



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W., SUITE 2900  
ATLANTA, GEORGIA 30323-0199

Report Nos.: 50-259/93-44, 50-260/93-44, and 50-296/93-44

Licensee: Tennessee Valley Authority  
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1101 Market Street  
Chattanooga, TN 37402-2801

Docket Nos.: 50-259, 50-260,  
and 50-296

License Nos.: DPR-33, DPR-52,  
and DPR-68

Facility Name: Browns Ferry Units 1, 2, and 3

Inspection at Browns Ferry Site near Decatur, Alabama

Inspection Conducted: November 20 - December 17, 1993

Inspector:

*Paul J. Kellogg*  
C. A. Patterson, Senior Resident Inspector

*1/10/94*  
Date Signed

Accompanied by: J. Munday, Resident Inspector  
R. Musser, Resident Inspector  
G. Schnebli, Resident Inspector  
L. Watson, Project Inspector

Approved by:

*Paul J. Kellogg*  
Paul J. Kellogg, Chief,  
Reactor Projects, Section 4A  
Division of Reactor Projects

*1/10/94*  
Date Signed

SUMMARY

Scope: This routine resident inspection included maintenance observation, operational safety verification, Unit 3 restart activities, reportable occurrences, and actions on previous inspection findings.

One hour of backshift coverage was routinely worked during the work week. Deep backshift inspections were conducted on November 21, 1993.

Results: Unit 2 operated continuously during this period, paragraph 3. The old Browns Ferry continuous run record of 189 days was broken.

A partial loss of the rod position indication system occurred on November 21, 1993, paragraph 2. The licensee evaluation of this event was proper. Problems were experienced with the security computer locking doors preventing entry by anyone such as plant operators, paragraph 3. This issue is being addressed in an incident investigation report.

TI 2515/112, Change to Environs Around Licensed Reactor Facilities was reviewed and no discrepancies identified, paragraph 3. Four licensee event reports, two inspector followup items, and three violations were closed, paragraphs 5 and 6.

Unit 3 recovery schedule was issued on November 23, 1993. The unit is scheduled to return to operation in 1995. The schedule has an early and late date.



## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees:

- \*O. Zeringue, Vice President
- \*R. Machon, Plant Manager
- \*J. Rupert, Engineering and Modifications Manager
- \*T. Shriver, Licensing and Quality Assurance Manager
- D. Nye, Recovery Manager
- \*E. Preston, Operations Manager
- J. Maddox, Engineering Manager
- \*M. Bajestani, Technical Support Manager
- A. Sorrell, Chemistry and Radiological Controls Manager
- C. Crane, Maintenance Manager
- \*P. Salas, Licensing Manager
- \*R. Wells, Compliance Manager
- J. Corey, Radiological Control Manager
- J. Brazell, Site Security Manager

Other licensee employees or contractors contacted included licensed reactor operators, auxiliary operators, craftsmen, technicians, and public safety officers; and quality assurance, design, and engineering personnel.

#### NRC Personnel:

- P. Kellogg, Section Chief
- \*C. Patterson, Senior Resident Inspector
- \*J. Munday, Resident Inspector
- \*R. Musser, Resident Inspector
- G. Schnebli, Resident Inspector
- L. Watson, Project Engineer

\*Attended exit interview

Acronyms and initialisms used throughout this report are listed in the last paragraph.

### 2. Maintenance Observation (62703)

Plant maintenance activities were observed and/or reviewed for selected safety-related systems and components to ascertain that they were conducted in accordance with requirements. The following items were considered during these reviews: LCOs maintained, use of approved procedures, functional testing and/or calibrations were performed prior to returning components or systems to service, QC records maintained, activities accomplished by qualified personnel, use of properly certified parts and materials, proper use of clearance procedures, and implementation of radiological controls as required.



