830 Power Building

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

Central File
50-259
50-260

August 9, 1976

Mr. Norman C. Moseley, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 818
230 Peachtree Street, NW.
Atlanta, Georgia 30303

Dear Mr. Moseley:

This is in response to F. J. Long's July 15, 1976, letter, IE:II:RFS 50-259/76-13, 50-260/76-13, which transmitted for our review an IE Inspection Report (same number). We have reviewed that report and do not consider any part of it to be proprietary.

Very truly yours,

J. E. Gilleland
Assistant Manager of Power

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

JUL 15 1976

In Reply Refer To:
IE:II:RFS
50-259/76-13
50-260/76-13

Tennessee Valley Authority
Attn: Mr. Godwin Williams, Jr.
Manager of Power
830 Power Building
Chattanooga, Tennessee 37401

Gentlemen:

This refers to the inspection conducted by Messrs. R. H. Wessman, J. E. Ouzts, J. J. Blake and R. F. Sullivan of this office on May 12-14, 18-21, 24-28, 30-31, June 1-4, 7-8, 1976, of activities authorized by NRC Operating License Nos. DPR-33 and DPR-52 for the Browns Ferry Units 1 and 2 facilities, and to the discussion of our findings held at the conclusion of the inspection.

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

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

We have also examined actions you have taken with regard to previously identified enforcement matters and unresolved items. The status of these items is identified in Sections II and IV of the summary of the enclosed report.

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 inspection 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.

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

Very truly yours,

F. J. Long, Chief
Reactor Operations and
Nuclear Support Branch

Enclosure:
IE Inspection Report Nos.
50-259/76-13 and 50-260/76-13

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

IE Inspection Report Nos. 50-259/76-13 and 50-260/76-13

Licensee: Tennessee Valley Authority
830 Power Building
Chattanooga, Tennessee 37401

Facility Name: Browns Ferry 1 and 2
Docket Nos.: 50-259 and 50-260
License Nos.: DPR-33, DPR-52

Location: Limestone County, Alabama

Type of License: 3293 Mwt, BWR (GE)

Type of Inspection: Routine, Unannounced

Dates of Inspection: May 12-14, 18-21, 24-28, 30-31, June 1-4, 7-8, 1976

Dates of Previous Inspection: May 6-7, 10-13, 1976

Principal Inspector: R. F. Sullivan, Reactor Inspector (May 30-June 4, 7-8)

Inspectors-in-Charge: R. H. Wessman, Reactor Inspector (May 12-14)
Reactor Projects Section No. 1
Reactor Operations and Nuclear Support Branch

J. E. Ouzts, Reactor Inspector (May 26-28)
Nuclear Support Section
Reactor Operations and Nuclear Support Branch

J. J. Blake, Reactor Inspector (May 25-26)
Engineering Support Section No. 2
Reactor Construction and Engineering Support Branch

Accompanying Inspectors: G. R. Klingler, Reactor Inspector
Reactor Projects Section No. 1
Reactor Operations and Nuclear Support Branch

J. W. Hufham, Radiation Specialist
Environmental and Special Projects Section
Fuel Facility and Materials Safety Branch

A. L. Cunningham, Environmental Scientist
Environmental and Special Projects Section
Fuel Facility and Materials Safety Branch

Principal Inspector: R J Sullivan 7/13/76

R. F. Sullivan, Reactor Inspector
Reactor Projects Section No. 1
Reactor Operations and Nuclear Support Branch

Date

Reviewed by: H C Dance 7/14/76

H. C. Dance, Chief
Reactor Projects Section No. 1
Reactor Operations and Nuclear Support Branch

Date

SUMMARY OF FINDINGS

I. Enforcement Items

None

II. Licensee Action on Previously Identified Enforcement Matters

A. Infractions

1. 259/75-2 and 260/75-2 Controls For High Radiation Areas, Item I.A

Corrective action was verified and item is closed. (Details V, paragraph 2)

2. 259/75-4 and 260/75-4 Total Residual Chlorine In Condenser Cooling Water, Item I.A.1.

Corrective action was verified and item is closed. (Details III, paragraph 3)

3. 259/75-4 and 260/75-4 Procedures For In-plant Nonradiological Monitoring Program, Item I.A.2.

Corrective action was verified and item is closed. (Details III, paragraph 3)

B. Deficiencies

259/75-4 and 260/75-4 Audit Of In-plant Nonradiological Environmental Monitoring Program, Item I.B.1.

Corrective action was verified and item is closed. (Details III, paragraph 3)

III. New Unresolved Items

None

IV. Status of Previously Reported Unresolved Items

260/74-12/1 Valve Wall Thickness Verification

The verification justification was reviewed and this item is closed. (Details VII, paragraph 3)

V. Unusual Occurrences

None

VI. Other Significant Findings

Unit 2 Pre-fuel Loading Status

Inspection findings confirmed that commitments related to fire recovery activities had been completed for loading fuel in the Unit 2 reactor vessel.

VII. Management Interview

A. Browns Ferry Site

The results of the inspection were discussed in separate meetings at the end of each inspection visit with either Mr. Green or Mr. Dewease and selected members of the plant staff.

B. TVA Knoxville Office

The results of the inspection visit (Details VII) at Knoxville were discussed with Mr. J. P. Knight, QA Manager, OEDC, on May 26, 1976.

DETAILS I

Prepared by: R J Sullivan 7/12/76
R. F. Sullivan, Reactor Inspector Date
Reactor Projects Section No. 1
Reactor Operations and Nuclear
Support Branch

Dates of Inspection: May 30-June 4, June 7-8, 1976

Reviewed by: HC Dance 7/14/76
H. C. Dance, Chief Date
Reactor Projects Section No. 1
Reactor Operations and Nuclear
Support Branch

1. Persons Contacted

H. J. Green - Plant Superintendent
J. G. Dewease - Assistant Plant Superintendent
J. B. Studdard - Operations Supervisor
R. Hunkapiller - Assistant Operations Supervisor
C. E. Cantrell - DPP Outage Director
R. E. Hereford - DPP Outage Planner
T. P. Bragg - QA Staff Supervisor
W. A. Roberts - Maintenance Supervisor
J. A. Teague - Assistant Maintenance Supervisor, Electrical
D. Wright - Electrical Engineer

2. Restoration Prefuel Loading Functional Test Program

a. Phase I, Cold Functional Testing

This procedure required that the major components of selected systems be operated prior to fuel loading. Records confirmed that all planned testing was completed without any exceptions.

b. Phase II, Surveillance Testing

The purpose of this phase was to reestablish the plant surveillance program for Unit 2. The surveillance testing required by the Phase II document was based on the proposed revised Technical Specifications for restart of Units 1 and 2 which had been submitted to NRC for approval.

The inspector reviewed the status of completion of the surveillance testing through June 8, 1976. There was a total

of 151 tests listed for Unit 2 and another 69 listed as common with Unit 1 (with certain of these also being common with Unit 3). As of June 8 all except 7 of the Unit 2 tests and 2 of the common tests had been completed, reviewed and approved. For all of the incomplete tests the determination was made that the tests involved systems or components which were not required for fuel loading but test completion was committed to prior to reactor startup. PORC concurred in this determination and these tests were placed on the exception list to Phase II. In addition PORC had reviewed and recommended approval of the results of all the tests performed.

The inspector examined test results for 40 of the tests specific to Unit 2 and for 29 of the common tests. The inspector also reviewed the Phase II exception list and verified completion of the balance of the tests. The inspector did not identify any inadequacies in his review of the Phase II surveillance testing.

c. Phase III, Master Checklist

The Master Checklist for Unit 2, which included signoffs by various members of plant supervision to show verification that restoration and other commitments required for fuel loading have been met, was given a final review by the inspector on June 8, 1976. All signoffs, with the acceptable exceptions described, were entered up to the point where the next step was to obtain NRC authorization to load fuel. The inspector confirmed that the listed exceptions did not contain any items that would affect fuel loading. The inspector telephoned the Region II, IE office on June 8, to relate that his findings confirmed plant readiness to refuel Unit 2 reactor and that a favorable recommendation to this effect could be forwarded to NRC headquarters.

3. IE Bulletins Followup

a. ROB 74-3, Failure of Structural or Seismic Support Bolts on Class I Components

In the April 17, 1974, response to this bulletin, TVA committed to special inspection of certain components for Units 1 and 2 during the first refueling outage for each reactor. The planned inspections were conducted during the current restoration outage on September 29-30, 1975 and January 7, 1976. They were conducted in accordance with written procedure MMI 1.0-A which had been prepared to conform to the commitments in the TVA response.

The procedure and data sheets were examined by the inspector. The ultrasonic examination of bolts revealed no indications and the visual inspection of structural members showed no evidence of cracking or deformation. The inspector had no further questions.

b. ROB 74-15, Misapplication of Cutler-Hammer Three Position Maintained Switch

TVA's responses of January 6, 1975 and August 4, 1975, were reviewed as well as plant maintenance records on work performed. There was a total of 84 switches replaced involving Units 1, 2 and 3. The work was completed March 15, 1976, and received final QA review and approval on June 7, 1976. The inspector had no further questions.

c. IE Bulletin 75-04B, Cable Fire at Browns Ferry Nuclear Power Station

The TVA response of December 9, 1975, to this bulletin was reviewed by the inspector. This response, which included references to the "Recovery Plan", provided the information requested. The inspector had no further questions.

d. IE Bulletin 76-02, Relay Coil Failures

TVA responses of April 14, 1976 and June 10, 1976, and plant maintenance records were reviewed by the inspector. Plant personnel completed a survey of Units 1 and 2 on May 3, 1976, for relays of the type described in the bulletin. Survey results revealed a total of 56 of these suspect relays in safety-related systems. TVA's plans for replacement were discussed. The inspector had no further questions.

e. IE Bulletin 76-03, Relay Malfunctions

The inspector reviewed TVA response of April 14, 1976. TVA reported that they had no relays of this type at Browns Ferry. The inspector had no further questions.

f. IE Bulletin 76-04, Cracks in Cold Worked Piping

The inspector reviewed TVA response of June 1, 1976, in which TVA reported the results of their review. The inspector had no further questions.

