TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
REVIEW
NSRS REPORT NO. R-81-28-WBN

Subject: Mini-Management Review of Watts Bar Nuclear Plant

Dates of Review: November 16 through December 4, 1981

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I. BACKGROUND

Included with the letter dated November 5, 1981, from James P. O'Reilly, Director of Region II NRC-OIE, to H. G. Parris, Manager of TVA Office of Power was a copy of a NRC-OIE Inspection Report (50-390/81-14 and 50-391/81-14). This report pertained to the damage to a charging pump during flushing operations at Watts Bar Nuclear Plant (WBN). Mr. O'Reilly stated in the letter that damage to the charging pump, in itself, was not a significant safety concern but several failures in the WBN quality assurance program which permitted the pump to be damaged was of concern to the NRC. This concern, in addition to previous problems at WBN, indicated inadequacies in the quality assurance program and its implementation. The NRC considered proposing escalated enforcement action for these inadequacies, but based on discussions with TVA personnel on August 19, 1981, and commitments made by L. M. Mills, Manager of Nuclear Regulation and Safety in the TVA Office of Power, the NRC concluded escalated enforcement action was not warranted at that time. The NRC requested that TVA perform an independent review of the quality assurance program at Watts Bar and other facilities covering specific areas of concern to the NRC. This report presents the findings of the review made by the Nuclear Safety Review Staff.

II. SCOPE

The following areas were reviewed to verify the adequacy and effectiveness of management controls over portions of the established WBN quality assurance program.

Program Improvements
Training and Qualification of Personnel*
Quality Control
System Transfer
Construction Test and Preoperational Test
System Cleanliness
Corrective Action
Quality Assurance Audits

*Craft training not included

The review included interviews with WBN personnel, reviews of procedures, and reviews of records. Conclusions are contained in section III and details of the review findings are contained in section IV of this report.

III. CONCLUSIONS AND RECOMMENDATIONS

The following paragraphs contain the conclusions followed by recommendations, if applicable. An R or E in parentheses has been placed at the end of each recommendation. The (R) indicates that

NSRS has concluded the recommendation is based on a regulatory requirement or a TVA commitment. The (E) indicates NSRS has determined that the recommendation has no regulatory basis, but is considered an enhancement to the nuclear safety program and is based on subjective judgment.

A. Program Improvements

The WBN program for improvements is adequate to meet requirements and commitments. The recent improvements appear to be adequate; however, in some cases it is too early to evaluate their effectiveness. No recommendations resulted from review of these program improvements; however, further review of this area will continue during future NSRS reviews. Refer to paragraph IV.A. for details.

B. Training and Qualification of Personnel

The training and qualification program and its implementation for inspection and engineering personnel are not sufficiently adequate to ensure site management that inspectors and engineers will be qualified to perform their quality-related functions. Specific problems observed in the program and its implementation were as follows:

1. R-81-28-WBN-1, Training and Qualification of Personnel

A training program had not been developed for QC inspectors and engineering personnel in practical application of inspection and test activities as required by procedures.

Recommendation

Develop a program (modules) to train inspectors and engineering unit personnel in practical application of inspection and test activities. Refer to section IV.B.1 for details. (R)

2. R-81-28-WBN-2, Inspector Demonstration of Practical Knowledge

Inspectors had not been required to demonstrate to the examiner their knowledge of practical application of Quality Control Procedures (QCPs) and Quality Control Test Procedures (QCTs) with the exception of visual weld inspection as required by site procedure.

Recommendation

Implement the requirements of site procedure. Refer to paragraph IV.B.2 for details. (R)

3. R-81-28-WBN-3, Engineering Unit Personnel Demonstration of Practical Knowledge

Site procedure requires engineering unit personnel to receive practical training but does not require them to demonstrate their knowledge of the training they received.

Recommendation

Develop a method for engineering unit personnel to demonstrate their practical knowledge. Document both the method and the results of tests of individual's proficiency. Refer to paragraph IV.B.3 for details. (E)

4. R-81-28-WBN-4, Procedural Comprehension

Inspectors were not certified in Quality Control Instructions (QCIs) as required by site procedure. In addition, engineering unit personnel were not certified in QCIs, QCTs, and QCPs as required by site procedure.

Recommendation

Implement the requirements of the procedure. Refer to paragraph IV.B.4 for details. (R)

5. R-81-28-WBN-5, Inadequate Training System

Site (WBNP-QCI-1.11) and division (QAP 2.2) procedures do not clearly establish training requirements for all persons (i.e., inspectors, engineers, crafts, clerks, etc.) who perform quality-related activities. The training program established by the procedures does not assure upper management that suitable proficiency is achieved and maintained by persons performing quality-related activities.

Recommendation

Review and revise the procedures as necessary to clearly establish training requirements for all persons performing quality-related activities. Establish a system to assure management that suitable proficiency will be achieved and maintained. Refer to paragraph IV.B.5 for details. (R)

6. R-81-28-WBN-6, Inadequate Documentation of Training

Training had not been documented as specified in CONST-QAP 2.2 on Personnel Certification Records (PCRs) in the Quality Control and Records Unit (QCRU).

Recommendation

Document required training on PCRs if records are available that demonstrate training of individuals had been accomplished. In cases where records of training do not exist, perform retraining of personnel and document as required. Refer to paragraph IV.B.6 for details. (R)

7. R-81-28-WBN-7 Job Performance Evaluation

Records of job performance evaluations for inspection, examination, and testing personnel had not been filed in the Quality Control and Records Unit (QCRU) as required by CONST-QAP 2.2.

Recommendation

Implement the requirements of the procedure. Refer to paragraph IV.B.7 for details. (R)

8. R-81-28-WBN-8, Personnel Qualification Summary

Qualification sheets were not in the inspectors' files in the QCRU as required by WBNP-QCI-1.41.

Recommendation

Implement the requirements of the procedure. Refer to paragraph IV.B.8 for details. (R)

9. R-81-28-WBN-9, Quality Assurance Orientation/Indoctrination

Records did not indicate that all personnel performing safety-related activities had received orientation/indoctrination in basic quality assurance policies, requirements, and responsibilities as required by WBNP-QCI-1.11.

Recommendation

Provide the required orientation/indoctrination to appropriate personnel and document the training. Refer to paragraph IV.B.9 for details. (R)

C. Quality Control

The WBN QC program as written and its implementation do not assure management that all safety-related inspection activities will be adequately performed. Specific problems in the program and its implementation revealed by reviewing the program and observing implementation are as follows:

1. R-81-28-WBN-10, Quality Control Procedure Inadequacies

A number of procedures and instructions cover the same area, contain conflicts with regards to the requirements, contain an inordinate number of addendums, do not contain documentation requirements, and are not consistent in the guidance for inspection.

Recommendations

a. Perform an indepth review of all WBN QC procedures and instructions to assure they contain all regulatory and programmatic requirements, to identify conflicting requirements, to determine inspections where more than one procedure applies, to identify procedures which contain an inordinate number of addendums, and to assure the procedures are consistent in the guidance for inspections. Revise the procedures and instructions as necessary.

b. After the procedures have been revised, retrain and certify all personnel as necessary in the programmatic procedural requirements.

Refer to paragraph IV.C.1 for details. (R)

2. R-81-28-WBN-11, Inadequate Document Control of Procedures

The QA/QC program does not require controlled copies of inspection and test procedures to be distributed and used at the work location of the prescribed activity.

Recommendation

WBN management should establish procedural requirements for and provide a controlled copy of all inspection and test procedures at the location of the prescribed activity, or a controlled copy of the appropriate procedures should be provided to the inspector for use at the location of the prescribed activity. Refer to paragraph IV.C.2 for details.(R)

3. R-81-28-WBN-12, Responsibility for Inspection

WBNP-QCP-4.13 states that all NDE inspections shall be done by the Welding Engineering Unit (WEU). WEU inspectors are not performing all these inspections.

Recommendation

Implement the requirements of the procedure or revise the procedure to reflect current site practice. Refer to paragraph IV.C.3 for details. (R)

4. R-81-28-WBN-13, Unqualified NDE Procedures

Documents (records) were not readily available to provide evidence that the NDE procedures had been successfully demonstrated (qualified) to the Authorized Nuclear Inspector (ANI) as required by Construction Specification G-29.

Recommendation

WBN management should ensure that all NDE procedures are demonstrated to the satisfaction of the ANI and the demonstration is documented. Refer to paragraph IV.C.4 for details. (R)

5. R-81-28-WBN-14, Inadequate Procedure Review

An adequate system had been established to ensure site generated procedures/instructions contained all applicable requirements but the system was not fully implemented.

Recommendation

Provide the site QA unit with qualified personnel and the documents necessary to perform an in-depth review of all site generated procedures/instructions as required by QASP 4.2. Review present and future procedures/instructions to ensure all applicable requirements are included. Refer to paragraph IV.H.3 for details. (R)

D. System Transfer

CONST and NUC PR management are aware of the problems associated with system transfers and scheduling and they appear to be attempting to solve these problems. NSRS does not have recommendations for improvements at this time. Refer to paragraph IV.D. for details.

E. Construction Test and Preoperational Test

The construction and preoperational testing controls are adequate if followed in detail by qualified personnel. There are no recommendations for change in this area. Other sections of this report address the qualifications of personnel (reference paragraph III.B) and following procedures (reference paragraph III.C.2.). Refer to paragraph IV.E. for details.

F. System Cleanliness

The written program for the cleaning and flushing of systems does not appear adequate as described below:

1. R-81-28-WBN-15, Inadequate Requirements in Cleaning and Flushing Procedures

The flushing procedure (WBNP-QCT-3.14) for instrument lines does not address velocity of the flush or presence of foreign or particulate matter during the flush. WBNP-QCT-4.36 does not provide guidance for layup of systems other than those which are chemically cleaned.

Recommendation

a. Review WBNP-QCT-3.14 to determine if a requirement for velocity is necessary and if a check for foreign or particulate matter should be required.

b. Review WBNP-QCT-4.36 to determine if layup requirements for systems other than those which are chemically cleaned should be provided.

Refer to paragraph IV.F.1 for details. (E)

G. Corrective Action Program

Adequate methods have been established at WBN to identify failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances. The present system does not ensure that the root cause of the deficiency, deviation, etc., is determined and that corrective action is taken to preclude repetition.

1. R-81-28-WBN-16, Determining Root Cause of Deficiencies

WBN had not developed an effective system to determine the root cause of deficiencies, deviations, etc., and in some cases the corrective actions taken did not preclude repetition.

Recommendation

Revise WBNP-QCI-1.2 and other related procedures to require each issued significant Nonconformance Report (NCR) and each significant audit deficiency to be reviewed to determine the root cause of the deficiency and to implement corrective action to prevent recurrence. Document the root cause on the NCR or audit deficiency sheet. Delineate responsibility in the procedures for performing the review to determine root cause. Refer to paragraph IV.G.1 for details. (R)

2. R-81-28-WBN-17, Inadequacies in WBNP-QCI-1.2

WBNP-QCI-1.2 does not adequately delineate the duties and responsibilities of persons responsible for initiating and reviewing Nonconformance Reports (NCRs) and Inspection Rejection Notices (IRNs).

