if so, how those problems were resolved. (Confidential) contacted (Confidential). (Confidential) discussed several problems the NRC was aware of which involved concrete anchors. (Confidential) was asked if he felt the concept of utilizing ultrasonic testing (UT) to determine bolt length as an indication of an anchor discontinuity was acceptable. He agreed that the situation(s) which might result in nuts being welded to the back of baseplates would also require/allow shorter bolts, in most cases, and endorsed the use of UT as an indication of concrete anchors which should be inspected visually.

A meeting was held with (Confidential) and the concern was presented. (Confidential) agreed with the ERT plan to UT a random sample of concrete anchor bolts, and remove for inspection those bolts which were questionable. (Confidential) directed his staff to generate a procedure, with sampling plan, to accomplish this task.

(Confidential), originated Special Maintenance Instruction, SMI-0-317-21 Rev. 0, Determination of Anchor Bolt Length to Verify Anchorage, (Attachment "A") to perform this function. This procedure contains a sampling plan based on a Wald's sequential

DETAILS, continued

FINDINGS, continued

sampling plan. The sampling plan required the UT inspection of 111 baseplates with each baseplate having a minimum of three (3) anchors. Paragraph 5.1 of SMI-0-317-21 required the inspection of an additional 89 baseplates if "...one or more unacceptable anchors are found in the initial sample..."(i.e. nut under baseplate). It is felt that this procedure is acceptable.

The initial UT inspection was performed with one (1) NDE Level II Specialist (See Attachment "B"), one (1) Assistant, two (2) helpers and an ERT Representative. Data sheets were completed for each baseplate with information such as hanger number, location, bolt configuration, bolt diameter, bolt length, type anchor and baseplate general condition. When the UT inspection was completed, 111 baseplates with a total of 479 anchor bolts had been completed. (See Attachment "C") During this phase of the inspection, Maintenance Requests (MR) were generated to evaluate/repair items noted while performing UT. The following MR's were generated for items noted during the UT phase of the inspection:

Inspection Number	MR Number	Problem
1	MR-A-520312	Concrete damage under baseplate 3/8" gap between baseplate & wall
8	MR-A-550482	Washer stuck under baseplate/ concrete damage
10	MR-A-520325	Concrete damage under baseplate
19	MR-A-520314	Bolt not tight
29	MR-A-550483	Concrete damage under baseplate
36	MR-A-550485	Concrete damage around baseplate. Previous anchor holes not filled.
49	MR-A-550475	Concrete damage around baseplate. 3/16" gap between baseplate and wall.
54	MR-A-550480	Pad has damaged grout. Bolt not tight (1/4")
65	MR-A-520323	Concrete damage around base-plate
84	MR-A-520324	Concrete damage around base-plate

DETAILS, continued

FINDINGS, continued

In Addition, two MR's were generated against non-baseplate problems:

MR-A-550473 - Lugs on pipe are also welded to support.
MR-A-550474 - Found a broken cotter pin.

After completing the UT phase of inspection, a review was made of the data sheets to determine which bolts should be visually inspected. The criteria for determining which bolts should be visually inspected was based on bolt length. Any bolt which was 1/4" shorter or longer than the remainder of the bolts or bolts which appeared to be too short for one diameter thread engagement, were pulled for visual inspection and measurement.

A total of 29 baseplates (53 bolts/nuts) were selected for Phase II (Visual) of this inspection with results as noted:

Inspection Number	Devise Number	Number of Bolts	Remarks
1	1-HGR-15	4	MR-A-549840
3	1-HGR-3	4	MR-A-549839
4	1-HGR-30-1-AHU-30-1A	4	Acceptable
14	1-HGR-67-1-ERCWH-111	6	Acceptable
23	1-HGR-70-1-CCH-678	4	Acceptable
26	1-HGR-74-1-RHRH-465	4	MR-A-525613
32	1-HGR-72-1-CSH-449	4	MR-A-549836
43	1-HGR-363-658A4-1402	4	Acceptable
45	1-HGR-631-SIM-444	8	Acceptable
50	1-HGR-74-H63-539	8	Acceptable
56	1-HGR-54	4	See Note(1)
58	1-HGR-62-1-H34-154	4	MR-A-525606
60	1-HGR-62-1-H34-152	4	MR-A-525607
66	1-HGR-63-1-SIH-28	4	MR-A-525608
69	1-HGR-68-a-L-360	4	Acceptable
72	1-HGR-67	4	Acceptable
73	1-HGR-6747AA50-21-300	4	Acceptable

DETAILS, continued

FINDINGS, continued

Inspection Number	Devise Number	Number of Bolts	Remarks
75	1-HGR-63-1-SIH-806	4	MR-A-525609
80	1-HGR-363-NCR1-13558	4	Acceptable
82	1-HGR-631-1-SIH-110	3	Acceptable
84	1-HGR-363-100-700-14547	4	See Note(2)
86	1-HGR-67A450-21-249	4	Acceptable
94	1-HGR-87-1-H45-95	4	Acceptable
98	1-HGR-63-1-SIH-73	4	Acceptable
99	1-HGR-30-47W600-32	4	Acceptable
106	1-HGR-15-1-H47-107	4	Acceptable
107	1-HGR-1-H47-107	4	MR-A-525611
108	1-HGR-62-1-CVCH-857	4	Acceptable
109	1-HGR-62-1-CVCH-863	4	MR-A-525612

Notes:

(1) Bolt was 1/8" short - replaced without MR.
(2) Bolt was 3/16" short - replaced without MR.

