

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
230 PEACHTREE STREET, N. W. SUITE 818
ATLANTA, GEORGIA 30303

DEC 23 1975

In Reply Refer To:
IE:II:VLB
50-390/75-9
50-391/75-9

Tennessee Valley Authority
Attn: Mr. J. E. Watson
Manager of Power
818 Power Building
Chattanooga, Tennessee 37401

Gentlemen:

This refers to the investigation conducted by Mr. V. L. Brownlee of this office on September 10-12, 29 and October 14, 1975, concerning an allegation against vendor activities as authorized by NRC Construction Permit Nos. CPPR-91 and CPPR-92 for the Watts Bar Nuclear Plant, Units 1 and 2 facilities, and to the discussion of our findings held with Mr. J. P. Knight at the conclusion of the investigation.

Areas examined during the investigation and our findings are discussed in the enclosed investigation report. Within these areas, the investigation consisted of selective examination of procedures and records, interviews with personnel and observations by the investigators.

Within the scope of this investigation, no items of noncompliance were disclosed.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter and the enclosed investigation report will be placed in the NRC's Public Document Room. If this report contains any information that you believe to be proprietary, it is necessary that you submit a written application to this office requesting that such information be withheld from public disclosure. If no proprietary information is identified, a written statement to that effect should be submitted. If an application is submitted, it must fully identify the bases for which information is claimed to be proprietary. The application should be prepared so that information sought to be withheld is incorporated in a separate paper and referenced in the application since the application will be placed in the Public Document Room. Your application, or written statement, should be submitted to us within 20 days. If we are not contacted as specified, the enclosed report and this letter may then be placed in the Public Document Room.



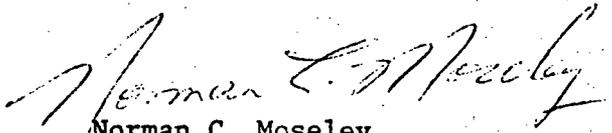
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Tennessee Valley Authority

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Should you have any questions concerning this letter, we will be glad to discuss them with you.

Very truly yours,



Norman C. Moseley
Director

Enclosure:

IE Investigation Report Nos.
50-390/75-9 and 50-391/75-9

cc w/encl: Mr. J. E. Gilleland
Assistant Manager of
Power

UNITED STATES
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REGULATORY INVESTIGATION REPORT
OFFICE OF INSPECTION AND ENFORCEMENT
REGION II

Subject: Tennessee Valley Authority
Watts Bar Units 1 and 2,
50-390/75-9 and 50-391/75-9,
Investigation of Allegations Relating
to Breakdown of Quality Assurance/Quality
Control Functions at Bristol Steel and
Iron Works, a TVA Vendor

Period of Investigation: September 10-12, 29 and October 14, 1975

Investigators:

V. L. Brownlee
V. L. Brownlee, Reactor Inspector
Projects Section
Reactor Construction and Engineering
Support Branch

11/17/75
Date

J. J. Blake
J. J. Blake, Metallurgical Engineer
Engineering Support
Reactor Construction and Engineering
Support Branch

11/17/75
Date

A. R. Herdt
A. R. Herdt, Metallurgical Engineer
Engineering Support
Reactor Construction and Engineering
Support Branch

11/17/75
Date

B. J. Cochran
B. J. Cochran, Reactor Inspector
Projects Section
Reactor Construction and Engineering
Support Branch

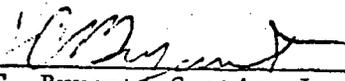
11/17/75
Date



IE Report Nos. 50-390/75-9
and 50-391/75-9

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Reviewed By:



J. C. Bryant, Section Leader
Projects Section
Reactor Construction and Engineering
Support Branch

11/19/75
Date

Introduction

On August 8, 1975, IE:II received an allegation that a TVA vendor, Bristol Steel and Iron Works (BSIW), Bristol, Virginia, had not adequately implemented a satisfactory quality assurance/quality control program for BSIW's work on TVA Nuclear contracts, particularly the Bellefonte containment contract. The allegor also maintained that BSIW personnel had altered fabrication documentation and these alterations had been discovered by TVA inspectors at the BSIW plant.

The Office of Inspection and Enforcement, NRC, initiated an investigation of the allegation from its Atlanta Regional Office under the provisions of 1.124 of Part 1, Title 10, Code of Federal Regulations. The investigation performed by IE:II was to ascertain the validity of the allegation and, if valid, to assess the generic implications.