Recommendation

a. Since quality control unit representatives may initiate an NCR, revise section 5.2 of the procedure to delineate this responsibility.

b. Revise section 6.10 of the procedure to provide more detailed instructions to the quality control inspector in the following areas: (1) when an IRN must be sent to the engineering unit to be dispositioned and when an IRN may be dispositioned by quality control unit personnel, (2) deficiencies, deviations, etc., which must be documented on an NCR rather than an IRN, (3) deficiencies, deviations, etc., which may be documented on an IRN rather than an NCR, (4) recording IRN numbers and a description of the deficiency in a master log, and (5) the system used to close an IRN.

c. Revise section 6.10 of the procedure to provide more detailed instructions to the quality control unit supervisors in the following areas: (1) the method to be used to identify and document IRN trends and (2) the method to be used to inform higher level management of developing IRN trends.

d. Establish and document a system to ensure trends are identified for IRNs which may affect more than one engineering/quality control unit.

e. Revise the procedure to provide more detailed instructions to engineering unit personnel on the method to be used to process IRNs.

Refer to paragraph IV.G.2 for details. (R)

3. R-81-28-WBN-18, Review of the Quarterly Trend Analysis Report

No requirement exists for the CONST QA Manager and OEDC QA Manager to review the report to determine if the root cause of the problem is generic to other TVA plants or if the root cause is related to a deficiency in the OEDC QA Program.

Recommendation

Issue procedures or revise appropriate procedures to include a requirement for the CONST QA Manager to review the Quarterly Trend Analysis Report for generic implications of deficiencies to other TVA nuclear plants and for the OEDC QA Manager to review this report for programmatic problems. These reviews should be documented. Refer to paragraph IV.G.3 for details. (R)

4. R-81-28-WBN-19, Review of the QA Trend Analysis Master Status Report

WBNP-QCI-1.2 requires the Construction Engineer or his designated assistant to review the QA Trend Analysis Master Status Report on a monthly basis but does not require the review to be documented. In addition, the procedure does not establish minimum acceptable levels for trends.

Recommendation

WBN management should revise WBNP-QCI-1.2 to require the review by the Construction Engineer to be documented and establish minimum acceptable levels for trends. When the maximum acceptable level is exceeded, the Construction Engineer should investigate to determine the root cause of the problem. Refer to paragraph IV.G.4 for details. (R)

H. Quality Assurance Audits

The audits conducted by the site QA unit appear to be in sufficient depth, and results of the audits are documented and distributed to appropriate levels of management. Weaknesses in the QA audit program are as follows: (1) the site QA unit had not audited all aspects of the quality assurance program to determine the effectiveness of the program, (2) the site QA unit also experienced some difficulty in obtaining resolution on audit deficiencies and on procedure review comments which appeared to be caused by communication problems between site QA and EN DES, and (3) the site QA unit did not appear to be adequately staffed to perform all assigned responsibilities.

1. R-81-28-WBN-20, All Aspects of QA Program Not Audited

The site QA unit had not performed audits as follows: (1) Inspection Rejection Notice (IRN) system to determine the effectiveness of the system and (2) the transfer of systems from CONST to NUC PR.

Recommendation

Site QA should: (1) schedule and perform audits of the IRN system and the transfer of systems from CONST to NUC

PR and (2) review all aspects of the QA program to ensure audits have been conducted or are scheduled to be conducted. Refer to paragraph IV.H.1 for details.(R)

2. R-81-28-WBN-21, Interface Between the Site QA Unit and the CONST QA Manager's Office

The site QA unit had experienced problems in obtaining information from EN DES necessary to close audit deficiencies or perform procedure reviews. Interviews with the QA supervisor and several members of the QA unit revealed they had problems in locating the person in EN DES who had knowledge and authority to provide answers to questions. No mechanism (i.e., administrative control, procedure, etc.) exists which directs the site QA supervisor to contact the CONST QA Manager on audit deficiencies which cannot be resolved at the site or to obtain an official response from EN DES on questions which arise during procedure reviews. This lack of guidance could result in untimely resolution of audit deficiencies and procedural requirements.

Recommendation

Develop and issue a procedure which delineates the responsibilities of the site QA unit supervisor for interfacing with the CONST QA Manager's office. The procedure should specifically address how the supervisor notifies the CONST QA Manager's office of audit deficiencies which cannot be resolved at the site and the QA Manager's role in obtaining resolution. The procedure should also address how the site QA unit interfaces with the CONST QA Manager's office to obtain official responses from EN DES on questions raised by the site QA unit during their procedural reviews. Refer to paragraph IV.H.2 for details.(R)

3. R-81-28-WBN-22, Inadequate Resources for the Site QA Unit

A review of the current audit schedule and discussions with members of the site QA unit revealed the schedule had slipped several weeks due to the unit's involvement in several other areas. The site QA unit had not performed procedure reviews in the depth required. These weaknesses are a direct result of inadequate resources (manpower and materials).

Recommendations

Increase the site QA unit staff size with qualified personnel to the level required to carry out their assigned responsibilities. Obtain the documents (Design Guides, Design Standards, drawings, IEEE Standards, ASME Code, etc.) necessary to perform the procedural reviews required

by QASP 4.2. Review present and future procedures to ensure all applicable requirements were included. Refer to paragraph IV.H.3 for details.(R)

IV. DETAILS

A. Program Improvements

Criterion II to 10CFR50, Appendix B, requires that the status and adequacy of the quality assurance program be regularly reviewed. This requirement is also contained in ANSI N45.2-1971. The Quality Assurance Program Requirements Manual (PRM) commits WBN to this standard. WBNP-QCI-1.10 designates the Procedures and Training Staff to maintain cognizance of requirements which need to be incorporated into the construction quality control (QC) procedures.

NSRS observed the following recent program improvements.

1. QC procedures have been divided into Quality Control Instructions (QCIs), Quality Control Procedures (QCPs), and Quality Control Test Procedures (QCTs).

2. An organization change has split the quality control (QC) groups out of the engineering groups.

3. Procedures are being revised to:

   a. Put them in standard format.

   b. Include acceptance criteria.

   c. Make procedures more logical.

4. A system for tracking of NRC inspection reports, NRC 50.55(e) items, and audit deficiencies has been implemented.

5. A new position, OEDC Project Manager, has been created and filled.

6. As a result of the report on Diagnostic Evaluation of Morale and Productivity at the Watts Bar Nuclear Plant, a new system for employee appraisal and feedback has been developed. The system has not been fully implemented.

The WBN program for improvements is adequately meeting requirements and commitments. The recent improvements appear to be adequate; however, in three cases--the organizational split, procedure revisions, and the employee appraisal and feedback system--it is too early to evaluate their effectiveness. No adverse findings or recommendations resulted from review of these program improvements, but further review of these areas will be conducted during future NSRS reviews.

B. Training and Qualification of Personnel

Criterion II of Appendix B to 10CFR50 states the quality assurance program "shall provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained." CONST QAP 2.2 gives general instructions for the process required for the selection, qualification, and certification of personnel who perform inspection, examination, and testing activities. WBNP-QCP-1.11 is the site procedure which implements CONST QAP 2.2. WBNP-QCP-1.11 also delineates responsibilities for development, presentation, certification, and documentation of the quality assurance training program. Specific problems in the program and its implementation were as follows:

1. R-81-28-WBN-1, Training and Qualification of Personnel

CONST QAP 2.2 requires responsible supervision to provide a training program corresponding to an individual's job assignment and capabilities. CONST-QAP 2.2 requires the training program to address:

a. Applicable codes, standards, and specifications.

b. Applicable elements of the Quality Assurance/Quality Control (QA/QC) Program.

c. Familiarization with appropriate inspection, examination, and testing tools and equipment.

d. On-the-Job participation.

Site procedure WBNP-QCI-1.11 states, "The Quality Assurance Program Training Plan shall identify training modules and appropriate responsibilities as generally outlined in attachment E. The plan shall be used by line supervisors to provide appropriate training in QCIs, QCPs, and QCTs for their employees." Attachment E of this procedure requires that modules include technical requirements and practical training. Discussions and interviews with site personnel revealed the following information.

a. Most units have not developed training modules as required by procedures.

b. Engineering unit personnel are not tested in knowledge of QCPs and QCTs, although they perform functional tests and assign appropriate QCPs and QCTs in work packages. Also, engineers serve as test directors during construction testing.

c. Most inspectors felt they were not sufficiently trained prior to performing inspections.

2. R-81-28-WBN-2, Inspector Demonstration of Practical Knowledge

WBNP-QCI-1.11, paragraph 6.4.2.3, states that in addition to passing a written examination, inspectors must demonstrate their knowledge of practical application to the satisfaction of the examiner on each QCP/QCT they use in inspection, examination, and testing activities. Written examinations are being administered to inspectors; but the inspectors, with the exception of visual weld inspectors, are not required to demonstrate their practical knowledge.

3. R-81-28-WBN-3, Engineering Unit Personnel Demonstration of Practical Knowledge

Site procedure WBNP-QCI-1.11 requires, "Personnel performing and/or verifying activities affecting quality are trained and certified in the principles, techniques, and requirements of the activity being performed." Paragraph 6.4.2.3 states that personnel shall demonstrate their practical knowledge on each QCP/QCT.

Contrary to this requirements, engineering unit personnel are performing quality-related activities (i.e., testing) and are not required to demonstrate their knowledge of practical application for each QCP/QCT.

4. R-81-28-WBN-4, Procedural Comprehension

Site procedure WBNP-QCI-1.11 requires, "Personnel performing and/or verifying activities affecting quality are trained and certified in the principles, techniques, and requirements of the activity being performed." Paragraph 6.4.2.3 of the procedure states the quality assurance unit will administer examinations/certifications. For the individual to be certified, a written examination must be passed (70 percent).

Contrary to these requirements, inspectors were not certified in QCIs, and engineering unit personnel were not certified in QCIs, QCPs, and QCTs. In addition, NSRS noted that in many site QA audits conducted this year deficiencies had been written for failure to follow instructions contained in QCIs.

NSRS also noted that the only evidence available to prove an individual had passed an examination was the examiner's name on the PCRs because test results were not being maintained.

5. R-81-28-WBN-5, Inadequate Training Program

CONST-QAP 2.2 addresses qualification/certification of inspection, examination, and testing personnel. Since engineering unit personnel (engineers, engineering aides/associates) perform safety-related qualification tests, the requirements of this procedure should apply. It appears site management considers the requirements of the procedure applicable to only quality control inspectors because none of the required training has been documented on the Personnel Certification Records for current engineering unit personnel. The procedure delegates to the supervisor responsibility for training in applicable codes and standards, applicable elements of the QA/QC program, use of testing tools and equipment, applicable inspection and testing procedures, and on-the-job participation. The procedure does not require upper management to review the training program established by each supervisor to determine if the program is adequate. Without this review, upper management is not assured that an adequate program has been established.