4. Reportable Occurrence Followup

a. BFAO-259/764

The inspector reviewed the event report which described the failure of the RCIC pump discharge valve to operate during a test on April 11, 1976. The cause was due to a failed GE SBM switch and resulted in a complete plant survey to locate these type switches followed by a program to replace suspect switches. TVA received information from GE on March 20, 1976, via Service Information Letter No. 155 of problems with certain type SBM switches and this information was also factored into TVA's switch replacement program. The survey revealed that there were 147 of the suspect switches in critical application in Units 1 and 2. Another 68 were located in non-critical application. All in critical application have been replaced and 28 of the others have also been replaced. The balance are scheduled for replacement. The inspector considered this item closed.

b. BFAO-259/765

This event report provided information relative to the small fire in the Unit 1 drywell on May 4, 1976. A special IE inspection was conducted shortly after the fire and the findings were covered in IE Report 50-259/76-12 and 50-260/76-12.

The corrective action described in the TVA report was reviewed by the inspector during this inspection. This action included:

(1) The smoke residue, which was fairly localized, was successfully removed.

(2) On May 7, 1976, plant supervision conducted a special training session on BFM 8 (Welding Permit) which was attended by the 21 employees assigned as foremen or dual-rate foremen in the restoration work force.

A new course for indoctrination of personnel designated or selected as foremen was established by the issuance of Standard Practice BFA 78 dated June 4, 1976. This procedure requires that the outlined training be received before the employee assumes foreman duties. BFM 8 is listed in the training program.

(3) BFM 8 was revised May 24, 1976, to require that a fire watch be in attendance at each welding site except where

the foreman determines one is not needed and obtains the concurrence of a senior licensed operator or a quality control inspector certified to make this concurrence.

(4) An inplant program has been established to review the circumstances of each reported fire. The review includes PORC consideration and whether there is need for further investigation of the event. The program has been implemented by attachment to "Fire, Explosion and Natural Disaster Plan." A form is provided for recording required information and with appropriate signoffs.

(5) A new procedure, EMI-29, has been placed into effect for checking out the operability of the inplant phone system on a semi-annual basis. The inspector was informed that about 50 of the phones assigned to construction forces had already been taken out of service which alleviated the overcrowded condition of the system.

c. BFRO-259/766 and 260/764

This event report described the incorrect installation of the RPV stabilizer bearing blocks. The corrective action as recommended by GE was taken on both Units 1 and 2. Additional details on this matter are provided in the Design Deficiency Report 232 for Unit 3 which had the same incorrect installation of bearing blocks as Units 1 and 2.

5. Procedure to Provide Alternate Power to Fire Pumps

Procedure EMI 28, Installation of Temporary Feeder Cable to a Four KV Motor Driven Fire Pump, was issued on May 26, 1976, to fulfill a TVA commitment in the Recovery Plan. A test was conducted on May 31, 1976, to confirm that temporary power could be supplied within a 2 hour period. The test data showed that 46 minutes was required to lay temporary cable from a Unit 3 shutdown board to a fire pump, make the connections and operate the pump.. The test was performed during day shift when electricians were onsite which would not usually be the case on night shift. The procedure provides specific instruction for laying the cable which would be done by operators in the absence of electricians. Electricians would be called out while cable laying was underway and would arrive at the plant in sufficient time to complete connections within 2 hours.

6. Non-Fire Related Modifications

The work packages on the following modifications for both Units 1 and 2, which have been discussed in previous inspection reports, were examined by the inspector to verify completion and final review and approval within TVA including the Nuclear Safety and Review Board participation:

a. Additional Header and Relief Valve Tailpipe Supports in Torus
b. Additional Snubbers on the Main Steam Line Discharge Lines
c. LPCI Loop Selection Logic Removal
d. Removal of Two Inch Bypass Line on Recirculation Equilizer Valves
e. Removal of Four Inch Bypass Line on Recirculation Pump Discharge Valves
f. Install Jogging Control for Recirculation Pump Discharge Valves

DETAILS II

Prepared by: R. H. Wessman 5/21/76
R. H. Wessman, Reactor Inspector Date
Reactor Projects Section No. 1
Reactor Operations and Nuclear
Support Branch

Dates of Inspection: May 12-14, 1976

Reviewed by: W. C. Seidle, Chief 7/14/76
W. C. Seidle, Chief Date
Reactor Projects Section No. 1
Reactor Operations and Nuclear
Support Branch

1. Individuals Contacted

Tennessee Valley Authority (TVA)

J. Groves, Assistant Plant Superintendent (Acting)
J. Studdard, Operations Supervisor
D. Whitehead, Q.A. Engineer
J. Butler, Q.A. Engineer
T. Bragg, Q.A. Supervisor
V. Clark, Auxiliary Operator

2. Review of Procedures

The inspector reviewed selected plant procedures for conformance to Technical Specification requirements, regulatory requirements, TVA administrative requirements, and for technical adequacy. The following Browns Ferry Plant procedures were reviewed:

- BFA2, Preparation and Use of Plant Instructions
- BFA5, Plant Operations Review Committee
- BFA25, Temporary Conditions (Including Temporary Jumpers)
- BFA64, Refuel Floor Access Control Instruction
- OI69, Reactor Water Cleanup System
- OI71, Reactor Core Isolation Cooling
- OI64, Primary Containment
- OI78, Fuel Pool Cooling and Cleanup System
- OI65, Standby Gas Treatment System
- OI90, Radiation Monitoring System
- OI74, RHR System - Unit 1
- GOI 100-9, Traversing Incore Probe System
- GOI 100-6, Rod Worth Minimizer

- EOI-20, Jet Pump Failure
- EOI-26, Loss of Control Air
- EOI-8, Reactor Water Level High/Low
- EOI-10, Loss of Condenser Vacuum
- EOI-14, High Area Radiation or Airborne Radioactivity
- MMI-4, Removal and Replacement of Standby Gas Treatment System Filters
- MMI-8, Reactor Water Cleanup Pump Maintenance
- MMI-22, RCIC System Maintenance
- EMI-19, Decontamination of TIP Drive Mechanism and Cable Following Inadvertant Use of Graphite Lubricant
- EMI22, Inspection, Determination of Cause of Failure, and Corrective Action - RHR-1D Pump Motor

Review of OI90, Radiation Monitoring System, revealed that portions of this procedure may require revision. The valve lineup sheet (dated 3/11/74) for OI-90 referenced revision 13 of Drawing 47W610-901, Radiation Monitoring System. The current construction "as-built" drawing is revision 19 of Drawing 47W610-901. Valves identified with "later" for valve numbers in OI-90 have now been assigned valve numbers, according to the current system drawing. The licensee has committed to review OI-90 for consistency with current system configuration. This operating instruction will be reviewed again by the inspector.

No discrepancies were identified during the inspection of the other Browns Ferry procedures reviewed by the inspector.

3. Operating Q.A. Program Review

The inspector reviewed portions of the licensee's Q.A. program for conformance with the requirements of Appendix B to 10 CFR 50 and the commitments of Section D.4 of the FSAR. The inspector reviewed the following documents:

- Operational Quality Assurance Manual (OQAM)
- QA SIL 4.1, Checklists
- QA SIL 3.2, Reports to Management

Implementation of the Section Instruction Letters (SIL's) was inspected by review of several recent management reports and QA survey reports. Recent changes to the OQAM appeared to be consistent with regulatory requirements and licensee commitments.

Within the areas inspected no discrepancies were identified.

DETAILS III

Prepared by: A. L. Cunningham 07/08/76
Date

A. L. Cunningham, Environmental Scientist, Environmental and Special Projects Section
Fuel Facility and Materials Safety Branch

Dates of Inspection: May 26-27, 1976

Reviewed by: R. L. Bangart 7/8/76
Date

R. L. Bangart, Chief
Environmental and Special Projects Section
Fuel Facility and Materials Safety Branch

All information in the following Details applies equally to Units 1 and 2.

1. Individuals Contacted

H. J. Green - Plant Superintendent
W. Thomison - Chemical Engineer
G. Brantley - Senior Engineer

2. Scope of Inspection

Units 1 and 2 have been shut down during the past fourteen months as a result of the fire on March 22, 1975. In view of the above, this inspection was limited to the following items, viz.: (1) review and verification of corrective actions implemented in response to noncompliance items cited during the previous annual inspection (IE Report Nos. 50-259/75-4 and 50-251/75-4); (2) general plant site inspection.

3. Review and Verification of Corrective Actions

a. General

Corrective actions implemented in response to noncompliance items cited during the preceding annual inspection (IE Report Nos. 50-259/75-4 and 50-260/75-4) were reviewed. The items

cited were as follows: (1) failure to monitor total residual chlorine in the condenser cooling water discharge on a weekly basis coincident with auxiliary raw cooling water system chlorination (Appendix B, Technical Specification 2.2.3); (2) failure to provide detailed written procedures for implementation of in-plant nonradiological monitoring program (Appendix B, Technical Specification 5.5.1); (3) failure to conduct an audit of the in-plant nonradiological environmental monitoring program at least once annually. In each of the above cases, the corrective action implemented was consistent with the response detailed in the licensee's letter dated September 22, 1975.

b. Chlorine Monitoring

Total residual chlorine monitoring requirements of Appendix B Technical Specification 2.2.3 were revised by Amendment Nos. 12 and 9 to Facility License Nos. DPR-33 and DPR-52, respectively, following implementation of corrective action concerning weekly monitoring. The revision was designed to more clearly define the method used for determining total residual chlorine levels in the condenser cooling water (CCW) discharge during periods of chlorination of the auxiliary raw cooling water system (ARCWS). Review and audit of chlorination of the ARCWS and required monitoring of the CCW discharge during the periods June 3-24, 1975 and May 13-24, 1976 verified implementation of the licensee's corrective action.

c. Procedures

Approved detailed written procedures for implementation of Appendix B Technical Specification 2.2.3 and the remaining in-plant nonradiological monitoring requirements (Appendix B, Technical Specifications 2.2.1, 2.2.2) were reviewed. Inspection confirmed that the corrective action cited by the licensee, viz., provision of a system of approved environmental surveillance instructions had been implemented as defined. Inspection of reports for audits of the in-plant nonradiological environmental monitoring program conducted May 19-27, 1975 and March 22-26, 1976 also verified that annual audits were implemented as required by Appendix B, Technical Specification 5.5.1. There were no further questions concerning these items.

