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SUBJECT: Forwards description of changes,tests & experiments for 1992 as described in Amend 11 to updated FSAR.

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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
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1992 CHANGES TO THE FACILITY REPORT

Gentlemen:

Carolina Power and Light Company (CP&L) provides this report of changes to the facility as described in Amendment 11 to the Updated Final Safety Analysis Report. The enclosure is submitted as specified in 10CFR50.59(b)(2) and contains a brief description of any changes, tests, and experiments, including a summary of the safety evaluation of each. This report provides those changes made operational through August 19, 1992.

Very truly yours,

Roy H. Chambers

R. H. Chambers
General Manager
H. B. Robinson S. E. Plant

RDC:lst

Enclosure

cc: Mr. S. D. Ebneter
Mr. L. W. Garner

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Plant Modification No. 1088: RCP Temperature Recorder Upgrade and Relocation

DESCRIPTION: This modification relocated and upgraded the Reactor Coolant Pump Temperature Recorder. These changes were implemented to resolve Human Engineering concerns identified in the Control Room Design Review.

SAFETY EVALUATION SUMMARY: Equipment monitoring and trending is used mainly as a maintenance tool to prevent unscheduled outages because of equipment failure. Reactor Coolant Pumps are not required in any accident analysis. Although the RCP Temperature Recorder is not safety-related, it was seismically qualified and mounted.

The FSAR was revised to reflect the combustible loading changes implemented by this modification.

Plant Modification No. 1092: IVSW Solenoid Valves Manual Reset Versus Phase A Reset

DESCRIPTION: This modification furnished the Isolation Valve Seal Water (IVSW) system with a dedicated seal-in circuit for its initiation, and a remote electrical reset. This means that after the Containment Isolation Phase "A" Signal is reset, IVSW will continue to operate until it is separately reset.

SAFETY EVALUATION SUMMARY: The function of the IVSW system is to assure the effectiveness of certain containment isolation valves during containment isolation (Phase "A" signal) by providing a pressurized water seal at the valves. The IVSW system is described in Section 6.8 of the FSAR. This section was revised to sufficiently describe the return to normal (reset function) for this system.

Plant Modification No. 1039: RCP Vibration Monitoring

DESCRIPTION: This modification involved the installation of cable between the Reactor Coolant Pump Vibration Monitor Panel in the Control Room and the ERFIS Mux Cabinet in the Cable Spread Room.

SAFETY EVALUATION SUMMARY: The RCP Vibration Monitoring System is a non-safety related system and is not required for any accident scenarios. The FSAR was revised to include the additional combustibles created by cables installed under this modification.

Plant Modification No. 1075: Seismic Support for Screen Wash Service Water Piping

DESCRIPTION: This modification was implemented to correct a design deficiency and upgrade the Service Water System to maintain compliance with the FSAR Section 9.2.1.2. This section states that the only part of the system which is not Seismic Class I design is the section of the Turbine Building. Because no records were found to indicate that Screen Wash piping down stream of Service Water System Valves SW-187 and SW-188 had been seismically analyzed, the Screen Wash System piping, supports, and valves were upgraded to meet Seismic Class I design requirements.

SAFETY EVALUATION SUMMARY: Installation of this modification enhanced reliability of the Service Water System such that system operability could be assured during and after a seismic event. The FSAR was revised to incorporate the deletion of gate valves, flow control valves, and isolation valves from the Service and Cooling Water System flow diagram.

Plant Modification No. 1064: Reactor Fuel Transfer System Cable Drive and Controls

DESCRIPTION: This modification removed the Reactor Fuel Transfer System's under water conveyor drive system and associated hardware and controls and replaced it with an above water geared limit switch for interlocks and indication of conveyor position.

SAFETY EVALUATION SUMMARY: The Fuel Transfer System, with the exception of the transfer tube, is classified as non-safety related, Seismic Class II. Because the system does interface with safety-related equipment and structures, the interface points were appropriately seismically qualified to minimize equipment/structure impact. The FSAR was revised to describe the new conveyor system.

Plant Modification No. 956: Removal of PASS Oxygen Analyzer Meter

DESCRIPTION: This modification deleted the in-line Oxygen Analyzer meter from the Post Accident Sample System (PASS). The meter had a leaking cell that presented a maintenance concern when the PASS was operated. Also, the leak presented an ALARA concern in that radioactive process fluid flowing through the leak was a source of contamination.

