

IV.B (cont.)

4.a OEDC-QA Recommendation

Vendor audits should be more hardware oriented. Auditors should observe work activities, discuss fabrication and testing with production personnel, evaluate the vendor's Quality Control Program, compare hardware to drawings and specifications, and verify findings through a review of fabrication and QA records. (These activities do not preclude assuring that contract activities are being accomplished in compliance with approved procedures and are properly documented.)

EN DES Response(s)

Vendor audits are hardware oriented to the extent necessary to satisfy the audit objectives. Auditors observe work activities, discuss processes with contractor personnel as appropriate, and evaluate the vendor's program. The comparison of hardware to drawings is an inspection and surveillance function performed by auditors only when necessary to verify a related program element. Findings are verified in a number of ways, including reviews of records.

NSRS Evaluation

TVA-TR75-1, Paragraph 17.1A.2.1.1 Commits TVA to Regulatory Guide 1.28-1972 and ANSI N45.2-1971, by reference to Table 17.1A-4. ANSI N45.2-1971, Section 19, "Audits," states in part that audits should include an evaluation of quality assurance practice, procedures, and instructions; the effectiveness of implementations; and conformance with policy directives. In performing this evaluation, the audits should include evaluation of work areas, activities, processes and items, and review of documents and records. This guidance provided by the verb "should" is formalized moreover by paragraph 17.1A.18, "Audits," of TVA Topical Report TVA-TR75-1, which states in part that the subject of an audit including such factors as work areas, activities, processes or items and the specific organizations involved are selected by the respective audit sections and approved by their respective staff managers.

These commitment passages allow selected elements of the quality assurance program to be audited to the depth necessary to determine whether or not they are being implemented effectively on a case-by-case basis. From these committal statements, the NSRS investigator cannot state that EN DES-QAB must include an evaluation of all the areas addressed in the preceding paragraph, however, review of the later versions issued to Regulatory Guide 1.28-1972, that of 1978 and 1979, indicates that NRC considers the ANSI N45.2-1971 Section 19 passage has enough safety significance that it

#### IV.B.4.a (cont.)

should be treated the same as if it were a requirement (thereby replacing the verb "should" with "shall"). Though TVA has not committed to this Regulatory Guide, OEDC should re-evaluate this item to implement the requirement. In addition, OEDC should re-evaluate all its commitments made in Table 17.1A-4 of TVA-TR75-1 since generally, the NSRS investigator has found that TVA is committed to many relatively old and outdated regulatory guides and standards. This would be in keeping with the policy of the Board of Directors to make TVA the yardstick for determining whether the other utilities measure up to such a safety first standard.

This item is considered open pending OEDC review (I-80-14-NPS-11).

#### 4.b.1 OEDC QA Recommendation

More management attention be provided to assure more timely implementation of corrective action which is necessary to close audit findings at vendor plants.

#### EN DES Response

More management attention is being provided to assure more timely implementation of corrective actions necessary to close audit findings at vendor plants.

#### NSRS Evaluation

As previously discussed in item IV.A.4, management of an audited organization or activity is required by ANSI N45.2.12, Section 4.5, "Followup," to review and investigate any adverse audit findings to determine and schedule appropriate corrective action including action to prevent recurrence and to respond to these findings as requested by the audit report, giving results of the review and investigation. This fact was not pointed out to Atlas Machine & Iron Works in QEB's response dated February 7, 1980 (QAS 800207 800). Additional management actions could be taken if there are further noncompliances or the conditions surrounding the noncompliance warrant it.

The NSRS investigator considers the OEDC QA management decision to make this item a deficiency appropriate. However, the investigator considers the passive line taken in the EN DES response to be an inadequate resolution to this concern. OEDC QA acceptance of this response (reference G) should be upgraded to requesting that EN DES identify to nonresponsive delinquent vendors the requirement for replying to audit findings within the time frame specified by the audit report. Alerting current nonresponsive delinquent vendors of this requirement and revision of step 5.8 of EN DES-EP 5.34, "Vendor Quality Assurance Audit Program," to reflect similar

#### IV.B.4.b.1 (cont.)

guidance would be initial steps in resolving this concern. This item is considered open pending OEDC QA management review (I-80-14-NPS-12).

#### 4.b.2 OEDC QA Recommendation

QEB issue monthly rather than quarterly reports on the status of vendor corrective action.

##### EN DES Response

We have evaluated this recommendation and conclude that the quarterly reports on the status of vendor corrective action is adequate for its purpose.

##### NSRS Evaluation

The NSRS investigator considers this item to be an administrative solution to the item addressed in IV.B.4.b.1. By incorporating an instruction into EN DES-EP 5.34, as identified in IV.B.4.b.1, to notify the vendor that its response to the subject audit findings is delinquent and in violation of procurement contract requirements of maintaining an effective QA program should provide additional assurance that subsequent vendor corrective action will be taken in a more timely manner. The quarterly report would then become, as intended, a status report.

The NSRS investigator considers resolution of IV.B.4.b.1 will provide adequate resolution to this concern.

#### 4.b.3 OEDC QA Recommendations

The QEB-QC field personnel be used more extensively to verify the implementation of corrective action. As necessary, provide training to field M&D schedule personnel to accomplish this activity.

##### EN DES Response

The use of field personnel is provided for in EN DES-EP 5.34, section 6.2. Training will be provided as necessary.

##### NSRS Evaluation

Review by the NSRS investigator indicates the EN DES response was correct as to the use of QEB-QC field personnel to verify vendor corrective action taken. However, additional review of the EN DES-EP 5.34 procedure revealed that EN DES may eventually have an item of potential concern by utilizing QC field inspection personnel to close audit deficiencies. When using regional field office inspection

IV.B.4.b.3 (cont.)

personnel, prior to the inspector's completion of the Corrective Action Verified Section (CAVS) of the Audit Evaluation Sheet or notifying vendor management that corrective action taken by the facility was considered adequate and that the audit finding is therefore considered closed, the inspector should verify the results of his review with the author of the audit finding especially if he is inexperienced in this area. This action should be taken depending on the complexity of the item involved and if the inspector was not part of the auditing team. For example, a typical scenario of this type concern would be: as a part of its corrective action plan the vendor identifies the need to establish of a new procedure to correct the audit deficiency. The TVA QC inspector reviews the completed corrective action taken by the vendor by verifying that a procedure was written but does not verify the adequacy of the procedure to the concern. Should a subsequent audit be conducted by the original auditor, or an auditor with the same background and review of this procedure is required as part of the audit, he may find that the procedure is deficient to some other stated requirement not familiar to the inspector that closed the deficiency. This would result in a repeat item of non-compliance being cited against the vendor and a potential loss of credibility for the inspector for being incomplete in his review.

This NSRS investigator considers revision of EN DES-EP 5.34 to specify the action identified above should preclude premature closing of audit findings. This is a suggestive comment and no further action by the NSRS staff will be taken on this item.

5.a OEDC QA Recommendation

Plant surveys should be recognized as a QA function per 10CFR50 appendix B. Also, QEB should recognize QC as a part of Quality Assurance.

EN DES Response(s)

Plant surveys will be recognized as a QA function where applicable. QEB recognized QC as a part of Quality Engineering. Section 2.3 of the Inspection Manual will be revised as indicated on the attached marked copy. This item will be handled as a part of item A.1.c.

NSRS Evaluation

As required by the Procurement Control Quality Assurance Requirements Standard ANSI N45.2.13-1976, Section 5.3, "Preaward Evaluation," the purchaser shall have performed a preaward evaluation of the supplier prior to contract award,

IV.B.5.a (cont.)

and the results therefrom shall be documented. The method utilized by the purchaser in evaluating the supplier's technical and quality capability may be any or all of the three options provided in Section 4.2, "Selection Measures," of the Standard. One option involves the direct evaluation of the supplier's facilities and personnel, and the implementation of his quality assurance program (plant survey).

Contrary to the above, Section 2.3, "Survey of a Prospective Supplier versus QA Audit," of the TVA inspection manual states that the plant survey for evaluating prospective suppliers is not intended to be used as a quality assurance document. Further, as identified by the OEDC-QA staff, section 2.3 further specifies that Quality Assurance applies to the narrower range of nuclear plant procurement within the overall scheme of quality control. As defined by ANSI N45.2.10-1973, quality assurance is all those planned and systematic actions necessary to provide adequate confidence that an item or a facility will perform satisfactorily in service. This definition is applicable to non-QA as well as QA contracts the inspection manual has been established to cover.

The NSRS investigator considers OEDC-QA management should have considered this item as a deficiency (I-80-14-NPS-13) based on the wording of section 2.3 at the time the QAE 80-1 evaluation was conducted. It should also be noted that as of November 5, 1980 the revision indicated by EN DES to be made on this section had not been accomplished.

5.b OEDC QA Recommendation

Plant Surveys and Vendor Preaward Surveys should be complementary and conducted simultaneously. (This will provide an in-depth evaluation of both a vendor's QA program and implementation.)

EN DES Response(s)

Where simultaneous plant surveys and preaward QA surveys can be conveniently and efficiently scheduled, this will be accomplished. However, usually, due to the broader participation needed for the simultaneous surveys, it is not as effective as separate surveys. Also many plant surveys are performed where no preaward QA survey is needed and many preaward QA surveys are performed where no plant survey is needed since plant capabilities other than QA have already been evaluated and accepted.

NSRS Evaluation

ANSI N45.2.13-1976, Section 4.2, "Selection Measures," provides three separate methods, all or any one of which must be utilized by the purchaser to evaluate the supplier's product capability. One method, as described by EN DES, is to evaluate the supplier's capability based solely on the supplier's current quality records supported by documented qualitative and quantitative information. This would be the preaward QA survey.

A second method, again described by EN DES, would be to evaluate the supplier's technical and quality capability directly by performing a plant survey of the supplier's facilities and personnel, and the implementation of his quality assurance program.

A third option not discussed but totally and independently credible for evaluating vendor product capability is to evaluate the vendor based only on his ability to provide a product which performs satisfactorily in actual use. If the supplier is new, an information submittal on a similar item is to be required for evidence of the supplier's capability.

Review of EN DES-EP 5.01, "Purchase Requisitions - Evaluation of Bids and Recommendation/Rejection of Contract Award - Revisions to Contracts," revealed that it implements the requirements of ANSI N45.2.13-1976 by detailing the options to use, part or all of the above described methods. Should both a preaward QA survey and a plant survey be necessary, integrated action between QEB-QC and QAB would be appropriate based upon the complexity, uniqueness, etc., of the item or service being procured.

