TVA 64 (08-9-81)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

GNS '82 0512 050

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

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

DATE : May 10, 1982

SUBJECT: ROUTINE REVIEW OF IMPLEMENTATION ACTIVITIES ON DIVISION OF OCCUPATIONAL HEALTH AND SAFETY RELATED RECOMMENDATIONS CONTAINED IN NSRS REPORT NO. R-81-08-BFN AND OTHER TOPICS - NSRS REPORT NO. R-82-06-NPS

Reference: Your memorandum to me dated January 22, 1982, "Followup Review of Implementation Activities 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

Attached is a copy of the subject report containing the status of the open items addressed in the referenced document. Satisfactory progress is being made toward the final resolution of these open items. Also included in the report are our conclusions/suggestions concerning an RHB quality assurance audit on radiation dosimetry and a proposed revision to the special work permit system being used by TVA.

We plan to continue to follow the progress your staff is making in closing out the remaining open items addressed in the attached report. In addition, we plan to follow the progress made to correct the quality assurance audit findings and the development/ implementation of the new special work permit system.

In order to lessen the burden on your staff, you are not required to respond to this report unless you so desire.

The continued cooperation extended by your staff is appreciated.

H N Culver

H. N. Culver

GGB:KRW
Attachment
CC (Attachment):
G. F. Dilworth, E12D46 C-K
MEDS, 100 UB-K

NSRS FILE

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

NSRS REPORT NO. R-82-06-NPS

SUBJECT: Routine Review of Implementation Activities on Division of Occupational Health and Safety Related Recommendations Contained in NSRS Report No. R-81-08-BFN and Other Topics

DATES OF REVIEW: Division of Occupational Health and Safety, March 26, 1982

REVIEWERS: Richard D. Smith — RICHARD D. SMITH — 5/10/82 DATE

Gerald G. Brantley — GERALD G. BRANTLEY — 5/10/82 DATE

APPROVED BY: K. W. Whitt — K. W. WHITT — 5/10/82 DATE

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I. SCOPE

This review encompasses a followup of the commitments made in references A-F to satisfy NSRS safety-related recommendations, discussion of the findings of the quality assurance audit on radiation dosimetry reported in reference G, and a proposed revision to the existing radiation special work permit system addressed in reference H.

II. CONCLUSIONS/RECOMMENDATIONS

The commitments specified in references A-F have not been completely satisfied. However, satisfactory progress is being made.

The category B audit findings reported in reference G are considered significant enough by NSRS to have been classified as category A. Nevertheless, it appears that progress is being made in the effort to correct the adverse conditions reported in the findings. NSRS will follow RHB's progress in the bimonthly quality assurance progress report.(See section IV.B.1 for details.)

The Radiological Hygiene Branch (RHB) is proposing to revise the existing special work permit system being employed at the TVA nuclear plants as a cost reduction effort with an added benefit of increased worker awareness of radiation control procedures. The proposed revision, as described in reference H, has definite merit and its development should be supported by management. However, some areas should receive additional consideration during the developmental stages and before implementation of the revised program. (See section IV.B.2 for details.)

III. STATUS OF PREVIOUSLY IDENTIFIED OPEN ITEMS

The following is the status of the commitments specified in references A-F:

A. R-81-08-BFN-43, <u>TVA Code VIII ALARA Responsibility</u>

The Division of Occupational Health and Safety (OC H&S) has developed a procedure defining the position's functional duties in implementing TVA Code VIII responsibilities.

This item is considered closed. (See section IV.A.1 for details.)

B. R-81-08-BFN-45, <u>Special Work Permit</u>

1. Accountability of Completed SWPs

Closed prior to this review.

2. SWP Routine Timesheets - Need and Enforcement

Further evaluation by Browns Ferry Health Physics Staff has lead to the conclusion that the SWP routine procedure as it presently exists is cumbersome and unenforceable. Efforts are currently underway by RHB to completely revise the special work permit system which may correct this problem.

Until a new system is devised or the current system is revised to a workable system, this item will remain open. (See section IV.A.2.a and IV.B.2 for details.)

3. Modification to RCI 9.

Closed prior to this review.

4. Reindoctrination Training for Authorized SWP Routine Users

There has been little or no reindoctrination training. The SWP routine system has been determined to be unworkable by the BFN health physics staff and this recommendation was made to enhance the workability of that system. Since RHB is considering revising the entire SWP system, its revision may negate this recommendation. Until a new system is devised or the current system is revised to a workable system, this item will remain open. (See section IV.A.2.b for details.)

5. SWP Requirements for Scram Discharge Header Passageway

Revisions to an existing procedure have been made to establish appropriate SWP requirements and procedures for the passageway around the unit 1 scram discharge header. These procedures are reportedly posted at the entrances to the scram discharge headers for all three units. This item is considered closed. (See section IV.A.2.c for details.)

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

The bases of the airborne activity limits are still being evaluated. This item is considered open. (See section IV.A.3 for details.)

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

A revision to an existing procedure has been made and the quality control program for pocket dosimeter issuance and data has been implemented. This item is considered closed. (See section IV.A.4 for details.)

IV. DETAILS

A. Previously Identified Open Items

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

The OC H&S issued administrative instruction ALAR-01, "QA/ALARA Coordinator (Functional Responsiblities and Procedure for Operation)," on February 12, 1982. The instruction delineates the responsiblities of the OC H&S QA/ALARA Coordinator to provide guidance and interpretations to ensure that the TVA ALARA commitment is achieved.

In addition, the coordinator will serve as chairman of the ALARA Task Force consisting of members from the Divisions of Nuclear Power (NUC PR), Engineering Design (EN DES), and OC H&S. The coordinator position has been filled. This item is considered closed.

2. R-81-08-BFN-45, Special Work Permit

a. SWP Routine Timesheets - Need and Enforcement

RCI 9 requires the use of timesheets to record stay times and doses received while working in radiation areas under a SWP routine. In reference A it was reported that the timesheet requirement was not being fully implemented as entries were not being recorded in a significant number of instances. This observation was verified and quantified by a BFN health physics study as reported in reference E. Health physics personnel at BFN stated that the data on the timesheets was not used and the timesheets were only filed for record purposes. NSRS therefore recommended that OC H&S reevaluate the need for the timesheets and either cancel the requirement or enforce its use. OC H&S promptly determined that the timesheets were needed. However, subsequent reviews have found that full compliance with the RCI 9 requirements has not been achieved. BFN health physics management has concluded that the RCI 9 requirements are unworkable which is in agreement with NSRS' original opinion. The entire SWP system is being reviewed and will likely be revised. This item will remain open until compliance is achieved with the current or revised requirements.

b. Reindoctrination Training for Authorized SWP Routine Users

The position taken by OC H&S in reference B is that indoctrination classes prior to being authorized to use an SWP routine, existing procedures, and discussions with plant management and section supervisors concerning discrepancies in the use of RCI 9 will be used in lieu of reindoctrination training. These methods have been implemented but have not been fully successful as discussed in IV.A.2.a above. This item will remain open until compliance is achieved with the current or revised requirements.

c. SWP Requirements for Scram Discharge Header Passageway

A revision to RCI 10 has been issued and copies posted at the entrances of the scram discharge header passageway to implement the proper use of SWPs for passage through high-radiation areas. The change to RCI 10 was discussed with each health physics technician. This item is considered closed.

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

A change in limits has been issued but is not being implemented at Browns Ferry Nuclear Plant (BFN) or at SQN until OC H&S has clarified the justification study. OC H&S has changed the limit for unidentified beta gamma activity to $1x10^{-9}$ uc/cc (assuming strontium-90 is present). NSRS concurs with this change. OC H&S wants the flexibility to raise the limit to $3x10^{-9}$ µc/cc if it can be shown that Sr 90 is not present. The method of determination that Sr 90 is not present has not been justified to OC H&S' satisfaction. NSRS questions whether the effort or the realistic results of the determination are justified for only a factor of 3 adjustment in the airborne limit. Health physics air samples are not normally nor can they easily be analyzed for strontium-90 and/or transuranics. The wet chemical method normaliy used in the strontium 90 determination normally takes approximately 14 days to complete. Whether or not these nuclides are present in an air sample will depend upon the source of contamination. The alpha airborne limit has been reduced to $1x10^{-13}$ µc/cc and is acceptable to NSRS. This item is considered open.

4. R-81-08-BFN-49, Quality Control for Pocket Dosimeters Issuance and Data

A revision to RCI 2 has been issued to include and implement a quality control program to perform periodic audits of dosimeter issuance, reading, and handling. Subsequent audits have been reported by BFN personnel to shown improvement in these activities. This item is considered closed.

B. Other Items

1. Radiological Hygiene Branch Quality Assurance Audit No. RHB/QA-81-13 on Radiation Dosimetry

Unsatisfactory conditions found during an RHB QA audit are classified into either Category A, B, or C findings. Category A are for potential serious risk and for regulation or requirement violations. Category B are for violations of internal procedures, consensus standards, or program weaknesses. Category C items are for enhancement.

Audit findings B-1 through B-4 as reported in the subject report reflect failure to follow established internal procedures and the lack of procedures both of which seriously affect the personnel monitoring program and could result in a violation of 10CFR20.202.

Audit findings B-5 through B-9 involve the whole body counting program at BFN and reflect failure to follow established internal procedures, lack of procedures, and insufficient training. Some of these findings appear to violate quality

assurance practices as specified in section 15.3.3 of ANSI N343-1978, "American National Standard for Internal Dosimetry for Mixed Fission and Activation Products." The whole body counter (bioassay) program supports the TVA respiratory protection program which makes it vital for the day-to-day operation of the nuclear plants.

While collectively the category B audit findings fall within the strict interpretation of the QA level B findings, they reflect a definite weakness in the dosimetry program which could result in NRC violations. Therefore, NSRS believes the finding should have been classified as category A. A limited review by NSRS of the implementation progress for these findings found corrective actions underway in all areas. Considering the short time period since the RHB audit (one month), the corrective actions are considered adequate. NSRS will continue to follow their progress through the RHB bimonthly progress reports.

2. Proposed Revisions to the Special Work Permit System

The objective of the proposed revision to the existing special work permit system is to improve administration efficiency of the program. The proposal should eliminate unnecessary duplication of paperwork, review, and requirements.

The NSRS reviewers endorse this proposal in a general nature as the concept appears sound and should result in a more efficient health physics program. However, the following suggestions should be considered in the development of the program:

1. The proposal has provisions for a radiation work permit and a special radiation work permit. Both permits use the same form and procedures for issuance. To promote efficiency and simplicity, consideration should be given to eliminating the special radiation work permit and to developing the procedure around only one radiation work permit.

2. A formal and agressive radiation and contamination survey program should be defined and implemented to support the proposed program.

3. The proposed special radiation work permit changes the beta/gamma contamination limit from 1000 dpm/100cm^2 to 10,000 dpm/100cm^2. This is a less conservative approach and should be justified from an ALARA standpoint before implementation.

4. The proposed special radiation work permit changes the allowable daily wholebody exposure limits from 50 millirems to 100 millirems. This is a less conservative approach and should be justified from an ALARA standpoint before implementation.