4. Site Inspection

The inspector toured the plant site to review the following items: (1) status of landscaping (as completion of construction permit requirement); (2) site erosion and siltation control; (3) use and

status of waste collection sump or settling pond. Inspection revealed that adequate erosion and siltation control practices were being followed. The waste collection settling pond was not in use at the time of inspection; however, required reagents and pumping equipment were available for any required adjustment of pH of the pond's contents prior to offsite release. Landscaping efforts were largely confined to grading activities within the area of the cooling towers at the time of inspection. There were no questions concerning the above items.

DETAILS IV

Prepared by: Gerald R. Klingler 7-7-76
G. R. Klingler, Reactor Inspector Date
Reactor Projects Section No. 1
Reactor Operations and Nuclear
Support Branch

R F Sullivan 7/7/76
R. F. Sullivan, Reactor Inspector Date
Reactor Projects Section No. 1
Reactor Operations and Nuclear
Support Branch

Dates of Inspection: May 30 - June 4, 1976

Reviewed By: W C Seidle /by 7/14/76
W. C. Seidle, Chief Date
Reactor Projects Section No. 1
Reactor Operations and Nuclear
Support Branch

1. Persons Contacted

Tennessee Valley Authority (TVA)

H. J. Green - Plant Superintendent
J. G. Dewease - Assistant Plant Superintendent
J. J. Erpenbach - Preoperational Test Coordinator

2. Preoperational Retest Procedure Test Results Units 1 and 2

The inspector reviewed the test results of completed preoperational retest procedures. This review consisted of verifying the following: (1) all test changes have been identified and approved, (2) all data has been entered, reviewed and approved, (3) all test deficiencies have been identified and satisfactorily resolved, (4) the test met the stated acceptance criteria and (5) the results have been reviewed and accepted by those responsible for test approvals. The following retests were reviewed:

a. RG-19, Leak Detection System, Unit 1
b. RG-15, Reactor Building Closed Cooling Water System, Unit 2
c. RG-15, Reactor Building Closed Cooling Water System, Unit 1
d. RG-10, Control Rod Drive Hydraulic System, Unit 2
e. RG-2, Reactor Water Cleanup System, Unit 1
f. RG-32-1, 250 VDC Power System, Units 1 and 2

g. RG-6, Reactor Core Isolation Cooling System, Unit 2
h. RG-6, Reactor Core Isolation Cooling System, Unit 2
i. RG-28, Process Computer, Units 1 and 2
j. RG-25D, Process Radiation Monitoring System, Main Steam Line Monitoring Subsystem, Unit 1
k. RG-25C, Process Radiation Monitoring System, Liquid Process Radiation Monitoring Subsystem, Unit 1
l. RG-24, Rod Worth Minimizer, Unit 1
m. RG-23, Traversing Incore Probe System, Unit 2
n. RG-22D, Rod Block Monitoring (RBM) System, Unit 1
o. RG-31-1, AC Emergency Power System Operation, Logic and Control Circuits Test, Units 1 and 2
p. RG-30, Primary Containment Isolation System, Unit 2
q. RT-3, RHR Service Water, Unit 2
r. RT-4, Emergency Equipment Cooling Water System, Units 1 and 2
s. RT-20, Secondary Containment Leak Rate Test (Including Standby Gas Treatment System (SGTS), Vacuum Relief System and Primary Containment Purge to the SGTS
t. RT-14B, Drywell Control Air System, Unit 2
u. RG-22A, Source Range Neutron Monitoring (SRM) System, Unit 2
v. RG-20, Liquid Radwaste, Unit 1 and 2
w. RG-21, Reactor Protection System, Unit 2
x. RG-12, Core Spray System, Unit 2
y. RG-5, Residual Heat Removal System, Unit 2
z. RT-10 480V Electrical System (Normal) Units 1 and 2
aa. RT-32, Raw Cooling Water, Units 1 and 2
bb. RT-5A, Plant Refueling Zone Heating, Ventilating, and Air Conditioning System, Units 1 and 2
cc. RG-18, Fuel Pool Cooling and Demineralizer System, Unit 2
dd. RG-3, Standby Liquid Control System, Units 1 and 2
ee. RG-31-3, AC Emergency Power System Operations, ECCS Testing on Normal Auxiliary Power and Diesel Generator Power, Unit 2
ff. RT-23, Environmental Radiation Monitoring System, Units 1 and 2
gg. RG-10, Control Rod Drive Hydraulic System, Unit 1
hh. RG-22B, Intermediate Range Monitoring (IRM) System, Unit 1
ii. RG-22C, Average Power Range Monitoring (APRM) System, Unit 1
jj. RT-5D, Heating, Cooling, Ventilating and Air Conditioning, Units 1 and 2
kk. RT-5C, Reactor Zone HVAC System Unit 2
ll. RG-18, Fuel Pool Cooling and Demineralizer System, Unit 1
mm. RG-13, HPCI System, Unit 2
nn. RG-13, HPCI System, Unit 1
oo. RT-13, Fire Protection System, Units 1 and 2

DETAILS V

Prepared by: H C Dance /fs 7/14/76
J. E. Ouzts, Reactor Inspector Date
Nuclear Support Section
Reactor Operations and Nuclear
Support Branch

Dates of Inspection: May 26-28, 1976

Reviewed by: H C Dance 7/14/76
H. C. Dance, Chief Date
Nuclear Support Section
Reactor Operations and Nuclear
Support Branch

1. Personnel Contacted

H. J. Green - Plant Superintendent
T. Bragg - Quality Assurance Supervisor
R. Bruce - Electrical Engineer
J. G. Dewease - Assistant Plant Superintendent
G. Erpenbach - Retest Coordinator
R. Hunkapiller - Assistant Operators Supervisor
D. Jackson - Senior Radiological Control Technician
J. Jones - Electrical Engineer
J. Pittman - Instrument Engineer
J. Pollite - Radiological Control Supervisor
W. Roberts - Maintenance Supervisor
D. Thompson - Electrical Engineer
D. Tullis - Maintenance Engineer

2. Enforcement Items

Enforcement items identified in IE Inspection Report Nos. 50-259/75-2 and 50-260/75-2 were closed during this inspection. These items consisted of providing shielding at penetrations in the drywell to reduce high radiation in uncontrolled areas and enclosures to prevent access to high radiation areas. The licensee has also addressed procedural controls. Radiation surveys will be made during restart to verify the adequacy of the shielding to reduce the radiation to acceptable levels in the uncontrolled areas.

3. Witnessing Preoperational Retesting

Portion of testing of Fire Protection Systems per test procedure RT-13 and in accordance with the following documents were witnessed:

a. Work Plan 4902 "Functional Test of the Combustible Products Detector Alarm System - Unit 2"

b. Work Plan 4671 "Smoke and Heat Detectors on ECN-L9008 and L9008A - Unit 2".

As a result of this test witnessing, no items remain outstanding.

4. Maintenance Activities Accomplished During 1975-76 Outage

Maintenance documents for the following components were reviewed:

a. MSIV Modification and Repair:

(1) MSIV Modification and Repair Summary - Units 1 and 2

(2) Stem Straightening Procedure

(3) Heat Treatment Procedure - Valve Stem - 410SS.

(4) Mechanical MI 1.4.4.2.2 - MSIV Assembly - Modification - Units 1 and 2.

b. Hydraulic Shock and Sway Arrestor Inspection and Repair:

(1) SI-4.6.3 - Accessible Snubber Visual Inspection of Hydraulic Snubber Operability

(2) B/F MMI-45 - Assembly and Disassembly of Bergen-Patterson Hydraulic Shock and Sway Arrestor Inspection.

(3) B/F MMI-45 - Removal and Reinstallation of Bergen-Patterson Hydraulic Shock and Sway Arrestors.

(4) B/F MMI-59-1 and 59-2 - Bergen-Patterson Hydraulic Shock and Sway Arrestor as Found Pinton Velocity Measurement and Bleed Results Data.

(5) SI-4.6.H.4 Functional Testing of Hydraulic Snubbers.

As a result of the review of these documents, no items remain outstanding.

5. Investigation of BWR Facility Related Equipment Problems

The Browns Ferry facility was inspected to determine the extent of the use of GE Type HMA relay in safety systems and also the type valve position light and actuating circuitry for the Automatic Depressurization System. The results of these inspections are as follows:

a. Type HMA Relays

Based on the contact sticking problem with this relay at another facility, the extent of use of this relay at Browns Ferry was reviewed. Based on the licensee's statement and the inspector's observation of selected relay panels, this type relay is not used in the reactor protection or engineered safeguards actuation systems at Browns Ferry. Type HMA relays are also discussed in Details I, paragraph 4 of this report.

b. Automatic Depressurization Valve Position Light

At another facility an incandescent lamp in series with a valve actuating solenoid drew sufficient current to maintain the relief valve open once it was activated. The problem was corrected by replacing the incandescent lamp with a gas-filled lamp. At Browns Ferry, the inspector confirmed that this valve position light is operated from a separate relay contact from the solenoid valve and therefore this problem had not been experienced.

6. Inspection of Plant Areas and Facilities

a. The apparatus for testing the travel and travel velocity of the Bergen-Patterson shock and sway arrestors was inspected.

b. The use of Permali for neutron shielding in the drywell penetrations was investigated. Permali was confirmed to be used for shielding at these locations.

As a result of the inspection of the above areas no items remain outstanding.