The NSRS investigator considers the item was appropriately identified by OEDC-QA management as not constituting a deficiency.

6. OEDC QA Recommendation

Take action to improve the processing time for STRIDE NCR's.

EN DES Response(s)

Activities associated with processing of STRIDE NCR's will be evaluated to identify any actions which will reduce processing time without compromising the control functions provided by the NCR system. Identified actions will be taken as appropriate. Some improvements have already been made in this area. Sample studies indicate that supplier

#### IV.B.6 (cont.)

NCR's are routinely forwarded by QEB for resolution within one or two days from receipt. In at least one case, a STRIDE nonconforming condition was completely resolved within 24 hours.

We have evaluated methods to improve the processing time for STRIDE NCR's. This evaluation has resulted in a change to our methods as indicated on the attached draft revision to QEB-EP 24.57.

#### NSRS Evaluation

ANSI N45.2-1971, Section 17, "Corrective Action," states in part that measures shall be established and documented to assure that conditions adverse to quality, such as nonconformances, are promptly identified and corrected as soon as practicable. EN DES should continue to evaluate methods to improve the normal processing and resolution time for STRIDE NCR's particularly in light of the more rapid turnaround time of NCR's when the priority is placed in the EXPEDITE mode.

The NSRS investigator does not consider this item a deficiency since the OEDC QA staff did not provide any specifics as to willful delays or neglect in processing STRIDE NCR's.

#### IV.C INTERFACE CONTROL

##### 1.a OEDC QA Recommendation

QEB technical supervisor should provide more guidance and make trips to the field to assist in setting up the inspection of vendor activities.

##### EN DES Response(s)

QEB technical supervisors will provide the guidance necessary to assist in setting up the surveillance of vendor activities. Trips will be made where absolutely essential and within approved travel budgets.

##### NSRS Evaluation

This item is considered suggestive and within the scope of item IV.C.3.d. QEB technical supervisors are required as detailed in QEB-AI 115, to provide technical and contract management advice on matters concerning the Central QC office staff's contracts and plant surveys. In addition, the technical supervisors are to carry out detailed investigations and recommend actions in problem situations arising from the vendor's inability or unwillingness to perform according to the contract requirements. This is why travel,

IV.C.1.a (cont.)

as identified by the OEDC QA staff, is usually more frequent after problems arise with a contract. Examples of technical supervisors failing to perform these functions would be in violation of their chartered responsibilities.

The NSRS investigator considers the OEDC QA management decision to not make this item a deficiency appropriate. Budgeting restraints should not be considered by EN DES when safety considerations are concerned (see implication to do so - item IV.C.3.d).

1.b. OEDC QA Recommendation

QEB technical supervisors should obtain first-hand knowledge of problem contracts through more frequent field trips to vendor plants to review the situation with field inspectors.

EN DES Response(s)

Trips will be made where absolutely essential and within approved travel budgets.

NSRS Evaluation

As detailed in items IV.C.1.a and IV.C.5.b, the senior QC staff engineers have as one of their responsibilities the requirement to conduct detailed investigations of problem situations arising from the vendor's inability or unwillingness to perform according to contract requirements and to recommend remedial correction actions. Investigations of this sort would involve field trips to obtain first-hand knowledge of the situation. Failure to do so would be in violation of their chartered responsibilities.

Based on the discussion above, the NSRS investigator considers the item to be a suggestive comment, since examples of failure by EN DES to meet this commitment have not been provided. OEDC QA managements' decision to not make this item a deficiency is considered appropriate. EN DES should again be reminded that budgetary restraints should not be considered when safety considerations are concerned.

1.c. OEDC QA Recommendation

Field offices generally refer problems which are significant to Knoxville; therefore, QEB Knoxville should give them prompt attention. If an answer cannot be given immediately, an interim response should be given on the status.

IV.C.1.c (cont.)

EN DES Response

QEB Knoxville will continue to give prompt attention to significant problems referred by field offices.

NSRS Evaluation

As required by QEB-EP 24.56, "Inspection Reports - Preparations, Review and Distribution," and the TVA Inspection Manual, significant problems or incidents affecting quality discovered either by the vendor or the TVA QC inspector are to be formally documented in inspection reports. The problem, its resolution (if resolved at the regional office level) or request for EN DES action, should be prepared in sufficient detail that all specific and supportive information is conveyed. The QC staff materials engineer, upon receipt of the report, is to then resolve any outstanding problems directly or refer them to the responsible design engineer. Problem resolution may require telephoning the technical engineer immediately for a technical decision or handling the item routinely through interoffice correspondence within three days. Once resolved, the QC group is charged as required by QEB-AI 115, to promptly and fully inform the affected QC field office. This may be accomplished by providing the field office with any resultant resolution documents, interoffice correspondence, or verbal/written instructions in a timely manner.

From background review of this item, the NSRS investigator considers problem resolution status report updates from the QC group to the field offices may not be occurring, leaving the field offices in a state of limbo as the problem is being resolved. To ensure the field offices are being fully informed of actions being taken on their identified items, EN DES should take necessary corrective action by revising step 2.19 of QEB-EP 24.56 and issuing an information memorandum to ensure all pertinent information which results in resolving an inspection report item is conveyed to the applicable field inspector or office either in writing or verbally through the central QC office. Problem resolution status updates should also be provided to the applicable field inspector or office if delays are being experienced in resolving the issue. This item is considered similar in nature to items IV.C.2, IV.C.3.a, and IV.C.3.b. It will be held open for tracking purposes pending EN DES resolution (I-80-14-NPS-14).

The NSRS investigator considers the OEDC QA staff item to be suggestive since no specific examples of neglect were provided. The investigator therefore considers the item was appropriately identified by OEDC QA management as a non-deficiency.

IV.C. (cont.)

2. OEDC QA Recommendation

Copies of all QEB vendor audit reports should be sent to applicable field offices so field personnel can know all items of contention with the vendor.

EN DES Response

Where appropriate, QEB-QA audit reports will continue to be sent to applicable field offices.

NSRS Evaluation

As required by QEB-AI 115, "Organization and Responsibilities," which defines the responsibilities and duties of each organization division within QEB, the QEB-QC Group is charged with maintaining a system of close coordination with branch field offices to assure that they are kept fully and promptly informed by providing necessary documents, correspondence, and verbal written instructions and procedures in a timely manner.

Contrary to the above, the OEDC QA staff identified three examples, this item (see also reference KK) and those addressed in IV.C.3.a and IV.C.3.b (possibly IV.C.1.b also), of a breakdown in the QEB-QC responsibility to keep the regional field offices fully informed of EN DES activities with contractors which may affect them or their field inspection program. The NSRS investigator considers, from this review, that OEDC QA management should have identified these three items as a single deficiency since continued operation in this mode would have eventually resulted in conflicts and therefore a loss in field inspector credibility with the contractor (I-80-14-NPS-15).

3.a OEDC QA Recommendation

There should be feedback (with instructions) to the field on meetings and decisions made in Knoxville and at construction sites and contracts that involved QEB field inspection.

EN DES Response

EN DES people will be instructed to provide adequate feedback to QEB for relaying to the field on meetings and decisions on contracts that involve QEB field inspection. Instructions will be issued from the EN DES Manager by July 25, 1980.

IV.C.3.a (cont.)

NSRS Evaluation

The NSRS investigator considers this item to be within the scope of item IV.C.2. Resolution of IV.C.2 should also provide resolution to this item.

3.b OEDC QA Recommendation

When TVA personnel plan to visit within a QEB Regional Area for the purpose of interfacing with a vendor, the regional office should be notified of the impending visit and its purpose.

EN DES Response

EN DES people will be instructed to notify the field inspection office through QEB-Knoxville when visits to contractors are planned. Instructions will be issued from the EN DES Manager by July 25, 1980.

NSRS Evaluation

The NSRS investigator considers this item to be within the scope of item IV.C.2. Resolution of IV.C.2 should also provide resolution to this item. EN DES should also alert their designated technical engineers of the same notification request.

3.c OEDC QA Recommendation

When meetings are held to determine corrective action for identified problems, they should be attended by responsible persons who can make commitments for their respective organizations and the minutes of these meetings should be issued in a minimum of time. The implementation of the agreed to courses of action should not be delayed while waiting for the meeting minutes.

EN DES Response

We agree.

NSRS Evaluation

EN DES-AI 213.01, dated September 24, 1980, "Meetings Internal to EN DES," Section IV, "Business Meetings," states in part that affected Branch Chief's/Staff Chief's/Project Manager's are to designate a B/S/P representative with the knowledge and authority to make decisions for the applicable areas involved. The meeting recorder is to prepare a summary of the comments after the conclusion of each agenda item and will read the summary statements before the meeting ends so the participants have full agreement on each statement.

#### IV.C.3.c (cont.)

Once agreement is reached, the meeting notes are typed, signed by the chairman and other appropriate individuals who committed action or made decisions, and distributed to all TVA participants and to others who may be affected within seven days after the meeting.

Section VI, "Staff Meetings," provides that B/S/P staff meetings are conducted with the associated staff and group heads on a regular basis to inform them of the proceedings of division level staff meeting(s) and to discuss other items of concern to the B/S/P. The group heads in turn meet with their staff and section supervisors and so on. Feedback is encouraged and if management is conscientious, implementation of agreed upon courses of action will not be delayed while waiting for meeting minutes. Further, as addressed in IV.C.2, the QEB QC Group is additionally charged with keeping the branch field offices fully and promptly informed in matters concerning their office.

The NSRS investigator therefore considers the instructions of EN DES-AI 213.01 to be adequate and the decision by OEDC QA management to not make this item a deficiency appropriate. EN DES should reemphasize to its employees not to wait until meeting minutes are in hand before taking agreed upon action. As to the non-notification of field personnel to B/S/P meeting conclusions, resolution to item IV.C.2 should resolve this deficiency.

#### 3.d OEDC QA Recommendation

When significant problems are identified at a supplier's facility, increased expertise should be assigned to the contract (not necessarily the normal QEB Technical Supervisor) and the assigned inspector or a more qualified inspector should be promptly briefed and directed to spend more time on the problem areas. Examples: Dimensional checks, welding inspection.

#### EN DES Response

Where significant problems are identified at a supplier's facility, sufficient surveillance capability will be applied within manpower and budgetary constraints.

