

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 qualified, 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 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 QC1 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 gage 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:

<u>Audit Numbers</u>	<u>Deficiency</u>
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

<u>Name</u>	<u>Organization/Job Title</u>	<u>Attended Entrance Meeting</u>	<u>Contacted During Review</u>	<u>Attended Exit Meeting</u>
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

<u>Name</u>	<u>Organization/Job Title</u>	<u>Attended Entrance Meeting</u>	<u>Contacted During Meeting</u>	<u>Attended Exit Meeting</u>
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

<u>Name</u>	<u>Organization/Job Title</u>	<u>Attended Entrance Meeting</u>	<u>Contacted During Meeting</u>	<u>Attended Exit Meeting</u>
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

<u>Name</u>	<u>Organization/Job Title</u>	<u>Attended Entrance Meeting</u>	<u>Contacted During Meeting</u>	<u>Attended Exit Meeting</u>
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

<u>Name</u>	<u>Organization/Job Title</u>	<u>Attended Entrance Meeting</u>	<u>Contacted During Review</u>	<u>Attended Exit Meeting</u>
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

<u>Name</u>	<u>Organization/Job Title</u>	<u>Attended Entrance Meeting</u>	<u>Contacted During Meeting</u>	<u>Attended Exit Meeting</u>
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, Non-destructive 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. WBNP-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 (Addendum 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

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

GNS '81 1207 050

TO : E. A. Belvin, Director of Health and Safety, 100 FIPB-M

FROM : H. N. Culver, Director of Nuclear Safety Review Staff, 242A HBB-K

DATE : December 4, 1981

SUBJECT: FOLLOWUP REVIEW OF IMPLEMENTATION ACTIVITIES ON OFFICE OF OCCUPATIONAL HEALTH AND SAFETY RELATED RECOMMENDATIONS CONTAINED IN NSRS REPORT NO. R-81-08-BFN - NUCLEAR SAFETY REVIEW STAFF REPORT NO. R-81-29-BFN

- References:
1. Your memorandum to me dated August 17, 1981, "Nuclear Safety Review Staff Major Management Review of the Office of Power and the Office of Health and Safety - Nuclear Safety Review Staff Report No. R-81-08-BFN," (GNS 810817 053)
 2. Your memorandum to me dated September 4, 1981, "Nuclear Safety Review Staff Major Management Review of the Office of Power and the Office of Health and Safety - Nuclear Safety Review Staff Report No. R-81-08-BFN," (GNS 810908 102)

Attached is a copy of the subject report which identifies those items requiring further activity. The recommendations of our original report have not all been implemented in accordance with your memorandums referenced above. The fact that BFN has been able, through the efforts of the health physics consultant, to perform an indepth evaluation of a few of the areas where implementation is still required and identified additional problems whose correction can be incorporated into our recommendations is considered commendable. NSRS believes additional effort by TVA senior health physics staff toward program evaluation would be most beneficial.

In order to allow your staff the most flexibility possible, you are requested to provide NSRS with only a quarterly progress report on the remaining open items. The first one would be due March 1, 1982.

The cooperation extended by your staff is appreciated.

H. N. Culver
 H. N. Culver

RDS
 RDS:LML
 Attachment
 cc: MEDS, 100 UB-K

NSRS FILE



TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
NSRS REPORT NO. R-81-29-BFN

SUBJECT: FOLLOWUP REVIEW OF IMPLEMENTATION ACTIVITIES ON
OFFICE OF OCCUPATIONAL HEALTH AND SAFETY RELATED
RECOMMENDATIONS CONTAINED IN NSRS REPORT NO.
R-81-08-BFN

DATES
OF REVIEW: BROWNS FERRY NUCLEAR PLANT - OCTOBER 27, 1981
OFFICE OF OCCUPATIONAL HEALTH AND SAFETY - OCTOBER 28, 1981

REVIEWER: *Richard D. Smith* 12/2/81
RICHARD D. SMITH DATE

APPROVED BY: *K. W. Whitt* 12/1/81
K. W. WHITT DATE

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I. SCOPE

The purpose of this review was to evaluate the implementation of recommendations, identified in reference A, for which the Radiological Hygiene Branch (RHB) had lead responsibility. Implementation adequacies were evaluated against actions, plans, and schedules identified by the Director of Health and Safety in references B and C.

II. CONCLUSIONS/RECOMMENDATIONS

There appeared to be a significant attitude change within the Health Physics Group at Browns Ferry Nuclear Plant (BFN). There appeared to be an awareness from the health physics supervision down to the technician level (two technicians talked with) that plant management was supportive of health physics, and in turn, that health physics was supportive of plant management's goals and objectives.

While the commitments and corrections specified in your memorandums (references B and C) have not all been completed as specified, the implementation process being used at BFN is considered appropriate.

There were no new recommendations resulting from this review.

III. STATUS OF PREVIOUSLY IDENTIFIED OPEN ITEMS

While the commitments and corrections specified in references B and C have not all been completed as specified, the implementation process being used at BFN is considered appropriate. The health physics supervisor was attempting to incorporate NSRS recommendations into BFN observed deficiencies and practices and/or the recommendations were being evaluated further to arrive at generic solutions rather than symptomatic solutions. NSRS agrees with this basic approach; these recommendations will be considered open until final implementation plans have been established and satisfactorily accomplished.

A. R-81-08-BFN-43, TVA CODE VII ALARA Responsibility

The Division of Occupational Health and Safety (OC H&S) created the position of QA/ALARA Coordinator on November 2, 1981. Until procedures are developed for this position implementing the CODE VIII responsibilities, this item will be kept open. (See section IV.A.1 for details.)

B. R-81-08-BFN-44, Interdivisional ALARA Agreement

The revision of the agreement (reference D) appears to satisfy the recommendation. This item is considered closed. (See section IV.A.2 for details.)

C. R-81-08-BFN-45, Special Work Permits (SWPs)

This recommendation is divided into the following five sub-recommendations:

1. Accountability of Completed SWPs

A clerk had been assigned the responsibility of collecting completed SWPs and this was having a significant effect on accountability. This item is considered closed. (See section IV.A.3 for details.)

2. SWP Routine Timesheets - Need and Enforcement

An evaluation by BFN health physics personnel indicated the timesheets were needed and that they were not always used or properly completed. The need portion of the recommendation is considered closed. The enforcement portion is considered open. (See section IV.A.3.b for details.)

3. Modification to RCI 9

RCI 9 was modified to specify that SWP routines are not valid when the area is posted as a SWP area. This item is considered closed.

4. Reindoctrination Training for Authorized SWP Routine Users

There has been no reindoctrination training. This item is considered open. (See section IV.A.3.c for details.)

5. SWP Requirements for Scram Discharge Header Passageway

There had been no requirements established. This item is considered open. (See section IV.A.3.d for details.)

D. R-81-08-BFN-46, Full-Face Respiratory Protection Upper Air Activity Limit

The limit was evaluated and appropriately adjusted downward. This item is considered closed. (See Section IV.A.4 for details.)

E. R-81-08-BFN-47, Reevaluate Internal Radiation Exposures

Internal exposures were reevaluated and found to be correct. This item is considered closed. (See section IV.A.5 for details.)

F. R-81-08-BFN-48, Airborne Activity Limits

The limits have been reevaluated and changes will be required. Until the appropriate changes have been made, this item will be considered open. (See section IV.A.6 for details.)

