PEACH BOTTOM ATOMIC POWER STATION

UNIT NOS. 2 AND 3

ANNUAL PLANT MODIFICATION REPORT

JANUARY 1, 1980 through DECEMBER 31, 1980

Submitted to

The United States Nuclear Regulatory Commission

Pursuant to

Facility Operating Licenses Nos. DPR-44 and DPR-56

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Preparation Directed By:
W. T. Ullrich, Superintendent
Peach Bottom Atomic Power Station

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ANNUAL PLANT MODIFICATION REPORT

This report for Peach Bottom Atomic Power Station Units No. 2 and 3, License Nos. DPR-44 and DPR-56, is issued in fulfillment of the reporting requirements of 10 CFR 50.59. It describes changes made to the facility as the facility is described in the safety analysis report. The report covers modifications that were complete in 1980.

For each of the modifications, tests or experiments included in this report, the safety evaluation performed indicated that an unreviewed safety question as defined in 10 CFR 50.59(a)(2) was not created; in that (i) the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the safety analysis report was not increased, or (ii) a possibility for an accident or malfunction of a different type than any evaluated previously in the safety analysis report was not created, or (iii) the margin of safety as defined in the basis for any technical specification was not reduced.

Changes to the Technical Specifications were required for some of the modifications, tests or experiments included in this report. Those requiring Technical Specification changes are noted in the descriptions of the applicable modifications, tests or experiments.

UNITS 2 and 3

Recirc MG Set Fluid Coupling Changes

A modification to recirculation motor-generator (MG) set fluid coupling was completed. The modification involved locking of the transfer scoop tube inside the recirc MG set fluid coupling. The purpose of the modification was to reduce vibration and hunting during startup and operation.

Recirc MG Set Scoop Tube Position Brake Solenoid Monitor

A modification to install a brake solenoid continuity monitoring circuit on each of the Recirc MG Set Scoop Tube Positioners was completed. The modification consisted of adding a current actuated relay in the brake solenoid circuit that provides an alarm whenever the solenoid is deenergized. This condition could occur from an opening in the solenoid circuit or a discontinuity resulting from deenergization of the K4 brake relay. This type of failure has taken place several time during the plant life and has gone undetected until a change in the recirc pump speed setting was required.

Undervoltage Relay Protection for 125V Battery Chargers

A modification to provide AC undervoltage protection on the 125V DC safeguard battery chargers was completed. The modification involved installation of undervoltage relays on the 480 volt 3 phase AC input to each battery charger. The relay will interrupt the regulator circuit in the charger during these MG set induced voltage excursions and reset when the voltage returns to normal. This will prevent a decrease in the Emergency Core Cooling System (ECCS) instrumentation level signal from the overvoltage protection tripping of the Topaz inverters caused by overcompensation by the battery charger voltage regulator. The purpose of the modification is to prevent spurious initiation of the Reactor Core Isolation Cooling System and High Pressure Coolant Injection System (RCIC/HPCI) after a voltage drop on the 480 VAC safeguard load center caused by the starting of a large motor.

Standby Liquid Control Electrical Circuit

A modification to replace the main control transfer fuse with a 10 Amp slow blow type FRN-10 fuse was completed. This modification was undertaken to eliminate a potential problem which could occur should a short circuit develop in the squib firing circuit. The previous rating of the main control power fuse was such that the possibility existed that this fuse could blow the independent squib fuse. This problem was identified in NRC I.E. Circular 77-09.

ADS Safety Relief Valve Air Piping Supports and Supply Check Valves

A modification to the Automatic Depressurization System (ADS) safety relief valve nitrogen piping supports and nitrogen supply check valves was completed. The modification involved replacing the existing check valves with Nupro spring check valves and Ethlyene Propylene O-rings and adding additional supports to the nitrogen piping and tubing. The purpose of the modification is to eliminate a problem of leaky check valves and to bring the piping system into conformance with Class I seismic requirements.

Modification of the Reactor Building Crane Exclusion Area Bypass Circuitry

A modification to the reactor building crane bypass switch circuitry was completed. The modification removed the need to hold the key switch in the bypass position during crane motion. This modification was performed to allow for safer and easier operation of the reactor building crane while still enforcing the design load and motion restrictions.

MSIV Limit Switches

A modification to replace the Main Steam Isolation Valve (MSIV) position limit switches was completed. The modification involved replacing four limit switches on each valve. The purpose of the modification was to replace the existing limit switches with environmentally qualified switches.

Sealing of Mechanical Penetration for Fire Protection

A modification to install mechanical penetration seals in miscellaneous locations in the cable spreading room, control room, emergency switchgear room, diesel rooms, and battery room was completed. The modification involved installing mechanical penetration seals around bus ducts, Heating Ventilating and Air Conditioning (HVAC) ducts, and in annulus areas between pipe and pipe sleeves in approximately 20 penetrations. The purpose of

the modification is to maintain the integrity of fire barriers in selected areas of the plant in accordance with Technical Specifications.