During the course of this baseplate inspection, a total of 20 Maintenance Request (MR's) were generated to evaluate/repair 22 baseplate related items.

CONCLUSIONS:

This concern is not substantiated. The investigation included the Ultrasonic Testing (UT) of 479 bolts in 111 baseplates . 53 bolts/nuts were removed for visual inspection. No nuts were found welded to the back of baseplates.

OBSERVATIONS:

During the course of this investigation observations were made which may require additional attention:

DETAILS, continued

OBSERVATIONS, continued

1. Construction Specification G-32 (Anchor Bolts Set in Hardened Concrete) under paragraph 1.5 (Definitions): The definition for "Lot", requires that concrete anchors be identifiable to the crew which installed them. There is no objective evidence this was ever done.

2. NucPwr procedure M&AI-10 (Testing of Expansion Anchors Set in Hardened Concrete) Section 7.3. requires that concrete anchors be tested by "Lots" which were installed by the same crew. There is no objective evidence this was/is done.

3. Unit #1 resolution to 79/02 was accepted via NRC Letter, dated March 18, 1981 with the "Subject of Report Nos. 50-327/81-08 and 50-328/81-06". Unit #2 resolution was noted as acceptable via NRC Letter, dated July 16, 1981 with the "Subject: Report No. 50-328/81-27". Per review of TVA's Work Plan No. S-1206, the actual acceptance criteria for concrete anchors inspected to the requirements of NRC Bulletin 79/02 is not readily definable.

   Due to this lack of definition, it is difficult to understand how TVA could present and the NRC accept the inspection findings. Bottomline results are listed:

	#Inspected	#Discrepancies	%Discrepancies
Unit #1	139	18	13%
Unit #2	217	131	60%
Total	356	149	42%

   The Work Plan NO. S-1206 (page 1 of 7) Section 1.2 requires Phase II of the inspection plan be initiated if more than four (five?) anchors "...are found to be outside of the anchor acceptance criteria...". This was never done, even though 42% failed the original acceptance criteria.

   It is clear that TVA failed in meeting the spirit or the letter of NRC Bulletin 79/02. This statement is further supported by this investigation of concrete anchors. Of the 111 baseplates investigated, 20 required repair/evaluation (18%).

CONCERN NO: XX-85-010-001

DETAILS, continued

OBSERVATIONS, continued

4. Two baseplates (Inspection Items #1 & #3) were found to have nuts on the backside. These nuts were not welded and were used as "Leveling" nuts. This configuration is allowed on floors (See Attachment "D") but not on walls, as is this case. The nuts were found while executing MR-A-549840 & MR-A-549839. Even though this type of mounting is not permitted on a wall, and may be generic, TVA has not generated any type of nonconformance report to address the problem.

PREPARED BY _____ 1-17-86
DATE

REVIEWED BY _____ 1/17/86
DATE

REQUEST FOR REPORTABILITY EVALUATION

1. Request No. XX-85-010-001 (ERT Concern No.) _____ (ID No., if reported)

2. Identification of Item Involved: Concrete Anchor Baseplates (Nomenclature, system, manuf., SN, Model, etc.)

3. Description of Problem (Attach related documents, photos, sketches, etc.)
   Nuts are welded to the backside of hanger base plates.

4. Reason for Reportability: (Use supplemental sheets if necessary)

   A. This design or construction deficiency, were it to have remained uncorrected, could have affected adversely the safety of operations of the nuclear power plant at any time throughout the expected lifetime of the plant.

   No X Yes _____ If Yes, Explain: _____

   AND

   B. This deficiency represents a significant breakdown in any portion of the quality assurance program conducted in accordance with the requirements of Appendix B.

   No X Yes _____ If Yes, Explain: _____

   OR

   C. This deficiency represents a significant deficiency in final design as approved and released for construction such that the design does not conform to the criteria bases stated in the safety analysis report or construction permit.

   No X Yes _____ If Yes, Explain: _____

   OR

REQUEST FOR REPORTABILITY EVALUATION

D. This deficiency represents a significant deficiency in construction of or significant damage to a structure, system or component which will require extensive evaluation, extensive redesign, or extensive repair to meet the criteria and bases stated in the safety analysis report or construction permit or to otherwise establish the adequacy of the structure, system, or component to perform its intended safety function.
No X Yes _____ If Yes, Explain: _____

OR

E. This deficiency represents a significant deviation from the performance specifications which will require extensive evaluation, extensive redesign, or extensive repair to establish the adequacy of the structure, system, or component to perform its intended safety function.
No X Yes _____ If Yes, Explain: _____

IF ITEM 4A, AND 4B OR 4C OR 4D OR 4E ARE MARKED "YES", IMMEDIATELY HAND-CARRY THIS REQUEST AND SUPPORTING DOCUMENTATION TO NSRS.

