TENNESSEE VALLEY AUTHORITY

DIVISION OF NUCLEAR POWER

ANNUAL OPERATING REPORT

BROWNS FERRY NUCLEAR PLANT

January 1, 1982 - December 31, 1982

Docket Numbers 50-259, 50-260, and 50-296

License Numbers DPR-33, DPR-52, and DPR-68

Submitted by:

[signature]
Manager, Nuclear Production

Submitted by:

D. T. Jones
Power Plant Superintendent

TABLE OF CONTENTS

PLANT MODIFICATIONS SUMMARY

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN P0491 - Main Steam - Units 1, 2, and 3	Authorization for installation of heli-coils in the main steam isolation valves. The ECN was completed. Mechanical Maintenance Instruction 17 was revised to incorporate the ECN in the procedure. Modification to the valves will be performed on an "as required" basis. The modification will not affect the valves' ability to perform its safety function.
ECN P0436 - Reactor Feedwater - Units 1, 2, and 3	Changed the power supply for LM-46-6 and 6A from the feedwater inverter to unit preferred supply so the instruments are not powered from the unit battery boards. The ECN was completed. The modification is an interim solution for the deficiency discovered in the reactor feedwater system. The deficiency consisted of losing critical portions of the feedwater control circuits. The change allows operation of the system in either of the single-element or three-element mode of Channel B.
ECN's P0464 and P0485 - Fire Protection - Common	Replaced existing control bay doors with "B" label fire-rated doors. The ECN's were completed. The modification was performed to improve fire protection in the control bay area. The new doors and frames were structurally equivalent to or better than the old doors. The margin of safety as defined in the technical specifications was not reduced.
ECN L9065 - Fire Protection - Common	Installed, checked out, and performed acceptance test of equipment for a diesel engine driven high pressure fire protection system pumping station. All work covered by the ECN has been completed except for the installation of the telephones.

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN L9065 - Fire Protection - Common - (Continued)	The modification upgrades the reliability of the fire protection system to control possible fires in the plant.
ECN L1769 - Hypochlorite System - Units 1, 2, and 3	Made tie-in of the hypochlorite system to EECW piping, units 1, 2, and 3. Only a small portion of the work covered by the ECN was completed. The addition of the sodium hypochlorite generation and distribution system provides an effective method to control clams and algae/slime in the EECW system.
ECN P0315 - Primary Containment Atmosphere Monitoring - Unit 1	Removed and changed breakers in panel 9-9, in sample return pump circuit for the H_2O_2 system. The ECN was not completed. The electrical portion of the modification was completed. The electrical work was performed for the replacing of the O_2-H_2 sample return pumps for the CAM system. The CAM system operability was not affected.
ECN P0229 - Primary Containment - Unit 3	Enlarged 15-ring girder weep openings in the unit 3 torus to improve dewatering the area between the ring girders for maintenance purposes. The ECN was completed. The modification did not affect the integrity of the ring girders. No other safety considerations are apparent.
ECN P0384 - Primary Containment - Unit 1	Rotated butterfly valves and replaced solenoid valves and piping to change the stroke time of containment purge line isolation valves to five seconds or less. The ECN was completed. The reduced stroke time brings the valve closure time into conformance with NRC Branch Technical Position CSB 6-4. Shortening the stroke time did not affect the valve's function. Thus the safety basis is met.

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN P0445 - Feedwater - Units 2 and 3	Built and placed protective cages on panels 25-51B and 25-52B to protect LITS 3-52 and 3-62. The ECN was completed for units 2 and 3. The barriers did not affect the function and/or availability of the equipment or any safety-related equipment. The consequences of an accident or malfunction of safety-related equipment previously evaluated in the FSAR was not increased.
ECN P0224 - Reactor Recirculation System - Unit 2	Added various test connections to the recirculation pump seal water lines between valves 68-507 and 508; 68-508 and 550; 68-552 and 523; and 68-523 and 555 in the unit 2 drywell. The ECN was completed. The modification was required to assure compliance with NRC requirements. Normal operation of the system was not affected. The test connections meet the same requirements with regard to piping class and seismic status as the existing gland seal system.
DCR Core Component #19 - Fuel Handling and Storage - Unit 1	Replaced existing fuel assemblies with P8X8R and four lead test assemblies. The DCR core component was not completed. The lead test assemblies were installed to test and utilize new fuel design developed to increase cold shutdown margin. The only change in the LTA's relative to the standard reload bundles is the addition of the short segment of higher gadolinia concentration. This addition will not change the thermal-mechanical characteristics of the fuel rods or fuel assemblies beyond what has already been analyzed and will have no significant impact on power operations.

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN P0502 - Main Transformers - Unit 1	Prefabricated and installed above ground piping for 1C transformer fire protection. The ECN was not completed. The modification will install an ASEA transformer replacing main transformer phase C. No tie-ins were made on this portion of the modification.
ECN P0201 - Unit Preferred 120V AC System - Unit 3	Changed normal feeder for board 9-9, panel 5, from the plant nonpreferred to the unit preferred bus. The ECN was completed. The modification will assure a reliable source of power and one which provides proper circuit breaker coordination. The margin of safety was not reduced.
ECN P0191 - Reactor Protection System - Units 1, 2, and 3	Installed a voltage recorder on reactor protection system bus. The recorder is located on panel 9-5 in the main control room. Performed post-modification test to verify proper operation. The ECN was completed. The voltage recorder is seismically qualified and supported so it does not adversely affect safety-related equipment during a seismic event. The addition of the recorder will not affect the operation of the system.
ECN P0553 - Reactor Recirculation System - Unit 3	Replaced existing 3/4", 1500-pound Hancock lift check valves 68-508 and 68-523 with Borg-Warner piston check valves. The ECN was not completed. The new valves and the piping in which it is located are seismically qualified. They met all the requirements of the existing valves. The change in valve type did not affect its qualification as an isolation valve or system operation.