Work documents were reviewed to determine the status of outstanding jobs and to assure that priority was assigned to safety-related equipment maintenance which might affect plant safety. The inspectors observed the following maintenance activities during this reporting period:

a. RPIS Power Supply Failure

On November 21, 1993, the Unit 2 operating shift observed that the control rod position indicating lights on the bottom half of the full core display were much dimmer than the position indicating lights in the upper portion of the display. The indicating lights for control rods located at an intermediate position were noted to be particularly dim. The ICS and the "four-rod" display still indicated normal. The operators entered 2-AOI-85-4, Loss of RPIS, to determine the cause of this condition. The procedure directed the operators to check the two 6 volt DC power supplies in auxiliary instrument room panel 2-9-27 for proper operation. Power supply PSX6 was discovered to be malfunctioning as its output voltage was 4.8 volts placing it outside of the required band of 5.5 to 6.5 volts. A review of the appropriate drawings revealed that the position indicating lights in the lower half of the full core display received power from the PSX6 power supply.

The operating shift initiated a work request and at the direction of the SOS, the work was designated as priority 2 or a situation which requires immediate attention. As permitted by SSP-7.1, Work Control, the work and the development of the work package proceeded in parallel. Plant instrument technicians located a replacement power supply and performed the appropriate pre-installation checks. Concurrent with these activities, the control room staff discussed the replacement of the power supply and its effect on plant indications; i.e. loss of the control rod position indicating lights on the bottom half of the full core display and loss of the "four-rod" position indicating lights for the same control rod positions. However, it was made clear that all of the control rod positions would continue to be displayed on the plant computer.

The inspector observed the replacement of the power supply in the auxiliary instrument room and the effects of the activity in the control room. The power supply was removed and both the four rod display and lower half of the full core display were lost. The licensee entered a seven day LCO for TS 3.2.F based on loss of RPIS six volt indicating lights. The power supply was replaced in approximately 75 minutes, control rod position indication was fully restored, and the LCO exited. During the maintenance effort, the inspector observed that all parties involved were well aware of the importance of completing the activity properly and promptly. Additionally, the inspector reviewed the completed work package (WO 93-15455-00) and no discrepancies were noted.



The inspector questioned why the licensee did not declare an unusual event based on EPIP 1 SV7, LOSS OF RPIS INDICATION OR ALARMS REQUIRING SHUTDOWN. The licensee reviewed this question at the time of the event and concluded that rod position indication was available from the process computer and a notification was not required. The inspector reviewed the applicable vendor manuals and drawings and concluded this was a feasible scenario. Also, this event was discussed with the NRC region based emergency preparedness section. Based on still having rod position available from the process computer, allowed seven day operation by the TS LCO, and the fact that a shutdown was not required were acceptable reasons for not declaring an unusual event.

b. Secondary Containment Isolation Damper

The inspector reviewed maintenance activities associated with erroneous damper position indication for the I-FCO-064-0005A, refueling zone air supply outboard isolation damper. The exact cause of the erroneous indication has not yet been identified however repair of the damper included replacing the actuator arms, solenoid valve, and limit switches. Work documents reviewed included WOs 93-13528-00, -01, -02, and 03, and ECI-0-000-SWZ-005. The post maintenance test was performed satisfactorily and the damper was returned to service. The licensee sent the solenoid to the vendor for disassembly and evaluation. The inspector will follow-up on this item.

No violations or deviations were identified in the Maintenance Observation area.

3. Operational Safety Verification (71707)

The NRC inspectors followed the overall plant status and any significant safety matters related to plant operations. Daily discussions were held with plant management and various members of the plant operating staff. The inspectors made routine visits to the control rooms. Inspection observations included instrument readings, setpoints and recordings, status of operating systems, status and alignments of emergency standby systems, verification of onsite and offsite power supplies, emergency power sources available for automatic operation, the purpose of temporary tags on equipment controls and switches, annunciator alarm status, adherence to procedures, adherence to LCOs, nuclear instruments operability, temporary alterations in effect, daily journals and logs, stack monitor recorder traces, and control room manning. This inspection activity also included numerous informal discussions with operators and supervisors.