SAFETY EVALUATION SUMMARY: The Oxygen Meter is non-safety related and has no interface with safety-related systems or instruments. Plant operation does not rely on the PASS Oxygen Meter, and the instrument is not required for use in any Emergency Procedures. NUREG 0737, Item II.B.3 states that measurement of oxygen concentration in PWR Coolant samples was recommended, but was not mandatory. The FSAR was revised to delete this meter from the PASS Flow Diagram (Figure 9.3.2-3).

Plant Modification No. 1055: Condensate Recirculation Piping and Flow Control Valve Replacement

DESCRIPTION: This modification replaced the existing condensate recirculation piping and associated flow control valves with larger piping and a new flow control valve with anti-cavitation trim. The modification was necessary to reduce cavitation, vibration, and noise.

SAFETY EVALUATION SUMMARY: This modification was made to improve plant availability through reduced system maintenance requirements. The piping and valves are used during start up and shutdown of the plant to ensure that the requirement of the gland sealing steam condenser is satisfied. The system is non-safety related, and none of the components being replaced are included in any FSAR safety evaluation. The FSAR was revised to reflect this change on the Feedwater, Condensate, and Air Evacuation flow diagram (Figure 10.1.0-4).

Plant Modification No. 1063: Control Room Annunciator Upgrade

DESCRIPTION: This modification redesigned the Control Room Annunciators to resolve Human Engineering deficiencies identified during the Control Room Design Review. Annunciator windows were relocated to provide a consistent arrangement and functional grouping of alarms. The windows were renumbered alphanumerically to describe a grid location by letters defining rows, and numbers defining columns. Selected multiple parameter alarms were divided into individual alarms displayed among two or more windows. Obsolete alarms were deleted, and annunciator windows were re-engraved to provide consistent, legible alarm descriptions.

SAFETY EVALUATION SUMMARY: The plant's Annunciator System is not safety-related. Annunciators are an aid to operators to alert them to plant parameters or equipment operating outside the boundaries of normal conditions. Critical parameters are monitored by safety-related display instrumentation and automatically control circuitry. However, because the failure of an alarm to annunciate could cause operators to take an unsafe action, changes to the Annunciator System were carefully evaluated to consider effects of the upgrade. The annunciator changes were made to enhance operators tasks of safety monitoring plant conditions. The re-engraving increased alarm readability, and window layout changes applied logic to alarm configuration. Because the improvements made by this modification did not affect safety equipment, no safety concern was created.

Plant Modification No. 1094: **Penetration Pressurization System Wide Range Flow Gauges**

DESCRIPTION: This modification provided wide range flow meters and 3-way valves in the bypass tubing loops of the four Penetration Pressurization System (PPS) headers. Also, this modification provided flow indication from the Flow Indication Transmitters to the Emergency Response Facility Information System (ERFIS).

SAFETY EVALUATION SUMMARY: PPS is not credited as an accident initiating system in the FSAR. The safety function of the PPS is to mitigate the consequences of plant conditions that could result in potential offsite exposures. Operability of the PPS is not affected with the installation of the new flowmeter. The FSAR was revised to describe the additional flowmeter, and to reflect the combustible loading changes due to the installation of additional cable.

Plant Modification No. 1087: **RHR Pumps Minimum Flow Recirculation**

DESCRIPTION: This modification, implemented in response to NRC Bulletin 88-04, installed two, four-inch independent recirculation lines in the Residual Heat Removal System to be used in place of the common one and one-half inch line to provide recirculation flow during safety injection/recirculation conditions. The existing common line was left in place for use during heat-up operations. This project resulted in an increased flow capacity with each of the lines capable of delivering 500 gallons per minute under pump dead head conditions without operator action. Flow indicators and their associated lines were added for local indication of the recirculation lines flow.

SAFETY EVALUATION SUMMARY: The objective of this modification was to increase the reliability of the Low Head Safety Injection System. This modification resulted in a design to provide adequate recirculation flow during RHR operation, while eliminating operator intervention to protect one RHR pump from possibly dead heading after a Safety Injection signal. Increasing the pump circulation allows the pump to run safely for a longer period of time at shutoff head. Closing the valve connecting the two trains prevents a stronger RHR pump from "dead heading" a weaker pump. The new valves and flow indicators which were added for local indication of the recirculation lines flow are seismically qualified as required for safety-related equipment.

Plant Modification No. 1074: Electrical Penetration Replacement, Phase II

DESCRIPTION: This modification replaced five of the existing "cartridge" type instrument and control penetrations with five new "capsule" type penetrations. The requirements for the design, installation, inspection and field testing of the new penetrations were performed in compliance with industry standards.

SAFETY EVALUATION SUMMARY: The new penetrations provide a double pressure barrier, in addition to a means of monitoring leakage from each feed through. They were designed to remain intact under simultaneous LOCA and seismic loading conditions. The FSAR was revised to reflect the new penetrations and the codes and standards to which they were designed.