WBNP-QCI-1.11 established requirements for the site Quality Assurance Training Program but does not address all the requirements established by the upper tier division procedure (QAP 2.2). Specifically, WBNP-QCI-1.11 does not address training in use of tools and equipment, applicable codes and standards, and on-the-job participation. The procedure is ambiguous in the training required for QC inspectors and engineering unit personnel. It requires QC inspectors to be tested to demonstrate their procedural comprehension but does not establish the same requirement for engineering unit personnel. The procedures requires QC inspectors to demonstrate their knowledge of practical application to the examiner but does not establish the same requirement for engineering unit personnel. The procedure describes a QCI as a document which defines the requirements for the performance of activities affecting quality other than inspections and tests, but does not require QC inspectors or engineering unit personnel to become certified in the QCI. Exhibit E of the procedure requires modules to be developed to conduct training in areas, such as procedures, technical requirements, and practical training. However, interviews with site management indicated they did not believe written modules were required. In summary, WBNP-QCI-1.11 does not clearly establish requirements for training and, without a well-defined program, management cannot be assured that persons performing quality-related activities will be adequately trained.

6. R-81-28-WBN-6, Inadequate Documentation of Training

CONST QAP 2.2 states that required training has been completed and the certification of satisfactory job performance capability is documented by the signature of the responsible supervisor on the individual's Personnel Certification Record (PCR) for each activity. However, review of PCRs in the records storage vault indicated required training had not been documented.

7. R-81-28-WBN-7, Job Performance Evaluation

CONST QAP 2.2, paragraph 7, and WBNP-QCI-1.11, paragraph 6.4.2.2, commit the responsible supervisor to continually review and evaluate performance of inspection, examination, and testing personnel. This evaluation of inspectors shall be documented at periods not to exceed two years. This documentation is made a part of the inspector's file in the records storage vault. Contrary to this requirement, a survey of files in the vault indicated the job performance evaluations were not on file.

8. R-81-28-WBN-8, Personnel Qualification Summary

WBNP-QCI-1.41 requires that a qualification summary sheet be completed for each individual to be certified as a visual weld inspector. This document is to be stored in the inspector's file. Contrary to this requirement, qualification summaries were not in the files.

9. R-81-28-WBN-9, Quality Assurance Orientation/Indoctrination

NSRS concluded from interviews with site employees that personnel were aware of the requirement to follow procedures. However, many of the site employees said they had not received a QA orientation which included the purpose of procedures and the need to adhere to procedures. NSRS selected at random approximately 200 names of individuals involved in quality-related activities from site organization charts and requested the Training Officer to present evidence (attendance sheets) to confirm that the employees had attended the QA orientation. Accordingly, attendance sheets were not available for about 100 employees.

C. Quality Control

Criterion V of Appendix B to 10CFR50 requires activities affecting quality to be prescribed by documented instructions or procedures of a type appropriate to the circumstances and accomplished in accordance with these instructions. Criterion VI requires the procedures to be reviewed for adequacy and approved for release by authorized personnel and distributed to and used at the location where the activity is performed.

Criterion IX requires special processes including welding, heat testing, and nondestructive testing to be controlled and accomplished by qualified personnel using qualified procedures.

A recent program improvement at WBN divided the site procedures into Quality Control Instructions (QCIs), Quality Control Test Procedures (QCTs), and Quality Control Procedures (QCPs). A Procedures and Training Staff was established to review present procedures and rewrite the procedures in a standard format, to include appropriate acceptance criteria, and to revise the procedures to make them more logical and easier to follow. Recent procedures issued by the Procedures and Training Staff appeared to comply with these requirements; however, all procedures have not been revised.

Quality Control Program deficiencies and weaknesses are described below.

1. R-81-28-WBN-10, Quality Control Procedure Inadequacies

   a. Conflicts in procedures pertaining to qualifications, training, and certification of NDE personnel are described below.

      Attachment J of CONST-QAP-2.3 specifies the qualifications training and certification requirements for NDE personnel performing welding inspections, including "visual weld examinations." WBNP-QCI-4.4 references and endorses CONST-QAP 2.3. WBNP-QCI-1.41, which also delineates the requirements for personnel performing visual welding inspections does not reference CONST-QAP 2.3 or WBNP-QCI-4.4. It references CONST-QAP 2.2 which gives requirements for inspection personnel other than nondestructive examination personnel. Since WBNP-QCI-1.41 applies to NDE personnel it should reference the upper tier procedure which apply to NDE personnel. The reference to QAP 2.2, which specifically states it does not apply to NDE personnel, appears to be a conflict in procedures.

      The educational qualification, training, examination, and certification requirements included in WBNP-QCI-1.41 are less stringent than those in CONST-QAP 2.3, which should be its upper tier document. These less stringent requirements were agreed upon by memorandums and verbal communications among the WBN Project Manager, Manager of CONST, and CONST QA Manager; however, the

upper tier procedure was not revised. This appears to be a conflict between site procedures and upper tier procedures.

b. An example of more than one procedure applying to the same inspection is given below.

WBNP-QCP-4.23 and WBNP-QCP-4.8 both include visual examination of support weld joints and both reference the same G-specifications and procedures for NDE (G-29C and WBNP-QCP-4.13). These procedures apply to the same type of inspections, conceivably using the same NDE inspection personnel, yet attachment F of WBNP-QCP-4.23 calls for seismic supports inspected to WBNP-QCP-4.8 to be reinspected to WBNP-QCP-4.23. This appears to be two procedures which apply to the same inspection activity.

c. An example of a procedure which does not contain documentation requirements is identified below.

WBNP-QCP-4.13 is the procedure used by WBN inspection personnel to perform required NDE, including visual examination of welds. There are no inspection documentation requirements in WBNP-QCP-4.13 or one of its referenced process specifications [P.S.3.C.5.2(b)]. It is not clear to NSRS how inspections performed using this procedure and process specification are documented.

d. An example of procedures which are not consistent in specifying inspection requirements is given below.

There are two procedures (WBNP-QCP-4.23 and WBNP-QCP-4.8), two process specifications [P.S.3.M.5.s(d) and P.S.3.C.5.2(b)], and a QCI (WBNP-QCI-4.3) which address the requirements for placing the welder's identifying mark and/or the welding inspectors identifying mark on the work piece or documents traceable to the work piece. The requirements of each of these documents vary and/or conflict with the others, but all pertain to safety-related welds. Some welding inspectors interviewed by NSRS were confused about the requirements for inspecting for the welder's identifying mark or when to place their identifying mark adjacent to inspected welds.

e. Examples of procedures which contain an inordinate number of addendums are given below.

WBNP-QCP-4.13 is a two-page procedure with five addendums consisting of 27 pages. One of the reference documents needed for inspections [P.S. 3.M.5.1(d)] contains 15 pages and has 13 addendums consisting of 27 pages. WBNP-QCP-4.23 is a nine-page procedure with attachments adding an additional 65 pages and addenda adding 13 pages for a total of 87 pages.

2. R-81-28-WBN-11, Inadequate Document Control of Procedures

The results of interviews with the supervisors and inspection personnel within all WBN quality control units indicated that the inspectors did not carry a controlled copy of their inspection procedure with them during specific inspections; and there was no requirement for this.

Numerous NCRs and audit deficiencies have been written for failure to follow procedures which could be a direct result of not requiring the inspector to have a controlled copy of the procedure during inspections. The NSRS interpretation of the regulatory requirement is that the inspector must have a controlled copy of the procedure with him during inspections.

3. R-81-28-WBN-12, Responsibility for Inspection

WBNP-QCP-4.13 is the site procedure for nondestructive examination. The procedure contains checklists for liquid penetrant, dry magnetic particle, and visual weld examination (addendum 2). Addendum 3 establishes fillet weld visual acceptance standards for supports. Paragraph 4 of WBNP-QCP-4.13 assigns the responsibility for performance of all examinations and/or inspections referenced by this procedure to the Welding Engineering Unit (WEU).

Interviews with supervisors and inspectors revealed that the construction engineering organization (CEO) had personnel assigned to various units (instrumentation, electrical, hanger, etc.) who are performing visual weld inspections in accordance with WBNP-QCP-4.13. Although these inspectors may be qualififed, procedural requirements prohibit their performance of visual NDE inspections.

4. R-81-18-WBN-13, Unqualified NDE Procedures

ASME Code, section III, 1971 edition, subsections NB-5112, subsections NA, NC, and ND, all state in part, ". . .

detailed written procedures which have been proven by actual demonstration to the satisfaction of the inspector. Written procedures and records of demonstration of procedure capability and personnel qualification shall be made available to the inspector."

Process Specification P.S.3.M.5.1(d) states in paragraph 1.3, "The welding engineer or welding quality control unit at each site shall demonstrate this procedure and each revision and addendum to the satisfaction of the Authorized Nuclear Inspector. This demonstration shall be documented on a form similar to appendix A." The process specifications for other NDE state the same or similar requirements.

As far as NSRS has been able to determine, no NDE procedure qualifications are on file at WBN, and for at least visual NDE, no procedure qualification has been performed.

D. System Transfer

System transfers are controlled by ID-QAP-1.2. Work completion on transferred systems is controlled by ID-QAP-1.3. Construction control of system transfers is implemented by WBNP-QCI-1.22. Construction control of work on transferred systems is implemented by WBNP-QCI-1.30.

The documents listed above were reviewed, personnel were interviewed, and the implementation of the program was observed to determine the adequacy of the control of system transfers. The controls for system transfer appear to be adequate. There is a potential for problems caused by systems being transferred before completion. In doing so, there are generated Outstanding Work Items which are compiled into an Outstanding Work Items List (OWIL). There are presently over 8,000 open items on the OWIL. These items are completed using the work plan program. Prior to November 1980, WBNP-QCI-1.30 stated:

> "The non-modification work plan shall be used to accomplish minor activities on all transferred features such as punchlist items."

This seemed appropriate, but it was pointed out in a NUC PR review that many items being completed on work plans were not minor in nature. An example was hanger completion.

Also, at that time, the NUC PR document WB14.1 stated:

> "It is the intent of this procedure that when tentative transfer of a plant feature is offered to and accepted by NUC PR, construction activities shall be complete in

accordance with design and other requirements. However, it is recognized that there will be exceptions where there is incentive and justification for NUC PR to accept a structure, system, or component with incomplete CONST work items remaining to be accomplished."

This also seemed appropriate; but in reviewing actual transfers, it was seen that it was not the exception to have an incomplete system but the accepted practice. These discrepancies were pointed out in the NSRS report R-80-17-WBN, and subsequently the two statements were modified. After these changes in the procedures, the controlling documents accurately described the actual implementation. WBN subsequently has established a detailed listing of every outstanding work item at the time of tentative transfer. This has caused the OWIL to expand to its present size. Thus, the original concept of completing a small number of relatively minor work activities has expanded into an 8,000-item list, including the completion of many hangers. The scope of the work being conducted under these circumstances opens the way for a potential loss of control of the work function, especially as it involves quality-related activities. CONST has continued to transfer systems to NUC PR with hundreds of open items. The systems are transferred in this configuration to meet the present schedule. If the schedule is unrealistic, this method of meeting the schedule may increase the potential for the performance of non-quality work due to the following factors:

1. Excessive overtime.

2. Use of less qualified personnel.

3. Decreased morale caused by the impossibility of meeting the requirements of upper management.

Any conclusions on the matter of scheduling would be very subjective at this time. Management seems fully aware of the problems associated with attempting to meet the schedule and have accepted the associated risk. CONST management and NUC PR management have stated they are attempting to decrease the length of the OWIL. NSRS will continue to overview the management controls for system transfers.