General plant tours were conducted. Portions of the turbine buildings, each reactor building, and general plant areas were visited. Observations included valve position and system alignment, snubber and hanger conditions, containment isolation alignments, instrument readings, housekeeping, power supply and breaker alignments, radiation



and contaminated area controls, tag controls on equipment, work activities in progress, and radiological protection controls. Informal discussions were held with selected plant personnel in their functional areas during these tours.

a. Unit Status

Unit 2 operated at power this report period without any significant problems. On December 10, 1993, Unit 2 exceeded the old continuous run record of 189 days. At the end of the period the unit had been on-line for 197 continuous days.

b. Asbestos Blanket

During a tour of the Unit 3 reactor building, the inspector noted a blanket which appeared to be made of asbestos material, hanging over a pipe in the overhead on the west side of the 565 foot elevation. The blanket, which appeared to have been used for protection against sparks during welding or grinding activities, was frayed and torn. The licensee safety representative was informed and stated that it had previously been brought to his attention. He stated that the blanket did contain asbestos and would be removed. The inspector noted on a later inspection that the blanket had been removed.

c. Loss of Security Computer

On December 2, 1993, a perturbation in a power supply resulted in a degradation of the security computer system which caused the plant security doors to automatically lock closed. On December 7, 1993, a computer fault again caused the doors to automatically lock. In both cases compensatory measurements were taken in accordance with the site security plan. The reason the doors automatically locked was not initially known and there was concern over being able to gain entry into these areas if needed. Security initiated II-B-93-050 to determine the cause and corrective action. While the investigation has not yet been completed, Security has instituted procedure revisions to allow quick access to the various areas which become automatically locked. The inspector will followup on this event in future inspections.

d. Transient Combustible Control

On December 15, 1993, the inspector observed non-fire retardant plywood on the west side of the 565 foot elevation in the Unit 1 reactor building. Two new eight inch valves and two ten inch valves staged in the building waiting to be installed in the fire protection system contained circular shaped pieces of plywood inserted into both sides of the valve body to protect the internals. Fire protection was informed and the wood was removed and replaced with tape to protect the valves. Licensee management

stated that this amount of combustible material was acceptable in the building, however, it should have been recognized as such and accounted for. The inspector reviewed the Fire Protection Report Volume 2 Section I-C and concurred. The inspector will follow the licensee's actions toward improving the control of transient combustible.

e. Reactor Water Cleanup System

A portion of the RWCU system located between the pumps and the inlet of the regenerative heat exchangers is not instrumented for leak detection. A leak in this portion of the system would not be detected by the installed safety-related area temperature detectors, and therefore, would not isolate the system. The system at this location is approximately at 1000 psi and 210 degrees Fahrenheit. The inspector questioned the licensee as to how a leak in this area would be identified. The licensee stated in a memorandum from the Manager - Site Engineering to the Manager - Site Licensing, dated December 17, 1993, that the leak would be identified by one or more of the following means and isolated before it exceeded 10 CFR 100 limits.

- 1.) If the leak were caused by a seismic event, AOI 100-5, would require a tour of the reactor building specifically to look for leaks and upon identification isolate it.
- 2.) The temperature of the water from the leak would be high enough to actuate the non-safety related 140 degrees Fahrenheit isolation of the RWCU system and the 130 degrees Fahrenheit alarm in the control room.
- 3.) The leaking water would be routed to radwaste and cause the collection tanks to fill at a rate quicker than normal, calculated to be 249 gpm. This would be recognized by the radwaste operator as abnormal, whereupon operators would be dispatched to locate and isolate the source of the leak.
- 4.) Area radiation monitors would alarm if significant amounts of radioactive material was released to the reactor building and prompt identification and isolation in accordance with Annunciator Response Procedures and Emergency Operating Instructions.
- 5.) Personnel in the reactor building would react to the noise caused by the leak. The licensee stated that conservatively, there would be at least two to four people in the reactor building at any time, including backshifts and holidays.