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN P0130 - Feedwater - Unit 3	Removed density compensation instrumentation in feedwater flow measurement of the feedwater control system. Disconnected sensors TE-3-78A and B from control loop and removed modules TM-3-78A and B and FM-3-78B and C. The ECN was completed. No safety-related portion of the feedwater system was affected. The removal of the density compensation from the feedwater signal to the rodworth minimizer did not affect the operation of the RWM system.
ECN P0426 - Feedwater - Unit 3	Revised power supplies of some of the components of the feedwater control system. These power supplies only consisted of the power supplies that were already being used for the FWCS. The ECN was completed. The changes made in the power supplies did not change or affect the function of the feedwater control system.
ECN's P0467 and P0552 - Feedwater - Unit 3	Replaced 14 existing INC MSVA-1 snubbers on Yarway instrument column with PSA 1/2 snubbers. The ECN's were completed. The modification was performed to help maintain the reactor level instrumentation in a safe condition. The probability is not increased for occurrence or consequences of an accident or malfunction of safety-related equipment previously evaluated in the FSAR.
ECN L1973 - Main Steam - Units 1, 2, and 3	Prefabricated rams heads with supports for the MSRV tailpipe addition. Prefabed sections of the MSRV tailpipes to run from the jet deflectors to the rams heads to be installed. The ECN was not completed. Only prefab work completed. The installation of the modification was not implemented. This modification was necessitated by the anticipated addition of two main steam safety relief valves. No tie-in to any system was implemented.

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN P0283 - Primary Containment - Unit 3	Removed existing ventilation ducting in unit 3 steam vault room back to the east wall. Installed a grill on duct at east wall of the steam tunnel. Replaced 18" x 18" duct outside of steam vault and replaced with 18" x 27" ducting. The ECN was completed. The modification increases air flow through the steam tunnel reducing the temperature and the probability of a spurious MSIV closure. The modification did not affect either the temperature sensors or their setpoints and therefore did not increase the consequences of a steam line break.
ECN P0580 - Control Air - Unit 3	Installed flanges on both sides of the prefilter between valves 32-301 and 32-302 on the drywell control air system. The ECN was completed. The modification was performed to allow removal of the prefilter and the introduction of pressure into primary containment to more efficiently perform the integrated leak rate test. The modification did not affect the seismic qualifications of the drywell control air system.
ECN P0571 - Main Condensate - Unit 1	Installed additional lateral and longitudinal restraint on the 8-inch condensate service header in the unit 1 reactor building to supplement the existing rod hangers to help prevent pipe damage. The ECN was totally completed as it only covered unit 1. The additional supports will improve the lateral and longitudinal movement problem. The margin of safety as defined in the basis for any technical specification is not reduced.

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN P0427 - Primary Containment - Units 1 and 3	Installed additional torus access hatch and removed strongbacks from the torus shells. The ECN was completed for units 1 and 3. The modification was performed with the units in refueling mode and the reactor vessel head removed. The new hatch is of similar design as the existing hatches except it is slightly smaller. A seismic analysis, structural analysis and a jet impingement analysis were performed. An integrated leakage test was performed to verify leak tightness of the hatch to torus weld.
ECN's L1496 and L2064 - RHR Service Water - Unit 2	Removed disc from FCV-23-34, FCV-23-40, and FCV-23-52 and replaced with V-notch disc. Removed existing cast monel seats and replaced with carbon steel seats (stellite trim) on all three valves. The ECN was not completed. Modification still to be performed on valve FCV-23-46. The modification in no way affected the operability of the RHRSW valves. The margin of safety was not reduced.
ECN P0428 - Reactor Building HVAC - Unit 3	Fabricated and installed debris screens before the first isolation valve outside primary containment in the containment purge piping. The ECN was completed. The addition of the screens will help ensure that the isolation valves perform their respective functions. The containment purge system will perform its function as designed. Therefore, the margin of safety was not reduced.
ECN P0155 - Main Steam - Unit 1	Installed new 7567F-200-21 (two-stage) Target Rock safety relief valve topwork on existing Target Rock model 67F (three-stage) valve body. The ECN was completed.

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN P0155 - Main Steam - Unit 1 - (Continued)	The two-stage safety relief valve is essentially the existing valve with a revised topworks assembly. Stresses experienced by the headers to which the two-stage relief valves were attached are not affected as capacity is not affected or altered. The probability of occurrence or the consequences of an accident or the malfunction of equipment important to safety is not increased.
ECN P0419 - Door Interlock and Alarm - Common	Modified the interlock and alarm system to be more effective on the airlock doors into the reactor building from the turbine building. The ECN was completed. No new possibilities for violating secondary containment are introduced as the doors themselves are not being modified. The margin of safety was not reduced.
ECN P0492 - Reactor Water Cleanup - Unit 1	Replaced RWCU stainless steel Velan valve 69-1 with a carbon steel Borg Warner valve. The ECN was completed. A seismic analysis was performed to ensure that the original design requirements were met. The function of the equipment was not changed; the margin of safety was not reduced.
ECN P0575 - Primary Containment - Unit 3	Replaced damaged cables for torus vacuum breaker valves FCV-64-28A, B, C, D, E, F, G, H, J, K, L, and M. The ECN was completed. The only difference in the new cables installed and the old cables is that the new cable has an extra protective cover that can withstand greater temperatures. The new cables will perform the same function and did not degrade the accuracy of the equipment.