#### NSRS Evaluation

As required by QEB-AI 115, "Organization and Responsibilities," under the Quality Control Engineering Staff responsibilities, when significant problems are identified at a supplier's facility the Senior Quality Control Staff Engineer is charged with the additional responsibility of providing the Central Quality Control Staff with his expert technical and contract management advice and, if requested

IV.C.3.d (cont.)

by the QC Group Supervisor, perform as the contract administrator of the more complex contracts of the discipline involved. Further, as required by ANSI N45.2.6-1973, Section 1.3, "Responsibility," it is the responsibility of each organization participating in the project to assure that only qualified personnel are permitted to perform inspection, examination, and testing activities that result in or assure the attainment of quality.

Based on the discussion above, the NSRS investigator considers this item to be a suggestive or emphasizing comment since examples of failure by EN DES to meet either of the addressed requirements were not specifically identified nor could be found by the investigator. In addition, the use of a more qualified inspector (higher level inspector or specialist inspector) should be at the option of the QC Staff. This option could also be satisfied by increasing the amount of surveillance activity at the vendor facility. As identified in item IV.A.3, the extent of procurement verification activities is dependent upon, among other things, the supplier's quality performance. Poorer performers require greater and more in-depth surveillance, inspection, and audit activities in order to identify and correct quality deficient areas.

The NSRS inspector therefore considers the OEDC-QA management decision to not make this item a deficiency appropriate. EN DES should also be reminded that their response is not consistent with their commitment delineated in Table 3 of the OEDC QA Program Requirements Manual (PRM) that cost and schedules are not to be considered as factors when safety considerations are concerned. Consideration of these variables would be in violation of NRC requirements.

4. OEDC QA Recommendation

More direct contacts between field inspectors and QEB technical supervisors should be effected. The inspector should advise the supervisor whenever he has made a call to Knoxville.

EN DES Response

Branch instructions for communications between QEB Knoxville and field offices will be reviewed and adjusted if necessary to improve effectiveness.

Review scheduled for completion July 11, 1980.

NSRS Evaluation

NSRS investigator review of TVA Inspector Manual, Section C, paragraph 1.5, "Communication Channels," indicates this instruction provides adequate guidance on the use of phone communications addressed along the lines of the OEDC QA recommendation.

The NSRS investigator considers OEDC QA management appropriately identified this item as a nondeficiency. Actions should be taken by QEB to reemphasize to its field and Knoxville personnel of the existence of this instruction to preclude future confusion.

5.a. OEDC-QA Recommendation

C. F. Braun Engineering personnel should accompany TVA engineers and surveillance inspectors to problem vendor plants to obtain first-hand knowledge of existing fabrication problems and solutions should be identified and implemented in accordance with established procedures or methods.

EN DES Response

We don't feel that the education of C. F. Braun Engineering personnel is our responsibility; however, we have recently observed that more such visits are being made.

NSRS Evaluation

As identified in the language of the Invitation to Bid and TVA STRIDE contracts, the technical engineers represent TVA in assuring that the technical requirements and the quality of the work and materials required under the specifications of the contract are met by the seller and/or the constructor. Communications relative to all technical matters other than shop inspection and testing are to be directed to him. Shop drawings and samples, when required, are also to be sent to him for approval.

From this discussion it would therefore appear that when fabrication problems occur the technical engineer is responsible for their resolution. If C. F. Braun Engineering, a subcontractor to GE-the technical engineer for STRIDE contracts, involvement is required in resolving a particular issue, on site review by this organization, depending on the complexity of the problem, would be appropriate to obtain first-hand knowledge of the situation. If on site review is not performed by C. F. Braun and the problem continues to persist even after several attempts have been made to resolve the issue, GE should investigate and educate or dismiss the firm if need be. Accompaniment of C. F. Braun Engineering

IV.C.5.a (cont.)

personnel with either GE or TVA engineers and surveillance inspectors should be considered by the firm as an enhancement to their operation.

The NSRS investigator does not consider TVA should be responsible for educating a subcontractor of the technical engineer unless due to the uniqueness or complexity of the product being manufactured, technical assistance or guidance would be appropriate. Performance of C. F. Braun is the responsibility of the technical engineer who in turn is responsible to TVA.

The NSRS investigator considers the item was appropriately identified by OEDC QA management as a non-deficiency. This item is considered closed to further NSRS staff review.

5.b OEDC QA Recommendation

The dispute between Lakeside and GE/Braun concerning buttering should be resolved by TVA in an expeditious manner to prevent additional schedule slippages.

EN DES Response

We agree.

NSRS Evaluation

As required by QEB-AI 115, "Organization and Responsibilities," which defines the responsibilities and duties of each organizational division within QEB, the Senior Quality Control Staff Engineer is charged, in part, with carrying out detailed investigations and recommending actions in problem situations arising from the vendor's inability or unwillingness to perform according to the contract requirements.

NSRS investigator review of the subject documents (references U, Z) indicates that the dispute between Lakeside Bridge and Steel Company and GE centers around two issues: (1) whether buttering is a repair weld and therefore must be 100 percent radiographed as required by paragraph 19.1.2 of C. F. Braun specification 30009 and (2) whether Lakeside is willing to comply with the specifications detailed within the contract text.

The first issue should have been resolved by the technical engineer, GE, since AWS code D1.1, paragraph 3.3.4, does permit buttering without RT examination of the edges to meet root gap requirements. Contract specification interpretation was therefore the conflicting issue. Once resolved where GE determined radiography was required as authorized in the conflicting requirements provision of paragraph 15.0 to the

IV.C.5.b (cont.)

specification, the second issue where Lakeside questioned GE's interpretation and balked at performing the additional radiographic inspections came into play. Here it becomes a matter to determine whether Lakeside was willing to meet its contract responsibilities of:

- a. Shipping TVA a structure free from defects and to have a workmanlike finish - paragraph 17.7.1 of C. F. Braun specification 300-09.
- b. Having all surfaces to be welded carefully inspected after completion of edge preparation for laminations, cracks, or other injurious defects as required by paragraph 17.5.4.
- c. Preparing all joints before shipping to the field - paragraph 17.1.2.
- d. Performing 100 percent radiography of all repair welds - paragraph 19.1.2.

Since Lakeside was unwilling at the time to perform the additional RT inspection on the buttered weld areas, as interpreted and required by the technical engineer, the Senior QC Staff Engineer should then have, at this point, exercised his chartered responsibility to investigate the circumstances surrounding this situation and rendered a recommended course of action to resolve the issue. Failure to do so constitutes a deficiency. Eventually, Lakeside reluctantly agreed to perform the additional RT examination but intends to submit a claim to TVA for this action. The item was left unresolved and thus continued the dispute.

The NSRS investigator considers that OEDC-QA management should have identified this item as a deficiency as failure of the QC Engineering Staff to perform one of its assigned responsibilities (I-80-14-NPS-16).

5.c OEDC QA Recommendation

Knoxville QEB should through its existing organization or through a designated GE/Braun liaison position assure that all STRIDE equipment changes negotiated with vendors are supplied to field inspection personnel.

EN DES Response

We will review the system for providing this information to field inspection personnel and make adjustments where effectiveness can be improved. Review scheduled for completion July 11, 1980.

NSRS Evaluation

As required by ANSI N45.2-1971, Section 7, "Document Control," "Measures shall be established and documented to control the issuance of documents, such as instructions, procedures, and drawings, including changes thereto, which prescribe activities affecting quality. These measures shall assure that documents, including changes, are reviewed for adequacy and approved for release by authorized personnel and are distributed to and used at the location where the prescribed activity is performed. . . . Those participating in an activity shall be made aware of and use proper and current instructions, procedures, drawings, and engineering requirements for performing the activity. Participating organizations shall have procedures for control of the documents and changes thereto to preclude the possibility of the use of outdated or inappropriate documents . . . . Document control measures shall provide for: . . . ascertaining that proper documents are being used . . . establishing current and updated distribution lists."

Contrary to the above, as described in the OEDC QA recommendation and in memorandum A. R. Eilmess to D. L. McLean, dated February 4, 1980, "Meeting Notes - Chicago Regional QC Office Staff Meeting No. 18," item 5.4 (see also Reference LL), GE and C. F. Braun are making STRIDE equipment changes without providing TVA or TVA field personnel with updated and current documents. Failure of EN DES to ensure field personnel are made aware of, have, and are using proper documents in performing vendor verification activities is considered a deficiency in their procurement document control program (I-80-14-NPS-17). Prompt corrective action should be taken to resolve this deficiency to preclude further noncompliance.

The NSRS investigator considers OEDC QA management should have considered this item as a deficiency. OEDC QA is requested to reevaluate this item for significance.

## Memorandum

TENNESSEE VALLEY AUTHORITY

TO : S. Duhan, Supervisor, OEDC Quality Compliance Section, W12B47 C-K

FROM : R. F. Keck, Cost Engineer, W5B115 C-K

DATE : August 15, 1980

SUBJECT: QUALITY ASSURANCE EVALUATION QAE 80-1 - PROCUREMENT CONTROL ACTIVITIES  
(QAM 800421 001)

This is in response to your verbal request of me to indicate my concurrence with the findings contained in Attachment A regarding the subject OEDC QA evaluation. I participated in the subject evaluation as a QA engineer, then a member of the OEDC QA staff. Pursuant to that evaluation, I participated with the other team members in evaluating the EN DES responses to that QA evaluation. Attachment B is the consensus of the evaluation team regarding the adequacy of the EN DES responses. Based on this consensus, I take issue with the disposition of QAE 80-1 items proposed by the E. G. Beasley memorandum (Attachment A) in the following respects:

1. The determination of the OEDC QA staff that only four of the items identified in the subject report constitute deficiencies does not take into account the EN DES responses to the items identified. The majority of the items identified should be considered deficiencies, particularly in light of the EN DES responses to those items.
2. The determination of the OEDC QA staff that none of the items identified should be considered significant is questionable. Those items and the responses to them which indicate a failure of QEB management to properly comprehend the nature of their QA function and a lack of resources in QEB to effectively perform their QA function should be considered significant.
3. The management attitude which leads to the conclusion that certain items "are primarily concerned with management methods and procedures and only have secondary impact on quality" is erroneous. The importance of management involvement and methodology in executing an effective QA program is fundamental and is well documented in QA literature. Having adequate procedures controlling activities affecting quality is one of the cornerstones of an effective QA program.



2

S. Duhan  
August 15, 1980

QUALITY ASSURANCE EVALUATION QAE 80-1 - PROCUREMENT CONTROL ACTIVITIES  
(QAM 800421 001)

Based on the concerns expressed above, I believe that it is in the best interest of the agency that I do not concur with the proposed action.

