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

Report Nos.: 50-259/93-07, 50-260/93-07, and 50-296/93-07

Licensee: Tennessee Valley Authority
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1101 Market Street
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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: February 18 - March 19, 1993

Inspector: _____
C. A. Patterson, Senior Resident Inspector

4/14/93
Date Signed

Accompanied by: J. Munday, Resident Inspector
R. Musser, Resident Inspector
J. Mathis, Project Inspector
E. Lea, License Examiner

Approved by: _____
Paul J. Kellogg, Chief,
Reactor Projects, Section 4A
Division of Reactor Projects

4/14/93
Date Signed

SUMMARY

Scope: This routine resident inspection included surveillance observation, maintenance observation, operational safety verification, modifications, Unit 3 restart activities, radiological controls, and reportable occurrences.

One hour of backshift coverage was routinely worked during the work week. Deep backshift inspections were conducted on February 21, February 22, and March 6, 1993.

Results: Unit 2 was in day 50 of a 100 day refueling outage at the end of the report period, paragraph four. The schedule was changed from 119 days to 100 days due to the shutdown of other TVA nuclear plants. No work scope reductions were made.

One violation was identified for failure to comply with radiation protection procedures, paragraph seven. Three examples of failing to comply with radiation work permits were observed by a NRC inspector during a single day.

One unresolved item was identified concerning the need for a 10 CFR 50.59 evaluation for the recirculation pump shaft replacement, paragraph five. The licensee procedure allows replacement of a like for like component without an evaluation. However, the procedure may not be adequate to address the specifics from a safety standpoint. This issue will require further evaluation to determine the adequacy of the licensee's program.

REPORT DETAILS

1. Persons Contacted

Licensee Employees:

*J. Bynum, Vice President, Nuclear Operations
*O. Zeringue, Vice President
J. Scalice, Plant Manager
*J. Rupert, Engineering and Modifications Manager
*R. Baron, Site Quality and Licensing Manager
D. Nye, Recovery Manager
*M. Herrell, Operations Manager
*J. Maddox, Engineering Manager
*M. Bajestani, Technical Support Manager
*A. Sorrell, Special Programs Manager
*C. Crane, Maintenance Manager
*G. Pierce, Acting Licensing Manager
*J. Corey, Site Radiological Control Manager
A. Brittain, 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
*J. Mathis, Project Inspector

*Attended exit interview

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

2. Surveillance Observation (61726)

The inspectors observed and/or reviewed the performance of required SIs. The inspections included reviews of the SIs for technical adequacy and conformance to TS, verification of test instrument calibration, observations of the conduct of testing, confirmation of proper removal from service and return to service of systems, and reviews of test data. The inspectors also verified that LCOs were met, testing was accomplished by qualified personnel, and the SIs were completed within the required frequency. The following SIs were reviewed during this reporting period:

a. O-SI-4.10.c.2, Fuel Pool Coolant Chemistry

On February 21, 1993, the inspector performed a review of previously performed surveillance instructions for the chemical analysis of the spent fuel pool. This procedure, O-SI-4.10.c.2, satisfies TS requirement 4.10.c.2 for all three units. More specifically, the fuel pool coolant is analyzed for chloride ion concentration and conductivity. The limits for conductivity and chloride ion concentration specified in the TS are 10 μS/cm and 0.5 ppm respectively. While reviewing the data from the February 20, 1993 analysis, the chloride ion concentration for all three units was entered as greater than .5ppm (approximately .8ppm). Previous days readings were noted to be much lower (by a factor of one thousand). The inspector brought this matter to the attention of the Chemistry Shift Supervisor. The supervisor informed the inspector that the entries in question were in error in that the actual chloride ion concentration analyses were performed in ppb and the chemistry technician had not converted the data to ppm. The supervisor on shift informed the inspector that the data would be corrected to reflect the proper units.