This Condition was Identified by: E A Shero 3.5-4464
ERT Group Manager Phone Ext.

[signature] 365-6644
ERT Project Manager Phone Ext.

Acknowledgment of receipt by NSRS

RC Sauer Date 1/29/86 Time 1650
Signed

ERT Form M

NRC

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO: W. T. Cottle, Site Director, Watts Bar Nuclear Plant

FROM: K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE: FEB 03 1986

SUBJECT: CORRECTIVE ACTION RESPONSE EVALUATION

REPORT NO. : I-85-403-WBN

SUBJECT : PROCEDURE CHANGE TIME LIMIT

CONCERN NO.: IN-85-977-002

(X) ACCEPT ( ) REJECT

K. W. Whitt

JJK:JTH
cc (Attachment):
R. P. Denise, LP6N40A-C
D. R. Nichols, E10A14C-K
QTC/ERT, CONST-WBN
E. K. Sliger, LP6N48A

Principally prepared by John J. Knightly.

0364U

IN-85-977-002

TVA 24 (08-9-85)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

FROM : W. T. Cottle, Site Director, Watts Bar Nuclear Plant NUC PR

DATE : JAN 20 1986

SUBJECT: WATTS BAR NUCLEAR PLANT - RESPONSE TO EMPLOYEE CONCERN INVESTIGATION REPORT TRANSMITTAL

Upon further review of their initial response to recommendation I-85-403-WBN-01, contained in Nuclear Safety Review Staff (NSRS) employee concern investigation report number I-85-403-WBN, Nuclear Power is revising their response which is transmitted herein.

If you have any questions, please contact W. L. Byrd at 3774, Watts Bar Nuclear Plant NUC PR.

W. T. Cottle

WLB:RRG:NC
Attachment

This memorandum was principally prepared by R. R. Gibbs.

1/27/86--JTH
cc (Attachment):
J. J. Knightly, NSRS-WBN--For evaluation.

Revised Response to Recommendation I-85-403-WBN-01

In our previous response, it was stated that there was a necessity to limit the time that instruction changes (ICs) exist. A review of ICs not incorporated shows that the majority of these are from the surveillance instructions (SIs) undergoing technical review and walkthrough. The large scope of the SI effort caused a major back log. This SI review effort is expected to be complete March 31, 1986.

Please revise the corrective action commitment to state as follows:

All instruction changes that are marked for permanent revision and are greater than 90 days old shall be incorporated into the appropriate instructions by June 1, 1986.

AI-3.1 will be revised by June 1, 1986 to state that instruction changes that are marked for permanent revision should be incoporated in the plant instructions within 30 days; however, shall be incorporated within 90 days.

Note: ICs that are limited use with no permanent revision required do not fall within this requirement.

Principally prepared by T. L. Howard.

TVA 64 (OS-9-85) (OP-WP-5-85)

NRC

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO: W. T. Cottle, Site Director, Watts Bar Nuclear Plant

FROM: K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE: FEB 03 1986

SUBJECT: NUCLEAR SAFETY REVIEW STAFF INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is NSRS Report No. IN-85-284-001

Subject WELD RODS

Concern Nos. IN-85-247-001; -284-001; -299-002; -317-001; -411-002; -450-001; -455-001; -520-002; -524-001; -600-001; -636-001, IN-86-167-003, and PH-85-013-001

associated recommendations for your action/disposition.

It is requested that you respond to this report and the attached recommendations by February 27, 1986. Should you have any questions, please contact W. M. Kemp, Jr. at telephone 3200-WBN.

Recommend Reportability Determination: Yes X No ____

Director, NSRS/Designee

WMK:GDM
Attachment
cc (Attachment):
H. L. Abercrombie, SQN
W. C. Bibb, BFN
James P. Darling, BLN
R. P. Denise, LP6N40A-C
D. R. Nichols, E10A14C-K
QTC/ERT, Watts Bar Nuclear Plant
E. K. Sliger, LP6N48A-C

--Copy and Return--

To : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

From: _____

Date: _____

I hereby acknowledge receipt of NSRS Report No. I-85-284-001
Subject WELD RODS for action/disposition.

_____ _____
Signature Date

NSRS RECOMMENDATIONS

EMPLOYEE CONCERN NUMBER: IN-85-284-001

Q-85-284-001-01

The report verifies failure to document and evaluate correction of a condition potentially adverse to quality. Therefore, either initiate an NCR or justify why an NCR should not be written to document this problem.

Principally prepared by Bruce F. Siefken.

QUALITY
TECHNOLOGY
COMPANY

P.O. BOX 600 Sweetwater, TN 37874 (615)365-4414

ERT INVESTIGATION REPORT

CONCERN NO: IN-85-284-001, IN-86-167-003, IN-85-299-002, IN-85-600-001, IN-85-317-001, PH-85-013-001, IN-85-411-002, IN-85-450-001, IN-85-524-001, IN-85-247-001, IN-85-455-001, IN-85-520-002, IN-85-636-001

CONCERN: The weld rods used at Watts Bar may not be of sufficient quality. See below for specifics.

INVESTIGATION PERFORMED BY: W. M. Kemp, Jr.