*R. F. Keck*

R. F. Keck

RFK:JN

Attachments

cc (Attachments):

H. N. Culver, 249A HBB-K - This matter is referred to you under the provisions of section II of the TVA Code, EXPRESSION OF STAFF VIEWS.

M. Guity, W12B42 C-K

L. G. Hebert, W12B44 C-K

MEDS, E4B37 C-K

J. E. Rose, Phipps Bend CONST

H. C. Russell, W5C126 C-K

M. N. Sprouse, W11A9 C-K

M. N. Sprouse, Manager of Engineering Design, W11A9 C-K

E. Gray Beasley, Quality Assurance Manager, OEDC, W12B25 C-K

August 13, 1980

**PROCUREMENT CONTROL ACTIVITIES - QUALITY ASSURANCE EVALUATION QAE 80-1**

Reference: Memos QAS 800530 003 and QAS 800625 001. M. N. Sprouse to J. P. Knight, same subject

The OEDC QA Staff has reviewed the referenced memos which contain the EN DES response to the subject Quality Assurance Evaluation. The results of this evaluation were briefly discussed with members of your staff during a meeting held August 5, 1980.

During the NRC QA audit of OEDC conducted in Knoxville, July 7-11, 1980, the NRC expressed concerns that evaluation findings are not reviewed for significance and documented as deficiencies when applicable. The OEDC QA Staff has reviewed all the items stated in the subject report and determined that those listed in Attachment A should be classified as deficiencies. These items have been reviewed for significance in accordance with QAI-4.0 and have been found to be nonsignificant.

Several of these items in the responses were acceptable; on others we still have concern that the items have not been adequately reviewed. All items other than those noted in the Attachment are primarily concerned with management methods and procedures and only have secondary impact on quality. We do not plan any other followup on these items nor do we expect a response from you. We do suggest that your staff carefully review the concerns as they might be items that would improve efficiency. We would be interested in receiving information copies of any correspondence that you issue relative to the concerns in this evaluation.

---

E. Gray Beasley

SD:DRS  
 Attachment  
 cc: R. A. Costner, W11A12 C-K  
 J. P. Knight, W12B30 C-K  
 J. L. Parris, W11C126 C-K  
 MEDS, E4B37 C-K  
 File QAE 80-1

QUALITY ASSURANCE EVALUATION QAE 80-1  
DEFICIENCIES

<u>Item No.</u>	<u>Subject</u>	<u>Comment</u>
A.1.c	Approval of Branch Inspection Manual. Branch Chief not reviewing and approving per Section A of the Manual	EN DES response QAS 800625 001 is acceptable and we await your final reply.
A.4	OEDC Manager's Office audit not being responded to within 30 days	EN DES response QAS 800530 003 is acceptable. This requirement will be reviewed during future OEDC audits.
B.1	Training program for field personnel not adequate	Previously identified in Audit M78-5 Deficiency 6. This item will be followed as part of that deficiency.
B.4.b.1	Timely implementation of corrective actions for vendor audit deficiencies	EN DES response QAS 800530 003 is acceptable. This requirement will be reviewed during future OEDC audits.

QUALITY ASSURANCE EVALUATION QAE 80-1  
EVALUATION OF RESPONSES TO FINDINGS AND RECOMMENDATIONS

A. MANAGEMENT CONTROLS

1.a. Recommendation

Review QEB EP/AI Manual and assure that it contains all EP's and AI's that are referenced. The manual will be revised as necessary.

Response

The QEB EP/AI Manual will be reviewed to assure that it contains all appropriate EP's and AI's that are referenced. The manual will be revised as necessary. Review scheduled for completion July 21, 1980.

Response Evaluation

The evaluation team will wait for the results of the EN DES review before making a determination as to the adequacy of the the response.

1.b. Recommendation

QEB-Knoxville should respond in writing to problems identified in Field Office Supervisor's Monthly Report.

Response

The referenced requirement was deleted from the manual by Revision 8 issued February 15, 1980.

Response Evaluation

The response provides a solution to the finding by ignoring the problem. This is not acceptable. Deleting the requirement from the manual does not help the field supervisor resolve his problems. This response is not acceptable.

1.c. Recommendation

The Branch Chief should document his review and approval of the contents of the TVA Inspection Manual by signing and dating each section or section change in an appropriate location.

### Response

The branch chief will document his review and approval of the Inspection Manual contents and revisions by signing off on a revision log for R7 and subsequent changes. This revision log will be added to the manual by Revision 9.

This item is being handled within the scope of our previous EN DES Internal Audit 80-4. We will advise you when this has been resolved.

### Response Evaluation

The evaluation team will wait for the corrective action from Audit 80-4 before making a final determination as to the adequacy of this response.

### Recommendation

AI-318.01 should be revised to include the reason for the document and to require actual data. The other branch AI's should be reviewed and revised as applicable to assure that the reason for each instruction can be clearly understood by the implementer of the instruction.

Procedures and instructions should clearly advise the purposes(s) of the stated requirement to the person or organization who has to perform the assignment.

### Response

The referenced information submittal is used for management planning and analyses. We do not believe that it is necessary for every procedure and instruction to contain a justification for the activities prescribed. There are cases where this practice would be counter-productive, particularly where management planning is an objective. We will incorporate such information in our procedures and instructions where necessary for clarity of understanding.

### Response Evaluation

The original concern has not been answered by the En Des response. The field offices have been submitting proposed work schedules as required by the AI for over 10 years. This should be enough data for planning purposes.

Also from the response it appears that QEB management does not believe that it is a good practice to tell its personnel the reason for an instruction, they only have to issue a directive to do it.

3. Recommendation

Re-evaluate manpower requirements for activities assigned to the Philadelphia and other regional offices. This review should also include the Knoxville QC support organization. During the re-evaluation consider the adverse impact on CONST (cost and scheduling) for increasing the average number of contracts assigned to an inspector from 16 to more than 28.

Response

Manpower requirements for activities assigned to the Philadelphia and other regional offices will be re-evaluated. This review will include the Knoxville QC support organization and will consider any adverse impacts on design and construction. Review scheduled for completion July 21, 1980.

Response Evaluation

The response is acceptable. Exact manpower requirements should be developed in detail, especially for problem contracts. The evaluation team will wait for the results of the review before making a final determination as to the adequacy of the corrective action taken.

4. Recommendation

EN DES should respond to audit deficiencies with a description of the proposed corrective action and an implementation schedule within 30 days of receipt of the audit report.

Response

EN DES will respond to audit deficiencies in accordance with the requirements stated in each audit report, usually within 30 days. A response to the referenced audit was made February 4, 1980.

Response Evaluation

Responses to audits are still not being received on a timely basis. EN DES should consistently provide responses within 30 days. OEDC-QA will monitor the timeliness of EN DES responses to audit deficiencies before making a final determination as to the adequacy of any corrective action taken.

B. QA PROGRAM CONTROL SYSTEM

1. Recommendation

Develop a standard training program and schedule for all field personnel and implement the plan. It should include OJT, informal sectional training, and formal training by outside activities. The training program should cover the basic equipment and materials which are assigned for surveillance, the codes used for fabrication and installation, and the implementation of applicable procedures and instructions. It should include as a minimum for mechanical, structural inspectors the welding standards for AWS, ASME, and ANSI B31.1. Updating to maintain technical competence should be included in the program. Applicable inspectors should be trained and certified for EDDY current testing and leak testing.

It is the team's evaluation that reliance should not be placed solely on OJT or master/apprentice type training now in effect. There is an ongoing need for training and the present system provides little training for those who are older and therefore thought to be more experienced and more competent. All persons should receive refresher and requalification training.

All inspectors and field supervisors should be trained to be able to spot problem contractors early in fabrication and then work with QEB Knoxville to correct generic problems such as poor welding, inadequate vendor inspection coverage, or incorrect fabrication techniques before these materials or equipment are fabricated with the problems or before they are presented for final acceptance.

Each training module covering procedural requirements should tell why the item under discussion is needed and used; for example, training on writing inspection reports should define minimum data requirements and describe who gets the reports and how their organizations use them.

Response

A standardized training program and schedule for field personnel can be developed and implemented to supplement the existing training program. This program will include topics appropriate to the needs of potential trainees. We estimate such a program will require extensive travel and a significant increase in EN DES manpower ceiling to provide for formalized instructors and to allow for the non-productive time of trainees. We will proceed with this activity when authorization is provided to

to increase our manpower ceiling and travel budget for this purpose.

#### Response Evaluation

Training for field personnel is a requirement and must be developed and implemented. Engineering Management should provide the resources to comply with this commitment. The response is not acceptable.

#### 2.a. Recommendation

The inspection procedures that are to be included in the Inspectors Manual should be expanded to include guidelines for all components under surveillance; for example, only one procedure for valves - butterfly valves - is presently planned to be in the manual.

#### Response

The scoping of generic inspection procedures will be evaluated and additions (or deletions) made based on this evaluation. Twenty sample inspection procedures were added to the Inspection Manual February 12, 1980, with revision 8. No further additions or deletions are considered necessary at this time.

#### Response Evaluation

There are still some safety-related items for which there is no appropriate inspection procedure. In addition, some of the existing procedures are vague and general in nature. Further additions to and refinement of the inspection procedures are required. This response is not acceptable.

#### 2.b. Recommendation

Terms should be defined in the Inspector's Manual and the I & T reports should be more specific. In the case of inspection reports, the writer should state clearly and concisely what he did and report the results of his inspections.

#### Response

The inspection reports are intended as inspection trip reports rather than detail reports of inspections. The training program (ref. B.1.) will encompass this subject.

### Response Evaluation

The nature of the response reveals a fundamental lack of understanding of QEB's QA function. 10 CFR 50, Criterion VII provides that one of the measures established to assure that purchased material shall conform to procurement documents is "inspection at the contractor or subcontractor source." QEB is charged with providing surveillance inspection. Furthermore, the minimum required information to be contained in inspection reports is delineated in Criterion XVII. The importance of these inspection reports is expanded upon in ANSI N45.2.13, par. 7.6. The fact that QEB personnel believe that QEB inspectors' responsibilities are perfunctory and that inspectors' reports are merely "trip reports" is a matter of serious concern.

The training program if implemented should state what and how much data to put in an I & T Report. The evaluation team will wait for a more adequate response.