The licensee determined, based on calculations, that the leak would have to exist for more than two hours before 10 CFR 100 limits would be exceeded. They concluded that a leak in the aforementioned section of RWCU piping would be recognized, located and isolated prior to exceeding this time frame. The inspector reviewed the memorandum, AOI 100-5, EOI-3, and associated calculations and concluded methods were in place for leak detection.

f. TI 2515/112, Changes To Environs Around Licensèd Reactor Facilities

The inspector discussed the licensee's plan for maintaining accurate information concerning changes to the local environs with both the site emergency preparedness and the corporate emergency preparedness organizations. The licensee does not have a proceduralized program but has agreements with the Alabama Emergency Management Agency and other local agencies to ensure that any changes to the environs are brought to the attention of the licensee. These agencies annually provide the licensee with a list of changes that have occurred within the last year. The population of the various local areas is obtained by the federal census every ten years. Approximately every two to three years an aerial photograph is made identifying the number of houses, which when multiplied by a multiplier provided from the census, can give a more recent approximation of the population. Additionally, the area roads and evacuation routes are driven yearly to verify no changes have been made that would impact their use. These changes would include new or expanded industrial sites, recreation sites, transient populations, and schools. The inspector reviewed the licensee's FSAR and recent amendments 8, 9, 10, and 11, and verified needed changes were incorporated and the report was current. Additionally, the local city manager's office was called to verify area population. The inspector also reviewed correspondence between the licensee and the Alabama Emergency Management Agency to verify information was being exchanged. The inspector identified no discrepancies in this area.

g. Diesel Generator 3B Autostart

On December 9, 1993, at approximately 6:40 p.m., the 3B diesel generator automatically fast started and synchronized with its associated 4kV shutdown board (3EB) following a transfer of 4kV unit board 3A to its normal supply. The autostart of the diesel was apparently the result of a sensed degraded voltage condition on shutdown board 3EB due to a blown primary transformer fuse. The blown fuse caused the logic to sense a degraded voltage condition on two of the three phases. The licensee made a 4 hour report to the NRC operations center at 8:41 p.m. pursuant to 10CFR50.72(b)(2)(ii). The licensee is currently conducting an incident investigation on this matter and will be submitting an LER in accordance with 10CFR50.73. The inspectors will review the

licensee's corrective actions in this matter by reviewing the LER and the licensee's incident investigation report.

No violations or deviations were identified in the Operational Safety Verification area.

4. Unit 3 Restart Activities (30702, 37828, 61726, 62703, 71707)

The inspector reviewed and observed the licensee's activities involved with the Unit 3 restart. This included reviews of procedures, post-job activities, and completed field work; observation of pre-job field work, in-progress field work, and QA/QC activities; attendance at restart craft level, progress meetings, restart program meetings, and management meetings; and periodic discussions with both TVA and contractor personnel, skilled craftsmen, supervisors, managers and executives.

a. Unit 3 Schedule

The licensee issued the Unit 3 Return to Service schedule during this inspection period. The current projection shows a fuel load date in June 1995, initial criticality in August 1995, and the unit attaining 100% power late in September 1995.

b. System SPOC's

The purpose of SPOC process is to provide a systematic method for evaluating items and issues which potentially affect the ability of Unit 3 systems and Unit 3 portion of common systems to perform as designed. This process determines the status of each item/issue and assures completion of those which affect system return to operation for Unit 3 restart. For each system evaluated, the SPOC process may be accomplished in two phases. Phase I SPOC addresses the Restart Test Program testing milestone if that milestone exists for the system, and establishes system status control by the Operations department. Phase II SPOC addresses System Return to Operation in preparation for the declaration of system operability. Each phase ensures that open items/issues which potentially affect the phase are either completed, or reviewed and satisfactorily dispositioned. The SPOC process does not declare system operability. Rather, it is used to support a declaration of system operability which is made after other requirements for operability are satisfied (e.g., support systems available, performance of Surveillance Instructions, etc.).