DETAILS, continued

IN-86-167-003

Concern: CI is concerned that the quality of the welding rods used is not adequate. Flux on rod is not uniform, and appears "porous" in the non-uniform area (usually near center of flux). CI stated that welds would fail Xray due to the "slag" generated by this porous region.

IN-85-299-002

Concern: Weld rod does not perform well. Excessive porosity occurs and the flux falls off the rod. This had been noticed for the past six years at Watts Bar.

IN-85-284-001

Concern: Problems with weld rod caused by repeated rebaking/poor rod issue procedure. CI questions the quality of weld rods. Rods being rusted and wet and flux being broken off. This has been occurring for the last 4 1/2 years-Unit 1 and 2.

IN-85-317-001

Concern: Weld rods are over-baked. This makes the flux fall off.

IN-85-247-001

Concern: Weld Rod (McKay-Hobart-Airco) have problems of flux breaking off which could be caused from over baking. Flux not uniform on the rod and flux too brittle. 7018 Rod (purchased are of poor quality). This contributes to porosity and pin holing - year 1984, McKay and Hobart.

CONCERN NO: IN-85-284-001, IN-86-167-003, IN-85-299-002,IN-85-600-001, IN-85-317-001, PH-85-013-001, IN-85-411-002,IN-85-450-001, IN-85-524-001, IN-85-247-001, IN-85-455-001,IN-85-520-002, IN-85-636-001

DETAILS, continued

IN-85-450-001

Concern: Flux burns or flakes off weld rod and is also unevenly distributed. Too thick in most cases. Welder suspects it is baked too long. This is a very frequent problem where flux will burn or flake off one side before the other.

IN-85-411-002

Concern: Welding rods (7018, 3/32 only) are not of good quality. Most of welds are made with these weld rods. The rods are being used by all the craftsman. These rods are made by Airco (Both units).

IN-85-455-001

Welding rods are not good. They pin hole on stops and starts. Must grind and buildup.

IN-85-520-002

Concern: Weld rod flux burns too quickly and explodes. TVA often gets an order of bad weld rods.

IN-85-525-001

Concern: Welding rods are issued from the welding shack with cracks in the flux caused from over baking. During welding, large pieces of flux fall off the rod.

IN-85-600-001

Concern: E7018 weld rod purchased by TVA are of poor quality. Steamfitter experiences problems with flux falling and flaking off rod and with rod not being in the center of the flux. Worst problems occurred in 1982 with rod TVA specially purchased from Hobart Co.

IN-85-636-001

Concern: Welding rods are over baked flux has cracks, rods turned in are rebaked and reissued. Using these rods caused pin holes and other faulty welds.

CONCERN NO: IN-85-284-001, IN-86-167-003, IN-85-299-002,IN-85-600-001, IN-85-317-001, PH-85-013-001, IN-85-411-002,IN-85-450-001, IN-85-524-001, IN-85-247-001, IN-85-455-001,IN-85-520-002, IN-85-636-001

DETAILS, continued

PERSONNEL CONTACTED: CONFIDENTIAL

DOCUMENTS REVIEWED:

QAM-5.1 Welding Control
QAM-10.2 Non-Conforming Items and Activities
SF 5.1 Specification for Mild Steel covered Arc Welding Electrodes.
Employee Concern Mar-82-03-04-14
QCI 4.01 Procurement, Storage, Issue and Control of Welding Material.
QAM 4.1 Process Control
Letter from Hobart November 9, 1982
CMTR's for Filler Metal 7018 Hobart, McKay and Airco
Singleton lab reports for Hobart, McKay and Airco
Doc. 81-1119-401 Investigation of Reported Defective E7018 Electrodes by WBN Construction.
Doc. 81-1120-005 Investigation Report.
ANSI N45.2-1971 10-CFB Appendix B

SUMMARY OF INVESTIGATION

These concerns are substantiated.

Based on the investigation there was E-7018 weld rod that had exhibited flux brittleness, which caused the flux to break off.

Further research (follow up) of the concerns determined the following:

1) Because of the flux brittleness, it takes longer to weld.

2) When problems occurred, (i.e. flux brittleness) in process repairs would be conducted (i.e. grinding and re-welding). This would be required because of pin holing and porosity as stated in the Concerns.

3) The statement "weld would fail x-ray" was clarified as "if required to x-ray". The item of concern involved "supports", which do not require x-ray.

CONCERN NO: IN-85-284-001, IN-86-167-003, IN-85-299-002,IN-85-600-001, IN-85-317-001, PH-85-013-001, IN-85-411-002,IN-85-450-001, IN-85-524-001, IN-85-247-001, IN-85-455-001,IN-85-520-002, IN-85-636-001

DETAILS, continued

FINDINGS:

The object of this investigation is to determine if there is a problem with brittle flux on E7018 weld rod and how the problem was identified, controlled and corrected.

November 1981, WEU investigated some concerns of Hobart and Airco welding electrodes. The results of their investigations are addressed in memorandums DOC 81-1119-401 (dated 11-19-81) and DOC 81-1120-005 (dated 11-23-81), and are as follows

-"An eccentricity problem does exist with Airco electrodes and the staff is presently arranging for those affected electrodes to be replaced."