### 2.c. Recommendation

Develop, issue, and implement a QEB procedure defining the system for setting up QEB inspection requirements for TVA procedures which are in addition to those specified in contracts. This procedure should include hold points, witness points, and in-process inspections and a definition for each. It should also state what inspections can or cannot be waived and how this action can be accomplished. The above inspection requirements should be included in future procurement requests.

### Response

The system for setting up QEB inspection requirements, which are in addition to those specified in contracts, is defined in Inspection Manual section C, paragraphs 1.0 and 4.2. Waiver of inspections is addressed in section C, paragraph 5.2.2. These sections include hold points, witness points, in process inspection, and instruction for waiver of inspections. Current EN DES procedures provide for inspection requirements which are included in procurement requests to be included in contracts. We will review these instructions and procedures to determine if there are any definitions which may be needed for unusual terms.

Inspection Manual Procedure D1.1, Inspector Preparatory Activities, addresses the subject in addition to the references previously provided. These procedures do not contain unusual terms which require additional definition.

### Response Evaluation

Contracts should clearly specify specific inspection and hold points. The Inspection Manual is not a contractually binding

document and cannot be implemented if the contractor decides to not choose to go along with QEB suggestions. Establishment of inspection requirements should not be left to the discretion of the field inspectors. This response is not adequate and this item remains open pending implementation of correction action.

**3.a. Recommendations**

Generic component QC requirement guidelines should be prepared jointly by the branches and QEB and the appropriate requirement should be included in procurement specifications.

**Response**

It is true that QEB-QC does not review purchase requisitions prior to issue for inspection or hold point requirements. QEB does have an opportunity to review the purchase requisitions after they are issued, however, and to recommend changes prior to the bid process. These recommendations are resolved jointly with the initiating branch with requirements being added as appropriate. (Also, see reply to B.3.d.)

**Response Evaluation**

QEB needs to either issue a comprehensive procedure covering this QA function or provide an acceptable alternative. The procedure described in the response can be costly and cause delays in the issuing of a contract. The evaluation team does not believe this is an adequate response.

**3.b. Recommendation**

A section should be included in future QA procurement requests requiring a supplier to submit with his bid proposal a QC inspection and test plan for approval. This plan should then be reviewed against contractual requirements and approved if there are no discrepancies. Using this document, QEB should then prepare their detail inspection plan. This plan should be approved in Knoxville, if prepared in a field office, and a copy sent to the supplier for information purposes only. The above system should provide an orderly method for the surveillance of TVA material and equipment being fabricated in the field that should be acceptable to both TVA and the supplier.

**Response**

We agree that the recommended concept could provide an orderly method for surveillance planning. QEB now performs inspection planning as outlined in the Inspection Manual specifically as noted in B.2.c. above. These plans are usually based on conferences with the manufacturer rather than formal plans proposed by the contractor during the bid process.

We will perform a study to determine the impact of this recommendation on the bidding process and propose such a plan for EN DES management approval if shown to be beneficial to TVA. Review scheduled for completion August 15, 1980.

#### Response Evaluation

QEB is reminded that Quality Assurance as defined in 10 CFR 50 is a series of "planned and systematic actions." The response by QEB provides neither a planned nor a systematic approach to handling this function.

The evaluation team will wait for results of the EN DES review.

#### 3.c. Recommendation

A new or potential supplier should be required to identify prior to award of contract his reliance on outside sources for the performance of special fabricating, protective coating, inspection and testing operations.

#### Response

We agree that on major contracts for critical materials or equipment, a bidder should be required to furnish a list of his planned subcontractors. This is already being done on most major contracts.

#### Response Evaluation

A list of subcontractors should be furnished for all contracts and a firm commitment to do so should be obtained.

#### 3.d. Recommendations

Expand QEB's charter to include the establishment of additional hold and witness points where appropriate.

#### Response

QEB's charter presently includes the authority to establish additional notification and witness points where appropriate. QEB recommends contract changes to establish additional hold points when needed.

#### Response Evaluation

This activity should be accomplished prior to issuance of a contract as contract changes are costly. This response is not adequate.

4.a. Recommendation

Vendor audits should be more hardware oriented. Auditors should observe work activities, discuss fabrication and testing with production personnel, evaluate the vendor's Quality Control Program, compare hardware to drawings and specifications, and verify findings through a review of fabrication and QA records. (These activities do not preclude assuring that contract activities are being accomplished in compliance with approved procedures and are properly documented.)

Response

Vendor audits are hardware oriented to the extent necessary to satisfy the audit objectives. Auditors observe work activities, discuss processes with contractor personnel as appropriate, and evaluate the vendor's program. The comparison of hardware to drawings is an inspection and surveillance function performed by auditors only when necessary to verify a related program element. Findings are verified in a number of ways, including reviews of records.

Response Evaluation

QEB cannot effectively audit without looking at both hardware and records. As stated above, comparing hardware to drawings is required to verify specific program elements. This should be made a requirement for each audit and not to do 'as necessary'. This is not an adequate response.

4.b. Recommendation

1. More management attention be provided to assure more timely implementation of corrective action which is necessary to close audit findings at vendor plants.
2. QEB issue monthly rather than quarterly reports on the status of vendor corrective action.
3. The QEB-QC field personnel be used more extensively to verify the implementation of corrective action. As necessary, provide training to field M & D schedule personnel to accomplish this activity.

### Response

1. More management attention is being provided to assure more timely implementation of corrective actions necessary to close audit findings at vendor plants.
2. We have evaluated this recommendation and conclude that the quarterly reports on the status of vendor corrective action is adequate for its purpose.
3. The use of field personnel is provided for in EN DES-EP 5.34 section 6.2. Training will be provided as necessary.

### Response Evaluation

1. No improvements in implementing corrective actions at a vendor's plant has been noted for this item.
2. QEB is requested to provide their rationale for their response.
3. Even though the procedure provides for the use of field personnel, indications are that they are rarely used.

EN DES is requested to provide a further response.

### 5.a. Recommendation

Plant surveys should be recognized as a QA function per 10CFR50 appendix B. Also, QEB should recognize QC as a part of Quality Assurance.

### Response

Plant surveys will be recognized as a QA function where applicable. QEB recognized QC as a part of Quality Engineering. Section 2.3 of the Inspection Manual will be revised as indicated on the attached marked copy. This item will be handled as a part of item A.1.c.

### Response Evaluation

Review of the proposed revision to section 2.3 of the Inspection Manual reveals that it does not cover all concerns expressed in the original evaluation. It does not:

- (a) Recognize the importance of a capability survey in meeting the requirements of ANSI N45 2.13.

- (b) Provide for identification of need, scheduling of, and conduct of capability surveys on a planned and systematic basis.
- (c) Provide for the recommendation to reject bidders who do not demonstrate their capability prior to award of contract.

5.5 Recommendations

Plant Surveys and Vendor Preaward Surveys should be complimentary and conducted simultaneously. (This will provide an in-depth evaluation of both a vendor's QA program and implementation.)

Response

Where simultaneous plant surveys and preaward QA surveys can be conveniently and efficiently scheduled, this will be accomplished. However, usually, due to the broader participation needed for the simultaneous surveys, it is not as effective as separate surveys. Also many plant surveys are performed where no preaward QA survey is needed and many preaward QA surveys are performed where no plant survey is needed since plant capabilities other than QA have already been evaluated and accepted.

Response Evaluation

For safety-related items, a preaward survey is always needed when a new vendor is involved. QEB is requested to provide further details for their conclusions to this recommendation as the evaluation team believes this response is not accurate if proper scheduling is accomplished.

6. Recommendation

Take action to improve the processing time for STRIDE NCR's.

Response

Activities associated with processing of STRIDE NCR's will be evaluated to identify any actions which will reduce processing time without compromising the control functions provided by the NCR system. Identified actions will be taken as appropriate. Some improvements have already been made in this area. Sample studies indicate that supplier NCR's are routinely forwarded by QEB for resolution within one or two days from receipt. In at least one case, a STRIDE nonconforming condition was completely resolved within 24 hours.

We have evaluated methods to improve the processing time for STRIDE NCR's. This evaluation has resulted in a change to our methods as indicated on the attached draft revision to QEB-EP 24.57.

Response Evaluation

This response is only a partial solution. The evaluation team will wait for implementation of the revised procedure before stating the problem has been adequately addressed.

C. INTERFACE CONTROL

1.a. Recommendations

QEB Technical Supervisors should provide more guidance and make trips to the field to assist in setting up the inspection of vendor activities.

Response

QEB technical supervisors will provide the guidance necessary to assist in setting up the surveillance of vendor activities. Trips will be made where absolutely essential and within approved travel budgets.

Response Evaluation

Quality should be separate from Cost and Schedules. This response violates 10 CFR 50, Criterion I and is not adequate.

1.b. Recommendation

QEB Technical Supervisors should obtain first-hand knowledge of problem contracts through more frequent field trips to vendor plants to review the situation with field inspectors.

Response

Trips will be made where absolutely essential and within approved travel budgets.

Response Evaluation

Quality should be separate from Cost and Schedules. This response violates 10 CFR 50, Criterion I and is not adequate.

1.c. Recommendation

Field offices generally refer problems to Knoxville which are significant; therefore, QEB Knoxville should give them prompt attention. If an answer cannot be given immediately, an interim response should be given on the status.

Response

QEB-Knoxville will continue to give prompt attention to significant problems referred by field offices.

Response Evaluation

According to all field personnel interviewed, this is not being done. QEB-Knoxville is not promptly responding to field offices concerns on problems they identify. Therefore, continuation of past practice is not adequate. This response is not adequate.

2. Recommendation

Copies of all QEB vendor audit reports should be sent to applicable field offices so field personnel can know all items of contention with the vendor.

Response

Where appropriate, QEB-QA audit reports will continue to be sent to applicable field offices.

Response Evaluation

The evaluation team requests that EN DES advise:

1. Who makes this decision and what is it based on?
2. Why QEB has chosen not to routinely send audits reports to the field offices?

3.a. Recommendation

There should be feedback (with rapid instructions) to the field on meetings and decisions made in Knoxville and at construction sites on contracts that involved QEB field inspection.

Response

EN DES people will be instructed to provide adequate feedback to QEB for relaying to the field on meetings and decisions on contracts that involve QEB field inspection. Instructions will be issued from the EN DES Manager by July 15, 1980.

Response Evaluation

Instructions should read "to provide prompt and adequate feedback". Item remains open pending implementation of appropriate corrective action.

3.b. Recommendation

When TVA personnel plan to visit within a QEB Regional Area for the purpose of interfacing with a vendor, the regional office should be notified of the impending visit and its purpose.