E. Construction Test and Preoperational Test

Construction testing interfacing is controlled by ID-QAP-11.2. Preoperational testing interfacing is controlled by ID-QAP-11.1. The responsibilities of CONST, EN DES, and NUC PR are defined in these two documents. Construction test procedures are controlled by WBNP-QCI-1.10.

Construction testing is conducted under WBNP-QCTs. WBNP-QCT-3.6 and WBNP-QCT-4.37 were reviewed in detail. Interviews were held with personnel involved in the control and implementation of these procedures.

From the review of the above-listed documents and from interviews with site personnel, it was concluded that the controls for construction testing are adequate. Errors that have been observed and documented through NRC violations and NCRs were most often caused by a failure to follow procedures. If the procedures that are available are followed in detail by well qualified personnel, the Watts Bar Nuclear Plant construction testing program is adequate.

The preoperational test program at Watts Bar was reviewed in previous NSRS reports, R-80-09-WBN, R-80-17-WBN, R-81-06-WBN, R-81-16-WBN, and R-81-20-WBN, and was found to be adequate.

F. System Cleanliness

Criterion II to 10CFR50, Appendix B, requires that the status and adequacy of the quality assurance program be regularly reviewed. This requirement is also contained in ANSI N45.2-1971. The Quality Assurance Program Requirements Manual (PRM) commits WBN to this standard. WBNP-QCI-1.10 designates the Procedures and Training Staff to maintain cognizance of requirements which need to be incorporated into the construction quality control (QC) procedures. WBNP-QCT-3.14 and WBNP-QCI-4.36 had been issued to cover cleaning and flushing of instrumentation lines and process piping, respectively. These procedures do not appear to contain all the necessary requirements. Specific examples are given below.

1. R-81-28-WBN-15, Inadequate Requirements in Cleaning and Flushing Procedures

   Interviews with inspection personnel indicated concerns with procedure WBNP-QCT-3.14 because the procedure has no requirement for velocity of the flush for instrument lines. This concern was written up by the WBN QA audit group as a comment in audit No. WB-G-81-12. This procedure also does not contain a requirement to check for foreign or particulate matter during the flushing process.

   NSRS questions the lack of guidance in WBNP-QCT-4.36 for layup of systems. For example, the procedure does not require carbon steel piping, other than that which requires chemical cleaning, to be drained and dried prior to layup.

G. Corrective Action

Criterion XVI of Appendix B to 10CFR50 requires conditions adverse to quality, such as failures, malfunctions, and deficiencies, to be promptly identified and corrected. In the

case of significant conditions adverse to quality, Appendix B requires the cause of the condition to be determined and corrective action taken to preclude repetition. Criterion II requires management to regularly review the status and adequacy of the quality assurance program. Division of Construction Quality Assurance Program Policy (QAPP) 16 also requires the cause of significant conditions adverse to quality to be determined and steps taken to preclude repetition. Watts Bar Quality Control Instruction 1.2 classifies repetitions of a condition adverse to quality as significant.

Adequate measures have been established at Watts Bar to identify deficiencies by issuing Nonconformance Reports (NCRs), Inspection Rejection Notices (IRNs), and audit deficiencies. The Watts Bar procedures do not adequately delineate responsibilities for reviewing NCRs, IRNs, and significant audit deficiencies to determine the root cause of the problem and to initiate corrective action to preclude repetition.

The corrective action program appeared to meet regulatory requirements and TVA commitments except as follows:

1. R-81-28-WBN-16, Determining Root Cause of Deficiencies

   A recent revision (5/25/81) to WBNP-QCI-1.2 requires the Construction Engineer or his designated assistant to review the QA Trend Analysis Master Status Report on a monthly basis. Based on this review, corrective action is to be implemented, and NCRs are to be upgraded to significant, as required. This recent revision also requires each engineering supervisor to review on a monthly basis outstanding NCRs initiated by their unit together with their NCR logs to identify generic or repetitive conditions. The unit supervisor is required by the procedure to report the results of the review to the Construction Engineer. The procedure does not specify how the results will be reported (i.e., in writing, verbally). The procedure also does not require the Construction Engineer or his designated assistant to document the monthly review of the QA Trend Analysis Master Status Report. Although this procedure adequately addresses responsibilities for review of the Trend Analysis Report and NCRs on a monthly basis, it does not adequately address determination of root cause. The NCR form requires the apparent cause of the nonconformance to be included on each NCR, but many NCRs reviewed did not include this information. After reviewing numerous NCRs, audit deficiencies, and the January-June 1981 QA Trend Analysis Report, the NSRS review team members concluded that the present system at WBN only requires the immediate problem to be "fixed" without requiring an investigation to determine the root cause of the problem and to implement corrective action to prevent the problem from recurring. A few examples are listed below.

NCR 3575 (8/21/81). This NCR lists several problems with documentation on previously transferred equipment (e.g., test sequence cards did not indicate the revision level of the drawing; test sequence cards designate a series of drawings rather than the specific drawing; no revised test sequence card for later drawing revisions). The action required to prevent recurrence listed on the NCR was to review the documentation more thoroughly prior to transfer. Questions which should have been asked and answered might include: Does WBN have procedures which describe the test sequence cards? Do the procedures require the inspector to list the drawing revision level on the test sequence card? Do the procedures require the inspector to list the specific drawing which applies rather than a series of drawings? Do the procedures require a reinspection if the drawing is revised? Have the inspectors in this unit been trained in the procedural requirements? Does the procedure affect the activities of inspectors in other units and, if so, have they been trained in the procedural requirements? Have other NCRs or audit deficiencies been issued which might indicate this is more than an isolated case? The corrective action listed on this NCR will not prevent the test sequence cards from being completed in error, but a more thorough review may catch the errors. The correct approach is to determine the cause of the error and take action to prevent the error from recurring.

NCR 3626 (11/2/81). This NCR states the transfer drawing failed to show "as constructed" status for system 61 at the time of transfer. The NCR lists nine separate errors, and the apparent cause of eight of these errors is "oversight of engineer." The corrective action to prevent recurrence is to train electrical, instrumentation, and mechanical employees in the requirements of QCI 1.22 and 1.25. The completion of this NCR is generally good; however, additional questions could have been asked to determine the root cause of the problem. Have the electrical, instrumentation, and mechanical employees ever been trained in these QCIs? If not, why not? If they were trained, was the training effective? Was the engineer who overlooked these items a new employee (NSRS investigation indicated he was)? Had he received proper training?

NCRs 2375 (6/11/80), 2086 (2/18/80), 2101 (2/15/80), and 3523 (8/5/81). All of these NCRs pertain to faulty fillet welds which had been inspected and accepted. The corrective action was to retrain inspectors, give them gages to determine weld size, and teach them to use the gages. Some questions which could have been asked when any of the NCRs were issued include: Do the procedures

require the inspector to measure the weld size? Have the inspectors been trained in the procedural requirements? Does the training include how to use the gages? Do the inspectors receive on-the-job training from an experienced inspector before performing the inspection alone? Adequate procedures and proper training may have prevented these deficiencies and could prevent the problems from recurring.

Site QA Audit Deficiencies A number of audit deficiencies were issued for failure to follow WBN Quality Control Instructions (QCIs). Examples of these deficiencies are as follows:

Audit Numbers	Deficiency
WB-G-81-01	1, 2, 4, and 5
WB-G-81-02	1
WB-G-81-03	3
WB-G-81-04	1
WB-G-81-05	1, 2, and 4
WB-G-81-06	9
WB-G-81-08	1
WB-G-81-09	1
WB-G-81-10	1
WB-G-81-11	1
WB-G-81-14	1
WB-M-81-07	2, 3, and 4
WB-M-81-06	1
WB-M-81-02	3 and 4
WB-M-81-01	1

The present methods of training on QCIs are by self study or group meetings. With the continuing number of audit deficiencies being written in this area, the Construction Engineer should question the effectiveness of self study and group meetings as appropriate methods of training.

NCRs 3326, 3366, 3455, 3530, 3529, 3531, 3539, 2957, 3543, 3559, 3566, 3584, 3583, 3688. All of these NCRs were written because hold points had been bypassed, including hold points for the Authorized Nuclear Inspector (ANI). In most instances the NCRs were classified as not significant and no corrective action was listed to prevent recurrence. Watts Bar management never recognized the problem until the OEDC QA manager upgraded NCR 3559 to significant and directed them to determine the cause and take action to prevent recurrence. NCR 3583 was written because of bypassed hold points. In this case, the hold points were deliberately bypassed, but WBN management did not classify the NCR as significant until directed to do so by the OEDC QA Manager. Watts Bar management violated their own procedure (QCI 1.2, paragraph 4.7.6)

when they failed to classify NCR 3583 as significant. NCR 3688 is the last in this series of NCRs, and the corrective action listed is to delete the requirement for ANI hold points from the procedure since it is not a requirement of the TVA Nuclear Code Manual. If this is true, it could have been discovered long ago by determining the root cause for the NCRs. Another part of the corrective action for NCR 3688 is to inform personnel involved with Code operation sheets to review the sheet to verify all hold points have been signed off prior to performing the operation. If the employees were unaware of this requirement, a review to determine the root cause of the NCRs might have revealed this lack of knowledge.

2. R-81-28-WBN-17, Inadequacies in WBNP-QCI-1.2

Interviews with both quality control and engineering personnel revealed there is confusion pertaining to who may initiate an NCR. Some quality control personnel indicated they could initiate NCRs while others indicated only engineering personnel could initiate NCRs. Paragraph 5.2 of WBNP-QCI-1.2 states, "Engineering section representatives shall be responsible for initiating NCRs, assuring identification of nonconforming items, and verifying completed corrective action." The procedure should be revised to also assign responsibility for initiating NCRs to quality control personnel. This revision would make the procedure consistent with the current Watts Bar practice and consistent with procedures at later TVA nuclear plants.

Section 6.10 of the procedure describes the Inspection Rejection Notice (IRN) system at Watts Bar. Interviews with quality control personnel and reviews of documentation indicated IRNs were not initiated, logged, and reviewed for trends consistently by all quality control units.