V. PERSONNEL CONTACTED

Name	Organization/Job Title	Attended Entrance Meeting	Contacted During Review	Attended Exit Meeting
A. Haskins	Health Physicist		X	
C. Hudson	Superviosr, Radiation Exposure Management Group		X	
R. Kitts	Health Physics Supervisor, SQN		X	
J. Lobdell	QA/ALARA Staff Supervisor		X	
R. Maxwell	Chief, Radiological Hygiene Branch	X		X
L. Polittle	Radiation Control Group Supervisor		X	
A. Sorrell	Health Physics Supervisor, BFN		X	

VI. REFERENCES

A. Memorandum from H. N. Culver to H. G. Parris and E. A. Belvin dated May 15, 1982, "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 810515 001)

B. Memorandum from E. A. Belvin to H. N. Culver dated June 22, 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 810623 102)

C. Memorandum from H. N. Culver to E. A. Belvin 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)

D. 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)

E. Memorandum from H. N. Culver to E. A. Belvin dated December 4, 1981, "Followup Review of Implementation Activities of Office of Occupational Health and Safety Related Recommendations Contained om NSRS Report No. R-81-08-BFN - Nuclear Safety Review Staff Report No. R-81-29-BFN," (GNS 811207 050)

F. Memorandum from E. A. Belvin to H. N. Culver dated January 22, 1982, "Followup Review of Implementation Activities 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," (GNS 820125 102)

G. Radiological Hygiene Branch Quality Assurance Audit Report No. RHB/QA-81-13 dated January 6, 1982 (GNS 820108 102)

H. Memorandum from G. F. Stone to H. J. Green dated January 27, 1982, "Report on Revisions to the Special Work Permit System"

TVA 8240S-9-881

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

GNS '82 0623 050

TO : G. H. Kimmons, Manager of Engineering Design and Construction, W12A9 C-K

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

DATE : June 23, 1982

SUBJECT: WATTS BAR NUCLEAR PLANT - INSPECTION PRACTICES OF STRUCTURAL STEEL WELDS - SPECIAL REPORT - NUCLEAR SAFETY REVIEW STAFF REPORT NO. R-82-07-WBN

The special report on the review at Watts Bar Nuclear Plant of the practice of visual inspection of structural welds primed with carbo zinc is attached for your information and action. During the review conducted for this report, a number of people in your organization were interviewed to determine existing and previous practices with respect to inspection of structural welds that had been primed with carbo zinc. In addition, documentation pertaining to inspection of structural welds was examined. All persons contacted for these interviews and activities were very cooperative and open in supplying the information necessary for the preparation of this report.

In summary, our review indicates that a small number of welds had been inspected after being primed with carbo zinc and that no approved site procedure existed for such inspections. It was not possible to determine the number of welds that had been inspected in this manner from the records that exist at the plant. We concluded this occurred because of confusion and willingness of some inspectors to accept a memorandum as the basis for inspection in lieu of an approved site procedure. This report presents six conclusions and recommendations associated with the results of our review into this matter. We want to point out, however, that this review was not concerned with the technical aspects of inspecting welds through carbo zinc primer. Rather, this review was concerned with whether or not such inspections were in accordance with approved site procedures and that justification for such inspection procedures was adequately documented.

On June 18, 1982 members of the review team met with R. M. Pierce and R. M. Jessee and were provided supplemental information regarding the efforts by OEDC to obtain relaxation to the Code and TVA commitments. This information was judged to not be pertinent to the issues raised in this report.

Please provide us with your proposed corrective action for resolving the recommendations contained in this report and the dates the corrective action will be implemented within 30 days of the date of receipt of this memorandum. If you have any questions concerning this report, contact W. C. Burke at extension 6620.

H. N. Culver

NSRS FILE

WCB:LML
Attachment
cc (Attachment):
G. F. Dilworth, E12D46 C-K
MEDS, W5B63 C-K

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

REVIEW

NSRS REPORT NO. R-82-07-WBN

SUBJECT: INSPECTION PRACTICES OF STRUCTURAL STEEL WELDS SPECIAL REPORT

DATES OF REVIEW: MARCH 29 THROUGH APRIL 2, 1982

TEAM LEADER: William C. Burke — WILLIAM C. BURKE — 6/9/82 DATE

REVIEWER: James C. Jones — JAMES C. JONES — 6-9-82 DATE

Claude M. Key — CLAUDE M. KEY — 6/9/82 DATE

APPROVED BY: Marvin V. Sinkule — MARVIN V. SINKULE — 6/9/82 DATE

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I. SCOPE

This report contains the results of a review at Watts Bar Nuclear Plant (WBN) of the possible practice of visual inspection of structural welds after the welds have been primed with carbo zinc and for which there is not an approved procedure. The review was carried out to determine the extent of the practice and if, in fact, inspection of carbo zinc primed welds had occurred.

II. BACKGROUND

During a mini-management review conducted November 16 through December 4, 1981 at WBN, the questions of the permissibility and the acceptability of the practice of visually inspecting welds after priming with carbo zinc was raised by several WBN quality control (QC) inspectors. These questions were asked of the Nuclear Safety Review Staff (NSRS) reviewers during interviews pertaining to visual weld inspection training and inspector knowledge of and certification to applicable WBN G-specifications and procedures. A copy of a memorandum from R. W. Cantrell to J. E. Wilkins dated November 2, 1981, "Visual Inspection of Welds in Accordance with G-29C - Coated With Carbo Zinc," was provided to the NSRS reviewers. This memorandum had been brought to the attention of the QC inspectors by their supervisors. The memorandum stated that it was acceptable to inspect welds primed with carbo zinc if the primer thickness did not exceed 5 mils. All work after the date of the memorandum was to be inspected prior to priming. Inspection of welds after being primed with carbo zinc is not in accordance with procedure G-29C, Revision 4, or AWS D1.1, Structural Welding Code, both of which apply to the work at Watts Bar.

After consideration by the NSRS, it was decided that a special review should be conducted to determine if structural welds having a bearing on safety had been or were being inspected after being primed with carbo zinc without an approved procedure; and, if so, the extent of the practice. Accordingly, a team of reviewers visited WBN March 29 through April 2, 1982 to conduct interviews with appropriate personnel and to examine the documentation for the inspection of structural welds.

The investigation was limited to review of support welds (WBN classifies these welds as structural welds). The NSRS reviewers used Construction Specification N3G-881 to determine the supports covered by the quality assurance (QA) program at WBN. This specification states that all supports in Category I structures (as defined in Table A of N3G-881) are designed for seismic requirements equal to the safety function performed by the item being supported. The support welds of concern in this investigation are in Category I structures.

III. CONCLUSIONS/RECOMMENDATIONS

Supervision in the Instrumentation Engineering Unit (IEU), Hanger Engineering Unit (HEU), Civil Engineering Unit (CEU), Electrical

Engineering Unit (EEU), and Welding Engineering Unit (WEU) were interviewed. Welding inspectors, 24 in all, in the Instrumentation, Hanger, Electrical, and Welding Engineering Units and the Mechanical Engineering Unit-A were also interviewed.

The following paragraphs contain the conclusions and recommendations resulting from the interviews and review of records conducted during this review. An R or E in parentheses has been placed at the end of each recommendation. The (R) indicates that NSRS has concluded the recommendation is based on a regulatory requirement or a TVA commitment. The (E) indicates NSRS has determined that the recommendation has no regulatory basis, but is considered an enhancement to the nuclear safety program and is based on subjective judgment.

A. R-82-07-WBN-01, Lack of Clear Decisive Direction by Supervisors

The understanding by the inspectors interviewed of the permissibility of inspection of welds after being primed with carbo zinc ranged from: it was not permitted, to not sure if permitted, to sure it was permitted. NSRS concludes that the confusion that existed was most likely due to a lack of clear decisive direction by the various levels of supervision involved. There was the willingness to accept a memorandum as the basis for inspection activities in lieu of an approved procedure or specification, and this points to a lack of proper understanding of the requirements of the QA program.

Recommendation

WBN management should take appropriate action to ensure that all personnel are aware of the requirement that all activities affecting quality should be performed in accordance with approved procedures, instructions, and/or drawings. Refer to paragraph IV.A for details. (R)

B. R-82-07-WBN-02, Improper Inspection of Structural Support Welds

Based on interviews with QC inspectors, it was concluded that 100 to 150 structural support welds had been inspected through carbo zinc primer without approved procedures.

Recommendations

Due to the uncertainity of the outcome on the question of the site-approved procedures for inspecting welds through carbo zinc primer, the NSRS proposes two recommendations:

1. If this type of inspection is acceptable through implementation of the EN DES-approved process specification, then the welds should be used "as is."

2. If this type of inspection is unacceptable, then the welds should be reinspected in accordance with existing site approved procedures. Refer to paragraph IV.B. for details. (R)

C. R-82-07-WBN-03, Inadequate Use of Distinguishing Marks on Inspected Welds

The application of physical distinguishing marks on structural support welds to identify the weld inspectors was not in conformance with Construction Specification G-29C.

Recommendation

Provide training or retraining for responsible inspectors in the requirements of G-29C. Refer to paragraph IV.C for details. (R)

D. R-82-07-WBN-04, Inadequate Inspection Documentation

Documentation is inadequate to provide evidence of inspection and identification of items as required by WBNP-QCI-1.8.

Recommendation

Management should take appropriate measures to ensure that documentation of inspection and identification of items should be in accordance with WBNP-QCI-1.8. Refer to section IV.D for details. (R)

E. R-82-07-WBN-05, NCR for Nonretrievable Inspection Documentation

A nonconformance report (NCR) had not been issued to document those welds identified by WBN personnel for which there was no retrievable inspection documentation.

Recommendation

Issue an NCR for welds where documentation of inspection is irretrievable or not available. Refer to section IV.E for details. (R)

F. R-82-07-WBN-06, Documentation of Weld Sampling Program

Insufficient documentation exists to substantiate the weld sampling program conducted to verify that visual weld inspections could be made through carbo zinc primer.

Recommendation

Prepare a report that describes the weld sampling program and that provides the technical justification for inspection through carbo zinc primer. This report should identify the welds in the sampling program, the specific welds primed with carbo zinc, the thickness of the primer, how the primer thickness was measured, and the results of the sampling program. Refer to section IV.F for details. (R)

IV. DETAILS

A. R-82-07-WBN-01, Clear and Decisive Instruction

WBNP-QCI-1.10 states that a quality control procedure (QCP) defines the requirements for inspection and documentation of activities affecting quality. This instruction further states that changes to a QCP can only be made by revising the QCP completely or by issuing an interim revision (addendum) to the QCP. WBNP-QCP-4.13 is the applicable procedure used by QC personnel to visually inspect structural welds. Neither WBNP-QCP-4.13 or its upper-tier document, P.S.3.5.2(b), allow inspection of structural support welds through carbo zinc primer. In order to allow visual inspection through primer, an approved change to the applicable site procedure would have to be made. If a QCP is changed, then all QC inspectors certified to that procedure should be retrained and/or recertified as required by WBNP-QCP-1.11-2. WBNP-QCP-4.13 has not been changed nor has any visual welding inspectors been retrained and/or recertified. However, the interviews conducted by the NSRS team with supervisors and inspectors of the units surveyed brought to light the confusion regarding the purpose of the November 2, 1981 memorandum from R. W. Cantrell to J. E. Wilkins, "Watts Bar Nuclear Plant - Visual Inspection of Welds in Accordance with G-29C - Coated with Carbo Zinc." This memorandum was apparently handled in various ways by supervision. In one case the memorandum was provided to the inspectors without discussion or instruction as to implementation.

In another case, the memorandum was discussed in a meeting with the inspectors, but whether inspection of carbo zinc primed welds was to be practiced in accordance with the memorandum was left to the discretion of a group leader in the unit.

It can only be concluded that clear decisive instruction had not been provided by every supervisor in this case. There is an apparent lack of basic understanding among some of the people involved that inspection activities must be carried out in accordance with approved procedures and specifications.

B. R-82-07-WBN-02, Improper Inspection of Structural Support Welds

Of the 24 inspectors interviewed, 9 believed inspection of carbo zinc primed welds was permitted by the memorandum (reference M) although they are no longer under that impression. Of the nine inspectors, four admitted to having inspected carbo zinc primed welds. While such inspections had been made, the practice apparently had not been extensive. Based on these interviews, it appeared that only 100 to 150 welds may have been inspected in this manner. This could not be substantiated by a review of the records, however, nor was it possible to specifically determine which welds were inspected in this manner.

As stated in the recommendation, there is a question concerning site-approved procedures for inspecting welds through carbo zinc primer.

For this reason two recommendations were made. The first recommendation to use the welds "as is" (if inspection through primer is acceptable) is based on the information gathered during the review. All the inspectors interviewed were qualified visual weld inspectors and the four who admitted to inspecting welds through primer said they had done so in accordance with the memorandum (reference M). The guidelines offered in the memorandum have been incorporated into the new process specification, P.S.3.C.5.4.(a). If this specification is implemented by preparation and approval of site procedure(s), then the welds were inspected to the applicable criteria and need not be reinspected. The approved site procedure(s) will need to be in accord with the resolution of recommendation R-82-02-WBN-34, section IV.B.10.a of report No. R-82-02-WBN, "Major Management Review of Watts Bar Nuclear Plant."