Response

EN DES people will be instructed to notify the field inspection office through QEB-Knoxville when visits to contractors are planned. Instructions will be issued from the EN DES Manager by July 15, 1980.

Response Evaluation

OEDC-QA team requests a copy of the instructions to be issued to EN DES personnel. Item remains open pending implementation of corrective action.

3.c. Recommendation

When meetings are held to determine corrective action for identified problems, they should be attended by responsible persons who can make commitments for their respective organizations and the minutes of these meetings should be issued in a minimum of time. The implementation of the agreed to courses of action should not be delayed while waiting for the meeting minutes.

Response

We agree.

Response Evaluation

Response not acceptable as the corrective actions needed to remedy the stated problem have not been identified.

3.d. Recommendation

When significant problems are identified at a supplier's facility, increased expertise should be assigned to the contract (not necessarily the normal QEB Technical Supervisor) and the assigned inspector or a more qualified inspector should be promptly briefed and directed to spend more time on the problem areas. Examples: Dimensional checks, welding inspection.

Response

Where significant problems are identified at a supplier's facility, sufficient surveillance capability will be applied within manpower and budgetary constraints.

Response Evaluation

Quality should not be dependent upon budget restraints. Response violates Criterion I and is not acceptable.

4. Recommendation

More direct contacts between field inspectors and QEB Technical Supervisors should be effected. The inspector should advise the supervisor whenever he has made a call to Knoxville.

Response

Branch instructions for communications between QEB-Knoxville and field offices will be reviewed and adjusted if necessary to improve effectiveness.

Review scheduled for completion July 11, 1980.

Response Evaluation

The evaluation team will withhold response evaluation awaiting the results of the EN DES review.

5.a. Recommendation

C. F. Braun Engineering personnel should accompany TVA engineers and surveillance inspectors to problem vendor plants to obtain first-hand knowledge of existing fabrication problems and solutions should be identified and implemented in accordance with established procedures or methods.

Response

We don't feel that the education of C. F. Braun Engineering personnel is our responsibility; however, we have recently observed that more such visits are being made.

Response Evaluation

This is not a valid response. Where necessary, TVA must educate it's suppliers to the extent that they can provide material which will perform satisfactorily in service.

5.b. Recommendation

The dispute between Lakeside and GE/Braun concerning buttering should be resolved by TVA in an expeditious manner to prevent additional schedule slippages.

Response

We agree.

Response Evaluation

Response not adequate. Corrective action has not been provided.

5.c. Recommendation

Knoxville QEB should through its existing organization or through a designated GE/Braun liaison position assure that all STRIDE equipment changes negotiated with vendors are supplied to field inspection personnel.

Response

We will review the system for providing this information to field inspection personnel and make adjustments where effectiveness can be improved. Review scheduled for completion July 11, 1980.

Response Evaluation

Audit team will wait for results of the EN DES review.

UNITED STATES GOVERNMENT

TENNESSEE VALLEY AUTHORITY

## Memorandum

TO : Stan Duhan, Supervisor, OEDC Quality Compliance Section, W12B47 C-K

FROM : W. P. Kelleghan, Project Manager, Phipps Bend Nuclear Plant CONST

DATE : SEP 24 1980

SUBJECT: PHIPPS BEND NUCLEAR PLANT - QUALITY ASSURANCE EVALUATION QAE 80-1

Reference: Memorandum from E. Gray Reasley to M. N. Sprouse dated August 13, 1980; same subject (copy attached)

This is written in response to your verbal request to J. E. Rose, Phipps Bend Construction, to indicate his concurrence with the findings contained in the referenced memorandum. After a review of the contents of this memorandum, we do not agree with the conclusion that the findings outlined in QAE 80-1 should be classified as nonsignificant nor do we feel that the Engineering Design response to these findings are adequate. Our reasons for taking this position are as follows:

1. It is evident from a review of the subject evaluation that there is not sufficient organizational structure nor enforcement structure to effectively:
  - a. Evaluate and recommend prospective suppliers
  - b. Adequately specify and provide in the contracts language enforceable technical and QA requirements
  - c. Provide adequate vendor surveillance during the fabrication phase of the contract to effectively identify and handle problems encountered during fabrication

This problem has been previously identified by Construction and has already had an inestimable impact on construction costs and schedule at both Phipps Bend Nuclear Plant and Hartsville Nuclear Plant due to the defective materials and equipment which have shipped to these sites (refer to my memoranda to H. H. Mull dated December 10, 1979 (PBN 791210 041) and January 8, 1980 (PBN 800108 044) same subject.

2. We disagree with the determination that the individual findings are nonsignificant. When viewed collectively, the total content of the evaluation and the individual findings point to a generic condition described in item (1) above.



Stan Duhan

PHIPPS BEND NUCLEAR PLANT - QUALITY ASSURANCE EVALUATION QAE 80-1

We trust this explanation provides the rationale for our disagreement with the subject determination.

Original Signed by W. P. Kelloghan  
W. P. Kelleghan

JER:JH

Attachment

cc(Attachment): H. H. Culver, 249AHBB-K\*  
M. Guity, W12B42 C-K  
L. G. Hebert, W12B44 C-K  
MEDS, E4B37 C-K  
H. H. Mull, E7B24 C-K  
H. C. Russell, W5C126 C-K  
M. N. Sprouse, W1A9 C-K

\*This matter is referred to you under the provisions of Section II of the TVA Code, Expression of Staff Views.

M. N. Sprouse, Manager of Engineering Design, W11A9 C-K

E. Gray Beasley, Quality Assurance Manager, OEDC, W12B25 C-K

August 13, 1980

PROCUREMENT CONTROL ACTIVITIES - QUALITY ASSURANCE EVALUATION QAE 80-1

Reference: Memos QAS 800530 003 and QAS 800625 001, M. N. Sprouse  
to J. P. Knight, same subject

The OEDC QA Staff has reviewed the referenced memos which contain the EN DES response to the subject Quality Assurance Evaluation. The results of this evaluation were briefly discussed with members of your staff during a meeting held August 5, 1980.

During the NRC QA audit of OEDC conducted in Knoxville, July 7-11, 1980, the NRC expressed concerns that evaluation findings are not reviewed for significance and documented as deficiencies when applicable. The OEDC QA Staff has reviewed all the items stated in the subject report and determined that those listed in Attachment A should be classified as deficiencies. These items have been reviewed for significance in accordance with QAI-4.0 and have been found to be nonsignificant.

Several of these items in the responses were acceptable; on others we still have concern that the items have not been adequately reviewed. All items other than those noted in the Attachment are primarily concerned with management methods and procedures and only have secondary impact on quality. We do not plan any other followup on these items nor do we expect a response from you. We do suggest that your staff carefully review the concerns as they might be items that would improve efficiency. We would be interested in receiving information copies of any correspondence that you issue relative to the concerns in this evaluation.

---

E. Gray Beasley

SD  
NB  
cc: SD:DIS  
Attachment

cc: R. A. Costner, W11A12 C-K  
J. P. Knight, W12B30 C-K  
J. L. Parris, W11C126 C-K  
MEDS, E4B37 C-K  
File QAE 80-1

QUALITY ASSURANCE EVALUATION QAE 80-1  
DEFICIENCIES

<u>Item No.</u>	<u>Subject</u>	<u>Comment</u>
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B.4.b.1	Timely implementation of corrective actions for vendor audit deficiencies	EN DES response QAS 800530 003 is acceptable. This requirement will be reviewed during future OEDC audits.

UNITED STATES GOVERNMENT

GNS '80 1024 052

TENNESSEE VALLEY AUTHORITY

Memorandum

80102780591

18

TO : J. R. Calhoun, Director of Nuclear Power, 1750 CUBB-C

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

DATE : October 24, 1980

SUBJECT: BROWNS FERRY NUCLEAR PLANT - SPECIAL REVIEW REPORT R-80-15-BFN - SPECIAL REVIEW OF THE ULTRASONIC MONITORING PROGRAM FOR THE SCRAM DISCHARGE TO 6-INCH HEADERS

Reference: Undated letter from the NRC (James P. O'Reilly, Director, Region II Office of I&E) to TVA (Attention H. G. Parris, Manager of Power), "Confirmation of Action"

As you requested in a telephone call to me on October 9, 1980, NSRS conducted an independent review of the ultrasonic test (UT) monitoring program for the scram discharge volume headers at Browns Ferry Nuclear Plant on October 14 through 16, 1980. The attached report of the findings of that special review contain findings that address the four items of concern that were specified in the NRC letter referenced above. A copy of this report was telecopied to you on October 21, 1980. It is expected that the recommendations contained in the report will be immediately implemented by NUC PR. We will monitor your corrective actions in this area during our next review at BFN.

NSRS appreciates the excellent cooperation that was provided by both management and staff personnel at BFN during this special review. If you have questions or comments on this report, please contact Kermit Whitt, extension 6620-Knoxville.

Original Signed By  
 H. N. Culver  


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 H. N. Culver

*LFB*  
*KRM*

LFB:KRM  
 CC: MEDS, E4837 C-K



TENNESSEE VALLEY AUTHORITY  
NUCLEAR SAFETY REVIEW STAFF  
REVIEW  
NRS REPORT NO. R-80-15-BFN

SUBJECT: BRONS FERRY NUCLEAR PLANT - UNITS 1, 2, & 3  
SPECIAL REVIEW OF THE ULTRASONIC MONITORING PROGRAM FOR THE  
SCRAM DISCHARGE WELDED 8" HEADERS  
DATES OF ONSITE REVIEW: October 14-16, 1980

REVIEWER: L. F. Blankner Date \_\_\_\_\_

REVIEWER: R. W. Travis Date \_\_\_\_\_

APPROVED BY: R. W. White Date 10/22/80

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## I. Scope

This was a special independent review of incidents and activities at the Browns Ferry Nuclear Plant (BFN) associated with the scram discharge volume level monitoring system. This special review was performed at the request of TVA's Division of Nuclear Power (NUC PR) in response to an October 9, 1980, "Confirmation of Action" letter transmitted October 9, 1980, from the NRC (Mr. J. P. O'Reilly, Director of Inspection and Enforcement, NRC Region II) to the Tennessee Valley Authority (Attn: H. G. Parris, Manager of Power). A copy of the referenced letter is attached to this report. The review encompassed all the items specified in the NRC letter and was extended in scope to include a cursory review of the surveillance test program for BFN. This review required a total of approximately 54 man-hours of on-site time in the examination of documents, observation of plant activities, and discussions with site personnel.