480V Emergency Load Centers

A modification to the 480V emergency load center was completed. The modification involved installation of permanent cables between 480V emergency load centers E124 and E324, E224 and E424, E134 and E334, E234 and E434 to provide alternate feeds to de-energized load centers during outages. The purpose of the modification is to enable complete de-energizing of the 4KV busses for breaker trip tests, protective relay calibrations, and loss of power tests in an effort to minimize required outage time.

HPCI Turbine Stop Valve Main Piston Seals

A modification to replace the High Pressure Coolant Injection (HPCI) turbine stop valve hydraulic cylinder seals as per General Electric Service Information Letter (SIL-306) with Buna-N in lieu of resin impregnated leather was completed. The modification involved disassembly and reassembly of the hydraulic cylinder. The purpose of the modification is to prevent seal failure which could cause inoperability of the turbine stop valve.

Ventilation (Battery Room)

A modification to the battery room ventilation was completed. The modification involved installation of an air flow detector in the battery room ventilation exhaust duct and associated alarm in the control room. The purpose of the modification is to provide control room personnel timely indication of a battery room loss of air flow/ventilation.

Off-Gas SJAE Discharge Piping

A modification to the off-gas Steam Jet Air Ejector (SJAE) discharge piping was completed. The modification involved the installation of an additional electronic switch in parallel with the existing electronic pressure transmitter and switch that monitors SJAE discharge pressure. The purpose of the modification is to inform the control room operator whenever a slightly positive pressure condition (0.1 psig) exists in the SJAE discharge pipe by alarming the existing high pressure annunciator.

Instrument AC Systems

A modification to change one of the 120V AC feeds to the C144 panel from bus Y37 to bus Y34 was completed. The C144 panel contains power supplies for non-safety related instruments and is fed from two parallel sources (Y37 and Y33) that originate from the same Motor Control Center. This modification involved relocating the Y37 feed to the non-Q load side of Y34 so that the sources originate from separate diesel generator buses. The purpose of the modification is to increase the reliability of the C144 panel instruments.

HPCI Steam Line Isolation Valve Room Overpressurization

A modification to install a pressure/flow directing device and a grill type door was completed. The modification involved installing a plate on top of the extended floor sleeve and around the High Pressure Coolant Injection (HPCI) steam line and replacement of a solid door with a grill type door. The purpose of the modification is to direct the steam from a guillotine failure to the torus compartment, and to provide pressure relief for the HPCI isolation valve room through grill type security doors to prevent HPCI steam line isolation valve room overpressurization.

Miscellaneous Instrument System

A temporary modification to the torus temperature loop was completed. The modification involved installing a resistor in one torus temperature loop (TT2442B to TI2445) to provide a output signal and recalibrating the loop to verify operability. The remaining torus temperature instrumentation loops will not be affected. The resistor will be removed following completion of the Main Steam Relief Valve (MSRV) test program and the loop recalibrated. The purpose of the modification is to provide suppression pool temperature signals to the special test instrumentation that will be used for the MSRV test program.

Reactor Recirc and Main Steam Sample Line

A modification to the reactor recirc and main steam sample line was completed. The modification involved replacing solenoid pilot valves on air operated valves AO-2-2-39, AO-3-2-39, AO-2-2-316 and AO-3-2-316 with upgraded environmentally qualified solenoid valves.

Change Reactor Building Crane Trolley Speed

A modification to replace the reactor building crane trolley motor and its associated speed control resistors with increased capacity components was completed. The modification involved removing the existing 1.5 HP motor and speed control resistors and installing a new 5.0 HP motor and corresponding speed control resistors. The present five speed settings for the crane trolley will all be increased by a factor of four with maximum trolley speed adjusted to 40 ft./minute. The maximum bridge speed will remain at 50 ft./minute. The purpose of the modification is to increase the reactor building crane trolley speed from 10 ft./minute to 40 ft./minute to more efficiently handle lighter loads.

Sympathetic Tripping of the Emergency Startup Breakers 2 SU-E and 3 SU-E

A modification to provide a trip signal to the emergency auxiliary transformer circuit breakers whenever the associated startup source breaker trips was completed. The modification involved installing the necessary circuitry to initiate a trip of the 2 SU-E breaker whenever SU-25 undergoes established auto trip operations, and utilizing the existing fault trip circuitry of SU-35 to initiate a similar trip of 3 SU-E. Because of the differences in existing circuitry between the two startup source breakers, the trip operations are not identical. When SU-25 auto trips, it will send a trip signal directly to 2 SU-E and when the trip condition is cleared, 2 SU-E may be reclosed (auto reset). SU-35, however, will send its trip signal to a intermediate lockout relay in the control room (286-XO5), and this relay (which is annunciated) will then trip 3 SU-E along with the startup feed bus breakers (3 SU-1 and 3 SU-2). When the trip condition is cleared, the lockout relay must be reset before regaining control of the affected breakers. The purpose of the modification is to isolate the cooling towers from the 4KV buses when the startup source breakers trip. This will eliminate the adverse frequency effect that the large cooling tower loads impose on the 4KV buses when they remain tied together after the source breaker trips.