3. R-81-28-WBN-18, Review of the Quarterly Trend Analysis Report

The site QA unit identifies the nature of the defect and apparent cause of the deficiency for each significant NCR, significant audit deficiency, and NRC violation pertaining to Watts Bar. This information is compiled and issued in the form of a Quarterly Trend Analysis Report. The report is distributed to various levels of management at the project, division, and office level. At present, the report is for information only since no requirement exists for the report to be reviewed and action taken as a result of the review. The information in the report could be very valuable to the CONST QA Manager to identify trends which may be occurring at

several other TVA nuclear projects. If trends were identified at several projects, corrective action at the division level would be necessary to correct the problem. The information in the report could be valuable to the OEDC QA Manager since trends at several projects may be indicative of programmatic problems with the OEDC QA Program. Corrective action at the office level may be necessary to correct programmatic problems. Since one of NRC's biggest concerns is TVA's inability to identify and correct generic problems, it would behoove OEDC and CONST management to use the information already available to respond to the NRC concern.

4. R-81-18-WBN-19, Review of the QA Trend Analysis Master Status Report

The information compiled by the site QA unit (see paragraph IV.G.3) is input to a computer and retrieved and reviewed by project management on a monthly basis. The requirement for this review is contained in WBNP-QCI-1.2. Although the procedure does not require the review to be documented, the present practice is for the Assistant Construction Engineer to write a memorandum to the Files. The procedure does not require the root cause of the deficiencies to be determined and does not establish minimum acceptable levels for trends.

H. Quality Assurance Audits

Criterion XVIII of Appendix B to 10CFR50 requires all aspects of the quality assurance program to be audited to verify compliance with the program and to determine effectiveness of the program. CONST procedure QASP 7.1 requires the site QA unit to schedule and perform audits as early in the life of an activity as practical, based on the status and importance of the activity.

Criterion I of Appendix B to 10CFR50 requires that the authority and duties of persons and organizations performing safety-related activities be clearly established and delineated in writing. Criterion I also requires individuals assigned the responsibility for assuring effective execution of the quality assurance program to have direct access to such levels of management as may be necessary to perform this function. Although the site QA unit does have direct access to the proper level of management, no formal interface procedure has been established for resolution of audit deficiencies and procedure comments.

ANSI N45.2.12 requires the organization responsible for performing audits to provide the resources in terms of personnel, equipment, and services necessary to meet the requirements of the standard.

1. R-81-28-WBN-20, All Aspects of the QA Program Not Audited

Review of documents and interviews with site QA personnel revealed that not all aspects of the QA program had been audited. The Inspection Rejection Notice (IRN) system was initiated on May 25, 1981. IRN's are used by QC inspectors to identify deficiencies during installation of components. IRN logs are reviewed weekly to identify trends in deficiencies. At the time of the NSRS review, the site QA unit had not audited the IRN system to verify implementation or to determine the effectiveness.

Systems or partial systems are tentatively transferred from CONST to NUC PR with many open items to be completed by CONST at a later date. CONST initiates a work plan to complete work on the open items including performing all required inspections and tests and completing the necessary documentation. The site QA unit had not audited the transfer system to verify implementation of the program and to determine the effectiveness of the system.

2. R-81-28-WBN-21, Interface Between the Site QA Unit and the CONST QA Manager's Office

Review of audit reports, correspondence related to audit reports, NRC-OIE inspection reports, and interviews with site QA unit personnel revealed the site QA unit has encountered problems in obtaining the information necessary to close audit deficiencies and to answer questions raised during procedure reviews. One recent example of a problem in resolving an audit deficiency is deficiency No. 1 of audit WB-M-81-05. The site QA unit wrote the deficiency because the Mechanical Engineering Unit was not using EN DES approved physical drawings to verify location, elevation, and configuration of pipe. According to information received by the site QA unit from EN DES, it is necessary to verify location and elevation of category I(L) pipe and to include this information on as-constructed drawings. In their response, Watts Bar management stated field routed piping does not require as-installed dimensions. They confirmed this with EN DES. Since the site QA unit and Watts Bar management have received conflicting information from EN DES, the site QA unit should officially contact the CONST QA Manager so he can use the authority of his office to resolve the problem.

Another example is the problem identified in deficiency No. 3 of audit WB-M-81-04 which pertains to positioning of Limitorque valve operators. The site QA unit identified a problem but has been unable to obtain satisfactory

resolution of the problem. This problem involves both CONST and NUC PR and should be referred by the site QA unit to the CONST QA Manager for resolution. The inability to resolve this problem was identified by the resident NRC inspector in inspection report 50-390/81-23 and 50-391/81-25.

Site QA personnel indicated during interviews by NSRS that they questioned the lack of a velocity requirement in WBNP-QCT-3.14 for flushing instrument lines when the procedure was initially reviewed. They contacted EN DES by telephone and were informed a velocity requirement was not necessary. Audit No. WB-G-81-12 identified problems due to the lack of a velocity requirement. Site QA unit personnel should refrain from contacting EN DES personnel by telephone to obtain answers to questions raised during procedure reviews. The official EN DES response to questions or procedures should be in writing from EN DES to the CONST QA Manager.

3. R-81-28-WBN-22, Inadequate Resources for the Site QA Unit

One of the primary responsibilities of the site QA unit is to audit construction activities to verify implementation of the established QA program and to assess the effectiveness of the program. Due to their involvement in other assigned responsibilities and with their present manpower level, the unit only devotes 40 to 50 percent of their time to the auditing function. The current audit schedule has slipped several weeks because auditors were involved in other activities and were unable to conduct the audits as scheduled. Many of the activities performed by the site QA unit appear to be line functions (e.g., tracking responses to NRC inspection reports, tracking responses to 50.55(e) items, preparing the Trend Analysis Report).

CONST QA procedure QASP-4.2 requires the site QA engineer to review all site-generated procedures, including revisions, to assure that the procedures contain the applicable requirements specified in governing regulatory guides, codes, and standards. The procedure also requires the QA engineers to assure the requirements of the approved and final design as well as those stated in the Safety Analysis Report are included in site-generated procedures. Specifically, the QA engineer must review for the following:

a. Description of the activity or method of inspection.

b. Inclusion of qualitative and quantitative accept/reject criteria.

c. Employment of both inspection and process monitoring where control is inadequate without both.

d. Use of hold points as necessary.

e. Identification of group(s) responsible for activity.

f. Method to record evidence of verifying completion, results, and acceptance.

g. Signature of inspector and/or data recorder.

h. References to documents (drawings, specifications, etc.) necessary to complete inspection/operation.

i. Provisions to assure that all prerequisites for given tests are included and that adequate test instrumentation requirements are available.

j. Assurance that suitable inspection/test/operations environmental conditions are stipulated.

k. Documentation and evaluation of test results.

l. Instructions for performing inspection/test.

m. Adequate, identifiable, and retrievable records of inspections and tests.

The site QA unit only obtained a copy of the Safety Analysis Report a few months ago and does not presently have copies of the documents necessary to perform such a detailed review.

V. PERSONNEL CONTACTED

Name	Organization/Job Title	Attended Entrance Meeting	Contacted During Review	Attended Exit Meeting
R. D. Anderson	Asst. Supv, EEU, CONST		X	
E. J. Austin	Asst. Supv, EEU, CONST		X	
R. E. Barnwell	WEU, CONST		X	
P. F. Bellamy	EEU, CONST		X	
W. H. Bessom	CEU, CONST		X	(3)

(1) Attended 11-25-81 & 12-4-81 Exit Meeting
(2) Attended 11-25-81 Exit Meeting
(3) Attended 12-4-81 Exit Meeting

Name	Organization/Job Title	Attended Entrance Meeting	Contacted During Meeting	Attended Exit Meeting
J. F. Bledsoe	QAU, NUC PR		X	
S. J. Boney	Supv, WEU, CONST		X	(3)
J. Brantley	FS, NUC PR		X	
J. P. Brown	EEU, CONST		X	
T. P. Bucy	ACE, CONST			(1)
E. Burke	ACE, CONST		X	(1)
C. O. Christopher	ACE, CONST	X		(3)
L. D. Clift	Supv, MEU-A, CONST		X	
J. W. Coan	PM Staff, OEDC			(2)
E. A. Condon	Supv, Preop Test Staff, NUC PR		X	
H. N. Culver	Director, NSRS			(3)
R. W. Dibeler	Chief, QAB, CONST			(3)
W. C. English	Superintendent, CONST			(3)
J. A. Ferguson	HEU, CONST		X	
H. J. Fischer	ACE, CONST	X	X	(2)
H. F. Fletcher	MEU-A, CONST		X	
R. W. Forsten	Asst Supv, IEU, CONST		X	
D. E. Fox	MEU-B, CONST		X	
K. G. Frazier	N-5, CONST		X	
K. G. Galloway	Asst Supv, WEU, CONST		X	(3)
D. B. Graham	HEU, CONST		X	
G. E. Griffin	MEU-B, CONST		X	
M. W. Hadacek	MEU-A, CONST		X	

(1) Attended 11-15-81 & 12-4-81 Exit Meeting
(2) Attended 11-25-81 Exit Meeting
(3) Attended 12-4-81 Exit Meeting

Name	Organization/Job Title	Attended Entrance Meeting	Contacted During Meeting	Attended Exit Meeting
T. Haddix	HEU, CONST		X	
M. E. Hall	EEU. CONST		X	
R. H. Hannah	Preop, NUC PR		X	
C. G. Harper	IEU, CONST		X	
M. A. Harper	Supv, TO		X	
W. C. Hatmaker	PTS, CONST			(2)
T. W. Hayes	Supv, IEU, CONST	X	X	(1)
T. Heatherly	NRC		X	
J. Hearn	EEU, CONST		X	
W. Honeycutt	STCU, CONST		X	
D. T. Ingram	EEU, CONST		X	
D. W. Ivey	MEU-A, CONST		X	
C. Jackson	SWP, EN DES		X	
C. H. Jetton	CONST Supt, CONST			(2)
L. J. Johnson	Supv, MEU-B, CONST		X	(3)
S. Johnson	ACE, CONST	X	X	(2)
M. K. Jones	Supv, Preop, NUC PR		X	
R. B. Jones	STCU, CONST		X	
D. W. Kelley	Supv, QCRU, CONST		X	(2)
J. C. Killian	Asst Manager, CONST			(3)
J. T. Kirkpatrick	Asst. Supv, FS, NUC PR		X	
J. P. Knight	PTS, CONST			(1)
L. B. Kuehu	Preop, NUC PR		X	
V. M. Kurt	EEU, CONST		X	

(1) Attended 11-15-81 & 12-4-81 Exit Meeting
(2) Attended 11-15-81 Exit Meeting
(3) Attended 12-4-81 Exit Meeting