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN P0276 - Main Steam - Units 1 and 3	Replaced existing limit switches on the inboard main steam line valves with limit switches which are qualified for LOCA environment on units 1 and 3. The ECN was not completed. The functions of the MSIV limit switches were not adversely affected by implementing the modification. The modification increased the likelihood that the limit switches will serve their functions post-LOCA.
ECN P0353 - Control Rod Drive - Unit 1	Installed a crosstie between the vent lines on the east and west scram discharge headers. Added an isolation valve in the crosstie line. The ECN was completed. The modification added redundancy to an existing function. No new function is performed. None of the basic assumptions of the safety analysis are changed.
ECN P0495 - Control Bay Heating, Ventilation, and AC System - Common	Installed physical barriers over ventilation openings in doors to vital areas. The ECN was totally completed. The barriers installed will not inhibit the safety function of the fire dampers nor hamper their ventilation function. The integrity of the doors and ventilation openings will be as good or better than the old doors and ventilation openings.
ECN P0271 - Various Systems - Units 1 and 3	Removed packing bleed-off valve 74-64B and piping and plugged bleed-off line on RHR check valve 74-68 for unit 1. Removed packing bleed-off valve on HCV-69-500 (69-501 removed) and installed threaded plug on unit 3. The ECN was not completed. The ECN provides for the removal of packing bleed-off valves and plugging the bleed-off lines on an as-needed basis for valves inside the drywell. Their intended function was not usable as manual manipulation of the valves was necessary. Since they serve no purpose, they were removed. Valve function was not altered by the modifications.

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN P0543 - Support Facilities - Common	Drilled 23 holes from surface to bedrock for soil investigation and testing of the foundation materials located under service facilities. Only preliminary work for the ECN was accomplished. The ECN provides for construction of additional permanent facilities. The facilities will not contain any nuclear safety-related equipment.
DCR Core Component #21 - Fuel Handling and Storage - Unit 3	Replaced existing fuel assemblies with P8x8R and lead test assemblies. The DCR core component was completed as it only covered unit 3, cycle 4. The new lead test assemblies contain only minor changes from the old approved fuel designs. The reload licensing safety analysis defending use of the LTA's was performed using the same safety criteria as was currently defined in the technical specification basis. The margin of safety was not reduced.
ECN P0479 - Emergency Lighting - Units 1, 2, and 3	Fabricated mounting and support brackets for the emergency battery pack lighting. The ECN was not completed. Only prefab work was completed. The installation work is to be completed later. No safety-related equipment was affected by this modification.
ECN P0403 - 161-kV Switchyard - Common	Post-modification tests performed static and functional tests on the sensing and auxiliary relays of the 161-kV capacitor banks control circuits. The ECN was completed. The sense point for control of the 161-kV capacitor banks was changed from the 161-kV Athens line to the start buses 1A and 1B. The modification provides more reliable protection to safety-related equipment from low voltage malfunctions. Therefore, a more adequate source of electrical power is

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN P0[illegible]03 - 161-kV Switchyard - Common - (Continued)	available to operate the safety equipment and to safely shut down the plant after an accident.
ECN P0369 - High Pressure Coolant Injection - Unit 2	Installed a MOV bypass valve around FCV-73-3. The ECN was not completed. The modification reduces the probability of occurrence of HPCI steamline break outside containment because the transients associated with the steam line pressurization and warmup are greatly reduced.
ECN L2076 - Fire Protection System - Units 1 and 3	Installed flow elements FE-3-26-78, FE-3-26-79, and FE-3-26-82 in the cable tray deluge spray station test bypass line. The ECN was completed. The flow elements were installed in the test lines that have manual valves which are normally locked closed. The lines discharge to the drainage system. Therefore, the addition of the flow elements cannot adversely affect the fire protection system.
ECN P0129 - Feedwater - Units 1 and 3	Removed the density compensation instrumentation from the steam flow logic of the feedwater control system, added a square rooter in place of the multiplier/divider unit. The ECN was completed for units 1 and 3. The feedwater control system was not adversely affected. The steam flow logic provides input to the rodworth minimizer but the removal of the density compensation will not alter how the rodworth minimizer operates.
ECN P0462 - Primary Containment - Unit 3	Fabricated and installed a strongback fixture on the inside door of the personnel airlock in the unit 3 reactor building, elevation 565. The ECN was completed.

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN P0462 - Primary Containment - Unit 3 - (Continued)	The modification did not degrade the airlock's seismic qualifications. The airlock leak test is designed to maintain the primary containment integrity. The added strongback will prevent damage to the inner airlock door.
ECN P0289 - Various Systems - Units 1 and 2	Installed seismic supports on the EECW and RHRSW piping in the RHR service water tunnels south of the unit 2 reactor building. Installed additional support for 4" pipe in unit 1 reactor building, penetration MK 842 to provide seismic qualifications of penetrations. The ECN was not completed. The ECN was issued to cover piping supports on various safety-related systems. The additional supports will ensure that the seismic qualification of these lines are valid and that they will not fail during a seismic event.
ECN P0589 - Reactor Water Cleanup - Unit 1	Changed the 3/4-inch test connection between FCV-69-1 and HCV-69-500 from a horizontal configuration to a vertical configuration. The ECN was completed. The modification did not affect the isolation valves in the test line. The line remains seismically qualified and improves the vibrational characteristics of the test connection, thus reducing fatigue and the probability of failure.
DCR Core Component #16 - Local Power Range Monitoring Assemblies - Unit 3	Repaired and replaced LPRM's for unit 3. Six LPRM's were replaced and six repaired. The DCR core component was not completed as it is a continuing item until all LPRM assemblies have been replaced. Each refueling outage a number of these detectors are replaced as failures occur and the detectors become depleted to the point where they are not projected to last until the next refueling outage. The replacement LPRM's are similar to the