The improper data had been approved as satisfactory by the technician and the chemistry shift supervisor. The inspector discussed this matter with the Chemistry Superintendent the following morning. The Chemistry Superintendent indicated that the data had one final review to be performed before being turned into the surveillance coordinator. He felt that this deficiency would have been detected at this time. To prevent another occurrence of this type, the Chemistry Superintendent discussed this matter with the appropriate chemistry personnel and changed procedure O-SI-4.10.c.2 to specifically convert the chloride ion concentration from ppb to ppm. The inspectors will continue to monitor surveillances performed within the chemistry area.

b. SI-4.2.K.2.A(FT), Reactor Building Vent Exhaust Monitor 2-RM-90-250, Detector Channel Functional Test

On March 11, 1993 the inspector observed the performance of portions of the SI-4.2.K.2.A(FT), Reactor Building Vent Exhaust Monitor 2-RM-90-250, Detector Channel Functional Test. This test provides for the instrument functional test of the Reactor Building Exhaust Noble Gas Monitor Detector Channel and partially the requirements specified in TS Tables 3.2.K and 4.2.K. The inspector noted that the current revision of the procedure was being used and was being followed properly. The test performers appeared knowledgeable on the system and the procedure. The inspector reviewed the completed surveillance procedure and noted the surveillance was completed satisfactorily and had received the appropriate reviews. The inspector noted no deficiencies in this area.

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

3. 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 documentation (MR, WR, and WO) 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. Hydraulic Control Unit Maintenance

On March 9, 1993 the inspector observed maintenance being performed on hydraulic control units 42-51 and 46-51. The scram pilot valves were being rebuilt and their internals replaced. The maintenance personnel were knowledgeable about the task and had no difficulties in its performance. The job foreman was present to verify foreign material exclusion and proper placement of valve internals. The inspector noted no discrepancies.

b. Underground Leak

During this period an underground leak developed at the north side of the RHRSW building. A tower crane had been parked in this location and was assumed to be the cause of the leak. The inspector was aware that the tower crane loading had been reviewed as part of the lifting performed for the Unit 3 CCW pump refurbishment.

The inspector reviewed DCN S-17560 and calculation CD-Q0303-921562, 4100W Crawler Mounted Crane Evaluation for Lifting Unit 3 CCW Pumps. The inspector was particularly concerned that underground safety piping as the RHRSW piping could be the source of water. The DCN determined that the lifting was acceptable provided the crane was located at a certain position indicated on a drawing and the foundation was prepared. The preparation consisted of placement and compaction of crushed stone and placement of timbers underneath the crane tracks for load distribution. The foundation preparation was necessary because of the combined weight of the CCW pump and crane.

However, in this case the unloaded crane was not parked to use the benefit of the foundation preparation. On page 25 of the calculation, the worst case loading on the CCW conduit was evaluated to occurr when the crane was not loaded and the matting was not considered. This would occur as the crane was moved into or out of position. The loading of the crane, in this worse case condition, was still below loading of a proposed railroad tracks considered in the original design.

The licensee moved the crane away from the north side of the RHRSW building near the road. An incident investigation was initiated for the leak.

In the calculation the following embedded items were reviewed:

1) intake conduits
2) 18 inch EECW pipe
3) 24 inch RHRSW pipe
4) 3 inch demineralized water pipe
5) 12 inch drain pipe

It was determined that both the 18 inch EECW pipe and 24 inch RHRSW pipes have protective sleeves. The 18 inch EECW pipe has a 24 inch diameter sleeve. The 24 inch RHRSW pipe has a 30 inch diameter sleeve. The calculations performed concluded that the stresses were significantly below the allowed. The inspector concluded that the crane loading on the embedded piping and particularly safety piping had been considered. The inspector will continue to follow this issue with completion of the leak repair and II completion.