G. R-81-08-BFN-49, Quality Control for Pocket Dosimeter Issuance and Data

Not much progress had been made in this area. BFN was reportedly in the process of changing RCI 2 which will include a quality

control program for checking pocket dosimeters. This item is still considered open.

H. R-81-08-BFN-50, Respiratory Protection

This recommendation has been rescinded. This item is considered closed. (See section IV.A.7 for details.)

I. R-81-08-BFN-52, Equipment Contamination Control Practices

These practices have been reevaluated by BFN and found to be adequate. This item is considered closed. (See section IV.A.7 for details.)

IV. DETAILS

A. Previously Identified Open Items

1. R-81-08-BFN-43, TVA CODE VIII ALARA Responsibility

On or about November 2, 1981, the position of Quality Assurance and ALARA Coordinator was created in OC H&S to implement OC H&S CODE VIII responsibilities. This was the first step toward satisfactory implementation of this recommendation. The coordinator reports through the Assistant to the Director of OC H&S to the Director of OC H&S. According to the director, OC H&S is committed to developing an active ALARA program and it is the coordinator's function to provide for the interpretation of TVA CODE VIII ALARA policy. As this function had not been assumed at the time of this review, there had not been any work in developing the procedures for this position. This item will remain open until implementing procedures for this position are developed.

2. R-81-08-BFN-44, Interdivisional ALARA Agreement

On June 11, 1981 the interdivisional agreement "Criteria for Implementing TVA CODE VIII OCCUPATIONAL RADIATION PROTECTION" (reference D) was formalized between EN DES, NUC PR, and OC H&S. This agreement provides a mechanism whereby the three divisions can work together to develop a unified TVA ALARA program which includes design modifications and operations in all nuclear facilities. The NSRS concerns expressed in reference A appeared to be answered in the final document. Its success or failure will depend upon the dedication of the signatory divisions to the intent of the agreement. This item is considered closed.

It was noted that the interpretation of CODE VIII policy had been transferred from the RHB QA/ALARA Staff, as specified in the interdivisional agreement, to the newly created position of Quality Assurance and ALARA Coordinator.

3. R-81-08-BFN-45, Special Work Permits (SWPs)

(a) Accountability of Completed SWPs

A problem had existed whereby complicated SWP forms were not all accounted for. A clerk was given the responsibility of locating all outstanding SWPs. The log book record of issued SWPs was reviewed for the previous two months and all SWPs were accounted for. This problem has apparently been eliminated, and this item is considered closed.

(b) SWP Routine Timesheets and Enforcement

It was noted that the Health Physics Group obtained the services of an outside consultant to develop a dose tracking system at BFN for ALARA purposes. The side benefit of this effort was an indepth review of a few of BFN's health physics procedures which identified areas for improvement. This consultant's contract was to expire about the middle of November and plans are to assign a full-time TVA employee to implement the developed dose tracking program

In the process of developing an ALARA dose tracking program for BFN, the health physics consultant had the opportunity to review the existing SWP procedures and results.

The study revealed that timesheets required by RCI 9 for SWP routines (reference F) were not always properly filled out. From the study data it appears evident that all entries were not being recorded. For example, based upon BFN developed data from January 1, 1981 to October 18, 1981, 489 operations personnel filled out timesheet information. Of those, 148 were found to have errors. More basic, if it is assumed that one operations person per unit per shift is required to enter areas covered by SWP routines for surveillance, valve operations, etc., then approximately 9 timesheet entries per 24-hour day would be required. Consequently approximately 2,619 entries should have been recorded over the study time period as compared to the 489 actually recorded. This example is not to imply that operations is the only group with SWP routine problems. The BFN data shows other groups have the same types of problems. The BFN health physics personnel are commended for their effort to identify SWP routine problems. This item is considered open.

(c) Reindoctrination Training for Authorized SWP Routine Users

Reference B stated that RCI 9 was revised to require indoctrination training before being approved to use SWP routines. This requirement was in existence at the time of the NSRS

review; therefore, there was no change to RCI 9. There has been no attempt to develop or present a reindoctrination training program as recommended.

On January 27, 1981 RCI 9 was revised to require an individual, who is entering a controlled area under the provisions of RCI 9, to call health physics before entering and upon exiting the controlled area. Prior to this change, an individual was required to call health physics only when entering a high radiation area. Therefore, this change included a much larger number of areas than before. The desirability of such a requirement for the purpose of informing the individual of the current radiation and contamination status of the area is commendable. However, the practicality of such a requirement considering the benefit versus risk and the total possible number of telephone calls should be reevaluated. For example, if the 9 operations personnel identified in IV.A.3.b above only enter one SWP routine area, a total of 18 telephone calls would be required per day from that group alone. However, they most probably enter more than one SWP routine area, and the actual number of calls would be some multiple of 18. Added to this would be calls from personnel in chemistry, maintenance, and other groups.

The new call-in requirement described above was conveyed to all authorized SWP routine users by a memorandum dated February 5, 1981. However, health physics technicians have stated that presently they are receiving only an estimated 10 calls for SWP routine entries on a busy day and almost never receive a call when someone exits an area. Considering the ineffectiveness of the February 5 memorandum and the number of RCI 9 violations found by the BFN study described above, it is apparent that either personnel are poorly trained and/or enforcement is poor. When BFN identified changes to RCI 9 are completed, recommendation R-81-08-BFN-45, part 4, should be implemented. This item is considered open.

(b) SWP Requirement for Scram Discharge Header Passageway

Reference B stated that health physics personnel had been instructed in the proper procedure to pass by unit 1 scram discharge header and that appropriate procedures have been established and will be enforced. It was found that reindoctrination had not been performed and the procedure had not been prepared. Inconsistencies in logging in and out on timesheets were still prevalent around unit 3 scarm discharge header. This item is considered open.

4. R-81-08-BFN-46, Full-Face Respiratory Protection - Upper Activity Limit

The airborne activity limit for the use of full-face respiratory protection has been reevaluated by RHB and appropriately adjusted

downward by BFN. As a followup, the Radiological Control Instructions for BFN, SQN, WBN, and BLN were reviewed (references G, H, I, and J). All were correct except for one for WPN. RHB personnel made assurances that this would be corrected immediately. This item is considered closed.

5. R-81-08-BFN-47, Reevaluate Internal Radiation Exposures

BFN personnel evaluated main coolant and spent fuel storage poor sample results from the beginning of operations and determined that no isotope was present in concentrations which would negate the maximum permissible air concentration limit in question. Therefore, the MPCs used in exposure analysis were considered appropriate. This item is considered closed.

6. R-81-08-BFN-48, Airbone Activity Limits

The activity limits for unknown concentrations of beta gamma emitters and unknown alpha emitters has been reevaluated by RHB (reference E). The reevaluation agrees that if strontium-90 or transuranics are present in significant quantities the present limit for unknown concentrations would be too high. The report also points out that for normal fuel integrity, the present limits are appropriate. This confirms NSRS concerns raised in reference A, and RHB plans to make appropriate changes to the BFN and RHB procedures to recognize the results of this study. Until such changes are made, this item will remain open.