However, if the new process specification should not be implemented, then the second recommendation should be used.

Since the NSRS has not specifically identified which welds were inspected through primer, then absolute certainty of reinspection would be difficut, if not impossible. But if inspection through carbo zinc primer is unacceptable, then a program for reinspection of primed structural support welds will be required. During this reinspection the welds of concern to NSRS would be among those in the reinspection program and would be reinspected in accordance with existing site approved procedure(s).

C. R-82-07-WBN-03, Use of Distinguishing Mark on Inspected Welds

WBNP-QCP-4.13 is the procedure used for nondestructive examination (NDE) at WBN. Visual structural support weld inspectors are certified to addendum 3 of this procedure. WBNP-QCP-4.13 references P.S.3.C.5.2(b) [G-29C] for visual examination of welds as an upper-tier document. Paragraph 3.7 of P.S.3.C.5.2(b) requires that the inspector shall identify with a distinguishing mark all parts or joints which he has inspected and accepted. This is not being done by all units. For example, inspectors from EEU may stencil the welds they inspect and accept, or they may affix tags. The more usual practice is to use tags. The NSRS does not object to tagging the supports but does not believe this method meets the intent of G-29C. Acceptable parts or joints should be physically marked by the responsible inspector.

D. R-82-07-WBN-04, Inadequate Inspection Documentation

WBNP-QCI-1.8, paragraph 6.1.3, states that inspection and test records shall, as a minimum, identify the item, the inspector or data recorders, the type of observation, date, the results, the acceptability, and the action taken in connection with any deficiencies noted. Review of documents in the storage vault indicated these requirements were not being met for records generated from WBNP-QCP-2.4 and WBNP-QCP-2.12.

WBNP-QCP-2.4 requires the CEU inspector to initial the weld inspection verification column of attachment A for installation welds. The CEU inspector's initials only verify that welded connections have been marked by a welding inspector as being inspected and accepted. The procedure does not adequately implement WBNP-QCI-1.8 because it does not require the WEU inspector to document his/her inspection. For similar type inspections of structural support welds, the appropriate inspectors are required by procedure (WBNP-QCP-3.3, WBNP-QCP-3.11, and WBNP-QCP-4.23) to document their inspections. WBNP-QCP-2.4 should require WEU inspectors to provide evidence of their inspections by documentation.

WBNP-QCP-2.12, attachment C, meets all the requirements of WBNP-QCI-1.8 for an inspection record. However, the majority of completed records reviewed (e.g., Nos. 6978, 6992, 6994, 6999, 7003, 7004, 7005, 7008, 7024, 7179, and 7182) did not contain enough detail to identify the items on which the work was performed. More information is needed on the record to provide traceability to the item(s). Also, these records are filed by a sequential number, and this number has no significance to it. So, even if the document did have enough information to identify the items worked on, the record could not be retrieved readily.

E. R-82-07-WBN-05, NCR for Nonretrievable Inspection Documentation

WBNP-QCI-1.2, paragraph 5.1 requires reporting of any irregularity or suspected nonconformance. Contrary to this requirement, WBN personnel identified a number of structural support welds for which there was no retrievable documentation to demonstrate inspection and acceptance, and they did not write an NCR to document the deficiency.

Apparently, these deficiencies were discovered during a massive QC review to verify that all QA records were available.

F. R-82-07-WBN-06, Documentation of Weld Sampling Program

A new G-29C process specification, P.S.3.C.5.4(a), has been prepared and approved by the Division of Engineering Design (EN DES); but a WBN implementing procedure had not been approved. The process specification provided for modification to certain inspection requirements. Among these were the requirements for inspection of welds that were based on a study performed to determine if it were feasible to inspect welds after being primed with carbo zinc. In the study, more than 25 welds at WBN were randomly selected for inspection along with two specially prepared weld samples. The results of the inspection of these welds were the basis for concluding that it was acceptable to visually inspect carbo zinc-coated welds. A review of the records and discussions with personnel did not reveal that the study was documented so that the conclusion was substantiated such that the study could be repeated or verified, if need be, in the future. The only documentation of the study

is contained in the three memorandums, references M, N, and O, listed in section VI of this report. The documentation of the study should contain identification of the welds inspected, a description of the method used in the inspection, the primer thickness on the welds that were measured, method used to determine the primer thickness and the ratio of the welds sampled to the total number of welds involved.

V. PERSONNEL CONTACTED

Name	Organization/Job Title	Attended Entrance Meeting	Contacted During Review	Attended Exit Meeting
T. E. Adams	HEU/Const Engg Assoc		X	
H. L. Alsup	WEU/Const Engg Assoc		X	
E. J. Austin	EEU/Asst Supervisor		X	
R. A. Baird	HEU/Const Engg Assoc		X	
S. A. Ballew	EEU/Const Engg Assoc		X	
P. F. Bellamy	EEU/Const Engg Assoc		X	
W. H. Bessom	CEU/Asst Supervisor		X	
S. J. Boney	WEU/Supervisor		X	
R. C. Braden	MEU-A/Engg Aide		X	
T. R. Brown	HEU/Supervisor		X	
J. Cooper	HEU/Engg Aide		X	
L. R. Daniel	HEU/Engg Aide		X	
R. W. Forsten	IEU/Asst Supervisor		X	
M. A. Fuson	MEU-A/Engg Aide		X	
M. W. Hadacek	MEU-A/Const Engg Assoc		X	
C. G. Harper	IEU/Engg Aide		X	
C. R. Hitson	EEU/Engg Aide		X	
C. M. Lowe	IEU/Asst Supervisor		X	
R. D. Maddox	WEU/Engg Aide		X	
M. B. McCurry	IEU/Engg Aide		X	
T. Middlebrook	IEU/Engg Aide		X	
D. W. Miller	WEU/Const Engg Assoc		X	
J. W. Moore	IEU/Const Engg Assoc		X	
D. E. Norton	IEU/Engg Aide		X	
R. W. Olson	ES/Const Engr	X	X	
B. H. Perkins	EEU/Engg Aide		X	
W. E. Smith	HEU/Const Engg Assoc		X	
R. T. Taylor	CEU/Const Engg Assoc		X	
M. J. Tippit	WEU/Const Engg Assoc		X	
V. D. Thomas	IEU/Supervisor		X	
R. J. Wallace	EEU/Const Engg Assoc		X	
J. E. Wilkins	Project Manager	X		X
F. G. Woody	WEU/Const Engg Assoc		X	

VI. DOCUMENTS REVIEWED

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

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

C. WBNP-QCP-3.11, "Inspection and Documentation of Seismically Qualified Instrumentation Supports," R5, 8/22/80

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

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

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

G. WBNP-QCP-3.3, "Installation, Inspection, and Documentation of Exposed Rigid and Flexible Conduit," R10, 3/2/81

H. WBNP-QCP-2.4, "Fabrication, Erection, and Inspection of Structural and Miscellaneous Steel," R8, 11/7/80

I. WBNP-QCP-2.12, "Protective Coatings - Inspection and Documentation," R7, 2/11/81

J. WBNP-QCI-1.10, "Preparation and Control of Quality Control Instructions, Procedures, and Tests," R5, 3/8/82

K. WBN Construction Specification N3G-881, "Identification of Structures, Systems, and Components Covered by the Watts Bar Nuclear Plant Quality Assurance Program, " R2 (SRN-N3G-881-1 and -2), 3/22/79

L. WBNP-QCI 1.11-2, "Qualification/Certification of CONST Quality Control Inspectors, R0, 3/26/82

M. Memorandum from R. W. Cantrell to J. E. Wilkins, "Watts Bar Nuclear Plant - Visual Inspection of Welds in Accordance with G-29C - Coated with Carbo Zinc," 11/2/81 (SWP 811102 056)

N. Memorandum from P. A. Schrandt to QAB Files, "Watts Bar Nuclear Plant - Visual Inspection of Welds in Accordance with G-29C - Coated with Carbo Zinc," 12/17/81 (QAS 811217 010)

O. Memorandum from R. W. Cantrell to J. E. Wilkins, "Watts Bar Nuclear Plant Units 1 and 2 - Visual Inspection of Carbo Zinc-Coated Welds in Accordance with General Construction Specification G-29C," 1/14/82 (NEB 820114 253)

TVA 64 (03-9-68)

UNITED STATES GOVERNMENT

Memorandum

TENNESSEE VALLEY AUTHORITY

GNS '82 0722 050

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

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

DATE : July 22, 1982

SUBJECT: BROWNS FERRY NUCLEAR PLANT (BFN) - NUCLEAR SAFETY REVIEW STAFF (NSRS) REPORT NO. E-82-11-BFN - ROUTINE REVIEW TO DETERMINE THE STATUS OF NSRS OPEN ITEMS

Attached is a copy of the subject report containing the status of previously identified concerns resulting from past NSRS reviews of BFN. The report indicates that considerable progress has been made toward resolution of these items. The action taken on 80 NSRS recommendations was assessed. Forty-nine of these items have been closed. The remaining 31 items should be reviewed by NUC PR in a timely manner and appropriate action taken. Many of these items have been long term concerns. A formal response describing your action to resolve the remaining open items is requested by September 1, 1982. In a number of cases, the report indicates that additional evaluation is required by NSRS. POWER response is not necessary for open items where this NSRS action is specified.

The excellent cooperation extended by your staff, both onsite and in the central office, is appreciated. If you have any questions concerning this report, contact K. W. Whitt at extension 6620.

H N Culver

H. N. Culver

LFB:LML
Attachment
cc (Attachment):
G. F. Dilworth, E12D46 C-K
MEDS, W5B63 C-K

TENNESSEE VALLEY AUTHORITY

NUCLEAR SAFETY REVIEW STAFF

REVIEW

NSRS REPORT NO. R-82-11-BFN

SUBJECT: ROUTINE REVIEW TO DETERMINE THE STATUS OF NSRS OPEN ITEMS

DATE OF REVIEW: MAY 24-28, 1982

TEAM LEADER: K. W. Whitt — KERMIT W. WHITT — 7/22/82 DATE

REVIEWERS: Leonard F. Blankner — LEONARD F. BLANKNER — 7-16-82 DATE

Paul B. Border — PAUL B. BORDER — 7/16/82 DATE

APPROVED BY: K. W. Whitt — KERMIT W. WHITT — 7/22/82 DATE

TABLE OF CONTENTS

I. SCOPE

The review was performed to evaluate the corrective action and to determine the status of implementation for the items that remained open in all the reports that had been prepared for the Browns Ferry Nuclear Plant (BFN) by NSRS prior to January 1, 1982. This effort consisted of the evaluation of the corrective action for 80 open items contained in ten NSRS standard reports and one memorandum report on a specific issue.

II. CONCLUSIONS/RECOMMENDATIONS

There were no new areas assessed during this review, and no new conclusions or recommendations resulted for presentation in this report.

III. STATUS OF PREVIOUSLY IDENTIFIED OPEN ITEMS

A. Report No. R-79-10-01, Operating Practices Where Protective System Signals Are Bypassed

1. R-79-10-01, Item IV.A Provide USQDs for Temporary Alterations

   DPM N73011 had been revised to institute USQDs for temporary alterations. This item is closed. (See section IV.A.1 for details.)

2. R-79-10-01, Item IV.C, Closure of Main Steam Tunnel Doors

   NUC PR should determine whether to maintain the main steam tunnel doors closed. This item remains open. (See section IV.A.2 for details.)

3. R-79-10-01, Item IV.G, Log In and Perform Review of Emergency TACFs

   NSRS recommends that NUC PR take prompt action to revise DPM N73011 to require that the shift engineer record commencement and termination in the shift engineer's log of emergencies requiring temporary alterations. This item remains open. (See section IV.A.3 for details.)

B. Memorandum Report on Chlorine Accident Dated December 10, 1979

1. Recommendations 1 and 2 from a Chlorine Accident Evaluation, Upgrade the Control Bay HVAC System

   NUC PR should revise DCR P2688 to reimplement the request made in DCR P2113. This item remains open. (See section IV.B.1 for details.)