Plant Modification No. 1091: Flow Control Valve FCV 6416 Upgrade

DESCRIPTION: This modification removed the travel limits of FCV-6416, allowing the valve and actuator a full range of travel. It also installed a cavitating venturi sized to limit flow from the Steam Driven AFW Pump to a faulted Steam Generator to 630 gpm or less. This venturi is intended to mitigate a failure of FCV-6416 to limit the flow from the Steam Driven Pump.

SAFETY EVALUATION SUMMARY: The new piping was designed, constructed and tested to assure a leak-tight pressure boundary. Having FCV-6416 fail open assures flow from the Steam Driven Pump is available at all times, and the cavitating venturui prevents excess flow from being delivered to a faulted Stream Generator. The impact of the modification on H. B. Robinson Station Blackout submittal was reviewed, and was found to be unchanged. The FSAR was revised to depict the cavitating venturi and to describe the functions of the modification.

Engineering Evaluation No. 90-098: Thimble Plug Assemblies

DESCRIPTION: This evaluation supported the use of two thimble plug assemblies manufactured to a new design by Westinghouse. The assemblies specified for the original design of the plant were no longer manufactured. The new assemblies were built to an updated design drawing. The new assemblies perform the same function as the original assemblies.

SAFETY EVALUATION SUMMARY: There were two changes made by Westinghouse to the thimble plug assemblies to be used by H. B. Robinson. A change in the spring combination was mechanically compensated for. A decrease in the thimble plug diameter results in an increased core bypass flow. This increase has been evaluated as insignificant, and does not alter the neutronics or the thermodynamics of the core.

Engineering Evaluation No. 91-096: Nickel-Chrome replacement for Stellite

DESCRIPTION: This evaluation authorized the use of Nickel-Chrome hardsurfacing as a replacement for Stellite hardsurfacing material for the body trim, hinge pins, and discs of large check valves and double disc gate valves. Due to the Cobalt Reduction Program implemented at H. B. Robinson as an ALARA improvement, use of Stellite material is discouraged. The properties of Nickel-Chrome exceed the requirements for hardsurfacing of valve parts.

SAFETY EVALUATION SUMMARY: The use of Nickel-Chrome material does not cause any system to operate any less efficiently than with the Stellite hardsurfacing, and does not reduce any margin of safety of the system. The FSAR was revised to reflect the Nickel-Chrome material used in the Safety Injection System.

Engineering Evaluation No. 92-001: SI-876A/B/C Valve Discs Base Material Evaluation

DESCRIPTION: This Engineering Evaluation justified the use of new base materials (ASTM A-182 F-316L) which could be used for the replacement of discs of the eight inch check valves SI-876A/B/C. These valves are located in the Safety Injection System, outside of the Reactor Containment building. When ordering replacement discs, the vendor stated that these discs could no longer be provided in the original material if Nickel-Chrome hardsurfacing was required. The use of the new material is generically acceptable replacement material for swing check vale discs.

SAFETY EVALUATION SUMMARY: The form, fit, and function of the Safety Injection System valves with the new base materials does not cause the system to perform any less efficiently than it was originally designed. The FSAR was revised to allow the new materials to be used in addition to the materials originally specified.

Engineering Evaluation No. 90-068: Steam Generator Blowdown/Wet Layup Pump Seal Replacement

DESCRIPTION: This evaluation involved the replacement in kind of pump seals for the Steam Generator Blowdown/Wet Layup System pumps. This replacement was performed to provide pump seals that would perform satisfactorily without adequate flow to the seals. With the elimination of the seal flow, the need for two check valves in the seal water piping was eliminated, and the valves were removed.

SAFETY EVALUATION SUMMARY: The Layup pumps are not required to operate for the safe shutdown of the plant or to mitigate the consequences of any postulated accident. The FSAR was revised to delete Seal Water as a supply to the Steam Generator Blowdown/Wet Layup Pumps.

Plant Modification No. 1023: Installation of EDG KW Output Indication on the RTGB

DESCRIPTION: This modification provided KW output indication for each Emergency Diesel Generator (EDG) on the RTGB in the Control Room. These new indication circuits were derived from modified watt transducer circuits in the respective EDG control switchboards. The RTGB operator will use the respective analog readout in conjunction with the existing displays when manually loading an EDG.

SAFETY EVALUATION SUMMARY: The addition of a KW output indication for each EDG in the Control Room serves to enhance existing indications of output and voltage. Reg. Guide 1.97 requires that the status of all emergency power supplies be displayed in the Control Room. The new indication circuits are considered to be non-safety related, since they perform a function similar to the existing voltage and current indications. The FSAR was revised to reflect the cable combustible loading changes resulting from the modification.

