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CONCERN	ISSUE	COMMENTS
WI-85-041-006	Inspectors did not understand the coating thickness limit for inspecting primed welds.	This issue evolved from an inspector being overheard to refer to mils (thickness) as milliamps (current flow). The welding inspector was not authorized to perform coating thickness verification. It was required that the five mil thickness limit be verified by a protective coatings inspector. Whether or not the welding inspector understood the methods or terminology used in verification of coatings is not material to compliance with the specification.
WI-85-041-010	Craft coated welds before inspection in an attempt to make detection of defects more difficult.	This issue has no potential to result in a hardware deficiency. While it is possible that some craftsmen made such an attempt, it would not have been successful because TVA has never authorized initial acceptance inspection of coated welds. If presented for inspection, a coated weld would have been required to be cleaned in accordance with the process specification and implementing procedure.

THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-02-WBN

EX-85-003-X06 EX-85-042-004 EX-85-042-005 IN-85-021-X05 IN-85-021-003 IN-85-424-X13 IN-85-446-001 IN-85-533-009 IN-85-627-036 IN-85-627-037 (Continued)	Welder performance qualification continuity records are inaccurate, have been backdated and have been falsified.	Problems were identified in the implementation of the welder qualification continuity program. All welders were administered qualification renewal tests. The site implementing procedure was revised to enhance the documentation requirements for qualification renewal. All personnel involved with welder (Continued on next page)

CONCERN	ISSUE	COMMENTS
IN-85-740-009 IN-85-770-003 IN-85-778-001 IN-85-890-001 IN-85-965-001 IN-86-143-002 IN-86-167-X06 IN-86-167-005 IN-86-205-007 PH-85-052-X03 PH-85-052-002 WBP-86-022-X28 WI-85-003-X02 WI-85-025-001 WI-85-064-X04 WI-85-064-001		qualifications were retrained. No acts of willful falsification were identified by the Office of General Counsel.
EX-85-042-003 IN-86-301-002 WI-85-055-001 WI-85-056-001	The welder performance qualification continuity program is not in accordance with ASME IX; test coupon is only a one position plate.	Issue not factual. Per the code this test requalifies for all positions, thickness and material for the process the welder was previously qualified.
IN-85-725-X14 IN-85-725-X15	On welder's test plate could be welded by another welder.	This was investigated by ERT and found to be not factual. Their investigation revealed that test shop personnel maintained adequate control over the test coupons.
IN-86-122-X02 WI-85-035-007	Welding performed by uncertified welders.	Issue is not factual. Personnel records review revealed that the individuals were properly qualified.

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CONCERN	ISSUE	COMMENTS
EX-85-021-002 IN-85-113-003 IN-85-283-003 IN-85-310-006 IN-85-335-002 IN-85-346-003 IN-85-352-001 IN-85-424-011 IN-85-426-002 IN-85-453-007 IN-85-480-004 IN-85-493-004 IN-85-532-005 IN-85-540-001 IN-85-543-002 IN-85-600-006 IN-85-612-006 IN-85-725-X16 IN-85-770-002 IN-85-815-001 IN-85-835-002 IN-85-940-X04 IN-86-303-004 PH-85-002-030 WI-85-084-001	The welder performance qualification continuity program is inadequate because there is no objective evidence to confirm process usage when cards are updated.	The basis for welder qualification continuity in the WBN program is demonstration of the welder having used the welding process previously qualified within a specified time limit of qualification. WBN uses verification of weld filler metal consumption as a primary evidence of usage. Consumption of filler metal as a means of process usage verification is a widely used practice in the nuclear industry. The site implementing procedure for qualification renewal also allowed welding process usage verification by direct observation of the QC staff or craft foreman. It did not, however, require maintenance of objective evidence to document the verification activity. The governing codes require process usage in the continued maintenance of certifications, however, they do not stipulate how it will be verified or documented. The governing procedure has been revised to require process usage to be verified by the foreman.
HI-85-080-001 IN-85-150-001 IN-85-738-004 IN-85-852-003	Disciplinary action is unfair and inequitably administered when certifications lapse.	These concerns relate to management practices and have no technical significance related to welding quality. They will be addressed by I&H and MP Subcategories 60100 and 70200.
IN-85-300-X04	Quality of welding of a craft questionable due to their layoff policy.	Weld quality is determined by acceptance criteria established by the governing codes. These must be met regardless of a welder's craft or experience. The codes specify performance qualification testing as the method for determining a welder's ability; they do not quantify experience.

CONCERN	ISSUE	COMMENTS
IN-85-317-004	Lack of clear guidelines on pipe weld thickness limitations.	Issue not factual in that performance qualification tests do have definite, clearcut limitations on the thickness qualifications.
IN-85-947-X08	Suspected problems with test coupons for requalification tests.	The test coupon had a 45 degree angle. Over 85 percent of the welders were steamfitters who had been accustomed to welding pipe with a 75 degree angle. This required some adjustment in the welders technique and could have been a contributing factor in some of the failures.
THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-03-WBN		
IN-85-007-001 IN-85-050-001 IN-85-050-002 IN-85-134-002 IN-85-406-003	Weld inspection tools not issued to inspectors and/or craft.	Discussions with inspection and engineering personnel indicated that inspection tools were site fabricated prior to 1980. The tools fabricated were fillet gauges, gap gauges, hi-low gauges and undercut gauges. As the science of welding inspection progressed, more sophisticated tools such as protractors and multipurpose gauges became commercially available, were procured and made available to the personnel. Although the newer tools made weld inspections easier, it does not indicate any shortcomings with the site fabricated tools.
THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-04-WBN		
IN-85-339-005	EGT piping inaccessible for welding; should be welded/inspected from inside pipe.	The statement is factual, however, it had been recognized by TVA and addressed in a FCR in April 1980.
IN-85-658-002	E-7018 rods were used where heat range could not be used per procedure.	This issue is indicative of a welder technique problem because Detail Weld Procedures were available with adequate amperage ranges.