Installation of an Additional Pressure Indicator Downstream of PI-229 on the Scram Pilot Valve Air Header

A modification to install a new pressure indicator 0-150 psig (+2%) downstream of PI-229 was completed. The modification involved installing 1/4" copper tubing, an instrument isolation valve, and a pressure gauge in the reactor building at El. 135'. This equipment has been installed downstream of the existing instrument test tap isolation valve. The purpose of the modification is to provide an easily accessible, accurate pressure indication of the scram pilot valve air header.

Pressurizing Rig for RHR MO-25A&B

A modification to provide a means to pressurize and equalize, with system pressure, the outboard side of the Residual Heat

Removal System (RHR) valves MO-25A&B was completed. The modification involved installing a permanently mounted nitrogen pressurizing rig at the "stayfull" station on Units 2 and 3 Reactor Building, Elevation 135'. The purpose of the modification is to reduce differential pressure across MO-25A&B for test cycling.

Change Scale of Wide and Narrow Range Reactor Water Level Instruments for Units 2 and 3

A modification to reference all reactor water level instruments to the same point by changing scale of the wide range (shutdown level) and narrow range (fuel zone level) instruments which read out on the control room indicator LI-2-3-86 and control room recorder LR 6-97 respectively was completed. The modification involved the following: (1) install new scale for shutdown level indication on LR 6-97 from 0 to 100 inches to -178 inches to -78 inches water, (2) install new scale for shutdown level on LI-86 from 0 to 400 inches to -21 to +371 inches. This revised range is only 392 inches instead of 400 inches as currently labeled since the as-built piping configuration will not accommodate a range greater than 392 inches. Due to this range change, transmitter LT-2-3-61 was recalibrated. The purpose of the modification is to comply with the NUREG 0737 requirement to reference all level instruments to the same vessel elevation.

Installation of Ventilation Louvers on Control Room Cabinets

A modification to include louvers on doors for the control room panels was completed. The following panel doors were modified: 20C06C, 30C06C, 20C10, 30C10, 20C13 and 30C13. The modification involved installation of louvers on the doors of the above mentioned control room cabinets in order to mitigate the affect of high operating temperatures. Cabinets 20C06C and 30C06C will have louvers installed on the front and rear doors while cabinets 20C10, 30C10, 20C13, and 30C13 will have louvers installed on the top and bottom of each rear door. The purpose of the modification is to reduce temperatures within the cabinets.

Process Computer Modification to Event Recall Log Program

A modification to the event recall log program was completed. The modification involved correcting the print format of this program. The purpose of the modification is to eliminate loss of data printout of the post trip log.

COMMON EQUIPMENT

Installation of Lightning Surge Arrestors on Off-Gas Stack Supply Cables to MCCs 00B32, 00B35, and 00B84

A modification to install lightning surge protectors at the terminations of the 480 volt supply cables to the off-gas Main Control Centers (MCC) was completed. The modification, which is not Q-listed, consists of installing a lightning surge protector on each of the three 480 volt supply cables from load centers in the Unit 2 Reactor Building to the MCCs at the base of the off-gas stack. The purpose of the modification is to provide protection against lightning induced electrical surges entering the MCCs or other equipment.

Installation of Position Switches on Fire Pump Manual Discharge Valves (V-0294B and V-0296B)

A modification to install a position switch on the diesel driven fire pump manual discharge valve (V-0294B) and on the motor driven fire pump discharge valve (V-0296B) was completed. The switches will alarm the diesel or motor driven fire pump trouble annunciator in the main control room. The modification involved the installation of limit switches on the above valves and electrical panel wiring changes necessary to annunciate the "Motor Driven Fire Pump Trouble" or "Diesel Fire Pump Trouble" alarms in the main control room when the discharge manual valves are closed. The purpose of the modification is to provide increased assurance that the fire protection system remains functional.

Replacement of the Starting Contactors in the Diesel Driven Fire Pump Control Circuitry

A modification to replace the existing starting contactors in the diesel driven fire pump control circuitry with new magnetic switches was completed. This is in response to NRC IE Circular 79-13 which identified the installed contactors as the cause of several pump start failures. This modification involved installing two new magnetic switches in the starting circuit for the diesel driven fire pump and the associated control panel wiring changes. The purpose of the modification is to increase the reliability of the diesel fire pump by replacing the starting contactors with improved design magnetic switches.