C. Report No. R-80-02-BFN, NSRS Investigation of BFN-3 Containment Leakage Problem December 6-9, 1979

1. Containment Leakage Investigation, Item 3 Provide Written Procedures for Installation and Removal of Primary Containment Hatches at Nuclear Plants

Procedures have been issued or drafted for installation and removal of primary containment access hatches at TVA's four nuclear plants. This item is closed. (See section IV.C.1 for details.)

D. Unnumbered Report, Causes of Reactor Scrams on February 10, 12, and 15, and March 9, 1980

1. Recommendation III.D and III.E, Spurious Scram Inspection Report, Expedite Installation of a Transient Event Recording System to Monitor Principal RPS Trip Logic Elements

This item remains open pending a review of NUC PR's future decision regarding incorporation of RPS logic elements into the parameters monitored by replacement process computers. (See section IV.D.1 for details.)

E. Report No. R-80-10-BFN, Wire Lifts Performed on Cooling Tower Lift Pumps

1. R-80-10-BFN-04, Misuse of "Justification" on Temporary Alteration Control Forms

NSRS had determined that the action suggested by this recommendation is unnecessary. However, NUC PR should consider revision of standard practice BF 8.2 to eliminate a contradiction regarding "justification." This recommendation is rescinded. (See section IV.E.1 for details.)

2. R-80-10-BFN, Item IV.B, Add the Cooling Tower Lift Pump Temperature Trip to the Technical Specifications

Standard practice BF 8.2, "Temporary Alterations," had been revised to place adequate controls on alterations to safety-related equipment at BFN. This item is closed. (See section IV.E.2 for details.)

3. R-80-10-BFN, Item IV.C, Special Provisions for Performing USQDs by EN DES

A streamlined DCP process is being considered by NUC PR, but it has not been developed and issued. This item remains open. (See section IV.E.3 for details.)

4. R-80-10-BFN, Item IV.E, Provide Additional Documentation on TACF

This item included concerns about reference drawings and return-to-normal tests associated with temporary alterations. Further action on both parts is needed. This item remains open. (See Section IV.E.4 for details.)

5. R-80-10-BFN, Item IV.F, "Provide a Power Interrupt Circuit in the CCW Vacuum Primary System

The CCW system operating instruction (OI-27C) had been revised to prevent reversal of flow from the hot channel to the forebay due to siphon effects. This item is closed. (See section IV.E.2 for details.)

F. Report No. R-80-12-BFN, Routine Review - June 9-13, 1980

1. R-80-12-BFN-03, Reactor Water Level Instrumentation

Initial procurement actions for replacement of reactor water level transmitters LIS 3-56A and B had been completed. This item is closed. (See section IV.F.1 for details.)

2. R-81-12-BFN-04, Install Protective Enclosures for Instrument Panels

NSRS will verify implementation of ECN-0039 to install the protective enclosures for instrument panels. at BFN during 1983-84. This item remains open. (See section IV.F.2 for details.)

3. R-80-12-BFN-05, Document Details of Scram Evaluations in Scram Reports

The suggested enhancement did not appear to be necessary in practice. This item is closed. (See section IV.F.3 for details.)

4. R-80-12-BFN-06, Verify Calibration Data for Core Spray System Pressure Indicators

Reviewed data showed consistency in basis and results for calibration of core spray system pressure indicators. This item is closed. (See section IV.F.4 for details.)

5. R-80-12-BFN-08, EECW Flow Verification

A more thorough evaluation will be performed by NSRS during a future review. NUC PR had deferred scheduled improvements from the fall 1982 refueling outage on unit 2. An NSRS concern about flow to the diesel generator coolers had been resolved by plant evaluation. This item remains open. (See section IV.F.5 for details.)

G. Report No. R-80-13-BFN, Special Review of Incidents and Activities Conducted to Resolve Deficiencies in Control Rod Drive System Performance

1. R-80-13-BFN-08, Modifications to the Vents and Drains of the CRDHS

Modifications to meet the functional intent of NSRS' recommendations had been scheduled per ECN P-0392. This item is closed. (See section IV.G.1.a for details.)

2. R-80-13-BFN-09, Modification to Scram Discharge Instrument Volume

Although NSRS' concerns had been met, a followup review of performance should be conducted following installation of modifications per ECN P-0392. This item remains open. (See section IV.G.1.b for details.)

3. R-80-13-BFN-10, SDIV Level Detectors

Action by site maintenance personnel and modification pending per ECN P-0392 appeared to satisfy all aspects of NSRS' concerns. This item is closed. (See section IV.G.1.c for details.)

H. Report No. R-81-02-BFN, BFN 1-3 Special Review of Events of October 9-18, 1980, Relating to the Piping Support Failures in the Tunnels

1. R-81-02-BFN, (A) Revise the Technical Specification LCO for EECW Pump Combinations

The appropriate technical specifications had been revised. This item is closed. (See section IV.H.1 for details.)

2. R-81-02-BFN, (B), Develop a TVA Policy Regarding Loss of Safety Function

Additional evaluation on this item is required by NSRS. This item remains open. (Refer to section IV.H.2 for details.)

I. Report No. R-81-08-BFN, Management Review of POWER and H&S

1. R-81-08-BFN-1, NSRB Charter

The NSRB charter was revised to include nondestructive testing as one of various disciplines required to be within the combined expertise of the NSRB and its consultants. This item is closed. (See section IV.I.1 for details.)

2. R-81-08-BFN-2, Use of NSRB Expertise

POWER agreed that the NSRB consultants would be used to supplement any weakness in NSRB expertise when considering specific safety issues. This item is closed. (See section IV.I.2 for details.)

3. R-81-08-BFN-3, Board Methodology

This recommendation consisted of three parts. The potential conflict of interest was totally resolved by the reorganization which required the Safety Staff to report to the Deputy Manager of POWER. The questions of the most desirable way to perform the independent review function and most effective method to assure that the Board received timely information are receiving top POWER management attention and appear to be nearing a final resolution. This item is closed. (See section IV.I.3 for details.)

R-81-08-4 was also closed by this follow up (See section IV. I. 3

5. R-81-08-BFN-5, Unreviewed Safety Question Determination

The assignment of responsibility for making unreviewed safety question determinations has been made in writing at the plant through the development of an excellent standard practice. However the instructions presented in the standard practice are not in agreement with the requirements of the N-OQAM, part I, section 6.2. This item remains open. (See section IV.I.5 for details.)

6. R-81-08-BFN-6, Plant Action item Tracking System

A plant action item tracking system had been established, and the procedure duplication in this area had been reduced. This item is closed. (See section IV.I.6 for details.)

7. R-81-08-BFN-7, NUC PR Action Item Tracking System

NUC PR had established an action item tracking system to assure that externally identified deficiencies are evaluated, corrected, documented, and reported. This item is closed. (See section IV.I.7 for details.)

8. R-81-08-BFN-8, OPQA&A Staff Audit of Corrective Action Programs

Discussions with OPQA&A Staff personnel indicated that personnel shortages had precluded any significant improvements in this area. This item remains open. (See section IV.I.8 for details.)

9. R-81-08-BFN-9, Personnel Assembly and Reentry Assignments Following Potential Partial Evacuation

Additional planning had been done in this area, and the need for procedure upgrading is being evaluated. This item is closed. (See section IV.I.9 for details.)

10. R-81-08-BFN-10, NUC PR Fire Protection/Prevention Program

NUC PR had established an audit plan of the fire protection/prevention program to be used as a basis for determining the degree of upgrading needed in this area. This item is closed. (See section IV.I.10 for details.)

11. R-81-08-BFN-11, Upgrading of the QA Topical Report

POWER had proposed revisions to the topical report to NRC which addressed the NSRS concerns. This item is closed. (See section IV.I.11 for details.)

12. R-81-08-BFN-12, Plant Organizational Structure

A technical specification change had been submitted to NRC to correct plant organizational structure. This item is closed. (See section IV.I.12 for details.)

13. R-81-08-BFN-13, Turnover of Personnel

Appropriate action was being taken by TVA management to reduce the loss of operations personnel to outside organizations. This item is closed. (See section IV.I.13 for details.)

14. R-81-08-BFN-14, Upgrading of Central Office QA Procedures

The DPMs and QAM had been revised to address the NSRS procedure concerns. This item is closed. (See section IV.I.14 for details.)

15. R-81-08-BFN-15, Use of Fire Resistant Cabinets for Storage of Documents Awaiting the Microfilming Process

Fire resistant filing cabinets had been obtained and were being used to store plant documents being held in the document control center prior to being microfilmed. This item is closed. (See section IV.I.15 for details.)

16. R-81-08-BFN-16, Operating Instructions

This recommendation consisted of two parts. The first part was resolved by a revision to General Operating Instruction 100-1 to permit the Shift Engineer to make only sequence changes in the procedure without prior PORC review. The second

part dealt with the classification of emergency and abnormal conditions. Based on recent industry and regulatory efforts to reduce the number of conditions that are handled by emergency procedures, it was concluded that the designation of certain conditions, typically treated with emergency operating instructions, to be treated by abnormal operating instructions at BFN is acceptable. This item is closed. (See section IV.I.16 for details.)

17. R-81-08-BFN-17, Provide USQDs for Temporary Alterations

NUC PR should revise DPM N73011 to direct performance of USQDs when required by 10CFR50.59. This item remains open. (Refer to section IV.I.17 for details.)

18. R-81-08-BFN-18, Provide USQDs for Existing Temporary Alterations

A modified recommendation is provided for this item. This item remains open. (See section IV.I.18 for details.)

19. R-81-08-BFN-19, Independent Verification of Clearance Tags

During a future review, NSRS will review the anticipated program to independently verify placement of clearance tags. This item remains open. (Refer to section IV.I.19 for details.)

20. R-81-08-BFN-20, OPQA&A Staff Audit of Plant Operations

Discussions with OPQA&A Staff personnel indicated that personnel shortages had precluded any significant improvements in this area. This item remains open. (See section IV.I.20 for details.)

21. R-81-08-BFN-21, Upgrade OQAM Requirements for Maintenance Activities

Requirements of the N-OQAM had been upgraded. This item is closed. (See section IV.I.21 for details.)

22. R-81-08-BFN-22, Upgrade Requirements for Trouble Reports

Administrative controls had been placed in the N-OQAM and standard practices. This item is closed. (See section IV.I.22 for details.)

23. R-81-08-BFN-23, Strengthen Management Controls for Maintenance of CSSC Equipment

Controls in the N-OQAM and standard practices had been upgraded. This item is closed. (See section IV.I.23 for details.)

24. R-81-08-BFN-24, Establish and Maintain a Valid CSSC List

Development of a revised CSSC list (due January 1, 1983) and method for maintenance by EN DES and NUC PR had not been completed. This item remains open. (See section IV.I.24 for details.)

25. R-81-08-BFN-25, Improper Classification of Safety-Related Modifications

The OQAM had not been revised to prohibit LDCRs. This item remains open. (See section IV.I.25 for details.)

26. R-81-08-BFN-26, Failure to Provide USQDs for Modifications to Systems Described in the FSAR

NUC PR should revise the N-OQAM, part II, section 3.2, to direct performance of USQDs when required by 10CFR50.59 for modifications. This item remains open. (See section IV.I.26 for details.)

27. R-81-08-BFN-27, Resolution of Outstanding Local DCRs

NSRS will evaluate the implementation of administrative controls when they are completed. This item remains open. (See section IV.I.27 for details.)

28. R-81-08-BFN-28, Resolution of "Hold" Work Plans

NSRS will evaluate implementation efforts following the unit 2 refueling outage scheduled for fall 1982. This item remains open. (See section IV.I.28 for details.)

29. R-81-08-BFN-29, Provide Safety Evaluations for Electrical Modifications

Based on controls placed in the standard practices for modifications and temporary alterations, it was concluded that satisfactory actions were being taken. This item is closed. (See section IV.I.29 for details.)

30. R-81-08-BFN-30, Verify Certain Requirements Have Been Met for Work Plans

Controls in standard practice BF 8.3 had been upgraded and activities to upgrade the FSAR had been initiated. This item is closed. (See section IV.I.30 for details.)