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CONCERN	ISSUE	COMMENTS
PH-85-012-X03	HVAC welding inspection deleted from procedure without adequate justification.	The issue is factual in that DNE approved an alternate acceptance criteria of a leak test in lieu of welding inspection.
IN-85-137-001	EGT piping should have required more than just a visual inspection of welds.	This concern does not reflect on a condition adverse to quality; system requires only a final visual inspection.
PH-85-012-001	HVAC duct welds not inspected before painting prior to 1981.	The issue is factual in that there was not a documented program for inspection and documentation of HVAC duct welds prior to August 1980. However, this had been identified and addressed through the ongoing Quality Assurance Program in January 1980.
THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-05-WBN		
EX-85-007-002 EX-85-037-004 EX-85-082-001 EX-85-093-001 EX-85-169-002 IN-85-209-002 IN-85-365-003 IN-85-997-002 WI-85-081-007	Welding inspectors should be welders.	While this feature could be beneficial, no requirement exists that mandates this as a prerequisite for being a welding inspector. The inspector must possess knowledge that extends beyond the scope of the welding process.
IN-85-001-004	Inspectors not given visual weld inspection training from 1976-1982.	Although a separate certification for visual weld inspection was not implemented until 1981, inspectors did receive training on visual weld inspection prior to this. Inspectors were trained and qualified within each discipline during the period referenced in the concern.

CONCERN	ISSUE	COMMENTS
HI-85-084-N05 IN-85-001-008 IN-85-041-001 IN-85-079-001 IN-85-089-001 IN-85-454-001 IN-85-458-002 IN-85-476-004 IN-85-510-001 IN-85-513-001 IN-85-529-005 IN-85-563-007 IN-85-706-002 IN-85-981-001 PH-85-016-001 WI-85-030-002 WI-85-041-002 WI-85-046-014 IN-86-142-001 IN-86-168-002 IN-86-304-001 WBP-86-004-X01	Weld inspectors not qualified, knowledgeable, or adequately trained.	TVA's visual weld inspectors were qualified. Training was performed as required by procedures in effect at the time. Training programs met all TVA commitments and regulatory requirements. In 1980, non-NDE personnel were qualified to perform limited visual examinations of structural welds. They received applicable training and were given examinations.
IN-85-682-008	QC personnel inspected welds while still in training.	Personnel may have inspected welds as a part of their training, but the trainees did not perform the inspection for the purpose of documenting the acceptance or rejection of the welds. It would have been performed as a part of the trainee's on the job training.
IN-85-445-001	Certification tests for welding inspectors required excessive knowledge of welding.	The required training and examinations for welding inspectors are the minimum standards required for certification. The program and examinations are designed to provide reasonable assurance that the inspector is technically competent to perform the required inspections. In so doing, it will ensure that the inspected welds meet the acceptance criteria of the applicable construction code.

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CONCERN	ISSUE	COMMENTS
PH-85-037-001	NSRS report on weld inspection program contained numerous inaccuracies.	The conclusions of the NSRS report were valid and were supported by Welding Project. However, the report was misleading in areas pertaining to the ASME code. The ERT report stated that the NSRS report was not intentionally false or inaccurate.
WI-85-041-002	Topical report has degraded ANSI N45.2.6.	Welding inspectors are qualified in accordance with the TVA Quality Assurance Program. Welding Inspectors are qualified and certified using SNT-TC-1A as a guide, rather than ANSI N45.2.6. Exceptions to Reg. Guide 1.58 are made in the Topical Report.
THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-06-WBN		
EX-85-008-001 EX-85-037-002 EX-85-048-004 IN-85-055-003 IN-85-089-003 IN-85-113-001 IN-85-225-001 IN-85-316-007 IN-85-686-001 IN-85-706-001 IN-85-707-003 IN-86-158-006 PH-85-003-020	Subjourneymen, apprentices and inexperienced/ untrained personnel performed welding; this caused a lot of rework.	WBN had a training program. Codes only require that welders pass a performance qualification test; experience is not quantified. Documentation does not show that rework was caused by inexperienced welders.
IN-85-143-001 IN-85-297-004 IN-86-190-002	Uncertified personnel performed welding.	One concern was not factual and was based on hearsay. Another concern was raised due to not fully understanding code requirements. The third concern was due to a misinterpretation of the welder's diameter limits and was addressed in an NCR.
THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-07-WBN		

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CONCERN	ISSUE	COMMENTS
IN-85-247-001 IN-85-284-001 IN-85-299-002 IN-85-411-002 IN-85-450-001 IN-85-455-001 IN-85-520-002 IN-85-524-001 IN-85-600-001 IN-85-636-001 IN-86-167-003 PH-85-013-001	Welding electrodes of poor quality.	An isolated problem was identified with some Airco electrodes which were removed from service and returned to the vendor. The filler material purchased for WBN meets all the requirements of ASME Section II, Part C, SFA specifications.
IN-85-284-001 IN-85-317-001 IN-85-450-001 IN-85-524-001 IN-85-636-001	Repeated baking and/or over baking of coated welding rods.	Over baking and/or repeated baking of electrodes cannot be substantiated. All covered electrodes at WBN are rebaked and stored in accordance with the manufacturer's recommendations, and documented oven temperature logs are maintained to assure temperature limits are not exceeded.
IN-85-284-001	Poor rod issue procedure.	No objective evidence has been identified which would indicate that rod issue procedure or rod issue practices contributed to poor quality or degraded weld filler material. Also, WBN QCI-4.01 requires, in several paragraphs, that any electrode that becomes wet shall be discarded.

THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-12-WBN

IN-85-435-005 IN-85-600-002 IN-85-880-001	Grid bank welding machines do not have suitable control settings.	Multiple operator type machines do have control settings that can be adjusted to produce the current required by WBN Detail Weld Procedures. These machines are sufficient to make acceptable quality welds.

ATTACHMENT B

CONCERN	ISSUE	COMMENTS
IN-85-247-002 IN-85-317-002	Unsuitability of welding equipment leads to porosity, pinholes and incomplete fusion.	Porosity, pinholes and incomplete fusion are symptomatic of poor welding techniques. Correct arc starting and welding techniques will prevent these defects if the correct current settings within the parameters of the weld procedure are used. All safety-related welds receive inspection to ensure satisfactory quality.
IN-85-303-001	All GTAW equipment should have remote (high frequency arc starting) switches so that tungsten inclusions can be avoided.	This feature is not necessary for the production of acceptable quality GTAW welds. Utilization of strike plates for GTAW arc starting will effectively prevent tungsten inclusions from the welds.
IN-85-004-001 IN-85-280-001 IN-85-298-002 IN-85-612-002	Grid bank machines cannot meet GTAW slope control requirements of P.S. 1.M.1.2.	Automatic hand or foot operated controls is recommended by P. S. 1.M.1.2, not required. It is to help eliminate a crater when pulling off the center of a weld. This can be accomplished by pulling off to the side of the puddle.
IN-85-299-001 IN-85-435-001 IN-85-453-006	Maintenance not performed on welding machines.	Maintenance is performed as required on welding machines. A welder has only to notify an electrician to get a problem corrected with a machine.
EX-85-127-003 IN-85-486-001 OW-85-003-002	TVA should utilize the best equipment available. Good welding machines were replaced with lower quality machines.	The grid bank machines were installed based on space limitations. They are satisfactory to produce acceptable quality welds.

THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-13-WBN

CONCERN	ISSUE	COMMENTS
IN-85-671-003 IN-85-834-002	Control of welding preheat and interpass temperatures.	The preheat issue involved a change from energizing the preheat heaters at the end of the second shift in preparation for first shift welding to energizing the preheat heaters one half hour prior to welding on the first shift. In either case, the preheat temperature was required to be attained prior to the start of welding. DOE/WEP's study concluded that excess interpass temperature would have no adverse effect on WBN stainless steel welds.
IN-85-295-002 IN-85-321-001 IN-85-424-009 IN-85-424-010 IN-85-435-002 IN-85-435-003 IN-86-230-003 IN-86-281-001 HI-85-042-001 HI-85-046-001 HI-85-114-001	Questionable management practices.	Investigation of this issue revealed no significant adverse impact on the hardware or the WBN welding program. Dependent upon the nature of the concern, it is addressed in MP and/or I&H Subcategory 60100, 70200, 70600, or 71700. The concerns that were welding related were found to have no technical significance, or either did not reveal an adverse condition related to welding quality.
IN-85-263-003	Unnecessary delay of craft by welding inspectors.	Investigation of this issue did not reveal a condition adverse to the quality of the hardware. This could only affect the work schedule, not the work quality.

THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-14-WBN

BEM-85-001-001 BEM-85-001-002 BFM-85-001-001 BFM-85-001-002 IN-85-001-006 IN-85-026-001 IN-85-052-006 IN-85-052-007 IN-85-212-001 IN-85-488-001 (Continued)	Un certified foremen perform pipewold inspections on items for which they are directly responsible.	This issue has been evaluated for all TVA nuclear sites after being reported to the USNRC under the provisions of 10CFR50.55(e), and found to be an acceptable practice. (Continued on next page)

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CONCERN	ISSUE	COMMENTS
IN-85-532-006 IN-85-534-001 IN-85-671-001 IN-85-682-002 IN-85-730-002 IN-85-946-001 WBM-85-001-001 WBM-85-001-002 WBM-85-001-003 WI-85-013-002 WI-85-030-007 WI-85-041-013	Drawing 47A050 allows the welder to make welds which are not per design drawing.	Drawing 47A050 in General Notes and is a design drawing. It allows alternatives to the detail drawings, unless specifically prohibited by the detail drawing.
THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-16-WBN		
IN-85-845-004	Inadequate weld procedure. Aluminum welded to stainless steel in Hot Sample Room.	Issue was investigated by NSRS and no evidence was found of aluminum being welded to stainless steel.
THE ABOVE LISTED ISSUE IS ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-22-WBN		
JHL-85-002	Welders from Muscle Shoals may not have had the appropriate number of bend tests when qualified.	One welder was tested for SQN and subsequently transferred from SQN to WBN. This welder and the work he performed was evaluated by SQN in Deficiency Report SQ-DR-87-041R and determined satisfactory.
THE ABOVE LISTED ISSUE IS ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-24-WBN		
2850162005	Repairs do not meet ASME Code. (i.e., patches and/or weld overlays.)	WBN is still in the construction phase, not in operation. In discussion with cognizant TVA personnel, they state that patches and/or weld overlays have not been used at Watts Bar. Patches and overlays have been used at BFN and SQN for repairs under an approved program.
THE ABOVE LISTED ISSUE IS ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-25-WBN		

