TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

February 27, 1981

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U.S. NUCLEAR REGULATORY COMMISSION

WBRD-50-390/81-17
WBRD-50-391/81-16

Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 2100
101 Marietta Street
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - INADEQUATE QA REQUIREMENT FOR HVAC SYSTEMS - WBRD-50-390/81-17, WBRD-50-391/81-16 - FIRST INTERIM REPORT

The subject condition was initially reported to NRC-OIE Inspector T. Heatherly on January 24, 1980, as audit deficiency WB-G-80-02. This deficiency was later determined by TVA to be nonreportable in accordance with 10 CFR 50.55(e). Following the reporting of audit deficiency WB-M-81-03 to NRC-OIE on February 2, 1981, WB-G-80-02 was reevaluated. Based on recurrence of these similar deficiencies, WB-G-80-02 was reported to NRC-OIE on February 4, 1981, as reportable in accordance with 10 CFR 50.55(e). Subsequently, NCR's 2938R and 2929R on similar problems were reported to NRC-OIE on February 10 and 11, 1981, respectively. Enclosure 1 provides TVA's first interim report on these combined deficiencies. We expect to provide additional information by April 30, 1981.

Enclosure 2 provides TVA's action plan for evaluating the NRC concerns specified in a letter dated February 10, 1981, from J. P. O'Reilly to H. G. Parris. This enclosure reflects TVA's commitments discussed with NRC-OIE Region II employees on February 20, 1981. As stated in this enclosure, TVA will provide additional information by March 31, 1981.

If you have any questions, please get in touch with D. L. Lambert at FTS 857-2581.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosures
cc: Mr. Victor Stello, Director (Enclosures)
Office of Inspection and Enforcement
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ENCLOSURE 1

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
INADEQUATE QA REQUIREMENTS FOR HVAC SYSTEMS
WBRD-50-390/81-17, WBRD-50-391/81-16
10 CFR 50.55(e)
FIRST INTERIM REPORT

Description of Deficiency

Watts Bar Nuclear Plant Construction (CONST) began a comprehensive review of the Constructon Quality Assurance (CONST QA) program early in 1980 which identified the lack of adequate controls and acceptance criteria concerning activities related to Heating Ventilation and Air Conditioning (HVAC) systems in general. A CONST site audit, WB-G-80-02, conducted from January 14 through February 1, 1980, formally identified this problem in deficiency No. 1 and recommended the following corrective action to initiate a quality control procedure to verify and document the fabrication of those duct systems under the quality assurance program. The initial notification under 10CFR50.55(e) on this audit deficiency (WB-G-80-02) was made to the NRC-OIE on January 24, 1980. This deficiency was later evaluated and deemed nonreportable by TVA, and NRC was notified on February 1, 1980. Following receipt of additional information in Audit Deficiency WB-M-81-03, Audit Deficiency WB-G-80-02 was reevaluated and determined reportable (with Audit Deficiency WB-M-81-03) and the NRC-OIE was notified on February 4, 1981.

CONST QAB Audit WB-M-81-03 was conducted by TVA from January 5 through 23, 1981. The scope of the audit included fabrication and installation of duct supports, procurement of HVAC components, HVAC piping classification, and HVAC duct classification. The deficiency identified several entire specialized HVAC systems and portions of other HVAC systems that are designated by design criteria WBN-DC-40.36.1, revision 0, as ANS safety Class 2b that do not specify adequate quality assurance requirements for ductwork, components, and piping.

The following NCR's also identify conditions that do not meet the requirements for documentation and QA controls on HVAC systems: 2929R and 2938R. NCR No. 2929R identifies the lack of a QA program to all HVAC ductwork installed prior to August 1, 1980. Ductwork requiring a Certificate of Compliance or Certified Material Test Report were fabricated without proper QA controls. Safety-related HVAC Systems without proper QA controls include HVAC Chilled Water System 31, Electrical Board Room System, Main Control Room System, and Shutdown Board Room System.