Install a Diesel Fuel Oil Day Tank High Temperature Alarm for each of the Four Diesel Generator Day Tanks

A modification to install a high temperature alarm (with setpoint of 165 degrees F) for each diesel generator day tank in order to ensure added fire protection was completed. The modification involved addition of one cable per diesel generator day tank to be connected to already installed spare temperature switches to ensure that existing circuitry will not be disturbed. The safety function of the temperature devices will not be affected by this installation, nor will this high temperature alarm affect any control circuitry.

Addition of Sampling Capability For Diesel Fuel Oil Main Storage Tanks

A modification to provide sampling capability to the diesel fuel oil system for the emergency diesel generators by installing fuel oil sampling lines on each of the four main diesel fuel oil storage tanks was completed. The modification involved removal of the existing unused fuel oil submersible pumps located in the main storage tanks and installation of sampling lines thru each manway cover for the diesel fuel oil storage tanks. The sample lines were added by modifying the removed submersible pump discharge lines. The purpose of the modification is to meet quality assurance standards for sampling and analysis of diesel fuel as specified in ASTM D975-68 as required by Regulatory Guide 1.137.

Diesel Driven Fire Pump Fuel Transfer Pump Trip

A modification to provide a high temperature switch to shut off the diesel fire pump fuel transfer pump should a fire develop in the fire pump compartment was completed. This modification will not compromise the integrity of the fire protection system. The modification involved installation of a high temperature cutout switch (set at 165 degrees F) located at the top mid-section of the fire pump compartment in order to trip off the diesel driven fire pump fuel transfer pump. No alarm was installed to indicate this action since existing fire detector alarms in the compartment will suffice. The transfer pump must be manually restarted, after the trip, by the operator. The purpose of the modification is to assure the fuel oil transfer pump will not feed a fire should one develop in the diesel driven fire pump compartment.

Relocate Fire Hydrant and Install Hose Cart House

A modification to move a fire hydrant and its supply line from the northwest corner of the auxiliary transformer pad to a more accessible location and install a hose cart house for increased fire protection on the west side of the plant was completed. Since the desired location for the hose cart house was on a paved area, a pad was not required and the hose cart house was anchored.

Replacement of Existing Seismic Monitoring Equipment

A modification to install instrumentation to monitor and record vibratory ground motion and the resultant vibratory responses of representative Category I structures was completed. The existing seismic monitoring equipment was removed after the new instrumentation was installed. The modification involves installation of four triaxial time history accelerometers at the following locations: (a) Containment Foundation, (b) Refueling Floor, (c) Reactor Core Isolation Cooling (RCIC) Pump Room, and (d) 'C' Diesel Generator Room. These electronic sensors are recorded and analyzed on a new seismic instrumentation panel located in the cable spreading room. Alarms for this system are located in the control room. In addition, triaxial peak accelerographs are mounted at various locations. The purpose of

the modification is to upgrade the seismic monitoring system to meet the requirements of Regulatory Guide 1.12, "Instrumentation for Earthquakes". As a result of this modification, a Technical Specification change was required. This change involved the addition of a "Seismic Monitoring Instrumentation" section for Limiting Conditions for Operation (3.15) and Surveillance Requirements (4.15).

New Fuel Receipt Work Area

A modification to construct a work area north and west of the torus dewatering tank dike area to improve fuel receipt operations was completed. The modification involved regrading and paving the area between the roadway and the north and west walls of the torus dewatering tank dike. This also involved the installation of guard posts around the television towers and the addition of curb sections along the fence side of the roadway.

Standby Gas Treatment System Heater Control

A modification to replace the Standby Gas Treatment System (SGTS) heater pneumatic controls with an electrically actuated device was completed. All work is safety related. The modification involved removal of the heater dewpoint detecting system and replacement of this system with a time delay relay. The time delay relay energizes the heater when the filter train inlet dampers are opened manually and when called upon to open automatically under an isolation condition. Safety override devices on the heater are not affected by the time delay relay. The heater is de-energized manually when the inlet dampers are closed using the hand switch, automatically when the isolation condition is cleared, or by actuation of the heater high temperature safety devices. In addition, the heaters are provided with a high temperature thermal cut-out with an auto reset which is set to a value of 165 degrees F. This change will help to assure humidity reduction post-LOCA due to high inlet temperatures. The purpose of the modification is to provide increased assurance that the SGTS heaters will perform their required function.

Standby Gas Treatment System Trains "A" and "B" Heater Switch - Replacement

A modification to replace the manual temperature switches was completed. The modification involved replacing the manual switches (TS-00012 and TS-00013 on "A" and "B" train respectively) with automatic high temperature switches. The automatic switches will trip and reset heaters at the same specified temperature setpoints. The purpose of the modification is to ensure safe and reliable operation of the SGTS heaters.

UNIT 2 ONLY

Modification of HPCI High Flow Sensing Line Piping Support

A modification to the High Pressure Coolant Injection System (HPCI) high flow sensing line piping support was completed. The modification involved cutting away a pipe spreader which supports two instrument lines near the recirculation pump. The pipe support was reinstalled with welded and bolted tabs which are removable should any future maintenance be necessary on the recirculation pump seal.

