



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

Report Nos.: 50-390/84-14 and 50-391/84-14

Licensee: Tennessee Valley Authority
500A Chestnut Street
Chattanooga, TN 37401

Docket Nos.: 50-390 and 50-391

License Nos.: CPPR-91 and CPPR-92

Facility Name: Watts Bar

Inspection at Watts Bar site near Spring City, Tennessee

Inspector: W. H. Miller, Jr.

3-13-84
Date Signed

Approved by: T. E. Conlon, Section Chief
Engineering Program Branch
Division of Engineering and Operational Programs

3/13/84
Date Signed

SUMMARY

Inspection on February 21, 23 and 24, 1984

Areas Inspected

This routine, unannounced inspection involved 19 inspector-hours on site in the area of fire protection/prevention.

Results

In the area inspected, no violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- W. T. Cottle, Plant Superintendent
- *E. R. Ennis, Assistant Plant Superintendent
- *W. L. Byrd, Compliance Supervisor
- *J. Englehardt, Compliance Staff
- *J. Collins, Mechanical Engineer
- *R. Green, Electrical Engineer
- *R. Griffin, Engineering
- *R. Manley, Plan and Schedule Supervisor
- *R. E. Yarbough, Operations
- *G. T. Denton, Operations
- *F. Hawkins, Fire Protection Engineer
- *J. J. Cand, Safety
- *G. Peck, Construction
- *M. K. Jones, Engineer
- *R. Thompson, Fire Protection Engineer
- *J. Feld, Fire Protection Engineer

NRC Resident Inspectors

- W. B. Swan
- M. Shymlock
- *W. B. Holland

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on February 24, 1984, with those persons indicated in paragraph 1 above. The licensee acknowledged the following inspection findings:

- a. Inspector Followup Item (390/84-14-01), Inadequate Fire Prevention Administrative Control Procedures for Control of Combustibles, Control of Ignition Sources, Fire Brigade Training and Drill Records and Fire Fighting Strategies - paragraph 5.a.(1), (2), (3) and (4).
- b. Inspector Followup Item (390/84-14-02), No Agreement with Offsite Fire Fighting Organization - paragraph 5.a.(5)
- c. Inspector Followup Item (390/84-14-03), Inadequate Surveillance Test Procedures for Fire Detection Systems - paragraph 5.b.(1).
- d. Inspector Followup Item (390/84-14-04), Inadequate Surveillance Inspection and Tests of Fire Pumps - paragraph 5.b.(2).

- e. Inspector Followup Item (390/84-14-05), All Fire Protection Valves not Cycle Tested - paragraph 5.b.(4).
- f. Inspector Followup Item (390/84-14-06), Inadequate Surveillance Inspection and Tests for CO2 Systems - paragraph 5.b.(5).
- g. Inspector Followup Item (390/84-14-07), Independent Verification not Provided for Fire Protection Control Valves - paragraph 5.b.(6).
- h. Unresolved item (390/84-14-08), Surveillance Procedures not Provided for all Fire Barrier Features - paragraph 5.b.(7).
- i. Inspector Followup Item (390/84-14-09), Medical Qualification Records for Fire Brigade Members not Up-to-date - paragraph 5.c.(2).

3. Licensee Action on Previous Enforcement Matters

(Closed) Inspector Followup Item (390/83-44-01 and 391/83-33-01), Re-evaluation of Seismic Requirements for Reactor Coolant Oil Collection System: The licensee stated (TVA memorandum to G. Wadewitz, Construction Project Manager, from J. C. Standifer, Watts Bar Design Project Manager of January 30, 1984) that the reactor coolant pump motors, lubricating oil system, oil spray and oil collection basins are designed to seismic Category I requirements and should not fail during a safe shutdown earthquake. This arrangement apparently eliminates the need to design the drain pipe system to meet seismic Category I requirements since the oil should remain within the lubricating system during and following a seismic event. Therefore, this item is closed.

4. Inspector Followup Items

Unresolved items were not identified during this inspection.

5. Permanent Plant Fire Prevention/Protection Program (Module 64703)

a. Fire Prevention/Protection Administrative Procedures:

The inspector reviewed the following licensee's procedures:

AI-1.8, Plant Housekeeping (R-3/11-8-83)

AI-9.9, Torch Cutting, Welding, Grinding and Spark Producing Work Permit (R-10/12-6-83)

PHYSI-2, Fire Protection Plan (R-5/1-16-84)

HCI-G7, Hazard Control Instruction Manual - No Smoking Areas (1-6-84)

TVA/EPPB, Fire Protection Manual - Program Area 19 - Fire Team Training

OOAM, Critical Structures Systems and Component List -
Section WB - AP2A, Part III

These procedures comply with and should assure satisfactory implementation of the NRC guidelines specified by the document entitled "Nuclear Plant Fire Protection Functional Responsibilities, Administrative Controls and Quality Assurance," dated June 20, 1977 and the requirements of 10 CFR 50 Appendix R Section III, H, I and K except for the following:

- (1) Procedures do not appear to require the removal of combustible waste, debris, etc. from the work area immediately following completion of the activity or at the end of the work shift, whichever comes first, as required by Appendix R Section III.K.6 and Attachment 3 paragraph c of the above NRC guidelines. This item is identified as an example of Inspector Followup Item (390/84-14-01), Inadequate Fire Prevention Administrative Control Procedures for Control of Combustibles, Control of Ignition Sources, Fire Brigade Training and Drill Records, and Fire Fighting Strategies. The licensee is to review the existing procedure and make the necessary revisions prior to fuel load. This item will be reviewed during a subsequent NRC inspection.
- (2) The training requirements for the foremen or supervisors who authorize cutting, welding and other open flame work are not clearly specified by the existing procedures. Attachment 4 paragraph 2.a of the above NRC guidelines states that these personnel should receive a basic industrial fire fighting and fire prevention course. This is another example of above Unresolved Item (390/84-14-01).
- (3) The maintenance of fire brigade training and drill records does not appear to be addressed by the procedures. Appendix R Section III.I.4 requires training records to be maintained for at least three years to ensure that each member receives and participates in all of the required training and drills. Attachment 2, paragraph 4 of the above guidelines also requires fire brigade training and drill records to be maintained. This is another example of Inspector Followup Item (390/84-14-01).
- (4) Fire fighting strategies and prefire plans have not yet been developed for all safety related areas and areas that present an exposure hazard to safety related components. Also, several of the existing strategies do not reflect "as built" conditions. This is another example of Inspector Followup Item (390/84-14-01). Fire fighting strategies are required by Appendix R Section III.K.12 and stipulated by Attachment 5 of the above guidelines.

- (5) An agreement for emergency response by an offsite fire fighting organization has not yet been negotiated. This feature is addressed by TVA's Fire Protection Review of April 18, 1977 Section B.4, and Attachment 5 paragraph g of the above NRC guidelines. This feature is currently being reviewed by TVA, is identified as Inspector Followup Item (390/84-14-02), No Agreement with Offsite Fire Fighting Organization. This will be reevaluated during a subsequent NRC inspection.

TVA's response of September 9, 1980 to NRC's question 9 states that the fire protection/prevention procedures at Watts Bar would be revised to meet the above NRC guidelines. This commitment is confirmed by NRC's SER Section 9.5.1.7.

b. Surveillance Inspection and Test Procedures

The following fire protection system surveillance procedures were reviewed to verify that the requirements of the "Proof and Review" Technical Specifications (TS) were incorporated into the procedures:

- SI-L600-L629, Fire Detector Test - Panel Nos. L600 through L629 (R1, except R2 for 612, 614, 617, 618, 619, 623 and 625)
- SI-4.0.5.26.a, Valve Full Stroke Exercise During Plant Operation (R4/7-26-83)
- SI-4.0.5.26.p, High Pressure Fire Protection Pumps (R6/2-22-83)
- SI-7.11, High Pressure Fire Protection System Header Valve Alignment (R7/12-13-83)
- SI-7.12, Fire Protection Water System Flush (R4/6-20-83)
- SI-7.13, Simulated Actuation of HPFP Valves To Their Correct Position (R1/2-22-83)
- SI-7.14, High Pressure Fire Protection Pumps - Verification of Pump Start Sequence (R3/7-27-82)
- SI-7.15, High Pressure Fire Protection Hydraulic Performance Verification (R5/6-22-82)
- SI-7.16, Spray and/or Sprinkler System Test (R3/12-27-83)
- SI-7.18, Examine Fire Sprinkler Systems (R3/1-24-84)
- SI-7.42, CO2 System Flow Path Verification (R0/4-26-83)
- SI-7.19, CO2 System Tank Level and Pressure (R2/8-9-83)

- SI-7.20, CO2 Fire Protection Inspection and Tests (R1/1-25-83)
- SI-7.21, Inspection and Inventory of Fire Hose In Safety Related Areas (R9/9-13-83)
- SI-7.22, Annual Fire Hose Inspection (R6/11-8-83)
- SI-7.23, Fire Hose Station Va've Test (R2/1-24-84)
- SI-7.24, Visual Inspection Fire Barrier Penetration for Mechanical Equipment in Safety Related Areas (R2/2-8-83)
- SI-4.7.12.a-b Auxiliary Building Cable Tray and Conduit Fire Barrier through a-f Inspection (R1/5-27-80)
- SI-4.7.12.b Visual Inspection and Test After Repair of Fire Barriers, Penetration Fire Seals, and Pressure Seals (R1/5-13-80)

These procedures included the applicable TS surveillance inspection and test requirements, except for the following:

- (1) Surveillance procedures for action systems do not appear to include a number of zones listed in TS Section 3.3.3.8. These are zones Nos. 36 and 37 (diesel generator building conduit entry), 259 and 260 (480V board room), 250 and 278 (ERCW pump room), 387 (control/turbine building wall) and zones 425-430 and 432 (new diesel generator building). The licensee stated that several new zones had been added to the TS and the surveillance procedures had not yet been revised to include these new zones. However, the procedures are to be revised prior to fuel load. This is identified as Inspector Followup Item (390/84-14-03), Inadequate Surveillance Test Procedures for Fire Detection Systems. This will be reviewed during a subsequent NRC inspection.
- (2) Surveillance procedures do not appear to require a monthly operability test of each fire pump as required by TS 4.7.11.1.a. Presently each pump is only to be tested for operability once every 92 days. This item is being evaluated by the licensee, and is identified as Inspector Followup Item (390/84-14-04), Inadequate Surveillance Inspection and Tests of Fire Pumps. This will be reviewed during a subsequent NRC inspection.
- (3) Surveillance procedures do not require the fire pumps to be functionally tested to verify pumps meet the volume and pressure requirements of TS Section 4.7.11.1e.(2). Pumps are only to be tested to 1500 gpm at 250 feet head in lieu of 1590 gpm at 330 feet head. Also, the pumps are not required to be tested to the

requirement of NFPA 20, Centrifugal Fire Pumps, to verify that the pumps performance remains satisfactory. These are additional examples of above Inspector Followup Item (390/84-14-04).

- (4) Surveillance procedures do not appear to require an annual valve cycle test for all fire protection valves as required by TS Section 4.7.11.1.d. Presently, only the motor operated valves are to be cycle tested. The licensee is reviewing this item to determine the appropriate corrective action. This item is identified as Inspector Followup Item (390/84-14-05), All Fire Protection Valves Not Cycle Tested, and will be reviewed during a subsequent NRC inspection. Also, a surveillance test procedure had not been provided for the cycle tests of nonaccessible valves. It appears that several valves such as valves 1-26-1261 and 1-26-1295 should fall under this type test procedure. This was pointed out to the licensee.
- (5) Surveillance procedures do not appear to include the nozzle flow tests required by TS Section 4.7.113.2.b.(2) for the diesel generator building CO2 System. This item is being evaluated by the licensee, is identified as Inspector Followup Item (390/84-14-06), Inadequate Surveillance Inspection and Tests for CO2 Systems, and will be reviewed during a subsequent NRC inspection.
- (6) The surveillance procedures for the mechanical portions of the fire protection system do not yet require independent verification of valve alignments. A procedure is being prepared to address this feature. This item is identified as Unresolved item (390/84-14-07), Independent Verification Not Provided for Fire Protection Control Valves, and will be reviewed during a subsequent NRC inspection.
- (7) Surveillance procedures have not yet been prepared for all of the fire barrier surveillance inspections and tests required by TS Sections 4.7.12.1 and 4.7.12.2. Procedures are required for rated assemblies, dampers, penetrations and fire doors, and should be completed prior to fuel load. This is identified as Unresolved Item (390/84-14-08), Surveillance Procedures Not Provided for All Fire Barrier Features. This will be reviewed during a subsequent NRC inspection.

c. Fire Brigade

(1) Organization

The Nuclear Power fire brigade is composed of personnel from the operations department. The team leader is designated from one of the assistant shift engineers and the four team members are

designated from the available auxiliary unit operators. There are a total of 16 leaders and 64 brigade members provided to help assure that a minimum of at least five brigade members will be available per shift. Additional personnel are also available from maintenance and support groups.

(2) Training and Drills

The training records for 11 brigade members (from October 1982 through January 1984) were reviewed. Most of the brigade members had received the training and drills required by the licensee's procedures. The training for all brigade members is scheduled to meet these requirements prior to fuel load. This item will be monitored during subsequent NRC inspections. Of the 11 brigade members reviewed, the licensee's records indicated that four did not have an up-to-date physical examination and one was not approved for fire brigade duties as required by TVA's procedure PHYSI-2 Section I.E. All fire brigade personnel must meet this requirement prior to fuel load. This item is identified as Inspector Followup Item (390/84-14-09), Medical Qualification Records for All Fire Brigade Members not Up-to-date. This will be reviewed during a subsequent NRC inspection.

Most fire brigade personnel have not yet received certification for use of self-contained breathing apparatus within radiation areas. This feature is scheduled to be completed prior to fuel load and is currently identified as an outstanding item in NRC Report No. 390/82-04. This item will be reviewed during a subsequent NRC inspection.

(3) Equipment

The inspector reviewed the fire brigade equipment which was stored in the service building. A sufficient quantity of turnout gear (coats, helmets, gloves, boots, etc.) was available to equip 10 fire brigade members. Foam fire fighting equipment, hose, nozzles, smoke ejectors, radios, self-contained breathing apparatus and spare bottles, and other miscellaneous equipment were also available .

All equipment appeared to be satisfactorily maintained. However, once the site security plan becomes effective the licensee may need to relocate some of this equipment or provide additional equipment within the protected area. This will be reviewed during subsequent NRC inspections.

Within the areas examined no apparent violations or deviations were identified.