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
DCR Core Component #16 - Local Power Range Monitoring Assemblies - Unit 3 (Continued)	existing assemblies that have already demonstrated satisfactory performance with their main advantage being that the replacements are the breeder-type detectors and have a longer lifetime.
ECN's P0168 and L1896 - Control Air - Units 2 and 3	Modified the control air system in order to increase pressure by adding additional supply lines and valves per ECN L1896. Identified valves and tagged per drawings under ECN P0168. The modification provides control air nearer to the design operating pressure. This will help assure proper operation of all air-operated equipment.
ECN P0008 - Security (Intrusion Detection System) - Common	Installed magnetic switches, conduit, premise control boxes and cable for the intrusion detection throughout the plant. The cables were pulled from each door to the control and secondary alarm station. The ECN was not completed. The intrusion detection system is for monitoring only; it provides no lockout function. The power supply will be its own internal batteries. The batteries will be charged from a non-safety related power supply.
ECN P0235 - Reactor Water Cleanup - Unit 3	Installed a 4-inch line between RWCU system and "A" feedwater line using a 4-inch gate valve and a 4-inch check valve for isolation between the two systems. The ECN was completed. The feedwater system's operation was not affected by the modification. Return water from the RWCU system will now flow into both feedwater lines "A" and "B" rather than just "B" as before the modification. The check valve will preclude backflow from the feedwater and HPCI systems into the RWCU system.

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN P0343 - Raw Cooling Water - Unit 2	Replaced carbon steel piping with stainless steel on raw cooling water supply to the drywell-torus differential pressure air compressor; from root valve off RCW header to the compressor after cooler including the isolation valve. A small portion of the work covered by the ECN was completed. Enhancement of corrosion resistance is the only change that resulted by implementing the modification. Modification did not alter the operation of the system nor change its function.
ECN P0027 - Fuel Handling and Storage - Units 1, 2, and 3	On unit 1 removed old-style fuel storage racks from the spent fuel pool and installed base plates to allow installation of high density racks. Installed an additional 3/4-inch shim to the slider pads of the already installed high density fuel storage racks in unit 2. Installed one 13 x 17 high density fuel storage rack in position 5 of the unit 3 spent fuel pool. The ECN was not completed. The ECN covers the installation of high density spent fuel storage racks to increase capacity. The new racks do not pose a hazard to the fuel stored in the original racks. The new racks were evaluated and found not to tip over or slide to the extent of impacting the original racks. This evaluation was performed as part of obtaining the NRC approval.

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN P0093 - Primary Containment (Torus) - Unit 3	The ECN covers the modifications for the long-term torus integrity program. The modifications included adding 10-inch vacuum breaker valves on main steam safety/relief valve discharge lines; adding quenchers to the safety/relief valve discharge lines; strengthening torus internal supports where required and shortening torus downcomer legs from 4-feet to three-feet submergence at minimum pool depth. The major portion of the ECN was completed. A few minor items are remaining to be completed on unit 3. The modifications covered by the ECN were tested and analyzed by GE. The data gathered by GE showed that the modifications when performed would be a great improvement over the present condition. Therefore, the probability of occurrence or the consequences of an accident or the malfunction of equipment important to safety was not increased.
ECN P0360 - Primary Containment (Torus) - Unit 3	The modifications covered by this ECN are part of the long-term torus integrity program. The modifications included adding external torus tiedowns and external reinforcing at each ring girder location and adding a hydraulic snubber at each ring girder for dynamic restraint of the vessel. The majority of the torus tiedown installation has been completed as well as the outer external ring girder reinforcement. The hydraulic snubber installation at each ring girder will be completed during a later outage. The modifications when performed will upgrade and strengthen the torus. The changes will result in a new, intermediate configuration which is better than the original configuration, thus leaving the torus in a safe condition. Therefore, the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety was not increased.

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN P0361 - Primary Containment (Torus) - Unit 3	This ECN covers the modifications for the long-term torus integrity program. Included modifications are replacing 90° piping miters with elbows; modifying, as required, piping supports; rerouting and resupporting 2-inch and smaller piping; adding reinforcing torus nozzles. Only a small portion of the work covered by the modification was completed. Major items remaining are installation of piping nozzles, modifying of piping supports, and the rerouting/resupporting of small piping. The modifications when performed will upgrade and strengthen the torus. The changes will result in a new, intermediate configuration which is better than the original configuration, thus leaving the torus in a safe condition. Therefore, the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety was not increased.
ECN P0362 - Primary Containment (Torus) - Unit 3	The modifications covered by this ECN are part of the long-term torus integrity program. The modifications included rerouting RV71E and RV71M tailpipes; adding restraints below the vent pipe penetrations in the torus, and modifying existing SRV supports. Only a portion of the work covered by the ECN was completed. The modifications when performed will upgrade and strengthen the torus. The changes will result in a new, intermediate configuration which is better than the original configuration thus leaving the torus in a safe condition. Therefore, the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety was not increased.