Replace HPSW Header Drain Valves

A modification to the High Pressure Service Water System (HPSW) header drain valves on the outlet of the 'B' Residual Heat Removal System (RHR) heat exchanger was completed. The modification involved replacing the two HPSW header (1"-130) drain valves with a welded nipple and cap. The purpose of this modification is to eliminate the weight-induced vibration caused by this drain line and valves, thereby preventing future failures (leaks) at this connection.

Main Steam Isolation Valves (AO 2-2-80 A & D) Bonnet Rotation

A modification to improve the Main Steam Isolation Valve (MSIV) reliability by implementation of the General Electric Company Service Information Letter (SIL-74), which recommends the rotation of the valve's operating structure and bonnet to orient the cam rollers in the vertical plane with respect to their yoke rods to eliminate potential galling of the cams was completed. This rotation will also correct the orientation of the hydraulic (oil dash pot) cylinder vent and fill port. The modification involved rotation of the operating structure and bonnet and repiping of the gland leakoff and air supply lines.

Main Turbine - EHC Pump - Air Bleed Mod

A modification to the existing Electro Hydraulic Control System (EHC) pumping unit pump air bleed lines was completed. The present lines enter the fluid tank and terminate above the fluid level. This may allow the pumps to lose their prime when in standby condition. If the standby pump were to auto start after losing prime a turbine trip may result. The modification involved a change in the air bleed line to terminate below the fluid surface. The purpose of the modification is to improve the EHC standby pump reliability.

Main Stop Valves Modification to Facilitate Snubber Removal

A modification to install flanges on the Main Stop Valves (MSV 1 and 2) above seat drain lines to facilitate removal of snubber 10BS101 was completed. The modification involved cutting of the above seat drain lines between MSV 1 and 2 and valves MO-2533 A and B and installing flanges. The purpose of the modification is to facilitate the removal of snubber 10BS101 for maintenance.

Feedwater Heater Vent

A temporary modification to the 3A, 4A, and 5A feedwater heater was completed. The modification involved sampling the third, fourth, and fifth heater vents, drains, extraction steam and the

moisture separator drain to the fourth heater. Sampling for dissolved oxygen and corrosion products was accomplished by installing sample probes in the extraction and drain lines. Flanged spool pieces were installed in the vent lines where orifices and flow control valves were used to achieve vent flow rates required for the test. The purpose of the modification is to determine the effect of venting rates on the formation of corrosion products.

Main Steam Line Header Snubber Mount

A modification to snubber SSC1 mount was completed. The modification involved relocation and reattachment to orient the snubber in a direction of proper action. The purpose of the modification is to correct misalignment.

Peach Bottom Beginning of Core 5 Computer Data Update

A modification to the computer was completed. The modification involved software changes. The purpose of the modification is to update Unit 2 data bank for using the OD-20 (Refuel Update Monitor) program, collect data for computer data verification and "Control Cell Core" startup software test.

Reactor Vessel Skin Temperatures (Feedwater Nozzle Thermocouples)

A modification to utilize two installed spare feedwater nozzle thermocouples to replace those that were inadvertently destroyed during the Unit 2 drywell work was completed. This modification involved wiring changes at the drywell penetration to connect existing spare thermocouples on a different feedwater nozzle with the reactor vessel temperature recorder, TR-2-89. The purpose of the modification is to replace the inoperable recorder temperature inputs with operable spares.

HPCI Overspeed Trip Mechanism

A modification to replace the setscrew on the High Pressure Coolant Injection System (HPCI) overspeed tappet assembly with a cotter pin as recommended by the HPCI turbine vendor (Terry Turbine) was completed. The modification involved replacing the setscrew with a cotter pin in accordance with the vendors instructions. The cotter pin will fix the piston to the tappet assembly thus insuring that the correct clearances between the tappet ball and the overspeed weight are maintained. The tappet ball is struck by the weight during an overspeed condition, allowing the hydraulic oil to the HPCI stop valve to be dumped thus closing the valve. The purpose of the modification is to increase the reliability of the HPCI overspeed mechanism by insuring that the proper clearances are maintained thus eliminating undue wear of the tappet ball during normal HPCI operation.

Replacement of Core Spray Piping

A modification to the core spray system piping was completed. The modification involved replacing the existing core spray piping from the Reactor Pressure Vessel (RPV) safe end to the first isolation valve (which is made of 304 stainless) with piping made of 316L stainless. The purpose of this modification is to eliminate the possibility of intergranular stress corrosion cracking.