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CONCERN	ISSUE	COMMENTS
HI-85-077-N06 HI-85-077-N10 IN-85-260-001 IN-85-887-003 IN-86-155-004 WI-85-091-007	Inadequate and/or missing welding inspection documentation.	The concerns that had enough information to perform an evaluation were found to be not factual. An apparent misunderstanding of the Watts Bar welding documentation requirements caused a majority of the concerns to be raised.
IN-85-260-002 IN-85-260-006 IN-86-168-006 PH-85-027-X08 WI-85-035-002 WI-85-064-006 WI-85-076-001 WI-85-076-002 WI-85-081-X06 WI-85-097-001	Suspected falsification of weld records.	The general issue of falsification, or wrongdoing, is being investigated by the Office of the Inspector General under Subcategory 60300. The concerns that referenced specific hardware were investigated during this evaluation and no evidence of falsification was identified.
IN-86-211-001	Potential inadequacy in weld identification.	The weld identification requirements for ASME classes 1, 2, and 3 are unique weld numbers and weld maps. For AWS and ANSI the requirements are that the welds are uniquely identified only if special NDE inspections or heat treating is required. Design drawings did identify the ANSI B31.1 critical systems which require a traceability and a similar system was used for AWS welds. Although this was accomplished, site procedures for ANSI B31.1 and AWS welds did not assign the responsibility for unique weld identification numbers on weld maps or drawings. CATD 50426-WBN-01 was issued as a programmatic enhancement to clearly define the method used to determine when the subject welds require unique identification, the documents used to record the unique identification, and responsibility for assignment of unique weld identification.

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CONCERN	ISSUE	COMMENTS
WI-85-033-002	Work releases do not document welding in accordance with the Nuclear Quality Assurance Manual.	The Work Release is used for temporary and permanent construction welds not shown on DNE or contractor drawings. It is also not used for welds that require a fitup (inspection) or for which weld operation sheets have been issued. The requirements as stated in the work release procedure do not violate the requirements of the Nuclear Quality Assurance Manual.
XX-85-102-007 XX-85-102-011	NDE inspectors cannot write Notices of Inspections (NOIs) on preservice related defects.	Investigation revealed that NOIs are used for both preservice and inservice defects found during NDE examinations.
EX-85-007-004	Excessive paperwork required for welds receiving radiography (RT); RT will reveal all defects, making other inspections necessary.	While most defects can be detected by radiography, the test does have its limitations. Laminations, fine cracks, and similar defects oriented perpendicular to the direction of radiation may not be detected, inspections and/or other hold points are assigned as required, to ensure the quality of the weld meets the applicable criteria.
THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-26-WBN		
IN-85-460-003	Gouge in piping not repaired.	Gouge had previously been addressed by an NCR and repaired in 1980.

ATTACHMENT B

CONCERN	ISSUE	COMMENTS
IN-85-080-001 IN-85-246-002 IN-85-270-001 IN-85-460-X04 IN-85-460-X05 IN-86-133-001	Arc strikes on piping not repaired.	One pipe that was referenced could not be located. Another had been evaluated and found acceptable but an NCR had not been initiated as required by procedure. Another pipe was found to have arc strikes, which were excavated and the areas evaluated and found to meet design minimum wall requirements.
THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-30-WBN		
IN-85-342-002	Inspectors will often reject welds without performing an adequate inspection.	A significantly undersized or oversized weld is usually apparent to the inspector prior to measurement being taken. If the weld was rejected, it would have been reworked to an acceptable condition, thus no hardware deficiency would result.
IN-85-404-001	Welds are being reworked too many times, may impair the quality of the weld.	There is no Code, industry, or TVA specification as to how many times a weld can be repaired. They do require that the repaired area be examined which would reveal any deviant conditions caused by the repair operations.
IN-85-530-001	Welds in Unit 2 are not put in according to procedure, welds are not stenciled.	NSRS substantiated the concern. This issue was addressed by TVA and the welds were determined to be adequate for service.
IN-85-730-003	Nondestructive examinations have not been performed on fit-up or final weld inspections of Unit 2 Protection Devices.	WBNP construction specification for rupture restraints only specifies visual examination, unless specified on the design drawings. Discussion with TVA personnel revealed that MT and PT examinations were not specified.
IN-86-155-002	Hanger has unaccepted welds.	This concern is factual but not a problem. NSRS investigation revealed the hanger was no longer installed. This concern was previously evaluated and resolved.

ATTACHMENT B

The following concerns require hardware reinspections in Watts Bar Unit 2. The reinspections have been deferred to the Welding Project Phase II plant examinations. These concerns have been placed on Corrective Action Tracking Documents (CATDs) pending completion of the reinspections and evaluation of the results.