## II. Background

While being shutdown for maintenance on June 28, 1980, the Browns Ferry unit 3 reactor failed to shut down properly when 76 of 185 control rods did not insert fully upon actuation of a manual shutdown signal (scram) of the reactor protection system. Within the next 15 minutes, the reactor was fully and safely shutdown by action of station operations personnel.

Following the shutdown on June 28, a comprehensive series of inspections, tests, and analyses were begun by NUC PR. Analysis of the event and test data indicated that the partial failure to scram was apparently due to the presence of a substantial quantity of water in the east side scram discharge header.

As a consequence of the incident of June 28, 1980, monitoring of the scram discharge headers (SDH) on operating units at BFN was begun on July 2, 1980. This monitoring was performed by use of ultrasonic test (UT) equipment to detect the presence (or prove the absence) of water in the SDH's, which are drained of water under

normal operating conditions. A system to provide continuous monitoring of the SDN's was installed in BFN-3 prior to resumption of power operations. On August 7, 1980, TVA stated in reference 1 to NRC that, "Ultrasonic sensors are presently attached to the scram discharge header low points on all three Browns Ferry Nuclear Plant units. These instruments are connected to alarming recorders which are checked approximately every 30 minutes." This commitment is binding for all three BFN units until replacement of the present system is made with an improved monitoring system.

During routine plant inspection tours on October 6, 1980, two NRC inspectors on separate occasions detected what appeared to them to be deviations from the expected routine for documenting reviews by operations personnel of the continuous strip chart recordings generated by the UT equipment installed to monitor the SDN's at BFN.

This potentially marked the third incident of a significant breakdown in the 30 minute chart monitoring program. On two earlier occasions, irregularities in chart reviews had been observed as follows:

On July 23 or 24, 1980

During an onsite review, NSRS reviewers noted that a 50 minute lapse occurred between the 2000 and 2030 reviews. The 2030 review was made and marked at 2050.

August 21, 1980

An NRC inspector detected that a 75 minute interval occurred between chart reviews.

Following the first incident, the plant management representative stated that the incident would be looked into and there should be no further incidents of this type. Upon confirmation of the second incident, firm corrective action was initiated by plant management. Following the most recent allegation by the NRC inspectors that chart reviews were not being properly documented, the plant superintendent undertook a preliminary internal investigation as well as other administrative actions. This was followed on October 9, 1980, with a request from the NRC that NSRS conduct an independent review of the problems associated with the SDN level monitoring program. This report summarizes the findings of the requested review.

### III. Conclusions

On October 17, 1980, an exit meeting was conducted by telephone between NSRS representatives and the BFN plant personnel indicated in section VI to summarize the findings of this special review. The following findings were discussed with plant personnel as preliminary conclusions at that time:

- A. There are conflicting accounts in regard to the marking of UT recorder charts in the intervals of 1030-1100 and 1430-1500 hours on October 6, 1980. Taken together, the available data leads to the following conclusions:
1. The "1030" review was conducted after 1028; the "1100" review before 1059. The time of the "1430" review cannot be corroborated from the data. The "1500" review was completed no later than about 1450.
  2. Except for the "1500" review, there is no direct evidence to support or deny the allegation that charts were marked well in advance of the nominal time or that the reviews were made in one trip between 1440 and 1450.
  3. In most cases, except for the intervals of alleged irregularities, it can be shown that the AUC departed or returned from chart reviews at times that indicate a regular, punctual pattern of reviews.
- B. In regard to monitoring of selected safety systems on BFN units 1, 2, and 3, no generic safety problem appears to exist.
- C. Administrative controls were adequate for monitoring UT equipment except as follows:
1. Adequate management controls were not implemented to assure that either (i) all assistant unit operators (AUC's) were properly trained to monitor the UT recording system or (ii) shift engineers were instructed to use only formally trained personnel for this task. As a consequence, two AUC's who were not formally trained were assigned to monitor the UT recording equipment.
  2. Even though several adverse incidents regarding the UT recording had occurred, a procedure specifying how and when to mark UT recorder charts has not been promulgated for plant personnel.
  3. Joint functional calibration checks, required once per shift, were being performed without the participation of operations personnel.
  4. No regular programmatic reviews had been initiated by operations (supervisory) or quality assurance personnel.
- D. Operations personnel generally have a good understanding of the incident involving the SDH's that occurred on BFN unit 3 on June 28, 1980, and of the importance of verifying the level of water in the steam discharge headers.

#### IV. Recommendations

The following recommendations were discussed with and acknowledged by BFN plant management as preliminary recommendations during an exit meeting conducted by telephone on October 17, 1980.

- A. BFN plant management should restrict assignment for monitoring the UT recording equipment solely to formally trained personnel.
- B. BFN plant management should issue directions as to how and when to mark reviews of the UT recorder charts. These directions should specify whether the exact time or a nominal time (within a specified time band) is to be used to indicate when a review was made. The mark made should be referenced to actual pen location at the time of the review.
- C. Either joint functional calibrations should be resumed or reference 2 amended to delete this requirement.
- D. A program requiring regular overview of this activity by operations supervisory personnel and by independent QA inspectors should be instituted to assure that routine monitoring is performed and recorded properly.

#### V. Open Items

- A. R-80-15-BFN-01, Monitoring of UT Recording Equipment

This item remains open pending action by NUC PR on recommendation IV.A (see sections IV.A and VI.C.1 for details).

- B. R-80-15-BFN-02, Recorder Chart Notation

This item remains open pending action by NUC PR on recommendation IV.B (see sections IV.B and VI.B for details).

- C. R-80-15-BFN-03, Joint Functional Calibration Checks of UT Recording Equipment

This item remains open pending action by NUC PR on recommendation IV.C (see sections IV.C and VI.C.2 for details).

- D. R-80-15-BFN-04, Management Overview

This item remains open pending action by NUC PR on recommendation IV.D (see sections IV.D and VI.B for details).

V. Details

Onsite portions of this review were conducted on October 14-16, 1980.

Listings of personnel contacted and documents reviewed are provided in sections VI and VII, respectively. Discussions were held with 3 NRC inspectors and with 22 TVA-site personnel. Specific observations and determinations made during this special review are as follows:

A. The Incidents on October 6, 1980

1. Background

On October 6, 1980, NRC site personnel allegedly made the following observations:

<u>Time (hours)</u>	<u>Event</u>
1045	An inspector noted that an "1100" mark had been recorded and initialed on the BFN-3 (west) UT recorder chart. The inspector suspected that the mark had been made in advance of the recorder pen location to make it appear that the review had been made at a later time. This was reported to the lead resident NRC inspector.
1430	The second inspector noted that no marks had been made for "1430" on the recorder chart for BFN-3 and BFN-1 (west) recorder charts. The inspector left the area of the recorder.
1440	The second inspector noted that no "1430" mark had been made on recorder charts in either BFN-1 (west) or BFN-3. The inspector left the area of the recorders.
1450	The second inspector observed that both "1430" and "1500" readings had been marked and initialed on the BFN-3 (west) recorder chart. He observed that the "1500" mark was made in advance of the pen location.

Following this sequence, an NRC inspector reported to the BFN plant superintendent a strong suspicion that the "1430" and "1500" marks had been made during a single review trip made between 1440 and 1450.

From discussion with plant operations personnel, the following alternative was alleged (times are approximate):

<u>Time (hour)</u>	<u>Event</u>
1100	The AUO might have marked the charts as early as 1050 but no earlier. Marking might have commenced early to permit a slightly extended interval for lunch.
1430	The AUO commenced marking charts with "1430," commencing in order from BFN-1 (west) to BFN-3 (east). This was completed about 1435.
1500	The AUO completed marking charts commencing in order from BFN-3 (east) to BFN-1 (west).

## 2. Documentary Evidence

Documentary evidence in regard to the alleged incidents was obtained from two sources:

A review of the UT recorder charts listed in reference 4 was made and compared to the data from the day shift on October 6, 1980. It was observed that with only two exceptions (where more exact marks were provided), AUO's had consistently marked the charts using nominal figures (i.e., 1030, 1100, 1130, etc.) and provided no reference mark as to pen location at the time of the reviews. The October 6, 1980, chart markings were consistent with this scheme. It was noted that most of the charts for October 6 showed 25-minute intervals between reviews made between the 1030-1100 and 1430-1500 intervals. However, a 35-minute interval between 1030-1100 was indicated on one chart. An inspection of the strip chart recorders showed that an interval of 8 minutes of chart is exposed in advance of the chart pen. No conclusions could be drawn directly from the charts.

The card key computer log for October 6, 1980, was examined to determine when the AUC assigned to UT reviews passed through computer-monitored doors. The clock of this computer is synchronized daily with the control room clocks, which the AUC was using to schedule his reviews. Although the card key log does not monitor entry and departure from the reactor building, the record shows that this AUC was very active and punctual (with one exception) throughout the 8-hour shift. The AUC was able to make at least 6 of 15 reviews within 15-minute time intervals (3 within 9-minute intervals). Regarding the times of the challenged reviews, the following estimates can be made:

- a. With one exception (a 4-minute delay following the 1100-1130 lunch break), the AUC commenced all traceable reviews at or before the scheduled time (i.e., 1000, 1030, 1100, etc.). In this one case, it appears there probably was a lapse of at least 42 minutes between reviews (estimated 1052 till 1134). If the NRC allegation is correct, the interval actually was in excess of 49 minutes (1045 till 1134).
- b. In regard to the 1030 and 1100 reviews, these were apparently completed during a 31-minute interval (1028-1059). If, as the NRC alleges, the 1100 review commenced by 1045, there was an estimated maximum of about 17 minutes (1028 till 1045) between these reviews.
- c. In regard to reviews made at 1430 and 1500, it can be estimated only that the 1500 review was completed by about 1450, since it is known that the AUC completed shift changeover with his relief and then (per the card key log) entered the control room at 1458.

It was concluded that the card key log did not provide conclusive data either to support or deny the NRC's allegations. From the card key data, it can be shown in most cases the AUC departed or returned from chart reviews at times that indicate a regular, punctual pattern of reviews.

### 3. Oral Information

From discussions with NRC and TVA personnel on site, the following additional information was obtained.