31. R-81-08-BFN-31, Documentation of Technical Specification Compliance Determination for CCDRs

NSRS determined that adequate controls were contained in DPM N73A14. This item is rescinded and closed. (See section IV.I.31 for details.)

32. R-81-08-BFN-32, Control of Proposed Revisions to Technical Specifications in Regard to CCDCRs

Adequate controls were provided in the N-OQAM and DPM. This item is closed. (See section IV.I.32 for details.)

33. R-81-08-BFN-33, Cancellation of ECNs

A future assessment of evaluation of ECNs and DCRs for cancellation will be made by NSRS. This item remains open. (See section IV.I.33 for details.)

34. R-81-08-BFN-34, Closure of ECNs

NSRS concluded that this concern should be addressed by EN DES as directed in the EPs. This item is closed with NUC PR. (See section IV.I.34 for details.)

35. R-81-08-BFN-35, Verify Safety of Partially Completed Work Plans

NUC PR should provide controls for "Hold" work plans. It is NSRS'position that "Hold" work plans should be addressed in the OQAM and standard practice with satisfaction of safety requirements specified in a documented fashion. This item remains open. (See section IV.I.35 for details.)

36. R-81-08-BFN-36, Plant Corrective Action System

Plant personnel had initiated actions to improve the timeliness of corrective actions for identified deficiencies. This item is closed. (See section IV.I.36 for details.)

37. R-81-08-BFN-37, Discontent Within Plant QA Staff

A number of actions had been initiated and were being continued which appeared to have signficantly improved the morale and general disposition of the plant QA personnel. This item is closed. (See section IV.I.37 for details.)

38. R-81-08-BFN-38, Requirements and Commitments Matrix

A firm commitment to prepare a requirements and commitments matrix appeared to have been made by NUC PR and a good deal of work had been done in the preparation stage. However, a considerable amount of work remains before the matrix becomes functional. This item remains open. (See section IV.I.38 for details.)

39. R-81-08-BFN-39, Management Position Accountable for QA and Line Functions

POWER initiated an organization change which required both the QA Manager and the Director of NUC PR to report to the Deputy Manager of POWER. This item is closed. (See section IV.I.39 for details.)

40. R-81-08-BFN-40, QA Concurrence with Line Procedures

The establishment of the Corporate QA Staff served to remove this concern from POWER. Since one of the primany reasons for the establishment of the Corporate QA Staff was to gain greater independence, it is assumed that the requirement for QA to approve line procedures will be removed from the QA Topical Report. This item is closed. (See section IV.I.40 for details.)

41. R-81-08-BFN-41, Evaluation of Need for Additional Personnel Resources Within the OPQA&A Staff

The condition identified by the management review and discussed in the sixth paragraph of section VII.K.3.a of NSRS Report No. R-81-08-BFN had not been signficantly improved. This item remains open. (See section IV.I.41 for details.)

42. R-81-08-BFN-42, Potential Conflict of Interest Associated with QA Staff

POWER initiated a reorganization which required the OPQA&A Staff to report to the Deputy Manager of POWER. This resolved the NSRS concern about a potential conflict of interest. This item is closed. (See section IV.I.42 for details.)

43. R-81-08-BFN-43, Radiation Protection

No review was made at this time. Ongoing efforts to resolve the concern were in process separate from this BFN review."

44. R-81-08-BFN-44, Radiation Protection

No review was made at this time. Ongoing efforts to resolve the concern were in process separate from this BFN review.

45. R-81-08-BFN-45, Radiation Protection

No review was made at this time. Ongoing efforts to resolve the concern were in process separate from this BFN review.

46. R-81-08-BFN-46, Radiation Protection

No review was made at this time. Ongoing efforts to resolve the concern were in process separate from this BFN review.

47. R-81-08-BFN-47, Radiation Protection

No review was made at this time. Ongoing efforts to resolve the concern were in process separate from this BFN review.

48. R-81-08-BFN-48, Radiation Protection

No review was made at this time. Ongoing efforts to resolve the concern were in process separate from this BFN review.

49. R-81-08-BFN-49, Quality Control of Dosimetry

A quality control system had been established by the plant to assure dosimeter issuance, reading, and recording are accomplished in accordance with established procedures. This is in agreement with the NSRS recommendation. This item is closed. (See section IV.I.49 for details.)

50. R-18-08-BFN-50, Radiation Protection

No review was made at this time. Ongoing efforts to resolve the concern were in process separate from this BFN review.

51. R-81-08-BFN-51, Reduction of Consequences of Contaminated Water Leaks

A number of actions had been taken to reduce the spread of contamination due to contaminated water. Additional actions were in various stages of planning and implementation. This item is closed. (See section IV.I.51 for details.)

52. R-81-08-BFN-52, Radiation Waste

No review was made at this time. Ongoing efforts to resolve the concern were in process separate from this BFN review.

53. R-81-08-BFN-53, Radiation Waste

No review was made at this time. Ongoing efforts to resolve the concern were in process separate from this BFN review.

54. R-81-08-BFN-54, Radioactive Material Shipping Cask Trailer Weld Cracks

The frequency of weld crack identification on the trailers had greatly declined. No cracks had been identified during the past year. NUC PR agreed to continue the inspection program and to reconsider the performance of nondestructive testing of the trailer welds if frequency of weld cracks significantly increased. This item is closed. (See section IV.I.54 for details.)

55. R-81-08-BFN-55, Upgrade the Drawing Status System

NSRS found that NUC PR was maintaining its own computerized drawing status data base and that development of a comprehensive drawing status data base for use by both EN DES and NUC PR had been initiated. However, EN DES was not utilizing a status listing of as-constructed drawings as part of the configuration control program for BFN. A reexamination will be made during a pending review of modification activities. This item remains open. (See section IV.I.55 for details.)

56. R-81-08-BFN-56, Incorporate Configruation Control in Vendor Drawings and Manuals

Adequate administrative controls had been provided for configuration control in vendor drawings and manuals. This item is closed. (See section IV.I.56 for details.)

J. Report No. R-81-10-BFN, Routine Review of BFN Operational Activities

1. R-81-10-BFN-01, Management Control of Clearances and Temporary Alterations

The BFN plant staff appears to have taken appropriate action to ensure that adequate training and/or retraining is provided when GET source documents are signficantly changed or when circumstances indicate the need. This item is closed. (See section IV.J.1 for details.)

2. R-81-10-BFN, Item IV.A.1, Provide a Reliable Power Supply for the Card Key System

Satisfactory improvements to provide a fully reliable power supply for the card key system at BFN had been made. This item is closed. (See section IV.J.2 for details.)

K. Report R-81-17-BFN, Routine Review of BFN Operational Activities in the Area of Plant Modifications

1. R-81-17-BFN-01, Division and Plant Procedure Compliance with the OP-QAP

NUC PR had agreed to revise the OQAM and/or OP-QAP, but no action had been taken nor had plant standard practice BF 8.3 been revised. This item remains open. (See section IV.K.1 for details.)

2. R-81-17-BFN-02, Inadequate Management Control of Plant Modifications Work

This item was an expression of concern by NSRS in the area of management control of modification activities which are also covered in other items in this report and is considered closed as other report items will address the NSRS concern. This item is closed. (See section IV.K.2 for details.)

3. R-81-17-BFN-03, Review of Proposed Modifications for Radiation Exposure Inpact

It appeared that this review was being performed but there was not a NUC PR document which implemented OP-QAP 3.1 requirements. This item remains open. (See section IV.K.3 for details.)

4. R-81-17-BFN-04, Post Modification Testing and Instruction Revisions

The BFN plant standard practice had been revised to require post modification testing requirements to be written and provided in the work package prior to the review/approval cycle when practical. This item is closed. (See section IV.K.4 for details.)

5. R-81-17-BFN-05, Work Plan Document Control

Further review and evaluation of the item reaffirms the NSRS position that the work plans for plant modification should become controlled documents at the time of approval and issue. This item remains open. (See section IV.K.5 for details.)

6. R-81-17-BFN-06, Establishment of a Time Frame for Completion of Implemented Modification Paperwork

This was considered by NSRS to be an enhancement. NUC PR had indicated in their response that the BFN plant standard practice BF 8.3 would be reviewed for possible revision to require a time limit on completing the documentation on field implemented modifications. This item is closed. (See section IV.K.6 for details.)

7. R-81-17-BFN-07, Table of Contents for Work Packages

The NSRS recommended as an enhancement that a table of contents or checklist type cover sheet be provided for each work plan package to ensure it remained intact, but after further review and discussion with Field Services personnel, NSRS considers the present document control sheet adequate. This item is closed. (See section IV.K.7 for details.)

8. R-81-17-BFN-08, Compliance with ANSI 18.7-1976

Browns Ferry standard practice BF 2.3, form BF 5, had been revised to ensure compliance with ANSI N18.7-1976 in the area of nonintent procedure changes. This item is closed. (See section IV.K.8 for details.)

9. R-81-17-BFN-09, CSSC Alignment Status

Browns Ferry standard practices BF 12.5 and 12.7 had been revised to allow some latitude for maintaining CSSC system alignment during outages. This item is closed. (See section IV.K.9 for details.)

10. R-81-17-BFN-10, Field Services Errors Generating Corrective Action Reports

It did not appear that adequate information was available to indicate that this problem had been resolved. This item remains open. (See section IV.K.10 for details.)

11. R-81-17-BFN-11, Operator Training on Plant Modifications

The plant training shift engineer had taken action to prepare acceptable methods of presenting and documenting training on plant modifications. This item is closed. (See section IV.K.11 for details.)

IV. DETAILS

A. Report No. R-79-10-01, Operating Practices Where Protective System Signals Are Bypassed

1. R-79-10-01, Item IV.A, Provided USQDs for Temporary Alterations

The following discussion is addressed to concerns R-80-10-BFN-04 and R-81-08-BFN-17 as well as the subject above. NSRS had expressed concern that the requirements of 10CFR50.59 were not being met for temporary alterations. In R-79-10-01, Item IV.A, and R-81-08-BFN-17, NSRS had recommended that an unreviewed safety question determination (USQD) be performed as applicable and in R-80-10-BFN-04, that a determination be made whether technical specifications would be complied with (hereafter called "compliance determination").

NSRS found that both concerns had been addressed at the site in standard practice BF 8.2 (revised May 14, 1982), "Temporary Alterations," and BF 17.18 (issued May 14, 1982), "Unreviewed Safety Question Determination."

a. USQDs

BF 8.2 required that USQDs be performed, reviewed (by PORC), and approved (by the plant superintendent) under normal conditions prior to use on any operable equipment. (This exceeds the requirements of 10CFR50.59.) For TACFs placed during emergency conditions, the STA was directed to initiate and complete (if possible) a USQD to be reviewed by PORC on the next work day and transmitted to NSRB within one work week. Standard practice BF 17.18 provided a procedure for performance of USQDs. The reviewer verified on applicable outstanding TACFs that implementation of USQDs with review and approval was being conducted adequately. This appeared to address the NSRS' concerns regarding USQDs adequately.

b. Compliance Determination

BF 8.2 stated that compliance determination was always required for TACFs on operable equipment. The shift engineer, PORC, and plant superintendent were required to review TACFs prior to implementation, or promptly afterward, in case of emergency.

Since the shift engineer (two SROs under emergency conditions) who authorizes TACFs is always responsible for compliance with the technical specifications, it was accepted by NSRS that compliance determinations were being made and reviewed.

NSRS noted that contradictory requirements existed in BF 8.2; The definition of "justification" did not match the instructions provided for data entry on the TACF. No data was called for (or being provided) on TACFs to document "justification" under the definition provided:

> Justification - Justification as it applies to this procedure is the supporting reasons and opinions given by qualified reviewers that the proposed alteration will not adversely affect plant safety by violation of technical specifications.

Instead, shift engineers were providing information as to purpose, which agreed with the instructions for completing the TACFs:

> Justification - A general statement of the purpose and need for the temporary alteration.

NSRS felt that documentation of compliance determination should be addressed either by revision of the TACF instructions or by revision of the definition of "justification" in BF 8.2.