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

4. 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 was in day 50 of a 100 day refueling outage at the end of the report period. The outage schedule was changed from 119 days to 100 days during this period. The next major milestone will be establishment of secondary containment scheduled for April 10, 1993.

b. Clearance Tag Placement on Electrical Breakers

While touring the turbine building on March 3, 1993, the inspector noted an electrician working inside a 480 volt breaker which had a clearance tag hanging on the compartment door. The inspector had been told by the Operations Manager several weeks before that if a breaker door had a clearance tag hanging on it, the door could not be opened. The inspector questioned the electrician and he stated that this was true for 4 kV breakers but not for 480 volt breakers. A memorandum written by the Operations Superintendent dated February 7, 1993, stated that if a clearance tag is placed on a breaker compartment door, the door becomes the clearance boundary. The Maintenance Manager was also asked about accessing a breaker compartment with a clearance tag hanging on it and he stated that it was all right. He further stated that discussions held with the Operations Superintendent resulted in the aforementioned memorandum and the intent was to allow maintenance to access breakers with clearance tags hanging on the door so that maintenance could be performed. SSP-12.3, Equipment Clearance Procedure, does not contain instructions that specify where to hang the tag on breakers. This matter was brought to the attention of the Operations Manager who generated a new memorandum dated March 15, 1993, which stated that if a breaker door had a clearance tag on it, the door could not be opened. If access to the inside of the compartment was needed Operations would move the tag to the inside. This memorandum should provide the additional guidance needed to ensure safe operation and breaker maintenance.

c. Annual Operating Report

The inspector reviewed the Browns Ferry Nuclear Plant Units 1, 2, and 3 Annual Operating Report for January 1, 1992 through December 31, 1992. The report included a summary of safety evaluations for FSAR changes, procedure changes, special operating conditions,

special tests, temporary alterations, and plant modifications. It also included the 1992 Radiological Release Summary, Occupational Exposure Data, Challenges to Main Steam Relief Valves, and the Reactor Vessel Fatigue Usage Evaluation. This report satisfies the requirements of 10 CFR 50.59, Regulatory Guide 1.16 Sections 1.b.(1), (2), and (3) and TS Sections 6.9.1.2 and 6.9.2.1.

d. Housekeeping

During the inspection period, the inspector performed an audit of the licensee's control of housekeeping. As a part of this audit, the inspector evaluated the implementation of procedure SSP-12.7, Housekeeping/Temporary Equipment Control. This site standard practice procedure delineates the housekeeping control practices and requirements for the plant. One of the specific requirements of the procedure is the designation of a material control/housekeeping coordinator. As a part of the inspection effort, the inspector reviewed the housekeeping program with this individual.

The housekeeping coordinator and the inspector discussed the plant's housekeeping program in detail. A major aspect of the housekeeping program is the inspections performed by plant personnel. The Unit 2 reactor building, turbine building, diesel generator buildings and the intake structure are divided into 35 zones for daily inspection. Each zone has a zone inspector, whose name is prominently displayed in the zone, tasked with this daily inspection. Once a week, the inspection of the various zones are documented on Appendix C of SSP 12.7 and turned into the housekeeping coordinator. This documentation is to include deficiencies discovered and associated corrective actions. The appendix (C) contains a comprehensive list of housekeeping deficiencies that the zone inspectors are to use as a guide when inspecting their zones.

The inspector reviewed the results of these inspections for the period of November 11, 1992 - March 8, 1993. A mixture of inspection results was noted. While it appeared that many zone inspections are performed and documented thoroughly, other housekeeping inspection reports indicated that documentation of inspections was weak. The inspector expressed this concern to the housekeeping coordinator. The coordinator stated her awareness of this matter and indicated that the zones which appeared from review of inspection documentation to get the least attention during inspections were frequently chosen to be inspected during the plant managers weekly walkdown.