CONCERN	ISSUE	COMMENTS
IN-85-641-002	T-bar shims exhibit cracks.	CATD-50400-WBN-02
IN-85-413-002	Hanger in Unit 2 does not meet drawing requirements relative to weld length.	CATD-50400-WBN-03
IN-85-524-002	Hangers in Reactor Accumulator are not welded completely around the outside.	CATD-50400-WBN-04
IN-85-707-001	Welds have bad appearance, poor welds, which look structurally inadequate Hanger made with 4 inch I-beam instead of tube steel	CATD-50400-WBN-04
EX-85-076-002 IN-85-828-001	Cable trays support welds in Unit 2 could not pass today's inspection criteria; welds have undercut.	CATD-50400-WBN-05
EX-85-154-001	Cable trays have location brackets that are not welded to the cable tray supports.	CATD-50400-WBN-05

(Continued)

ATTACHMENT B

CONCERN	ISSUE	COMMENTS
HI-85-084-N02	USNRC concern from review of ERT files "Additional welds on hangers." Appears to affect HVAC hangers addressed by a NCR.	CATD-50400-WBN-05
IN-85-062-002	Unit 2 Control Building, welds on 240 to 250 conduit supports have not been inspected.	CATD-50400-WBN-05
IN-85-440-001	Craft only request inspection of newly reworked area; inspectors overlook old work that is discrepant.	CATD-50400-WBN-05
IN-85-515-002	Specific craft not qualified or doing shoddy work, spatter caused by shim not cleaned properly, crooked lug on pipe.	CATD-50400-WBN-05
IN-85-643-002	Unit 2 Turbine Building, welds were painted over slag.	CATD-50400-WBN-05
IN-85-682-001	Hanger may have been improperly inspected because welds are inaccessible.	CATD-50400-WBN-05
(Continued)		

ATTACHMENT B

CONCERN	ISSUE	COMMENTS
IN-85-475-001	Unit 2 Turbine Building, pipe and structural welds are poor. Excessive undercut, lack of filler material, and lack of penetration.	CATD-50400-WBN-07 CATD-50400-WBN-09
IN-85-156-001 IN-85-156-002	Structural welds were accepted and later required rework to correct flaws.	CATD-50400-WBN-05 CATD-50400-WBN-09
IN-86-131-005	Welds are not complete on a Unit 2 Main Steam line.	CATD-50400-WBN-07
IN-85-089-004	Unit 2 Reactor Building, 12 inch diameter stainless steel welds are undersized and concave.	CATD-50400-WBN-08
IN-85-299-003	Stainless steel welds seem to have excess metal removed at butt joints.	CATD-50400-WBN-08
IN-85-996-002	4 inch pipe erroneously cut out, cleaned up, and rewelded without documentation.	CATD-50400-WBN-08
IN-86-017-001 IN-86-047-002	Pipe welds have wrong profile.	CATD-50400-WBN-10 CATD-50400-WBN-08

THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-32-WBN

ATTACHMENT B

CONCERN	ISSUE	COMMENTS
IN-85-272-003 IN-85-358-001 IN-85-852-002 IN-86-205-009	Welds rejected for film artifacts and not weld quality.	Concern is not factual. An artifact is not a weld defect. TVA uses an automatic film processor which is unlikely to produce artifacts.
	Weld radiograph revealed voids in a four inch carbon steel valve.	Concern is partially identified as having a rejectable condition and repaired through the existing QA Program.
	Questionable adequacy of initial radiography.	Concern is not valid. It relates to a weld on the accumulator tank in Unit 2. Weld was radiographed, accepted, and subsequently cut out due to an Engineering Change Notice. The new weld was radiographed, rejected, cut out again, reradiographed and accepted.
	Radiograph technique may have been inadequate.	Film image of a longitudinal and a circumferential weld does not indicate an inadequacy in the radiographer's technique.
THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-33-WBN		
IN-85-085-001 IN-85-085-002 IN-85-380-003 IN-86-032-001 IN-86-032-002 IN-86-297-001 PH-85-027-001 PH-85-027-004 PH-85-027-007	Poor quality welds.	EG&G performed an inspection of welds in the North and South valve rooms and some deviant conditions were identified. An independent design firm performed a Suitability for Service Analysis and determined the welds were acceptable.
IN-85-584-002 IN-85-671-004 PH-85-027-005 PH-85-027-006	Improper/inadequate inspections.	These concerns related to welds that were repaired per an NCR. UT inspections were performed to determine the configuration of the welds. The repairs were inspected visually as required by the code and specifications.

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CONCERN	ISSUE	COMMENTS
IN-85-216-001	Drawing and Specification requirements not followed during repair of structural welds.	This concern relates to repair of welds on a partially welded structural joint where weld sequencing was not used. The repair was not a situation where weld sequencing was required.
PH-85-027-002	Preheat and interpass temperature not followed during weld repairs of blowdown piping restraints.	This issue is also addressed by employee concern IN-85-671-003 which is addressed on page 12 of this attachment.
THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-34-WBN		
IN-85-442-008	Embedded reactor cavity welds were accepted based on a sample program; TVA has no idea of the quality of the welds.	Engineering did apply the results of a previously completed sampling program to the welds, however, the welds had already been inspected and documented prior to embedding in concrete.
IN-85-868-002	Structural steel welds in the control building were accepted by weld sampling and welds were not good.	Structural steel welds were sample inspected at WBN and determined acceptable by DNE. The use of sampling inspection to determine acceptability is not a violation of the codes.
IN-85-887-001	The weld sample program did not include groove welds.	The problems that were discovered at WBN were indicative of fillet weld configuration problems. The fact that groove welds were not specifically addressed does not violate any TVA commitments.
	Fitup inspections deleted from procedures.	This issue is addressed in Weld Project Evaluation Report WP-16-WBN. See pages 12 and 13 of this attachment.