7. R-81-08-BFN-50, Respiratory Protection

After discussions with BFN health physics personnel regarding existing required activities, attempts to upgrade programs, limitations on manpower resources, and apparent lack of a demonstrated need to refit respirators on some periodic basis, this recommendation is being rescinded at this time. However, refitting will be evaluated at some future date both for need and program enhancement. This item is considered closed.

8. R-81-08-BFN-52, Equipment Contamination Control Practices

This recommendation was made primarily because BFN health physics personnel could not provide assurances that all equipment leaving a controlled zone would be surveyed for contamination. Since BFN health physics have reviewed their contamination control procedures and practices and believe them to be adequate and there is no known instance of contaminated equipment leaving BFN, the intent of this recommendation has been satisfied. This item is considered closed.

B. Other Items

1. Total Man-Rem Data

Secondary to recommendation R-81-08-BFN-49, reference B pointed out that total man-rem exposures for BFN contained in our report

were in error. While the NSRS man-rem data was in error with RHB data, it was in agreement with outage data. A review of three reports containing man-rem data showed three different sets of data for the same time period. These three reports were easily obtainable, and other reports containing similar data may be in existence.

The sources of exposure numbers were discussed with RHB personnel. They agreed that too many apparently different man-rem numbers were in existence and an RHB effort to reduce these to one well-identified source was desired and would be undertaken. For information, the following comparison of the three known sources of man-rem exposure for 1979 is provided.

	Plant	Man-Rem Outage	Other
TVA report to NRC pursuant to 10CFR20.407	427	1,148	
Plant Management Alara Report pursuant to SP BF-5.5	248	511	189
Outage report unit 3 cycle 2		565	

The concern here is that plant management and outage management may be under the belief that exposures are far less than they actually are.

2. Internal Program Review

It was apparent during our management review and during other visits to BFN that health physics supervisory personnel did not appear to have the time to devote to program evaluation and modification or data trending. As the work of the BFN health physics consultant confirmed our observations that such evaluation and trending would be beneficial, it would appear appropriate for BFN/RHB to continue these efforts with senior technical TVA health physics personnel. The purpose would be to evaluate health physics requirements and procedures for necessity, relevance, workability, compliance, and efficiency. The goal would be to streamline the health physics program and make it even more responsive and efficient to the needs of the plant. This basic idea has been discussed with OC H&S personnel and it is suggested that this be pursued further by RHB.

V. PERSONNEL CONTACTED

Browns Ferry Nuclear Plant

E. Cargill, Assistant Health Physics Supervisor (Operations)

G. Fanning, Health Physics Technician

- A. Johnson, Health Physics Technician
- J. Marr, Health Physics Consultant
- E. Milton, Health Physics Section Leader
- W. Simpkins, Health Physicist
- A. Sorrell, Health Physics Supervisor

Office of Health and Safety

- G. Bugg, QA/ALARA Coordinator
- G. Hudson, Supervisor, Radiation Exposure Management Group
- J. Lobdell, Supervisor, QA/ALARA Staff
- R. Maxwell, Chief, Radiological Hygiene Branch
- J. Politte, Supervisor, Radiation Control Group
- G. Stone, Director, Division of Occupational Health and Safety

VI. REFERENCES

- A. Nuclear Safety Review Staff Major Management Review of the Office of Power and the Office of Health and Safety - Report No. R-81-08-BFN Dated May 15, 1981 (GNS 810515 001)
- B. Memorandum from E. A. Belvin to H. N. Culver dated August 17, 1981, "Nuclear Safety Review Staff Major Management Review of the Office of Power and the Office of Health and Safety - Nuclear Safety Review Staff Report No. R-81-08-BFN," (GNS 810817 053)
- C. Memorandum from E. A. Belvin to H. N. Culver dated September 4, 1981, "Nuclear Safety Review Staff Major Management Review of the Office of Power and the Office of Health and Safety - Nuclear Safety Review Staff Report No. R-81-08-BFN," (GNS 810908 102)
- D. TVA Interdivisional Agreement among the Division of Engineering Design, the Division of Nuclear Power, and the Division of Occupational Health and Safety, "Criteria for Implementing TVA CODE VIII Occupational Radiation Protection," dated June 11, 1981, RO
- E. Memorandum from R. L. Doty to L. J. Politte dated September 14, 1981, "TVA MPCS for Unidentified Isotopes in Air"
- F. BFN Radiological Control Instruction 9, "Special Work Permit - Routine," revision dated 1/29/81

- G. BFN Radiological Control Instruction 3, "Respiratory Protection Program," dated May 27, 1981
- H. SQN Radiological Control Instruction 4, "Respiratory Protection Program," R8
- I. WBN Radiological Control Instruction 4, "Respiratory Protection Program," R1
- J. BLN Radiological Control Instruction 6, "Respiratory Protection Program," dated 8/12/80

UNITED STATES GOVERNMENT

Memorandum

GNS '81 1222 050
TENNESSEE VALLEY AUTHORITY

TO : Charles Bonine, Jr., Manager of Management Services, E4B30 C-K
H. G. Parris, Manager of Power, 500A CST2-C


FROM : H. N. Culver, Director of Nuclear Safety Review Staff, 249A HBB-K

DATE : December 22, 1981

SUBJECT: BROWNS FERRY NUCLEAR PLANT - NUCLEAR SAFETY REVIEW STAFF SPECIAL REVIEW
OF SECURITY TRAINING AND SECURITY SYSTEMS - REPORT NO. R-81-30-BFN

The final report of the subject review is attached for your information and action. The review addressed the implementation of the Public Safety Service (PSS) Training and Qualification Plan (T&Q) at Browns Ferry Nuclear Plant (BFN). In addition, the review also addressed the implementation status of the security hardware commitments made to the NRC on July 21, 1981 ("show cause" items). The review identified the need for management attention in the areas of implementing a security training program at BFN.

You are requested to provide us with your plans for addressing the recommendations of section III within 30 days of the date of this memorandum. If you have any questions concerning this review, please contact Dustin Bailey at extension 6590 in Knoxville.



H. N. Culver

DLB:LML
Attachment
cc: MEDS, 100 UB-K (Attachment)

NSRS FILE



TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
NSRS REPORT NO. R-81-30-BFN

SUBJECT: BROWNS FERRY NUCLEAR PLANT
SPECIAL REVIEW OF SECURITY TRAINING AND
SECURITY SYSTEMS

DATE OF
REVIEW: NOVEMBER 2-6, 1981

REVIEWER: Dustin L. Bailey 12/18/81
DUSTIN L. BAILEY DATE

APPROVED BY: K.W. Whitt 12/18/81
KERMIT W. WHITT DATE

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I. SCOPE

The purpose of this review was to determine if the Browns Ferry Security Training and Qualification Plan (T&Q) was being implemented and to review the status of security hardware modifications.

II. BACKGROUND

The BFN T&Q plan was approved by NRC on June 15, 1981. Implementation of that plan was to begin August 15, 1981. The NSRS review was concentrated in the areas of training records, equipment, facilities, and observation.

In July 1981 TVA committed to the NRC to install/modify security hardware at BFN to meet the provisions of 10CFR73.55. The NSRS review was to evaluate the status of the security modifications to determine if TVA's commitment dates to the NRC would be met.

III. CONCLUSIONS/RECOMMENDATIONS

The following paragraphs contain the conclusions followed by recommendations if applicable. An E or R in brackets 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 commitment. The [E] indicates NSRS has determined that the recommendation has no direct regulatory basis. It is considered an enhancement and based on reviewer judgment.