Another aspect of this evaluation was the inspector's walkdown of the plant for general housekeeping practices. Currently, Unit 2 is in the midst of its cycle 6 refueling outage and a great amount of equipment is spread throughout the plant. Most prevalent of this equipment is scaffolding. The inspectors will continue to

tour the plant during the outage and ensure that the majority of scaffolding is removed from above safety related equipment prior to startup. Other items noted during plant tours were welding bottles that are not currently being utilized. These items were brought to the attention of the licensee. The overall condition of housekeeping for the last 2-3 months appears to be in somewhat of a decline due to outage activities in Units 2 and 3. The inspectors will continue to inspect the licensees' housekeeping program to ensure plant conditions are brought up to pre-outage standards. As the current outage comes to an end, the inspectors will more closely monitor housekeeping practices and conditions in order to help ensure proper operation of plant equipment.

e. Fire Door Blocked Open

On March 10, 1993, at approximately 1730, during a routine tour of the control bay, the inspector noted that door #464, the Computer Room fire door on the 1C elevation, was cracked open. The internal door knob was missing and the door blocked open so that personnel could exit the computer room. Since the door was fire rated, the inspector asked the ASOS whether a LCO had been written on the door. The ASOS requested plant fire protection personnel to make this determination. Plant fire protection determined that a LCO was not in effect for the door in question. Fire Protection personnel initiated plant form "Attachment F" documenting the condition. An hourly fire watch, as required by TS 3.11.G.1.a, was established. At the time of the event, all three Browns Ferry units were defueled and this event was of minor safety significance. Plant personnel need to be reminded that fire rated assemblies should not be defeated without the proper compensatory actions taken.

f. Spent Fuel Pool

The inspector performed a review of the licensee's controls for the spent fuel pool during the inspection period. The inspection effort was performed to ensure that adequate controls were in place for the control of spent fuel pool parameters and that TS requirements for the SFP being met. A complete core off load had been completed at the end of the previous inspection period for the Unit 2 cycle 6 refueling outage.

The inspector reviewed TS surveillance requirements for the spent fuel pool water. TS 4.10.c.1 requires that whenever irradiated fuel is stored in the spent fuel pool, the water level and temperature shall be recorded daily. The inspector verified that the temperature of the pool was being recorded daily in accordance with procedure 2-SI-2, Instrument Check and Observations. The same procedure contained the requirements for the recording of the SFP water level, however, it did not specify that a specific water level be recorded. Rather than record a specific water level, the procedure directs operations personnel to check a control room

annunciator ("Fuel Pool System Abnormal") and if the annunciator is not illuminated, record the SFP water level as normal. The fuel pool level switches and skimmer surge tank level switches input into this annunciator and no direct reading of fuel pool level is currently available. The NRC questioned the adequacy of the SFP level documentation with respect to TS 4.10.c.1. The licensee has agreed to submit a TS change to clarify the method by which SFP water level will be monitored.

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

5. Modifications (37700, 37828)

The inspectors maintained cognizance of modification activities to support the restart of Unit 2. This included reviews of scheduling and work control, routine meetings, and observations of field activities. Throughout the observation of modifications being performed in the field QC inspectors were observed monitoring and documented verification at work activities.

a. Fire Protection Modifications

The inspector reviewed the DCNs associated with the fire protection system upgrades. This is a commitment made by the licensee to meet NFPA standards. The upgrade includes installation of new fire detection systems in the plant. The DCNs and location for each are as follows.

W17911	Local System at the Intake Structure
W17909	Local System in Unit 1/2 DG Building
W17910	Local System in Unit 3 DG Building
W17907	Local System in Unit 2 Reactor Building
W17906	Local System in Cable Spreading Room
W17908	Local System in Unit 3 Reactor Building
W17904	Installs central computers and interconnection of all local systems.

In addition, W18213 will be implemented to power down and decommission the existing detection systems.

Typical of components installed at each location are addressable smoke detectors, thermal detectors, manual pull stations, local fire alarm and control panels, and local horn/strobe alarms. In the DG building, additional equipment was provided for the carbon dioxide systems.

After completion of the installation, there is a testing window in the schedule. Each local panel will have a loop checkout performed as soon as the local detection systems are functional. After all work has been completed, there is a four-day vendor

setup of the system followed by a 25 day post modification test window.