-"WBN construction indicated that they had isolated this condition to two lot numbers; B220 and B222 with quantities and locations as follows:

Lot B220-16,200 pounds-shipped to Cumberland Steam Plant by WBN Construction
Lot B222-24,650 pounds-On hand at WBN"

"As for the Hobart electrodes, we can find no fact to substantiate any alleged problem with them and it is the staffs position that they are suitable for use to perform welding at the Watts Bar Nuclear Bar.

Resolution of the Airco problem was documented on Memorandum 81-1120-403 (Nov.20,1981) which stated to return the 24,650 pounds of 1/8 E-7018, Lot# B222 on hand at WBNP to Airco.

The following, is an accountability of the Airco electrodes in question:

24,650 lbs of Lot B222 returned to Airco

16,200 lbs of Lot B220 weld rod was shipped to the Cumberland Steam Plant (CSP) by WBNP.
40,850 lbs accountability.

CONCERN NO: IN-85-284-001, IN-86-167-003, IN-85-299-002,IN-85-600-001, IN-85-317-001, PH-85-013-001, IN-85-411-002,IN-85-450-001, IN-85-524-001, IN-85-247-001, IN-85-455-001,IN-85-520-002, IN-85-636-001

DETAILS, continued

FINDINGS, continued

WBNP receiving report WBN F81-1530 (dated 3/20/81) accepted the following:

24,050 lbs of Lot B222
15,850 lbs of Lot B220
39,900 lbs accountability

It is noted that 39,900 lbs. of weld rod (Lot B222/B220) was received initially. However, 40,850 lbs. of rod Lot B222/B220 was removed from WBNP. There is no documentation identifying why there is an excess of 950 lbs. of B222/B220.

Per ANSI N45.2 and 10 CFR 50 Appendix B Criteria XV, nonconforming items shall be identified and controlled. However no nonconformance report was ever issued documenting the bad Airco weld rod.

In addition, no other documentation exists addressing whether or not any of the Airco electrodes were used prior to them being shipped off site, or what the impact may have been if they were utilized. It appears that from the time the issue was first brought up, until the research was done, there was no control of this material (either by segregation, hold tags or NCRs) even though it was indeterminate whether or not a problem existed with the electrodes.

DOC 81 1119 401 documents the "Investigation of reported defective E7018 electrodes by WBN Construction." This report addressed Hobart E7018 electrodes. Heat and lot was not identified in this report for Hobart as it was for Airco. It was determined in TVA's investigation that the Hobart E7018 flux was "relatively more brittle than other electrodes" however it was found to be acceptable.

Employee concern Mar-82-04-14 identified problems with the flux on coated 7018 weld rod (Brand unknown). The investigation performed on this concern states: "We have (WEU) determined that no condition exists that would require notifying NRC". This is the only response found to Mar-82-04-14. There is no documented evidence that any detailed investigation took place.

CONCERN NO: IN-85-284-001, IN-86-167-003, IN-85-299-002,IN-85-600-001, IN-85-317-001, PH-85-013-001, IN-85-411-002,IN-85-450-001, IN-85-524-001, IN-85-247-001, IN-85-455-001,IN-85-520-002, IN-85-636-001

DETAILS, continued

FINDINGS, continued

On February 25, 1983, an "informal memorandum" was issued giving the results of an investigation performed on alleged "bad welding rods". The welders had complained about Hobart 3/32 welding electrodes. The results of this investigation concluded that Hobart 3/32 electrodes were more difficult than some other brands to start an arc, and the flux was very brittle and sensitive to any action which flexes the metal core wire. However, these rods were deemed acceptable and usable. Weld deposits of Hobart electrodes were observed and found to be acceptable.

There is no documentation on McKay weld rod indicating that there was any problems similar to those identified on Hobart and Airco.

Concern IN-86-167-003 addresses the welding of supports. Inspection of support welds is by visual inspection and not x-ray.

Brittleness and/or inadequate amount of flux will cause an arc to flash through the flux, which leads to scattered porosity and pin holing. The questions and concerns of flux brittleness have been going on for 4 to 5 years without any in-depth research as to why and the impact on welding.

A review of requirements for extended time for electrode exposure to the atmosphere was conducted.

QCI 4.01 Rev. 4, states: "each electrode classification from each electrode manufacture shall be tested if desired to extend its maximum exposure without drying"..."moisture content of all 5 samples shall not exceed 0.4% by weight."..."electrode moisture content test in accordance with Section 25 AWS Specification A 5.5."

QCI 4.01 Rev. 4, states in paragraphs 6.3.1.1.4.3, 6.3.2.5 and 6.13.6.5 that: "any electrode that becomes wet shall not be used."

This precludes the use of wet electrodes.

As stated in the concerns, flux brittleness (when occurred) did require the grinding of defective areas and repairs during in-process welding.

CONCERN NO: IN-85-284-001, IN-86-167-003, IN-85-299-002, IN-85-600-001, IN-85-317-001, PH-85-013-001, IN-85-411-002, IN-85-450-001, IN-85-524-001, IN-85-247-001, IN-85-455-001, IN-85-520-002, IN-85-636-001

DETAILS, continued

CONCLUSION:

These concerns are substantiated.