A. Public Safety Service (PSS)

1. R-81-30-BFN-01, Training and Qualification (T&Q) Plan Implementation

BFN did not have the necessary provisions in place and working to implement the T&Q plan upon NRC approval.

Recommendation

PSS should develop a program for the implementation of the T&Q plan. The program should include provisions for the training of personnel responsible for program implementation, for review and approval of program materials and revisions, and a periodic assessment of implementation. (Reference V.A.1, .2, and .3 for details.) [R]

2. R-81-30-BFN-02, Training Facilities and Equipment

BFN security training facilities and identified equipment were inadequate and did not fulfill T&Q requirements.

Recommendation

PSS should establish a procurement program to provide adequate equipment and facilities to PSS field units. Program should

provide for inspection, maintenance, and replacement of inadequate equipment/facilities. (Reference V.A.2 for details.) [R]

3. R-81-30-BFN-03, Administrative Policy and Direction

PSS administrative policy and direction did not address field concerns in a responsive and timely manner.

Recommendation

PSS should reevaluate its policy making process to determine a more responsive and timely means of addressing field concerns. Areas for specific consideration should be in defining organizational responsibilities; consistency in the various programs implementation, review, and approval process; response to NRC requirements; and the clarification of existing policy requirements between operating field units and PSS. (Reference V.A.3 for details.) [E]

B. Office of Power

1. BFN Security Hardware Status

Based on information obtained by NSRS at security coordination meetings it appears that POWER will meet NRC security commitments dates as a result of intensified work efforts. (Reference V.B.1 for details.)

IV. STATUS OF A SELECTED PREVIOUSLY IDENTIFIED OPEN ITEM

R-81-13-NPS-1, Item No. 3, The Proper Organization to Advise the Manager of Power on Nuclear Security Matters

Review of implementation of proposed corrective action indicated that the assignment of responsibility in this area is not in agreement with the POWER response to NSRS recommendation. This item remains open. (Reference V.B.2 for details.)

V. DETAILS

A. Public Safety Service

The NSRS review of the BFN Security Training and Qualification Plan and its implementation involved a random selection of personnel training records, observation of a physical fitness test, interviews with training personnel, and a review of training equipment. During the course of the review the following concerns were identified.

1. R-81-30-BFN-01, T&Q Plan Implementation

The most significant discrepancy found during the review of the security training records was the failure to follow proper documentation requirements for physical fitness testing. Section 2.3.4 of the BFN T&Q plan requires the recording of the signature of the supervisor conducting the physical test, the date of the test, and the initials of the individual being tested. The training records which were reviewed by NSRS did not have the provisions for the initials of individuals being tested nor did the individual being tested initial the forms. An explanatory note had been substituted as an interim corrective action to fulfill T&Q plan requirements.

This same discrepancy had also been identified during a training records review by PSS and was documented in a memorandum to the supervisor of the PSS Nuclear Operations Section (reference VII.F). In that memorandum the identified corrective action was the addition of a sentence at the bottom of each physical fitness testing form which required the individual to attest to the documented activities. During the course of the review all physical fitness testing forms in question were corrected through the use of the signed statement. In addition, revised testing forms were provided to field units by the PSS central office.

The reviewer observed a physical fitness test utilizing the revised test form and determined that the content and documentation were in accordance with the T&Q requirements. With regard to the testing format, the reviewer noted several differences between implementation at BFN and SQN. The BFN test appeared to be less organized and under the reviewed format was not suited for the timely testing of large groups of personnel. Events were located in several areas requiring vehicle transportation or several minutes to walk from one event to another.

The SQN physical testing format was designed on a circuit basis with events in a central location. The SQN design lends itself to the timely and organized processing of larger groups and assures the individuals being tested the maximum use of the 30 minutes allotted by the T&Q to complete the test.

2. R-81-30-BFN-02, Training Facilities and Equipment

The review of security training equipment and facilities revealed a number of deficiencies. The most noticeable deficiency in training facilities was the lack there of. The reviewer observed several training sessions for security personnel being conducted in open areas in the PSS office. The instructor experienced numerous interruptions and was in constant competition with the surrounding acoustics. Conversations with training officers indicated that the lack of

adequate classroom space was a common problem. The supervisor of the PSS Nuclear Operations Section noted that a trailer had been delivered in August 1981 to BFN specifically for PSS training and that the plant had failed to provide power to the trailer. Consequently, the facility had not been utilized due to the lack of lights and heating. During the review several security training classes were observed being conducted in available space, e.g., PSS office, outside in front of the administrative building, plant lunchroom, etc.

The firearms range was another concern expressed by PSS site personnel and the Division of Nuclear Power (NUC PR). NUC PR requested PSS in September to provide a standard design for firearms ranges. A draft design was developed by the Nuclear Operations Section and provided to the PSS Branch Chief in September 1981. NUC PR had not received the PSS proposed design as of November 13, 1981. The lack of PSS responsiveness has resulted in independent site modifications to existing ranges at both BFN and SQN. The appropriateness of the range modifications are questionable in light of future Office of Engineering Design and Construction (OEDC) security construction programs at these facilities which could necessitate additional modifications. The primary purpose of the request for a standard design was to provide OEDC with the necessary information to incorporate security needs in the planning of construction programs at operational and future facilities. As demonstrated by previous site security modifications (SQN-temporary access portal, BFN-gatehouse), which were not coordinated with NUC PR or OEDC, complications often arise in complying with safety codes, regulatory requirements, and future construction programs.

Security training and armed response weapons were reviewed. Both categories were found to be antiquated and operationally unreliable. Numerous examples of weapons malfunctions, unavailability of parts, and several minor injuries resulting from their use was provided by PSS administrative and training personnel. Previous reviewer experience indicates that the same type of weapons and problems can be found at SQN, WBN, and the PSS basics school. Further, some PSS officers expressed the concern of being trained with semi-automatic shotguns and being equipped with pump shotguns for use during an armed response. A review of both types of shotguns revealed a considerable difference in the loading, chambering, and firing of the two weapons to the extent of creating a safety hazard for individuals not trained in both weapons.

Security gas masks were an item identified as deficient in the review of training and armed response equipment. The masks were intended for use by PSS officers during security

contingencies, however, they proved to be impractical for their intended use. The masks, once on, would prohibit the effective use of rifles or shotguns due to filter locations which prevents the shouldering of weapons. Another deficiency related to the equipping of armed response personnel with the defensive baton as required by section 5 of the BFN T&Q plan. Section 5 outlines two list of equipment--one list identified items which the responder is equipped with and the other identifies items which are readily available. A review of PSS personnel, identified by security procedures as armed responders, revealed that those individuals were not equipped with batons as required. This was a deficiency in implementing the T&Q requirements. The supervisor of the PSS Nuclear Operations Section indicated that PSS was aware of this problem and intended to make a revision to the T&Q. However, as of this review, PSS had failed to document the concern as a deficiency or to provide corrective actions to the PSS field units. Other training and armed response equipment, though antiquated, met regulatory requirements.

Under the provisions of 10CFR73, Appendix C(f), the armed response weapons which were in use did not provide reliability to the extent which would assure a successful response. The deficiency regarding the equipping of armed response personnel with a baton is a direct violation of the T&Q plan implementing requirements.