The following system SPOC packages were reviewed to ensure they complied with SSP 12.55, Unit 3 System Pre-Operability Checklist, Revision 5. Minor deficiencies were resolved with the system engineer.

- (1) System 24A, Auxiliary Raw Cooling Water System - Minor System SPOC, Phase II completed on September 21, 1992. The SPAE package was completed on August 27, 1992.

The ARCW system is a subsystem of the RCW system. The ARCW system provides raw cooling water directly from the river during periods of extreme atmospheric conditions when the CCW system is operating in the closed mode with the cooling towers. This auxiliary cooling water blends with the cooling water obtained from the CCW conduits and provides lower temperature nonessential cooling water for the RBCCW heat exchangers and other equipment for which the design objective cooling water inlet temperature is 90 degrees Fahrenheit under normal operating conditions. The auxiliary cooling water is supplied from a separate pumping station at the river that includes two 20,000 gpm pumps. The 48-inch common discharge from these pumps is connected to the main RCW pumps strainer suction header in each unit by a 42-inch supply header. The portion of the ACRW system evaluated encompassed the entire system up to each unit's manual isolation valves (1, 2, and 3-24-687 and 1-24-800). Components included the ARCW pumping station, pumps, traveling screens, and associated instrumentation.

- (2) System 40, Station Drainage System - Minor System SPOC, Phase II completed on April 24, 1993. The SPAE package was completed on April 12, 1993.

The objective of the Station Drainage System is to collect and remove from the plant all liquid wastes from their points of origin to the river directly, or if necessary, to the Radioactive Waste Building, where they are treated and returned for reuse or discharged to the river. The portion of the Station Drainage System that underwent complete evaluation consisted of 1) the Unit 3 Condenser Circulating Water conduit unwatering pump discharge hookups for use with a unit-shared portable pump, associated discharge piping to the yard drainage system, and intake conduit vent; 2) the Unit 3 Station Sump and associated pumps with normal discharge piping and alternate discharge piping to the yard drainage system including a blind flanged connection for eventual dirty radwaste processing in the unlikely event the sump becomes contaminated; 3) the Unit 3 Condenser Tube Pulling Area floor drains, sump with pump and discharge piping to the yard drainage system including a normally closed discharge piping path to the Turbine Building Floor Drain Sump for eventual dirty radwaste processing in the unlikely event the sump becomes contaminated; and 4) the Unit 3 HVAC Equipment Room (Air Intake Structure) roof and floor drains and the Unit 3 Reactor Building Vent Tower or Plenum roof, Reactor Building roof, Control Bay Duct



Enclosure of Plenum roof; and Control Bay roof drains and associated piping to the yard drainage.

- (3) System 53, Demineralizer Backwash Air System - Minor System SPOC, Phase II completed on February 24, 1993. The SPAE package was completed on February 17, 1993.

The Backwash Air System supplies low pressure, oil free air to remove resins and accumulated sludge from the Fuel Pool Cooling and Demineralizing System, the Condensate and Demineralized Water System, and the Reactor Water Cleanup System demineralizers. The system's compressors can be set for automatic operation so that they start and stop on demand from the filter/demineralizer requiring backwash air. The system is provided with pressure indicators and switches to allow it to perform this automatic function. The compressors are supplied power from the 480V common board.3. The power supply is non-class 1E. The system also interfaces with the Radwaste, Raw Cooling Water, and Service Air systems. Radwaste provides collection of slurry from all backwash receiving tanks. The Raw Cooling Water System provides cooling water to the air compressors. The Service Air system provides air surge backwash supply through the air surge booster compressors and the air surge backwash reservoir on the Unit 1 side. The Unit 2 Backwash Air System as well as those parts of the Units 1 and 3 Backwash Air system necessary for Unit 2 operation, were previously returned to operation under the Unit 2 restart effort. The boundary for this evaluation encompassed the Unit 3 portions of the system, downstream of valve 3-SHV-053-0514 through the interfacing piping with the Unit 3 Condensate and Demineralizer System up to and including 3-FCV-002-230 and -231.