DETAILS VI

Prepared by: J. W. Hufham 7/14/76
J. W. Hufham, Radiation Specialist Date
Environmental and Special Projects Section
Fuel Facility and Materials Safety Branch

Dates of Inspection: May 13-14, 18-20, 24-27,
May 31 - June 2, June 7-8, 1976

Reviewed by: for R. L. Bangart 7/14/76
R. L. Bangart, Chief Date
Environmental and Special Projects Section
Fuel Facility and Materials Safety Branch

1. Scope of Inspection

A special inspection to determine the corrective action taken by TVA relating to the non-hardware deficiencies defined in the BFNP Investigation Report (50-259/75-1, 50-260/75-1), the completion status of licensee commitments in the "BFNP Plan for Evaluation, Repair and Return to Service of BF Units 1 and 2" (Recovery Plan), and completion status of requirements in the BFNP Safety Evaluation Report (NUREG-0061). The inspection also included an evaluation to determine the adequacy of the BFNP emergency organization. The evaluation consisted of a review of records and documents, observation and implementation of action, inspection of installed equipment and discussions with cognizant representatives.

2. Individuals Contacted

a. Tennessee Valley Authority

(1) Browns Ferry Nuclear Plant (BFNP)

H. J. Green - Plant Superintendent
J. G. Dewease - Assistant Plant Superintendent
T. D. Bragg - Quality Assurance Supervisor
W. A. Roberts - Power Plant Maintenance Supervisor
L. J. Politte - Health Physics Supervisor
J. D. Glover - Shift Engineer (Assigned to Operator Training)
W. C. Thomison - Plant Chemical Engineer
J. R. Pittman - Instrument Engineer
W. H. Kinsey - Mechanical Engineer
L. W. Bynum, Jr. - Electrical Engineer
J. P. Bryant - Safety Engineer
J. W. Morgan - Safety Engineer

D. Whitehead - Quality Control Representative
L. O. Ottinger - Instrument Engineer
R. McGee - Quality Control Representative
R. Hunkapillar - Assistant Operations Supervisor
R. E. Jackson - Public Safety Lieutenant

(2) Radiological Hygiene Branch

E. A. Belvin - Assistant Chief
H. T. Youngblood, Jr. - Health Physicist

b. Athens, Alabama, Fire Department

C. E. Bumpus - Chief, Athens Fire Department

3. Corrective Action of Non-hardware Deficiencies Defined In the BFNP Fire Investigation Report (50-259/75-1, 50-260/75-1)

Corrective action to many non-hardware deficiencies defined in the BFNP Fire Investigation Report (50-259/75-1, 50-260/75-1) was reported in IE Report Nos. 50-259/76-9 and 50-260/76-9. This report addresses corrective action to deficiencies described in the previous report as well as additional information on others already reported.

a. Construction Work Using Open Flames

The BFNP Fire Investigation Report defined in Appendix B, Areas of Concern, Item 1, that construction personnel were involved in work using open flames but had not received fire fighting training nor did they have individuals in attendance who had had fire fighting training. Corrective action for this deficiency was addressed in IE Report No. 50-259/76-9, 50-260/76-9, Section 8, paragraph (a) with reference to the development of BFM-8 "Cutting, Welding and Open Flame Work Permit." However, since the last inspection BFM-8 has been revised several times. During this inspection the inspector reviewed all of the revisions of the procedure. The latest revision (5/24/76) requires that a person trained in fire training (fire watch) must be present thoughout any operation in which there is a high potential for fire and the concurrence of a SRO or a quality control inspector is required whenever the supervisor or fireman performing the work determines that a fire watch is not required. Training for construction workers using open flames was discussed in IE Report Nos. 50-259/76-9, 50-260/76-9, Section 4, paragraph b.(3). With

the revisions to this procedure, the corrective action for the deficiency appeared to be satisfactory; however, at the time of this inspection the BFM-8 procedure was still being reviewed by a U. S. NRC fire consultant.

b. Operations Personnel Awareness of Construction Activities

The BFNP Fire Investigation Report defined in Appendix B, Area of Concern, Item 3, that operations personnel on shift were not fully aware of the ongoing construction activities. The inspector discussed this concern with the Plant Superintendent and the inspector was informed that corrective action had been taken in two ways. One way was by a revision to BFM-8 "Cutting, Welding and Open Flame Work Permit" and another was through the development of BFA-62 "Instruction For Work Performance." The work permit attached to procedure BFM-8 requires the shift engineer assign a permit number, indicate the date of issue on the form, and retain a copy of the permit. By performing this action, the shift engineer should have knowledge of all construction work activities involving the use of open flames. In addition to the requirements of BFM-8, the inspector reviewed procedure BFA-62. This procedure provides instructions for work performance that includes the use of the Daily Activities Sheet which is reviewed by plant management and signed by the Plant Superintendent. With the requirements of both procedures, the corrective action appeared satisfactory for correcting the deficiency.

c. Inadequate Training of Personnel In the Use of Self-contained Breathing Apparatus

The BFNP Fire Investigation Report defined in the Conclusion, Section B, Item (9), that difficulties were encountered in the use of self-contained breathing equipment. The inspector observed the Fire Brigade Member Refresher Course in which the members of the fire brigade were instructed in the use of the self-contained breathing equipment. The individuals actually entered a "dark" building filled with smoke to actually train with the equipment under realistic conditions. In addition to this training, the fire brigade members who attended the Fire Brigade Leader Training Course also receive training in the use of this equipment. After personally observing the training and reviewing the Fire Brigade Instructions Guide for the Fire Brigade Leader Training Course, the action taken to correct the deficiency appeared to be adequate.

d. Reporting of Previous Fires

The BFNP Fire Investigation Report defined in the Summary of Facts, Section A, Item 10, that previous fires had not always been reported to the appropriate levels of management and no action was taken to prevent recurrence. The inspector reviewed an attachment (Fire Brigade Leaders Report) to the "Fire, Explosion, and Natural Disaster Plan." This attachment is required to be completed whenever a fire alarm is sounded. The completed form is then submitted to the Plant Operating Review Committee and appropriate action is considered by the committee. With the addition of this attachment to the fire procedures, the corrective action appeared adequate.

4. Status of Licensee Commitments in the BPNP Plan For Evaluation, Repair and Return To Service of BF Units 1 and 2 (Recovery Plan)

The licensee delineated necessary fire protection activities in the BFNP Recovery Plan. This section defines the status of those commitments.

a. Hose and Nozzle Connections

Part X, Section A, paragraph 5.2.4.3, of the BFNP Recovery Plan states, "Adapters shall be provided at all fire hose connections having iron pipe threads to convert from Standard Iron Pipe Threads to American National Standard Fire Hose Threads (NFPT)." To confirm that these hose and nozzle modifications had been performed, the inspector discussed the changes with two safety engineers and toured both units to determine the status. The inspector selected twelve fire hose stations at different elevations of Units 1 and 2. At each station the inspector determined that adapters had been placed on the stand pipes to make the connections compatible with National Standard Threads (NST). To complete the verification, a nozzle with NS threads was screwed onto each hose outlet at the twelve stations observed. The specific compatibility of the BFNP fire equipment with the Athens Fire Department equipment was discussed in IE Rpt Report Nos. 50-259/76-9 and 50-260/76-9, Section 4, paragraph (i). After observing the twelve stand pipes and hose stations and confirming that the equipment had NS threads, the commitment in the BFNP Recovery Plan appeared to be completed.

b. Neoprene Lined Fire Hoses

Section A, Part X, paragraph 5.2.4.3 of the BFNP Recovery Plan defines that neoprene lined fire hoses shall be provided

throughout the plant to replace the existing linen hoses. To confirm that the hose replacements had been performed, the inspector discussed the changes with two safety engineers and then toured Units 1 and 2 for confirmation. At each hose station observed, the inspector confirmed that the linen hoses had been replaced with polyester hoses having neoprene tubing. The inspector also reviewed purchase contracts that described the hoses as having neoprene tubing. After confirming the polyester hoses with neoprene tubing and discussing the changes with the safety engineers, the commitment in the BFNP Recovery Plan appeared to be completed.

c. Fire Brigade Training

Details pertaining to fire brigade training were included in Section 4.a.4.(c), (d), (e) of IE Report Nos. 50-259/76-9 and 50-260/76-9 but during this inspection additional fire training commitments from the BFNP Recovery Plan were confirmed.

(1) Section A, Part X, paragraph (R-R5), defines that fire brigade personnel will be trained in the proper use of handheld extinguishers. During this inspection, the inspector confirmed fire training in the use of hand held extinguishers by observing the Fire Brigade Member Refresher Course. In this course the inspector observed instructions in the use of hand held extinguishers as well as their effectiveness on different classes of fires. After reviewing the training outline for the course and actually observing portions of the Fire Brigade Members Refresher Course, the Recovery Plan commitment appeared to be complete.

(2) Section A, Part X, paragraph 5.5.3, of the BFNP Recovery Plan defines that operational guidelines will be developed and incorporated into the fire brigade training activities for the use of manually activated fire protection systems. These guidelines would assist the fire brigade in making a decision when to use the fire protection sytems and educate the brigade in the activation procedures involved in placing the systems into service. The inspector interviewed the assistant operations supervisor to obtain a current status of these guidelines. He was informed that the guidelines were completed and would be incorporated into the operator's training program. The inspector reviewed the guidelines but questioned how this training would be performed. He was informed that the guidelines

would be incorporated into the Operator Procedure Review Program and documentation would indicate when the operators reviewed the quidelines in accordance with training procedure (BFM-75). In addition to discussing the guidelines with the licensee representative, the inspector reviewed BF-OI-26 that incorporates them. After confirming the operational guidelines, the inspector submitted them to a U. S. NRC fire consultant for review.

(3) Fire Brigade Member Refresher Course

During this inspection the inspector had the opportunity to observe portions of the Fire Brigade Member Refresher Course. The inspector observed the practical fire training portion of the course that involved the use of the fire simulators at the site. During the course the inspector actually observed members of the fire brigade receive training in fighting fires with the following simulators:

(a) Open trench grating
(b) Triple barrel
(c) Cross
(d) Vat
(e) Pan
(f) Open pit
(g) Leaking flange

In addition to observing the training with the simulators, the inspector also attended some portions of the instructions in the use of emergency breathing equipment, effective use of nozzles, and classes of fires.

d. Temporary Fire Loading

Section A, Part V, paragraph 5.1.4, of the BFNP Recovery Plan states that "movement of combustible material through areas of the plant where damage from an exposure fire could affect the safety-related equipment shall be handled by administrative procedures." The inspector discussed these procedures with the plant superintendent and personally reviewed them (BFS-3).