Scope of Investigation

The scope of this investigation included: (a) review of TVA contracts and contract files for BSIW work on Bellefonte and Watts Bar Nuclear Plant materials to determine the validity of the allegation; (b) interview of TVA inspectors assigned to monitor fabrication activities at BSIW plants; and (c) discussion with appropriate TVA management to review TVA's response and corrective action requirements implemented to ensure that materials received from BSIW are acceptable for the intended applications and that QA/QC problems will be resolved for continuing and future work.

Conclusions

1. The validity of the allegations was substantiated.
2. The QA/QC problems with BSIW, including the alteration of records, were completely documented in TVA files.
3. The allegation pertaining to alteration of records pertained to Bellefonte Nuclear Plant only.
4. Prior to the investigation TVA had planned an audit of BSIW and during the investigation the audit was performed. TVA found approximately 30 noncompliances.
5. TVA has taken the following positive actions:
 - a. Required extensive research by BSIW to verify the performance of equipment from BSIW which has been received at TVA nuclear sites.

- b. Stopped shipment of all material from BSIW until conformance is confirmed.
- c. Required extensive changes in BSIW control methods.
- d. Made changes in the TVA QA program to prevent similar problems in vendor shops.

SUMMARY OF FINDINGS OF FACT

1. The accuracy of the allegation concerning inadequate implementation of the QA/QC program by BSIW was verified by review of TVA records and discussions with TVA personnel. The files disclosed that TVA had been in frequent contact with BSIW management concerning incomplete QA/QC records and other problems.
2. The validity of the allegation concerning alterations of Bellefonte records was confirmed by review of TVA records and by discussions with TVA vendor inspectors. These inspectors observed BSIW personnel completing fabrication records after the fact.

DETAILS

An investigation into the allegation was begun concurrently with an inspection of TVA's implementation of QA/QC programs in the design and procurement phase for Bellefonte and Watts Bar Nuclear Plants. The inspection and investigation were conducted at the TVA Office of Engineering Design and Construction (OEDC) in Knoxville, Tennessee, on September 10 through 12, 1975. During this activity, a review of the contracts and contract correspondence files substantiated the allegation in that the files contained correspondence and reports confirming that there had been a continuing problem at BSIW with implementation of the QA/QC program.

Of particular interest to the investigators was TVA nonconformance report concerning the disposition of incomplete fabrication records for materials for Bellefonte Unit No. 1 and a report by TVA inspectors stating that they had entered the BSIW plant and observed the BSIW shop supervisor and inspection supervisor altering the fabrication records for materials for Bellefonte Unit No. 2. The materials involved in both cases were the embedded materials for the containment liners and the steam generator anchorages. The fabrication records involved were shop route sheets and fabrication control records which require dated sign-offs by craft personnel after completion of each step of fabrication or transfer of material and by inspection personnel after completion of the identified inspection points.

The files documented that TVA had been in frequent contact with the management of BSIW in an attempt to obtain correction of the reported problems and attain complete compliance with the BSIW QA/QC program. TVA had also planned audits of BSIW for the purpose of a comprehensive evaluation of BSIW's performance to determine under what conditions BSIW would be allowed to continue. The files showed that the Bellefonte contract audit was scheduled for the week of September 15, 1975, and the Watts Bar contract audit was scheduled for early October, 1975. Subsequently, the Bellefonte audit was conducted as scheduled while the Watts Bar audit was delayed.

At the conclusion of this phase of the investigation, the investigators informed TVA that their problems with BSIW were of concern to IE:II and that the results of TVA's audits and corrective actions would be closely reviewed at a later date. Although TVA was closely monitoring activities at BSIW, TVA was found to be in noncompliance with requirements of their vendor audit procedure in that they had not conducted post-award audits during the design and procurement phase and the early fabrication phase of the contracts as required by that procedure. This noncompliance is reported in IE Inspection Report Nos. 50-390/75-8, 50-391/75-8, 50-438/75-8 and 50-439/75-8. These are the inspections that were performed concurrently with the beginning of the investigation.

On September 9, 1975, IE:II interviewed the TVA inspectors involved with surveillance of BSIW fabrication activities. Also present during this interview was another TVA representative who had participated in the audit of the Bellefonte contract during the week of September 15, 1975.