Name	Organization/Job Title	Attended Entrance Meeting	Contacted During Meeting	Attended Exit Meeting
G. B. Lubinski	Supv, EEU, CONST		X	
H. W. Loftis	Asst Supv, MEU-A, CONST		X	
C. M. Lowe	Asst Supv, IEU, CONST		X	(3)
S. A. Lowe	MEU-A, CONST		X	
B. L. Majors	QA, CONST		X	
S. R. Martin	Asst Supv, HEU, CONST		X	(3)
D. T. McConkey	FS, NUC PR		X	
F. C. McCuistim	IEU, CONST		X	
M. McCurry	IEU, CONST		X	
G. G. McDonald	MEU-B, CONST		X	
J. McDonald	NRC		X	
H. G. McFarland	QA, CONST		X	(1)
T. Middlebrook	IEU, CONST		X	
Q. C. Miles	WBN Staff, OEDC			(3)
D. W. Miller	WEU, CONST		X	
S. M. Miller	IEU, CONST		X	
J. W. Moore	IEU, CONST		X	
J. Morelock	MSU, CONST		X	(1)
J. C. Morton	Asst Supv, MEU-B, CONST		X	(3)
J. A. Nichols	ACE, CONST			(3)
S. W. Noe	EEU, CONST		X	
L. C. Northard	PTS, CONST		X	(1)
D. E. Norton	IEU, CONST		X	
R. W. Olson	Const Engr, CONST	X	X	(1)

(1) Attended 11-25-81 & 12-4-81 Exit Meeting
(2) Attended 11-25-81 Exit Meeting
(3) Attended 12-4-81 Exit Meeting

Name	Organization/Job Title	Attended Entrance Meeting	Contacted During Review	Attended Exit Meeting
P. E. Ortstadt	QA, CONST			(2)
V. L. Patuzzi	QAU, NUC PR		X	
L. E. Pearsall	EEU, CONST		X	
J. H. Perdue	PMO, CONST	X		(1)
R. M. Pierce	Project Manager, OEDC	X		(3)
J. T. Reilly	EEU, CONST		X	
G. R. Ritter	EEU, CONST		X	
R. E. Robinson	WEU, CONST		X	
A. W. Rogers	Supv, QA, CONST		X	(1)
S. P. Rogers	IEU, CONST		X	
T. O. Schumpert	EEU, CONST		X	
W. M. Searcy	QA, CONST		X	(3)
R. K. Shanks	STCU, CONST		X	
P. Shepard	Supv, PCU, CONST		X	
M. V. Sinkule	Section Chief, NSRS	X		(1)
F. Smith	Supv, CEU, CONST			(3)
R. H. Smith	Asst Supv Preop, NUC PR		X	
R. K. Smith	EEU, CONST		X	
C. A. Thacker	WEU, CONST		X	
J. A. Thompson	Supv, STCU, CONST		X	
R. H. Tiller	PCU, CONST		X	
T. R. Trail	MSU, CONST	X	X	(1)
G. E. Vest	MEU-B, CONST		X	
J. C. Vowell	MEU-A, CONST		X	

(1) Attended 11-15-81 & 12-4-81 Exit Meeting
(2) Attended 11-15-81 Exit Meeting
(3) Attended 12-4-81 Exit Meeting

Name	Organization/Job Title	Attended Entrance Meeting	Contacted During Meeting	Attended Exit Meeting
J. D. Waldrup	SWP, EN DES		X	
J. E. Webb	QCRU, CONST		X	
J. Weinbaum	Supv, QCRU, CONST		X	(2)
E. White	QA, CONST		X	
C. H. Whittamore	OPQA, NUC PR		X	
J. E. Wilkins	Project Manager, CONST	X	X	(3)
J. A. Williams	EEU, CONST		X	
P. J. Wilson	EEU, CONST			(2)
S. J. Wolfe	WEU, CONST		X	

(1) Attended 11-15-81 & 12-4-81 Exit Meeting
(2) Attended 11-15-81 Exit Meeting
(3) Attended 12-4-81 Exit Meeting

VI. DOCUMENTS REVIEWED

A. 10CFR50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plant and Fuel Reprocessing Plants."

B. "ASME Boiler and Pressure Vessel Code," Section III, 1971 Edition, subsections NA, NB, NC, and ND.

C. NCM 1.9, "Indoctrination and Training," R3, 2/4/80.

D. ID-QAP-1.2, "Transfer of Construction and Engineering Design Responsibilities," R1, 6/9/80.

E. ID-QAP-1.3, "Work Control," R0, 7/28/78.

F. ID-QAP-11.1, "Preoperational Testing," R0, 7/28/78.

G. ID-QAP-11.2, "Construction Test Control," R0, 3/9/81.

H. G-29C, "Process Specifications for Welding, Heat Treatment, Nondestructive Examination, and Allied Field Fabrication Operations."

I. G-29M, "Process Specifications for Welding, Heat Treatment, Nondestructive Examination, and Allied Field Fabrication Operations."

J. QASP-4.2, "Site-Generated Quality Control Procedures/Instructions," R0, 11/1/78.

K. QASP-6.1, "Qualification and Certification of Inspection, Examination, and Testing Personnel," R3, 7/23/80.

L. QASP-6.2, "Qualification and Certification of Audit Personnel," R2, 9/27/79.

M. CONST-QAPP-2, "Quality Assurance Program," R2, 9/24/80.

N. CONST-QAP-2.2, "Qualification/Certification of Inspection, Examination, and Testing Personnel," R5, 9/30/81.

O. CONST-QAP 2.3, "Qualification, Training, and Certification Requirements for Nondestructive Examination Personnel," R6, 7/23/81.

P. CONST-QAPP-15, "Nonconforming Materials, Parts, or Components," R1, 5/11/79.

Q. CONST-QAP-15.1, "Control of Nonconformances," R6, 4/13/81.

R. CONST-QAPP-16, "Corrective Action," R1, 5/14/79.

S. WBNP-QCI-1.8, "Quality Assurance Records," R1 (Addendums 1 and 2), 5/20/81.

T. WBNP-QCI-1.10, "Preparation and Control of Quality Control Instructions and Procedures," R3 (Addendum 1), 6/26/81.

U. WBNP-QCI-1.11, "Quality Assurance Training Program," R1, 7/9/81.

V. WBNP-QCI-1.22, "Transfer of Permanent Features to the Division of Nuclear Power," R2, 4/24/81.

W. WNBP-QCI-1.30, "Control of Work on Transferred Systems, Equipment, and Architectural Features," R3, 9/14/81.

X. WBNP-QCI-1.41, "Qualifications, Training, and Certifications Requirements of Visual Weld Inspectors," R0, 9/14/81.

Y. WBNP-QCI-4.3, "Welding Surveillance and Weld Procedure Assignment," R0 (Addendums 1 and 2), 10/8/80.

Z. WBNP-QCI-4.4, "Qualification, Training, and Certification of Nondestructive Examination Personnel," R0, 10/8/80.

AA. WBNP-QCP-4.8, "Inspection and Documentation Requirements for Mechanical Supports," R10 (Addendums 1, 2, and 3), 8/8/80.

BB. WBNP-QCP-4.10-2, "Pipe Location Verification," R0, 9/2/81.

CC. WBNP-QCP-4.13, "Nondestructive Examination Procedure," R4 (Addendums 1, 2, 3, 4, and 5), 11/17/78.

DD. WBNP-QCP-4.23, "Standard Inspection and Documentation Requirements for Seismic Supports," R2 (Addendums 1 Appendix 3, Addendums 1 and 2, Addendum 1 Appendix 4), 5/18/81.

EE. WBNP-QCP-4.28, "Piping Location Verification," R4, 9/2/81.

FF. WBNP-QCP-4.50, "Inspection of Category I(L) Piping," R2, 9/2/81.

GG. WBNP-QCT-3.6, "Electrical Equipment - Standard Tests and Documentation," R1, 8/3/81.

HH. WBNP-QCT-3.14, "Flushing of Instrumentation Sensing Lines," R0, 3/16/81.

II. WBNP-QCT-4.36, "Preoperational Cleaning and Flushing of Fluid Handling Systems and Components," R0 (Addendums 1, 2, 3, 4, and 5), 2/15/81.

JJ. WBNP-QCT-4.37, "Hydrostatic Testing of ASME Section III Class 2 and 3 Systems," R0 (Addendums 1 and 2), 2/15/81.

KK. Nonconformance Reports - 2086, 2375, 2957, 3366, 3455, 3523, 3529, 3530, 3531, 3539, 3543, 3559, 3566, 3578, 3583, 3584, 3626, and 3688.

LL. Quality Assurance Audits - WB-G-81-01 through -06, WB-G-81-08 through -12, and WB-G-81-14; WB-I-81-03; WB-C-81-01; WB-M-81-01, -02, -05, -06, and -07; WB-W-81-01, -02, -03, -05, and -06; and WB-W-80-05.

MM. Memorandum from R. W. Dibeler to Those listed, "Welding Inspector Training and Certification Program," 4/14/81 (HQA 810414 313).

NN. Memorandum from H. H. Mull to Those listed, "CONST - Qualifications, Training, and Certification Requirements for Nondestructive Examination and Welding Inspection Personnel - CONST-QAP 2.3 and CEP 2.05," 6/12/81 (DOC 810612 006).

OO. Memorandum from J. E. Wilkins to R. W. Dibeler, "Watts Bar Nuclear Plant - Training and Certifications for Welding Inspectors," 6/23/81 (WBN 810623 011).

PP. Memorandum from R. W. Olson to Those listed, "Watts Bar Nuclear Plant - Welding Inspector Training and Certification," 7/13/81

ENCLOSURE 2

OFFICE OF ENGINEERING DESIGN AND CONSTRUCTION (OEDC) RESPONSE TO THE NUCLEAR SAFETY REVIEW STAFF REPORT ON MINI-MANAGEMENT REVIEW WATTS BAR NUCLEAR PLANT QUALITY ASSURANCE PROGRAM

WATTS BAR NUCLEAR PLANT
NSRS REPORT NO. R-81-28-WBN
RESPONSE TO RECOMMENDATIONS

R-81-28-WBN-1, TRAINING AND QUALIFICATION OF PERSONNEL

Finding

A training program had not been developed for QC inspectors and engineering personnel in practical application of inspection and test activities as required by procedures.

Recommendation

Develop a program (modules) to train inspectors and engineering personnel in practical application of inspection and test activities.

Response

WBNP-QCI-1.11, R1, "Quality Assurance Training Program," is being restructured into procedures QCI-1.11-1, -2, -3, and -4, which will separately address the various indoctrination, training, and qualification requirements for engineering, craft, and inspection personnel.

These procedures will address the methods employed to conduct and evaluate the effectiveness of all types of training specified in upper-tier procedures.

This program is scheduled for implementation by February 28, 1982.

R-81-28-WBN-2, INSPECTOR DEMONSTRATION OF PRACTICAL KNOWLEDGE

Finding

Inspectors had not been required to demonstrate to the examiner their knowledge of practical application of Quality Control Procedures (QCPs) and Quality Control Test Procedures (QCTs) with the exception of visual weld inspection as required by site procedure.

Recommendation

Implement the requirements of site procedure.

Response

WBNP-QCI-1.11 is now being restructured to ensure compliance with upper-tier requirements. The proposed procedure requires that inspectors demonstrate practical knowledge and that this be documented. This will be done initially by observation and evaluation of inspection techniques by senior inspectors, group leaders, and supervisors. On a continuing basis, evaluation will be by review of the individual's Inspection Rejection Notices or NDE reports. The proposed procedure requires documentation of both the initial and the continuing evaluation.