3. R-81-30-BFN-03, Administrative Policy and Direction

Detailed instructions (procedures) for T&Q implementation were developed by the PSS central office and distributed in September 1981. Revisions of those instructions began in October 1981. During the NSRS review it was not clearly understood by the site training personnel which instructions in the implementing manual were acceptable for continued use and which were to be revised. There was no correspondence from the PSS central office which identified areas of revisions or provided interim training measures during revisions. Further, both training officers were new to the positions (approximately three weeks) and did not understand the correlation between the T&Q plan requirements and the implementing instructions. Neither individual had been adequately trained in implementing the T&Q plan. Based on a memorandum from D. T. Churchwell (reference VII.B), the site training officer was responsible for providing the necessary guidance to the M-1 Shift Lieutenant in implementing the practical portions of the T&Q plan. Conversations with site training officers and various M-1 Shift Lieutenants revealed that they had not received any training in the T&Q implementation.

The responsibility for PSS training was assigned to the supervisor of the PSS Management Services Staff. However, the supervisor of the PSS Nuclear Operations Section indicated that the onsite implementation of the T&Q had been reassigned to his section and that those responsibilities would be identified in a forthcoming branch policy. PSS administrative and training personnel when questioned indicated that there was no central training policy. The T&Q implementing instructions represented an attempt by Knoxville PSS to establish a standard; however, site personnel felt the instructions were of little use due primarily to the almost immediate revisions and the delinquency in getting the basic document to the field units. Conversations with SQN Public Safety personnel indicated the same basic concerns.

The cumulative affect of the preceeding conditions, the lack of training for shift lieutenants and training officers, the vacillation in program responsibility, and the delinquent development and immediate revisions to the T&Q implementing instructions had resulted in two predominant conditions in public safety. The first of these conditions was the lack of uniform direction in the site implementation of the T&Q plan. This particular aspect was demonstrated by a memorandum which required the implementation of the T&Q plan on or before September 1, 1980 (reference VII.A.). In response to this memorandum, SQN training personnel developed a training schedule, lesson plans, and an onsite program for T&Q implementation. The development of the SQN program was assisted by the PSS Training Section Coordinator as requested by site personnel. On the other hand, a schedule for the BFN program had just recently (November 6, 1981) been developed and lesson plans were being revised. BFN requested PSS assistance in a March 1981 memorandum (reference VII.G) at which time the site was advised by the PSS Training Supervisor that the Physical Security Plan (PSP) training requirements were still in effect. BFN subsequently continued training under the PSP requirements. The confusion associated with the implementation of the T&Q was further exemplified by a memorandum dated April 21, 1981 (reference VII.Q) in which the training supervisor acknowledges the misconceptions concerning the PSP and T&Q training requirements.

The net result of the above situation was that SQN, operating under their own auspices, had the necessary procedures and other administrative controls in place and working to implement the T&Q while BFN was still in the development phase. The BFN T&Q plan was approved by NRC on June 15, 1981. Implementation was to begin 60 days after NRC approval on August 16, 1981. The T&Q plan allows two years to train all security personnel; however, the necessary procedures and administrative elements required for implementation must be in place and working upon NRC approval. This was not the case at BFN.

The second area of concern was the lack of responsiveness of PSS administrative policy. Interviews with PSS central office personnel and site Administrative and Operational Captains reflected a lack of timely response to training and operational concerns expressed by field units. The requirement for the training of shift supervisors was the most noted example during the review. The concern expressed by the personnel interviewed was the lack of an official written policy as opposed to a word-of-mouth policy. Specifically, a firearms policy issued by the PSS branch on July 6, 1981 (reference VII.C) requires PSS officers and supervisors to qualify with the rifle, pistol, and shotgun. T&Q implementing instructions were revised (October 30, 1981) to delete supervisors firearms qualification as an NRC inspectable requirement. The field concern related directly to supervisors training in armed response requirements. The T&Q plan does not provide for the training of shift supervisor (M-1 or M-2) in armed response duties. However, the T&Q and Safeguards Contingency plans require the shift supervisor to direct the armed response. Site procedures indicate that the M-2 shift supervisor will be assigned to the central alarm station during security contingencies. The M-1 shift supervisors were assigned to the secondary access portal or were available to provide field direction to the armed response team. The semantics in the PSS philosophy was that the M-1 shift supervisor was not to be counted as one of the five required armed responders, but was there only to provide field direction, if necessary. This philosophy was expressed by both SQN and BFN PSS personnel. Based on the potential involvement of the M-1s in armed response situations, it would appear that they should be trained in those responder duties. This same question was addressed by the NRC during the exit critique of their security inspection at SQN in October 1981. A final disposition as to the training of M-1 or M-2 shift supervisors had not been made during this review.

Another area of concern was the lack of central direction or policy for the implementation of the Physical Security, Contingency, and Training and Qualification Plans between operational units. A review of badging, security hardware testing, and documentation procedures indicated numerous differences between BFN and SQN in implementing the same licensing requirement. An example of those differences was in the documentation of security activities where patrols of vital areas, inspection of barriers, testing of security hardware, and response to alarms were all done differently between the two sites. Though both sites usually meet the basic licensing requirements, the inconsistency has created problems in the training of new PSS officers, communications between sites in addressing new or expanded regulatory requirements, and in the overall ability of the PSS Nuclear Operations Section to assure compliance with security licensing documents.

B. Division of Nuclear Power

1. BFN Security Hardware Status

The NSRS review of security hardware addressed the specific commitments made by TVA to the NRC in July 1981. Our conclusion was derived from personal observations and interviews with the plant cognizant engineer for security modifications and the NUC PR technical advisor. Additional information was obtained from NSRS attendance of several security coordination meetings. Reference the attachment for a compendium of security hardware status as of December 16, 1981. Based upon discussions in the November 13, 1981 security coordination meeting, NUC PR intensified manpower and equipment resources to assure completion of security modifications by NRC commitment dates. As of December 16, 1981, NUC PR felt that all security modifications would be completed on schedule.

2. Previously Identified Item

R-81-13-NPS-1, Item No. 3, The Proper Organization to Advise the Manager of Power on Nuclear Security Matters

An additional item addressed during this review was a followup to the POWER response to NSRS report No. R-81-13-NPS. In that response (GNS 811022 100) (L45 811006 819) POWER indicated that NUC PR would advise the Manager of Power on all nuclear security matters. Based on interviews with NUC PR personnel and review of a draft memorandum dated September 29, 1981 from H. G. Parris to Those listed, the Power Security Officer was given responsibility for the safeguards information program and nuclear employee screening program. The NSRS review of those programs revealed that the safeguards information program was based upon NRC regulation and that the personnel screening program is predominantly nuclear in nature. The assignment of those program responsibilities to the Power Security Officer appears to be in conflict with the POWER response to NSRS.