#### 5. Reportable Occurrences (92700)

The LERs listed below were reviewed to determine if the information provided met NRC requirements. The determinations included the verification of compliance with TS and regulatory requirements, and addressed the adequacy of the event description, the corrective actions taken, the existence of potential generic problems, compliance with reporting requirements, and the relative safety significance of each event. Additional in-plant reviews and discussions with plant personnel, as appropriate, were conducted.

- a. (CLOSED) LER 260/92-03, Inadvertent Group 4 Isolation During the High Pressure Coolant Injection System High Temperature Functional Test

On April 23, 1992, during a HPCI high temperature functional test, an unexpected group four primary containment isolation valve isolation signal was received resulting in closure of the HPCI



steam supply isolation valves. The licensee attributed the event to the incorrect orientation of the test plug resulting in energizing three heating elements instead of just the one being tested. Upon reaching the setpoint, the temperature switches activated the logic for HPCI isolation. The inspector reviewed the licensee's LER and corrective action. Corrective actions included marking the test panels to show correct orientation of the test plug, revision of the test procedure to assure correct orientation and review of the event with appropriate personnel. The panels for Units 1 and 3 were also marked to assure proper installation. The corrective actions were adequate.

- b. (CLOSED) LER 260/92-07, Random Failure of a Breaker Power Sensor Trip Device Causes 480V RMOV Board Breaker Trip Resulting in Several ESF Actuations

On September 29, 1992, at 0315, the normal feeder breaker on 480V RMOV board 2A prematurely tripped and deenergized the board. This caused a loss of power to RPS bus 2A which initiated a half scram on Unit 2 and actuated several ESF systems which included: Unit 2 PCIS; SBGT; CREVS; and the refueling zone ventilation systems. All systems functioned as expected for this event. Troubleshooting could not determine the cause of the breaker failure and a replacement breaker was obtained from Unit 1 and racked in the RMOV board 2A compartment. The failed breaker was sent to GE for failure analysis which concluded the power sensor trip device was obsolete and recommended replacing the trip device with their latest state of the art RMS-9 Microversatrip device. The licensee implemented DCN 617047 to convert existing 480V RMOV breaker trip devices to RMS-9 units. However the licensee has experienced several problems with the RMS-9 devices as documented by IFI 259, 260, 296/92-30-03, Circuit Breaker Coordination, which is still open and is being followed by the resident inspectors. Therefore, the inspectors will close this LER and continue to follow this issue until the IFI is resolved and closed.

- c. (CLOSED) LER 260/93-06, Manual Scram After Multiple Downscale Indications

On May 25, 1993, during reactor startup, multiple reactor intermediate range monitor downscale readings were received while ranging from range six to range seven. The licensee attributed the problem to the failure to ensure that the IRM transition gain was correctly adjusted at power when changing from range six to seven. The inspector reviewed the procedure revisions incorporating cautions into startup procedures to assure that this condition is closely monitored and the gain is adjusted if needed during startup. No questions were identified.

- d. (CLOSED) LER 260/93-09, Unexpected Group 5 Isolation During Performance of the Reactor Core Isolation Cooling High Temperature Functional Test

On August 22, 1993, during performance of the Reactor Core Isolation Cooling steam line space high temperature functional test, an auxiliary operator mistakenly reported that an isolation relay had tripped when the relay was still energized. When the next temperature switch was energized, the logic for Group 5 isolation was completed resulting in the closure of Group 5 primary isolation valves. The inspector reviewed the event investigation and the human performance evaluation and concluded that the corrective actions were adequate. The individuals involved were counseled and procedure revisions were made to minimize potential for a repeat of the event.