Review of DPM N73011 (revised December 8, 1981), "Control of Temporary Alterations," disclosed requirements that paralled BF 8.2, except that need for a USQD was required for CSSC and other safety-related (i.e., non-CSSC but could affect CSSC adversely) equipment. This basis did not agree literally with "the facility as described" in the FSAR per 10CFR50.59 as the determinant for a USQD.

NSRS concluded that its concerns had been addressed with results as follows:

10CFR50.59 Requirement	Site Document BF 8.2	NUC PR Directive (DPM N73011)
Determine need for a USQD	Exeeds requirements of CFR	Inadequate (1)
Perform and Document a USQD	Adequate	Adequate
Perform and Document Compliance Determination	Concern rescinded by NSRS (Not applicable to BF 8.2 if definition of "justification" is revised)	Not Applicable

(1) Use of CSSC and other safety-related equipment instead of "the facility as described" in the FSAR was not in agreement with 10CFR50.59.

NSRS recommendation R-79-10-01, Item IV.A, having been satisfied by revision to DPM N73011, is closed. R-81-08-BFN-17 remains open. NUC PR should revise DPM N73011 (see footnote to the table above). Recommendation R-80-10-BFN-04 is rescinded and closed out, although a correction to BF 8 2 should be considered to resolve a contradiction.

2. R-79-10-01, Item IV.C, Closure of Main Steam Tunnel Doors

This discussion addresses R-80-12-BFN-01 in addition to the captioned concern. NSRS had expressed concern on three occasions that operation with the main steam tunnel doors open for ventilation purposes violated the safety design basis to prevent release of steam into the reactor zone in event of a high energy line

break in the steam line tunnel. The review consisted of inspection of door positions and a discussion with plant management personnel.

It was determined during a walk through that not all main steam tunnel doors were closed. However, plant management personnel felt that door closure probably could be effected on a continuous basis and agreed that the situation should be evaluated and resolved. NSRS concern R-79-10-BFN-01, item IV.C, remains open pending an evaluation and resolution by NUC PR of the open doors. Item R-80-12-BFN-01, which duplicated the initial concern, is closed.

3. R-79-10-01, Item IV.G, Log in and Review Emergency TACFs

NSRS had recommended that NUC PR establish a requirement that emergency TACFs be recorded in the shift engineer's log and submitted promptly to PORC for review. The reviewer determined that this recommendation had been incorporated into standard practice BF 8.2 and was being implemented as verified by entries in the TACF log. However, NUC PR has not revised DPM N73011 to require the shift engineer "log initiation and termination of each declared emergency" as recommended in October 1979 and reiterated in August 1981 (in NSRS report R-81-17-BFN). No requirement could be located in any DPM procedure in regard to log entries concerning emergencies. NSRS believes that NUC PR should revise DPM N73011 to require the logging of emergencies when safety in plant operations requires an emergency TACF. This item remains open.

B. Memorandum Report on Chlorine Accident Dated December 10, 1979

1. Recommendations 1 and 2 from a Chlorine Accident Evaluation, Upgrade the Control Bay HVAC System

In the evaluation referenced above, NSRS had recommended that modifications be considered to upgrade the control bay heating, ventilation, and air conditioning (HVAC) system as follows:

(1) Provide automatic sensing and isolation features equivalent to those provided the TVA-designed PWR plants, and

(2) Evaluate the feasibility and cost of providing an emergency air cleanup mode of operation . . . to be installed as soon as practical

NSRS' safety concerns were based on (1) lack of an automatically activated means to protect the control bay operator and equipment from entry of smoke,

heat (steam), or chlorine via the control bay HVAC intake as well as (2) inability to recirculate and clean-up the control bay atmosphere internally if contaminated.

The review consisted of discussions with site and NCO personnel in NUC PR, with EN DES personnel, and examination of applicable documents.

NUC PR had attempted to implement the two NSRS recommendations via DCR P2113, which had been recently cancelled and superseded by a proposed DCR (P2688).

The supersession occurred due to a mixup in communications. EN DES had committed to installation of chlorine sensors in response to an NRC-imposed habitability study of the control bay. Although recirculation and cleanup of the control bay atmosphere had not been studied, the resultant commitment was used as basis for superseding the original DCR (P2113) with a pared down request (P2683) for installation of chlorine sensors alone. However, EN DES had followed up the cancellation of DCR P2113 with an endorsement of NSRS' original recommendations.

Since a cost and feasibility study has not yet been performed for NSRS' recommendation (2) and due to the critical importance to safety of the control bay operator and equipment, NSRS recommends that NUC PR revise DCR P2688 to address recommendations (1) and (2) as originally proposed by NSRS.

C. Report No. R-80-02-BFN, NSRS Investigation of BFN-3 Containment Leakage Problem - December 6-9, 1979

1. Containment Leakage Investigation, Item 3 - Provide Written Procedures for Installation and Removal of Primary Containment Hatches at Nuclear Plants

In its report (reference VI.O) dated January 1, 1980, in regard to an investigation of a primary containment leakage incident at BFN, NSRS had recommended that NUC PR should provide written procedures for installation and removal of primary containment hatches at SQN and subsequent plants. The intent of this recommendation was to avert recurrence of an incident at BFN for which a substantial civil penalty was imposed. In August 1981, NSRS recommended in a followup report (R-81-17-BFN) that this enhancement be made a requirement of the DPM. The review consisted of discussions with NCO personnel and examination of appropriate documentation. NSRS verified that procedures for sealing equipment hatches had been approved

or drafted for each nuclear site as stated in reference VI.X.5. Examination of MMIs 95 (BFN) and 6.16 (SQN) showed acceptable provisions for handling of equipment access hatches to primary containment. This item is closed.

D. Unnumbered NSRS Report dated April 30, 1980, Causes of Reactor Scrams on February 10, 12, and 15, and March 9, 1980

1. Recommendations III.D and III.E from Spurious Scram Inspection, Expedite Installation of a Transient Event Recording System to Monitor Principal RPS Trip Logic Elements

NSRS had recommended in the referenced report that NUC PR expedite development and installation of a computerized transient event recording system (III.D) and expand plant recording facilities to monitor all principal RPS trip logic components individually (III.E). NUC PR had informed NSRS that the computer system to be installed per III.D would also satisfy the requirements for III.E.

NSRS had been concerned that half the RPS scram relays were not monitroed by any recording system. Without specific recorded data, reconstruction of events leading to partial insertion of rods (as had occurred several times at BFN) could be difficult, if not impossible. Thus, operation of a reactor might continue or be resumed without correction of a significant deficiency.

The review consisted of discussions with site and NCR personnel plus examination of computer input specifications.

It was determined that the plant had implemented a two-phased development of transient recording capabilities that could meet the intent of the NSRS recommendations. The real time diagnostic test system (RTDTS), a portable transient recorder, was in place at BFN. Although this system was provided to monitor refueling test parameters, not including RPS trip logic elements, the reviewer was informed by NCO personnel that RTDTS could be connected to monitor RPS logic components.

NSRS determined that a computerized, expanded transient recording capability was to be implemented during replacement of the plant's process computers per DCR P2491, "Process Computer System." This DCR was scheduled for implementation beginning with the Unit 1 cycle 5 refueling outage. NCO personnel informed the reviewer that the incorporation of inputs to monitor RPS trip elements would be considered following approval of the computer purchase authorization, which had been submitted for approval to the TVA Board of Directors.

NSRS concluded that concerns III.D and III.E had been tentatively addressed by NUC PR. This item remains open pending review of NUC PR's future decision regarding incorporation of RPS logic elements into the parameters monitored by replacement process computers.

E. Report No. R-80-10-BFN, Wire Lifts Performed on Cooling Tower Lift Pumps

1. R-80-10-BFN-04, Misuse of "Justification" on Temporary Alteration Control Forms

Details are discussed under R-79-10-01, Item IV.A (see section IV.A.1). This enhancement recommendation is rescinded as unnecessary. NUC PR should eliminate a contradiction in BF 8.2 regarding "Justification."

2. R-80-10-BFN, Item IV.B, Add the Cooling Tower Lift Pump Temperature Trip to the Technical Specifications

This discussion addresses recommendation 80-10-BFN, Item IV.F, "Provide a Power Interrupt Circuit in the CCW Vacuum Priming System," as well as the captioned concern. These concerns were identified as requirements based on safety considerations addressed in the FSAR. The review consisted of discussions with NCO and EN DES personnel plus examination of applicable correspondence and documents. Final disposition of these concerns was being held up pending resubmittal to EN DES of a P-DCR requesting a cost estimate for modification of cooling tower controls logic. A preliminary estimate had been rejected because of excessive cost.

At EN DES' recommendation, NUC PR had incorporated a precaution in the operating instruction (OI-27C) for the cooling towers. This precaution required the operator to maintain hot water channel level less than or equal to forebay level to prevent reverse flow by siphon effects in event of failure of the CCW pumps and isolation valves under certain accident scenarios.

The cooling tower lift pump temperature trips were being improved by installation of temperature averaging logic with improved shielding against solar heat interference (ECN P-0459).

NSRS was informed by NCO personnel that progress on these concerns would move slowly due to necessary delays in preparing cooling tower control logic modifications.

NSRS concluded that reversal of CCW flow from the hot channel to the forebay would be prevented if the level control precaution was being satisfied. Concern R-80-10-BFN, item IV.F, is closed.

Since standard practice BF 8.2 had been revised to require a USQD prior to temporary alteration of safety functions, such as cooling tower lift pump trips, concern R-80-10-BFN, item IV.B, is closed. However, a followup review of this subject should be made at a future date.

3. R-80-10-BFN, Item IV.C, Special Provisions for Performing USQDs by EN DES

Concerned that EN DES had not been requested to provide a formal USQD when safety-related automatic trips were disabled on the BFN cooling towers, NSRS had recommended as an enhancement that NUC PR provide a mechanism for PORC or NUC Pr to obtain a USQD from EN DES promptly upon verbal request. Such request was to be followed up by a written request within 24 hours. The review consisted of discussions with site and NCO personnel plus examination of applicable administrative controls. The existing administrative controls in DPM N73011, "Control of Temporary Alterations," (revised December 8, 1981) and the N-OQAM, Part II, Section 3.2, "Plant Modifications: After Licensing," (revised July 22, 1980) did not permit an accelerated process for obtaining a USQD. The reviewer was informed by an NCO management representative that a streamlined process for DCRs was being considered for implementation as a result of an INPO finding at BFN. The special procedure would permit the plant site to bypass NCO approvals when in exceptional need.

This item remains open pending issue of the streamlined DCR process under consideration by NUC PR.

4. R-80-10-BFN, Item IV.E, Provide Additional Documentation on TACF

NSRS had recommended as a needed enhancement that the TACF (form TVA 6266) be revised to:

a. Provide reference drawing numbers, and

b. Specify tests to verify return-to-normal conditions for temporarily altered equipment being restored to service.

While this was an "enhancement," NSRS felt that a potentially serious impact could be felt on plant operation due to lack of drawing references or from lack of assurance that return-to-normal tests were identified and documented.

Review of administrative documents indicated that both recommendations had been considered. The NCO had placed both enhancements in DPM N73011, "Control of Temporary Alternative" (revised December 8, 1981). However, the TACF form (TVA 6266) had not been modified to indicate to users the additional data requirements. Standard practice BF 8.2, "Temporary Alterations," (revised May 14, 1982) had been revised to require documentation of reference drawings on the TACF form. However, plant management stated that return-to-normal tests were being documented in the shift engineer's log rather than on the form. (NSRS felt that this was an acceptable alternative although it was in conflict with the DPM.)

In regard to field use, NSRS found that only one of nine outstanding TACFs issued in 1982 contained the required reference drawing information. Although this represented a failure to follow procedures, it appeared that the fault lay more in an improper data format than in personnel error. A contributing element may have been that the plant had not completed training in the standard practice BF 8.2 as revised in May 1982.

NSRS concluded that faulty implementation had been performed for concern R-80-10-BFN, Item IV.E. The TACF (TVA 6266) should be revised to identify clearly on the form the need for reference drawing information. In regard to return-to-normal testing, standard practice BF 8.2 and DPM N73011 should be made to agree either by adding the requirement to BF 8.2 or deleting it from DPM N73011. This item remains open.