Plant Modifications Summary

January 1, 1982 - December 31, 1982

Modification	Safety Evaluation
ECN P0320 - Low Level Radwaste - Common	Work completed on low level radwaste during 1982 included construction of the modules (one through four), the LLRW gatehouse, the diesel generator building, the HPFP system for the modules, the drainage system, the crane runways, protective coating of the modules, and the paving. The ECN was not totally completed. The total ECN will add a permanent onsite LLRW storage module(s) to provide at least one year of interim onsite storage. The storage is located outside the bounds of all previously analyzed events. When the storage modules are completed, storage of radwaste in the modules will not be permitted without NRC approval.
ECN P0314 - Post-Accident Sampling Facility - Common	All of the concrete work, structural steel, metal decking, drainage piping, and embedded conduit was completed. Work is in progress on the insulation, metal siding, protective coating, lighting conduit, shield door, and jib crane. The ECN has not been totally completed. NRC approval was required and obtained prior to any construction work on the PASF. The PASF will be located in the turbine building, elevation 565, and there is no safety-related equipment in that area. The sample lines will be connected to safety-related piping, but procedures ensure that connections are made so that plant safety is not adversely affected; no other safety-related equipment will be directly impacted by PASF construction. Even though the turbine building is adjacent to a safety-related structure, there will be no change made that will adversely affect plant safety. Vibrations induced by PASF construction could result in a unit scram if vibrations were of sufficient magnitude; however, no large magnitude vibrations are anticipated. Thus no increased demand on scram instrumentation and hydraulics is anticipated. Based on these considerations, construction of the PASF will not adversely affect plant safety.

CRITICAL SYSTEMS, STRUCTURES, AND COMPONENTS TESTS AND EXPERIMENTS FOR 1982

ST 80-25

Due to a discrepancy between the GE-MAC and Yarway water level indications, thermocouples are to be installed to verify the temperature used in water level calibration.

Unreviewed Safety Question Determination

Question

Is the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Final Safety Analysis Report increased? Yes ____ No X

Justification

This STEAR attaches thermocouples to the Yarway instrument columns; it will in no way affect the level indication. It is a repeat of a start-up test to verify initial water level calibration. This STEAR will not directly or indirectly affect the nuclear safety of the plant.

Question

Is the possibility for an accident or malfunction of a different type than any evaluated previously on the Final Safety Analysis Report created? Yes ____ No X

Justification

Same as above

Question

Is the margin of safety as defined in the basis for any technical specification reduced? Yes ____ No X

Same as above.

ST 81-11

CAD system flow test will be run to verify the capabilities of CAD system and verify valve position requirements for HCV-84-37 and -38. The tests consist of supplying nitrogen to the drywell and then to the torus of a unit in startup and measuring the appropriate flows and valve positions. This will be done for each train of CAD, one at a time. Before inoping a train to test it, the other train will be verified operable and in standby readiness. Test conditions: the unit will be ready for inertion of primary containment. This test will simply add nitrogen to primary containment just before the inertion of the primary containment by the containment inerting system.

CRITICAL SYSTEMS, STRUCTURES, AND COMPONENTS TESTS AND EXPERIMENTS FOR 1982

ST 81-11 (continued)

Unreviewed Safety Question Determination

Question

Is the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Final Safety Analysis Report increased? Yes ___ No X

Justification

One train of CAD will be verified operable and available at all times. Each train is a 100% subsystem and independent.

Question

Is the possibility for an accident or malfunction of a different type than any evaluated previously in the Final Safety Analysis Report created? Yes ___ No X

Justification

Conditions for inerting primary containment will be established instead of using containment inerting system, CAD will be used for duration of test. Hence, there should be no unusual incidents. In addition, since CAD is required only in event of a LOCA and nothing will be done to increase chances of LOCA answer of "No" is now justified. Proposed special test is based on CAD system preoperational test (TVA-27) performed satisfactorily before system initially placed in service.

Question

Is the margin of safety as defined in the basis for any technical specification reduced? Yes ___ No X

Justification

One train will be verified available at all times.

ST 81-17

Resistance temperature devices and thermocouples will be monitored on 2A and 2B recirculation motor-generator set generators under varying load conditions.

CRITICAL SYSTEMS, STRUCTURES, AND COMPONENTS TESTS AND EXPERIMENTS FOR 1982

ST 81-17 (continued)

Unreviewed Safety Question Determination

Question

Is the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Final Safety Analysis Report increased? Yes ___ No X

Justification

Activity does not affect accident probability or any safety equipment.

Question

Is the possibility for an accident or malfunction of a different type than any evaluated previously in the Final Safety Analysis Report created? Yes ___ No X

Justification

Activity is within existing plant procedure. Therefore, no new accident or malfunction is introduced.

Question

Is the margin of safety as defined in the basis for any technical specification reduced? Yes ___ No X

Justification

Technical specification basis will not be affected.

ST 81-19

At the next scheduled shutdown of units 1, 2, or 3,the reset of the RPS will be delayed until approximately 5 minutes after the scram. The purpose of the test is to determine if the control rods will settle back to "00" without the reset of the RPS. OD-7s and visual observation of the full core display will be used for this determination.

Unreviewed Safety Question Determination

Question

Is the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Final Safety Analysis Report increased? Yes _____ No X

CRITICAL SYSTEMS, STRUCTURES, AND COMPONENTS TESTS AND EXPERIMENTS FOR 1982

ST 81-19 (continued)

Justification

The only deviation we are making from normal practices is delaying the reset of the RPS. This is not prohibited by technical specification or procedures and past experience shows resets at later than 5 minutes with no harm.

Question

Is the possibility of an accident or malfunction of a different type than any evaluated previously in the Final Safety Analysis Report created? Yes ____ No X

Justification

There will be no deviation from procedures involved in this test. The only additional activity involved will be taking of data--a static activity.

Question

Is the margin of safety as defined in the basis for any technical specification reduced? Yes ____ No X

Technical Specifications do not prohibit this action and the test is conducted with the RPS in the failed and failsafe mode.

ST 82-05

Sample collection for HPCI lubricating oil moisture content determination.