VI. PERSONNEL CONTACTED

<u>Name</u>	<u>Organization</u>	<u>Attended Entrance Meeting</u>	<u>Contacted During Review</u>	<u>Attended Exit Meeting</u>
H. Abercrombie	NUC PR Chattanooga		X	X
K. Besöcker	NUC PR Chattanooga		X	
T. Bonds	PSS BFN		X	
R. Bologes	NUC PR Chattanooga		X	
J. Brazzel	PSS BFN		X	
J. Bynum	BFN Asst. Plant Super.		X	X

<u>Name</u>	<u>Organization</u>	<u>Attended Entrance Meeting</u>	<u>Contacted During Review</u>	<u>Attended Exit Meeting</u>
S. Griffin	PSS SQN		X	
F. Johnson	ADB Security Coord		X	
R. Jackson	PSS BFN		X	
R. Kaplan	NUC PR Chattanooga		X	
S. Kenney	PSS BFN		X	
G. Lard	PSS BFN		X	
R. LeCroy	PSS BFN		X	
T. Marshall	NUC PR BFN		X	
J. Percy	OEDC Security Coord		X	
D. Tilson	PSS Knoxville		X	X
H. White	PSS Knoxville		X	X

VII. REFERENCES

- A. Memorandum from D. T. Churchwell to Those listed dated August 21, 1980, "Implementation Date of Training and Qualification Plan"
- B. Memorandum from D. T. Churchwell to Those listed dated July 22, 1980, "Training and Qualification Plan Implementation"
- C. Memorandum from J. S. Rozek to Those listed dated July 6, 1981, "Firearms Requalification Policy"
- D. Memorandum from H. G. Parris to Those listed dated September 29, 1981 (Draft), "Responsibilities for Nuclear Power Facilities"
- E. Browns Ferry Nuclear Plant - NRC Show Cause Security Modifications, Revisions 8, 9, 10
- F. Memorandum from G. T. Lard to H. L. White dated October 29, 1981, "Discrepancies in BFN Training Records"
- G. Memorandum from C. L. Phillips to R. E. Jackson dated March 27, 1981, "Implementation of T&Q Plan"
- H. Memorandum from H. L. White to Those listed dated July 13, 1981, "Implementation of the T&Q Plan - Unit Reports"
- I. Memorandum from H. L. White to T. G. Campbell dated November 2, 1981, "Nuclear Plant Security - Review of Public Safety Service Training Records"
- J. Physical Fitness Test form dated October 30, 1981
- K. Firearm Description and Policy, Section 4.0, "Implementing Instruction," dated October 30, 1981

L Security Training Records for the following individuals:

R. L. Bailey	J. Major	C. Thorpe
C. Blalock	J. Marshall	S. Turnbo
C. Brooks	D. Moser	B. Wells
K. Fox	H. W. Rogers	B. York
W. Hayes	T. Shelton	
T. Howell	D. Sloan	
J. D. Jones	H. Swartz	

- M. Training and Qualification Plan - Implementing Instructions
- N. BFN Field Services, Security Modifications, Work Schedules (manpower/equipment allocations)
- O. Work Plan (proposed) for P.O. 457 - Install 24-Hour Battery Backup to Wells Fargo System
- P. Technical Review Procedure - Wells Fargo Alarm (annunciators)
- Q. Memorandum from C. L. Phillips to Those listed dated April 21, 1981, "Training and Qualification Guidelines"
- R. Memorandum from H. L. White to All Members of Public Safety Service, Browns Ferry Nuclear Plant, dated July 13, 1981
- S. BFN Section Instruction Letter No. 19
- T. BFN Security Contingency Procedural Matrix
- U. SQN Section Instruction Letter No. 35.6 (Contingency Procedures)
- V. Title 10, Code of Federal Regulations, Part 73, Appendix B and C
- W. POWER Response

ATTACHMENT

BFN - SECURITY MODIFICATIONS STATUS

1. Construct new (interim) access control facility - Commitment work complete, facility functioning, minor nonregulatory work being completed.
2. Install intrusion detection system at water intake structure - Work in progress, completion due December 22, 1981. NRC commitment January 1, 1982. OEDC to coordinate vendor assistance in installation on November 30, 1981.
3. Install balanced magnetic switch on doors at RHR service water tunnels - Work in progress, completion due March 15, 1982. NRC commitment April 1, 1982.
4. Provide Wells Fargo alarm system with tamper indication - Work in progress, completion due January 31, 1982. NRC commitment February 28, 1982.
5. Provide Perim Alert II intrusion detection system with redundancy - Work complete, post modification testing in progress. NRC commitment January 1, 1982. No significant items.
6. Provide protected area 0.2 foot-candles illumination - Work in progress, completion due March 10, 1982. NRC commitment April 1, 1982. Beginning to receive cable material. OEDC to coordinate vendor assistance during light fixture installation. Significant items: original light study will have to be reevaluated to determine possible affects of trailer facilities on required illumination.
7. Install physical barrier in radwaste HVAC (air) duct - See barrier summary note.
8. Install physical barrier in control bay HVAC duct, No. 1 - See barrier summary note.
9. Install physical barrier in control bay HVAC duct, No. 2 - See barrier summary note.
10. Install physical barrier in diesel generator building HVAC duct - See barrier summary note.
11. Install physical barriers over ventilation openings in vital area doors - See barrier summary note.
12. Install physical barrier in radwaste exhaust duct - See barrier summary note.

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

GNS '82 0330 050

TO : H. G. Parris, Manager of Power, 500 CST2-C

FROM : H. N. Culver, Director of Nuclear Safety Review Staff, 249A HBB-K

DATE : March 30, 1982

SUBJECT: NUCLEAR SAFETY REVIEW STAFF (NSRS) REVIEW OF OPERATOR TRAINING IN THE DIVISION OF NUCLEAR POWER (NUC PR) - NSRS REPORT NO. R-81-31-NPS

The final report of the subject review is attached for your information and action. This review has involved a significant number of your staff at the Browns Ferry, Sequoyah, and Watts Bar Nuclear Plants; at the Power Operation Training Center; at the NUC PR central office; and at the Office of Power Quality Assurance (OPQA) Staff. Your staff provided excellent cooperation with a professional attitude which allowed us to complete our review in a meaningful manner.

We believe this comprehensive review of operator training will assist in assuring that an adequate level of procedural and management control of this activity which is so important to nuclear safety will be accomplished and maintained in the future. The report indicates both areas where NSRS believes programs need improvement and situations where programs appear to be adequate but there has been either no implementation, partial implementation, or improper implementation of NRC regulatory requirements and/or division level procedures. The report contains 57 recommendations covering findings at the Browns Ferry, Sequoyah, and Watts Bar Nuclear Plants; at the Power Operation Training Center; at the NUC PR central office; and at the OPQA staff. These findings are grouped under six major areas of concern which are applicable in most cases to all locations visited during the review with the exception of the OPQA. Where problems existed in the training program that impacted upon more than one location, there is some similarity in the conclusions and recommendations for the different organizational units

In the course of the review, programs were examined against NRC requirements and/or division-level procedural requirements. However, in some cases recommendations resulted from NSRS' judgment rather than specific requirements identified by the NRC or at the division level. A bracketed R or E has been placed at the end of each recommendation. The [R] indicates that NSRS has concluded that the recommendation is based on regulatory requirements. The [E] indicates that NSRS has determined that the recommendation has no firm regulatory basis. It is considered an enhancement and based on the professional judgment of NSRS. You are requested to provide us with your plan and the time frame for resolving all the recommendations within 30 days of the date of this memorandum. It is expected that appropriate action to correct the conditions associated with the recommendations based on regulatory requirements will be completed in a timely manner.