In reviewing the procedures, the inspector confirmed that they included requirements for:

(1) The individual responsible for calculating transient fire loads

(2) General guidelines

(3) Detailed guidelines

(4) Calculations

(5) Supplemental fire protection

The procedures appeared to be adequate but the inspector questioned the training of the individual who would calculate transient fire loads. The inspector was informed that the safety engineering aid would make the calculations but that he had received some training from the Division of Engineering Design in Chattanooga, Tennessee. The procedures are presently under review by a U. S. NRC fire consultant.

f. Location and Length of Fire Hoses

Section A, Part X, paragraph 5.2.4.2, of the BFNP Recovery Plan defines that the location and length of fire hoses will be provided so that all cable trays can be covered by two fire hose racks. The inspector discussed this commitment with two safety engineers who had made surveys of the plant to determine the adequacy of the fire hose racks. The two representatives confirmed that the present hose stations were adequate and at least two fire hose racks were available for safety-related areas as well as for cable trays leading to the safety-related equipment. The inspector also toured the cable spreading room for Units 1 and 2 and the diesel generator building to determine that a minimum of two hose racks were available for these safety areas. After discussing the hose survey and observing the hose racks in two safety-related areas, the commitment in the BFNP Recovery Plan appeared to be complete.

g. Work Packages

Section A, Part XII, of the BFNP Recovery Plan defines that TVA shall develop and publish control documentation to charge a specific plant supervisor with the responsibility of reviewing all work packages for potential fire hazards and appropriate control. The inspector discussed this commitment with the plant superintendent who informed the inspector that this provision was incorporated in BFA-62 "Instruction For Work Performance." The inspector reviewed the procedure and determined that the procedure required that all modifications and restoration activities which could affect the safety of a licensed unit would be performed following approved, written instructions that would include precautions to be taken to

protect personnel and equipment or to avoid an abnormal or emergency situation. The instructions would be incorporated into a work plan and implemented by BFA-35. The work plans would then be listed on the Daily Activity Sheet that would be reviewed by plant management and signed by the Plant Superintendent. After revising this procedure and discussing it with the Plant Superintendent, the commitment in the BFNP Recovery Plan appeared to be complete.

h. Self-contained Breathing Apparatus Supplies

Section A, Part X, of the BFNP Recovery Plan defines that an air compressor and purification equipment will be installed to recharge the portable breathing apparatus. Additionally, this section defines that a reservoir of approximately 1,200 standard cubic feet (SCF) can be called upon immediately. Many of the details relating to these commitments were discussed in IE Report Nos. 50-259/76-9, 50-260/76-9, Section 5, paragraph a. and b. During this inspection the inspector reviewed the Work Package-3275 for the compressor and purification system and verified that all work for this commitment had been completed. The inspector questioned the availability of operating procedures and maintenance procedures for the compressor and reservoir systems. The inspector was informed that operating procedures were prepared (MNI-72, approved May 7, 1972) and maintenance procedures were in the draft stage. The inspector informed the licensee representative that the maintenance procedures would be reviewed on future inspections. The completion of the installation of the air compressor and reservoir appeared to satisfy the BFNP Recovery Plan commitment.

5. Status of Licensee Requirements In The BFNP Safety Evaluation Report (SER)(NUREG-0061)

The BFNP Safety Evaluation Report (SER) contained necessary fire protection requirements that the licensee must have completed before the restart of Units 1 and 2. This Section defines the status of these requirements.

a. Training (Fire Related)

Section 6.2 of the SER required that the fire training be reevaluated and the training include the use of water to extinguish electrical fires, the use of fog nozzles, the use of self-contained breathing apparatus, etc. Details of the fire related training was reported in IE Report Nos. 50-259/76-9 and 50-260/75-9 but during this inspection the inspector

reviewed the Fire Brigade Instructions Manual and actually observed the Fire Brigade Refresher Course. All of the fire related training information is presently being evaluated by a U. S. NRC fire consultant.

b. Periodic Drills

Section 6.2 of the SER required that periodic drills will be conducted at the plant and be evaluated by plant management. The inspector, confirmed by a review of records, that fire drills had been sponsored by the plant on August 7, 1975, and September 9, 1975. At the time of this inspection, fire drills had not been sponsored using the prefire plans or the casualty procedures because neither of these procedures had been approved by the plant manager. The effective use of periodic fire drills is presently under review by a U. S. NRC consultant.

c. Indoctrination Course For Construction Personnel

Section 6.2 of the SER required that a formal indoctrination program be instituted to familiarize construction workers and contractors in operational areas of the plant. The details of this training course were described in IE Report Nos. 50-259/76-9 and 50-260/76-9, Section 4, paragraph 4(b)(3). The training course with the associated fire procedures for construction workers appeared to complete the SER requirement.

d. Procedures For Fire Prevention

The inspector reviewed the following fire procedures required by the SER and determined the status of them.

(1) Section 6.2(1) of the SER required a procedure for the control of cutting, welding and open flame work. The inspector reviewed BFM-8 that provides this coverage. This procedure has been revised several times since it was originally approved and the inspector reviewed all revisions. The latest revision to this procedure was discussed in Section 3.(a) of this report. The procedure is presently under review by a U. S. NRC fire consultant.

(2) Section 6.2(2) of the SER required that procedures for the control of all fire related testing, maintenance, and recordkeeping be established. To confirm that the procedures had been prepared for the control of the fire

protection equipment, the inspector reviewed BFS-3. The inspector verified that the procedure requires that the plant safety engineering aid will assist the section supervisors with the planning, scheduling, and testing of fire protection systems and equipment, and assure that the documentation of the periodic testing program is complete. After reviewing the procedure and discussing it with the Plant Superintendent, the requirement in the SER appeared to be satisfactorily complete.

(3) Section 6.2(3) of the SER required procedures for performing the required maintenance and testing of the fire protection system and equipment. The inspector confirmed by reviewing BFS-3 that procedures were established for this requirement. A review of the procedure verified that procedures were established for all of the periodic testing of the fire protection systems and equipment and the section to which the testing responsibility is assigned. In addition to the requirements in this procedure, Technical Specifications also require the testing and maintaining of the fire protection equipment. With requirements in the Technical Specifications and in a plant procedure, the SER requirement appeared satisfactorily completed.

(4) Section 6.2(4) of the SER required procedures for a valve supervision program and record as related to the fire water and CO_2 systems.

For this requirement the inspector reviewed B-BFS-3. In reviewing this procedure, the inspector confirmed that provisions were established for a valve testing program for the fire protection systems. The inspector confirmed that the procedure requirements related to valve testing of the fire pumps, CO_2 fire protection system, and the yard automatic fixed nozzle systems. This procedure appeared to satisfactorily complete the SER requirement.

(5) Section 6.2(5) of the SER required that procedures be developed for fire protection when a fire stop is breached for any purpose. For confirmation, the inspector reviewed BFS-33 that establishes a permanent fire watch when a fire stop is breached. This procedure was discussed in Section 4, paragraph (d) of this report. Also, the requirements for breaching of a fire stop are required by Technical Specification 3.11F. With an established procedure and requirements in the Technical Specifications, this SER appeared satisfactorily completed.

(6) Section 6.2(6) of the SER required that procedures be developed for housekeeping to reduce or eliminate combustible materials from areas required for safe plant shutdowns. To confirm that procedures had been developed, the inspector reviewed procedure BFA-68 that includes general as well as specific housekeeping guidance and requirements for inspections and documentation of plant areas every six months to assess the adequacy of housekeeping. The procedure is presently under review by U. S. NRC fire consultant.

(7) Section 6.2(7) of the SER required that a procedure be developed to provide for a trained fire watch to patrol the plant and make checks at clock registers at points critical to safe plant shutdown. The inspector reviewed procedure BFS-28 that does provide fire attendants to patrol the plant through established routes and be monitored by a key clock recorder. With reference to this procedure, the inspector interviewed two roving fire watchmen and witnessed the use of the clock registers. The procedure is presently under review by a U. S. NRC fire consultant.

(8) Section 6.2(8) of the SER required that procedures be developed for controlling flammable liquids in the plant and requirements for the type of containers to be used when the liquids are required for plant operation. The inspector reviewed procedure BFS-31 and confirmed that it included descriptions of flammable liquids or combustibles, the general storage areas, preventive maintenance, test program and the type of storage container. The procedure is presently under review by a U. S. NRC fire consultant.

(9) Section 6.2(9) of the SER required that procedures be developed for a formal plant self-inspection program for fire safety. The inspector had confirmed during an earlier inspection that this procedure (BFS-32) had been established. The discussion of the procedure was included in IE Report Nos. 50-259/76-9 and 50-260/76-9, Section 4, paragraph G. The procedure appeared to adequately satisfy the SER requirement.

(10) Section 6.2(10) of the SER required that procedures be developed for assessing fire loads that are required for plant operation and maintenance. The inspector confirmed this procedure by reviewing BFS-3, that was discussed in Section 4, paragraph (c) of this report.

Expressed in Section 6.2.(10) of the SER was a concern that the temporary material may be located in critical areas and credit taken for fixed fire extinguishing systems that may not be effective where the materials were located. In reviewing procedure BFS-3, the inspector verified that this particular concern was addressed. In Section III, General Guideline, the procedure states, "no credit shall be taken for fixed fire protection systems in regard to extinguishing capability for transient fire loads."

The procedure is presently under review by a U. S. NRC fire consult.

(11) Section 6.2(11) of the SER required that procedures be developed for an outside or independent fire protection/loss prevention inspection program to be performed on a periodic basis. The inspector was informed that this requirement was incorporated into the Technical Specification. The audit was discussed in IE Report Nos. 50-259/76-9 and 50-260/76-9, Section 4, paragraph g. Since the inspection will be covered by a Surveillance Instruction, the SER requirement appeared to be adequately completed.

(12) Section 6.2.(1), page 6-5, of the SER required that procedures be developed for assuring maintenance of the pressure seal fire stops and that this procedure provide a record of the potential deterioration or leakage of the fire stops. The inspector confirmed this procedure by reviewing a draft of the procedure (RS-T1-30). The final procedure was completed after this inspection had ended, but completion of the approved procedure was verified by another inspector at the site. The requirement appeared to be satisfactorily completed.