The inspector reviewed several of the DCN packages with emphasis on W17904 for the interconnection of all local systems. These activities will continue to be monitored as the modifications are worked.

b. Hardened Wetwell Vent

Installation of the hardened wetwell vent continued throughout the inspection period. The majority of the work effort in the Unit 2 reactor building involved the completion of the saddle weld which joins the 14 inch hardened wetwell vent line to the existing 20 inch line from the torus. The licensee experienced numerous problems in process of completing the weld. A number of failures during NDE of the weld caused the licensee to excavate portions of the joint for repair. Final acceptance of this weld joint occurred on March 18, 1993. In addition, discrepancies with the licensee's welding process were identified during a Region II based inspection (see IR 259, 260, 296/93-05) performed during this inspection period.

Work continued on the outside common portions of the hardened vent. Excavation in the vicinity of the plant stack for a vent drain line and its associated valve pit progressed during the inspection period. The inspectors will continue to monitor the licensee's work on the hardened wetwell vent and ensure adequate post modification testing is performed prior to the completion of the outage.

c. Small Line Cracks

During Unit 2 Cycle 6 operation three small lines inside the containment experienced cracks. The inspector reviewed the licensee plans to mitigate the risk of similar events in the future. Technical support identified 43 test, vent, drain, and instrument lines attached to the recirculation and RHR lines inside the containment. Eight lines are no longer needed. These will be cut and capped. The remaining lines will undergo an analyses of the existing configuration for adequate supports. Also, a visual and liquid penetrant inspections of the welds will be performed to determine any other necessary repairs or corrective action. The inspector will continue to follow these activities as the systems are returned to service.

d. Unit Battery 3 Replacement

During the inspection period, the inspectors monitored the replacement of 250 VDC Unit Battery 3 in accordance with DCN W17274. Unit Battery 3 is a 120 cell 250 VDC which is being replaced in anticipation of multi-unit operation and because the

existing battery cells were nearing the end of design life. The new battery cells have a higher capacity than do the existing cells due to an increase in the number plates per cell. Although, the new cells will contain an increased number of plates, the size of cell container will be the same as the existing cells. The increase in number of plates caused a corresponding increase in cell weight and necessitated the replacement of the battery racks.

The inspector reviewed the installation of the new battery racks and installation of the new battery cells. Testing of the new battery is expected to occur in the near future and will be monitored by the inspectors.

e. Recirculation Pump Rotating Element Replacement

The inspector reviewed and witnessed the replacement of the recirculation pumps rotating elements during refueling outage cycle 6 for Unit 2. The shafts were replaced due to an industry problem with thermal fatigue cracking. The replacement of the pump shafts were done under work orders 92-6679300 (2B pump) and 92-6640400 (2A pump) respectively.

The recirculation pump design had been upgraded from the original design. The upgrade affected the rotating element, cover/heat exchanger, hydrostatic bearing and material composition. The upgrades were due to thermal cracking problems experienced by other BWRs and PWRs.

During the review process of the work packages, the inspector noted that a safety evaluation had not been performed by the licensee in accordance with 10 CFR 50.59 requirements. 10 CFR Part 50, Appendix B, Criterion IV, states that design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design and be approved by the organization that performed the original design unless the applicant designates another responsible organization. Furthermore, measures shall also be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems and components. The licensee considered the upgrade of the recirculation pumps a like-for-like replacement thereby a safety analysis was not warranted. The equivalency test (fit, form and function) is satisfied according to the licensee.

Procedure PI-89-06, Design Change Control, step 13.5.d states that if a replacement item meets the criteria where the item is part of equipment designed by a vendor for the specific plant application and the vendor certifies that the replacement item is equivalent, the item can be ordered with no further justification. The staff agrees that the upgraded recirculation pump rotating element, cover/heat exchanger and hydrostatic bearing may meet the original

fit and function requirement of the equivalency test, however it does not meet the form requirements. The material for the shaft, impeller, hydrostatic bearing etc... all have been changed. The physical materials have changed therefore form requirements are not satisfied. This issue requires further NRC review and will be tracked as URI 259, 260, 296/93-07-01, Safety Evaluation for Recirculation Pump Shaft Replacement.