5. R-80-10-BFN, Item IV.F, Provide a Power Interrupt Circuit in the CCW Vacuum Priming System

This item was closed as discussed under concern R-80-10-BFN, Item IV.B. (See section IV.E.2.)

F. Report No. R-80-12-BFN, Routine Review - June 3-9, 1980

1. R-81-12-BFN-03, Reactor Water Level Instrumentation

NSRS had recommended expedited efforts to install analog trip system components to replace reactor water level switches LIS 3-56A and B, whose deficiencies had resulted in several LERs in the early part of 1980. The review involved verifying status of the replacement effort with EN DES personnel. It was determined that a contract for replacement transmitters had been recently let and that procurement of components was being expedited for installation in the CRD system at BFN-2 during the fall of 1982 refueling outage. Replacement of reactor water

level switches would occur later when equipment became available.

This item is closed based on completion of initial efforts to procure replacement equipment for reactor water level transmitters LIS-3-56A and B.

2. R-80-12-BFN-04, Install Protective Enclosures for Instrument Panels

NSRS had recommended that NUC PR install protective enclosures around certain instrument panels having sensitive instrumentation. This concern was based on repeated trips on BFN-2 in 1980 which could have been initiated by unidentified personnel. The review consisted of discussions of work status with site personnel. NSRS found that this recommendatin was to be implemented via ECN P-0039, which was scheduled for work on all units at BFN in 1983-84. Design work had been placed on the 18-month priority schedule.

This item remains open pending verification of completion at a future date.

3. R-80-12-BFN-05, Document Details of Evaluations in Scram Reports

NSRS had recommended that NUC PR provide more details concerning the analysis of charts and printouts, thereby showing how the course of the scram was determined. The review consisted of examination of applicable administrative controls and several recent scram reports. NSRS concluded that the necessity for this enhancement had not been demonstrated in practice. This item is closed.

4. R-80-12-BFN-06, Verify Calibration Data for Core Spray System Pressure Indicators

NSRS had maintained this item open pending a review of calibration data for the pressure indicators used to evaluate core spray pump performance. The concern had been expressed that differences observed in pump performance characteristics might be related to calibration practices. The review consisted of examination of instrument calibration data and review of calibration procedures.

Following review of calibration instructions and recorded data for core spray system pressure indicators/transmitters 75-4, 13, 20, 32, 41, and 46, NSRS concluded that reference data and results of calibrations showed variation that could contribute to pump performance variations commented on previously. This item is closed.

5. R-80-12-BFN-08, EECW Flow Verification

NSRS had identified EECW flow deficiencies as an item of continuing and considerable safety concern. NUC PR's considerable efforts to mitigate and develop measures to correct the conditions causing low flow rates to EECW components had been noted previously. A concern that flow rates were being set at half the design requirements for the emergency diesel coolers had been expressed. The review consisted of discussions with site personnel.

The reviewer was told that modifications to implement immediate improvements to the EECW system in unit 2 had been deferred from the fall of 1982 outage agenda due to higher priority commitments to the NRC. These modifications (ECNs L1970 and P0083) had been very desirable to upgrade flow performance as well as to reduce exposure and man-hour requirements imposed by accelerated testing (once per 6 weeks, 2 days per test) required to maintain system performance at an acceptable level. While implementation of the ECNs would have been highly desirable, it was believed that the EECW system could be maintained at an acceptable level of performance by performing frequent verification tests and adjustments.

The reviewer was told that the plant staff had verified informally that design flow (≥400 gpm) had been verified to the worst case diesel generators with two RHRSW pumps providing flow from a single header as in an accident scenario.

NSRS concluded that the EECW flow concern was being addressed acceptably based on the information received. However, this concern should be reviewed on a more comprehensive basis by NSRS at the next opportunity. Concern R-80-12-BFN-08 remains open for further review.

G. Report No R-80-13-BFN, Special Review of Incidents and Activities Conducted to Resolve Deficiencies in Control Rod Drive System Performance

1. R-80-13-BFN-08, -09, and-10, Modifications to the CRW and CRD Systems

In June 1980, BFN-3 experienced a partial scram incident in which 75 control rods failed to insert fully during a manual scram, apparently due to accumulated water in the east bank scram discharge volume (SDV). NSRS had recommended a number of design changes to the CRW and CRD systems following a review of this incident. The review conducted for this report consisted of examination of design documents and correspondence plus discussions with EN DES and NUC PR personnel.

In response to NUC PR's DCR P-2201, "Perform modifications as determined necessary by Nuclear Power and EN DES from evaluations and analyses of the CRD operational problems which occurred on June 28, 1980 on unit 3," EN DES had issued ECN P-0392 to implement the major elements of needed modifications. While some changes had been implemented by other ECNs, ECN P-0392 provided the general remedy to the CRD system's deficiencies. This ECN was scheduled for implementation during the fall of 1982 refueling outage on BFN-2, to be installed progressively on the other units.

Details of the review findings as related to NSRS' original recommendations are discussed in the order presented below.

a. R-81-13-BFN-08, Modifications to the Vents and Drains of the CRDHs

NSRS had recommended that NUC PR modify the vent and drain connections of the control rod drive hydraulic system (CRDHS) to reduce the probability of recurrence of an incident of incomplete CRD insertion at BFN. The recommendations and review findings were as follows:

1. Disconnect each SDH vent line from the CRW system and provide a positive vent to atmosphere.

In ECN P-0392, EN DES had neither disconnected the discharge header (SDH) vent line from the CRW system nor provided a positive vent to atmosphere. However, the SDH vent path had been modified as follows. A 4 inch CRW standpipe had been extended vertically upward from the 565 foot (floor) elevation to a terminus well above the SDH. This riser terminated in a vacuum breaker rated to open at a maximum dp of 0.2 psid. The CRD vent line, which had been routed from the SDH to this riser, had been configured to avoid loops that could act as loop seals.

Vent isolation valves had been selected that ensured no loop seal effect in the valve body.

Since NUC PR had experienced considerable difficulty with contamination releases from SDH positive vents and because of overall SDV improvements discussed here, it was concluded that the intent of NSRS' recommendation had been met.

2. Cross-connect the SDH vent lines inboard of the vent valves.

   A 1-inch vent line cross-connect had been added to the SDH satisfying NSRS' concern.

3. Provide an atmospheric sump tank for collection of SDIV drains.

   See 4 below for details.

4. Disconnect the SDIV drain from the CRW system and provide a positive drain path (downstream of the drain valve) to the atmospheric sump tank.

   EN DES had determined that the CRW system and reactor building equipment drain tank (RBEDT) would continue to serve as the ultimate vent and drain point for the CRD SDV. The RBEDT is intended to be an atmospheric sump tank. The basis of NSRS' recommendations had been concerns that back-pressurization of the SDV might occur due either to steam pressurization from other drains or a differential occurring due to blockage occurring between the SDV vent and drain taps. Adverse effects of such steaming had been noted on BFN-1, although no significant effect on scram function had occurred. Due to overall improvements in drainage and level monitoring capabilities to be installed under ECN P-0392, and due to reduced concern in regard to the risk of adverse effects due to steaming or flow blockage in the CRW system, NSRS determined that recommendations 3 and 4 should be voided.

In conclusion, concern R-80-13-BFN-08 had been tentatively satisfied. This item is closed.

b. R-80-13-BFN-09, Modification to Scram Discharge Instrument Volume

NSRS had recommended that NUC PR should (1) modify the SDHs by installing identical instrumented volume tanks as a direct attachment on both east and west SDHs and (2) consider a means to monitor leakage rate into the SDH by monitoring fill rate of either the SDIV or the atmospheric sump tank proposed in recommendation R-80-13-BFN-08.

In ECN P-0392, EN DES had provided identical SDIVs for both SDHs on each unit. The SDIVs were connected

to the SDHs by sloped lines of a diameter equal to that of the SDHs. This met the intent of part 1 of the NSRS recommendation.

In an amendment to the BRN technical specifications (reference VI.W.3) dated May 19, 1982, the NRC had permitted infrequent closure of the SDIV vent and drain valves for testing purposes (section 4.5.F.1.a). This permitted NUC PR to monitor for excessive leakage if desired. However, NSRS did not determine what conditions of monitoring the SDH leakage rate or the operating conditions of CRW were being employed by NUC PR. While part 2 of the recommendation could be met, a review of this concern should be made at a future date.

In conclusion, part 1 of the recommendation was satisfied and part 2 could be satisfied. This concern remains open pending a future review of operating practices and conditions regarding the CRD-SDV and CRW systems.

c. R-80-13-BFN-10, SDIV Level Detectors

NSRS had made four recommendations discussed as follows:

(1) NSRS recommended that NUC PR continue a flush program for the SDIV level switches, which were susceptible to impaired operation due to corrosion fines. It was confirmed that this flush program had been continued per SI 4.1.A.8, "Reactor Protection System: High Water Level in Scram Discharge Tank," which required flushes at least monthly. This concern is closed.

(2) It was recommended that qualified differential pressure transmitters should be substituted for the present level switches. This had been done per ECN P-0392. EN DES had substituted differential pressure level detectors for two of the four float-type level switches in use on each SDIV. This change was made to provide diversity to protect against common mode failure. Magnetrol float switches were to be substituted for the other pair of level detectors on each SDIV. This concern is closed.

(3) It was recommended that the sensing arrangement for SDIV level detectors be attached directly to the SDIV. Per ECN P-0392, this had been done. This concern is closed.

(4) It was recommended that a diverse, highly reliable and repeatable means be provided to monitor for accumulation of water in the SDIV. A UT monitoring system was suggested as a replacement for the float-type level switches which had become fouled at times by corrosion fines. Per ECN P-0392, highly qualified, diverse, and redundant level detectors were to be substituted for the four float switches on each SDIV. The 3-gallon and 25-gallon functions were to be performed as an auxiliary function of the two differential pressure-type transmitters which principally provided a scram trip signal.

In conclusion, NSRS' concerns have been addressed satisfactorily by plant practices or tentatively by ECN P-0392. This concern is closed.

H. Report No. R-81-02-BFN, BFN 1-3, Special Review of Events of October 9-18, 1980 Relating to the Piping Support Failures in the Tunnels

1. R-81-02-BFN(A), Revise the Technical Specifications LCO for EECW Pump Combinations

NSRS had recommended that interim administrative measures be taken for conservative operation and the technical specifications Limiting Condition for Operation (LCO) for EECW pump combinations be revised to meet limits justified by data from preoperational tests. NUC PR had responded that the plant was currently being operated conservatively, that a more conservative LCO had been submitted in 1976 but had not yet received NRC's approval, and that additional tests and engineering evaluations would be performed to define conclusively EECW needs for BFN under accident conditions. The review consisted of discussions with site and NCO personnel plus examination of applicable documents.

It was determined that a conservative LCO dated August 6, 1981 had been entered into the BFN technical specifications. Furthermore, NUC PR had drafted STEAR 8103/Special Test 198, "Verification of Minimum EECW Flows on Loss of RCW" for use to obtain operational data in support of an engineering evaluation to determine actual EECW pump requirements.

NSRS concluded that the technical specification LCO for EECW pump combinations was conservative and that appropriate actions had been initiated to determine actual EECW needs. This item of concern is closed.

2. R-81-02-BFN(B), Develop a TVA Policy Regarding Loss of Safety Function

In followup to NSRS report R-81-02-BFN, NSRS recommended to the General Manager (reference VI.O) that TVA develop and implement a policy regarding operation of nuclear plants under degraded conditions involving partial or total loss of a required safety function during plant operations. Comments on NSRS' proposed policy statement were returned from NUC PR and OEDC. NSRS has currently held up further action on this concern pending reorganization of the QA and nuclear safety review staff functions within TVA. This item remains open pending NSRS action.

I. Report No. R-81-08-BFN, Management Review of POWER and H&S

1. R-81-08-BFN-1, NSRB Charter

The NSRB Charter did not specify nondestructive testing as one of the disciplines that make up the combined expertise of the Board as required by ANSI N18.7-1976. In the respone to the recommendation, POWER committed to include this discipline in the Charter. Revision 8 of the Charter implemented the commitment. This item is closed.