R-81-28-WBN-3, ENGINEERING UNIT PERSONNEL DEMONSTRATION OF PRACTICAL KNOWLEDGE

Finding

Site procedure requires engineering unit personnel to receive practical training but does not require them to demonstrate their knowledge of the training they received.

Recommendation

Develop a method for engineering unit personnel to demonstrate their practical knowledge. Document both the method and results of tests of individual's proficiency.

Response

The proposed procedure addressing engineering functions requires that engineering personnel receive training in practical applications. This procedure requires that the method of evaluating proficiency and the level of proficiency (better than fully adequate, fully adequate, acceptable but improvement needed, and unacceptable) be documented on TVA form 3031, Employee Service Report. This will be done initially by observation of on-the-job performance and on a continuing basis by reviewing standard engineering work products such as NCR's, FCR's, Requests for Variances, and Process Control Operation Sheets. Methods of evaluating level of proficiency include the Interaction Management Program, the use of Behavioral Observation Note Entries, and other supporting records for TVA's merit pay plan.

R-81-28-WBN-4, PROCEDURAL COMPREHENSION

Finding

Inspectors were not certified in Quality Control Instructions (QCIs) as required by site procedure. In addition, engineering unit personnel were not certified in QCIs, QCTs, and QCPs as required by site procedure.

Recommendation

Implement the requirements of the procedures.

Response

Both WBNP-QCI-1.11 and the proposed revision implement the requirements of CONST QAP-2.2, R5, "Qualification/ Certification of Inspection, Examination, and testing Personnel." This procedure defines the requirements for the selection, qualification, and certification of personnel, except NDE, who perform inspection, examination, and testing activities. Watts Bar Nuclear Plant is organizationally structured such that all personnel performing these activities are assigned the job classification of CONST Quality Control Inspector and such that inspection, examination, and the acceptance of test results are governed by Quality Control Procedures. Among the bases for this structure is the fact that the inspector often serves as sole judge of the acceptability of the end result. Personnel will be trained in the applicable QCP's, QCT's, and QCI's.

Engineering personnel produce documents which undergo varying but extensive review and approval by supervisors, Assistant Construction Engineers, Authorized Nuclear Inspectors, QA personnel, EN DES, and, in some cases, NUC PR. Engineering activities which affect quality do not constitute acceptance or rejection but recommended courses of action. Procedures governing the methods used in pursuing these recommendations are Quality Control Instructions and do not contain acceptance criteria. Watts Bar will continue training in these areas and will evaluate and document the evaluation of proficiency in practical application of these procedures as detailed in our response to R-81-28-WBN-3. Personnel will be trained in the applicable QCP's, QCT's, and QCI's.

R-81-28-WBN-5, INADEQUATE TRAINING PROGRAM

Finding

Site (WBNP-QCI-1.11) and division (QAP 2.2) procedures do not clearly establish training requirements for all persons (i.e., inspectors, engineers, crafts, clerks, etc.) who perform quality-related activities. The training program established by the procedures does not assure upper management that suitable proficiency is achieved and maintained by persons performing quality-related activities.

Recommendation

Review and revise the procedures as necessary to clearly establish training requirements for all persons performing quality-related activities. Establish a system to ensure management that suitable proficiency will be achieved and maintained.

Response

WBNP-QCI-1.11, restructured, will establish training requirements for all engineering, and inspection personnel. Training will be done by means of training modules, self-instruction, and on-the-job training, as applicable. This proposed procedure incorporates methods to ensure management that proficiency is achieved and maintained. These methods include testing for comprehension for quality control inspection personnel only and both initial and continual evaluation of proficiency in application of the practical aspects of procedures for engineering and quality control personnel. All engineering and quality control unit supervisors will prepare training plans detailing the training required in their area of responsibility. These plans will be reviewed and approved by the Construction Engineer prior to implementation.

R-81-28-WBN-6, INADEQUATE DOCUMENTATION OF TRAINING

Finding

Training had not been documented as specified in CONST-QAP 2.2 on Personnel Certification Records (PCRs) in the Quality Control and Records Unit (QCRU).

Recommendation

Document required training on PCR's if records are available that demonstrate training of individuals has been accomplished. In cases where records of training do not exist, perform retraining and documentation as required.

Response

The training records (PCR's) on file in the QC&RU will be reviewed and updated based on other records if available. In cases where no records exist, retraining of personnel will be done. Implementation of WBNP-QCI-1.11, as revised and restructured, will clarify the requirements for the documentation of training and proficiency and will preclude recurrence of this finding. This will be implemented by March 31, 1982.

R-81-28-WBN-7, JOB PERFORMANCE EVALUATION

Finding

Records of job performance evaluations for inspection, examination, and testing personnel had not been filed in the Quality Control and Records Unit (QCRU) as required by CONST-QAP 2.2.

Recommendation

Implement the requirements of the procedure.

Response

WBNP-QCI-1.11 is being restructured to incorporate all requirements of QAP-2.2. This revision requires evaluation of job performance on a continuing basis and provides for documentation. This will be implemented by April 30, 1982.

R-81-28-WBN-8, PERSONNEL QUALIFICATION SUMMARY

Finding

Qualification sheets were not in the inspectors' files in the QCRU as required by WBNP-QCI-1.41.

Recommendation

Implement the requirements of the procedure.

Response

All personnel qualification summary sheets for visual welding inspectors will be updated and stored in the inspector's file in the QC&RU. This will be implemented by February 28, 1982.

R-81-28-WBN-9, QUALITY ASSURANCE ORIENTATION/INDOCTRINATION

Finding

Records did not indicate that all personnel performing safety-related activities had received orientation/indoctrination in basic quality assurance policies, requirements, and responsibilities as required by WBNP-QCI-1.11.

Recommendation

Provide the required orientation/indoctrination to appropriate personnel and document the training.

Response

Individuals who have not attended the QA orientation program will be scheduled to attend as soon as practical. Records of this training will be updated accordingly. This will be implemented by April 30, 1982.

R-81-28-WBN-10, QUALITY CONTROL PROCEDURE INADEQUACIES

Finding

A number of procedures and instructions cover the same area, contain conflicts with regards to the requirements, contain an inordinate number of addendums, do not contain documentaiton requirements, and are not consistent in the guidance for inspection.

Recommendation

A. Perform an in-depth review of all WBN QC procedures and instructions to ensure they contain all regulatory and programmatic requirements; to identify conflicting requirements; to determine inspections where more than one procedure applies; to identify procedures which contain an inordinate number of addenda; and to ensure the procedures are consistent in the guidance for inspections. Revise the procedures and instructions as necessary.

B. After the procedures have been revised, retrain and certify all personnel as necessary in the programmatic procedural requirements.

Response

A. A massive in-depth review was initiated early in 1981 to ensure that all safety-related activities were adequately controlled by procedures. To date, this effort has resulted in:

   1. The preparation of a Construction Requirements Manual listing upper-tier documents and acceptance criteria for activities.

   2. The rewriting, reformatting, and redefinition of most procedures to ensure adequacy, clarity, and singularity of coverage of activities.

3. Site procedures have been restructured to correspond to organizational responsibilities with QCP's covering inspection activities, QCI's covering engineering functions, and QCT's governing construction testing. In addition, all aspects of our program are supported by computerized accountability programs which uniquely identify systems, structures, and components that are under the QA Program and their corresponding inspection requirements. These programs are used to conduct an independent record review to a checklist of procedure requirements.

   The Watts Bar Procedures and Training Staff will continue their review of the quality control program with special emphasis on ensuring adequate coverage, resolving conflicting requirements, combining redundant procedures, and incorporating addenda.

B. Our present program requires that personnel be recertified/retrained upon revision to a procedure. This requirement will be clarified and refined in the restructured procedure WBNP-QCI-1.11.

R-81-28-WBN-11, INADEQUATE DOCUMENT CONTROL OF PROCEDURES

Finding

The QA/QC program does not require controlled copies of inspection and test procedures to be distributed and used at the work location of the prescribed activity.

Recommendation

WBN management should establish procedural requirements for and provide a controlled copy of all inspection and test procedures at the location of the prescribed activity, or a controlled copy of the appropriate procedures should be provided to the inspector for use at the location of the prescribed activity.

Response

At present, our program requires that controlled copies of procedures be maintained at inspector's work stations. These work stations are, in many cases, adjacent to the powerhouse or near the location of the prescribed activity. In all cases, inspection personnel are promptly retrained upon revision to procedures. The practice of maintaining controlled copies of procedures at inspector's work stations meets all upper-tier requirements in this area.

R-81-28-WBN-12, RESPONSIBILITY FOR INSPECTION

Finding

WBNP-QCP-4.13 states that all NDE inspections shall be done by the Welding Engineering Unit (WEU). WEU inspectors are not performing all these inspections.

Recommendation

Implement the requirements of the procedure or revise the procedure to reflect current site practice.

Response

WBNP-QCP-4.13, "Nondestructive Examination Procedure," will be revised to correctly reflect the responsibilities for visual inspection of all types of welds. This revision will be implemented by January 31, 1982.

R-81-28-WBN-13, UNQUALIFIED NDE PROCEDURE

Finding

Documents (records) were not readily available to provide evidence that the NDE procedures had been successfully demonstrated (qualified) to the Authorized Nuclear Inspector (ANI) as required by Construction Specification G-29.

Recommendation

WBN management should ensure that all NDE procedures are demonstrated to the satisfaction of the ANI and the demonstration is documented.

Response

NDE procedures are continually reviewed and approved by the establishment of ANI hold points on welding operation sheets. Work cannot proceed beyond the hold point except in the presence and with the approval of the ANI. The ANI's signature denotes review and approval of the procedures. Documentation to this effect is now on file and readily available by use of appendix A, addendum 2, to Process Specification 3.M.7.1 (a) ASME NDE Demonstration Record. WBNP is now in full compliance with the above recommendation.

R-18-28-WBN-14, INADEQUATE PROCEDURE REVIEW

Finding

An adequate system had been established to ensure site generated procedures/instructions contained all applicable requirements but the system was not fully implemented.

Recommendation

Provide the site QA unit with qualified personnel and the documents necessary to perform an in-depth review of all site generated procedures/instructions as required by QASP 4.2. Review present and future procedures/instructions to ensure all applicable requirements are included.

Response

The NSRS recommendation will be considered as part of the QAB review of this item. A total review of line and QA responsibilities is underway as a part of the CONST 1982 ACTION PLAN FOR QUALITY IMPROVEMENTS. The results will be made known upon division management review of recommendations and decisions. QA programs will be adjusted accordingly. Based on these management decisions, the QAB will review the procedure background information documents (codes, standards, etc.) and identify the degree of need and availability to the site QA units. This item will be treated as a generic situation.

R-81-28-WBN-15, INADEQUATE REQUIREMENTS IN CLEANING AND FLUSHING PROCEDURES

Finding

The flushing procedure (WBNP-QCT-3.14) for instrument lines does not address velocity of the flush or presence of foreign or particulate matter during the flush. WBNP-QCT-4.36 does not provide guidance for layup of systems other than those which are chemically cleaned.