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CONCERN	ISSUE	COMMENTS
IN-86-019-003 IN-86-037-001	Welds repaired prior to sample inspection.	Cognizant TVA personnel stated that no welds were repaired with the intent they be used in the sample analysis. Some welds were subsequently repaired as a result of the sample program but not as a prerequisite for it.
	No documentation generated for re-inspection of re-paired welds.	This issue is not factual. Investigation revealed that the work was documented by the work plan and work package procedures.
WI-85-029-002	Sample inspection did not include instrument support welds.	This issue appears to be factual, however, the fact that they were not specifically addressed does not violate any TVA commitments. The features to be checked are based on overall management and engineering judgments as to what is needed.
THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-41-WBN		
PH-85-035-003	E-6010 electrodes used on ERCW system in lieu of E-7018 as required.	The use of E-6010 electrodes in the ERCW system could not be substantiated. However, of the two approved welding procedures that could have been used on this system, one requires the use of E-7010 electrodes. The Concerned Individual may have confused E-7010 electrodes with E-6010.
IN-86-086-002 IN-86-112-002	No approved procedure for use of E-6010 electrodes.	This is erroneous in that qualified procedures allowing the use of E-6010 electrodes have been in existence since March 1965.
THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-42-WBN		

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CONCERN	ISSUE	COMMENTS
ECTG-7 IN-85-406-002 XX-85-102-006	Prior to 1979 there was no specific weld inspection criteria; ASME visual examination procedure is non-specific; personnel from Welding Engineering performed inspections.	DEC-QCP-4.3 required nondestructive examination of welds be performed i accordance with the General Construction Specification G-29. This provided the visual examinatio criteria for pipe and structural welds in the form of separate Process Specifications. WBN-QCP-4.13 currently specifies th visual examination criteria and still references the General Construction Specification G-29. The ASME code does not specify any visual examination inspection requirements. It does require that in process and final examinations and tests be establish-ed to confirm that procedures, instructions and drawing requirements have been met. It also requires that process control and examination checklists be prepared to document these activities. At the beginning of construction, inspectors were assigned to the Engineering Units. In 1982 the inspectors were assigned to a separate Quality Control Unit. Starting in 1986 all inspectors are assigned to the Division of Nuclear Quality Assurance.

CONCERN	ISSUE	COMMENTS
IN-85-001-001 WI-85-030-003	Q. C. inspections did not meet code requirements, only what craft considered quality. Stop work order was not issued for inspection deficiencies; visual inspections were not performed by designated personnel; NDE procedures were not documented as being demonstrated to ANI.	There have been isolated occurrences of implementation errors, but they were corrected through the TVA QA program. There have not been any discrepancies to warrant a stop work order. There were two instances of inspections being performed by improperly certified personnel, however, they were corrected through the TVA QA program. In 1981, a QA audit revealed that the demonstration record for radiographic examination could not be located, the procedures were demonstrated to the ANI and the finding closed. It was recently discovered that some demonstration records for revision of NDE procedures could not be located, again the procedures were demonstrated to the ANI.
IN-85-022-001 IN-85-476-003 IN-85-706-003 WI-85-035-001 WI-85-053-003	Support inspections not performed. Welds were not inspected until 5 years ago. (welds were not inspected prior to leaving the fabrication shop). (Continued)	Certain non ASME supports were not inspected due to a procedural inadequacy. This was corrected through the TVA QA program. Review of the WBN non conforming condition reports did reveal some instances related to this issue. In each case, the disposition was to inspect the items in place. (Continued)

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CONCERN	ISSUE	COMMENTS
	Rework of hanger welds are not inspected for months.	The concern is factual. Inspection of reworked items depends upon the availability of inspectors, or other items having priority such as mandatory hold points.
	Craft responsible for material heat number sign off on the Welding Operation Sheet.	This concern is not factual. The craft enters the number on the WOS. The actual verification is performed by Quality Control.
	Temporary minor attachments are not documented.	This concern is factual. A nonconforming condition report was issued for Unit 1. A CAQR was issued for Unit 2. ECTG has issued a corrective action tracking document (CATD) for followup and closure of this issue.

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CONCERN	ISSUE	COMMENTS
HI-85-101-N02 IN-85-001-003 IN-85-894-003 IN-86-046-003	While welding water was falling on the welder.	This concern relates to using 6010 electrode in the station sump. Details of this issue are presented in Weld Project Evaluation Report WP-42-WBN.
	Reactor vessel support welds were made in the presence of water.	This concern is factual. Moisture and condensation was a problem during this period of construction. However, measures were taken by the contractor to keep the weld area dry during welding. Site inspection personnel assured that welding operations stopped at the onset of rain.
	Welds made in an improper manner, (water on the electrode).	This concern could not be proved or disproved. One incident did occur in 1980. Water started to leak out of a connection during the welding operation. This was reported and corrected by a nonconforming condition report. The weld was removed and rewelded.
	Unapproved technique used during welding, (bread stuffed into pipe to stop water)	This concern could not be proved or disproved. Discussion with cognizant personnel revealed that this would not produce a deficient hardware condition. If this had occurred, it is probable that moisture was not present in the weld area.
IN-85-203-003 IN-85-670-005	Inspectors are inconsistent in their application of inspection criteria.	Arc strikes and weld spatter are listed as defects in site procedures and require removal. Some inspectors could have withheld the acceptance of a weld if these were found outside the examination zone. Inspection criteria for fillet weld size at one time listed several different size requirements depending on when the weld was completed.