Unreviewed Safety Question Determination

Question

Is the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Final Safety Analysis Report increased? Yes ____ No X

Justification

The integrity of the primary system boundary and the primary containment boundary will not be affected.

Question

Is the possibility for an accident or malfunction of a different type than any evaluated previously in the Final Safety Analysis Report created? Yes ____ No X

ST 82-05 (continued)

Justification

The potential for additional accidents or malfunctions is not created.

Question

Is the margin of safety as defined in the basis for any technical specification reduced? Yes ____ No __X__

Justification

The technical specification bases are not changed.

ST 82-07

The test will run one loop of the RHRs in the supplement fuel pool cooling mode. Data will be taken to determine maximum system flow rates. The RHR drain pump will also be tested for maximum flow in its fuel pool cooling mode. Vibration instrumentation will be used to monitor any vibration problems that may exist when RHR pumps are used in low flow rates.

Unreviewed Safety Question Determination

Question

Is the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the Final Safety Analysis Report increased? Yes ____ No __X__

Justification

This test will verify the operability of RHR supplemental fuel pool cooling and will determine the flow capabilities of the system. One RHR pump and one RHR drain pump will be used on separate portions of this test to determine flow rates. FSAR 10.5.5 specifically evaluated this procedure using one RHR pump. Using an RHR drain pump poses no different accident or malfunction possibilities. Loop II of RHR will not be affected while Loop I is being used for test, and the fuel pool storage pit inventory will be maintained as prescribed in FSAR 10.5.5.

Question

Is the possibility for an accident or malfunction of a different type than any evaluated previously in the Final Safety Analysis Report created? Yes ______ No __X__

ST 82-07 (continued)

Justification

This instruction will be performed according to established operating instructions. The use of RHR for supplemental FPC is evaluated in the FSAR.

Question

Is the margin of safety as defined in the basis for any technical specification reduced? Yes _____ No __X__

Justification

One RHR loop with both pumps and associated diesel generator will be operable as required by Technical Specification 3.5.B.9. The availability or capability of the operable loop will not be in jeopardy.

ST 82-15

The purpose of this test is to determine the failure mechanism of reload 2 fuel from Browns Ferry Unit 2. This will involve the inspection of approximately 12 bundles from reload 2, and will involve the removal of the upper tie plate and the removal of fuel rods from the bundle for nondestructive testing. Eddy current and ultrasonic testing as well as visual examination will be employed in the inspection. The inspection will be performed in the SFSP using the fuel preparation machine and other fuel handling tools. A team of GE engineers experienced in this type of testing will be sent to perform the inspection in conjunction with site personnel.

Unreviewed Safety Question Determination

Question

Is the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated on the Safety Analysis Report increased? Yes ____ No __X__

Justification

Per FSAR Section 14.6.4, the design basis accident for fuel handling is dropping a fuel assembly onto the reactor core. ST 82-15 does not increase either the probability or the consequences of accident.

ST 82-15 (continued)

Question

Is the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report created?
Yes ____ No __X__

Justification

The worst accident would be dropping a fuel assembly. This is analyzed in section 14.6.4 of the FSAR.

Question

Is the margin of safety as defined in the basis for any technical specification reduced? Yes ____ No __X__

Justification

Fuel bundle disassembly is not addressed by the technical specifications; however, the OQAM, Part II, Section 7.1 allows 2 fuel assemblies and 30 loose rods out of approved storage at one time. These limits will not be exceeded.

FATIGUE USAGE EVALUATION

The cumulative usage factors for the reactor vessels are as follows as of December 31, 1982:

	Usage Factor		
Location	Unit 1	Unit 2	Unit 3
Shell at water line	0.00564	0.00448	0.00388
Feedwater nozzle	0.27594	0.19544	0.14705
Closure studs	0.21688	0.15641	0.12638

CHALLENGES TO OR FAILURES OF MAIN STEAM RELIEF AND SAFETY VALVES

Unit 1

2-12-82 at 0152	The reactor scrammed as required by RPS. Six MSRVs operated normally with the remaining MSRVs not being required to respond.
3-14-82 at 0703	The reactor isolated as required by RPS. Five MSRVs operated normally with remaining MSRVs not being required to respond.
4-4-82 at 0849	The reactor scrammed as required by RPS. Four MSRVs operated normally with remaining MSRVs not being required to respond.
4-8-82 at 0227	The reactor scrammed as required by RPS. Four MSRVs operated normally with remaining MSRVs not being required to respond.
11-3-82 at 0010	The reactor isolated as required by RPS. Twelve MSRVs operated normally with one MSRV not being required to respond.

Unit 2

7-19-82 at 0352	The reactor scrammed as required by RPS. Ten MSRVs operated normally with two MSRVs not being required to respond. One MSRV did not respond as required and was declared inoperable (Ref. BFRO-260-82027)