(13) Section 6.2(2), page 6-5, of the SER required that procedures be developed for reestablishing high pressure fire water to the yard loop if power is lost to the fire pumps. The inspector confirmed this procedure by discussing it with the Plant Superintendent and reviewing a draft of the procedure. The final procedure was approved after this inspection was over, but verification of the approved procedure was verified by another inspector at the site. The requirement appeared to be satisfactorily completed.

(14) Section 6.2(3), page 6-5, of the SER required that procedures be developed for the use of existing ventilation system for smoke control. The inspector reviewed the System Operating Instruction, System No. 30, Ventilation System. The procedure is presently being reviewed by a U. S. NRC fire consultant.

(15) Section 6.2(4), page 6-5, of the SER required that procedures be developed that will include pre-fire plans for critical areas of the plant required for safe reactor shutdown. The inspector confirmed these procedures by reviewing twelve of the pre-fire plans. The inspector was informed that the plans would be attached to the fire emergency plan and would be the basic guidelines for fire drills. Each pre-fire plan included the following subject:

(a) Postulated fire emergency
(b) Location
(c) Method of access
(d) Fire protection available
(e) Manpower available
(f) Fire brigade action
(g) Related considerations and hazards.

The pre-fire plans are presently being evaluated by a U. S. NRC fire consultant.

(16) Section 6.2(5), page 5-6, of the SER required that procedures be developed for semi-annual chemical treatment of the fire, water system, and periodic flushing to assure clean piping and annual inspections for removal of crustacia accumulation. The inspector discussed these procedures with the Plant Superintendent who informed the inspector that this requirement had been included in the Technical Specifications and would be covered under Surveillance Instruction 4.11.A.1.f. The surveillance instructions appeared to complete the SER requirement.

e. Organizational Changes Related To Fire Prevention/Protection

(1) Fire Protection Prevention Board

Section 6.3 of the SER required that a Fire Protection and Prevention Board be established to provide coordination among the Divisions of Engineering Design, Power and Construction. The coordination of these divisions

would include plans and policies concerning fire protection at BFNP and other TVA power plants. To confirm that the board had been established, the inspector reviewed a letter from TVA to the U. S. NRC - Office of Nuclear Reactor Regulation dated April 23, 1976. The correspondence included an attachment with the charter of the board and the responsibilities of this group. After reviewing the charter dated January 18, 1976, the inspector considered this requirement completed.

(2) Fire Brigade Reorganization

Section 6.3 of the SER defined that the plant fire brigade would be reorganized to establish the Assistant Shift Engineer for Unit 2 as the Fire Brigade Leader as well as other reorganizations for the fire brigade. The inspector reviewed the revisions to the "Fire, Explosion, and Natural Disaster Plan," to confirm that the reorganization was complete. Additional details relating to the reorganization of the Fire Brigade were addressed in IE Report Nos. 50-259/76-9 and 50-260/76-9, Section 4, paragraph a. The confirmed reorganization of the fire brigade appeared to satisfy the SER requirement.

(3) Safety Engineering Aid

Section 6.3 of the SER defined that a Safety Engineering (Aid) position would be filled and the responsibilities of the aid would be to conduct fire training and drills, conduct periodic fire inspections, and evaluate work practices at the plant. The inspector confirmed this position by personally interviewing the aid and discussing his responsibilities. The inspector questioned training and fire experience that he had received relative to his work at BFNP. This requirement is presently being reviewed by U. S. NRC-Office of Nuclear Reactor Regulation.

(4) Section 6.3 of the SER required that a position of Restoration Coordinator be created that would remain in effect until all of the restoration work was completed. The inspector discussed this position with the Plant Superintendent, and reviewed documentation that confirmed this position, and designated the responsible individual for the coordination. The designation of this individual and the establishment of his responsibilities appeared to satisfy the SER requirement.

f. Roving Fire Watch

Section 7.5.1 of the SER required that a roving fire watch would monitor all critical areas of the plant at least every two hours until the installation of the automatic fire protection systems were completed. To confirm that the program was in effect, the inspector interviewed two of the roving fire watchmen. The inspector discussed with these individuals their duties during their trips through the plant and their training. The inspector was informed that the roving watchmen observe the critical areas they have been assigned to evaluate and report any potential or real hazard that may exist. In addition to making the assigned trips through the plant, the fire watchmen observe compliance of "No Smoking" requirements as well as the compliance of permits for BFM-8. The inspector questioned the fire watchmen about their fire training and they confirmed that their fire training consisted of demonstrations in the use of fire extinguishing equipment, fire hazards, and fire reporting procedures. The inspector also reviewed BFS-28, "Fire Attendants" that established that the operation's supervisor must establish fire attendants to patrol all plant areas on a periodic basis. After reviewing the procedures and interviewing the fire watchmen, the SER requirement appeared to be satisfied.

g. Replacement of Linen Fire Hose

Section 7.5.1 of the SER required that all linen hoses be replaced with neoprene lined hoses. To confirm the completion of this requirement, the inspector toured Units 1 and 2 with two safety engineers and specifically inspected six hose stations from Unit 1 and the same number in Unit 2. At each station the inspector specifically asked and was informed that the hoses were polyester (neoprene lined) hose. The inspector also reviewed Purchase Contracts that described the neoprene tubing. The SER requirement appeared to be satisfactorily completed.

h. Hose and Nozzle Connections Compatible to Local Fire Departments

Section 7.5.1 of the SER required that hose and nozzle connections would be compatible with the equipment used by the local fire department. The inspector inspected against that requirement and the findings were defined in Section 4(a) of this report. The SER requirement appeared to be satisfactorily completed.

i. Electrical Fire Nozzles

Section 7.5.1 of the SER required that all nozzles would be suitable for use in fighting electrical fires. To confirm the availability of the electrical nozzles, the inspector toured Units 1 and 2 with two safety engineers and specifically inspected eight fire hose stations from Unit 1, and eight in Unit 2. At each hose station the inspector observed the nozzle, recorded the nozzle catalog number, and confirmed the capability of the nozzle for fighting electrical fires. The inspector continued to check the nozzle number with the catalog to further confirm that the nozzle had the capability of being used on electrical fire. The SER requirement appeared to be adequately completed.

j. Rewind Hose Reels

Section 7.5.1(3) of the SER required that hose reels be rewound using the double overlay method and preconnect the hoses to the high pressure fire water system. To confirm the rewound hose reels, the inspector observed all of the hose reels in Unit 1 and Unit 2 turbine building and confirmed that the hoses were double wound and preconnected. Additionally, the inspector confirmed by inspecting twelve hose racks in Units 1 and 2 reactor building to determine that the hoses were preconnected. The requirement in the SER appeared to be satisfactorily completed.

k. Survey of Plant For Adequate Hose Capabilities

Section 7.5.1.(3) of the SER required that a survey of the plant be made to determine that at least two hose racks with the appropriate hose lengths would be capable of providing water for fire fighting especially for cable trays and all critical areas. The inspector confirmed that the survey had been performed and discussed it with two safety engineers. From this survey prefire plans were developed. Using the prefire plans as a basis, the inspector reviewed the plans and walked through two of them to determine that at least two hose racks would be available for cable tray fires in the twelve critical areas covered by the plans. The survey appeared to adequately complete the SER commitment.

l. Additions to Self-contained Breathing Equipment

Section 7.5.4 of the SER required that the total number of self-contained breathing equipment be increased from 24 to 39

and the number of charged extra air cylinders from 27 to 57. Six Chemox Oxygen Breathing Apparatus be maintained for emergency use only, and 10 air masks and 15 extra air cylinders be maintained in the control room. These requirements were discussed in IE Report Nos. 50-259/76-9 and 50-260/76-9, Section 5, paragraph b. and the requirement appeared adequately complete.

Section 7.5.4 of the SER also required that an air recharging system be installed with an increased reservoir of supplied air. This requirement was discussed in Section 4, paragraph h, of this report and the requirement appeared to be adequately completed.

m. Additions to Portable Hand Lamps

Section 7.5.6 of the SER required that emergency portable hand lamps be provided and procedures written to provide quarterly voltage checks and replacement of the batteries. The inspector confirmed this requirement in an earlier inspection and the details of the findings were discussed in IE Report Nos. 50-259/76-9 and 50-260/76-9, Section 9, paragraph c. The SER requirement appeared to be satisfactorily completed.

n. Modifications To Hose Connection

Attachment 3(D)(10) of the SER required that the fire protection equipment including hose, nozzles, and standpipe valves, should have compatible threads with existing equipment and the equipment of the local fire department. The details of the equipment modifications were discussed in Section 5, paragraph h, of this report. The SER requirement appeared to be adequately completed.

o. Standpipe Riser Sealing

Attachment 3 Recommendation D.(3) of the SER required that standpipe risers should be sealed on each floor to prevent smoke and corrosive gases from penetrating into areas normally unexposed to the effects of fire. The inspector discussed this requirement with the Plant Superintendent but he informed the inspector that this requirement had been negated by another section of the SER. The U. S. NRC comments to Attachment 3 Recommendation (D)(3) stated that "the results would be covered by SER Attachment 3 Recommendation (K)." The inspector reviewed Attachment 3 Recommendation (K) which stated that "there was no practical method to accomplish the recommendation for the

isolations of floors because the reactor is a complex structure with requirements for established ventilation patterns to achieve proper distribution and control of potential radioactivity." After discussing the requirement with the Plant Superintendent and reviewing Attachment 3, Recommendation (K), the inspector considered the requirement a closed issue.

p. Procedure Revisions For Requiring the Closing of Temporary Wall/Floor Openings At The End of Workday

Attachment 3, Recommendation F, of the SER required that procedures be established to sufficiently seal with noncombustible material temporary wall and floor openings at the end of each workday to insure fire integrity. The inspector discussed the draft of this procedure with the Plant Superintendent. The final procedure was approved after the dates of this inspection, but verification of the approved procedure was performed by another inspector at the site. The SER requirement appeared to be satisfactorily completed.

q. Changes To Self-contained Breathing Equipment

(1) Attachment 3 Recommendation G.(1) of the SER required that self-contained approved breathing apparatus should be provided for all fire fighting and control room personnel. This requirement was discussed in IE Report Nos. 50-259/76-9 and 50-260/76-9, Section 5, paragraph b. The requirement appeared to be adequately completed.