Phase II of Transmitter and Trip Unit Installation

A modification to disconnect and remove existing pressure switches and replace them with new Rosemount transmitters was completed. The transmitters and new electronic switch type device will affect the Reactor Protection System , Core Spray System, Residual Heat Removal system, Reactor Recirculation system, Automatic Depressurization System, High Pressure Coolant Injection System, Containment Spray System, and the emergency diesels. The modification involved change out to the new type device for the following switches:

PS5-12A,B,C,D	Drywell Pressure
PS2-3-51A,B,C,D	Reactor Pressure
PS2-3-52A,B,C,D	Reactor Pressure
LITS2-3-59A,B	Reactor Water Level
PS10-100A,B,C,D	Drywell Pressure
PS10-101A,B,C,D	Drywell Pressure
PS10-119A,B,C,D	Drywell Pressure

The purpose of the modification is to provide transmitters of higher reliability and to reduce the likelihood of plant trips during system testing.

Feedwater Sparger Replacement and Nozzle Machining and Clad Removal

A modification to replace feedwater spargers, with the improved inteference fit type feedwater spargers was completed. The modification involved removal of the old spargers, machining inside surface of feedwater nozzle to remove cladding and prepare a seating surface for new spargers, and installing the new interference fit feedwater spargers. The original design feedwater spargers allowed leakage past the thermal sleeve to safe end seal, thus resulting in thermal fatigue cracking of the nozzle inner radius. The resolution of this condition is the new design sparger and a modified nozzle.

Install Vacuum Relief Valve and Associated Instrumentation on Each Main Steam Relief Valve Discharge Line

A modification to install an additional vacuum relief valve on each Main Steam Relief Valve (MSRV) discharge line with position indication and alarm in the control room was completed. The modification involved cutting each discharge line and installing a tee with a flange mounted vacuum breaker. Each valve will have a position switch which provides control room indication and alarm when the valve opens. Position information is provided so that the operator will know the status of the valve. The purpose of the modification is to provide sufficient vacuum relief capacity to preclude excessive reflood heights in the discharge lines after MSRV blowdown.

Installation of Torus Temperature Monitoring System

A modification to install thermowells in the torus was completed. The modification involved installation of thermowells which will satisfy ASME Pressure Vessel Code Sections III and XI, together

with load combinations and service level assignments specified by the Nuclear Regulatory Commission. Thermocouples will be provided for these thermowells at a later date. The purpose of the modification is to provide instrumentation to monitor torus water temperature in the area of the main steam relief valve downcomer quenchers.

Containment Isolation Improvement

A modification to add a containment isolation valve in the radioactive gas sampler line and in the instrument nitrogen compressor suction line was completed. The modification requires additional valves even though there are presently two valves that isolate each radioactive gas sampler line and the instrument nitrogen compressor suction line. During operation of the Containment Atmospheric Dilution (CAD) system, one of these valves will be open and only one valve will remain closed to isolate the subject lines. Therefore, an inboard isolation valve will be added in series with valve AO-4235 in the instrument nitrogen compressor suction line and an outboard isolation valve will be added in the radioactive gas sampler line downstream of the header that connects all four sample lines. In addition, a key lock bypass is being provided to allow sampling while the isolation signal is present. An annunciator will indicate whenever the radioactive gas sampler isolation bypass switch is in the bypass position. The purpose of the modification is to ensure redundant isolation of the subject lines during CAD system operation. As a result of this modification, a Technical Specification change was required. This change involved the addition of valves to Table 3.7.4 of the Specification.

Modification to the Inner Refuel Bellows Seal Drain Piping in the Drywell

A modification to the piping in the drywell for the inner refuel bellows seal drain line was completed. The modification involved hard piping the refuel cavity bellows drain to its funnel and also the relocation of the manual drain valves down to elevation 135' in the drywell. The purpose of hard piping the drain line into the funnel is to eliminate a problem with the funnel overflowing into the drywell. In addition, the relocation of the manual drain valves has two benefits in that it permits more rapid draining of the refuel bellows and reduces exposure to the operator during operation of these valves.

RHR Elbows on Discharge Lines to Torus

A modification to install elbows and pipe supports on the Residual Heat Removal System (RHR) discharge lines was completed. The new pipe supports were provided to accommodate the thrust loads associated with flow out of the discharge line. The purpose of the modification is to induce water circulation in the suppression pool thereby reducing thermal stratification and local heat concentration differences in the event of an extended Main Steam Relief Valve (MSRV) discharge into the pool.

Modification to HPSW Discharge Valves (MO-10-89A,B,C,D) Control Circuit

A modification to delete the pressure controller for the High Pressure Service Water (HPSW) discharge valve (MO-10-89) open/close circuit was completed. The modification involved removing the automatic controller and replacing it with a conventional motor operated valve control with a hand switch in the control room. The purpose of the modification was to improve the reliability of the valve control circuit since the original automatic control had never operated satisfactorily. The valves can now be set manually to provide the desired differential pressure between the HPSW and the primary coolant system.

Torus Interior Coating

A modification to repair the interior coating of the torus was completed. The modification involved repairs to the coating of the torus shell and appurtenant structural steel. The coating system to be employed is of the same generic type as the existing system and the process will be performed in accordance with ANSI Standard N101.4-1972. The purpose of the modification is to prevent corrosion of the torus.