Unit 3

None during calendar year 1982

REGULATORY GUIDE 1.16 ANNUAL REPORT

[illegible] WORK & JOB FUNCTION	NUMBER OF PERSONNEL GREATER THAN 100 MREM STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT WORKERS AND OTHERS		TOTAL MAN-REM GREATER THAN 100 MREM STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT WORKERS AND OTHERS	
REACTOR OPERATIONS AND SURVEILLANCE								
MAINTENANCE (MECH.)	24	[illegible]			5.0	14.5		
MAINTENANCE (ELEC.)	7	3			1.0	[illegible]		
OPERATIONS	51				12.0			
HEALTH PHYSICS	35		58		7.5		26.4	
CHEMISTRY	[illegible]				0.8			
ENGINEERING (SUPERV.)		47				21.6		
OTHER	1	[illegible]	23		0.1	4.0	16.5	
INSTRUMENTATION	27				0.2			
LABORERS & JANITORS	2	1[illegible]			0.3	3.0		
QUALITY ASSURANCE	11				10.2			
TOTALS	1[illegible]	1[illegible]	81	396	46.7	51.2	43.4	141.2
ROUTINE MAINTENANCE								
MAINTENANCE (MECH.)	14[illegible]	[illegible]	1		94.1	47[illegible].9	0.2	
MAINTENANCE (ELEC.)	54	2[illegible]7			16.1	157.1		
OPERATIONS	78				22.7			
HEALTH PHYSICS	3[illegible]		68		13.0		41.4	
CHEMISTRY	17				4.6			
ENGINEERING (SUPERV.)		93				45.0		
OTHER	1	[illegible]	19[illegible]		0.3	[illegible]	125.1	
INSTRUMENTATION	65				48.5			
LABORERS & JANITORS	57	171	1		25.9	111.7	0.3	
QUALITY ASSURANCE	67				46.4			
TOTALS	51	1[illegible]2[illegible]	263	1802	272.8	741.1	167.0	1180.9
INSERVICE INSPECTION								
MAINTENANCE (MECH.)								
MAINTENANCE (ELEC.)						0.7		
OPERATIONS								
HEALTH PHYSICS								
CHEMISTRY								
ENGINEERING (SUPERV.)								
OTHER			1				0.5	
INSTRUMENTATION								
LABORERS & JANITORS								
QUALITY ASSURANCE								
TOTALS			1	4		0.7	0.5	1.2

REGULATORY GUIDE 1.16 ANNUAL REPORT

PEPO 01/31/83 WORK AND JOB FUNCTION	NUMBER OF PERSONNEL GREATER THAN 100 MREM STATION EMPLOYEES	 UTILITY EMPLOYEES	 CONTRACT WORKERS AND OTHERS		TOTAL MAN-REM GREATER THAN 100 MREM STATION EMPLOYEES	 UTILITY EMPLOYEES	 CONTRACT WORKERS AND OTHERS	
TOTAL								
MAINTENANCE (MECH.)	168	1024	1		106.5	705.6	0.2	
MAINTENANCE (ELEC.)	62	335			19.2	142.5		
OPERATIONS	162				48.1			
HEALTH PHYSICS	63		139		23.0		72.3	
CHEMISTRY	21				5.9			
ENGINEERING (SUPER.)		172				75.6		
OTHER	9	31	316		6.4	14.4	174.1	
INSTRUMENTATION	111				59.1			
LABORERS & JANITORS	72	307	1		30.4	185.6	0.3	
QUALITY ASSURANCE	68				22.5			
GRAND TOTALS	776	1865	457	3114	354.6	1127.8	246.9	1729.3

NUMBER OF EMPLOYEES WHO ACCUMULATED MORE THAN 100 MREM IN AT LEAST ONE CATEGORY 3336
TOTAL MAN-REM FOR EXPOSURES TOTALING MORE THAN 100 MREM IN EACH CATEGORY 1729.265
ADDITIONAL MAN-REM FROM LOWER EXPOSURES 170.686

REGULATORY GUIDE 1.16 ANNUAL REPORT

[illegible]
12/31/83

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL GREATER THAN .5 REM: STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT WORKERS AND OTHERS		TOTAL MAN-REM GREATER THAN .5 REM: STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT WORKERS AND OTHERS	
REACTOR OPERATIONS AND SURVEILLANCE								
MAINTENANCE (MECH.)	115	2[illegible]2			7.9	28.2		
MAINTENANCE (ELEC.)	43	49			2.2	17.1		
OPERATIONS	142				15.8			
HEALTH PHYSICS	77		134		10.[illegible]		30.3	
CHEMISTRY	19				3.4			
ENGINEERING (SUPER.)		123				24.7		
OTHER	13	22	61		0.6	4.5	17.9	
INSTRUMENTATION	72				11.[illegible]			
LABORERS & JANITORS	27	94			1.3	5.2		
QUALITY ASSURANCE	6				12.[illegible]			
TOTALS	578	547	195	1313	62.4	64.8	49.2	175.4
ROUTINE MAINTENANCE								
MAINTENANCE (MECH.)	253	1776	1		97.8	492.8	5.2	
MAINTENANCE (ELEC.)	91	403	1		17.6	115.7	0.1	
OPERATIONS	166				20.1			
HEALTH PHYSICS	67		136		14.1		42.[illegible]	
CHEMISTRY	18				5.[illegible]			
ENGINEERING (SUPER.)	1	22	2			49.6		
OTHER	12	27	353		[illegible].7	7.1	121.[illegible]	
INSTRUMENTATION	95				49.9			
LABORERS & JANITORS	156	354	1		29.3	118.5	0.3	
QUALITY ASSURANCE	133				50.6			
TOTALS	1752	2110	494	3656	291.0	783.7	176.2	1250.9
INSERVICE INSPECTION								
MAINTENANCE (MECH.)								
MAINTENANCE (ELEC.)		5				0.7		
OPERATIONS								
HEALTH PHYSICS			1					
CHEMISTRY								
ENGINEERING (SUPER.)		1				0.1		
OTHER			1				0.5	
INSTRUMENTATION								
LABORERS & JANITORS								
QUALITY ASSURANCE								
TOTALS		[illegible]	2	7		0.8	0.[illegible]	1.[illegible]