READING FILE

2

H. G. Parris
March 30, 1982

NUCLEAR SAFETY REVIEW STAFF (NSRS) REVIEW OF OPERATOR TRAINING IN THE
DIVISION OF NUCLEAR POWER (NUC PR) - NSRS REPORT NO. R-81-31-NPS

If you have any questions concerning the report, please contact P. B. Border
at extension 4815 in Knoxville.

H. N. Culver

H. N. Culver

PBB:LML

Attachment

cc (Attachment):

A. W. Crevasse, 401 UBB-C
G. F. Dilworth, E12D45 C-K
H. J. Green, 1750 CST2-C
MEDS, 100 UB-K
F. A. Szczepanski, 417 UBB-C

TENNESSEE VALLEY AUTHORITY
NUCLEAR SAFETY REVIEW STAFF
REVIEW ^{31-?}
NSRS REPORT NO. R-81-30-NPS

Subject: Special Review of the Division of Nuclear
Power Operator Training Programs

Dates
of Review: BFN - October 25, 1981 - October 30, 1981
SQN - November 2, 1981 - November 6, 1981
WBN - November 16, 1981 - November 20, 1981
POTC - November 30, 1981 - December 11, 1981
NCO - December 8, 1981
OPQA - December 8, 1981

Reviewers:

Paul B. Border
Paul B. Border

3/30/82
Date

for Paul B. Border
H. Randall Fair

3/30/82
Date

Approved by:

K. W. Whitt
Kermit W. Whitt

3/31/82
Date

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I. SCOPE

The review and evaluation included all of the operator training presently being conducted within the Division of Nuclear Power (NUC PR) at the Browns Ferry Nuclear Plant (BFN), Sequoyah Nuclear Plant (SQN), Watts Bar Nuclear Plant (WBN), and the Power Operations Training Center (POTC), including both license and non-license training.

The programs reviewed were:

1. Nuclear student generating plant operator (NSGPO) training program.
2. The non-licensed assistant unit operator (AUO) training.
3. Hot license training program.
4. Cold license training program.
5. Licensed operator requalification training program.
6. General employee training (GET) for operators.
7. Special training for operators.

The nuclear division central office (NCO) management controlling documents, which are the Division Procedure Manual (DPM) and the Operational Quality Assurance Manual (OQAM), and their implementation at each plant and at the POTC were reviewed to determine whether corporate level and plant level management control existed in all phases of the operator training programs.

This review also included an examination of the degree of involvement by the independent quality assurance (QA) audit of the program by the Office of Power Quality Assurance (OPQA).

This review was also to determine if TVA was in fact meeting all Nuclear Regulatory Commission (NRC) 10CFR requirements and any additional commitments in the area of operator training, both for the short term and long term as required by NUREG 0737, which includes H. R. Denton's March 28, 1980 letter.

Further, the review was to evaluate each program as to content, presentation, and effectiveness.

II. BACKGROUND

A vital ingredient of the operational safety of TVA's nuclear power plants is the employment and training of qualified personnel.

Licensed and non-licensed operator initial and requalification training has especially come under close scrutiny since the incident at Three Mile Island (TMI) in 1979. The resulting damage to the TMI reactor core was in part directly attributed to inadequate licensed reactor operator (RO) and senior reactor operator (SRO) training and requalification training.

The NRC has provided, post TMI, additional directions through NUREGs and H. R. Denton's March 28, 1980 letter to establish short-term and long-term experience and training requirements for reactor operators and senior reactor operators. Over the past two and one-half years, changes in TVA's licensing and requalification training programs should have reflected these additional requirements. With this in mind and with TVA's commitment to nuclear safety, we have performed this review, within the identified scope of this report, to determine the adequacy of operator training.

III. SUMMARY

NSRS' review of NUC PR's operator training program has been conducted to provide an independent assessment of the program's adequacy in assuring a satisfactory level of safety in this very important activity assigned to NUC PR. It was to also assess the adequacy of the Office of Power (POWER) and NUC PR Quality Assurance Staffs in review and audit of this activity. It was an extension of the management review of POWER conducted in 1981 and was to determine whether a written program had been established to satisfy TVA policy, regulatory requirements, and TVA commitments; whether the program was adequate to satisfy the intended purpose; whether the program was being implemented effectively; whether the cognizant personnel throughout the organization were aware of the program and their responsibilities in carrying out the program; and whether the personnel have been trained and qualified.

The findings of the review indicate POWER and NUC PR had not established an adequate program for assuring that management control of operator training activities exists or that regulatory requirements and TVA commitments are satisfied in this area. The operator training program was fragmented with requirements being contained in several different documents, and in many cases there was improper or no procedural control of operator training activities. In some cases responsible management was aware of these conditions and was working to improve them. There were in place at the POTC what the NSRS considered quality programs in license training activities, but there was no procedural control of these programs.

The NSRS believes the NSGPO program is probably an excellent program but cannot be sure as the POTC instructors were not following the daily lesson plans provided in the DPM N75A5. A number of program deficiencies were identified by NSRS. Some of these represent minor oversights while others are indicative of a failure to ensure quality control of an activity affecting nuclear safety.

The most difficult portion of a management controls system review is the assessment of program implementation. Implementation can be evaluated by observation, review of events, review of records, discussions with personnel, and review of activities of offsite organizations responsible for measuring and documenting the effectiveness

of the program. The most effective method is observation. It is also the most time consuming and controversial. The use of this method during the review was limited. All the other processes mentioned above were utilized in varying degrees, and they form the preliminary basis for the findings.

The major areas of concern identified by the NSRS during this review were (1) a failure to meet commitments or regulatory requirements and to implement NRC requirements; (2) conflicting corporate-level procedures; (3) inadequate procedural control of operator training; and (4) inadequate management control of operator training activities.

The following are some of the major items of concern identified:

- ° The requirements of H. R. Denton's March 28, 1980 letter on operator training and qualification had not been implemented into the NUC PR OQAM, part III, section 6.1.
- ° The NRC commitment to certify instructors who are involved in license training had not been met. There were cases identified where it appears that there was a failure to meet regulatory requirements of 10CFR50, Appendix B, and 10CFR55, Appendix A.
- ° The division procedures which control operator training provided inadequate, conflicting direction which resulted in the nuclear plants being in noncompliance with corporate direction and inconsistent programmatic control of operator training activities within the division.

The NSRS reviewed the division procedures which control operator training and the OQAM, part III, section 6.1 (selection and training of plant personnel), as the initial step in performing this evaluation of operator training. There were over 40 items of either inadequate or contradictory direction identified in these corporate-level documents. (See Appendix A.)

- ° In the implementation of division procedures which provide guidance to be incorporated into approved plant and POTC instructions, there were some cases of partial implementation, some cases of a complete failure to implement, and some cases of improper implementation. The POTC had not implemented the division procedures. This resulted in a lack of approved instructional control of all training activities. No approved method of document control and no method of review and evaluation to ensure conditions adverse to quality existed.
- ° The NSGPO program, which was controlled by a self-implementing division procedure and which outlined the initial training provided the NUC PR operators, was not procedurally controlled. The division procedure which provides the daily lesson plans for the presentation of the training had not been revised to reflect the change in content or the change from a 22- to a 26-month program, which took place in 1979.