ILRT Dew Point Instrumentation

A modification to replace the existing dew point analyzers was completed. The modification involved removing the old analyzers, sensors, and associated cable, and installing 6 new analyzers, sensors, and associated cable. The purpose of the modification is to upgrade Integrated Leak Rate Test sensors.

Main Steam Flow Instrument

A modification to install instrument shutoff valves in the sensing lines of main steam line flow instruments was completed. The modification involved installing instrument shutoff valves in the sensing lines of 24 main steam line flow instruments. The purpose of the modification is to allow for redundant isolation during calibration or mainenance of main steam line flow instruments.

ECCS Instrument Power Supply

A modification to the Emergency Core Cooling System (ECCS) instrument power supply was completed. The modification involved relocation of the 24 volt instrument power supply from instrumentation panels in the reactor building to the accident monitoring cabinets in the cable spreading room. In addition, the power supply capacity is increased from 10 Amp to 20 Amp. Lastly, for redundancy, a 24 VDC 20 Amp power supply is paralleled with the 24 VDC supply. This new power supply is fed from 120 VAC safeguard power. The purpose of this modification is to upgrade the ECCS instrument power supply by relocating it to a potentially less severe environment, increase capacity and add redundancy.

Main Turbine Stop Valve Tightness Test Circuit

A modification to install a turbine stop valve test circuit which allows simultaneous closure of all main stop valves with the control valves open was completed. The modification involved installation of a new Electro Hydraulic Control System (EHC) circuit board which will allow stop valve tightness testing from the control circuitry. The board will be located in the EHC electronics cabinet and will have the following controls: 1.) Test enable button; 2.) Malfunction light; 3.) Malfunction reset button. The purpose of the modification is to upgrade the system. The improvements accomplished by this modifications are as follows: 1.) Test can be performed in a routine manner without adjusting circuitry; 2.) Test can be performed producing little or no transients in any balance of plant equipment; 3.) A proof test can be performed on tightness of the four stop valves after an outage.

Installation of Monorail and Electric Hoist Above Torus Manhole

A modification to install a monorail and electric hoist was completed. The modification involved the installation of a monorail and electric hoist above the torus manhole for temporary use during the refueling outage. The electric hoist is not Q-listed, however, the monorail framing is being attached to reactor building steel at elevation 165' which is part of a Q-listed structure. The resultant loading on the existing building framing consists of the monorails dead, live and impact loads in combination with the original design, live and dead loads for the building. A safety evaluation indicates stresses in the existing framing are within the allowable limits specified by the AISC Specifications and the Final Safety Analysis Report.

MSRV Discharge Test Equipment

A modification to install the necessary equipment and instrumentation to conduct a test that will measure the loads in the torus resulting from a Main Steam Relief Valve (MSRV) discharge was completed. The modification involved installing the test equipment instrumentation and required mounting pads, both inside and outside the torus and drywell, to measure those loads. It has been determined that this instrumentation will not have any adverse effects on the primary structure or equipment during its installation. The purpose of the modification is to demonstrate that the torus response to a 'T' quencher equipped MSRV discharge is less than the original plant unique analysis.

Containment - Feedwater and Main Steam Boot Seals

A modification to maintain airtight boundaries at the main steam and feedwater line penetrations was completed. The modification involved installation of new boot seals on the reactor building side of the barrier. The new boot seals (made of silicone rubber) meet the requirements of temperature, pressure, radiation exposure and pipe movement. The space between the pipe wall and the sleeve was packed with a ceramic fiber. The purpose of the modification is to improve the reliability of the secondary containment seal.

Modifications to Supports on Safety Related Piping (IE Bulletin 79-14)

A modification to the supports of safety related piping based on the evaluation of "as built" information obtained in response to

IE Bulletin 79-14 and the subsequent inspection program was completed. The modification involves modifying the supports in those systems where seismic requirements were not met in the "as-built" configuration of the safety related systems. The purpose of the modification is to reduce stresses in the piping and/or supports to within the allowed tolerances to ensure seismic event safety factor standards will be met.

Main Steam: MSIV Manifold 'O' Ring Inserts

A modification to install 'O' ring inserts in the supply and return ports of the Main Steam Isolation Valves (MSIV) air manifolds was completed. The modification involved boring the port sealing surface (eliminating the original 'O' ring groove) to accept a fabricated insert. The insert will seal itself to the bored area via an 'O' ring and contain a thicker 'O' ring groove wall on the manifold sealing surface in the same location as the original. The purpose of the modification is to eliminate the cracking observed on the original 'O' ring groove wall by insertion of a thicker groove wall that will not affect the port's air flow requirements.