REGULATORY GUIDE 1.16 ANNUAL REPORT

12/31/83

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL GREATER THAN .5 REM: STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT WORKERS AND OTHERS		TOTAL MAN-REM GREATER THAN .5 REM: STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT WORKERS AND OTHERS	
SPECIAL MAINTENANCE								
MAINTENANCE (MECH.)	72	1 77			3.7	230.2		
MAINTENANCE (ELEC.)	77	276			3.1	32.2		
OPERATIONS	59				1.7			
HEALTH PHYSICS	13		43		0.7		3.5	
CHEMISTRY	11				0.2			
ENGINEERING (SUPER.)		159				16.6		
OTHER	5	25	233		0.1	4.4	36.5	
INSTRUMENTATION	39				1.[illegible]			
LABORERS & JANITORS	24	345			1.3	75.7		
QUALITY ASSURANCE	71				5.9			
TOTALS	336	1584	276	2456	16.[illegible]	368.2	40.4	427.1
WASTE PROCESSING - RADWASTE								
MAINTENANCE (MECH.)	53	4			6.9	.4		
MAINTENANCE (ELEC.)	2					.3		
OPERATIONS	45				7.8			
HEALTH PHYSICS	16		12		2.0		1.1	
CHEMISTRY	[illegible]				0.2			
ENGINEERING (SUPER.)								
OTHER	2		2					
INSTRUMENTATION	7				9.5			
LABORERS & JANITORS	33		1		4.8	.[illegible]		
QUALITY ASSURANCE	1				[illegible].2			
TOTALS	164	25	15	204	21.7	1.5	1.1	24.3
REFUELING								
MAINTENANCE (MECH.)		76				4.9		
MAINTENANCE (ELEC.)	1	13			0.1	.4		
OPERATIONS	54	1			7.4			
HEALTH PHYSICS	7		11		0.1		0.5	
CHEMISTRY					0.1			
ENGINEERING (SUPER.)		14				0.3		
OTHER			10				1.3	
INSTRUMENTATION	11				0.2			
LABORERS & JANITORS	2	3[illegible]			0.1	2.5		
QUALITY ASSURANCE	23				0.4			
TOTALS	97	13[illegible]	21	253	8.[illegible]	[illegible].1	1.7	10.0

REGULATORY GUIDE 1.16 ANNUAL REPORT

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL GREATER THAN 5 MREM: STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT WORKERS AND OTHERS	TOTAL MAN-REM GREATER THAN 5 MREM: STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT WORKERS AND OTHERS
TOTAL						
MAINTENANCE (MECH.)	493	2442	1	116.3	757.6	0.2
MAINTENANCE (ELEC.)	175	[illegible]	1	123.1	15[illegible].4	0.1
OPERATIONS	466	1		56.8		
HEALTH PHYSICS	175		537	2[illegible]		79.5
CHEMISTRY	75			6.8		
ENGINEERING (SUPER.)	1	51[illegible]	2		91.3	
OTHER	32	[illegible]	660	1.3	16.1	168.[illegible]
INSTRUMENTATION	22[illegible]			63.4		
LABORERS & JANITORS	295	831	2	36.[illegible]	262.7	0.3
QUALITY ASSURANCE	288			69.[illegible]		
GRAND TOTALS	2226	47[illegible]	1203 7929	4[illegible]	1227.1	268.1 1897.1

NUMBER OF EMPLOYEES WHO ACCUMULATED MORE THAN 5 MREM IN AT LEAST ONE CATEGORY [illegible]

TOTAL MAN-REM FOR EXPOSURES TOTALING MORE THAN 5 MREM IN EACH CATEGORY 1897.[illegible]74

ADDITIONAL MAN-REM FROM LOWER EXPOSURES 2.879

REGULATORY GUIDE 1.16 ANNUAL REPORT

[illegible]

WORK AND JOB FUNCTION	NUMBER OF PERSONNEL GREATER THAN 100 MREM: STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT WORKERS AND OTHERS		TOTAL MAN-REM GREATER THAN 100 MREM: STATION EMPLOYEES	UTILITY EMPLOYEES	CONTRACT WORKERS AND OTHERS	
SPECIAL MAINTENANCE								
MAINTENANCE (MECH.)	[illegible]	41[illegible]			1.8	217.6		
MAINTENANCE (ELEC.)	1	92			2.2	26.5		
OPERATIONS	1				0.3			
HEALTH PHYSICS	[illegible]		11		0.4		3.2	
CHEMISTRY								
ENGINEERING (SUPER.)		36				13.1		
OTHER		12	95			3.9	31.0	
INSTRUMENTATION	7				1.[illegible]			
LABORERS & JANITORS	5	139			0.7	69.0		
QUALITY ASSURANCE	12				4.1			
TOTALS	43	659	106	8[illegible]	11.[illegible]	330.1	34.2	374.9
WASTE PROCESSING - RADWASTE								
MAINTENANCE (MECH.)	15	1			[illegible]	0.2		
MAINTENANCE (ELEC.)		1				0.2		
OPERATIONS	12				6.9			
HEALTH PHYSICS	[illegible]		2		1.7		0.9	
CHEMISTRY	1				0.2			
ENGINEERING (SUPER.)								
OTHER								
INSTRUMENTATION	2				0.3			
LABORERS & JANITORS	1	1			3.5	0.6		
QUALITY ASSURANCE	1				0.2			
TOTALS	46	[illegible]	2	51	18.3	1.0	0.9	20.3
REFUELING								
MAINTENANCE (MECH.)	[illegible]	13				2.4		
MAINTENANCE (ELEC.)								
OPERATIONS	19				6.1			
HEALTH PHYSICS								
CHEMISTRY								
ENGINEERING (SUPER.)								
OTHER			4				1.6	
INSTRUMENTATION								
LABORERS & JANITORS		7				1.2		
QUALITY ASSURANCE								
TOTALS	17	2	4	43	6.[illegible]	3.6	1.[illegible]	11.[illegible]