The primary purpose of this interview was to obtain first-hand accounts of the activities at BSIW that led to the preparation of the TVA inspector's reports concerning problems at BSIW. A summary of the information received during this discussion is as follows:

- A. These contracts were BSIW's first major venture into nuclear work. To meet the requirements of the Bellefonte contract, BSIW hired a consultant to prepare a QA manual to meet the ASME Code. Fabrication work was started in January, immediately after the QA manual was approved, by people that were not familiar with the requirements of the QA manual. In addition, the QA manual as prepared by the consultant did not fit the organization alignment of BSIW.
- B. This situation led to continuing problems in the area of QA/QC implementation. One example of the problems was the presentation of incomplete documentation packages on the Bellefonte Unit No. 1 embedment materials in May 1975. This problem was documented in BSIW Nonconformance Report No. 23 and related to route sheets and

fabrication control records which did not contain all the required signatures and dates. After reviewing the records and the material TVA accepted BSIW's disposition to accept the documentation as is and retrain the BSIW personnel as to the necessity for completing all records prior to turning record packages over to TVA inspectors for the release of material for shipment.

- C. In June 1975, the TVA inspectors forwarded a Summary Report to their supervisor in Knoxville requesting an audit of BSIW. A few days after submitting this report, the TVA inspectors entered the BSIW plant and observed the shop supervisor and chief inspector working on a stack of records. When asked what they were doing, the BSIW inspector and supervisor replied that they were straightening out the records prior to presentation to TVA. The straightening out consisted of signing off steps that were obviously completed, adding dates that had been omitted, and changing fabrication step completion dates that were in error. This concerned Bellefonte records. Shortly thereafter, the BSIW plant went on strike for six weeks, from early July to the latter part of August. As a result of the strike the requested audit was put off until the fabrication operations were back in full swing. During July 1975, the TVA inspectors forwarded a written report of the observance of the record alterations to document their findings.
- D. The TVA inspectors expressed the opinion to the IE investigators that the BSIW people did not realize the full implication of their alteration of the fabrication records. The situation was one of a lack of comprehension of the requirements because BSIW was new to the nuclear business; TVA had already chastised BSIW for submitting incomplete records, and the two BSIW people involved were the ones responsible for the work and records and had first hand knowledge of what had been done.
- E. The TVA inspectors stated that TVA had placed a hold on the shipment of any more material until BSIW could prove to TVA's satisfaction that the documentation and material are acceptable.

In addition to the interview of the inspectors, a discussion was held concerning the results of TVA's audit of BSIW. This discussion centered around a preliminary copy of the audit report. The IE:II investigators were given a copy of this preliminary report for detail review after returning to IE:II offices. The audit findings presented in this report confirmed that BSIW had not successfully implemented its QA/QC program, especially, in the areas of organization/program/training, implementing procedures and instructions, welding/NDE procedures and qualifications, and control of fabrication processes.

On October 14, 1975, IE:II met with TVA management to review TVA's response and corrective action program relative to providing assurance of quality for materials already received from BSIW, materials fabricated but not yet released for shipment, and materials yet to be fabricated. During this meeting TVA provided a listing of the materials that had been received at the Watts Bar and Bellefonte sites and copies of correspondence between TVA and BSIW relative to the BSIW action required to provide total assurance of acceptability. TVA management produced documents and made statements to show that the following action had been or would be taken:

- A. BSIW will provide verification of a review of all work for acceptance. Documentation of this review will be provided as a part of the final documentation package for the materials. TVA-DED will review all corrective actions.
- B. TVA has provided BSIW with a letter dated October 8, 1975, which was discussed with and accepted by BSIW management on October 9, 1975. This letter specifies the action required by BSIW to resolve the technical questions involved with the audit findings relative to welding and NDE.
- C. The Watts Bar contract audit which was scheduled for early October was cancelled because of the problems discovered during the Bellefonte contract audit. The Watts Bar audit will be rescheduled and conducted in conjunction with a followup audit of the Bellefonte contract after BSIW has completed corrective actions.
- D. TVA will closely monitor BSIW activity to provide assurance of full implementation of the QA/QC program.

TVA was cited in IE Report Nos. 50-438/75-10 and 50-439/75-10 for failure to report in a timely manner the alterations to Bellefonte records by BSIW.