(2) On-site Reserve Air Supply

Attachment 3 Recommendation G.(2) of the SER required that an onsite reserve air supply should be available. This requirement was disucssed in IE Report Nos. 50-259/76-9 and 50-260/76-9. Section 5, paragraph b. The requirement appeared to be adequately completed.

r. Self-Contained Breathing Apparatus In The Control Room

Attachment 3 Recommendation J.(2) of the SER required that a sufficient number of approved self-contained breathing apparatus should be located in the control room. This requirement was discussed in IE report Nos. 50-259/76-9 and 50-260/76-9, Section 5, paragraph b. This requirement appeared to be adequately completed.

6. Status of Licensee Verbal Commitments Documented In Official Correspondence

The licensee made verbal commitments relating to fire prevention items that were documented as requirements. This section defines the status of these verbal commitments.

a. Ladders Throughout The Safety-Related Areas

In correspondence to U. S. NRC - Office of Nuclear Reactor Regulation dated April 23, 1976, the licensee committed to have in place before startup ladders throughout the safety-related areas of the plant to provide access to elevated areas for the fire brigade. The inspector confirmed the presence of the ladders and the signs posted at the ladder stations. The inspector toured Units 1 and 2 with two safety engineers and verified that step ladders and a straight ladder were available at the ladder stations observed. After observing selected ladder stations, the commitment appeared to be satisfactorily completed.

b. Prefire Plans

In correspondence to the U. S. NRC - Office of Nuclear Reactor Regulation, dated April 23, 1976, the licensee committed to having prefire plans for fire extinguishment in those areas of the plant that could affect safe shutdown. The inspector reviewed twelve prefire plans for critical areas of the plant that included:

(1) Units 1 and 2 - Standby Diesel Generator Building

(2) Unit 3 - Standby Diesel Generator Building

(3) Unit 1 - Reactor Building - Motor Generator Sets A and B

(4) Unit 2 - Reactor Building Motor Generator Sets A and B

(5) Unit 3 - Reactor Building Motor Generator Sets A and B

(6) Water Supply Pumping Station Units 1, 2, 3

(7) Unit 1 - Reactor Building HPCI Room

(8) Unit 2 - Reactor Building - HPCI Room

(9) Unit 3 - Reactor Building - HPCI Room

(10) Water Supply Pumping Station Cable Tunnel

(11) Units 1 and 2 - Control Bay Cable Spreading Room

(12) Unit 3 - Control Bay Cable Spreading Room

Additional information relating to the prefire plans was included in Section 5, paragraph K, of this report. The prefire plans are presently under review by a U. S. NRC fire consultant.

c. Emergency Procedures For A Failure of Any Critical Radiation Monitor

In correspondence to the U. S. NRC - Office of Nuclear Reactor Regulation dated April 23, 1976, the licensee committed to developing emergency procedures to be put into effect should any critical radiation monitor fail during an event which could produce the potential for the release of radioactivity to the atmosphere. For confirmation of these procedures, the inspector discussed and reviewed BF-RLM-700 that provides guidance for sampling in the event of an inoperable constant air monitor. The review of this procedure verified that the commitment was satisfactorily completed.

7. Status of Licensee Fire Consultants' Recommendations

In addition to commitments in the Recovery Plan, SER, and official correspondence, the licensee committed to additional recommendations from TVA fire consultants. This section includes the status of completion relating to these commitments.

a. Fire Hose Stations

In a report dated January 22, 1976, following a meeting with the U. S. NRC on the Browns Ferry Restoration, the licensee committed to having all fire hose stations marked on the floor. The inspector confirmed that these markings were available by touring the plant and observing them at the fire hose stations. At the end of this inspection, two inaccessible fire hoses were moved and the markings had not been completed, but the inspector was informed that these would be completed as soon as possible. The inspector informed the safety engineers that he would verify the markings for the recently

moved fire hose stations during future inspections. The completion of the recommendation appeared to be adequate.

b. Fire Extinguisher Relocation

In a letter dated January 23, 1976, relating to a January 22, 1976, meeting with the U. S. NRC on the Browns Ferry Restoration, the licensee committed to relocating all inaccessible fire extinguishers. For confirmation of the commitment, the inspector reviewed the work package for this commitment and followed the work until all the extinguishers were moved. In total, eighty-two extinguishers were moved. The inspector toured the plant and determined that a representative number had been moved. The movement of the inaccessible extinguishers appeared to adequately complete the recommendation.

c. Elevator Escape Hatches

In a report dated January 22, 1976, concerning a meeting with the U. S. NRC on the Browns Ferry Restoration, the licensee committed to having all elevator excape hatches checked and modified, if necessary, to ensure that the hatches could be opened from inside the elevator cab. Information relating to this commitment was presented in IE Report Nos. 50-259/76-9 and 50-260/76-9, Section 4, paragraph f. The inspector continued to follow this commitment during this inspection until the work was completed. The recommendation appeared to have been implemented.

d. Adequate Fire Hose Length

In recommendations from TVA fire consultants, the licensee committed to a field inspection to ensure adequate hose lengths for proper coverage. The inspector discussed this commitment with the Plant Superintendent and the two safety engineers who performed the survey. The inspector also reviewed the survey. The inspector was informed that the survey indicated that the fire hoses in the plant were adequate but did not meet Fire Code No. 14 to which the licensee was not committed. However, as a result of the survey, the licensee ordered additional fire hoses, and stand pipes. The inspector was informed that when these additional hoses were installed in the plant, the fire hoses would meet the established code. After reviewing the field survey, the work apparently completed the recommendation.

e. Clock Register

In recommendations from TVA consultants, the licensee committed to clock registers to be used by the roving fire watch during the restoration period. The inspector interviewed two fire watchmen and observed the use of the registers. The recommendation appeared to be implemented.

f. Coating of Wood Surfaces

In recommendations from TVA fire consultants, the licensee committed to the discontinued use of Fire Code No. 20 for wood application and that the coating of wood surfaces would be made with U. L. - Classified paint listed in the Underwriters Laboratories Building Material Directory dated Janaury 1974. The inspector discussed the use of this material with the Plant Superintendent and reviewed the letter informing the plant maintenance section of the required use and where the material could be processed. The inspector was informed that the material described in the manual would be the only material used for coating wood surfaces. The recommendation appeared to be adequately implemented.

8. BFNP Radiological Emergency Organization

In order to adequately evaluate the BFNP Radiological Emergency Organization, the inspector reviewed the requirements in the BFNP Radiological Emergency Plan (REP), and the Technical Specifications.

(a) Technical Specifications

(1) Potential Radioactivity Release Procedures

Section 6.3.A.(4) of the Technical Specifications requires that detailed emergency procedure must be prepared for emergency conditions involving potential or actual release of radioactivity. The inspector discussed this requirement with representatives of the licensee at the plant and at the TVA - Radiological Hygiene Branch in Muscle Shoals, Alabama. In the discussions, the inspector was informed that the procedures were incorporated in the REP. The inspector confirmed that the REP was maintained in the control room and operating instructions referenced the procedure in the REP. The inspector reviewed the procedure found in Exhibit E of the Environs Emergency Plan entitled "Methods For Predicting Protective Action

Requirements During An Accidental Release of Airborne Radioactivity at BFNP." After the discussions and procedure review, the inspector had no further questions concerning the licensee compliance of Section 6.3.A.(4) of the Technical Specifications.

(2) Emergency Plan Implementing Procedures

Section 6.3.A.(8) of the Technical Specifications requires that Radiological Emergency Plan Implementing Procedures be prepared. The inspector discussed these procedures with representatives of the licensee. The inspector was informed that the procedures were not in a separate document as recommended in Regulatory Guide 1.101, "Emergency Planning For Nuclear Power Plants," to which the licensee is not committed but included in the REP. The inspector reviewed the following implementing procedures in the BFNP-(Site) REP:

(a) Emergency Organization Procedures

(b) Emergency Conditions and Detections

(c) Activation Procedures

(d) Personnel Accountability and Evacuation

(e) Emergency Environmental Monitoring

(f) Medical Assistance

(g) Recovery Procedures

(h) Reporting Procedures

(i) Drill Procedures

After reviewing the procedures, the inspector had no further questions concerning the licensee's compliance with Section 6.3.A.(8) of the Technical Specifications.

(3) Emergency Drills

Section 6.3.C. of the Technical Specifications requires that drills involving the release of radioactivity be conducted annually. The inspector confirmed this requirement by being present at the plant on May 30, 1976. On

this date arrangements were made by representatives of the plant to perform an emergency drill to test the effectiveness of the site emergency organization. Off-site capabilities associated with BFNP were tested in a drill held on February 28-29, 1976. The results of the February drill were discussed in IE Report Nos. 50-259/76-9 and 50-260/76-9, Section 3, paragraph b. The drill on May 30, 1976, consisted of the assembly of all plant and construction workers, accountability, communications to establish the TVA-Central Emergency Control Center in Chattanooga, Tennessee, and the testing of the evacuation alarm. Communications were also verified with other TVA agencies and the U. S. NRC - Region II.

In order to determine weaknesses in the emergency organization experienced during the drill, the inspector discussed the drill with representatives of the licensee and reviewed a critique of the drill documented in Quality Assurance Report - QASM-No. 18. The inspector informed representatives of management that weaknesses defined by the discussions and drill critique would be followed on future inspections for corrective action.

(4) Control Room Emergency Ventilation

Section 4.7.D.E.(3) of the Technical Specification requires that whenever work is performed that could adversely affect the filter system efficiency of the control room emergency ventilation system, then the removal efficiency of the particulate filter and the charcoal filter is to be tested. The inspector discussed the testing of the filter with a chem/lab representative and reviewed records for filter tests that were available at the time of this inspection. The inspector reviewed surveillance instructions that verified that the operability tests, functional tests, and methyl iodine removal test had been performed with satisfactory results for Units 1 and 2. The inspector informed the licensee representative that recent test results that were not available for this inspection would be reviewed in future inspections. The inspector did confirm by discussion with plant management and chem/lab representatives that all surveillance instructions pertaining to the emergency ventilation system for Units 1 and 2 were completed.