6. Action on Previous Inspection Findings (92701, 92702)

- a. (CLOSED) IFI 259, 260, 296/92-24-03, Lessons Learned From Inadequate Cooling Tower Electrical Installation Activities

The issues discussed in this IFI resulted with the licensee conducting three independent Incident Investigation: II-B-92-042, Moisture Found in Cooling Tower Fan Motors; II-B-92-044, Failure of Fan Motor Cable/Splices at Cooling Towers; and II-B-92-048, Control of Work on Cooling Tower Modifications and Repairs. The primary root causes were determined to be inadequate construction supervision. Secondary root causes included inadequate training in workorder/workplan development and failure to follow procedures. The inspectors reviewed the II's associated with this issue and agreed with the licensee's root cause analysis and subsequent corrective actions (retraining, procedure enhancements, personnel actions, equipment modifications). In addition, cooling towers 1, 5, and 6, were refurbished and successfully used for Unit 2 operation in the summer of 1993. The inspectors concluded that these corrective actions were adequate.

- b. (CLOSED) VIO 259, 260, 296/92-24-02, Incorrect Hydrostatic Test Pressures on RHRSW

In January 1991, the licensee initiated a workplan to install corrosion monitors on the RHRSW system. The monitors were installed and tested on June 4, 1992. During subsequent review of a field change request, the licensee determined that the modifications had been tested to pressures that were in some cases higher and in some cases lower than the system design pressures. The event was attributed to a personnel error by design engineering in recording the correct design pressures in the workplan.

The licensee responded to the violation in a letter dated August 31, 1992. Corrective actions included retesting the corrosion monitors to the correct test pressures, revising MAI 4.7A to clarify the source document to determine system design pressures and reviewing the event with appropriate personnel. The inspector



reviewed the licensee's event investigation, the FDCN which corrected the test pressures and the test results. The corrective actions were adequate. During the incident investigation, the licensee determined that the gauge accuracy required by procedure was not met during the testing. The licensee evaluated this problem and determined that the tests could be accepted as is. The inspector reviewed the evaluation and concluded that the differences between the accuracy of the gauges used and the required accuracy was minimal and the licensee's disposition of the issue was appropriate.

c. (CLOSED) VIO 259, 260, 296/92-37-02, Fire Protection Procedure Adherence Problems

(CLOSED) VIO 259, 260, 296/93-28-02, Failure to Control Transient Combustible Material

Between September 15, 1992, and October 22, 1992, the NRC identified five examples of failure to follow fire protection procedures. The licensee corrected the immediate problems identified in this violation. In one of the examples where a transient combustible control permit was not issued for material near a maintenance building, it was determined that the permit was not required since the area was not a critical area. This violation example was withdrawn. The licensee removed the material from the maintenance building area as a precaution. The licensee also established a single point of contact for issuance of combustible load permits.

It was later found, as indicated in Inspection Report 259, 260, 269/93-28, that these corrective actions were not comprehensive enough to address all problems in the control of transient combustibles. A violation, 93-28-02, was issued for lack of control of transient combustibles discovered on July 29, 1993. In their response to violation 93-28-02 dated October 18, 1993, the licensee stated that they recognized that the problems indicated a weakness in the implementation of the program to control transient combustibles. The licensee established walkdowns by Technical Support to identify housekeeping and transient combustible concerns. The licensee also issued a memorandum to all plant employees on the problem and included the event in annual training for engineering support personnel. Administration of the transient combustible program was consolidated under Technical Support and the fire protection plan and procedure for control of combustibles was revised. IR 93-28 had also identified a concern that this recurring problem and another recurring problem with control of M&TE had not been identified and corrected by QA. The licensee determined that QA had identified problems in transient combustible control during their audits and had initiated a Finding Identification Report on transient combustible control, however, corrective action was not timely and effective resulting in additional failures to maintain control. To address these

concerns, the licensee stated that a periodic management review of QA items older than six months has been instituted, the corrective action program has been revised to require followup of issues within one year of closeout, training was conducted, management attention has been directed to assure adequate review of extensions of corrective action completion dates and QA will evaluate the effectiveness of corrective actions for the M&TE and transient control programs over a six month period. The licensee committed to complete the independent assessment of transient combustibles by June 15, 1994.