6. Unit 3 Restart Activities (30702)

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 Status

Limited activities continue on Unit 3 recovery. A schedule review process is ongoing to determine a credible schedule to be announced at the end of the Unit 2 Cycle 6 outage. Activities were drywell steel work and return to service of the RWCU system.

b. Drywell Tour

On March 5, 1993, the inspector made a tour of the Unit 3 drywell. Overall the drywell was clean and free of combustible material. The inspector noted that many hot jobs were in progress which required firewatches. Each job had its own firewatch. Blankets and catch pans were used in many places to prevent slag from dropping to a lower elevation. The inspector reviewed the welding and grinding permits posted and verified the information required was documented properly. The inspector found no deficiencies.

7. Radiological Controls (83724)

a. Drywell Cameras

The Radiation Control Group has installed approximately twenty cameras throughout the Unit 2 drywell which input to fifteen monitors located at a manned post outside the drywell. In addition, intercom stations have been established in the drywell which can communicate with the manned post. If a person in the drywell needs assistance they can talk via an intercom with the person monitoring this post. The monitor can then adjust the camera to see the person requesting assistance and also alert the HP stationed in the drywell. On 3/16/93, the inspector toured the drywell and noted that while this arrangement is a good idea, the stations in the drywell are not easily identifiable. In addition the drywell radiological control technician was not aware that

they even existed. The cameras also provide for a much larger surveillance area by radiological controls without expending any additional radiation dose. Three VCRs are available which are used to film various jobs or job sites and then viewed outside the drywell in low radiation areas to resolve problems that may arise. The films are also often used during shift change or for training purposes. In addition to the drywell, cameras have been installed in the steam tunnel and the RWCU heat exchanger and pump rooms. The estimated dose savings, by the licensee, resulting from the use of the cameras is 16.8 Man-Rem.

b. Radiological Control Work Practices

On February 25, 1993, during the performance of daily rounds, the inspectors observed work activities on the 664' elevation (refuel floor) of the Unit 2 reactor building. A particular work activity observed consisted of two individuals performing maintenance on the fuel support piece lifting tool. While one worker with a face shield was manipulating the hose connected to the lifting tool, the other worker without a face shield was bending down on his knees and handling the lifting tool. Shortly after the observation of this incident, the two workers switched their work positions. After holding a discussion with the radiological control technician on shift, the inspector identified that the worker without the face shield was not signed on the RWP to perform work activities on the fuel support piece lifting tool. Furthermore, a face shield was required per radiological control directions to perform work activities on fuel support piece lifting tool.

Later the same day, another inspector performing a routine tour of the Unit 2 turbine building observed maintenance being performed on the turbine stop valves. Individuals performing the work activity were dressed in anti-contamination clothing as specified by radiological controls and RWP 93-2-60002-01-00 as the area in question was being controlled as a contamination zone. As the maintenance progressed, the inspector observed (as did the radiological control technician monitoring the job) an individual remove his anti-C hood and surgeons cap while still in the contamination zone. This action was taken prior to the individual climbing from the "valve pit" to the C-zone exit. The radiological control technician ensured that the individual exited the C-zone, undressed and proceeded to the frisking station. A few minutes later, the inspector observed another individual in the C-zone don an anti-C hood which had been lying on a steam line within the C-zone. The inspector informed radiological control of his observation. Radiological control instructed the individual to exit the C-zone and perform a whole body frisk. In both instances, the individuals were found not to be contaminated.