Plant Modification No. 1100: HVH-6,7 and 8 Single Failure Elimination

DESCRIPTION: Emergency Safety System Ventilation System Room Coolers HVH-6, 7, and 8 provide cooling for the SI, RHR, and AFW Pump Rooms which contain the SI, CS, RHR, and AFW Pump Motors. These coolers are not safety-related, but are used to prevent the rooms from reaching temperatures which could shorten equipment life. Although only one cooler is required to cool a room, the original design of the control circuits was such that they were interconnected to the SI and CS, RHR, and AFW Pumps auxiliary circuit breaker contacts so that closing either the A or B train pump circuit breaker would energize an interposing relay and start both coolers in the appropriate room. Therefore, this arrangement had a potential failure mode (the loss of an interposing relay) which could disable both trains A and B cooler motors. Additionally, all of the interposing relays were designed to receive power from Instrument Bus 1, Circuit 17; therefore, all six coolers could have been disabled by the loss of that one circuit. This modification removed the interposing relays, separating both trains A and B cooling motors, and eliminated the potential for a single failure to occur.

SAFETY EVALUATION SUMMARY: The Emergency Safety Function Ventilation System is not safety-related. The modification removed a single failure mode design, allowing the system to operate when required, and enhanced the systems ability to cool safety-related equipment to prevent shortening equipment life. The FSAR was revised to reflect the cable combustible loading changes resulting from the modification.

I. E. Bulletin 80-11: Inspection Changes

DESCRIPTION: The IEB 80-11 Program at H. B. Robinson was reopened due to the discovery of previously unidentified masonry-filled penetrations and masonry walls. Field inspections of these penetrations and walls were completed, and additional information addressing each was compiled

SAFETY EVALUATION SUMMARY: The FSAR was revised to include the in-fill penetrations and other masonry walls identified. Evaluations were conducted on a case by case basis of the consequences of failure of each in-fill panel and masonry wall. The results of the evaluations concluded that each panel and wall were seismically stable, with no stresses exceeding the allowables.

Plant Modification No. 1128: Removal of SI-857B Relief Valve

DESCRIPTION: This modification provided for the removal of Safety Relief Valve SI-857B and valve alignment changes to SI-870A&B and SI-867A&B. The over-pressurization protection function of the deleted safety relief valve is now performed by Valve SI-857A. The discharge piping from SI-857A was cut and rerouted to a floor drain in the Boron Injection Tank room.

SAFETY EVALUATION SUMMARY: SI-857B was removed to eliminate a single containment isolation barrier. This modification provided for one normally open isolation valve outside containment, and also a closed piping system outside containment for the necessary isolation redundancy. Routing discharge of the SI-857A Valve to a floor drain ensures that any releases that contain radioactive gasses are properly monitored.

Plant Modification No. 1134: Installation of Permanent Strainers in the SI Pump Recirculation Lines

DESCRIPTION: This modification added a strainer to the 3/4 inch lines branching off of the 3-inch discharge lines of the "A" and "B" Safety Injection Pumps. Each strainer was located in the 3/4 inch recirculation piping and the recirculation orifice respectively.

SAFETY EVALUATION SUMMARY: This modification was initiated because the Safety Injection Pump System changed performance, due to an undetected fault, between two very closely spaced surveillance tests from acceptable recirculation flow to unacceptable recirculation flow. The purpose of the strainers is to protect the Safety Injection pump's recirculation orifice from plugging which protects the pump from damage during operation under no flow conditions. The FSAR was revised to reflect the addition of the strainers.

High Thermal Performance Fuel

DESCRIPTION: The Siemens' High Thermal Performance (HTP) fuel has been analyzed using NRC approved methodologies to peak assembly burnups of 52,500 MWD/MTU. To justify the higher burnup capability, mechanical licensing and radiological consequences were required. The higher burnup capability was incorporated into the FSAR under Amendment 10. However, the actual limiting burnup peak assembly remained at 44,000 MWD/MTU awaiting completion of the radiological consequences document. To take advantage of the results and to operate the HTP fuel to peak assembly burnups of 52,500 MWD/MTU a revision to the FSAR was required.

SAFETY EVALUATION SUMMARY: The HTP fuel has been evaluated to be capable of reaching peak assembly burnups of 52,500 MWD/MTU. Source terms created by burning the HTP fuel to peak assembly burnups of 52,500 MWD/MTU will meet the applicable 10 CFR 100 acceptance criteria should an FSAR condition III or Condition IV event occur.