(5) Radiation Monitoring

The inspector verified for appropriate calibration the following radiation monitoring equipment:

(a) SI 4.8.B.4 - Reactor Building Ventilation Monitoring System - U-1

(b) SI 4.8.B.4-21 - Turbine Building Roof Exhaust Ventilation Monitoring System - U-2

(c) SI 4.8.B.4.1 - Main Stack Gas Monitor - U-1

(d) SI 4.8.B.4-1A - Turbine Building Roof Exhaust Ventilation Montioring System U-1

After the review of the surveillance records, the inspector had no further questions concerning the calibration and functional testing of the radiation monitors reviewed.

(b) REP Requirements

(1) Plant Communication System

During this inspection the inspector verified through discussions and demonstrations that the communication systems defined in Annex II, Section II, paragraph J of the REP were available and operable. The inspector verified the following systems:

a Pax Phone - with special emphasis on the fire alarm and microwave connection

b Manual Switchboard

c Bell Telephone

d Sound Powered Telephone - with special emphasis on the use of this system in the shutdown board rooms

e Paging and Intercom System

f /Radio Equipment

At the time of this inspection, there was no specific procedure that defined the periodic testing for operability of the communication systems. The inspector

recommended that these procedures be formulated. The procedures were developed and approved after this inspection was completed, but were confirmed by another inspector at the site. The inspector also verified through discussion that emergency power was available to the communication systems.

(2) Evacuation Alarm

The inspector confirmed the operability and adequate plant coverage of the evacuation alarm during the May 30, 1976 drill. The inspector questioned available procedures for the testing of the alarm but he was informed that no specific procedure required the testing of the alarm except the requirement in the Technical Specification and the REP for an annual drill. The inspector recommended that consideration be given to developing a procedure for the periodic testing of the evacuation alarm.

(3) Training

a Training of the Athens Fire Department.

The training of the Athens Fire Department was specifically addressed in IE Report Nos. 50-259/76-9 and 50-260/76-9, Section 2, paragraph (6). During this inspection the inspector reviewed records that verified that twenty-six members of the Athens Fire Department were presented a tour of the plant on January 6, 1976, and a lecture by the health physics supervisor in the basic principles of radiation and hazards unique to plant. The inspector also confirmed, by a review of BFA-17, that the Athens Fire Department should receive the tour of the plant and the radiation protection training at least annually.

b General Employee Training

1 General Employee Radiation Protection Training

In accordance with BFA-17 (Course No. 20), all permanent personnel assigned to the plant and others as assigned must receive training in the established radiation protection program at BFNP and the required actions for implementing

the REP. To confirm that this training had been performed, the inspector selected random names from the plant roster and reviewed the documentation of the training for these individuals. In each case selected the individual had received the training.

2 General Employee Training In Fire Protection

In accordance with BFA-17 (Course No. 27), all personnel must receive training in the "Fire, Natural Disaster and Explosion Plan." By reviewing records the inspector confirmed that the training was performed.

3 Retraining of General Plant Employees

In accordance with BFA-17, all personnel must receive retraining in Course No. 27 and No. 30 every three years. The inspector confirmed this retraining by reviewing the retraining documents.

c Operator Training In Emergency Procedures

The inspector questioned the operator training representative concerning the operators' training in emergency procedures. The inspector was informed that an operator receives training in the procedures during the annual operator requalification training program. During this training, the operator is given an emergency operating procedure (EOP) and is asked to "walk-through" the procedure. His performance of the procedure is evaluated in addition to the requalification tests. Additionally, the operators are required to review weekly and sign that they have reviewed changes to operating instructions, FSAR, amendments, standard practices, and Technical Specifications. The inspector reviewed documents that verified this training. Also, the inspector reviewed training records that verified that shift engineers, assistant shift engineers, and unit operators review three operating instructions and emergency operating instructions monthly. After the discussion and review of training records, the inspector had no further questions concerning the training of operating personnel in emergency procedures.

d Training of the Emergency Director

The inspector thoroughly discussed with the operator training supervisor the training of the individuals listed in Annex II, Section III, paragraph A.(2) who would succeed to the position of the Emergency Director. The inspector obtained the following information:

1 Shift Engineer - the inspector reviewed the operator retraining program to verify that shift engineers were appropriately trained in emergency operating procedures.

2 Plant Superintendent - the inspector was informed that the Plant Superintendent was not a licensed operator and was not included in the operator retraining program. The inspector verified through a review of records that he did receive general employee training.

3 Assistant Plant Superintendent - the inspector confirmed that the Assistant Plant Superintendent was not a licensed operator but was enrolled in the operators' training program in order to obtain an operator's license.

4 Operations Supervisor - the inspector confirmed that the operations supervisor was a licensed operator and would receive training in accordance with the operator requalification program.

5 Results Supervisor - the inspector was informed that the results supervisor was not a licensed operator and was not included in the operators' retraining. The inspector reviewed records of the general employee training to confirm that this individual had received general employee emergency training.

e Training of Offsite Support Agencies

Training of offsite support agencies was discussed in IE Report Nos. 50-259/76-9 and 50-260/76-9, Section 3 but during inspection the inspector reviewed BFA-17 (Course #28) that requires that offsite support agencies be trained so that they are knowledgeable

of their responsibilities in the implementation of the REP. To confirm that this training was performed, the inspector reviewed documentation that verified that training to the offsite agencies had been performed.

(4) Meteorological Instrumentation

During this inspection the inspector verified that meteorological information was available in the control room by discussing the equipment with a representative of the licensee and observing the equipment. The inspector made an attempt to determine the appropriate calibration and maintenance of the equipment, but the representatives for this service were located in Chattanooga, Tennessee. An inspection of this equipment will be performed at a later date.

(5) Environmental Emergency Requirements

During this inspection the requirements established in the Environs Emergency Plan of the REP were not inspected because this area has been covered by previous environmental inspections from the U. S. NRC - Region II Office during the past year.

(6) Emergency Kits

The emergency kits were inspected and details presented in IE Report Nos. 50-259/76-9 and 50-260/76-9, Section 9, paragraph (9)(a). During this inspection the inspector reviewed Radiological Control Instruction No. 4 "Periodic Inspection and Maintenance of Radiological Emergency Plan Equipment and Supplies." The procedure defined the location of the emergency equipment and the individual responsible for inventoring the equipment. The inspector specifically asked for data sheets on the most recent inspection of the equipment. A review of the data sheets indicated that on April 7, 1976, the equipment had been inspected and any item that was not available was replaced.

In accordance with the procedure, all emergency equipment must be inventoried each calendar quarter. The inspector questioned the portable radiation monitoring equipment. He was informed that the portable radiation monitoring equipment was maintained/available in the health physics

office and calibrated. The calibration and maintenance of portable radiation monitoring equipment was not inspected during this inspection. The equipment was inspected through other radiation protection inspections from the U. S. NRC - Region II office.

(7) Medical Arrangements

(a) Offsite Medical Facilities

The inspector met on June 2, 1976 with a representative of the Colonial Manor Hospital and a representative of the licensee. The inspector discussed the arrangements that had been established by the licensee and visually inspected the facility. The inspector observed that the facility was equipped and arranged as specified in the REP.

(b) Medical Examination For Operators

In accordance with 10 CFR 50, Section 55.33c, all reactor operators must have an annual medical examination. The inspector did not review the records of each individual operator but did confirm with the assistant operations supervisor that the examinations were given each year with documentation. The inspector did review the TVA instruction from the Division of Medical Services that requires the provisions for the operators in accordance with the regulations.

(c) Onsite Medical Facility

The inspector confirmed that an onsite medical facility was available at the site in accordance with Annex II, Section II, paragraph F of the REP. The inspector interviewed the nurse on duty and toured the facility for compliance with the commitments in the REP.

(d) Advanced Medical Facilities

The inspector reviewed correspondence dated January 5, 1976, that confirmed that the licensee had made arrangements for advanced medical facilities at the Radiation Emergency Assistance Center Training Site (REACTS) in Oak Ridge, Tennessee.

(8) Role of the U. S. NRC In Emergencies

The inspector reviewed with the plant management the role of the U. S. NRC in emergencies.

DETAILS VII Prepared by: J. J. Blake 6/17/76
Date

J. J. Blake, Metallurgical Engineer
Engineering Support Section No. 2
Reactor Construction and Engineering
Support Branch

Dates of Inspection: May 25-26, 1976

Reviewed by: A. R. Herdt 6/17/76
Date

A. R. Herdt, Section Chief
Engineering Support Section No. 2
Reactor Construction and Engineering
Support Branch

1. Persons Contacted

Tennessee Valley Authority (TVA)

M. N. Bressler - Mechanical Engineer, MEB
J. F. Cox - Nuclear Licensing, DED

2. Scope

This inspection was conducted at TVA's Office of Engineering Design and Construction (OEDC) in Knoxville, Tennessee. The inspection involved a review of the background information for the completion of Appendix II of TVA's Report, "Browns Ferry Nuclear Plant Verification Program on Wall Thickness of Valves Important to Nuclear Safety."

3. Valve Wall Thickness Verification (74-12/1)

Due to the fact that measurements were not made of all the valve bonnet and cover plate thicknesses, TVA committed to preparing an engineering justification addressing the adequacy of the parts which had not been measured. This justification was to be based on an audit of the documentation of the measurements of valve components for Unit 3 valves and an engineering analysis of the unmeasured items.

The inspector reviewed the draft information from the final report of valve wall thickness verification measurements for Unit 3 and the engineering justification which had been prepared based on this data concerning the Unit 2 bonnets and cover plates. The licensee stated that the engineering justification would be finalized as an addendum to the Appendix II report.

Based on the inspector's review of the engineering justification and its background information as well as the licensee's commitment to include the engineering justification into the final report for Unit 2, this item is closed.