The AOU performing UT chart reviews during the day shift on October 6, 1980, has an excellent reputation among operations personnel as to character and dependability. The reliability of his word that he did not mark the charts at "1430" and "1500" during a single review trip is firmly believed in by his supervisors in the Operations Section. Prior to the NSRS review, the allegation that the AOU had advanced the chart markings for 1100 and 1500 (making it appear that the reviews were being made later than is actual fact) had not been discussed with him. Operations personnel knowledgeable on this specific incident stated that they understood that Operations supervisors desired a 30-minute span between review marks. However, no marks were intentionally advanced ahead of the pen.

It was stated that this AOU, like many others, had no timepiece. This required many AOU's to mark the charts at nominal intervals. Reviews, therefore, might be started a little early or late unintentionally. The AOU involved was allegedly using a control room clock to determine when to start reviews. It was also stated that he had spent the entire shift, with brief exceptions, reviewing the charts. Each round of readings was stated to take approximately 25 minutes' time for him as well as other AOU's to complete. It was also stated that during this shift the AOU entered the service building only briefly--to have a dosimeter zeroed, to buy food at lunchtime, and to visit the restroom. Review of the card key log indicated that the AOU spent a good deal of time in the service building between 0800 and 1000 and 1130 and 1400. The three shortest (9-minute) review trips made were conducted during these two intervals.

One point in corroboration of the advanced time of the 1500 review was the joint recollection of some operations personnel that an NRC inspector passed by two AOU's between 1450 and 1455 while they were conducting shift changeover for the UT monitoring.

From discussions with plant management and supervisory personnel, it was learned that the exact timing of reviews of the UT charts was of no great concern, but that moderate variations (perhaps +5 minutes between start of review time and the nominal time) was considered acceptable. This position agrees with the commitment made to the NRC (reference 1) and was verified orally with the NRC principal resident inspector on October 16, 1980.

Discussions were held with several NRC resident inspectors. It was determined that the AUC was not actually observed marking the UT recorder charts twice in one trip between 1440 and 1450. However, on separate occasions different inspectors noted apparent discrepancies concerning apparent advancement of the chart markings (for 1100 and 1500). Only one inspector noted an apparent delay in marking one chart review (the "1430" mark after 1440).

It was also noted that neither inspector was aware of the identity of the AUC; both inspectors had misread his initials when reviewing the UT monitoring charts, and neither had observed him during their inspection tours.

From the oral information presented above, no direct conclusions can be drawn concerning the NRC's allegations.

#### 4. Analysis of Data

Taken together, the documentary and oral information presented above lead to certain conclusions:

- a. The "1500" review was completed by about 1450.
- b. The documentary data indicates that a lapse of at least 42 minutes occurred between the "1100" and "1130" reviews. There are no corroborating data that shows conclusively that the "1100" review was made well in advance of the hour, that the "1430" review was made after 1440, or that both the "1430" and "1500" reviews were marked during a single trip between 1440 and 1450.

#### B. Administrative Controls

A written commitment was made to the NRC in reference 1 on August 7, 1980, that, "Ultrasonic sensors are presently attached to the steam discharge header low points on all three Browns Ferry Nuclear Plant units. These instruments are connected to alarming recorders which are checked approximately every 30 minutes." This commitment had been implemented on July 18, 1980, by reference 2, which required that Operations personnel check each monitor "at least once every 30 minutes." Reference 2 is the principal administrative control for this commitment. On August 22, 1980, the plant operations supervisor issued reference 3 which contained a reminder to all operations personnel as follows:

"The CRD discharge header ultrasonic level readings are extremely critical. We are committed to NRC thru IE Bulletin 80-17 to read these levels on all three units every 30 minutes. NRC representatives, QA and plant management are observing our timeliness and accuracy in getting these readings."

From discussions with site personnel, it was determined that ultrasonic monitoring frequency was being determined in accordance with the operations memo (reference 3) of August 22, 1980. All personnel had an understanding that UT monitors were to be checked approximately every 30 minutes. The consensus of opinion was that it was acceptable to commence reviews within about +5 minutes from the hour or half-hour mark. This interpretation was verbally concurred in by the NRC lead resident inspector on October 16, 1980.

The method of marking UT charts was found to meet the minimum requirements of BFN standard practice 12.2, "Documenting Operating Events," if it can be assumed that marking of nominal as opposed to actual time of reviews is an acceptable practice. However, since some AWO's reported that chart review could be easily performed within 5 to 10 minutes, while others reported that 30 minutes was barely sufficient time, it is questionable whether nominal times are valid for an activity for which timing is of special significance.

The reviewers were told by one AWO that several AWO's, including himself, saw nothing wrong with conducting a review 10 minutes in advance of nominal time so as to extend a lunch break or conduct shift changeover at a more convenient time.

If an AWO reverses his route while making reviews, as occurred during the 1430 and 1500 reviews on October 6, 1980, the review intervals may vary from less than 20 to greater than 40 minutes from one time to the next for the slower reviewers. Finally, the present non-specific method lends itself to poor punctuality.

It was concluded that management controls were deficient with respect to procedures for marking the UT charts.

From discussions with plant personnel, it was determined that surveys to verify adequate performance by AWO's of UT chart reviews had been made by several supervisory and management personnel during initial implementation of the monitoring program.

However, with the exception of one or two shift engineers, no reviews have been recently implemented by management, operations supervisors, or quality assurance personnel, despite the several instances of deficiencies in the UT monitoring program. According to BFN standard practice 3.9, "Quality Assurance Compliance Determination," quality assurance surveys will be conducted to an extent such that compliance with plant requirements is determined. This applies specifically to operations activities.

It was concluded from this review that no programmatic reviews have been conducted by either operations supervisors or quality assurance personnel.

### C. Training

In conjunction with the decision on or about July 18, 1980, to assign responsibility to operations personnel for monitoring the UT recording system, BFN management directed the QA staff to conduct training sessions and the operations staff to have operations personnel, including AVO's, to attend those sessions. A training outline and course examination were prepared and approved by plant management. The training sessions were presented, the exams scored and sent to the training files, and the routine surveillance of UT monitors by AVO's was placed in effect.

The following was determined from surveys and discussions: operations personnel seems knowledgeable of the performance characteristics of the UT monitoring system. Actions required of the AVO and shift engineers for abnormal conditions are well understood. An effective system is being maintained to assure the availability of a UT specialist on short notice (5 to 15 minutes). UT personnel seems to be knowledgeable and highly motivated. It was also stated repeatedly by operations personnel during informal discussions that the June 28, 1980, incident involving the SDH on BFN unit 3 was well understood as to potential severity.

It was noted that 9 of 62 AVO's at BFN have not received the formal QA training. At least two of these AVO's have been assigned to monitor the UT equipment in the past. Although a list of trained AVO's was provided to the shift engineers no supervisory guidance was issued as to whether to allow AVO's untrained in the SDH level monitoring process to perform this duty.

According to reference 2, issued July 18, 1980, calibration of the UT monitoring equipment is to be conducted jointly once per shift by the AVO and the UT specialist. This requirement was instituted to supplement AVO training. It was learned that two

of the five AUO's with whom discussions were held had not participated in nor observed a calibration of the UT monitoring equipment. One of these two AUO's had received neither QA training nor calibration experience.

It was concluded from this review that:

1. A training program for operator qualification in UT monitoring techniques had been set up. However, required training was not administered uniformly. In lieu of this training, management controls were not implemented to limit task assignment for monitoring the UT equipment only to formally trained personnel. As a consequence, two AUO's who were not formally trained were assigned to this task.
2. The requirement of reference 2 that calibration of UT equipment be conducted jointly between operations and quality assurance personnel is not being satisfied.

#### D. Overview of Surveillance Program

A limited overview of the plant surveillance test program was conducted to determine whether a generic problem exists in regard to surveillance monitoring. On three occasions, AUO's performing UT monitoring functions were observed to be reviewing the UT recorders expeditiously and punctually. On two occasions it was determined that within two hours after shift change operations personnel had recorded appropriate data in surveillance instruction SI-2, "Instrument Checks and Observations," on all three units. Comparisons of data recorded from shift to shift and day to day in SI-2 appeared very regular and reasonable.

The performance and review record for surveillance test procedures was examined for the third quarter (July-September) of 1980. It was determined that no scheduled test was performed late or held in review beyond administrative limits.

It was concluded from this review that for monitoring of selected safety systems, no generic safety problems appear to exist.

#### VII. Personnel Contacted

##### TVA

\*Abercrombie, H. L., Plant Superintendent  
Abercrombie, R. B., Operations Section  
Allison, J., Operations Section  
Anderson, W., Operations Section  
Boggett, W. B., Operations Section  
Bonds, J., Operations Section

##### NRC

Chase, J. W., Resident Inspector  
Paulk, G., Resident Inspector  
Sullivan, R. F. Resident Inspector

\*Boyer, R., Public Relations Office  
 Brown, Gene, Operations Section  
 Cain, J., Operations Section  
 Chinn, T. L., Mechanical Engineer  
 Glover, J. D., Operations Section  
 \*Harness, J. L., Assistant Superintendent  
 Harris, P., Operations Section  
 Haynes, G., Operations Section  
 \*Hunkapillar, R., Operations Section - Assistant Supervisor  
 Jackson, R., Chief, Public Safety Services  
 Jones, T. G., Operations Section  
 Kiep, Betty, Plant Services Staff  
 Parvin, L., QA Staff  
 Roberts, W. A., Plant Services Staff  
 Robbins, M., QA Staff  
 Smith, R. T., QA Staff Supervisor  
 South, D., Operations Section  
 \*Studdard, J. B., Operations Section - Supervisor

VIII. Documents Reviewed (References)

1. Letter dated August 7, 1980, from L. M. Mills (TVA) to the Office of Inspection and Enforcement, NRC, Region II, "Office of Inspection and Enforcement Bulletin, Supplement 1 - RII:JPO 50-259, -260, -296, - Browns Ferry Nuclear Plant," (A27 800807 002).
2. Memorandum dated July 28, 1980, from H. L. Abercrombie to R. T. Smith and J. B. Studdard, "Ultrasonic Monitoring on the Scram Full Discharge Headers."
3. Memorandum dated August 22, 1980, from J. B. Studdard to SE's, ASE's, UO's, AUO's, Students (concerning monitoring of CRD discharge header ultrasonic level readings).
4. UT Strip Chart Recordings as follows:
  - Unit 3 (east) dated 9-12-80
  - Unit 1 dated 9-24-80
  - Unit 3 (west) dated 9-20-80 through 10-14-80 (inclusive)
  - Unit 1 (east) dated 9-5-80 through 9-19-80 (Inclusive)
  - Unit 1 (west) dated 10-6-80
  - Unit 3 (east) dated 10-6-80