Based on the investigation of these concerns, some weld rod (E7018), did exhibit flux brittleness. In the case of Airco weld rod there was no NCR issued to control the discrepant material and to identify where an "extra" 950 lbs came from. In addition, TVA did not address whether any of the questionable Airco weld rod was issued prior to shipping it off site. Without specific documented accountability of this weld rod, it is possible that the weld rod could have been used, thus rendering the quality of the hardware indeterminate.

Report accepted 1-29-86 by Bruce L. [signature]

PREPARED BY W. M. Kemp, Jr. by [signature] 12/18/85
DATE

REVIEWED BY O. L. Theso 12/14/85
DATE

FINAL

REQUEST FOR REPORTABILITY EVALUATION

1. Request No. IN-85-284-001 (ERT Concern No.) _____ (ID No., if reported)

2. Identification of Item Involved: Material Control (Nomenclature, system, manuf., SN, Model, etc.)

3. Description of Problem (Attach related documents, photos, sketches, etc.)

The weld rods at Watts Bar may not be of sufficient quality.

4. Reason for Reportability: (Use supplemental sheets if necessary)

A. This design or construction deficiency, were it to have remained uncorrected, could have affected adversely the safety of operations of the nuclear power plant at any time throughout the expected lifetime of the plant.

No _____ Yes __X__ If Yes, Explain: By not controlling addressing and disposition nonconforming material, this material can inadvertantly be used.

AND

B. This deficiency represents a significant breakdown in any portion of the quality assurance program conducted in accordance with the requirements of Appendix B.

No _____ Yes __X__ If Yes, Explain: 10CFR50 Appendix B Criteria XV and ANSI N45.2 Para 16 Control of nonconforming items.

OR

C. This deficiency represents a significant deficiency in final design as approved and released for construction such that the design does not conform to the criteria bases stated in the safety analysis report or construction permit.

No __X__ Yes _____ If Yes, Explain: _____

OR

TVA 64 (08-9-83) (OP-WP-3-85)

UNITED STATES GOVERNMENT

Memorandum

NRC

TENNESSEE VALLEY AUTHORITY

TO: W. T. Cottle, Site Director, Watts Bar Nuclear Plant

FROM: K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE: JAN 31 1986

SUBJECT: CORRECTIVE ACTION RESPONSE EVALUATION

REPORT NO. : I-85-360-WBN

SUBJECT : Performance of Unapproved Work

CONCERN NO.: IN-85-847-006

(X) ACCEPT ( ) REJECT

K. W. Whitt

PRW:JTH
cc (Attachment):
R. P. Denise, LP6N40A-C
D. R. Nichols, E10A14C-K
QTC/ERT, CONST-WBN
E. K. Sliger, LP6N48A

Principally prepared by P. R. Washer.

0358U

TVA 64 (03-0-69)

UNITED STATES GOVERNMENT

Memorandum TENNESSEE VALLEY AUTHORITY

TO : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

FROM : W. T. Cottle, Site Director, Watts Bar Nuclear Plant NUC PR

DATE : JAN 20 1986

SUBJECT: WATTS BAR NUCLEAR PLANT - RESPONSE TO EMPLOYEE CONCERN INVESTIGATION REPORT TRANSMITTAL

Transmitted herein is Construction's response to recommendation I-85-360-WBN-01 contained in Nuclear Safety Review Staff (NSRS) employee concern investigation report number I-85-360-WBN.

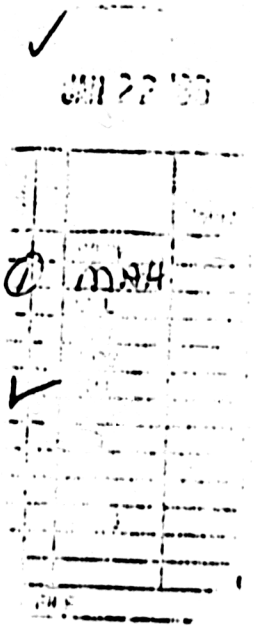
If you have any questions, please contact W. L. Byrd at 3774, Watts Bar Nuclear Plant NUC PR.

W. T. Cottle

WLB:RRG:NC
Attachment

This memorandum was principally prepared by R. R. Gibbs.

1/27/86--JTH
cc (Attachment):
P. R. Washer, NSRS-WBN--For evaluation.



Employee Concern IN-85-847-006

CONCERN: Standard practice for craft supervision is to allow work to be performed in the field using unapproved "bootleg" copies of work plans.

RESPONSE: In reviewing this concern the NSRS investigation report findings and recommendations were discussed with both NSRS and management in NSB. A review was made of a similar concern that was identified in the NSRS report, and the site procedure governing the work was reviewed. Since NSRS had already investigated the various workplans cited in the concern, as well as numerous others, no additional workplan review was performed.

Site procedures for work control will be extensively revised. Those procedures to be revised include WBN-QCI-1.30 "Control of Work on Transferred Systems and Untransferred Systems Behind Unit 1 Security," WBN-QCI-1.56 "Work Packages," WBN-QCI-1.22 R8 "Transfer of Permanent Features to the Division of Nuclear Power," and WBN-QCI-1.07 R11 "Work Release." Objectives of the revision include simplification and clarification of work control requirements as well as establishment of strict scheduling requirements which will allow only those work activities specifically authorized by management to be commenced. The revised program will control all field work with the exception of shop fabrication and certain preventative maintenance activities.