- NUC PR and POWER QA Staffs failed to recognize that the training of operators is part of TVA's quality assurance program and must be controlled as any other activity which affects nuclear safety. The failure by the POTC, and in some cases the plants, to have programmatic control over operator training activities and the failure by POWER QA and Audit Staff to have a program to audit operator training activities were both indicative of this fact.
- In most cases adequate initial and requalification training was being provided the operators in NUC PR but that there were in certain instances inadequate or contradictory procedures and in some cases no procedural control of these activities. Responsible managers had not ensured that training was procedurally controlled, documents were controlled, or conditions adverse to quality were immediately identified and corrected.
- Some responsible managers in NUC PR had the opinion that operator training had nothing to do with quality assurance, even though the qualifications of an operator can have a significant impact on nuclear safety. It was, however, the opinion of the NUC PR QA Staff that operator training should be controlled by the quality assurance program.
- The many identified problems involving operator training within the division and some of the attitudes were indicative of problems in management control of the operator training activities.
- The chief of the NUC PR Training Branch and his assistant are also the managers of the POTC which requires a significant amount of their time. The only staff they have is one which primarily performs the tasks required to administer the day-to-day training activities at the POTC. It appeared to NSRS that it would be very difficult, if not impossible, for the training branch to function at the division level as a branch and accomplish its assigned responsibilities with the present organizational structure.

IV. CONCLUSIONS AND RECOMMENDATIONS

The following paragraphs contain the conclusions followed by recommendations, if applicable. An "E" or "R" in brackets is placed at the end of each recommendation and indicates that the NSRS has concluded that the recommendation is either based on a regulatory requirement [R] or that it is considered an enhancement [E] and is based on the judgment of the NSRS.

There are six sections of conclusions and recommendations, including a section for each plant visited, one for the training center, one for the nuclear division central office, and one for the Office of Power Quality Assurance Staff.

Some of the items identified in the conclusions and recommendations section are common at all locations visited. It is also recognized

that the problems identified at the plants and the POTC must be resolved by a coordinated effort by responsible managers as directed by the NUC PR central office.

A. Division of Nuclear Power Central Office (NCO)

1. R-81-31-NCO-01, Failure to Implement NRC Requirements Resulting in Plant Operational Quality Assurance Manual (OQAM) Deficiencies

The OQAM, part III, section 6.1, did not reflect the commitments of TVA's November 1980 response to the training, retraining, and experience requirements of H. R. Denton's (NRC) letter of March 28, 1980. This deficiency reflects an unsatisfactory corporate management policy for implementing the division QA program in the area of operator training.

Recommendations

- a. Action should be taken to initiate an update of the OQAM, part III, section 6.1, to include the requirements of TVA's November 10, 1980 response to H. R. Denton's letter of March 28, 1980. (See section V.A.1 for details.) [R]
- b. NUC PR should review and evaluate their present method of ensuring that QA-related management controlling documents are revised to meet current NRC requirements. (See section V.A.1, appendix A for details.) [E]

2. R-81-31-NCO-02, Conflicting Corporate Level Procedures In the Area of Operator Training

There were many conflicting corporate level procedures in the area of operator training that result in noncompliance with NRC requirements and inadequate and contradictory direction to the nuclear plants and POTC on training programs. The POTC and the plant staff had not initiated action to resolve these conflicts in the management controlling documents.

Recommendations

- a. NUC PR should initiate action to review and to revise, as appropriate, the OQAM and all division procedure manual (DPM) procedures related to operator training and resolve all conflicts in corporate direction or delete all training requirements of the OQAM, part III, section 6.1, and reference the applicable division procedure containing the current requirements. (See section V.A.2 and appendix A for details.) [R]

3. R-81-31-NCO-03, Inadequate Procedural Control of Operator Training

- a. The NCO did not have in place an adequate method to ensure that the plants and POTC were properly implementing new and/or revised corporate procedures which control operator training and that these procedures were being followed.
- b. There existed many cases of failure to implement, improper implementation, and failure to follow division procedures which control operator training.
- c. There were managers in the division of NUC PR who were not aware of the need to implement and/or how to properly implement division procedures.
- d. There was an inconsistency between plants and the POTC in how they implemented division procedures.

Recommendation

The NCO should establish a method, such as internal review, to ensure adequate, consistent procedural control of the division operator training activities. (See section V.A.3.a through e and V.A.4.e and f for details.) [R]

4. R-81-31-NCO-04, Inadequate Management Control of Operator Training Activities

There was a lack of attention in the management of division operator training activities at the cooperate level which resulted in (a) inadequate direction, assistance, and staffing being provided for training at the plants and the POTC, (b) inadequate, conflicting corporate level direction being provided by division procedures; (c) a failure to provide a means to assure conditions adverse to quality in operator training were promptly identified and corrected; and (d) a failure to ensure consistent division procedures (DPMs) and OQAM implementation at the plants and at the POTC.

Recommendations

Immediate action should be taken by the Division of Nuclear Power to:

- a. Review the training branch's, POTC's and plant's training staffs assigned responsibilities in reference to available organizational manpower to meet these responsibilities. Increase the staff to perform assigned responsibilities or initiate revision to the Topical Report, DPMs, OQAM, and plant instruction to reassign a portion of the responsibilities elsewhere. (See detail sections V.A.4.a through f and V.A.5.d.(1) and (2) for details.) [R]

- b. Provide direction and assist the plants and POTC in achieving consistent implementation of division procedures controlling operator training. (See section V.A.3.a through d for details.) [R]
 - c. Establish procedural guidelines for the interface between the training branch and the plants in administering operator training and assure they are implemented. (See section V.A.4.a for details.) [E]
5. R-81-31-NCO-05, Operator Training Program Inadequacies
- a. The requalification training programs may be inadequate in reference to proposed new NRC requalification examination criteria.
 - b. There were inadequacies in the division procedure DPM N78A13.
 - c. There were inadequacies in the plant instructions controlling operator training.

There was an inadequate number of staff members in the POTC and plant operator training organizations.
 - e. There were inadequacies in plant training facilities.

Recommendations

- a. The NCO should initiate within the Division of Nuclear Power a review and evaluation of the present method of presenting the annual requalification training to determine its adequacy in reference to NRC's proposal of administering the annual written, oral, and operating tests. (See section V.A.5.a for details.) [E]
 - b. The NCO should initiate a review of the procedures and instructions controlling operator training at the division level, at the POTC, and at the plants, and make appropriate additions and revisions to these documents to ensure adequacy in the programmatic control of all operator training activities within the division. (See section V.A.1 through 6 and Appendix A for details.) [R]
 - c. The NCO should make an effort to improve the operator training facilities at the existing and future plants. (See section V.A.5.e for details.) [E]
6. R-81-31-NCO-06, Failure to Meet Commitments to NRC and Noncompliance with 10CFR55, Appendix A and 10CFR50, Appendix B
- a. There were several items of potential noncompliance at the POTC and plants and a failure to meet an NRC commitment in the area of operator training.

- b. The Division of Nuclear Power Quality Assurance Staff nor any other group had functioned to ensure that conditions adverse to quality did not exist and that TVA was in full compliance with all NRC regulatory requirements and commitments in the area of operator training.

Recommendation

The NCO should review their present staff responsibilities in this area and establish or reestablish at the division level responsibilities to ensure conditions adverse to quality do not exist in operator training and that all training programs ensure full compliance with NRC regulatory requirements and commitments. (See section V.A.4.e, f, and V.A.6 for details.) [R]