Recommendation

A. Review WBNP-QCT-3.14 to determine if a requirement for velocity is necessary and if a check for foreign or particulate matter should be required.

B. Review WBNP-QCT-4.36 to determine if layup requirements for systems other than those which are chemically cleaned should be provided.

Response

A. & B. WBNP-QCT-3.14 and 4.36 were issued in conjunction with the creation of the Construction Test Manual in response to an NRC Confirmation of Action Letter. This manual has been reviewed by both EN DES and QAB. QCT's 3.14 and 4.36 implement the requirements of Watts Bar Construction Specification N3M-890, "Chemical Cleaning Instructions for Piping Systems for Watts Bar Nuclear Plant," and General Construction Specification G-39," Cleaning During Fabrication of Fluid Handling Components." The QCT's, together with the upper-tier documents, have been reviewed and are consistent. EN DES will supply flushing requirements for instrument sensing lines by February 15, 1982.

R-81-28-WBN-16, DETERMINING ROOT CAUSE FOR DEFICIENCIES

Finding

WBN had not developed an effective system to determine the root cause of deficiencies, deviations, etc., and in some cases the corrective actions taken did not preclude repetition.

Recommendation

Revise WBNP-QCI-1.2 and other related procedures to require each issued significant Nonconformance Report (NCR) and each significant audit deficiency to be reviewed to determine the root cause of the deficiency and to implement corrective action to prevent recurrence. Document the root cause on the NCR or audit deficiency sheet. Delineate responsibility in the procedures for performing the review to determine the root cause.

Response

WBNP-QCI-1.2 will be revised to require the identification and documentation of root causes on all issued significant Nonconforming Condition Reports. Significant site audit findings are not within the scope of QCI-1.2; however, a new procedure to govern the handling site audits is in the process of preparation. This procedure will require the identification of root causes. WBNP now has a procedure in draft form for the handling of responses to NRC Inspector-identified findings and TVA-reported nonconformances. This procedure requires the identification of root causes. The revision to WBNP-QCI-1.2 and the procedures site audit findings and NRC items are scheduled for issue by February 15, 1982. Present practice is to include the root cause in NRC responses under "Reason for Violation/Deficiency."

In our proposed procedures governing responses to NRC items and TVA audit findings and the proposed revision to QCI-1.2, "Control of Nonconforming Items," the sections dealing with root causes will be expanded to suggest typical areas of investigation similar to those in the "details" section of this report. These will be included to prompt reviewers to look at root causes such as: do procedures exist; do procedures require inspectors to document specific drawings and revision levels; have inspectors been trained in procedural requirements; is the level of training adequate; etc. Inadequacies identified in the investigation of root causes will be corrected under "action to prevent recurrence."

R-81-28-WBN-17, INADEQUACIES IN WBNP-QCI-1.2

Finding

WBNP-QCI-1.2 does not adequately delineate the duties and responsibilities of persons responsible for initiating and reviewing Nonconformance Reports (NCRs) and Inspection Rejection Notices (IRNs).

Recommendation

A. Since quality control unit representatives may initiate an NCR, revise section 5.2 of the procedure to delineate this responsibility.

B. Revise section 6.10 of the procedure to provide more detailed instructions to the quality control inspector in the following areas:

   1. when an IRN must be sent to the engineering unit to be dispositioned and when an IRN may be dispositioned by quality control unit personnel,

2. deficiencies, deviations, etc., which must be documented on an NCR rather than an IRN,

3. deficiencies, deviations, etc., which may be documented on an IRN rather than an NCR,

4. recording IRN numbers and a description of the deficiency in a master log, and

5. the system used to close an IRN.

C. Revise section 6.10 of the procedure to provide more detailed instructions to the Quality Control Unit supervisors in the following areas:

1. the method to be used to identify and document IRN trends and

2. the method to be used to inform higher level management of developing IRN trends.

D. Establish and document a system to ensure trends are identified for IRN's which may affect more than one engineering/quality control unit.

E. Revise the procedure to provide more detailed instructions to engineering unit personnel on the method to be used to process IRN's.

Response

A. The revision to QCI-1.2 now in draft form, will specifically state that QC personnel may initiate Nonconforming Condition Reports and will define the responsibilities of QC personnel in the initiation of Nonconforming Condition Reports (NCR's) and with regard to "Disposition Inspection."

OEDC will be issuing a policy statement on NCR's which will state that any OEDC person has the responsibility and authority to initiate an NCR but the NCR does not become valid until reviewed and approved by the appropriate people in the affected organization. Those found not valid will note basis and be filed for life of construction. Policy statement will also point out seriousness of initiating NCR's frivolously as well as the need to document problems.

B. The IRN program is being extracated from QCI-1.2 and placed in a new
C. procedure QCI-1.2-1, now in draft form. QCI-1.2-1 will encompass the
& existing IRN program and will implement recommendations 1 through 5 in
E. section B and in sections C and E above.

D. Identification of trends affecting more than one engineering/quality control unit is addressed in the review for root causes discussed in the response to R-81-28-WBN-16 and in the response to R-81-28-WBN-19. The primary mechanism for identifying trends in deficiencies will be the review of the QA Trend Analysis Master Status Report. As before, unit supervisors will review IRN logs to identify trends within the scope of their responsibility.

The revisions to QCI-1.2 and procedure 1.2-1 are scheduled for implementation by February 28, 1982.

R-81-28-WBN-18, REVIEW OF THE QUARTERLY TREND ANALYSIS REPORT

Finding

No requirements exists for the CONST QA Manager and OEDC QA Manager to review the report to determine if the root cause of the problem is generic to other TVA plants or if the root cause is related to a deficiency in the OEDC QA Program.

Recommendation

Issue procedures or revise appropriate procedures to include a requirement for the CONST QA Manager to review the Quarterly Trend Analysis Report for generic implications of deficiencies to other TVA nuclear plants and for the OEDC QA Manager to review this report for programmatic problems. These reviews should be documented.

Response

Project trends will be analyzed by the CONST QA Manager for generic implication. The intent is to provide division and office management with a report which will identify generic root causes and reflecting the degree of impact across the division by project. The program for trend analysis will be adjusted appropriately.

The individual plant Quarterly Trend Analysis Reports are received by OEDC QA Staff and circulated to the QA Manager, the Supervisor of the Compliance Section, and to the QA Engineer for each particular plant. These trend reports are scanned for key problems and in particular OEDC program level implications. Review is indicated by the initials on the routing slip. In addition, the new report for division and office management will be received by the OEDC QA Manager and will be specifically considered for top tier program implications.

R-81-28-WBN-19, REVIEW OF THE QA TREND ANALYSIS MASTER STATUS REPORT

Finding

WBNP-QCI-1.2 reuqires the Construction Engineer or his designated assistant to review the QA Trend Analysis Master Status Report on a monthly basis but does not require the review to be documented. In addition, the procedure does not establish minimum acceptable levels for trends.

Recommendation

WBN management should revise WBNP-QCI-1.2 to require the review by the Construction Engineer to be documented and establish minimum acceptable levels for trends. When the maximum acceptable level is exceeded, the Construction Engineer should investigate to determine the root cause of the problem.

Response

WBN management will revise QCI-1.2 to require documentation of the monthly review of the QA Trends Analysis Master Status Report. In the absence of the criteria on minimum acceptable levels for trends is 5% for identification of trends. Determination of root causes for trends is made in the resolution of the generic NCR documenting the trend.

R-18-28-WBN-20, ALL ASPECTS OF QA PROGRAQM NOT AUDITED

Finding

The site QA unit had not performed audits as follows: (1) Inspection Rejection Notice (IRN) system to determine the effectiveness of the system and (2) the transfer of systems from CONST to NUC PR.

Recommendation

Site QA should: (1) schedule and perform audits of the IRN system and the transfer of systems from CONST to NUC PR and (2) review all aspects of the QA program to ensure audits have been conducted or are scheduled to be conducted.

Response

The "IRN" system was audited (WB-G-81-16) November 23 through December 28, 1981.

An audit of the "transfer of systems" activity will be conducted late February or early March 1982.

Attachment B to QASP-7.1 was intended to provide audit planners with the necessary information to determine yearly audit coverage. It is apparent from this item that Attachment B does not present information in sufficient detail to be totally effective. We will evaluate this situation at the QA Supervisor's Meeting January 25 and 26, 1982, and make necessary adjustments to our program. This item is considered generic to all site QA units and will be so treated.

R-81-28-WBN-21, INTERFACE BETWEEN THE SITE QA UNIT AND THE CONST QA MANAGER'S OFFICE

Finding

The site QA unit had experienced problems in obtaining information from EN DES necessary to close audit deficiencies or perform procedure reviews. Interviews with the QA supervisor and several members of the QA unit revealed they had problems in locating the person in EN DES who had knowledge and authority to provide answers to questions. No mechanism (i.e., administrative control, procedure, etc.) exists which directs the site QA supervisor to contact the CONST QA Manager on audit deficiencies which cannot

be resolved at the site or to obtain an official response from EN DES on questions which arise during procedure reviews. This lack of guidance could result in untimely resolution of audit deficiencies and procedural requirements.

Recommendation

Develop and issue a procedure which delineates the responsibilities of the site QA unit supervisor for interfacing with the CONST QA Manager's office. The procedure should specifically address how the supervisor notifies the CONST QA Manager's office of audit deficiencies which cannot be resolved at the site and the QA Manager's role in obtaining resolution. The procedure should also address how the site QA unit interfaces with the CONST QA Manager's office to obtain official responses from EN DES on questions raised by the site QA unit during their procedural reviews.

Response

This item will be reviewed immediately. Our decisions will be reviewed by division and office management to assure we have identified the proper channels for communication and interface.

The intent will be to clearly define communication and interface channels with respect to "Stop Work," and "Differing Staff Opinions" as well as program and audit exceptions. This will be treated as a generic situation within QAB.

R-81-28-WBN-22, INADEQUATE RESOURCES FOR THE SITE QA UNIT

Finding

A review of the current audit schedule and discussions with members of the site QA unit revealed the schedule had slipped several weeks due to the unit's involvement in several other areas. The site QA unit had not performed procedure reviews in the depth required. These weaknesses are a direct result of inadequate resources (manpower and materials).

Recommendation

Increase the site QA unit staff size with qualified personnel to the level required to carry out their assigned responsibilities. Obtain the documents (Design Guides, Design Standards, drawings, IEEE Standards, ASME Code, etc.) necessary to perform the procedural reviews required by QASP 4.2. Review present and future procedures to ensure all applicable requirements were included.

Response

The NSRS recommendation will be considered as part of the QAB review of this item. A total review of line and QA responsibilities is underway as a part of the CONST 1982 ACTION PLAN FOR QUALITY IMPROVEMENTS. The results will be made known upon division management review of recommendations and decisions. QA programs will be adjusted accordingly. Based on these management

decisions, the QAB will review the procedure background information documents (codes, standards, etc.) and identify the degree of need and availability to the site QA units. This item will be treated as a generic situation.