The procedures will be revised; all workplans and work packages will be reviewed and reissued, and extensive training will be conducted prior to March 1, 1986.

Principally prepared by Jim Ballard and F. Smith, extension 3273.

TVA 64 (OS-9-85) (OP-WP-5-85)

NRC

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO: W. T. Cottle, Site Director, Watts Bar Nuclear Plant

FROM: K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE: JAN 31 1986

SUBJECT: CORRECTIVE ACTION RESPONSE EVALUATION

REPORT NO. : I-85-165-WBN

SUBJECT : Instrument Tubing Not Clamped Properly

CONCERN NO.: IN-85-016-003

(X) ACCEPT ( ) REJECT

Please notify NSRS when the corrective actions outlined in your response have been completed.

K. W. Whitt

BFS:JTH

cc (Attachment):

R. P. Denise, LP6N40A-C

D. R. Nichols, E10A14C-K

QTC/ERT, CONST-WBN

E. K. Sliger, LP6N48A

Principally prepared by B. F. Siefken.

0359U

TVA 84 (08-9-85)
UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO : K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

FROM : W. T. Cottle, Site Director, Watts Bar Nuclear Plant P&E (Nuclear)

DATE : JAN 03 1986

SUBJECT: WATTS BAR NUCLEAR PLANT - RESPONSE TO EMPLOYEE CONCERN INVESTIGATION REPORT I-85-165-WBN (EMPLOYEE CONCERN IN-85-016-003)

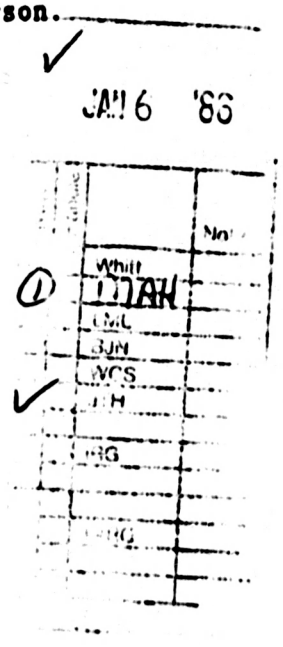
Transmitted herein is P&E Nuclear's response to recommendation IN-85-016-003 and contained in Nuclear Safety Review Staff (NSRS) employee concern investigation report number I-85-165-WBN.

If you have any questions, please contact W. L. Byrd at 3774, Watts Bar Nuclear Plant P&E (Nuclear).

W. T. Cottle

WLB:RDA:NC
Attachment

This memorandum was principally prepared by R. D. Anderson.



Concern: IN-85-016-003, "Instrument Tubing Loose Clamps"

The tubing was not clamped properly because clamps were bent, crooked, tight, or loose. This was said to be a sitewide condition and to involve 3/8-inch outside diameter station service instrument lines in unit 1 in particular.

Response

This condition has been documented by NCR 6456 R0 & R1 and SCR 6356-S R0. Generic implications are involved and require OE evaluation. This should be completed by January 15, 1986. This problem will also be evaluated by the WBN Instrumentation Task Force, Gary Curtis. The corrective action will be to rework identified lines where the condition exists and to implement OE and Inst. Task Force recommendations for programmatic changes to prevent recurrence.

TVA 64 (OS-9-65) (OP-WP-S-85)

NRC

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO: W. T. Cottle, Site Director, Watts Bar Nuclear Plant

FROM: K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE: FEB 03 1986

SUBJECT: CORRECTIVE ACTION RESPONSE EVALUATION - Revision 1

REPORT NO. : IN-85-088-002

SUBJECT : COOLING POND DIKE

CONCERN NO.: IN-85-088-002

( ) ACCEPT (X) REJECT

NSRS is submitting this revised response evaluation to clarify our response of January 10, 1986.

NSRS still feels that the generic applicability of this report must be addressed. The response indicates that future work will be better controlled; however, no mention of other BOP features is made. Either examine other BOP features for the programmatic failures cited in the report or justify why this does not need to be done.

Additionally there are several points which were raised in the meeting between QTC, NSRS, and OC on December 13, 1985 which need to be addressed. First it does not appear that OE was supplied the QTC report to review and use as the basis for determining the structural adequacy of the dike. Also, please specify the analysis assumptions and results of the revised stability analysis. Finally the possibility of leakage from the dike needs to be addressed. Please respond to NSRS by February 28, 1986.

for K. W. Whitt

BFS:JTH
cc (Attachment):
R. P. Denise, LP6N40A-C
D. R. Nichols, E10A14C-K
QTC/ERT, CONST-WBN
E. K. Sliger, LP6N48A

Principally prepared by Bruce F. Siefken.