CONCERN	ISSUE	COMMENTS
IN-85-310-004	QC inspectors are more concerned with hanger welds than pipe welds.	Due to the size and complexity of some supports, they are more likely to display a discrepant condition, and this would take a higher degree of effort upon examination. Also, during the time period mentioned in the concern, WBN was in a massive reinspection of structural fillet welds due to several NCRs.
IN-85-442-004	Engineers with little or no training inspect non safety-related welds.	Certain components are not required to be inspected by certified welding inspectors. It is a good construction practice for the responsible engineer to make sure the items are installed per design.
IN-85-593-001 IN-86-086-001	Weld repairs are not made in accordance with 10CFR50 Appendix B or the ASME Code.	The procedure referenced by the concern allows for inprocess rework of welds prior to final examination, without documentation. This is an acceptable practice.
IN-86-167-002 IN-86-168-003	Welders are not required to stamp their identification on welds.	The requirement for welders identification was not defined in the early stages of construction, however documentation was located from this time period that showed welders identification was on the Welding Operation Sheets. TVA invokes an alternate ASME rule that allows the use of documentation of the weld joint for welders identification.
WI-85-030-005	ASME welding problems have not been reported or corrected.	The Nonconforming Condition Reports for WBN clearly show that any ASME welding problems have been identified and corrected through the TVA QA program.

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CONCERN	ISSUE	COMMENTS
WI-85-081-005	Open butt welds did not conform to the procedure.	The system identified is non safety related, is buried, and discussion with TVA personnel revealed it will never be used. The concern cannot be conclusively proved as factual or non factual.
IN-85-866-001	C.I. incorrectly received an Inspection Rejection Notice for insufficient weld on a hanger.	This issue is a Management and Personnel issue and was not evaluated in this report.
THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-43-WBN		
HI-85-049-001 IN-85-851-001	Fitup gap on a pipe rupture mitigative device was slugged with steel rod.	This concern is factual. A NCR was initiated by TVA and engineering calculations determined the weld to be suitable for service. However, other deviant conditions were identified during the investigation and are noted on a Corrective Action Tracking Document.
IN-86-158-008	Some welds were slugged in the Turbine Building.	A review of the nonconforming condition reports, welding surveillance reports, and the DOE/WEP General Plant Examinations did not reveal any other slugged weld condition other than discussed by this evaluation report and WP-34-WBN.
WI-85-035-004	A box anchor seam weld was slugged with reinforcing rod.	This concern is not factual. DOE/WEP performed visual and ultrasonic examination of the weld and did not identify any conditions relating to the weld being slugged.

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CONCERN	ISSUE	COMMENTS
IN-86-158-008 WI-85-064-005	Butt welds were prepared with square ends instead of being beveled for full penetration.	DOE/WEP performed ultrasonic examination of the Fire Protection system and did not reveal a condition of the welds being square butt. Discussion with TVA construction personnel revealed that some temporary construction equipment is made with a square butt configuration.
HI-85-049-001	Two apprentice welders were improperly directed to weld a joint which was slugged.	This issue has been assigned to the Office of Inspector General and is not discussed in this evaluation.
THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-44-WBN		
IN-85-641-005 WI-85-081-003	Required preheat was not applied to the steam generator supports and attachment welds to embedded plates.	DOE/WEP determined that cracking at the root would be the most probable defect from this condition. Visual and ultrasonic examinations did not reveal any cracking conditions. If preheat was not applied it did not result in an adverse hardware condition.
IN-85-641-005 WI-85-064-002	Welders were instructed to weld over possible defects; trusses under steam generator supports may have been improperly welded.	DOE/WEP examinations did not confirm these concerns. 31 steam generator supports were examined. One weld revealed indications that required surface grinding to determine acceptability.
IN-86-184-003	Probability of trapped slag in the steam generator supports.	DOE/WEP examined 70 steam generator support welds. These examinations did not reveal any entrapped slag conditions.

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CONCERN	ISSUE	COMMENTS
IN-85-641-002	T-bar shims exhibit cracks.	Cracks were noted on non load bearing unspecified alignment tack welds that were used as an alignment tool during installation. DOE/WEP performed visual examination of 35 welds on T-bars in Unit 1. None of the T-bar welds revealed cracks. The Unit 2 T-bar welds will be inspected per CAID 50400-WBN-02.
IN-85-202-001	A crack was noted in a steam generator support restraint weld.	This concern is factual. ERT investigation revealed this was previously identified and corrected through NCR 3700R revision 1, and associated Field Change Request.
THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-45-WBN		
EX-85-020-001 IN-85-349-005 IN-85-579-001	Four welds on Fire Protection check valves were left incomplete.	This concern is not factual. DOE/WEP visual examinations on all Unit 1 six inch Fire Protection check valves did not reveal any incomplete welds.
	Fire Protection weld is incomplete.	This concern is factual. TVA identified this issue approximately the same time the concern was expressed. A nonconforming condition report was initiated and the weld was reworked and accepted.
	A 12 inch pipe in the Turbine Building does not have caps on the welds.	The Turbine Building is not safety-related. DOE/WEP only considered the generic implications toward safety related welds. DOE/WEP General Plant Examinations of ASME large bore pipe welds did not reveal any deviations related to incomplete or missing welds.
IN-85-079-003 IN-85-185-001	Preheat and interpass requirements have not been met.	Aluminum buss bars are non safety-related and did not require QC verification of preheat. However, review of the Welding Surveillance Weekly Checklist did not identify any problems concerning preheat in this area. (Continued on next page)