Interim Progress

An ongoing program to review and implement procedures to define and control the installation and acceptance of HVAC Systems has been in progress since the initial audit finding (WB-G-80-02). A subsequent quality assurance program to control the fabrication, installation, and acceptance of HVAC Systems has been developed and implemented in the following procedures.

WBNP-QCP-4.24 "Inspection of Non-ASME Code Piping Systems," effective July 2, 1980

WBNP-QCP-4.27 "Inspection and Documentation of Ductwork," effective August 1, 1980

WBNP-QCP-4.33 "Inspection and Documentation Requirements for Brazed Joints in Safety-Related Refrigeration Piping Systems," effective September 30, 1980

All CONST activities related to HVAC systems have adhered to the requirements of these procedures since their respective effective dates. These procedures include requirements for the review, inspection, and acceptance of work performed before implementation. QCP's-4.24, 4.27, and 4.33 have been reviewed and approved by CONST QAB; and QCP's 4.24, and 4.27 were reviewed and approved by Engineering Design (EN DES) as meeting or exceeding quality assurance requirements for inspection and documentation.

TVA is currently investigating all safety-related HVAC Systems covering design, procurement, construction, inspection, and testing to verify that the completed systems meet applicable requirements to resolve the above-identified audit deficiencies and nonconformance reports as well as the generic implications.

ENCLOSURE 2

RESPONSE TO J. P. O 'REILLY'S LETTER TO H. G. PARRIS
DATED FEBRUARY 10, 1981

TVA plans for handling each of the four items in the NRC letter are listed below, with the numbers corresponding to those in the NRC letter.

1. An audit of selected elements of all safety-related HVAC systems covering design, procurement, construction, inspection, and testing will be done to verify that the completed systems meet applicable requirements. The audit will be done in two segments: (1) an audit covering the areas of design, procurement, and preoperational testing, and (2) an audit covering the areas of construction and inspection. These audits are described below as items 1.a. and 1.b.

   1.a. Audit of Design, Procurement, and Preoperational Testing for Safety-Related HVAC Systems

   The EN DES Design Project will draft a program plan to cover audit of design, procurement, and testing. This program plan will be reviewed and approved by EN DES QAB after resolution of comments. One element of the plan will be to provide the list of candidate safety-related systems. From this list EN DES QAB will select a representative sample which will include a portion of all systems.

   (In the specific area of preoperational testing, the sample selected will include Test TVA-6).

   The program will be executed by the design, engineering, and procurement personnel. This program will examine the design, engineering, and procurement documents to determine conformance with the QA program.

   During the latter stages of implementation of this program, EN DES QAB will audit the execution against the approved program plan.

   1.b. Audit of Construction and Inspection of Safety-Related HVAC Systems

   Selected portions of each safety-related HVAC system will be audited by the QA Unit at Watts Bar Nuclear Plant to ensure that construction and inspection meet regulatory requirements. This audit will include piping, electrical, instrumentation, and control systems; ducting, hangers, and supports; associated QA records and the verification that those selected portions of safety related HVAC are installed in accordance with design, i.e. material, configuration, location, etc.

2. All audit deficiencies and nonconformances identified during the execution of the program will be processed in accordance with the existing procedural system in 1.a. and 1.b. above. This includes determination of significance, reportability, and impact on other TVA sites. In addition the total set of deficiencies and nonconformances will be reviewed to determine if generic or repetitive problems exist.

3. A team consisting of members from the Office of Engineering Design and Construction (OEDC), EN DES and CONST QA organizations will evaluate corrective action taken on audit WB-G-80-02. Findings and recommendations will be reported to management so that directives for further corrective action may be issued, if required.

4. A comprehensive written report covering the results of items 1-3 will be provided to the Region II office by March 31, 1981.

   Items 2 and 3 above also involve evaluation of identified deficiencies and QA system problems for any impact on other TVA sites. This will be done via two actions:

   (a) CONST QA management in Knoxville will direct a review by the various site QA units to establish that QA/QC programs for safety-related HVAC systems comply with TVA and NRC requirements;

   (b) Should the review of deficiencies and nonconformances in item 2 above identify problem areas affecting other TVA sites, those areas will be translated into the corrective action systems for the affected sites.