3U

TVA 64 (OS-9-65) (OP-WP-5-85)

UNITED STATES GOVERNMENT

Memorandum

NRC

TENNESSEE VALLEY AUTHORITY

TO: H. L. Abercrombie, Site Director, Watts Bar Nuclear Plant

FROM: K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

DATE: FEB 04 1986

SUBJECT: CORRECTIVE ACTION RESPONSE EVALUATION

REPORT NO. : XX-85-038-001

SUBJECT : CORRECTION OF IDENTIFIED CARBON STEEL/STAINLESS STEEL SEPERATION DEFICIENCIES

CONCERN NO.: XX-85-038-001

(X) ACCEPT ( ) REJECT

The identified corrective actions are acceptable and a follow-up of actions taken will be accomplished at a later date.

K. W. Whitt

RCS:GDM
cc (Attachment):
R. P. Denise, LP6N40A-C
R. J. Griffin, SQN E-18
G. B. Kirk, SQN
D. R. Nichols, E10A14C-K
QTC/ERT, CONST-WBN--For response to employee.
E. K. Sliger, LP6N48A
J. H. Sullivan, SQN

Principally prepared by R. C. Sauer.

0380U

TVA 84 (08-9-85)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

TO :K. W. Whitt, Director of Nuclear Safety Review Staff, E3A8 C-K

FROM :H. L. Abercrombie, Site Director, NUC PR, Sequoyah Nuclear Plant

DATE :January 16, 1986

SUBJECT:NUCLEAR SAFETY REVIEW STAFF (NSRS) INVESTIGATION REPORT NO. XX-85-038-001, "CORRECTION OF IDENTIFIED CARBON STEEL/STAINLESS STEEL SEPARATION DEFICIENCIES"

Reference: Your memorandum to me dated December 24, 1985, "Nuclear Safety Review Staff Investigation Report Transmittal"

Attached is our response to NSRS Report No. XX-85-038-001.

Herbert Abercrombie

H. L. Abercrombie

PRW:GBK:RCB:DR
Attachment
cc (Attachment):
Employee Concern Files, RES, Sequoyah

1/22/86--JTH
cc (Attachment):
R. C. Sauer--For evaluation.

✓

JAN 17

✓

NUCLEAR SAFETY REVIEW STAFF
REPORT NO. XX-85-038-001

NSRS Report No. XX-85-038-001

QTC Concern

Sequoyah - 1976; Stainless steel pipe permitted to contact carbon steel structural steel with no stainless steel insert ("Shim"); if the structural steel is painted with a particular paint that prevents chemical reaction. This paint can be rubbed off by hand and is throughout the plant.

QTC Observations

The first phase of this investigation involved the review of pertinent documentation and personnel interviews to determine carbon steel/stainless steel separation requirements. During this review phase, several observations were made:

- Several employees stated that TVA would sometimes use black paint over the inorganic zinc to make it "look better." There is no document which allows inorganic zinc, which is used for the separation of carbon/stainless steel, to be covered with any other paint.

- Several employees stated that the stainless steel pipe had overspray in some places. This is in violation of TI-70 Rev 9, para 8.2.1.3 (pg 13) and para 9.10.1 (pg #28).

- TI-70 (Cleaning & Decontamination of Plant Equipment) references SQA-45, part III, sect. 1.6, for acceptable separation of material. SQA-45 has been revised and part III, sect 1.6 no louger exists.

- There is no documentation to indicate carbozinc and carboweld are equivalent, even though carboweld is required by Construction "050" drawing notes and carbozinc was used instead.

QTC Conclusions

The first item of this concern is substantiated in that:

- The concern is true as stated.

Even though this concern is substantiated, no discrepancy or violation exists and no further action is recommended.

The second item of this concern (paint rubbed off) was not substantiated in that the walkdown performed by the SQNP Quality Assurance Department failed to identify any examples of this problem.

NSRS Recommendations to XX-85-038-001: Correction of Identified Carbon Steel/Stainless Steel Separation Deficiencies

Evaluate and correct noted deficiencies identified in the Observations section of the QTC report. Provide NSRS with plans and schedule for corrective action.

In addition, a reportability determination should be made of the noted deficiencies identified in Corrective Action Report (CAR) SQ-CAR-85-10-015 as a result of the QTC requested walkdown. (P2)

Sequoyah Nuclear Plant (SQN) Response

The TVA Metallurgy and Standards Group has determined that the use of black paint over the inorganic zinc and the overspray on stainless steel piping will have no detrimental effects on the stainless steel. Sequoyah Standard Practice (SQA)-160 will be revised to reflect the acceptability of black paint coming in contact with stainless steel. SQA-160 will be revised by May 1, 1986. Also, a revision will be made to the Quality Assurance (QA)-2 training course addressing current piping/component cleanliness, and presentations will be made to the craft personnel. This will be completed by May 1, 1986.

SQA-45 has been revised to reference the applicable procedures to be used for cleaning and decontamination of plant equipment.

As identified in the Quality Technology Company (QTC) report, "as-constructed" drawing deviation forms have been issued to change the drawing notes to agree with the carbozinc protective coating identified on the welding drawings. These deviation forms will be processed through the normal TVA procedures, and a completion date cannot be determined at this time.

Corrective Action Report SQ-CAR-85-10-015 has been identified as nonsignificant by the site QA Section. The SQN Compliance Staff has evaluated the deficiencies contained in SQ-CAR-85-10-015 and determined them to be not reportable.