The inspector reviewed the revision to Attachment C of Volume 2 of the Fire Protection Plan, Control of Transient Combustibles. The inspector also reviewed corrective actions with the Technical Support staff. The licensee stated that walkdowns were being done weekly by Technical Support, Fire Protection, Operations, QA and Senior Management. After correction of problems found during the initial walkdowns, the licensee reviews indicate that compliance has been excellent and that the need to review work for fire protection issues was well understood by plant staff. The inspector walked down portions of the Unit 2 and Unit 3 auxiliary building and control building and checked fire permits on transient material. No discrepancies were identified. The QA audits of compliance with the fire protection requirements will be reviewed in future routine inspections.

d. (CLOSED) IFI 259, 260, 296/93-32-01, H2/O2 Warmup

This issue concerned the lack of a warmup time for the H2/O2 monitors prior to their use. The vendor manual for the monitors stated that a warmup time was needed prior to calibrating, however, it did not address a required warmup time prior to use or after a system isolation. The licensee determined that the monitors are virtually always energized and do not deenergize following a system isolation and as such are continuously maintained at the proper operating temperatures. The only time the monitors would be deenergized would be for extended or significant maintenance. The power supply to the monitors is ultimately from the Shutdown boards which is maintained energized by the DGs if necessary, and thus is considered highly reliable. The licensee reviewed the appropriate Operating Instructions and Surveillance Instructions to ensure that a warmup time prior to calibration and use was identified. This review revealed several procedures which did not include this requirement. The licensee included this requirement as a prerequisite for the following procedures: 2-SI-4.7.A.5.b(A), Rev. 10, 2-SI-4.7.A-5.b(B), Rev. 10, and 2-OI-76, Rev. 21. The inspector reviewed these procedures and concluded they were adequate.

## 7. Exit Interview (30703)

The inspection scope and findings were summarized on December 20, 1993, with those persons indicated in paragraph 1 above. The inspectors described the areas inspected and discussed in detail the inspection findings listed below. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspectors during this inspection. Dissenting comments were not received from the licensee.

Licensee management was informed that 4 LERs, 2 IFIs, and 3 VIOs were closed.

## 8. Acronyms and Initialisms

AOI	Abnormal Operating Instruction
ARCW	Auxiliary Raw Cooling Water
CCW	Condenser Circulating Water
CFR	Code of Federal Regulations
CREVS	Control Room Emergency Ventilation System
DC	Direct Current
DCN	Design Change Notice
DG	Diesel Generator
EOI	Emergency Operating Instruction
EPIP	Emergency Plan Implementing Procedure
ESF	Engineered Safety Feature
FSAR	Final Safety Analysis Report
GE	General Electric
GPM	Gallons Per Minute
HPCI	High Pressure Coolant Injection
HVAC	Heating, Ventilation, & Air Conditioning
ICS	Integrated Computer System
IFI	Inspector Followup Item
II	Incident Investigation
IRM	Intermediate Range Monitor
LCO	Limiting Condition of Operation
LER	Licensee Event Report
M&TE	Measuring and Test Equipment
OI	Operating Instruction
PCIS	Primary Containment Isolation System
PSI	Pounds Per Square Inch
QC	Quality Control
RBCCW	Reactor Building Closed Cooling Water
RCIC	Reactor Core Isolation Cooling
RCW	Raw Cooling Water
RHRWS	Residual Heat Removal Service Water
RMOV	Reactor Motor Operated Valve
RPIS	Rod Position Indicating System
RPS	Reactor Protection System
RWCU	Reactor Water Cleanup
SBGT	Standby Gas Treatment System
SOS	Shift Operations Supervisor
SPAE	System Plant Acceptance Evaluation



SPOC  
SSP  
TI  
TIA  
TS  
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WO

System Pre-Operability Checklist  
Site Standard Practice  
Temporary Instruction  
Task Interface Agreement  
Technical Specification  
Violation  
Work Order