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CONCERN	ISSUE	COMMENTS
		The issue of elevated interpass temperature control of stainless steels is discussed in WP-14-WBN.
IN-85-299-003	Excessive grinding and shrinkage at circumferential weld joints.	DOE/WEP examinations of the grinding issue did not reveal any evidence of base material reduction. Excessive shrinkage of stainless steel butt joints is not factual. Residual stresses from welding are accompanied by some sort of distortion. This is more noticeable in stainless steel butt joints. These stresses are controlled by the Detail Weld Procedure.
IN-85-579-005	Surface preparation for nondestructive examination may have violated minimum thickness requirements.	This concern is factual. DOE/WEP performed ultrasonic examination of 52 welds. 15 welds required engineering analysis and were determined to be suitable for service.
IN-85-271-001 IN-85-282-002 IN-85-441-002 WI-85-046-014	Inspectors require pipe welds to be ground smooth. Grinding might mask surface defects.	Requirements for surface preparation are specified in the site implementing procedures. The extent of surface finishing depends on the examination to be performed. Surface finishing methods used in nuclear construction do not mask indications, but often remove indications which might cause rejection of the weld.
IN-85-469-003	Welds were made with a backing ring where open butt was specified.	Concern is not factual. TVA specifications and site implementing procedures do allow the use of backing rings in butt joints.
IN-85-134-001	Ice deck seal studs do not meet visual inspection criteria.	ERT investigation revealed that all required inspections for the Ice Condenser Seal had been performed.

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CONCERN	ISSUE	COMMENTS
IN-85-600-004	Welding performed in the presence of sandblasting residue.	Discussion with a TVA staff welding engineer determined that there would not be a hardware deficiency if this happened. The tiny particles would be floated to the top of the weld in the slag layer and then removed.
IN-85-632-001	Deficient welds made by Astro-Arc machines have not been repaired.	Four welds which exhibited lack of penetration are nonsafety-related welds. The integrity of these welds was judged acceptable based on the hydrostatic leak test. This is an acceptable practice in accordance with the governing code.
IN-86-093-001	Fire Protection system weldolets have insufficient weld metal.	DOE/WEP performed visual examination of the specified welds and identified 2 welds that were underfilled. Engineering analysis determined the welds to be suitable for service.
WI-85-050-001	Deterioration of base metal, lack of penetration, and sugar exist in the Essential Raw Cooling Water system.	DOE/WEP performed visual, liquid penetrant and ultrasonic examination and did not reveal any conditions that were noted by the concern.
IN-85-384-003	Reworked hardware has no better quality than the original work.	A lot of rework was performed due to missed holdpoints or lost documentation. Sometimes a reworked item might display an indication that was not present on the original work but is still acceptable.

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CONCERN	ISSUE	COMMENTS
IN-85-940-X02	Due to a physical impairment, welds made by a specific individual may be inadequate.	All welders at WBN are tested for their ability to make sound welds. There is no reason to suspect that a welder, with a physical impairment, is not capable of making good welds.
PH-85-001-005	Due to improper fitup of couplings on instrument lines, welding has caused the line to kink.	ERT investigation substantiated the concern. However, at the time of investigation the lines were being replaced.
WI-85-081-004	Welds in the stainless steel shield around the reactor contain porosity.	Review of the inspection records and weld surveillance reports did not reveal any indication of a problem with excessive porosity.
EX-85-076-001	Conduit supports were inspected and accepted. They have undercut, and would not pass today's criteria.	Supports installed prior to Feb. 1981, were allowed up to 1/16 of an inch of undercut. Supports installed after this date are allowed 1/32 of an inch. These supports do meet their applicable criteria.
EX-85-037-003 IN-85-155-001 IN-85-561-X05 IN-85-846-001 PH-85-003-011 WI-85-064-003	Concerns relate in general terms to poor weld quality at WBN.	These concerns could not be isolated to any specific item or feature. Welding Project concludes that these concerns were adequately addressed by DOE/WEP plant reinspections.
IN-86-131-004	Questionable caps on temporary pipe welds.	Temporary piping is a construction aid and only needs to safely serve its function. Temporary pipe at WBN is pressure tested prior to use.

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CONCERN	ISSUE	COMMENTS
OW-85-004-N02	USNRC concern from ERT files; "No reinspection of hangers after clarification of inspection criteria."	The issue of concern relate to edge distance violations, where supports may have been installed at less than the minimum distance from embedded strip inserts; and to constant support spring hangers being installed using the inspection criteria for variable support spring hangers. The concern is factual and has been addressed by the TVA Quality Assurance Program.
IN-86-301-001	Poor quality welds on the PDOs in the Reactor Building.	All PDO welds installed prior to 1981 were reworked and reinspected persuant to three NCRs. This was completed in 1983.

THE ABOVE LISTED ISSUES ARE ADDRESSED IN WELD PROJECT EVALUATION REPORT WP-46-WBN