TS 6.8.1.1.a requires that written procedures shall be established, implemented and maintained covering the applicable

procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2, February 1978. Regulatory Guide 1.33, section 7.e.1., requires Radiation Protection Procedures covering Access Control to Radiation Areas including a Radiation Work Permit Systems. RCI-9, Radiation Work Permits, is the implementing procedure for this requirement. Failure to comply with RCI-9, Radiation Work Permits, section 6.5.1, which holds the individual worker responsible to ensure the correct RWP for the job is used, and section 6.5.3. which requires individuals using a RWP comply with all of the requirements of the RWP as well as the verbal instructions given by radiological control personnel so far as those instructions pertain to radiological matters, is a violation of TS Section 6.8.1, Procedures. This matter is identified as violation 259, 260, 296/93-07-02, Failure to Comply with Radiation Protection Procedures.

One violation was identified in the radiological control work practices area.

8. Reportable Occurrences (92700)

The LER listed below was 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.

(CLOSED) LER 259/86-14, Inadvertent ESF Actuation Leads to Water Spillage

This item was originally identified when in May 1986, an inadvertent actuation of an ESF occurred in Unit 1 and was twice repeated. The actuation was caused by a false high drywell signal due to an electrical short. All eight DGs and two EECW pumps started automatically. Since CS and RHR pump motor breakers were tagged, no ECCS pumps started. However, the CS injection valves opened, which allowed water from the condensate storage system to flood the reactor cavity. Water over flowed into the vents on the periphery of the refueling well and some spillage occurred from the ventilation ductwork on the lower elevations of Unit 1 reactor building before the valves were discovered open. The electrical short, caused by moisture in two high drywell pressure switches, was believed to be due to a spurious actuation of fire spray valves in the area of these switches earlier in the week of the event.

Inspection Report 90-27 and LER 259/86-14 addressed this issue and closed this item for Unit 2 only. The Unit 2 Reactor Building Fire Spray System had been modified to a preaction type system which operates on the fused head spray valve design. When an actuation occurs, the system floods with water, and only those spray valves where the fuse

head has disengaged will actually spray water. Spurious actuations will only cause the system to flood with water without actual spraying. The systems for Unit 1 and Unit 3 had not been modified. The inspector was concerned whether any equipment of Unit 1 and/or Unit 3 could affect Unit 2 system operability. Inspection Report 92-16, VIO 259, 260, 296/87-33-01, Failure to Seal Conduit, addressed that the licensee took actions to correct this problem with Appendix R modifications and the sealing of all required conduits and conjunction boxes.

Based on the review of the closure package, applicable LERs and violation to this item, the inspector considers this LER for Unit 1 and Unit 3 closed.

9. Exit Interview (30703)

The inspection scope and findings were summarized on March 19, 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.

Item Number	Description and Reference
259, 260, 296/93-07-01	URI, Safety Evaluation for Recirculation Pump Shaft Replacement, paragraph five.
259, 260, 296/93-07-02	VIO, Failure to Comply with Radiation Protection Procedures, paragraph seven.

Licensee management was informed that 1 LER was closed.

10. Acronyms and Initialisms

CCW	Condenser Circulating Water
CS	Core Spray
CSS	Chemistry Shift Supervisor
CW	Circulating Water
DCNs	Design Change Notices
DG	Diesel Generator
ECCS	Emergency Core Cooling Systems
EECW	Emergency Equipment Cooling Water
ESF	Engineered Safety Feature
FSAR	Final Safety Analysis Report
IVVI	In-Vessel Visual Inspection
LER	Licensee Event Report
LCO	Limiting Condition for Operation
MR	Maintenance Request
NFPA	National Fire Protection Association
NRR	Nuclear Reactor Regulation
PPB	Parts Per Billion

PPM	Parts Per Million
QA	Quality Assurance
QC	Quality Control
RCI	Radiological Control Instruction
RHR	Residual Heat Removal
RHRSW	Residual Heat Removal Service Water
RWCU	Reactor Water Cleanup
RWP	Radiological Work Permit
SFP	Spent Fuel Pool
SI	Surveillance Instruction
TS	Technical Specification
URI	Unresolved Item
VIO	Violation
WO	Work Order
WR	Work Request