2. R-81-08-BFN-2, Use of NSRB Expertise

Based on a review of the resumes of the NSRB membership, NSRS concluded that weaknesses appeared to exist in four discipline areas. It was also concluded that TVA personnel assigned to work with the NSRB as consultants appeared to satisfy the combined expertise requirements of ANSI N18.7-1976. The effective use of the consultants would, therefore, compensate for the weaknesses of the permanent Board membership. The POWER response took exception to the NSRS conclusion that the Board membership was weak in the area of plant operations and nondestructive testing. Based on the information presented in the response, we concur that sufficient expertise exists in the area of nondestructive testing. Since POWER management has evaluated the apparent Board weakness in the area of plant operations and determined the experience and expertise to be fully adequate to satisfy the requirements and to effectively perform the review function, and since the response committed to the use of consultants as needed, NSRS considers this item resolved.

3. R-81-08-BFN-3, Board Methodology

This recommendation consisted of three parts. A discussion of each part follows.

a. Determine the most effective method for TVA to utilize in performing its independent review function--an evaluation by the POWER Nuclear Safety Staff of the independent review function had been completed and a report had been submitted to the Manager of POWER. Top management within POWER had spent a considerable amount of time on this issue, and was continuing to work on the various questions and problems associated with it. A large spectrum of possible review methods were being considered. These ranged from a full time independent review organization to handle all aspects of the review function totally independent of the line organization to a committee made up of top management personnel totally within NUC PR. The considerations also included various combinations between these two bounding limits. Since upper management was actively involved and since any of the methods being considered appeared to satisfy the regulatory requirements, NSRS believes that the purpose of this open item had been satisfied. This item is closed.

b. Determine the most effective way to compensate for or eliminate the potential conflict of interest presently existing in the management structure responsible for Board members when the Board is not in session--POWER had changed the organizational structure for the Nuclear Safety Staff such that it reported to the Deputy Manager of POWER. The Board while in session still reported to the Manager of POWER. The organizational change for the Nuclear Safety Staff satisfies the NSRS concern regarding a possible conflict of interest. This item is closed.

c. Determine the most effective method to assure that the independent review group(s) has access to and considers information pertinent to all significant plant events and conditions important to safety--as part of the POWER evaluation to determine the most desirable method to perform the independent review function, the question of information availability to NSRB was also being considered. The benefits of easy access of information through organizational reviews by principally NUC PR personnel was being carefully weighed against the possible loss of independence if this organizational type review was adopted. This recommendation was intended to bring the problem and the industry position to the attention of management. POWER management was actively involved in a resolution. This item is closed.

4. R-81-08-BFN-4, PORC Review of QA Program

The POWER response to this recommendation indicated that the plant QA program was presently receiving adequate review without a PORC review. It also stated that a technical specification change would be submitted to delete the requirement for a PORC review of the QA program. However, during the site visit, the reviewer learned that a technical specification change had not been submitted and that PORC had initiated an annual review of the plant QA program. The first annual review was performed on April 20, 1982 and included a presentation by a QA representative outlining the present QA activities, recent improvements, and plans for additional upgrading. It was concluded that the requirement of Technical Specification 6.B.4.h was being satisfied. This item is closed.

5. R-81-08-BFN-5, Unreviewed Safety Question Determination

The NSRS concern was that responsiblity for making unreviewed safety question determination per 10CFR50.59 had not been clearly defined for changes that were being or could be made at BFN. A new standard practice, SP BF 17.18, "Unreviewed Safety Question Determination," was approved by the BFN Plant Superintendent on May 14, 1982. This standard practice was reviewed by NSRS on May 24, 1982. The responsibility for making unreviewed safety question determinations for facility and procedural changes as well as for the performance of tests and experiments for which NUC PR is responsible was defined. The procedure also outlined the process to be followed for the evaluations to determine whether or not an unreviewed safety question is considered. A check list was included as an attachment which should improve the consistency and uniformity of the evaluation. However, a review of the latest revision of the N-OQAM, part I, section 6.2, on June 9, 1982, revealed that the N-OQAM is in conflict with the plant standard practice. The N-OQAM requires PORC to make the unreviewed safety question determination while the standard practice allows it to be made by the cognizant engineer. This item remains open.

6. R-81-08-BFN-6, Plant Action Item Tracking System

The NSRS identified what appeared to be a duplication of effort in the plant standard practices in the area of open item tracking systems. During the site visit, the documentation describing the plant action item tracking system was again reviewed. The requirements and responsibilities for action item tracking system are still

described in the plant standard practice. The duplication appears to have been corrected to a large extent. SP BF 21.14, "Response to NRC Bulletins, Circulars, Information Notices, and Other Requests for Information from NRC and Other Regulatory and Inspection Agencies," had been cancelled and the appropriate information incorporated into other standard practices dealing with this subject. The actual mechanisms for the establishment of operation of the program were described in Compliance Section Instruction Letter (SIL) Nos. 7 and 9. The combination of the SILs and SPs adequately defined the action item tracking system for the items assigned to the plant. The practical implementation of the system was not evaluated. This item is closed.

7. R-81-08-BFN-7, NUC PR Action Item Tracking System

The NUC PR action item tracking system was described in DPM N82A3, "Compliance Management," dated March 5, 1982. The DPM discussed the method to be used for handling NUC PR commitments to regulatory and other audit organizations. The instructions of the DPM had been largely implemented for the action item tracking system. A printout of some of the data available was examined. It was noted that NSRS enhancement recommendations were not available from the computer data. Failure to track NSRS enhancement recommendations was determined to be an administrative decision and did not represent a weakness in the tracking system. This is a separate issue to be resolved by the management of NSRS and NUC PR. The enchancement items could be added at the discretion of NUC PR management or possibly by NSRS. The NUC PR action item tracking system and its implementation appeared to adequately resolve the original NSRS concern regarding a program to assure that externally identified deficiencies were evaluated, corrected, documented, and reported. This item is closed.

8. R-81-08-BFN-8, OPQA&A Staff Audit of Corrective Action Programs

NSRS recommended that OPQA&A increase the scope of their audits in the area of corrective action to provide the NSRB with reasonable assurance that the corrective action programs were effective. The POWER response indicated that action to improve assurance that corrective action programs were effective had already been taken. An audit of corrective actions as specified by section 6.8.c of the BFN Technical Specifications had been conducted in June of 1981. The audit was added to the audit schedule to be performed on a periodic basis. However, during discussions with OPQA&A Staff personnel on June 10, 1982, it was learned that the staff had not been increased. In fact, it might be less capable of performing the required audits with the desirable scope and depth than it was

a year ago. A number of new personnel had been recruited and hired, but an equivalent number of more experienced personnel has been lost to U.S. and foreign industry. Due to budget restrictions OPQA&A will be unable to replace the staff employees that have left TVA. This problem of personnel shortages may be alleviated in full or in part by the establishment of the Corporate QA Staff which has been announced. This item will remain open pending an evaluation of the audit capability in the area of corrective action following the establishment of the Corporate QA Staff.

9. R-81-08-BFN-9, Personnel Assembly and Reentry Assignments Following Potential Partial Evaluation

NSRS recommended that advanced planning be performed to establish the personnel most likely to be involved in radiological emergencies, the most desirable assembly point for people preparing to enter the site, and the method of transporation and access to the plant in case of an emergency condition that require a partial evacuation of the site vicinity. In the POWER response and in discussions with plant personnel, the position was taken that an attempt to arrange for all possible evacuation contingencies was impractical. The parking lots near the plant had been designated as assembly points during evacuation and reentry. No single location could be established with assurance that it would not be in the path of a potential plume. Emergency plan implementing procedure (IP) 8 specified the parking lots as assembly areas and stated that the site emergency director would specify a new assembly point if neither of the employee parking lots could be occupied.

This appeared to be a reasonable approach for handling the evacuation of personnel during a radiological emergency. However, NSRS thought that some additional planning relative to personnel reentry into the plant could save time and contribute to a more orderly proceeding in the event of an emergency condition requiring evacuation. A management representative in the Central Office agreed to further evaluate the need for additional planning for the reentry process. He indicated that the personnel most likely to be needed at a plant during a radiological emergency had already been adequately identified. The necessary transportation and personnel protection equipment had been planned for to the degree practical. He agreed that additional consideration would be given to the selection of potential assembly areas for reentry. Areas that the greatest number of people were familiar with would generally be desirable. If it is determined that additional locations are available and desirable, emergency plan implementing procedures will be revised as necessary to list the location and to make the

maximum number of personnel familiar with them. Since appropriate management personnel are aware of the NSRS concerns and have agreed to evaluate them further and to take corrective action as determined by the evaluation to be desirable, this item is considered resolved.

10. R-81-08-BFN-10, NUC PR Fire Protection Prevention Program

During the management review, NSRS concluded that NUC PR did not have a program for inspecting and upgrading the fire protection/prevention program. POWER responded that DPM N78S2-F8 (Fire Audits, revised 5/8/81) had been revised to provide for a more comprehensive audit and inspection program. It indicated that an annual audit would be performed to compare each facility against regulatory requirements and nationally recognized codes and standards. Recommendations would be made regarding the need to expand or update the fire protection program based on the audit findings. NSRS conducted a review of the entire fire protection program at the plants and Central Office in March and April of 1982. Through the review, it was determined that the NUC PR fire protection programs were generally adequate. The audit program for fire protection was being improved and the overall program was being upgraded through the implementation of the area plan. Management was aware of most weaknesses and was working toward a solution for correcting them. Since the March and April review (R-82-05-NPS) addresses the basic questions raised in the management review of the fire protection program, these questions should be resolved through the handling of the recommendations in NSRS report R-82-05-NPS. This item is closed.

11. R-81-08-BFN-11, Upgrading of the QA Topical Report

During the management review, NSRS observed that the TVA QA Topical Report did not reflect the current functional organization within NUC PR. POWER management was aware of this situation and was in the process of changing the Topical. The POWER response indicated that a change to the Topical Report had been submitted to the NRC in May of 1981. Another revision was to be submitted to reflect the realignment that was in progress at the time the response was submitted. The NSRS reviewer verified on June 9, 1982 that the indicated revisions had been submitted to the NRC. This item is closed.

12. R-81-08-BFN-12, Plant Organizational Structure

At the time of the management review, the technical specifications did not reflect the plant organizational structure at the plant. The POWER response indicated that a proposed technical specification change had been submitted to NRC which showed the proper organization.

While at the plant, the reviewer verified that the technical specification change had been reviewed by plant personnel and a recommendation made that it be submitted. On June 10 while visiting the Central Office, NSRS verified that the change which indicates that each plant has three assistant superintendents was submitted to the NRC. BFN still has only two assistant plant superintendents. However, this is considered an interim condition and does not represent a technical specification violation. NSRS understands that the third assistant will be selected within a reasonable period; or if a decision should be made to have only two assistants on a permanent basis, another technical specification change will be submitted to NRC to reflect the decision. This item is closed.

13. R-81-08-BFN-13, Turnover of Personnel

NUC PR was experiencing personnel turnover problems, particularly in the area of reactor operations. NSRS suggested that additional efforts by NUC PR in personnel career planning and indoctrination regarding the need for management overview, independent audit, and accountability might lead to improvements. Significant activities have been undertaken in this area since the review. The problem was well understood by NUC PR management prior to the review and various actions were being taken and evaluated. These and other efforts have continued including periodic meetings with NUC PR and POWER management to discuss the problems. The possible initiation of an operator contract program is being coordinated with top TVA management and the Office of the General Counsel. NSRS believes that appropriate management attention for an effective resolution is being provided. This item is closed.

14. R-81-08-BFN-14, Updating of Central Office QA Procedures

As described in section VI.G.2 of NSRS report R-81-08-BFN, NSRS determined that NUC PR DPMs and the OQAM did not implement all the requirements of the TVA Topical Report and a number of the DPMs were out of date. The POWER response stated that the OQAM had been revised to implement the provisions of the TVA QA Topical Report, revision 4. DPMs determined to be QA program related had also been revised as necessary to fully implement QA requirements. This upgrading of the DPMs was a result of a NUC PR initiated program that had been in progress for about a year. The reviewer verified during this review that the OQAM and DPMs listed as examples in the management review report had been revised. This item is closed.