SRM-IRM Drive Control Panel Relay Channel Replacement

A modification to the Source Range Monitor/Intermediate Range Monitor (SRM/IRM) drive control panel relay channel was completed. The modification involved replacing the deteriorated plastic channel relay mount with a new Engineering aporoved aluminum channel mount. The purpose of the modification is to provide improved support for the relays.

UNIT 3 ONLY

Backup Nitrogen Supply to ADS Safety Relief Valves at Drywell Penetration

A temporary modification to the nitrogen supply to the five Automatic Depressurization System (ADS) safety relief valves was installed. Removal of this modification was completed after installation of required safety grade air supplies. The modification involved installation of a nitrogen bottle to a pressure test connection immediately downstream of valves AO-3969 A & B. The purpose of the modification was to provide a

temporary seismically qualified instrument nitrogen supply to the ADS safety relief valves.

Replacement of Recirculation Pump Seal Leak Detection Flow Switch

A modification to the 3B recirculation pump seal leakage detection instrumentation was completed. The modification involved replacing the existing flow switch having a range of 0 to 0.55 gpm with a new flow switch having a range of 0 to 1.25 gpm. The purpose of this modification is to remove from service the original flow switch which is broken and cannot be repaired.

3B Recirculation Pump Vibration Monitoring

A modification to the 3B recirculation pump was completed. The modification involved installation of vibration monitoring equipment on the pump. The purpose of the modification is to provide rapid and positive indication of excessive vibration following replacement of the shaft seal.

RWCU Spool Piece Replacement

A modification to replace the outboard spool piece in the suction line of the Reactor Water Cleanup System (RWCU) between MO-15 and MO-18 due to a crack in the present 304 stainless steel spool piece was completed. The modification involved replacing the RWCU spool piece with one of 316L stainless steel material. This upgrades the system's corrosion resistance but will not change structural or seismic certification of the system in any way. The purpose of the modification was to effect repair to the RWCU system due to a crack in the suction piping spool piece.

Replacement of RWCU Suction Outboard Isolation Valve

A modification to replace the existing Reactor Water Cleanup System (RWCU) isolation valve, MO-3-12-18 was completed. The valve which replaced MO-3-12-18 was intended originally to be used on Unit 2 at Limerick Generating Station. It is a 900# class valve versus the 600# class valve being replaced and it meets all of PBAPS operating and design conditions. The quality and documentation requirements of the replacement motor operated valve used meets or exceeds all requirements for use at PBAPS. The heavier weight of the replacement valve has been factored into a stress analysis and the stress levels are acceptable, as is the existing support configuration. The purpose of the

modification was to reduce the radiation exposures associated with reinstallation of contaminated equipment since MO-3-12-18 valve had to be removed as part of RWCU suction spool piece piping replacement.

ADS Safety Relief Valve Air Piping Supports and Supply Check Valves

A modification to the Automatic Depressurization System (ADS) safety relief valves nitrogen piping supports and nitrogen supply check valves was completed. The modification involved replacing the existing check valves with Nupro spring check valves and Ethlyene Propylene O-rings and adding additional supports to the nitrogen piping and tubing. The purpose of the modification is to eliminate a problem of leaky check valves and to bring the piping system into conformance with Class I seismic requirements.

Recirculation Pump MG Set Ventilation

A modification to install new vane assemblies with duct bracing and tie rods was completed. The modification involves installing 1-1/2 x 1-1/2 angle iron on the sides of the vane housing and two tie rods thru the sides. The purpose of the modification is to prevent side movement of vane housing and to strengthen the assembly.

Service Platform Modification

A modification to replace the reactor service platform drive motor and increase the number of service receptacles was completed. The modification involved replacing the drive motor with a new motor (a direct replacement is no longer manufactured) and modifying the motor mounts. Two additional receptables (increasing the number from 4 to 6) were added. The six receptacles were split into two circuits which requires the addition of a 7.5 KVA transformer and 20 amp circuit breaker. The purpose of the modification is to replace the failed motor and increase reactor service platform power capacity for underwater lighting and electrical auxiliaries.

Additional Lead Shielding in CRD Storage Area

A modification to install lead shielding panels on the walls of control rod drive (CRD) storage area for radiation shielding considerations was completed. The modification involved the

addition of eleven 6 foot x 3 foot lead/aluminum shielding panels as radiation shielding on CRD storage area walls, elevation 195', Unit 3. The purpose of the modification is to prevent unnecessary radiation exposure to personnel working directly outside the CRD storage area.

RCIC Pump Condensate Fill Line

A modification to install two check valves in the Reactor Core Isolation Cooling System (RCIC) condensate fill line was completed. The purpose of the modification is to prevent contamination of the demineralized water header with torus water when the RCIC is lined up for testing from the torus and if the RCIC should initiate during this testing. The modification involves Q-listed piping and equipment, but does not affect the functional requirements of the RCIC system. This fill line is a hose connection and is only connected and used when the RCIC system is lined up to take suction from the torus. At all other times, this fill line is not connected and contamination of the demin water header is not possible.